EFFECT OF HEALTH RELATED FITNESS PHYSICAL EDUCATION INTERVENTIONON 9TH GRADE STUDENTS' HEALTH RELATED FITNESS KNOWLEDGE, PHYSICAL ACTIVITY AND PHYSICAL FITNESS LEVELS.

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Approval of the Graduate School of Social Sciences

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ABSTRACT

EFFECT OF HEALTH RELATED FITNESS PHYSICAL EDUCATION INTERVENTION ON 9TH GRADE STUDENTS' HEALTH RELATED FITNESS KNOWLEDGE, PHYSICAL ACTIVITY AND PHYSICAL FITNESS LEVELS

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Purpose of this study was to investigate the effect of 8-week health related physical education course (HRFPEC) intervention on 9th grade students' health related fitness knowledge (HRFK) level, physical activity level (PAL) and physical fitness levels. An experimental research design with two groups as HRFPEC and skill based physical education course with 154 students from conveniently assigned classes were measured before and after intervention. While experimental group attended the HRFPEC intervention, comparison group attended skill based physical education course intervention. Quantitative data were gathered from Health Related Fitness Knowledge Test (HRFKT), International Physical Activity Questionnaire (IPAQ) and Fitnessgram tests (Left & right leg Flexibility, Push-up, Pacer, Curl-up and BMI). Data gathered from

HRFKT and IPAQ were analyzed by mixed design multivariate analysis of variance (MANOVA) and data gathered from Fitnessgram testes were analyzed by mixed design analysis of variance (ANOVA). The knowledge test results revealed significant effect of HRFPEC intervention on students' cardiorespiratory fitness, muscular endurance, training principles and general health knowledge parameters of HRFKT. Intervention was also significantly effective for increasing the low and vigorous PAL of participants. Lastly the HRFPE intervention significantly affected right leg flexibility, pacer cardiovascular, curl-up muscular endurance, and BMI positively. All these results demonstrated the effect of HRFPE intervention on developing students HRFK level, physical activity behavior and physical fitness tests performances. This study revealed that HRFPE course interventions could be designed and implemented by physical education teacher in real school settings. Further recommendations were discussed regarding the content and implementation of intervention for physical education teachers, curriculum specialists, and national ministry of education and for future studies.

Keywords: Health related fitness intervention, physical activity level, fitness level, and high school students.

ÖZ

SAGLIKLA İLGİLİ FİZİKSEL AKTİVİTE TEMALI BEDEN EĞİTİMİ DERSİNİN 9. SINIF ÖĞRENCİLERİNİN BİLGİ SEVİYESİ, FİZİKSEL AKTİVİTE SEVİYESİ VE FİZİKSEL PERFORMANS SEVİYELERNE ETKİSİ

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Bu çalışmanın amacı, 8 haftalık sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersinin öğrencilerin sağlıkla ilgili fiziksel aktivite bilgi seviyeleri, fiziksel aktivite seviyeleri ve fiziksel performans seviyeleri üzerine etkisini incelemektedir. Bu çalışmada deneysel araştırma deseni kullanılarak 154 gönüllü lise öğrencisi uygun örneklem yöntemiyle uygulamadan önce ve sonra test edilmiştir. Denek grubu sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersine devam ederken kıyaslama grubu beceri merkezli beden eğitimi dersine katılmışlardır. Çalışmadaki nicel veriler sağlıkla ilgili fiziksel aktivite bilgi testi, fiziksel aktivite anketi ve fitnessgram performans testlerinden (sağ, sol bacak esnekliği, şınav, mekik koşusu, mekik ve VKI) elde edilmiştir. Sağlıkla ilgili fiziksel aktivite bilgi testinden ve uluslararası fiziksel aktivite anketinden elde edilen veriler, karışık desen

çok değişkenli varyans analizi (MANOVA) kullanılarak, fitnesgram performans test sonuçları ise karışık desen tek değişkenli varyans analizi (ANOVA) kullanılarak incelenmiştir. Bilgi testi sonuçlarına göre sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersi uygulamaları kalp dolaşım sistemi sağlığı, kas dayanıklılığı, antrenman prensipleri ve genel sağlık bilgisi değişkenleri üzerinde anlamlı derecede etkili olmuştur. Sağlıkla ilgili beden eğitimi dersi uygulamaları ayni zamanda düşük ve şiddetli fiziksel aktivite seviyelerinin artmasına anlamlı derecede etkili olmuştur. Son olarak sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersi uygulamaları, sağ bacak esnekliği, mekik koşusu, mekik ve vücut kitle indeksini olumlu yönde anlamlı derecede etkilemiştir. Tüm bu sonuçlar sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersi uygulamalarının öğrencilerin sağlıkla ilgili fiziksel aktivite bilgi seviyeleri, fiziksel aktivite seviyeleri ve fiziksel performans seviyelerinin artmasında anlamlı derecede etkili olmuştur.

Bu çalışma sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersinin tasarlamasının ve uygulamasının beden eğitimi öğretmenlerince ve gerçek okul ortamında gerçekleştirilebileceğini göstermiştir. Sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersiyle ilgili beden eğitimi öğretmenleri, müfredat geliştirme uzmanları, milli eğitim bakanlığı ve gelecek çalışmalara yönelik öneriler tartışılmıştır.

Anahtar kelimeler: Sağlıkla ilgili fiziksel aktivite uygulaması, fiziksel aktivite seviyesi, fiziksel performans seviyesi, lise öğrencileri.

To My Momy

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CHAPTER I

I. INTRODUCTION

This chapter includes five sections. First, problem statement is expressed at the beginning of the chapter. Secondly, the purpose of the study is defined. After that, hypothesis of study are listed. Then, definitions of some important terms are made clear in order to avoid misunderstandings during reading. At last significance of the study is mentioned.

One of the main principle of physics about conservation of energy claims that energy never goes away and just turns into another. The human energy system transforms nutrition sourced chemical energy to kinetic energy by movements as well. The humans voluntary and involuntary body movements used in in daily life has eased in time that crawling, walking, climbing, hunting, farming, running leaved their place to shopping, cooking, driving and working in office. All kinds of physical movements defined as physical activity (PA) and since the development of technology on the last decades have caused in a substantial reduction in the quantity of tasks that require movement and physical activity.

Worldwide, Technological progress has resulted in rapid decreases in Physical Activity level and an increase sedentary lifestyle that has also changed the life-threatening diseases. Many health problems that were common a century ago do not exist today, but they have been replaced by conditions associated with hypokinesia and a stationary lifestyle, for instance high blood pressure, obesity, circulation, and respiration system syndromes (Katzmarzyk, 1998; Katzmarzyk, Gledhill, & Shephard, 2000; Katzmarzyk, Perusse, Rao, & Bouchard, 2000; Warburton et al., 2006a). The poor physical fitness

levels and rise in obesity have already become a national concern in United States (USDHHS, 1996). The situation in Turkey is not in differing from other countries that Results of Turkish Nutrition & Health Survey (TBSA, 2010) indicates that 8.2% of all teenagers and youngsters population between the ages of 6-18 years old is obese and 14.3% of this population is overweight. If a person has adequate physical activity ability or wellness for performing daily routines, he or she could be represented as physically fit. In other words, physical fitness was cited as with alertness and vigor, performing daily tasks without undue fatigue (Aires, 2009: 10). However, body of a person does not have a physical activity; it becomes impossible to take action. Physical fitness is a term having direct relationship with physical activity. In fact, physical fitness may be described both as a need and a result of physical activity. The studies proved that the more physical activity a person has the more physical fitness he/she has. On the other hand, in order to be fit physically, one must have planned and structured regular physical activities. Comparing with random physical activities, planned physical activities will result in better results.

Both the governments and international organizations focused on disease prevention and the recognized relationship between physical activity, physical fitness and wellbeing. The incidence of weight related problems are increasing in all ages of the populations in all continents (WHO, 1997). The maintroublesrelated with teen obesity are its insistence to maturelifetime that evidences indicates that health-related behaviors gained in childhood are mostlysustained duringmaturity (Kelder, Perry, Klepp & Lytle, 1994). Children who carry their extra weights to elderly ages will also faced with extra health problems in the early thirties or forties like heart attacks, strokes, high blood pressure, and diabetes (Wright, Parker, Lamont & Craft, 2001).

One of the study express dramatically that children's physical activity level is so lower that they spent nearly 600 kcal per day less than their peers 50 years ago (Boreham & Riddoch, 2001). Young people have many choices for the use of their leisure time that discourage mobility. (Sallis et al., 1992; Trost, Pate, Dowda et al., 1996). Today's children

are ignorantly surrounded by technology everywhere they go, even and especially at home. Smartphones, high speed internet, internet connected TVs, video game consoles, tablets, etc, the list grows every year and all take children's time away from physical activity (Thomas, et. al., 2012). On the other hand involvement in health enriching physical activity reduced and the quantity of disordersenlarged in the overallpopulace (Türkiye Ulusal Hastalık Yükü, 2004; WHO, 2010). Another dramatic study, which includes 11 different countries, revealed that aerobic fitness levels of students declined in the period 1981-2000, (Tomkinson, Leger, Olds, Cazorla, 2003). According to the results of Turkish Nutrition & Health Survey (TBSA 2010), 71,9 % of individuals over the age of 12 have sedentary life style and 9,1% have insufficient physical activity level. Both in children and adolescent physical activity level decreased and its known they spent more time on TV and computer.

Schools are the unique places that contribute to progress abilities, knowledge, manners, and performances, which cause to routine and pleasant involvement in health-enhancing physical activity. Both the decrease in physical education (PE) classes and participation to PE courses increases the prevalence of sedentary lifestyles among children and adolescents (Sallis & Owen, 1999).

In the last century physical education military drills, Swedish gymnastics athletics and team sports have influenced programs. Many students detest such programs, fail to advance a healthy manner toward exercise and did not replicate school team sports in adult life. Students immediate after graduation often espouse very sedentary lifestyles (Ilmarinen & Rutenfranz, 1980). The cold war period begins with the end of Second World War ends in 1991 with the distribution of the Soviet Union. During this period sustained state of political, military, and especially sport strain between controls in the western block commanding United States and eastern bloc commanding Soviet Union. Gaining more medals in Olympic games or winning World Championship was the way of creating superiority between the nations. Therefore, national physical education curriculum was transformed to skill oriented for bringing up more talented

sportsman. Improvement of pace, power, coordination, reaction time, balance and agility were the initialgoal of skill related fitness physical education curriculum. However this methodology might bring up more specialized sportsman but still did not conserve sport behavior.

On the other hand, changings in industry, technology, economy, society and culture created new demands in the last decades mentioned above. In consequence school physical education programs reconstructed by physical education specialists and included health related fitness content to endorse lifetime physical activities, i.e., activities, such as walking, cycling and swimming that can be conducted during an individual's lifespan. (Nader et al., 1999; Sallis et al., 1992; USDHHS, 2000).

In recent years many school physical education programs have placed greater emphasis on health-related fitness or conceptual physical education, which focuses on the knowledge, skills and attitudes required to promote health and wellbeing and to encourage active lifestyles (Harris, 1994). Cardiorespiratory fitness, flexibility, muscular strength, muscular endurance and body composition accepted as 5 components of health related fitness physical education. However health related fitness physical education course necessitates fitness assessment tests, goal setting and submission for each component of HRF and total health.

Theoretically, physical education is shifting from skills-related to health-related fitness activities. Turkey has closely followed the new approaches in the physical education and modified national curriculum with health related fitness content in 2007. But on the practical level, the actual implementation of appropriate physical activities has been slow to be adopted. The traditional form of exercising to improve athletics or team sports skills continues; physical education programs have not changed significantly (Pate, 1983). The objectives of the program cannot be achieved according to the 79% of the physical education teachers (Demirhan, et al., 2003). Blair and Meredith (1994) reported that what usually occurs in physical education was an emphasis on sports skills rather than fitness promotion. Experienced teachers' already educated for skill oriented fitness

physical education that their health related fitness content knowledge level was low, teachers' perception of their HRF content knowledge level & teaching capability of HRF content level were moderate (İnce & Hünük, 2013).

In today`s world, physical education is becoming more important than comparing with past. Nowadays, developing technology changed many habits of mankind. Previously, people used physical power in order to survive. However, technology altered inhabits of societies dramatically. Today, people expend less energy to their employments. Under those circumstances, physical education has extended importance comparing with earlier (Heper, 2012: 2).

Health related fitness is a physiological condition of wellness of human body systems. Health related fitness has many contributions for wellbeing of the body via reducing risks for hypokinetic disease. In order to achieve health related fitness, there is an essential of joining in sports and dynamism for tasks and daily habits. In fact, Health related fitness is something about preventing disease before it occurs. It is a precaution for diseases before the body is affected from any kind of illness. HRF is related with personal fitness level which is also supplementary for overall body systems health (Smit, 2012).

1.1. Purpose of the Study

Atatürk, the founder of the Turkish republic, while setting up the TED Ankara College had aimed to be the premier institutions in education, arts and sports. Ted Ankara College has accomplished this mission successfully about 90 years.

In 2012 school decided that skill based physical education curriculum did not provide expectations of TED Ankara College regarding with the students and families. School constituted a committee from, physical education curriculum specialist academician physical education teachers, and measurement and evaluation specialists. The committee made a need analysis and applied a questionnaire to students' families and administers in school about their expectations from physical education course.

The results for students clearly expressed that applied physical education program did not satisfy the needs of students. They did not want to do military walking exercises and meet with new sports and games besides having a good body composition. For parents, their expectation about PE course was regular physical activity attitude, having a healthy body composition, knowledge about benefits of sports and consciousness about body weight control. For administers, their expectation about PE course was actively used indoor and outdoor school areas and facilities, learned school specific sport culture and peaceful school environment.

Regarding the survey results a new physical education curriculum program which has health related fitness as a main focus was prepared after 18 months. At the same time physical education teachers in that committee were mastered in Health relate fitness and its field application.

Ted Ankara College has changed physical education curriculum but if the results of this study provides benefits other TED Colleges in Turkey may use this program. In this manner, this study brings an original innovation to physical education in Turkey.

As a result this study is mainly about physical activity, health related fitness and physical education programs. The purpose of study is to examine whether, health-related fitness (HRF) physical education course enhances physical fitness, physical activity (PA) levels and HRF knowledge of high school students. In other words, it is aimed to understand the effect of HRF physical education course on students' fitness level, physical activity level and health related fitness knowledge.

1.2. Research Questions

On account of accomplishing the purposes of the study, next research questions and related sub-questions were formed.

Research question 1: What is the effect of health related physical education course intervention on 9th grade students' health related fitness knowledge?

1.1. What is the effect of health related physical education course intervention on 9th grade students' total and sub health related fitness knowledge?

Research question 2: What is the effect of health related physical education course intervention on 9th grade students' physical activity level?

2.1. What is the effect of health related physical education course intervention on 9th grade students' total and sub physical activity levels?

Research question 3: What is the effect of health related physical education course intervention on 9th grade students' right leg flexibility levels?

Research question 4: What is the effect of health related physical education course intervention on 9th grade students' left leg flexibility levels?

Research question 5: What is the effect of health related physical education course intervention on 9th grade students' push-up levels?

Research question 6: What is the effect of health related physical education course intervention on 9th grade students' pacer levels?

Research question 7: What is the effect of health related physical education course intervention on 9th grade students' curl-up levels?

Research question 8: What is the effect of health related physical education course intervention on 9th grade students' BMI levels?

1.3. Hypotheses

The followings were the hypotheses of the study. They were formed based on the research questions and relevant literature.

Hypothesis 1: There is a significant effect of HRF physical education course intervention on 9th grade students' health related fitness knowledge level.

Hypothesis 2: There is a significant effect of HRF physical education course intervention on 9th grade students' physical activity level.

Hypothesis 3: There is a significant effect of HRF physical education course intervention on 9th grade students' right leg flexibility level.

Hypothesis 4: There is a significant effect of HRF physical education course intervention on 9th grade students' left leg flexibility level.

Hypothesis 5: There is a significant effect of HRF physical education course intervention on 9th grade students' push-up level.

Hypothesis 6: There is a significant effect of HRF physical education course intervention on 9th grade students' pacer level.

Hypothesis 7: There is a significant effect of HRF physical education course intervention on 9th grade students' curl-up level.

Hypothesis 8: There is a significant effect of HRF physical education course intervention on 9th grade students' BMI level.

1.4. Significance of the Study

Educational systems all over the world have a corporation with disciplines in the curriculum. Science, literature, mathematics, linguistic, history arts and sports are interrelated disciplines. However along with academics students should attend physical education courses and activities such as sports, games and exercises as well. Physical education is the only lesson that can enhance some qualities of students which is health related fitness couldn't be supported via other lessons. (Rengasamy, 2012).

Today's well-planned health related physical education programs could be very effective for shaping the futures of the youngsters. A well-designed physical education programs provide numerous prospects to enhance their physics and intellectuals to advances kills, which will drive them to realization in both the physical and educational aspects of life. Plenty of evidence shows that health related fitness physical education might improve academic success, self-concept, and mental health (Allensworth, Lawson, Nicholson & Wyche, 1997).

In the last decades children bring up in an isolated environment with psychologically unsheltered conditions. Physical activity brings psychological benefits for young individuals by developing their control over symptoms of anxiety, depression. Therefore PA supports social developments by offering occasions for self-actualize building self-esteem, and socialization (Dishman, 1995; Fox, 2000).

A high level physical activities, different physical activity variables, partaking in organized extracurricular activities, membership in a sports club, participation in sport club training, playing sport in a school team and participation in competitive sports in childhood have been linked with a vigorous physical activity in elderly (Barnekow-Bergkvist *et al.* 1998, Hirvensalo *et al.* 2000).

On the other hand both the individual and national health may be supported by education in an effective way. Health related fitness physical education courses already took places in national curriculum to prevent problems and provide benefits.

For increasing the physical activity levels of the school children British Colombia government stated a new curriculum in which students have to participate physical activities every school day. Teachers' are responsible for preparation and organization of thirty minutes of mild to moderate physical activities apart from physical education curriculum. The curriculum also requires students to know the benefits of regular exercise, identify healthy choices for being physically active, and explain significance for selecting healthy nutrition.

Plenty of evidences for the positive effects of HRF physical education attainable in the literature as listed above. Also there were many HRF implications in the world and the benefits already proved in many way. But HRF concept in Turkey has mostly studied in university degrees. On the other hand most of the studies realized by the academicians or researchers but not the physical education teachers. At that point applicability of this study by a physical education teacher for the high school students could bring a new aspect to understanding of physical education, which is also the greatest significance of this study.

A well-designed health related fitness course gains basic anatomy, physiology, and training theory knowledge and related them with other subject areas such as science and mathematics. Students also need to develop their goal setting, self-discipline, and peer relation, self-esteem skills besides keeping physical fitness and having lifelong regular physical activity habits. At that point another significance of this study provides sufficient knowledge and information to the students for the internalization of the benefits of physical activity and bring in health related fitness habits.

Ted Ankara College, which is among the oldest and leading school of Turkey, always brings innovations in many fields. The school administrations were aware of the problems in the field of physical education and create a commission together with academicians, curriculum development specialists, measurement and evaluation specialists and physical education teachers. The commission conducts a questionnaire about physical education course for students, families' and administers. Another significance of this study is HRF intervention by itself, which was designed to meet the expectations of both the students, parents, and administers in terms of overall health. HRF intervention is a part of new physical education curriculum of Ted Ankara College.

Likewise the many other countries Turkish ministry of education decided to change and bring some new concepts such as health related fitness to their new physical education curriculum. Another great significance of the study in terms of applicability of the HRF physical education course as well. In spite of having HRF matter in their curricula still physical education teachers did not prefer to teach HRF physical education. The evidenced success of this study could be a reference for other physical education teachers for shifting their teaching tendencies from skill-based physical education to health related physical education.

On the other hand the executer of this study in differ from other physical education profiles in that he has more than 10 years teaching and advanced basketball-coaching experience together with master degree and still PhD study in METU.

Progressive teachers could change and bring respectful status to the physical education profession both in school and among other colleagues.

1.5. Problem Statement

Studies demonstrated the positive effects of physical activity in all ages from kinder garden to nursery home (Aldana et al., 2005; Buman et al., 2010; Cavill, Kahlmeier, & Racioppi, 2007; Janssen & LeBlanc, 2010; Biddle, Gorely, & Stensel (2004). There is undeniable evidence supporting structured or unstructured regular physical activity participation plays leading role directly or indirectly in the prohibition of many chronic diseases (Warburton, et al., 2006a).

It is important to promote physical activities especially in schools. As a result of benefits of physical activities, students must be eager to take part in those activities. The studies have proved that the sustainability of physical activity habit could be and transferred from childhood to elderly ages. (Kelder, Perry, Klepp & Lytle, 1994). American College of Sports Medicine (2005) dictates that physical activity behaviors acquired during school years may have a substantial effect on lifelong fitness components.

However, studies demonstrate that there is a problem at that point. People who represent low physical activity level of community complaints about diseases and health problems (Türkiye Ulusal Hastalık Yükü, 2004; WHO, 2010). Together with physical activity and fitness levels of the school children still in decrease, whereas obesity and physical education course dropout rates increase (UNESCO, 2012).

It must not be forgotten that lack of physical activity results in significant problems. In US, it is exposed that 12.5 million (16.9%) children & adolescent (2-19 yrs.) is considered as obese according to NHANES & prevalence of obesity is 15% for girls & 18.6% for boys (NCHS, 2012). It is estimated that 18.5 million (24%) children will be considered obese by the year 2020. Increase shows an important public health problem, since obesity in childhood tends to persist into elderly, &increases the risk of many diseases and health conditions (Must, Strauss, 1999). Despite seen at a lower level,

obese is also seen in Turkey. Results of Turkish Nutrition & Health Survey (TBSA, 2010) indicate that 8.2% of all youngster population of 6-18 years old is obese and 14.3% of this population is overweight.

In order to get rid of problems caused as a result of lack of physical activity, measures must be taken especially in school years. There is some proof that sport and physical activity habits gained in school childhood sustained during adulthood and elderly years. Children & youth should participate daily minimum 60 min. of moderate to high level of intensity PA. It is also recommended to participate cardiorespiratory exercises, which contribute to develop aerobic capacity and fitness. Selected activities should be combined with muscular and skeleton systems strengthen activities at least 3 per week (WHO, 2011). USDHHS, (2008) advices at least 150 minutes of moderate level PA or 75 minutes of high intensity level of PA for a week or a mixture of both.

Physical activities must be supported with health related fitness and nutrition in school years. Studies show that healthy nutrition behavior is acquired in childhood (Shepherd, 2006). Children do not instinctively select food with a high nutrition value; they must be informed. Therefore, nutrition education is very important for children (Cho & Nadow, 2004).

Health related fitness would serve as a source of healthy life during lifetime. In order to support establishment of a health society, education is an obligatory tool. Especially physical education will serve as a tool for having a health life. Sport and PA programs present children with certain abilities like teamwork, discipline, sportsmanship, leadership & socialization (Pınar, 2003). Participating physical activities has positive effects on the psychology of young people. Physical activities contribute to overcome the indications of anxiety and depression. Physical activity helps individual to express his/her self and increase self-esteem and socialization. (Dishman, 1995; Fox, 2000).

All those facts make it necessary to prepare physical education programs in accordance with health related fitness. Health related physical education programs for a

health life must adopt fitness. As many abilities are obtained in school, health related fitness might also be beneficial for a person in his/her life.

1.6. Limitations of Study

1) Students were recruited via convenience sampling from a public school in Ankara, Turkey.

2) Measurement of health related physical fitness was delimited to protocols and tests governed by Fitnessgram.

3) Only the 9th grade students were selected to participate in school physical education aerobic exercise intervention study.

4) For the purposes of this study, only high school students (ages 14-15), were selected.

1.7. Assumptions of Study

1) Students gave their maximum effort on all trials of each test item.

2) Students answered all the questions in the questionnaire honestly.

4) The testers were well trained in test administration.

5) The students practiced the test items sufficiently and performance reflected true ability.

1.8. Definition of Terms

Aerobic Fitness: "Measure of the combined efficiency of the lungs, heart, bloodstream, and exercising muscles in getting oxygen to the muscles and putting it to work (CSEP, 2003)."

Body Mass Index (BMI): "The ratio of body weight divided by height squared (kg/m^2) (CSEP, 2003)."

Body Composition: "The relative amounts of muscle, fat, bone and other anatomical components that contribute to a person's total body weight (USDHHS, 1999)."

Exercise: "Planned and structured physical activity, which incorporates repetitive bodily movement, geared towards improving or maintaining one or more components of physical fitness (Caperson, Powell, & Christenson, 1985)."

Flexibility: "The range of movement in a joint or series of joints (CSEP, 2003)."

Health: "Construct that has physical, social, and psychological dimensions, each characterized on a continuum with positive and negative poles. Positive health is associated with a capacity to enjoy life and to withstand challenges; it is not merely the absence of disease. Negative health is associated with a decreased capacity to enjoy life and withstand challenges (CSEP, 2003)."

Health related fitness: "Health related fitness includes four main components, including body composition, cardiovascular endurance, muscular strength and endurance, and flexibility (ACSM, 2010)."

Heart Rate Reserve (HRR):"A method used to prescribe exercise intensities."

HRR is calculated by subtracting resting heart rate from maximum heart rate (Powers & Howley, 2004)."

Hypokinetic Disease: "Disease states that are directly related to low levels of activity (e.g. heart disease, type II diabetes) (Kraus & Raab, 1961)."

Metabolic Equivalent (MET):"Value describing the energy costs associated with exercise (Powers &Howley, 2004)."

Muscular Endurance: "The ability of the musculoskeletal system to maintain or repeatedly develop force (CSEP, 2003)."

Muscular Strength: "The maximum tension or force a muscle can exert in a single contraction (CSEP, 2003)."

Physical Activity: "Any bodily movement produced by skeletal muscles and results in energy expenditure (Caspersen, Powell, and Christenson, 1985)."

Physical Fitness: "A term that encompasses a set of attributes that people possess or achieve relating to their ability to perform physical activity. Physical fitness is comprised of five health-related components, which include: (1) body composition, (2) cardiovascular endurance, (3) flexibility, (4) muscular endurance, and (5) muscular strength (U.S. Department of Health and Human Services, 1999)."

CHAPTER II

II. LITERATURE REVIEW

That part of the study consists of four subtitles. First subtitle is about physical activity. Second one examines physical fitness. At the third part of literature review, physical education is examined and finally, association between physical education and health related fitness is explained in great detail.

2.1. Physical Activity

Physical activity may be expressed as all types of physical movements. Both the fine and gross movements can be itemized under physical activity. Physical activity is realized in different systems. There are voluntary and involuntary physical activities. Planned and structured physical activity, activities limited in time and certain activities applied for certain aims such as energy expenditure and physical fitness[1] are among voluntary physical activities. On the other hand, many daily routines such as household, walking, transportation or occupational activities are among involuntary physical activities. In fact, physical activity is observed at all actions taken by a person. It can be typically involuntary and spontaneous, from small body movements, like a blink of an eye, to all muscle contractions associated with different postures of the body. However, it is difficult to assess and quantify separately these different physical activity domains, which leads them to being considered together (Aires, 2009: 7).

[1]The term "physical fitness" is going to be evaluated in following pagesbecause of importance of it for the study.

Physical activity is considered to be one of the most fundamental hominid activity which an individual uses his/her body for many intentions. From detailed actions to walking simply, people have to use body in order to survive. In other words, human body is a very complex organism performing all functions needed for a person. Walking, climbing, cooking, and running, working at a job, driving a car and many other functions are done by human body. According to Cavill (2006: 2), subsistence of the phrase "physical activity" in the history of mankind can be summarized as follows:

> *In ancient years mankind may considered to be an hunter need to reach long distances and move fast in order to have food and run from a danger to save his/her life. After starting to live in a more civilized life human body begin to serve for other purposes as farming, constructing rather than just for hunting. However, during 21st century with the help of technology people perform less physical activity in their daily life to reach their basic necessities since everything they need is very easy to access like food and transportation. Therefore today people move less and use less bodily activities and thus more obesity observed amongst people especially for the western world*

It is not unpredicted that physical activity is important for well-being nowadays while it was important for survive previously. Nowadays, there is little need for physical activity in terms of surviving. Transportation tools and technology has made it easy to live without mass physical activity. However, it is still important. Considering health, physical activity is a necessity for people. In order not to face various health problems, people have to take care of physical activities. Moreover, physical activity is something calculated in detail when necessary. Time, frequency, type and intensity of bodily activity are calculated carefully when needed. However, physical activity level mostly assessed by energy spending, it can defined as a bio-cultural behavior in which energy is used in functioning movements that happens in various shapes and cultural backgrounds (Tammelin, 2003: 19).

There is a need for physical activity. It must not be forgotten that physical activities made under necessary level will result in diseases. Day by day, people get aware of necessity of physical activities. Diminishing stages of physical activity might be

interpreted as in conflict with the common opinion that predominantly western nations are occupied with fitness enthusiasts. However sports services, associations and items in the mass media concerning health and fitness are more numerous than ever, much of the knowledge about physical activity has not been reproduced to conduct modification (Cavill, 2006: 2).

It is easy to observe that people tend to focus on physical activities. Even people unable to have physical activities regularly accept the significance of physical activities. The intension of increasing popularity of physical activity is about benefits of physical activity. At that point, it wise to mention about benefits of physical activities.

2.1.1. Gains of Physical Activity

Physical activity is something about health. The most meaningful benefit of physical activity is that it is crucial for wellness. Reflecting the relationship of physical activity and physical education, it is known that educators warn students about being physically inactive. According to Rengasamy (2012), and many physical educators the main reason why more people becoming unhealthy and overweight is a lack of activity they participate and less body movements they need for daily life causing cardiovascular diseases for adults as well as for children (Rengasamy, 2012: 1105).

Physical activity bring not just short term gains in which physical activity is done. Their benefits still can be seen at following days and years. For example, benefits of physical education or trainings applied in childhood affects adulthood in a good manner. Important health consequences of physical education at childhood are observed in adulthood in many cases. There are various studies demonstrating forthcoming benefits of physical activities (Dutt, 2005: 12).

It is difficult to make a list of benefits of physical education. There are many studies in different branches about positive effects of physical activity. Shortly, all researches display that physical activity is a crucial tool for wellness. Various longitudinal and cross sectional studies such as The European Youth Heart Study (EYHS) and

Alimentación y Valoración del Estado Nutricional en Adolescentes: Food and Assessment of the Nutritional Status of Spanish Adolescents (AVENA) etc. show that various effects of physical activity establish a healthy body. At all ages such as adulthood and childhood, a key health marker is physical activity. Reasonable and high levels of physical activity initiates practical variation of all tissues and organs in the body thereby also making them more resistant to routine linked deteriorating and chronic diseases (Ruix, et al., 2006: 1).

Despite it is difficult to make a list of benefits of physical activity, there are many studies making list of benefits of physical activity. However, they do not limit the benefits. According to The Society for Cardiovascular Angiography and Interventions (2013), benefits of physical activity can be listed as follows:

- Many health problems like high blood pressure, heart disease, abnormal blood lipid, type 2 diabetes, breast and colon cancers and metabolic syndrome can be prevented by physical activity and it may help to have a longer life,
- Cardiorespiratory and muscular fitness may be improved by physical activity,
- Metabolism is raised by physical activity and it also helps losing weight despite continuing to eat,
- Improving mood, diminishing depression, anxiety and stress,
- Physical activity contribute the elder at maintaining brain functions,
- Physical activity helps with digestion and promotes regular bowel movements,
- Bone density is increased by physical activity,
- Physical activity helps ageing more gracefully by maintaining good look and agility,
- Sleeping quality is improved by physical activity,
- Overall quality of life is improved by physical activity (The Society for Cardiovascular Angiography and Interventions, 2013).

At another study, Public Health Agency of Canada (n. d.) makes another list of benefits of regular activity. According to Public Health Agency of Canada, benefits of physical activity are as follows:

1. Weight control,
2. Better self-esteem,
3. Feeling more energetic,
4. Stronger muscles and bones,
5. Healthier person,
6. Better fitness,
7. Better posture and balance,
8. Relaxing body and soul and eased stress,
9. Continued independent living in later life (Public Health Agency of Canada, n.d.: 4).

Reviewing literature, it is seen that different associations make different lists of benefits of physical activity. In general, it can be said that physical activity prevents many diseases. People must be aware of the danger of major public health diseases. According to Ruix et. al. (2006), to pinpoint children and teenagers threatened by these major public health diseases and to be able to assess the outcomes of alternative intervention policies in European countries and internationally, similar testing methods across Europe have to be advanced, confirmed, approved upon and involved in the health watching systems presently being developed by the European Commission (EC): the Directorate General for Health and Consumer Affairs (DG SANCO); the Statistical Office of the European Communities (EUROSTAT), etc. (Ruix, et. al., 2006: 1).

There are also some studies about how physical activity is perceived. According to a study conducted by Dinçay (2013), benefits of physical activity may be perceived in different manners according to gender. The study expresses that, the three most important benefits of physical activity are increasing energy level, losing weight and especially staying in shape for female high school students. On the other hand, becoming strong, staying in shape and becoming competitive are important benefits for male high school students (Dinçay, 2010: 13).

2.1.2. Barriers to Physical Activity

Despite numerous benefits of physical activity, it is also seen that both governments and physical education programs force people for being physically active. Unfortunately, physical activity is not a thing seen regularly in common for numerous people. In fact, everybody knows the importance of physical activity. However, not everyone deal with it all time. There are several reasons preventing people doing regular physical activities. Environmental, physical and psychological barriers prevent people. For example, attitudes of families and peers, lack of enough time, distant facilities and weather may be shown as environmental barriers on regular physical activities (Dinçay, 2010: 12).

At another study, Department of Sport and Recreation in Western Australia government (2004) expresses that age, gender, employment, health and location may be the reasons as barriers of physical activity. According to the department, followings are barriers of physical activity especially for adults:

- Restricted or unsuitable sporting chances and presence of instructors who are not capable of identifying the physiological needs of seniors;
- Images of ageing;
- Bad health;
- Less confidence;
- Limited time;
- Educating teachers– needs to identify physiological needs of seniors;
- Difficulty to transport and access to programs; and
- Expense (Department of Sport and Recreation of Government of Western Australia, 2004: 2).

According to Thomas et. al. (2004), 34 percent of patients with diabetes undertake physical activity. Amount of those patients undertaking physical activity do not apply those exercises in a satisfying level. The author expresses that only 9 percent of those patient undertake physical activity enough to change hearth rate or breath. The author

expresses that main reasons of that undesired condition is perceived difficulty of taking part in physical activities regularly, watching television and feeling of tiredness, lack of facilities and lack of time (Thomas, et.al., 2004).

In fact, everybody is aware of importance of physical activity. People know how important health is and people also know how important physical activity for health. It is not easy to understand why individuals are uneager to participate physical activities regularly. It is understood that to acquire the benefits of physical activity is not enough to take part in physical activity programs. Involvements of people at physical activity programs are affected by various factors such as environment, beliefs, attitudes, personality etc. For health of individuals and the public, barriers on physical activity must be reduced. In terms of corporate programs the initial movement motivation may be supplied by health benefit knowledge and belief but not the continued participation. Well-being and enjoyment appear to be more powerful drives for continued participation in corporate programs (Dinçay, 2010).

Not only adults but also children have difficulty in doing regular physical activities. Children are uneager to take part in regular exercises at desired duration. In a study held by Dwyer et al., (2003), children and other participants mention three main barriers of regular physical activities. According to the participators, lack of sufficient infrastructure, lack of performance evaluation for physical activity and lower perceived priority of Physical Activity are main barriers (Dwyer et al., 2003: 449).

At another study, Rasinaho et al., (2006) intended to investigate what are the motivations and barriers for old people with acute, moderate, or no movement limitation appealing in physical activity. In order to reach that aim, 645 people participated in the study in order to complete a questionnaire about barriers and motives to physical activity and answered interview questions on physical activity restriction. According to results of the study, poor health, fear and negative experiences, lack of company, and an unsuitable environment are reported as obstacles to exercise by people have limited mobility than those with no mobility limitation. They also put emphasis on disease management as a

motive for exercise, whereas those with no or moderate mobility limitation stressed health advancement and positive experiences related to exercise. Measuring support systems that support participation in physical activity for elderly peoples is based on information about distinctions in motives for and barriers to exercise among individuals with and without mobility limitation (Rasinaho, et. al, 2006: 92).

There are some surprising results seen in literature. One may assume that "time" is a significant barrier for physical activities. It may be claimed that people cannot have enough time for physical activity. The more leisure time may result in more time for physical activity. On the other hand, a study focusing on physical activity shows an interesting result. According to results of the study, when people get older, they spent less time for physical activity despite the fact that they are retired and have more time and need physical activity and other health careers more (Dinçay, 2010: 15).

2.1.3. Physical Activity Recommendations

Despite there are some barriers on physical activity, people focus on it as much as possible. It is unwise to make physical activities randomly. Experts and scholars recommend duration and some types of physical activity for each person considering some variable such as age, gender, physical situation etc. In order to maintain and improve health, there is a commonly admitted consensus on the number and type of physical activity in latest years (Department of Health, 2004).

Amount and density of physical activity is not common for all people. As mentioned, physical and some other properties of a person differ amount and type of physical activity he/she needs. Despite there is not an official recommendation, there are some advices in common sense. For example, many experts advices a moderate level of physical activity half an hour in a day for a person. According to World Health Organization (2006):

> *People should be encouraged to participate different types and duration of physical activities in their life. At least 30 minutes of regular, moderate intensity physical activity reduces the risk of cardiovascular disease and*

> *diabetes, colon cancer. Muscle strengthening and balance training can reduce illnesses and increase functional status among older adults. More activity may be required for weight control (WHO, 2006).*

Majority of recommendations express that young people and children must deal with physical exercises more comparing with older people. Physical activity is recommended to young people not only for physical health but also some other benefits. For example, more physical activity for young people may help improving control on anxiety and depression. Moreover, it is also beneficial for social development via providing opportunities such as social integration and interaction, self-confidence and self expression (Cavill, 2006: 10).

Experts recommend different type and duration for young people. According to Department of Health of London in United Kingdom (2004), more than 60 minutes of physical activity is required at a moderate level for young people. Moreover, at twice a week, there must be activities supporting specific properties. For example, activities supporting bone health (activities producing high level of stress on bones), flexibility and muscle strength must be applied by young people. Those amounts may differ in different cultures and countries as well as for different individuals (Department of Health, 2004). As it is recommended as half an hour for an ordinary person, that amount is doubled at young people. Moreover, the department also recommends following table.

The results of current researches of the world health organization (2006) habitual and sufficient amount of physical activity contribute to decrease the risk of hypertension, cardiac problems, stoke, diabetes, breast and colon cancer and improves skeletal and functional health and body systems. The basic element is energy expenditure thus energy balance and weight control (WHO, 2006).

Table 1. Recommended Levels of Physical Activity to Engage

Person	Activities
Young Child	• Going school and returning home on walk • Physical activity at brakes or clubs • Playing games at in afternoons or evenings three or four times in a week • Riding bicycle, visiting parks or swimming pools and walking at weekends
Teenager	• Going school and returning home on walk • At week days, sports or activities whether organized or informal • At weekends, sport activities such as swimming, walking or cycling etc.
Student	• Going College and returning home on walk • Taking care of small activities and opportunities of physical activity such as using stairs or doing daily routines manually • At week days, participating in exercise classes, gym or swimming pools two or three times in a week • At weekends, longer sport activities such as swimming, walking or cycling etc.
Adult with Paid Job	• Going work and returning home on walk • Taking care of small activities and opportunities of physical activity such as using stairs or doing daily routines manually • At week days, participating in exercise classes, gym or swimming pools two or three times in a week • Gardening, cycling, home repairs, longer works and other activities at weekends
Adult work at home	• Walking, gardening and home works • Taking care of small job such as using stairs or doing daily routines manually • Swimming, longer walks and cycling at weekends • Sport, gym, or swimming sessions
Adult Unemployed	• Walking, gardening and home repairs • Taking care of small activities and opportunities of physical activity such as using stairs or doing daily routines manually • Swimming, longer walks and cycling at weekends • Occasional sport, gym, or swimming sessions
Retired Person	• Walking, cycling, gardening and home repairs • Taking care of small activities and opportunities of physical activity such as using stairs or doing daily routines manually • Longer walks, swimming or cycling

Source: Department of Health (2004) A report from the Chief Medical Officer. Department of Health of London

People at the ages of 5-17 have many benefits thanks to physical activity. Maintenance of a healthy body weight, neuromuscular consciousness (i.e. proficiency in

movement regulatory and implicitly), healthy cardiovascular system and healthy skeletal tissues (i.e. bones, muscles and joints) are seen as positive effect of a moderate physical activity of physical activity. As a result, it is recommended for people with those ages to have a regular physical activity program (Cardiff, 2006: 5).

All in all, physical activity is recommended for all people at a moderate level. However, there is not a certain level for all people. Amount of physical activity is changed in accordance with the age, gender and some other properties of a person. For example, young people and children must have physical activity much more than older people.

2.1.4. Current Physical Activity Habit of Turkey

Likewise the other nations, Ministry of Health in Turkey organized many studies almost every region of the country. One of the research with a quite large population (N=15648) represents the physical activity habits of Turkish people clearly that only 3.5% of the individuals over the age of 30 do moderate-intensity physical activity about 30 minutes and 3 days a week. (TBSA, 2010). Additionally according to Turkish National Household Survey (N=11,481) 20.32% of the individuals over the age of 18 still has sedentary life style, and 15.99% of insufficient levels of physical activity (UHA, 2006).

TBS 2010 results also showed that, 71.9% individuals over the age of 12 have sedentary life style and 9.1% is insufficient levels of physical activity. It is also came out that children's and adolescents physical activity level decreasing and they are spending more time increasingly in TV and computer (Köksal G & Özel Gökmen H, 2008).

However, studies demonstrate that physical activates left their place to sedentary activities and students spending their time respectively watching TV, videogames, DVD, home works, computer and internet.

According to the TBSA report, the age group consisting of 6-11 year olds who don't do sports activities during the week spend on average 6 hours a week doing other activities (e.g. TV, computer, homework, tutoring). Specifically, boys spend 6.3 hours on average per week, and girls spend 5.6 hours per week. Approximately 3.3 hours of this

time is spent on TV, videos, movies and the likes, 1.8 hours are spent on homework, 0.8 hours are used on computers and surfing the web. Boys spend 1.7 hours studying/ doing homework while girls spend 2 hours on average.

Similarly, the same age group spends 6.4 hours on these activities on the weekend. Again, boys spend an average of 7 hours while girls spend 5.8 hours. The kids spend most of their time watching TV, videos and movies at 3.6 hours, seconded by homework/studying at 2.1 hours, and finally 0.7 hours using the computer and surfing the web. Girls use 2.1 hours on average of this time studying while boys use 2 hours on the weekend.

In a study, held in Ankara with 198 children, 11-12 years old, their physical activity and hearth rate levels were evaluated by monitorization and questionnaire methods. The results proved that the kids were more active both during and after school periods. Out of school, 76.1% of males and 34% of females were physically active, in addition during school hours 94.6% of males and only 17% of females participated in physical activities.

In a study held in Ankara for the purpose of determining growth and obesity prevalence of the children their physical activity habits and activity levels were evaluated as well. The study revealed that 76% of 469 children (211 male, 258 female) of 7-14 age group walked to school while 23.5% rode a vehicle. The reports showed that, 22% of the children did not participate sports on a steady basis while 43% played in the streets and their daily time of playing on the computer was 1.28 hours. The kids' physical activity levels (PAL) were classified as inactive (≤1.39), reasonably active (1.40-1.59), active (1.60-1.89) and very active (≥1.90). Considering to this categorization, 73% of the children were inactive on weekdays and 61% were sedentary on weekends.

Another study in Ankara that involved 350 questionnaires directed to families about childhood obesity and time spent in front of TV showed that children started watching TV in the mean age of 2.7±1.6 and 62% of preschool children spent more than 2 hour while 8.3% spent more than 4 hours watching TV every day.

Aside from the studies above, Turkey has participated in the HBSC research studies held in the years 2001-2002. In the study 11, 13 and 15 age groups, children`s physical activity levels were asked; the results disclosure that only 21% of the males and 29% of the females of 11years old children, 17% of the females and 22% of the males of 13years old children`s and 12% of the females and 16 % of the males of 15 years old children`s were performed minimum one hour reasonable or high level physical activity. Whereas, in the same study, TV watching time were asked to the participants and in contrary to physical activity levels results revealed that 59% of the girls and 63% of the boys of 11years old children`s', 62% of the boys and 63% of the girls of 13 years old children`s and 68% of the boys and 70% of the girls of 15 years old children`s were watched TV at least two hours in week.

Regarding the same studys'2009-2010 report, daily moderate to vigorous physical activity ratio for the girls decreased slightly lower levels, for the boys just increased indistinctly over time. In the same study daily watching TV ratio for the girls increased gradually, for the boys remained study over time.

In conclusion the results of the studies both in the world and Turkey has demonstrated that physical activity habits of the children slowing down and sedentary life style habits taking this place dramatically over time.

2.2. Physical Fitness

Physical fitness consists of attributes that a person is to achieve or have. Aires (2009), defined being fit as "capable of doing leisure activities without fatigue and emergencies and with high energy"), but this is modifiable through exercise training within individuals intra-variability (Aires, 2009: 10).

In fact, physical activity can be considered as a result of physical activity and a need for physical activity as stated previously. Being physically fit is a need for physical activity. In order to be active physically, a person and his/her body must be ready for that activity. When body of a person does not have adequate ability or wellness for a physical

activity, it becomes impossible to take action. On the other hand, physical fitness is a result of physical activity as well. It is known that the more physic al activity a person has, the more physical fitness he/she has.

In order to perform a physical activity, people must have a degree of physical fitness that can be called as physically readiness. Physical fitness is a state of physical readiness or a state of having the ability to perform a physical activity. There is two types of physical fitness one is performance related and the other one health-related fitness. Performance-related fitness is mainly depends on a set of aspects about performance outcomes in different sports or in specific challenges. (Tammelin, 2003: 19).

According to Caspersen et al., (1985), physical fitness has elements that are either health or skill-related. These elements can be measured with specific tests. These explanations are presented as an interpretational structure for associating studies, which are related with physical activity, exercise and physical fitness and health (Caspersen, et al., 1985).

In order to be fit physically, one must have regular physical activities. Those activities must be planned and structured. Random physical activities may not be beneficial as desired. Comparing with random physical activities, planned physical activities will result in better results. As described at previous pages, volume and sort of physical activity differs as physical and some other properties of people differ. When a person has physical activities those are not adequate for his/her properties, those activities will result in little benefit. On the other hand, when a person applies physical activities beyond his or her capacity, that situation will result in some damages at muscles or other parts of the body (ww.wellnessproposals.com).

Having ability to execute a physical activity is contained of three components. They are skill-related, physiologic fitness and health related fitness. Health related physical fitness will be evaluated in detail at following pages of the study. Skill related physical fitness is about six factors such as reaction time, power, speed, balance, agility and coordination. Figure 1 shows factors of skill-related fitness.

Figure 1. Factors of Skill Related Fitness
Source: Prepared with the data gathered from literature review

They are mostly associated with motor skills performance. Those factors can be described as follows:

- Reaction Time: Reaction time is the ability of reacting what a person hears, feels or sees. It is the ability to respond what is seen, heard or felt as soon as possible. For instance, stealing a ball in basketball, a goalkeeper saving a ball in a football.

- Power: Power is the capability to have a control on muscles, moving muscles swiftly when needed, applying maximum force while moving parts of the body. Both muscular strength and speed is related with power. For instance, fullbacks in football muscling their way through opponents' position and fast-moving to proceed the ball and volleyball players elevating their bodies over the net and staying into the air.

- Speed: As a part of power, speed is the ability to move body or parts of body in a quick manner. Speed is a necessity for many games and activities in order to gain competitive advantage. For example, a handball player runs for a fast

break offence to easy score, a tennis player moving forward to get to a drop shot, a football player out shifting their position to get a pass.

- Balance: Balance is mostly related with stabilization of body or their parts on steady and mobile activities. For example, in-line skating.
- Agility: Agility is the ability to change and control the direction and position of the body persistent on sustaining a quick, fast motion, for example; shifting running direction in basketball.
- Coordination: Coordination is the ability to control body movements and senses at the same time. It is something about moving body or body parts in accordance with the senses. For example, there must be coordination at using hand and eyes at a basketball player while throwing basketball. That is called hand-eye coordination (Corbin & Daile, 2005: 1).

Those factors are beneficial for performing physical activities successfully. In order to complete any kind of activity without undue strain, following factors are needed. Those factors are also important for safety during physical activities (www.wellnesspeoposals.com).

Each of components of skill related fitness varies with age and gender. Moreover, there is s difference between men and women. According to a study held by Aires (2010), in all of them boys show better performances than girls, which might be related to the rapid increase in muscle mass (Aires, 2009: 10).

2.3. Physical Education

Main difference between physical fitness and physiological fitness is performance. Physical fitness is something about performance of body while physiological performance is mainly related with non-performance properties of physical fitness. Physiological fitness includes elements of physical fitness which are about biological systems. In fact, physical

fitness and physiological fitness are nearly same things. The only difference is non-performance as described (Corbin, et.al. 2000: 7).

Habitual activity is another term to be mentioned while talking about physiological fitness. Physiologic fitness differs from health-related fitness in that it incorporates non-performance factors that relate to biological organizations manipulated by daily regular activity. There are three components at physiological fitness. They are called Metabolic fitness, Morphologic fitness and Bone integrity (American College of Sports Medicine, 2006). Figure 2 shows factors of Physiological fitness.

Metabolic fitness is about the current statue of metabolic systems. For example, risks predictive for cardiovascular disease or diabetes are about metabolic fitness (American College of Sports Medicine, 2006). Metabolic fitness is a reference to the position of the metabolic system and adjustable foretelling of the risk for chronic diabetes and heart related diseases (Smit, 2012: 13).

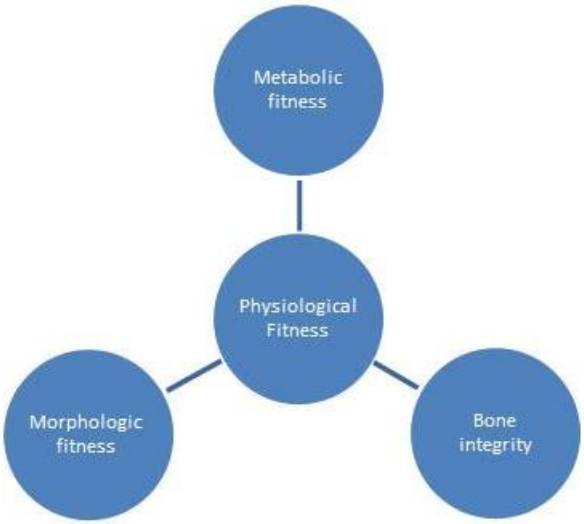

Figure 2. Factors of Physiological Fitness
Source: Prepared with the data gathered from American College of Sports Medicine (2006). ACSM's guidelines and prescription. Lippincott, Williams, and Wilkins, Baltimore, MD.

Physical activity contributes to diminish the risk of diabetes or cardiovascular disease. Increased amount of physical activity and regular exercises will help struggling with those diseases. Regular physical activity will inevitably result in a resistant metabolism. It is not easy to see various diseases at a resistant metabolism. After the second International Consensus Conference on Physical Activity, Fitness and Health the term Metabolic Fitness was begin to be used widely (Corbin, et. al., 2000).

Metabolic fitness term which is accepted as a main fitness component, used in the recent position statement describing the quality and quantity of physical activity necessary to reach health-related benefit. The International Consensus statement noted that metabolic fitness included such sub-components as blood sugar levels, blood lipid levels, and blood hormone levels (ACSM, 1998).

The other physiological fitness is morphologic fitness. Morphological fitness is the status of body compositional elements for example body circumference, body lipid content and local body fat spreading (Smit, 2012: 13). Morphological fitness has a separate identification because of the fact that while physical activity has many benefits, it has little effect on various aspects of health when applied below recommended levels. That is why metabolic fitness is considered as a separate component of fitness (ACSM, 1998).

Corbin (et al., 2000), says morphological fitness is a non-performance component of fitness related to body composition elements such as body circumferences, body fat content, and regional body fat distribution. Morphological fitness evaluations are frequently linked to metabolic fitness components. Body composition is often involved as a component of health-related fitness but is also applicably studied a component of morphological fitness. The body mass index, waist circumference, and waist to hip ratio measures used to calculate body composition are also used to evaluate morphological fitness as well (Corbin, et al., 2000: 8).

The last physiological fitness factor is Bone integrity. Bone integrity is about bone mineral density (Smit, 2012: 14-15). According to Corbin et al., (2008), bone density is a non-performance component of fitness. Bone strength was acknowledged as a

constituent of physical fitness in the first International Consensus Statement. Since measurement is high costly and obliges unique equipment and a high quantity of proficiency, there are no presently used field measures that are used expansively. There is general agreement, however, that bone integrity is associated to regular physical activity (Corbin, et al., 2000: 8).

Habitual physical activity is to be examined. Moreover, habitual physical activity is also related with Physical Education. The analysis of physical fitness population has shown in the last decades a greater interest, because the recognition of the associations that can be established with habitual physical activity, health and well-being. Therefore, it seems essential for students to evaluate physical fitness in any physical activity program or Physical Education (PE) classes, establishing their baseline in order to achieve the healthy zone and supervise its progress (Aires, 2009: 10).

2.4. Physical Education and Health Related Fitness

2.4.1. Health as a Concept

It will be wise to mention about "health" as a term. It is a known fact that people face with several problems nowadays. Many problems such as cancer, diabetes, heart disease and strokes are seen among people. According to data gathered from World Health Organization (WHO), chronic diseases in all over the world trigger 35 million of 58 million deaths. It is also known that there are some well-known reasons for those diseases. Especially three reasons are taking attention. They are changes at diet, tobacco use and physical activity (WHO, 2007: 12).

Not only physical problems such as above mentioned diseases but also psychological problems affect life of a person in a negative manner. In order to have adequate life standards, people must have both physical and psychological wellness. Body and ideas of a person must operate at a normal level. Without having above mentioned problems, social and economic life of a person will go properly. When people in a society

live healthy in general, that society will develop and will not face many problems caused due to health (Filiz, 2010: 16).

Reviewing the literature, it is seen that there are some definitions of health. Definitions of health generally focus on above mentioned physical and psychological wellness of people. The most frequently used description of the term health is made by WHO in 1946. According to the definition of WHO, health is "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 2002).

At another definition, Bircher (2005) defines health as "a dynamic state of well-being characterized by a physical and mental potential, which satisfies the demands of life proportionate with age, culture, and personal responsibility". It is defined by Saracci (1997) as "a situation of well-being, open to sickness or infirmity, and a rudimentary and universal human right". As seen, despite different definitions are made they have common meanings.

Health is not a term related with a person solely. Health is a topic having great importance for governments. In all parts of the world, governments take responsibility of hospitals. Health standards established by governments are strictly observed. The reason of importance of health for governments is the results of lack of health. Lack of health directly affects public in a negative manner. When a person is ill, he/she will not be able to do his/her responsibilities in society. Moreover, ill people will cause cost for public (Çakır, 2007). Because ill people cannot contribute anything to society, governments take several measures in order to promote health. Promoting physical activities in public and using physical education programs are among those measures taken by governments. Happy and productive societies can be established with happy and productive people. This fact makes health more and more important for educators.

In many parts of the world, people may consider that people use health services only when they have physical problems. Nowadays, there is a change at this situation. People are more aware of the fact that health is related with psychological wellness as well

as physical wellness. Moreover, people and governments also look for different ways of establishing healthy society. Previously, there was an understanding of taking health services when needed. It was unusual to take health service before being ill. However, people and governments use health services before getting ill. Those health services are called preventive health services (Yetkinlioğluoğlu, 2009: 13).

Preventive health services may serve better than traditional health services. They are cheap and prevent illness. Physical activity and health related fitness are terminologies which can be examined under the title of preventive health. As a result importance of those terms, WHO has a global strategy about physical activity and nutrition. This strategy helps to struggle against heart disease, stroke, diabetes, cancer and obesity-related conditions. WHO's strategy also inspires people to be physically more active and have a healthier nutritious habits (WHO, 2007: 12).

All those definitions and expressions observed in literature shows that health is not a term solely about going hospitals in case of illness. There are different ways of promoting a health life. One of those is called "physical fitness". Physical fitness will be mentioned in detail at following pages. At that point, it must be expressed that physical fitness is about physical activity. Physical activity has many benefits on health. Moreover, it is also used in physical education courses in schools. Physical activity is the connection point of physical education and a health life.

2.4.2. Physical Education

Up to now, it is seen during literature review that health, health related fitness and physical activity have close relationship. In some way, they are all related with physical activities. Considering the importance of physical activity, it is not surprising to see physical education programs in schools. At that part of the study, physical education will be mentioned shortly. Significance of physical education in that study depends on "physical" aspects of physical education. Physical education is a course dealing with physical development and physical activities of students. Physical development, physical

success, physical fitness and physical appearance are all those related with physical education. In other words, physical education contains physical aspects (Seçme, 2008: 3).

Physical fitness is a term having direct relationship with physical activity. In fact, physical fitness may be described both as a need and a result of physical activity. At first years of popularity of physical fitness, the term was defined as having the ability of performing daily routines. In other words, physical fitness was cited as with alertness and vigor, performing daily tasks without undue fatigue. Moreover, dealing with unexpected emergencies and enjoying leisure time were also considered as a result of physical fitness (Clarke, 1971).

Governments pay great attention on physical education in order to grow a health generation. In terms of education, physical, psychological and logical development of a person can be achieved via physical education. As described at the first pages of the study, "health" is not solely physical wellness. It is also mental wellness of a person. At that point, it must be admitted that physical education is a perfect tool for developing a health generation. Physical and mental health is resulted in many characteristic properties. According to Çınar (2007), living in accordance with the general ethic norms of society, respecting other people, being helpful and some other similar properties are all results of physical and mental health (Çınar, 2007: 2).

Logical development is not enough for a health life. Physical education is also necessary for defeating negative effects of technology on people. Physical education is not something solely related with "physical" development. In order to be active physically and take necessary steps in terms of using body, a person must be able to recognize the circumstance and decide what to do in a short time. All those demonstrate the importance of physical action for a health person (Heper, 2012: 2).

2.4.2.1. Historical Development of Physical Education

It is not a new thing physical education gained importance for governments. People were aware of physical education in the past. In fact, physical education has been

used for various aims throughout the history. For example, people educated their body in order to hunt and escape from various threats in fists parts of mankind history. Hunting animals and escaping from threats necessitated physical education and training. Moreover, wars also made it necessary to have a physical education for people. At a certain period of mankind, physical education was such an important thing that it was fundamental tool of surviving (Kılıç et. al., 2012:8).

However, it is difficult to mention about systematic physical education in those years. In the world, Germany is the first country having systematic physical education. Nearly 100 years before Turkey, Germany started systematic physical education in 19th century called physical education with tools. Adding to Germany, Denmark and England are also the countries started systematic physical education in 19th century (Şentürk, 2012).

Physical education was also important at Ottoman Empire. Physical education was important at Ottoman Period because of desire of the state strong soldiers. As a result of need as soldiers, physical education was seen at palaces and military at Ottoman Empire. 1846 was the first year physical education was seen in Ottoman Period as a course in schools (Akkutay, 1984).

That was the first time physical education was observed in education. After that, physical education developed in the country and nowadays, all schools in Turkey have physical education courses. At that part of the study, it is wise to mention about current physical education course content.

However, it will be wise to mention about curriculum change in general before talking about current content. First of all, it must be expressed that there are significant changes between physical education content in 1990s and nowadays. According to İnce (2012), the physical education content was mainly focused on physical activities in 1990s. However, it has turned to a more health related content so far. Moreover, there is a trend of focusing on physical education taking technological developments into account. Author expresses that student; social and physical environment and policies are being

evaluated for updates of the content. Content changes observed in 2012 and 2013 are mainly prepared with needs, aims, content, strategies and evaluation (İnce, 2012).

However, literature review shows that there are not significant changes in the world as it is in Turkey. That may be interpreted as "Turkey was late to make changes" or "There are good developments in Turkey comparing with the world".

According to Hünük (2013), there are not significant changes at physical education contents in the world in general comparing with last decades. The writer expresses that:

> *Physical education has been evolved from three radical reforms and extinction in its history. The first, up until the 1950s held the dominant view of physical education as gymnastics. Between 1950s and 1990s, the idea of physical education shifted from physical education as gymnastics to physical education as sport-techniques. The effects of social conditions such as introduction of mass secondary education, contingent constraints of institutionalized schooling, and a greater number of male physical educators entering the profession during the 1950s marked this change. Finally, reform after 1990 evolved as a result of emerging researchers who indicated that increasing non-communicable diseases, such as cardiovascular disease, diabetes, cancer, obesity rates and physical inactivity had become the most important public health issues globally (Hünük, 2013: 7).*

2.4.2.2. Current Physical Education Course Content

Children and young people are more and more active comparing with older people. In schools, programs and environment is to provide time and other opportunities to children and young people in terms of spending energy via physical activities. Those kinds of opportunities may be provided with physical education affectively thanks to programs. Moreover, development of muscles is also another benefit of physical education for children.

Considering those facts, it may be said that physical education course contents may include targets and physical activities helping to develop body of children and spend their energy as much as possible. Physical education programs may contain physical

activities which can be done by students easily. Those activities may help physical and psychological developments of children as well (Çınar, 2007: 34).

In Turkey, current Physical Education program has been prepared in accordance with Aims of Turkish National Education. Those aims are declared at Article 2 of National Education Basic Law with the number of 1739. According to 2nd Article of the law, aims Turkish National Education effected Physical Education Program can be summarized as "people loving country, loved by the society and accepting norms of society, who are health in terms of physical health and emotional health"[2] (National Education Basic Law with the number of 1739).

Laws and regulations also described basic principles of Physical Education Concept. According to Ministry of National Education of Turkey (2010), those principles can be followed:

1. Physical activities are done by sport and games,
2. Students are considered as a whole with their cognitive, emotional and physical development processes,
3. A student centered approach is admitted,
4. Process based,
5. Developmental,
6. Flexible,
7. Topics are tool to achieve targets,

[2]"The main objective of Turkish National Education is to enhance all members of the Turkish Nation, as citizens loyal to Atatürk's reforms and principles and Atatürk nationalism manifesting itself in the Constitution; adopting, preserving and furthering the national, moral, mortal, spiritual and cultural values of Turkish nation; loving and forever striving to uphold their family, their land and their nation; aware of their responsibilities and having rendered such awareness a form of behavior for the Republic of Türkiye -- a democratic, secular, and social state of rights, founded on human rights and the fundamental principles stated in the Preamble to the Constitution, as constructive, creative and productive individuals with a physically, mentally, morally and emotionally well balanced and healthy personality and character, equipped with the capacity for free and scientific reasoning as well as an encompassing view of the world, respectful to human rights, valuing the individual and the enterprise, feeling responsible to the society,as professionals prepared for life with competencies to contribute to their own happiness and that of the society, by having them gain the necessary knowledge, skills, attitudes and team work habits through developing their interests and aptitudes."

8. Environment and interaction with other people are important factors during education process,
9. Personal Works, peer-works and group-works are all done in moderate levels,
10. It is important that students must feel safe when they are at physical education lessons,
11. Critical thinking is important,
12. National and global norms have significance,
13. Fair-play is a principle,
14. Teacher is free,
15. Participation is important,
16. Sensitive to environment (Ministry of National Education of Turkey, 2010: 13).

As seen, aims and principles and other functions of physical education program in Turkey focus on physical, emotional, cognitive and moral development of students. In it aimed to support students in various fields via physical education. Moreover, it is also seen that physical education programs support main aims of Turkish national education. All those properties of physical education programs bring a great responsibility to physical education teachers. There are some properties physical education teachers must have.

There is an important problem about physical education content. It is the lack of social support. An important fact is that lack of parental and administrative support results in inability to reach aims of curriculum. Not only parents and school but also students do not consider physical education as an important lesson. There may be several reasons for that. For example, physical education is out of general exams made by The Ministry of Education. Moreover, people do not aware of important of health related fitness. Researchers may search all those. Current studies demonstrate lack of that interest. According to a study held by Hünük and Demirhan (2003):

- Attitudes of primary school student, secondary school students and university students are positive about physical education,

- Physical education is considered as "important" as the age increases. University students have more positive attitudes to physical education comparing with primary school and secondary school students,
- Men have better positive attitudes than women (Hünük and Demirhan, 2003: 182-183).

At another study about social support, it is seen that mothers are more aware of the importance of physical education than fathers. Women generally support children for participating in physical education courses. Moreover, it is also seen that socio-economic statues of families affect attitudes towards physical education courses. Families having healthier lifestyles support participating in physical education lessons. For young adolescent students, mother's provision on their physical activity level is very effective. Also results shows that school type and gender of the participants' basis substantial differentiations in perceived social support for physical activity (Hünük et al., 2013: 5).

2.4.2.3. Physical Education Teacher

In Turkey, there is a need of graduation from four years of university education in order to be a physical education teacher. It is not solely enough to graduate from any branch of university. There are departments in universities education physical education teachers. In those institutes, physical education teachers become aware of the importance of their duty and get necessary education. For example, physical education teacher is a person who must have various qualifications about environment, physical development, emotional development etc. (Seçme, 2008: 9).

Physical education teachers must be able to organize the environment. Physical education teacher must evaluate program, materials, seasons, student types and many other specific topics in great detail. It is impossible to apply a stable physical education activity to all class. Physical education teacher must observe abilities of all students and behave accordingly. Via that way, main duty of physical education teacher is supporting students for acquiring functions of physical education courses (Kalyoncu, 2007: 37).

Physical education teachers have many responsibilities. For example, there is a high density of lessons at physical education courses. Physical education teacher is directly related with discipline problems in schools. Moreover, materials in school are mainly under the responsibility of physical education teachers. There are also some bureaucratic duties of physical education teachers. Problems of students good at sports are mainly under the responsibility of physical education teachers. Physical activity teacher is the one who is responsible for indoor and outdoor activities. Furthermore, physical education teachers have many responsibilities at special days and festivals and ceremonies (Seçme, 2008: 10-11).

It is not easy to fulfill all those responsibilities. In order to be a good physical education and fulfill necessities of the job as much as possible, a physical education teacher must have several qualifications. A physical education teacher must be able to support students in terms of their development. For that aim, he/she must be aware of developmental qualifications of people. He/she must get in touch with other teacher while solving problems of students. Ability to communicate effectively is important for physical education teachers. It is also important for physical education teacher to obey rules and be aware of regulations (Kalyoncu, 2008: 42).

Another very important responsibility of teachers is that they must be good at content knowledge. Physical education teachers must develop themselves and must be eager to learn new things about the content. As described above, physical education content has changed in favor of Health Related Fitness. As a result, teachers must be good at supporting Health Related Fitness. As cited in literature review of İnce and Hünük (2003):

> *Experienced teachers' Health Related Fitness content knowledge level was low, teachers' perception of their Health Related Fitness content knowledge level and teaching competency of Health Related Fitness content were moderate. Teachers' Health Related Fitness knowledge level and their experiences in knowledge internalization processes were quite different among the different knowledge level groups within them. Identified intrinsic and external factors that teachers reported in this study should be*

considered in preparation of future professional development programs (İnce & Hünük, 2003: 306).

Physical education teacher must be aware of qualifications of students as described. Moreover, a physical education teacher must also make students aware of their physical qualifications. Students must know physical and cultural differences and behave in accordance with those differences. Another essential property of physical education teacher is ability to teach schoolchildren's` importance of global norms and concepts such as human rights, respect, cultural differences etc. (Kalyoncu, 2008: 42).

2.4.3. Health Related Fitness

The term "Health Related Fitness" has a great importance for the sake of that study. Health status and physical activities having a degree of habitual activity are about health related fitness. In general, health related fitness can be expressed as ability to do certain routine works in daily life with vigor. All those activities and daily routines must not take risk for human body. In other words, health related fitness has been stated as a manner of being able to accomplish daily activities with vigor, and personalities and capabilities that are related with a low risk of premature development of hypo kinetic diseases and circumstances (Tammelin, 2003: 19).

Traditionally, physical fitness was defined as having all qualifications of being physically fit. Various types of functional capacities were evaluated under the title of physical fitness. However, physical fitness is not enough to define health outcomes of physical activities. There is a need for another definition about health income of physical activity. Aspects of fitness related with health must be examined separately. View of society and science on physical fitness must focus on health. According to Pate (1988), health related fitness must be examined and evaluated in detail especially by physical education teachers. Teachers must be aware of the fact that health related fitness is related with ability to perform daily tasks without facing problems related with body and health (Pate, 1988: 174).

Health related fitness has five factors. Those factors are called cardio fitness, flexibility, muscular strength, muscular endurance and body composition. Figure 3 shows factors of Health related fitness.

Figure 3. Factors of Health Related Fitness
Source: Prepared with the data gathered form literature review

Cardio Fitness is something about ability to spend energy for during a time. Cardio fitness is the ability of working for extended periods of time. When a person moves his or her body for a short time, it means that there is a problem in terms of cardio fitness. Cardio fitness is core factor of health related fitness. A problem seen at cardio fitness will affect all factors and there will be a negative situation at health. Cardio fitness is the ability of heart to pump blood with full of oxygen. In other words, Cardio fitness is a degree of the heart's capability to circulate oxygen-rich blood to the functioning muscles during workout ability to inhale and consume the oxygen. Necessary energy is produced by the oxygen and sent to the muscles for extended periods of exercise (Smith, 2012: 14).

During muscles are working in a physical activity, ability of circulatory and respiratory systems to provide oxygen to working muscles is referred to Cardio fitness. Cardio fitness has relationship with Cardiovascular Health, Adiposity and Physical Activity. Relationship of Cardio fitness, Cardiovascular Health, Adiposity and Physical Activity is shown at Figure 4.

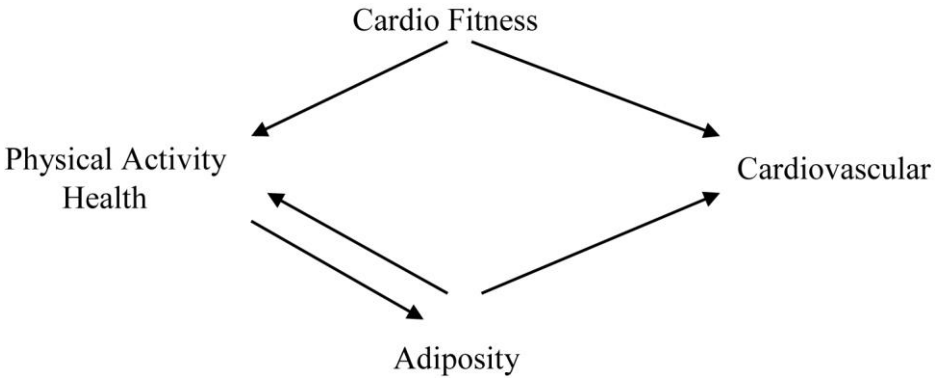

Figure 4. Relationship of Cardio fitness, Cardiovascular Health, Adiposity and Physical Activity
Source: Kwon, 2010: 1

Cardio fitness is also called cardiovascular fitness and cardiorespiratory fitness. It is called cardiorespiratory fitness because of relationship with lungs. Generally, continuous physical activities like running, cycling, swimming or step tests used for measuring cardiovascular fitness (Corbin and Daile, 2005).

The second factor of health related fitness is flexibility. Flexibility is about joints of the body. During movements, the range of motion the joints have is flexibility. Joints ability of motion at the time of movement is about flexibility. There are some ways of measuring flexibility (Demetriou & Höner, 2012).

The third factor of health related fitness is muscular strength. Muscular strength is all about power produced by muscles. Maximum amount of force that can be obtained from muscles when needed is defined with muscular strength. There is a need for energy in order to perform physical activity. Energy cost is a term referred to the amount of energy needed to perform physical activity. Muscular strength is the amount of power muscles produce with the energy used. According to Altun (2009), Adults should do muscular strength activities two days in a week (Altun, 2009: 12).

According to Corbin and Daile (2005), muscular strength relate to the maximum quantity of force a muscle can produce against a contrasting force. Two methods used for to evaluate of muscular strength of specific muscle group (bench press, leg press, etc.) or

total body in that one repletion of maximum lift and maximum repetition of constant weight (Corbin and Daile, 2005).

The fourth factor is muscular endurance. In fact, muscular strength and muscular endurance have similar meanings. Just like muscular strength, muscular endurance is also about power produced by muscles when needed. However, there is a difference between muscular endurance and muscular strength. As described, muscular power is the amount of power produced by muscles. However, muscular endurance is the duration of power production. Muscular endurance is the ability of muscles to produce power for several times without facing an excessive fatigue (Smit, 2012: 27).

Working without a fatigue is an important aspect of muscular endurance. When there is a heavy pressure on muscles, there will be health problems. In other words, muscles must work for a long time without fatigue because that kind of a fatigue results in injuries. Muscular strength provides physical activity in long term without any health problem. Execution of exercises such as pushups and sit-ups or crunches for one minute is commonly used in fitness testing of muscular endurance (Corbin and Daile, 2005).

The last factor of health related fitness is body composition. Body composition is the proportion of muscle, bone, and water and fat a body has. Amount of those variables are topics examined in terms of Body Composition (Kwon, 2010: 5).

Amount of muscle, fat tissue and muscle is referred to body composition. To have a healthy body, one needs to have equilibrium between the percentage of muscle and fat tissue in the body. Extra weights in body particularly in a shape of lipid bring or extra demand for respiration circulation and muscle and joint systems. In consequence the risk of being afflicted with heart disease, diabetes, high blood pressure and osteoarthritis increases. However, having a too lower body fat percentage is not healthy either. It is essential for people to have adequate amount of body lipid to protect organs, insulate body against weather conditions and source of energy. Body composition may be influenced from some other factors. Those factors influencing body composition may be listed as

follows: Calorie consumption / diet, calorie spending / activity level, heredities, illness, age and metabolic rate (Ruston, 2006).

Those five factors are determiners of health related fitness. Shortly, those factors may be summarized as follows:

1. Cardio fitness is the ability of spending physical energy for an extended period of time,
2. Flexibility is about moving body part via using joints in an effective and flexible way,
3. Muscular strength is about amount of power produced by muscles,
4. Muscular endurance is about period of time of power usage by the muscles,
5. Body composition is the ratio of muscle, bone, water and fat a body has.

There are some tests administered in medical, school and other places. Those tests are tests about physical fitness. However, it is seen that components measured in those tests are mechanisms of health related fitness. Tests of health related fitness seen in field and labs containing some kinds of performance such as doing a specific muscle exercise, running or stretching. Body composition cannot be considered as a performance measure. Because of that fact, some question its presence as an element of health-related physical fitness. Acquiring good health-related fitness is associated with lesser threat of disease and enhanced excellence life style (President`s Council on Physical Fitness and Sports, 2010).

Both the health related fitness and physical activity have close relationship. Moreover, those two concepts are directly related with the term health. At that part of the study, it will be beneficial to examine relationship between physical activities, health related fitness and health.

2.4.4. Relationship between Physical Activity, Health Related Fitness and Health

It is easy to understand that physical activity, health related fitness and health have a close relationship. Taking part in physical activity programs has various benefits for health. For example, participating in those programs reduce mortality and morbidity from several chronic diseases such as obesity, some types of cancer, hypertension, type 2 diabetes and cardiovascular disease. Threat of above mentioned diseases and especially cardiovascular disease is decreased even with a moderate level of physical activity. Moreover, even light or moderate level of physical activity reduces risk of cardiovascular risks on women. It is supported by the studies that a physically active person, who is doing more work related and recreational activity, may have less coronary heart disease problems than sedentary people (Altun, 2009).

In fact, physical activity and health related fitness are determinants of a health life. First of all, association between physical activity and health related fitness must be examined in detail. They are all affected from each other. First of all, it is admitted that health related fitness is influenced from physical activity both in young and throughout the life.

Young people are generally seen as suitable for physical fitness. Reviewing the literature, it is seen that many authors pay great attention to physical activity and health related fitness for young people. According to Tammelin (2003), there are four determinants of relationship of health related fitness and physical activity at young people. They are youth physical activity, adolescence health related fitness, and mature physical activity and adult health related fitness. Figure 5 shows relationship of health related fitness and physical activity for young people.

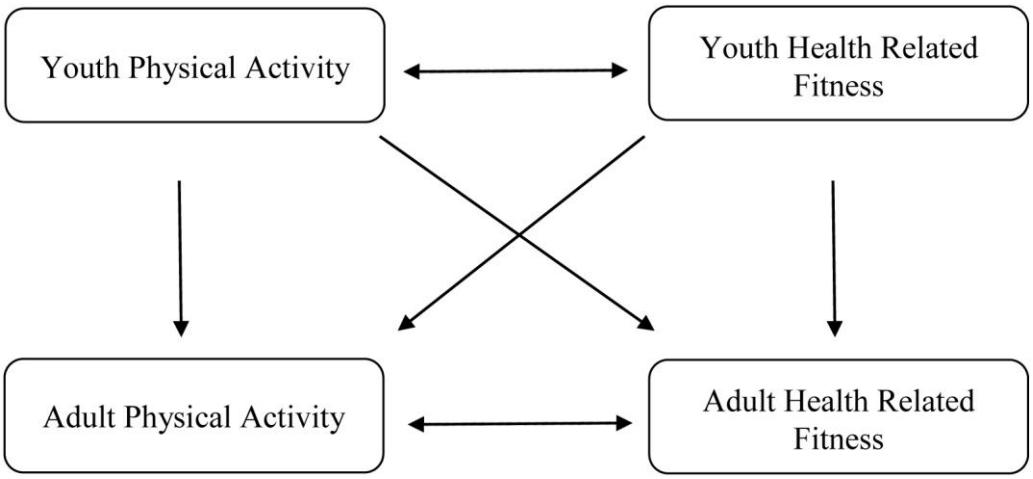

Figure 5. Relationship of Health Related Fitness and Physical Activity for Young People.
Source: Tammelin, 2003: 23

Figure 5 shows relationship between health related fitness and physical activity. That figure also shows how those processes are transmitted to from one period to another period. Analyzing the figure, it is seen that youth physical activity continues at adult physical activity. In other words, effects of physical activity at youth are also seen in adult. Similarly, it is also seen that youth health related fitness continues at adult health related fitness. In other words, effects of health related fitness at youth are also seen in adult.

Adding to those, figure 5 shows that youth health related fitness has effects on adult physical activity. Likewise, youth physical activity has effects on adult health related fitness. Another important aspect of the figure prepared by Tammelin (2003) is that this figure shows correlation between physical activity and health related fitness. Above figure shows that there is a multi-dimensional relationship among youth physical activity and youth health related fitness just like adult physical activity and adult health related fitness.

There are several studies showing relationship between health and physical activity. According to results of a study held by Jeon and his colleagues in 2007, reasonable level of physical activity reduces the risk of diabetes and activities such as even brisk walking can be used as an effective tool for preventing type 2 diabetes. Moreover, diabetes can also be treated via physical activity. For example, exercises can be used for treatment of type 2 diabetes. Moreover, endurance exercises are also good ways of treating type 2

patients. Not only at Type 2 diabetic, but also hypertension is also prevented thanks to physical activity. Hypertension is the one of the most dangerous threats for people's health and lack of vigorous recreational activities contributes to the risks having that disease. Physical activity is one of the treatments for hypertension by lowering the blood pressure and also decreasing the risk for cardiovascular diseases (Altun, 2009).

In order to have benefits of relationship between health related fitness, physical activity and health, there is a need of some kind of physical activity regularly. Achieving health profits of physical activity needs more than 60 minutes of physical activity per day as a minimum amount. Physical activity is something having different amounts observed in different countries. For example, there are some countries in which children have high level of physical activity such as the United States, Canada, Lithuania, Ireland and England. However, some nations such as Belgium, Italy, France, Norway, Portugal and Estonia have low levels of physical activity (Demetrious and Höner, 2012: 186-187).

In the previously mentioned countries, it may be said that people are aware of the importance of physical activity in terms of health more comparing with other countries. Some people claim that physical activity is also protective against colon cancer and breast cancer. Physical activity may be used for an effective tool against breast cancer. According to a study held by Thune and his colleagues in 1997, the researchers followed 25.624 women between the ages of 20 to 54 from 1974 to 1978 and 1977 to 1983 and found that participating in more leisure-time physical activity was effective for reducing the risk of breast cancer.

Another prospective study reported that there was a strong association between physical activity and colon cancer in women. When the level of leisure time physical activity participation increases, the incidence of colon cancer decreased. The risk of developing colon cancer increases if high energy intake, high body mass index and physical inactivity are increased (cited by Altun, 2009).

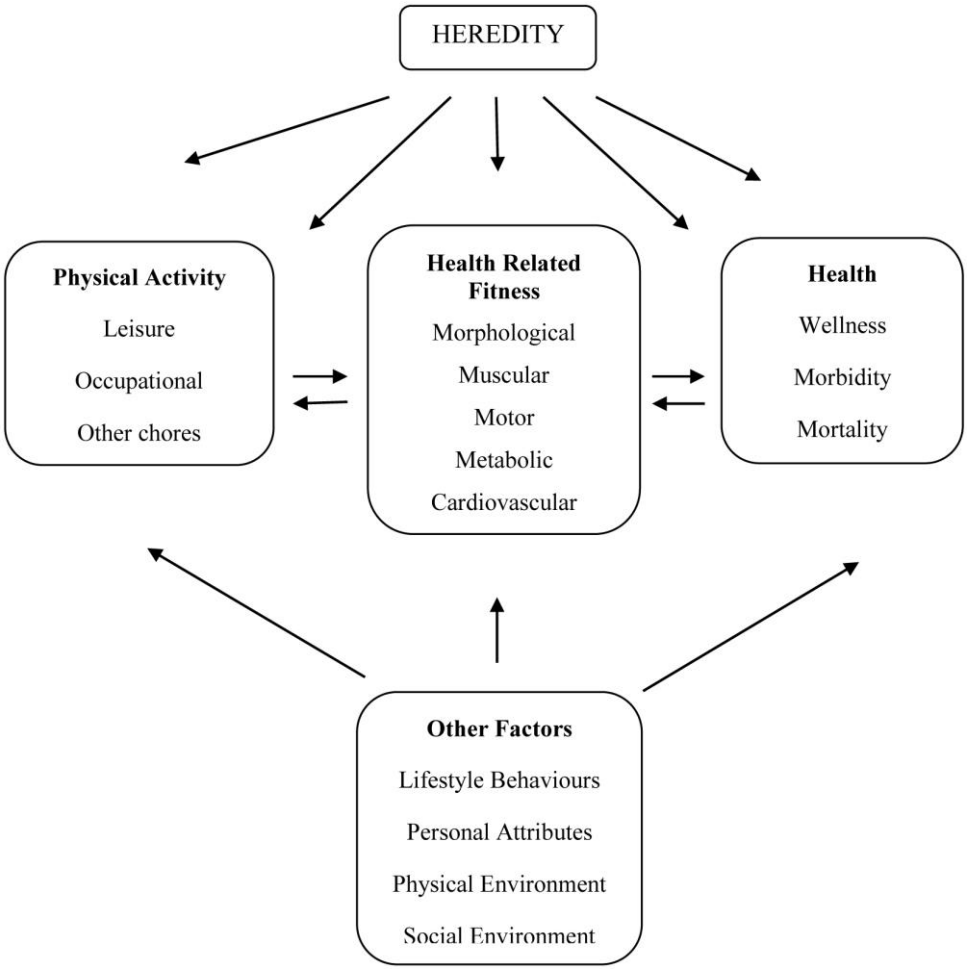

Figure 6. A Model Describing the Relationships between Physical Activity, Health Related Fitness and Health

Source: Bouchard C & Shephard R (1994) Physical activity, fitness and health: the model and key concepts. Human Kinetics, Champaign, IL, p 77–88.

At another study, Bouchard and Shephard (1994) prepares a good model for presenting relationship among health related fitness, health and physical activity. According to authors, figure 6 shows a good model for that relationship.

Model developed by Bouchard and Shephard shows exact association among physical activity, health related fitness and health. As seen at the figure 6, physical activity is affected from other factors such as routine physical activity behaviors, personal attributes, physical environment and social environment. Similarly, health and health related fitness is also affected from those factors. At the same time, there is a multi-dimensional relationship between physical activity and health related fitness. That kind of a multi-dimensional relationship also occurs between health and health related fitness.

2.4.5. Relationship of Physical Education and Health Related Fitness

Physical education is widely used in schools nowadays. Health promotion is a field in today`s school environment. Demetrious and Höner (2012) stressed that school based interventions have been increasing because of several reasons that easy availability for children and adolescents, the large amount of time at school where students spend, and promotion of health in the physical education curriculum.

Health promoting via school has various types and ways. There are many health-promoting programs extending from packages that avoid smoking, alcohol consumption, and excessive weight to programs that encourage physical activity as preventing to sedentary lifestyles. Different kinds of programs that promote physical activity can be observed. Moreover Demetrious and Höner (2012) stressed out that some programs compose of just physical activity components while other programs compose of only cognitive components. Eventually, there are programs that include together constituents.

May authors support the idea that physical education teachers must focus on health related fitness heavily. Pate (1988) expresses that situation as follows:

> *It is advised that the physical education profession's main interest must be for promotion of health related physical fitness, defined as a state characterized by (a) an ability to perform daily activities with vigor, and (b) demonstration of traits and capacities that are associated with low risk of premature development of the hypo kinetic diseases (i.e., those associated with physical inactivity). Moreover, the terms like physical fitness and motor performance may be used by professional physical educators, if consensus can be built around precise literal and operational definitions (Pate, 1988: 174).*

In fact, it is successful and practical to make a connection between physical education and health related fitness. School based exercise help students preventing illnesses and getting ready for physical activities. Physical fitness is supported in a great manner thanks to physical education. Intervention reveals that aerobic exercise can and should be included as a routine element of school based physical education programs. School physical education programs with vigorous physical activity, active extracurricular

time, and school surroundings that support good health and active lifestyle can contribute to the advancement of lifetime health-being in children (Wang, 2004).

At physical education courses, teachers and managers must motivate students to participate in physical activities and physical education teachers must promote students participate in physical activities. Health related fitness must be enhanced and educated via physical education courses (Rengasamy, 2012: 1105).

Many people consider physical education not more important than some courses such as Math, science etc. However, physical education promotes some qualities of students, which cannot be supported via other lessons. Other lessons mainly related with class activities. Classroom has a limited space and it is limited to make physical activities. Moreover, functions of other courses are not suitable for health related activities. That is why health related fitness must be supported by physical education. In other words, physical education is the only lesson that can promote health related fitness and, as a result, physical education must be used as a good tool for promoting health related fitness (Dwyer et al., 2003: 449).

In Turkey, policy makers realized the importance of health related fitness and it is integrated to physical education curriculum in 2007. After new physical education program was prepared with a constructive approach, students are expected to use discovery-learning process. Therefore, it becomes necessary to examine the effects of health-related physical fitness on the learning process of the students who engage inquiry-based learning. Physical fitness includes most properly performing physical education workouts, and indicates the existing physical fitness of the body along with the physical endurance. Health aspect of the physical fitness is composed of cardiovascular system, muscular strength, muscular endurance, flexibility and body composition (Uzunosmanoğlu, et al., 2012: 1906).

Integration of health related fitness into physical education curriculum has many benefits on health of students. For example, physical education is a good tool for struggling with obesity. Moreover, effects of health related fitness and then process may

be easily monitored and examined in school. Behaviors of students may be evaluated and listed with a low cost under school conditions. Physical Education in the school system can be very effective by incorporating a theoretical approach or involving the Physical Education teachers to deliver or supplement the messages of a healthy and active lifestyle (Aires, 2009: 27-28). Bek (2008) expresses effects of health related physical activity in physical education as follows:

- Stability is supported via muscle-joint control,
- Joint movements become under control,
- Increased flexibility,
- Supporting a good looking body,
- Making muscles more strength,
- Providing balance among muscles and body parts,
- Better lung operating,
- Supporting people quitting smoking cigarette,
- Supporting water-salt balance of the body (Bek, 2008: 10-12).

Not only primary and secondary schools, health related physical fitness is also important in universities. At the University level, it has become common for some form of a conceptually based health-related fitness course to be offered either as an elective or required general education course. It reported that approximately 60 % of universities currently offer either an elective or required conceptually based health-related fitness course in their general education curriculum (Adams, et al., 2007: 19).

Now, people are sure of importance of health related fitness especially in terms of promoting health habits and behaviors. Physical Education teacher can have the key role in the coordination in school-based intervention programs, involving parents, teachers, community, and institutions in an interdisciplinary network. The school is the perfect

place for extra-curriculum interventions to overcome barriers for physical activity, such as the lack of transportation, security, and others (Aires, 2009: 27-28).

2.5. Summary of the Literature Review

The literature review indicates that PA participation during adolescent period decrease significantly. Together with the decline of physical activity participation of adolescents, level of obesity and school physical education dropouts are increasing (UNESCO, 2012). Physical inactivity of this age group is serious problem of both the developed countries and Turkey as well. In the first place WHO and other civil and social organizations interfered this situation and call attention to at least 60 minutes daily moderate to vigorous intensity physical activity for children and adolescents. It is also recommended for the children and adolescents to participate in muscle and bone strengthen activities at least 3 times per week (WHO 2011).

Schools are the unique place where global policies and national programs can be implemented and could evaluate the results during process. In the 90's conceptual physical education has took place in the curriculum of the many developed countries and there are many studies supporting the benefits of regular physical activity participation bring health benefits with HRF physical education interventions. In 2007 Turkish ministry of education has changed physical education curriculum and health related fitness concept was added. However objectives of the previous physical education curriculum cannot be achieved according to almost 80%of the teacher population in Ankara (Demirhan et al., 2003). On the other hand, beside indoor and outdoor activities, physical education teachers are busy and responsible for discipline problems, school sport materials, bureaucratic duties; problems of students good at sports, special days and ceremonies are mainly under the responsibility of physical education teachers (Seçme, 2008: 10-11).

Physical education teachers having a bachelor's degree on Physical Education and Sport are capable of giving skill based physical education course. However, they don't have sufficient health related fitness content knowledge. Therefore teachers do not prefer

to teach HRF instruction in schools although the new curriculum has HRF content. (Ince & Hunuk 2013).

Even though the effectiveness of HRF physical education intervention was mostly tested for the university students in Turkey. There has not been any HRF study in the literature conducted by physical education teacher for the high school students in Turkey. There is insufficient information about how to use and apply HRF intervention in a real physical education environment. The present study proves the implacability of the HRF physical education course in school settings. This study contributes to the literature in terms of content and implication of HRF intervention for the 9th grade students by a physical education teacher.

CHAPTER III

III. METHOD

Experimental research is most appropriate for answering a research question about the effect of treatment (Schuett, 2006), which identifies a sample and generalizes to population (Creswell, 2003). The purpose of this section is to describe quantitative method used in this study. Initially, the study design is briefly explained. In the following section: participant selection, data collection procedure and data analysis described in this section.

3.1. Study Design

Evaluating the impacts of a treatment or intervention requires a comparison between what happened after the treatment was implemented and what would have happened if the treatment had not been implemented, therefore a comparison group is designated to demonstrate treatment effect. In an experimental study subjects should be selected randomly and assigned to groups as well to have strong internal validity. However, there are some circumstances in which it is not practical or ethical to randomly assign participants. In a nonequivalent comparison group designs data are collected from pre-test and post-test with both a treatment and the comparison group (Creswell, 2003 & Schuett, 2006). In this design convenience assigned participants were measured both at pretest before intervention and posttest after intervention.

Overall study design and data collection procedure were performed within 4 phases (Figure 8 & Table 1). In participant selection also the first phase of the study 9th grade classes 9-S, 9-T, 9-U, and 9-V with all students selected as a comparison group and

other four 9th grade classes 9-L, 9-M, 9-N, 9-O were selected as experimental group. Participants were assigned convenience to the groups.

Table 7. Overall Study Design

Time		Two weeks	8-Week Intervention				Two weeks
Groups	N	Pre-Tests	1st - 2nd Week	3rd - 4th Week	5th – 6th Week	7th – 8th Week	Post-Tests
Experiment group	72	HRF Knowledge Test IPAQ-A Questionaire Fitnesgram Tests	Cardio Respiratory Fitness	Muscular Strength & Endurance	Muscular flexibility	BMI & Weight Control	HRF Knowledge Test IPAQ-A Questionaire Fitnesgram Tests
Comparison group	82		Skill Based Physical Education Program				

In data collection, which is the second phase of the study, participants for both groups were maintained two questionnaires and performance tests to complete pretest measures. Pretest took two weeks to minimize the error variance and loosing data. In pretest first HRFKT than IPAQ short form questionnaire were given finally the Fitnessgram tests were administered.

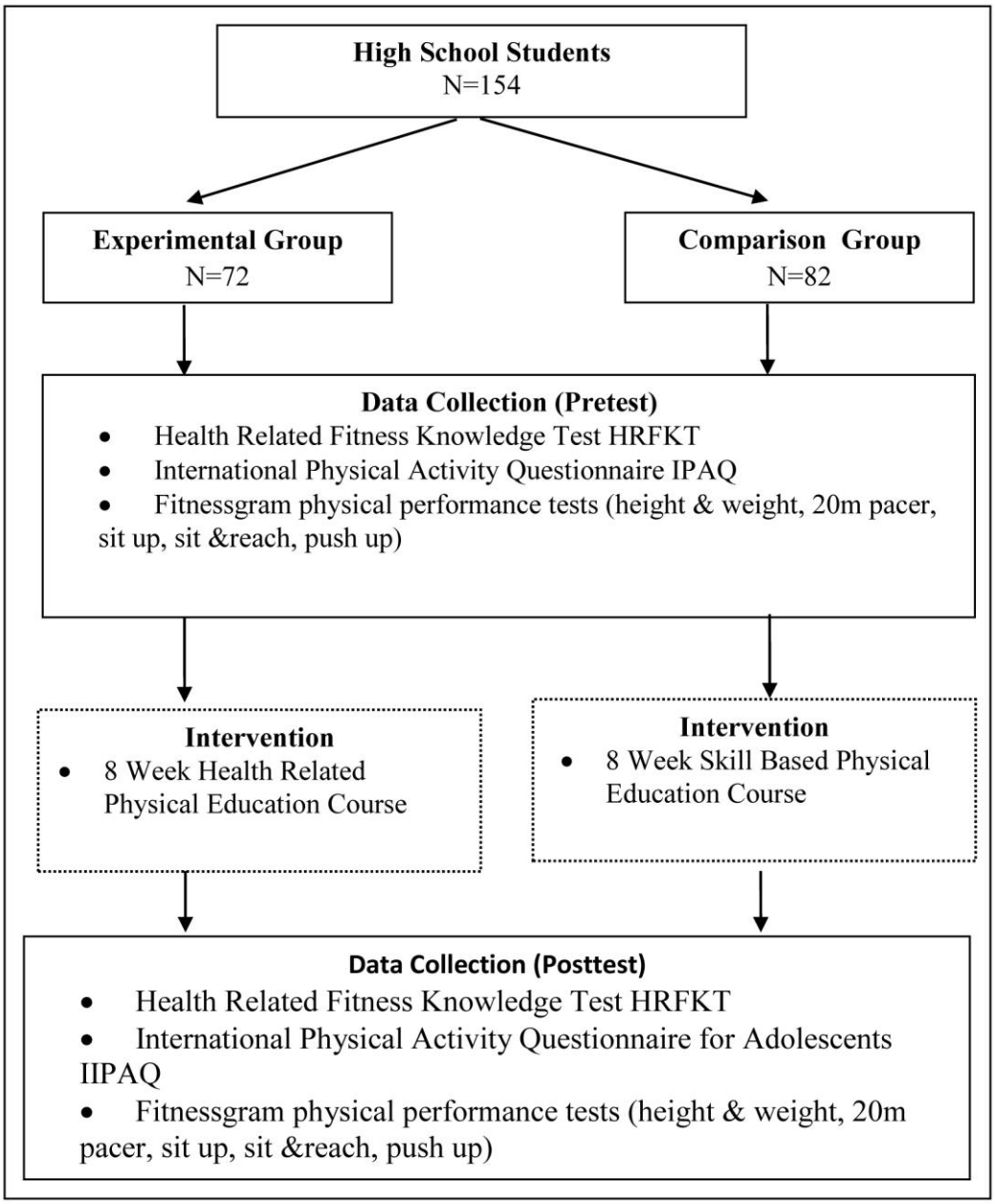

Figure 7. A full study profile

In the third phase of the study subjects for both experimental and comparison groups were taken two lesson hours that is 80 minutes physical education course intervention weekly. There was one-week interval for the spring break of Ted Ankara College. Experimental group was submitted to HRF physical education course and comparison group submitted to skill based physical education course for 8 weeks. Skill

based physical education course (basketball, volleyball and gymnastics)was given to the comparison group by Ted Ankara College physical education teachers who had 3-9-14and 20 years of teaching experiences. Skill based physical education course daily plans were presented in Appendix O. They first taught basic basketball skills passing dribbling, lay-up and shooting skills for 3 weeks than basic volleyball skills volley, forearm and serving skills were taught 3 weeks and 2 weeks basic gymnastic body positions and forward roll skills were taught to comparison group. The HRF physical education courses includes of various physical activities & lectures and discussions of HRF components under the supervision of teachers.

In the fourth stage of the study, participants for both groups were a gain maintained same two questionnaires and performance tests to complete posttest measures after 8 weeks intervention finished. The posttests were implemented for one-week interval because of public holiday. In posttest again first HRFKT than IPAQ short form questionnaire were given and finally the Fitnessgram tests were administered. Both the pretest and posttest session was video recorded for internal validity of the study.

3.2. Selection of Participants

Convenient samples of 154 (90 females, 64 males) Ted Ankara College students with the mean age 14,6 and between the ages of 14-15 were participated in this study. Following this, participants were allocated at random into either the experimental group N= 72 (27 male 45 female HRF physical education group) or comparison group N= 82 (37 male 45 female skill based physical education curriculum group). Competitive students who, were participating in schools` track and field, basketball, volleyball, football, swimming teams, also took intervention but their test scores considered as outlier and excluded from study. The participants were representative of the general population of the 9th grade college students.

Permission to conduct the study was received both from METU, University Ethics Committee (Appendix A), and TED Ankara College general principal (Appendix B). The

researcher also physical education teacher organized a meeting with the participants during PE lessons to give an overview of the study and its requirements. The researcher highlighted that it was not compulsory to take part and that all information gathered would be treated as confidential. Participants were given an information consent form, (Appendix C) to be signed by their parents.

3.3. Measures & Data Collection Procedure

In this study data collection initiated 2013-2014 fall semester at a private College. Both the quantitative and qualitative data collection procedure was applied.

3.3.1. Data Collection Instruments

Data collection took place during the spring education term of 2014 (mid-march through the mid-May). In the present study, several data collection instruments for quantitative methodologies were engaged. There were three quantitative data collection instruments, which are health related physical fitness tests (Fitnessgram), health related fitness knowledge test and the physical activity questionnaire for adolescent were used as quantitative data instrument.

3.3.1.1. Health Related Physical Fitness-Fitnessgram

Fitnessgram, a relatively new health-related physical fitness test battery, was used in this study. Fitnessgram includes all components of health-related physical fitness. It utilizes criterion-referenced standards for performance, rather than norm-referenced standards, which classify individuals as either healthy or unhealthy on a particular test item by different age and gender. A healthy classification indicates that an individual meets the criterion-referenced standard on all test items. An individual who does not meet Fitnessgram standards is classified as unhealthy. The fitnessgram was chosen because of its ease of administration to large numbers of subjects, its reliability and the validity of its fitness measures (Bono et al., 1991; Marshall et al., 1998). Four components of health-related fitness were evaluated: body composition, cardio respiratory endurance, muscle

strength and endurance, and flexibility. The Pacer test, Curl-up, Push-up and Back-Saver Sit & Reach were chosen for this study. Participants were tested at same location that all were conducted in a school indoor gym. On testing day, participants were required to avoid any vigorous exercise. During the exercise testing, each participant was requested to wear running shoes and shorts. Testing procedures were fully explained to the participants before testing. To ensure reliability and validity, the Pacer running test was separated from other exercise testing in order to avoid muscular fatigue and at the same time provide maximum power potential.

3.3.1.2. The Health Related Fitness Knowledge Test-HRFKT

The HRF Knowledge Test for Middle School Students was developed by Mott et al. (1991) to measure elementary and middle school children's knowledge of HRF concepts. This test is one component of the "Heart Smart" curriculum program, which was designed to reduce cardiovascular risk factors in elementary school-age children.

The instrument was translated into Turkish and validated in a series of studies by Hünük and İnce (2008, 2010) for Turkish post-primary school students (Appendix D). There were 25 items in the original questionnaire and the researchers added 11 items. Cognitive interviewing was done with two experienced physical education teachers and changes related to item language and item clarity were made in the questionnaire. Eleven validated questions (Hünük and İnce, 2008) were added to this questionnaire. The final version of the questionnaire was a 36-item multiple choice paper-pencil test and it was applied to 420 middle school students (121 sixth grades, 111 seventh grades and 188 eighth grades). Questions were adapted to address the Turkish PE standards in middle school curricula for HRF knowledge. For construct validity, "Item" analysis was used to analyze item and test-level (item difficulty, item discrimination, and reliability). Each item had three answers and participants selected one answer. The results of the item analysis showed that item difficulty values ranged from 0.39-0.99, with average p-value of 0.77, and discrimination values ranged from 0.01-0.68. KR-20 reliability analysis was used and the results showed that reliability value of the questionnaire was 0.74 (see Appendix P).

For a stronger relationship among items that, means who taking the exam again would achieve the same scores. Acceptable KR value should be over .70 to 1.0. Based on these findings, the test is a valid measure of Turkish middle school students' conceptual HRF knowledge. The questions were grouped according to health related fitness sub dimensions as presented in the table 6 in that 10 question for cardiovascular endurance, 4 questions for muscular strength and endurance, 4 questions for flexibility, 3 questions for body composition, 6 questions for training principles and 9 questions for general health knowledge exist in this test.

In order to catagorized questions according to blooms taxonomy 3 independent observers classified the questions considering to knowledge, comprehension, application, analysis, evaluation and synthesis level of taxonomy. According to results 26 questions of the HRFKT were in knowledge level with a 100% agreement of observers, 5 of the questions were placed in comprehension level with 100% agreement. Only 5 of the questions were placed in comprehension level by 2-observer agreement. Detailed explanation of each question was presented in Appendix E. The results indicate that HRF knowledge test is a mostly knowledge and comprehension level knowledge test, in this aspect literature need a well designed test which consist application, analysis, evaluation and synthesis level of questions.

Table 2. Health Related Fitness Knowledge Test Questions According to Sub Dimensions.

Cardiovascular Endurance	10 questions	3-5-7-12-12-15-19-21-22-24
Muscular Strength & Endurance	4 questions	4-11-17-28
Flexibility	4 questions	30-31-32-33
Body Composition	3 questions	34-35-36
Training principles	6 questions	2-10-18-20-27-29
General Health Knowledge	9 questions	1-6-8-9-14-16-23-25-26
HRFKT	36 quesions	

3.3.1.3. International Physical Activity Questionnaire IPAQ

Physical inactivity is a global problem, which is related to many chronic health disorders. Physical activity scales, which allow cross-cultural comparisons, have been developed. The IPAQ (Kowalski, Crocker & Kowalski, 1997) was used to establish overall PA levels. The IPAQ has been validated for use with the current population (Janz, Lutchy, Wenthe, & Levy, 2008; Kowalski, Crocker & Faulkner, 1997).

The Turkish version of the International Physical Activity Questionnaire (IPAQ) was assessed the reliability and validity of a. 1,097 university students (721 women, 376 men; ages 18–32) volunteered. Short and long forms of the IPAQ gave good agreement and comparable 1-wk. test-retest reliabilities.

Turkish IPAQ were in line with the reliability and criterion validity findings in other studies using self-report physical activity measures (Craig,et al., 2003). The IPAQ (see Appendix F) measures the frequency, duration, and level of intensity of physical activity on the preceding seven days across all contexts and allows the calculation of metabolic equivalents (METs). METs in terms of min. per week (MET-min./wk.) were calculated with regard to physical activity according to the existing guidelines (See IPAQ, 2005). Based on the self-reported METs and frequency and intensity of the physical activity, individuals can be classified as engaging in low, moderate, or high levels of physical activity.

3.4. Intervention

Intervention was held during 2013-2014-spring semester for 8 weeks. Participants in experimental group were joined health related physical education program for 2 lesson hours per week. Length of each session was 90 minutes and each was video recorded. The 8-week intervention program and the expected learning outcome of each session were presented in Table 3.

Table 3. Intervention Program with Learning Outcomes

Week	Subject	Outcome
1	Health related physical activity concepts. Equipment selection for the physical activity. Heart rate adjustment according to the intensity of exercise	• Keeping the minimum level of health-related physical fitness • Using physical activity and sport opportunities around at least three days a week to attend middle and high intensity physical activity
2	Cardiovascular endurance (aerobic endurance) concepts and training applications	• Keeping the minimum level of health-related physical fitness • It is expected to evaluate tagged health-related physical fitness program, in terms of compliance with the principles of training
3	Muscle endurance training concepts and applications	• It is expected to evaluate tagged health-related physical fitness program, in terms of compliance with the principles of training • Keeping the minimum level of health-related physical fitness
4	Muscle endurance training concepts and applications	• It is expected to evaluate tagged health-related physical fitness program, in terms of compliance with the principles of training • Keeping the minimum level of health-related physical fitness
5	Flexibility training concepts and applications	• It is expected to evaluate tagged health-related physical fitness program, in terms of compliance with the principles of training • Keeping the minimum level of health-related physical fitness
6	Flexibility training concepts and applications	• It is expected to evaluate tagged health-related physical fitness program, in terms of compliance with the principles of training • Keeping the minimum level of health-related physical fitness
7	Body weight management concepts and training applications	• Watching the Daily and weekly intake and consumed calories balance • Using physical activity and sport opportunities around at least three days a week to attend middle and high intensity physical activity

Table 3. Intervention Program with Learning Outcomes (continued)

8	Overall Rating	• Using physical activity and sport opportunities around at least three days a week to attend middle and high intensity physical activity • Keeping the minimum level of health-related physical fitness • Watching the Daily and weekly intake and consumed calories balance • It is expected to evaluate tagged health-related physical fitness program, in terms of compliance with the principles of training

3.4.1. Content of Intervention

The content of intervention maintains practice, classroom discussion and lecture notes given by the teacher throughout the 8 weeks intervention. Lecture notes classroom discussions and practice sessions were held in the same gym. In intervention session first the students' general knowledge and experience on specific health related fitness concept was discussed. In this session it's expected to create enthusiasm about participating and awareness about health benefits of specific concept. For the second session content practiced by the participants. For the last session in a discussion, participants encouraged about completed workout and they were expected to practice their own health related fitness training based on their needs. According to health related fitness course content the classroom discussions about:

- The issue of fitness and wellness
- Basic anatomy and exercise physiology
- Health related fitness components (body composition, flexibility, aerobic endurance, muscular fitness)
- Daily and weekly exercise and calorie calculation
- The development of personal health related fitness program included nutrition.

During practice session, participants practiced health related physical fitness components workouts and practiced different individual team and racquet sports and outdoor activities.

Summary of 8-week intervention was introduced in Appendix B. A detailed explanation about the focus of intervention for each week was given below. The explanation below was based on the researcher's field notes.

Week 1

The main purpose of the firs health related physical education course was appropriate equipment selection for the physical activity. The properties of running shoes, shirts, t-shirts and clothes explained. Warm up cool down and stretching parts of practice explained and regulation of exercise intensity based on heart rate score and its importance discussed and work sheet 1 (Appendix G) distributed to all students.

The responses came from students about measuring heart rate were so interesting that they know how to measure heart rate but most of them did not experienced yet. Before starting a warm exercise, radial and carotid ways of measuring heart rate was thought to participants and each participant calculated resting heart rate. Then participants started to warm up by 5 minutes walking and again its asked to measure their heat rate to see the increase regarding to resting condition. Then they joined stretching session guided by a participant. The course outline was announced to participants that after stretching it was expected to run or walk for 15 minutes between 130- 160 heart rate zone. The instructor asked participants for their heart rate score while exercising if heart rate above the zone it was asked to slow down gradually and if the heart rate below the zone it was asked to speed up gradually. After 15-minute exercise, the instructor asked some students about their heart rate score and participants were instructed about an expected heart rate score while exercising and how to regulate exercise intensity based on their own heart rate score. Different kinds of exercises with increasing and decreasing intensities were practiced to increase awareness of regulating exercise intensity based on personal heart rate score. It was also mentioned that according to running speed foot have

different contact with ground that heel contacts to ground in walk yet just toe contacts to ground in sprint. After warm up, stretching and practicing health related physical activity; participants were practiced football, basketball table tennis or outdoor walking activity.

Week 2

The Tuesday practice session of the second week includes the participants' cardiovascular endurance practice for health related physical education course. In work sheet 1, which was separated in the previous lesson, contains maximum heart rate, resting heart rate, heart rate reserve; estimated heart rate and calculation of appropriate heart rate zone for cardiovascular exercises were discussed with participants. Participants helped each other if she/he had problem on calculation of the appropriate heart rate zone. After discussion it was asked participants 5 minutes running or jumping rope for warm up. Participants did stretching with the guidance of a student who is formal school sportsman. Than it was asked all participants to perform 20 minutes running or walking exercise with a company in their heart rate zone. After exercise, participants informed about the sustainability of cardiovascular exercises are performed easily by a company or listening music. They were also encouraged to repeat this exercise 3 times in a week to get cardiovascular benefit. "Am I doing enough exercise for my health" is the name of second week's work sheet (Appendix H) and it is distributed and briefly explained to all participants. According to work sheet two there are two ways of measuring how much physically active you are. The first way is using pedometer according to daily steps life style evaluated that is presented in table 4.

Table 4. Daily Step Reference Chart

Less than 5000 steps	Sedentary life style
Between 5000-7499 steps	Low active life style
Between 7500-9999 steps	Somewhat active life style
Between 10000-12499 steps	Active life style
More than12500 steps	Highly active life style

The second way is using Physical activity questionnaire, which evaluates daily activities. METs (Metabolic Equivalents) are commonly used to express the intensity of physical activities, and are also used for the analysis of IPAQ data. One MET is defined

as the energy cost of sitting quietly, and is equivalent to a caloric consumption of 1 kcal/kg/hour. For the analysis of IPAQ data, existing guidelines have been adopted: It is estimated that, compared to sitting quietly, a person's caloric consumption is four times as high when being moderately active, and eight times as high when being vigorously active. Therefore, when calculating a person's overall energy expenditure using IPAQ data, 4 METs get assigned to the time spent in moderate activities, and 8 METs to the time spent in vigorous activities.

The MET value and life style evaluation was presented in table 5.

Table 5. MET Value Reference Chart

MET Value	*Default level of life style*
> 600 MET min/week	Low
Between 601-3000 MET min/week	Moderate
< 3000 MET min/week	High

For the next week it was asked students to evaluate their life styles using though pedometer or IPA-Q met value. After this explanatory session finished participants were practiced football, basketball table tennis or outdoor walking activity.

Week 3

The third week of the Tuesday practice session includes the participants' muscular endurance practice for health related fitness physical education course. Before starting warm up previous lessons work sheet was discussed. Most of the participants were not have active life style regarding to their MET values and daily step levels that 23 participants calculated their Met values and their average about 5000 min/week and 26 participants used pedometer and they had 6000-7000 average steps per day. Their step levels were low and they have motivated to walk in the garden during the breaks or participating physical activity 3 times a week for having active life style.

The questions about muscular exercises were directed to the participants. In a discussion climate it was concluded by the participants that muscular workouts are essential for body composition, muscular workouts should be calisthenics, muscular

workouts movements should be practiced with previously calculated repetitions and sets principles to get benefit.

After 5 minutes running warm up and stretching it was asked students to take a mat and group in threes. They were going to perform sit-up, knees high run, push up, and scissor jumps for 20 seconds 3 sets. When one participant was working the other one assisted and the third one was resting. After each set they interchanged their duties. The role of instructor was mostly giving feedback and to provide a meaningful simple version of movement if participants not able to perform movement properly.

After completing 3 sets of four different muscular exercises, the reason of fatigue discussed by the students and consumption of energy sources and lactic acid accumulation eventuated by the participants. Work sheet 3 (Appendix C) for the muscular work out was given to the participants and it was asked to prepare bodyweight workout program for legs, abdominals, back, shoulder and arms for the upcoming week. After this explanatory session finished participants were practiced football, basketball table tennis or outdoor walking activity.

Week 4

The fourth week of the Tuesday practice session includes the participants' muscular endurance practice for health related fitness physical education course. Participant discussed about work sheet 3 and participants demonstrated some sample body weight movements from his/her exercise program.

Participants performed his/her practice plan 3 sets with 2 minutes interval. Some participants did not prepared an exercise plan since they implemented teachers body weight exercise consist of jumping jag, in out plank, push up sprint, biceps curl overhead press and squat.

The 4th work sheet (Appendix J) named periodic table of body weight exercise web page seen on the screen and participants selected a movement and all tried to perform this movement. Two different movements from different difficulty and muscle group selected

and participants tried to execute. After session finished participants were practiced football, basketball table tennis or outdoor walking activity.

Week 5

Another important component of health related fitness is stretching was the subject matter of the fifth week session. Firstly the benefits of stretching for daily life and for high performance of the sportsman discussed and the importance of stretching were noticed. It was emphasized that lack of stretching causes restrictions in mobility, posture problems, and lower back pain and slipped disc problems.

Secondly three types of stretching techniques which are dynamic stretching, static stretching, and PNF stretching technique were introduced to the students. It was concluded that 10 to 60 seconds static stretching exercises are more appropriate for high school students.

Thirdly all students performed previously selected static dynamic and PNF stretching exercises. Finally stretching exercises work sheet (Appendix K) were distributed to the students and it was asked that writing the name of muscle group under each stretching exercise figure. After this session finished participants were practiced football, basketball table tennis or outdoor walking activity for the second session of the lesson.

Week 6

The sixth week of the Tuesday practice session includes the participants' stretching practice for health related fitness physical education course. The content of lesson comprises a warm up and stretching video. Lab top and projection device were prepared in to the gym previously.

It was explained that there would be a stretching video and all the students going to perform same exercise seen on the screen. The video contains jumping jacks running in a place toe touches and lunges for warm up and calf, legs, thigh, back, shoulder, arms, neck and total body stretching exercises.

The entire students were able to see the screen settled in gym and performed video for the first session of the lesson. When the students fulfilled stretching program a worksheet (Appendix L) were distributed to students and doing a sit and reach test and evaluating their own stretching level and preparing and apply this program was briefly disclosed on the worksheet. After this session finished participants were practiced football, basketball table tennis or outdoor walking activity for the second session of the lesson.

Week 7

One of the most important component of health related fitness is weight control and managing body weight. Firstly it was noticed that the ratio between the height and weight is over or below a certain level may negatively affect individual's health. Body mass index (BMI) is one of the commonly used indicators of this ratio were explained to the students and it was asked to calculate their BMI ratio and evaluate the result regarding the table 6.

Table 6. BMI Upper And Lower Bonds for Adolescents

Age	Percentage	Girls (BMI)	Boys (BMI)
13	Lower % 5 bond	15.4	15.5
	Upper % 85 bond	22.5	21.8
14	Lower % 5 bond	15.8	16.0
	Upper % 85 bond	23.4	22.6
15	Lower % 5 bond	16.4	16.5
	Upper % 85 bond	24.0	23.4
16	Lower % 5 bond	16.8	17.0
	Upper % 85 bond	24.6	24.2

Source: US Department of Healthand Human Services, Center for Disease Control & Prevention. http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html

Secondly how to administer BMI was the subject of the discussion and it was determined that middle intensity, long duration, aerobic exercises, for every day was recommended.

Thirdly just doing exercise going to be efficient for administering BMI was discussed and it was concluded that the calorie intake and consumption should be

considered. It was asked all participants to perform 20 minutes running or walking exercise with a company in 110-150 heart rate zone. After exercise, participants informed about the sustainability of cardiovascular exercises are performed easily by a company or listening music. When this activity complemented, body weight administration worksheet (Appendix M) were distributed to the students which questionnaire theirdaily physical activity and calorie intake and it was asked to complete according to their own personal daily lifestyle. After this session finished participants were practiced football, basketball table tennis or outdoor walking activity for the second session of the lesson.

Week 8

The content of 8th week health related fitness physical education course evaluates the previous seven weeks and submits technology integrated physical education course. Firstly Weekly exercise worksheets (Appendix N) were distributed to all students. It was expected to perform, physical activity seven days of the week and proving each activity by concrete evidence.

Secondly technology integrated physical education course was discussed. Movement analysis program Ubersense and Coach's Eye demonstrated to the students with different sports and exercise samples and it was asked to use this program to evaluate friend's performance in different sport activities. After this session finished participants were practiced football, basketball table tennis or outdoor walking activity for the second session of the lesson.

3.5. The Issues of Validity

Another important issue for the experimental study is validity, which requires to be considered before designing the study and collecting data.With regard to approving statistical results, internal, construct and external validity treats for quantitative data of the experimental study were debated in this section. All mentioned above was described separately following.

3.5.1. Threats to Validity for Quantitative Data

According to Shadish et al., (2002) in spite of having strong statistical analysis results, the researcher should consider the threats of validity in terms of statistical conclusion validity, internal validity, construct validity, and external validity. Many possible threats to influence this kind of validity noticed.

For statistical conclusion validity, number of subjects for both groups were alike for increasing the power of statistical analysis also assumption tests which, are not violated was examined prior to statistical analysis. Another important aspect of statistical conclusion validity is measures and instruments. In this study same persons administered tests and used reliable devices. The results of reliability analysis HRF knowledge test were in satisfactory standards. Treatment fidelity of the HRF intervention was accomplished through special techniques such as complete explanation of the content of intervention, education of the researcher prior to intervention, previously arranged timetable of intervention. Generally, statistical conclusion validity was completed for the current study.

Internal validity was considered and some protections wereused before and during the study. Even the participants were selected in convenience sampling, which is accepted as limitation but randomly assigned to experimental and comparison group for increasing the internal validity of the study. For removing testing threat, which means having familiarity to testing tools, there was enough time between the pre test and posttest intervals. Overall, internal validity was accomplished in this study.

The pilot study which, was implemented previously could help to explanation of the constructs and

On account of dealing with construct validity threat, a physical education expert prepared and implemented successful pilot study where the constructs were previouslyexplained was used as a theoretical frameworkofthis study. This would also prevent to construct confusing, alternative threat to construct validity. In conclusion,

operating the constructs from a well-defined modelcould help to advance the construct validity for this study.

The final one is external validity, which is about the generalization of the results for the population and implication of the intervention for the different conditions and samples. For the current study, instead of convenience sampling, random sampling could support to increase external validity. Giving explanatory information about interventioncontext could also support to increase external validity.

3.6. Intervention Fidelity

Intervention fidelity refers to the justification in the application of intervention as it was intended (Murphy & Gutman, 2012). It was important to argue about intervention fidelity for the reason of both for the quality of intervention and replication for another study. For the enhancement of intervention fidelity five basic touchstones should take in to account that (1) intervention design, (2) training of providers, (3) intervention delivery, (4) receipt of intervention, (5) enactment of skill gained from the intervention (Gearing et al., 2011).

In this study, health related fitness intervention design was confirmed by describing the content and duration of intervention session in detail. Secondly, two pilot studieswere implemented for different classes, the first HRF pilot study implemented by physical education specialist from METU and his methods and strategies were observed by the teachers. The second pilot study implemented to another classes by the researcher under the guidance and observation of the physical education specialist. After these two pilot study reflections were discussed with physical education teachers and physical education specialist. Therefore physical education teacher who is also conductor of current study had sufficient knowledge and teaching experience before the implementation of actual HRF study. Furthermore using a pre-determined schedule and lesson plan for each intervention session contributed the instructor in delivering the intervention.

3.7. Data Analysis

Statistics analyses were completed using the Statistical Package for the Social Sciences (SPSS, version 21.0). Analyses were conducted with the data from all subjects who took participate in the FITNESSGRAM, HRFKT and PAQ-A, both for experimental and comparison groups.

Descriptive statistics (means and standard deviations) for explanatory information were assessed. On account of analyzing reasonable differences in the measures for HRFKT, IPAQ-A from pre to posttests, a mixed design multivariate analysis of variance (MANOVA) was conducted. However, mixed design analysis of variance (ANOVA) was conducted to see the effect of Health related fitness Intervention on Fitnesgram test (for each dependent variable) scores from pre to posttest.

Prior to apply ANOVA, MANOVA and follow-upANOVA statistics four assumption tests were checked. Within-Subjects analyses were formed to assess the time effect on experimental and comparison group. Pairwise comparison was conducted for the further analysis to the within-subjects effects. Between-Subjects analysis was used to measure effect of group between experimental and comparison group. Significant level was determined as $p < .05$ for all analysis.

3.8. Operational Definitions

In this study operational definition defines dependent variables both for the presence and the quality of the study. The researcher measured the following variables:

HRFKT: This is a knowledge test prepared for measuring the overall health, sport and fitness knowledge of the secondary school students. Health related fitness knowledge test consists of 36 questions, related with six sub titles which are also dependent variables of the first research questions and hypothesis: 1-) cardiovascular endurance, 2-) muscular strength and endurance, 3-) flexibility, 4-) body composition 5-) training principles, 6-) general health knowledge. The numbers of correct answers for each sub group were evalauted separetly for estimating the effect of treatment in detail.

IPAQ-A: It is aquestionnaire, whichestimates weekly physical activity level, according to intensity and duration of the physical activities in terms of MET value. Sutudents who has less than 600 MET value accepted in the low physical activity level. Students between the 601and 3000 MET value accepted in the moderate physical activity level and students over 3001 MET value accepted in the vigourous Physical activity level. The calculation of the MET value presented in appendix F. low physical activity level, moderate physical activity level and vigourous physical activity levels were the dependent variables of the second research question and hypothesis.

Fitnesgram Tests: FitnessGram is a complete educational, recording and persuasive instrument for evaluateing physical fitness and physical activity levels of children. The assessment includes a variety of health-related physical fitness tests that are used to determine students' physical fitness and advise progressive zones for enhancement. Fitnessgram test basically measures five main components of the fitness, which are aerobic capacity, muscular strength & endurance, flexibility and body composition. Each component was used as a dependent variable for the 3rd to 8th research question and hypothesis.

Pacer Test: Pacer is the most common and applicaple test amongs aerobic capacity tests.The number of completed labs used for dependent variables of the 6th research question and hypothes in this study. 27-30 labs for females and 36 -42 labs for males supposed to be completed for staying in health fitness zone for the 14-15 years old age.

Push-up Test: Push up test is one of the well-known upper body strength test in which females complete at least 7 and males 14 repetation for staying in healthy fitness zone. The number of completed push-ups was used as dependent variable of the 5th research question and hypothes in this study.

Curl-up Test: This test used for measuring abdominal and back muscles strength and endurance. In this test females need to complete 18 and males 24 repetation at least to stay in healthy fitness zone. The number of completed curl-ups was used as dependent variable of the 7th research question and hypothes in this study.

Flexibility Test: Back-saver sit and reach test was used for measuring the hip and tigh flexibility of both legs. In this test females need reach to 25cm and males 20 cm to stay in healty fitness zone according to fitnesgram norms for 14-15 years age group. The back-saver sit and reach flexibility test results was used as a dependent variable of 3rd and 4th research questions and hypothesis.

BMI: Body Mass Index is calculated by the measurement of weight and height. BMI value represents the kilograms in each mertesquare of height. The value should be between the ranges of 15.4-25.0 for 14-16 years old females and 15.6 to 25.0 for 14-16 years old males. Student's betweenthe ranges accepted as in healthy fitness zone.

CHAPTER IV

IV. RESULTS

This chapter presents detailed information about the results from quantitative data analysis. This study has three lanes. In the first lane health related fitness knowledge, in the second lane physical activity levels and in the third lane physical fitness levels was investigated. In the first sections of the each lane the related assumption tests and descriptive analyses are briefly explained. The second sections of each lane include detailed explanation about results provided from inferential statistical analysis for quantitative data. In this section a detailed explanation of each research questions provided in order. In the third sections a general conclusion of the results is provided for each lane. Before conducting the research, power analysis also performed to find out the required sample size for the study. In order to calculate the sample size, G-Power analysis software was used. The analysis was conducted for mixed design ANOVA, for two groups, and for considering the 8 dependent variables measured in this thesis. The result of the analysis displayed that total sample size required for the study was 138 with .9508 actual power. In this thesis, the total sample size was 152, which is more than required sample size. Thus, it can be stated that sample size is enough to conduct the study.

4.1. Result for Research Question 1

Research question 1: What is the effect of health related physical education course intervention on 9th grade students' total and sub health related fitness knowledge?

A Mixed design Multivariate Analysis of Variance was conducted to test the effects of health related fitness course throughout the intervention period on students' knowledge

level. The Health Related Fitness Knowledge Test was administered to the students in both pre- and post-test. Please note that this test measures six different parameters; Cardiovascular Endurance, Muscular Strength & Endurance, Flexibility, Body Composition, Training principles, and General Health Knowledge. Thus, six dependent variables were included in the mixed design MANOVA. The follow-up univariate analysis was conducted to decide on which parameter was significantly differed.

Table 8. Skewness & Kurtosis values for Experimental and Comparison Group

		Experimental Group		***Comparison Group***	
		Pre-test	Post-test	Pre-test	*Post-test*
Cardiovascular Endurance	Skewness (std. error)	-0.33 (0.28)	0.27 (0.28)	-0.65 (0.26)	0.33 (0.27)
	Kurtosis (std. error)	1.55 (0.56)	1.25 (.56)	2.40 (0.52)	2.16 (0.52)
Muscular Strength & Endurance	Skewness (std. error)	0.66 (0.28)	0.93 (0.26)	0.65 (0.26)	0.86 (0.26)
	Kurtosis (std. error)	1.48 (0.56)	-1.27 (.53)	2.26 (0.52)	2.30 (0.55)
Flexibility	Skewness (std. error)	.72 (0.28)	1.70 (0.28)	0.63 (0.26)	0.82 (0.26)
	Kurtosis (std. error)	0.68 (0.56)	2.23 (.55)	2.44 (0.52)	3.68 (0.52)
Body Composition	Skewness (std. error)	0.42 (0.28)	0.60 (0.28)	0.58 (0.26)	0.52 (0.26)
	Kurtosis (std. error)	1.27 (0.56)	2.13 (.55)	2.24 (0.52)	2.12 (0.52)
Training principles	Skewness (std. error)	0.14 (0.28)	0.60 (0.28)	0.43 (0.26)	0.72 (0.26)
	Kurtosis (std. error)	1.08 (0.56)	2.03 (.55)	2.14 (0.52)	2.11 (0.52)
General Health Knowledge	Skewness (std. error)	0.54 (0.28)	0.61 (0.28)	0.65 (0.26)	0.72 (0.26)
	Kurtosis (std. error)	1.28 (0.56)	2.13 (.55)	1.94 (0.52)	1.18 (0.52)

Significant differences were assessed using Bonferroni correction so as to lessen the probability of executing Type I error. Significance level was divided to six because there were six dependent variables in Health Related Fitness Knowledge Test. Consequently; significance level was calculated at .01, which was attained by dividing the original significance level by the number of dependent variables (.05 / 6 = .01) (Pallant, 2001) The assumptions for the mixed model MANOVA were analyzed and reported before

conducting the mixed design MANOVA for six dependent variables, normality assumption has been checked for each variable.

Skewness-kurtosis values were analyzed and considered for the normality assumption for each of the dependent variables. The ideal range for skewness -0.8 to 0.8 and for kurtosis -3.0 to 3.0 (Field, 2009). The skewness-kurtosis values for both groups and both measurement were in between those ranges for the all dependent variables.

For the assumption of equal variance of the dependent variable was also checked with Levene's test for equality of variances. This test revealed significant results for only endurance scores at post-test and flexibility scores at post-test, $F(1, 152) = 6.3$, $p = .01$ and $F(1, 152) = 5.45$, $p = .02$, respectively. For the other dependent variables, this test non-significant results ($p > .05$). Thus, the assumption of equal variances is satisfied except for the mentioned two variables above.

Table 9. Levene's Test of Equality of Error Variances(a)

	F	df1	df2	Sig.
Cardio_pre	.63	1	152	.43
Cardio_post	1.23	1	152	.26
Endurance_pre	3.18	1	152	.07
Endurance_post	6.29	1	152	.01
Flexibility_pre	.80	1	152	.37
Flexibility_post	5.45	1	152	.02
Body Com._pre	.13	1	152	.72
Body Comp_post	1.09	1	152	.30
Training Prin_pre	1.64	1	152	.20
Training Prin _post	1.04	1	152	.20
Gen health_pre	3.59	1	152	.06
Gen health _post	1.26	1	152	.20

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a Design: Intercept+Group
Within Subjects Design: time

For testing homogeneity of covariance matrices, Box's M test was used. As the result of this test was significant, Box's $M = 199.07$, $F(78, 70478.9) = 2.34$, $p = .000$, Pillai's Trace was reported from the multivariate test table (Tabachnick & Fidell, 2001). Descriptive statistics for experimental group HRFK test are displayed in Table 10. Results

indicated that post test scores (cardiovascular endurance, muscular endurance, flexibility, training principles, general health knowledge) of the experimental groups are higher than pretest scores exception of the body composition HRFK test scores.

Table 10. Experimental Groups HRFK Test Descriptive Statistics

		Pretest		Posttest	
		Mean	SD	Mean	SD
HRFK	Cardio	7.57	0.84	9.03	0.47
	Muscular Endurance	2.61	0.66	3.24	0.49
	Flexibility	3.25	0.58	3.33	0.48
	Body Composition	2.33	0.56	2.32	0.47
	Training Principles	4.15	0.74	5.19	0.62
	General Health	7.31	0.88	8.10	0.63

Descriptive statistics for comparison group HRFK test displayed in Table 11. Results indicated that post test scores of the comparison groups are slightly lower than pretest scores exception of the general health HRFK test scores.

Table 11. Comparison Group HRFK Test Descriptive Statistics

		Pretest		Posttest	
		Mean	SD	Mean	SD
HRFK	Cardio	7.91	1.25	7.78	1.36
	Muscular Endurance	2.73	0.61	2.68	0.89
	Flexibility	3.30	0.62	3.21	0.75
	Body Composition	2.34	0.57	2.28	0.55
	Training Principles	4.45	0.83	4.37	1.03
	General Health	7.32	1.27	7.41	1.28

The assumptions for mixed model MANOVA were satisfied to run this analysis. The result of the 2 (time, pre- and post-test) x 2 (group, experimental and comparison) mixed design MANOVA revealed a significant interaction, Pillai's Trace = .31, $F(6,147) = 11.17$, $p < .0001$, $\eta_p^2 = .31$, which is large effect (Cohen, 1988) and means that 31% of the changes in variance can be explained by the six dependent variables. This result means that there is a significant change from pre- to post test on at least one of the dependent variables among the groups. Between group factor also displayed a significant main effect, Pillai's Trace = .11, $F(6,147) = 2.89$, $p < .05$, $\eta_p^2 = .11$, which is a moderate effect and means that there is a significant effect of group in at least one of the six dependent

variables. Mixed design MANOVA revealed significant interaction, Pillai`s Trace = .36, F(6,147) = 13.95, p<.05, η_p^2 = .36, which is also large effect and means that 36% of the changes in variance can be explained by the six dependent variables.

Table 12. Mixed Design Manova Results for HRFK Test

	Pillai's Trace	F	Hypo. df	Error df	Sig.	η^2
Group	0.11	2.89	6	147	0.01*	0.11
Time	0.31	11.17	6	147	0.00**	0.31
Time * Group	0.36	13.95	6	147	0.00**	0.36

If we look over the group variable cardio (F=11.17, p<0.01, η^2=0.07), muscular endurance (F=6.60, p<0.05, η^2=004), training principles (F=7.49, p<0,01, η^2=0,05) and general health (F=6.92, p<0.01, η^2=0.04) variables have significant effect. However flexibility and body composition variables (p>0.05) were found non-significant.

Table 13. Univariate Results of Group Effect for HRFK Test Subscales

	HRF	Type III Sum of Squares	df	Mean Square	F	Sig.	η^2
Group	Cardio	15.60	1	15.60	11.17	0.00**	0.07
	Muscular Endurance	3.59	1	3.59	6.60	0.01*	0.04
	Flexibility	0.10	1	0.10	0.21	0.65	0.00
	Body Composition	0.02	1	0.02	0.06	0.81	0.00
	Training Principles	5.39	1	5.39	7.49	0.01**	0.05
	General Health	8.63	1	8.63	6.92	0.01**	0.04

*:p<0.05 **:p<0.01

If we look over the time variable cardio (F=39.391, p<0.01, η^2=0206), muscular endurance (F=16,303, p<0,01, η^2=0,128), training principles (F=27.013, p<0.01, η^2=0.151) and general health (F=14.812, p<0.01, η^2=0.089) variables have significant effect. However flexibility and body composition variables (p>0,05) were found non-significant. If we look over the time*group variable cardio (F=56.970, p<0.01, η^2=0.273), muscular endurance (F=56.970, p<0.01, η^2=0.128), training principles (F=37.520, p<0.01, η^2=0.198) and general health (F=9.025, p<0.01, η^2=0.056) variables have

significant effect. However flexibility and body composition variables (p>0.05) were found non-significant.

Table 14. Univariate Results of Time Effect for HRFK Test Subscales

	HRF	Type III Sum of Squares	df	Mean Square	F	Sig.	η^2
Time	Cardio	33.61	1	33.61	39.39	0.00**	0.21
	Muscular Endurance	6.37	1	6.37	16.30	0.00**	0.10
	Flexibility	0.00	1	0.00	0.01	0.91	0.00
	Body Composition	0.11	1	0.11	0.42	0.52	0.00
	Training Principles	17.53	1	17.53	27.01	0.00**	0.15
	General Health	15.16	1	15.16	14.81	0.00**	0.09

*:p<0.05 **:p<0.01

Univariate tests for each of the dependent variable were displayed significant time x group interactions for four dependent variables, $F(1,152) = 48.61$, $p < .0001$, $\eta_p^2 = .27$ for Cardio test score, $F(1,152) = 22.29$, $p < .0001$, $\eta_p^2 = .13$ for endurance test score, $F(1,152) = 24.35$, $p < .0001$, $\eta_p^2 = .20$ for training principles test score, and $F(1,152) = 9.23$, $p < .005$, $\eta_p^2 = .05$ for general health knowledge test score. However, neither time x group interaction nor time main effect was found to be significant for flexibility and body composition test scores ($p > .05$).

Table 15. Univariate Results of Time*Group Effect for HRFK Test Subscales

	HRF	Type III Sum of Squares	df	Mean Square	F	Sig.	η^2
Time * Group	Cardio	48.61	1	48.61	56.97	0.00**	0.27
	Muscular Endurance	8.70	1	8.70	22.29	0.00**	0.13
	Flexibility	0.63	1	0.63	2.06	0.15	0.01
	Body Composition	0.04	1	0.04	0.17	0.68	0.00
	Training Principles	24.35	1	24.35	37.52	0.00**	0.20
	General Health	9.24	1	9.24	9.03	0.00**	0.06

*:p<0,05 **:p<0,01

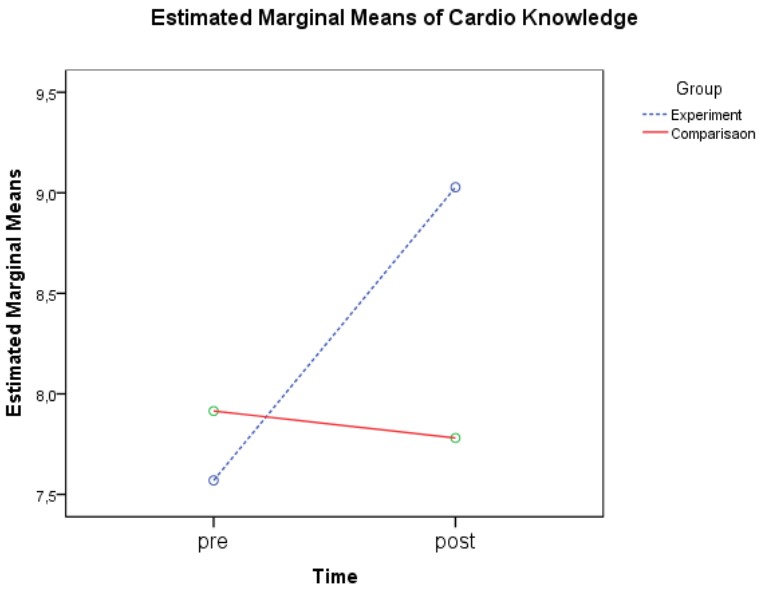

Figure 8. Cardiovascular Knowledge Level Mean Scores

Pairwise comparisons for time x group interaction for cardio test scores displayed that experimental group cardio test scores significantly increased from pretest to post test ($p < .001$ in that post-test scores ($M=9.03$, $SD=0.47$) considerably higher than pre-test scores ($M=7.57$, $SD=0.84$), (see Figure 9). However, comparison group cardio test scores did not significantly change from pre- to post-test ($p > .05$).

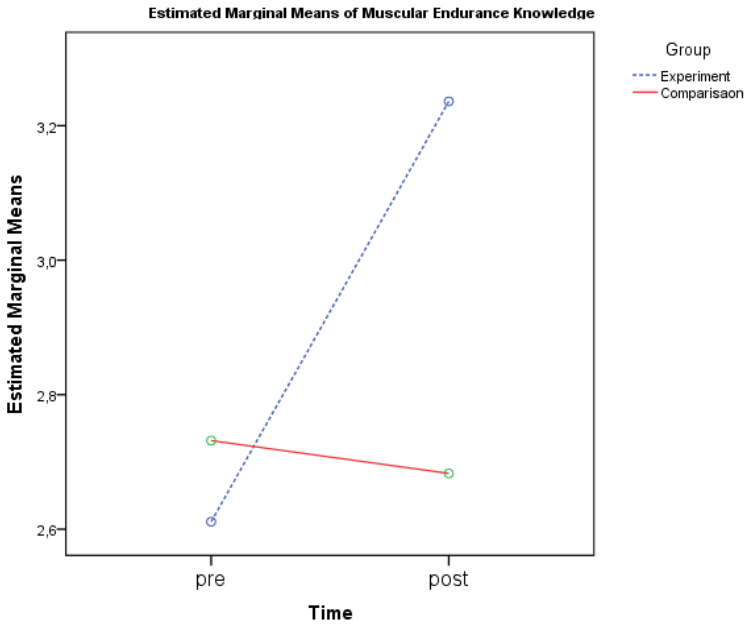

Figure 9. Muscular Endurance Knowledge Level Mean Scores

Similar to cardio test scores, pairwise comparisons for time x group interaction for muscular endurance test scores displayed that experimental group muscular endurance test scores significantly increased from pre- to post-test ($p < .001$, see Figure 10) in that post-test scores (M=3.24, SD=0.49) considerably higher than pre-test scores (M=2.61, SD=0.66). However, comparison group endurance test scores did not significantly change from pre- to post-test ($p > .05$).

Pairwise comparisons for time x group interaction for training principles test scores displayed that experimental group test scores significantly increased from pre- to post-test ($p < .001$, see Figure 11) in that post-test scores (M=5.19, SD=0.62) considerably higher than pre-test scores (M=4.15, SD=0.74). However, comparison group training principles test scores did not significantly change from pre- to post-test ($p > .05$).

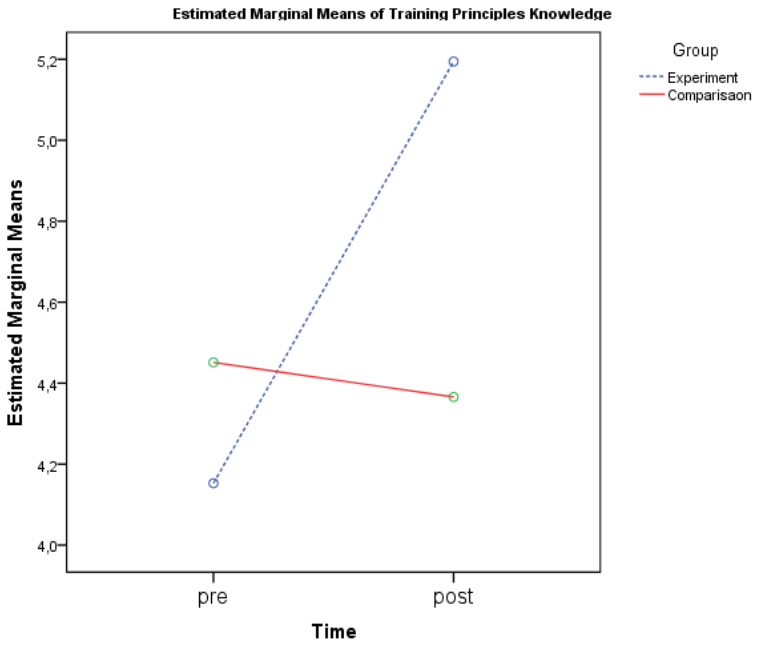

Figure 10. Training Principles Knowledge Level Mean Scores

Finally, pairwise comparisons for time x group interaction for general health knowledge test scores displayed that experimental group general health test scores significantly increased from pre- to post-test ($p < .001$, see Figure 12) that is post-test scores (M=8.10, SD=0.63) considerably higher than pre-test scores (M=7.31, SD=0.88).

However, comparison group general health knowledge test scores did not significantly change from pre-to post-test ($p > .05$). These results indicate that experimental group improved Health Related Fitness Knowledge in four different dimensions, which was not observed in comparison group.

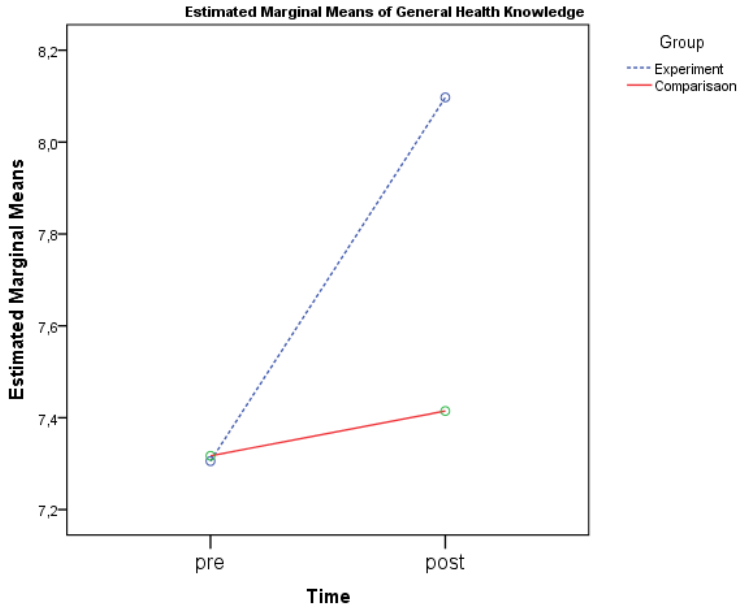

Figure 11. General Health Knowledge Mean Scores

Similar to the within subject analysis results, test of between subjects effect displayed a significant group effect for four dependent variables, $F(1,152) = 11.17$, $p < .001$, $\eta_p^2 = .07$ for cardio test scores, $F(1,152) = 6.6$, $p < .05$, $\eta_p^2 = .04$ for endurance test scores, $F(1,152) = 7.49$, $p < .05$, $\eta_p^2 = .0$ for training principles test scores, and $F(1,152) = 6.92$, $p < .05$, $\eta_p^2 = .04$ for general health knowledge test scores.

For flexibility and body composition test scores group main effect did not reach the significant level ($p > .05$). This result indicated that experimental group significantly increased the Health Related Fitness Knowledge test scores especially at the post-test compared to comparison group, which implies the positive effect of the intervention.

4.2. Result for Research Question 2

Research question 2: What is the effect of health related physical education course intervention on 9th grade students' total and sub physical activity level?

A Mixed design Multivariate Analysis of Variance was conducted to test the effects of health related fitness course throughout the intervention period on students' physical activity level and also a mixed design ANOVA was conducted on the total scores of International Physical Activity Questionnaire. Please note that International Physical Activity Questionnaire has three physical activity levels (low, moderate, and vigorous), thus three dependent variables included in the analysis. The follow-up univariate analysis was conducted to decide on which dependent variable was significantly differed. Significant differences were assessed using Bonferroni correction so as to lessen the probability of executing Type I error. Significance level was divided to 3 because there were 3 dependent variables in Physical Activity Level, Therefore; significance level was calculated at .02, which was attained by dividing the original significance level by the number of dependent variables (.05 / 3 = .02) (Pallant, 2001).

Table 16. Skewness & Kurtosis values for Experimental and Comparison Group

		Experimental Group		***Comparison Group***	
		Pre-test	Post-test	Pre-test	*Post-test*
Low Physical Activity	Skewness (std. error)	-0.13 (0.28)	0.07 (0.28)	-0.54 (0.26)	0.43 (0.27)
	Kurtosis (std. error)	0.45 (0.56)	0.25 (.56)	3.4 (0.52)	2.26 (0.52)
Moderate Physical Activity	Skewness (std. error)	0.56 (0.28)	0.43 (0.26)	0.65 (0.26)	0.73 (0.26)
	Kurtosis (std. error)	0.33 (0.56)	-0.27 (.53)	2.39 (0.52)	1.30 (0.55)
Vigorous PhysicalActivity	Skewness (std. error)	1.04 (0.28)	0.70 (0.28)	0.83 (0.26)	0.72 (0.26)
	Kurtosis (std. error)	1.58 (0.56)	2.03 (.55)	2.94 (0.52)	2.68 (0.52)

The assumptions for the mixed model MANOVA were analyzed and reported. Before conducting the mixed design MANOVA for three dependent variables, normality assumption has been checked. Skewness-kurtosis values were analyzed and considered for the normality assumption for each of the dependent variables. The ideal range for skewness -0.8 to 0.8 and for kurtosis -3.0 to 3.0 (Field, 2009). The skewness-kurtosis values for both groups and both measurement were in between those ranges for the all

dependent variables. The sphericity assumption states that the variances of the difference scores in a within-subjects design are equal across all the groups. The hypothesis of sphericity was rejected as Mauchly's *W* was significant for all three dependent variables, Mauchly's *W* = 1.00, p = .000, so the sphericity assumption has not been met. For that reason, an adjusted critical F-value was used and Greenhouse-Geisser correction was utilized (Field, 2005).

For the assumption of equal variance of the dependent variable was also checked with Levene's test for equality of variances. This test revealed significant results for only low physical activity level at pre-test and moderate physical activity level at post-test, F(1, 152) = 12.62, p = .001 and F(1, 152) = 11.79, p = .001, respectively. For the other dependent variables, this test non-significant results (p > .05). Thus, the assumption of equal variances is satisfied except for the mentioned two variables above.

Table 17. Levene's Test of Equality of Error Variances(a)

	F	df1	df2	Sig.
Low P.A. Pre	12.62	1	152	.00
Low P.A. Post	1.25	1	152	.27
Modorate PA. pre	1.02	1	152	.32
Moderate PA. post	11.79	1	152	.00
Vigorous P.A.pre	.93	1	152	.34
Vigorous PA.post	1.25	1	152	.27

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a Design: Intercept+Group
Within Subjects Design: time

For testing homogeneity of covariance matrices, Box's M test was used. As the result of this test was significant, Box's M = 115.5, F(21, 819990.86) = 5.26, p = .000, Pillai's Trace was reported from the multivariate test table (Tabachnick & Fidell, 2001).

Physical activity level descriptive statistics for experimental group are displayed on the table 18. Results of the descriptive statistics indicated that the post scores of the vigorous physical activity are higher than pre test scores; Moderate physical activity posttest scores were lower than pretest scores and low physical activity posttest scores were higher than the pretest scores.

Table 18. Experimental Group Physical Activity Level Descriptive Statistics

		Pretest		Posttest	
		Mean	SD	Mean	SD
PAL	Vigorous	1297.22	2285.56	2532.50	2137.52
	Moderate	972.78	653.07	966.11	593.38
	Low	831.15	236.08	1169.22	138.45

Physical activity descriptive statistics for comparison group displays on the table. Results of the descriptive statistics indicated that the post scores of the vigorous moderate and low physical activity scores are higher than pre test scores.

Table 19. Comparison Group Physical Activity Level Descriptive Statistics

		Pretest		Posttest	
		Mean	SD	Mean	SD
PAL	Vigorous	1337.56	1825.39	1960.35	2579.90
	Moderate	1009.02	614.37	1237.80	849.10
	Low	810.16	163.33	955.95	123.93

For vigorous physical activity level experimental group pretest means were found higher than the comparison group pre test scores. For moderate physical activity, experimental group pre and post test scores were higher than the comparison group pre and post test scores. And for Low physical activity, experimental group pre and post test scores were higher than the comparison group pre and post test scores.

The assumptions for mixed model MANOVA were satisfied to run this analysis. The result of the 2 (time, pre- and post-test) x 2 (group, experimental and comparison) mixed design MANOVA revealed a significant interaction, Pillai's Trace = .28, $F(3,152) = 20.19$, $p < .0001$, $\eta_p^2 = .29$, which is large effect and means that 29% of the changes in variance can be explained by the three dependent variables. This result means that there is a significant change from pre- to post test on at least one of the dependent variables among the groups. Between group factor also displayed also a significant main effect, Pillai's Trace = .25, $F(3,152) = 16.56$, $p < .0001$, $\eta_p^2 = .25$, which is large effect and means that there is a significant effect of group in at least one of the dependent variables. Within subject factor also displayed a significant main effect, Pillai's Trace = .67, $F(3,152) =$

99.79, p <.002, η_p^2 = .67, which is a large effect and means that there is a significant effect of group in at least one of the three dependent variables.

Table 20. Manova Results for Physical Activity Level

	Pillai's Trace	F	Hypo. df	Error df	Sig.	η^2
Group	0.25	16.55	3	152	0.00**	0.25
Time	0.67	99.79	3	152	0.00**	0.67
Time * Group	0.29	20.18	3	152	0.00**	0.29

*:p<0,05 **:p<0,01

Univariate tests for each of the dependent variable were also displayed significant time x group interactions for all three dependent variables, F(1,152) = 36.11, p <.0001, η_p^2 = .19 for low physical activity level, F(1,152) = 4.67, p <.05, η_p^2 = .03 for moderate physical activity level, and F(1,152) = 4.94, p <.05, η_p^2 = .03 for vigorous physical activity level (See Table 21).

Table 21. Univariate Time*Group Effect Results for Physical Activity Level

	PAL	Type III Sum of Squares	Df	Error df	Mean Square	F	Sig.	η^2
Time * Group	Vigorous	7190956,82	1	152	7190956,82	4,946	0,03*	0,03
	Moderate	1062631,11	1	152	1062631,11	4,674	0,03*	0,03
	Low	708678,46	1	152	708678,46	36,107	0,00**	0,19

*:p<0,05 **:p<0,01

Pairwise comparisons for time x group interaction for low physical activity level displayed that both experimental and comparison group activity level significantly increased from pre- to post-test in that post-test scores (M = 1169.22, SD = 138.45) considerably higher than pre-test scores (M = 831.15, SD = 236.08), (p < .001, see Figure 17).

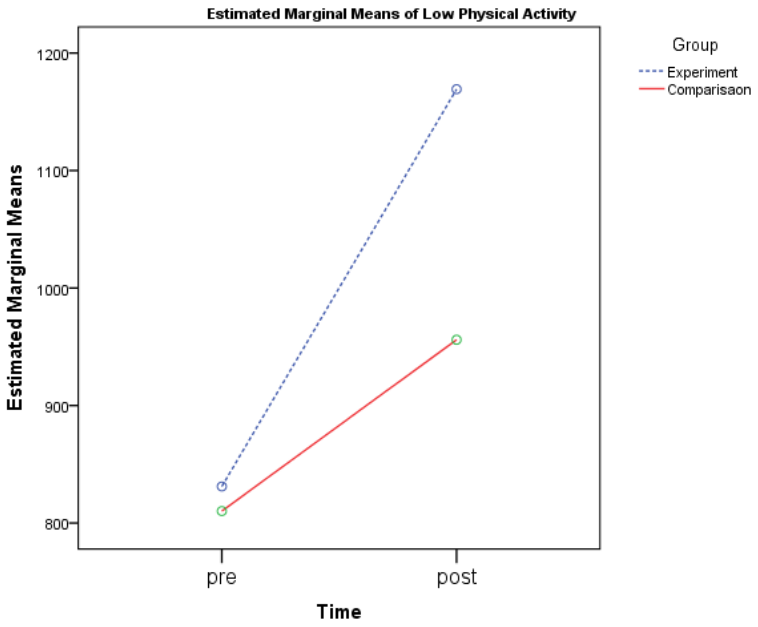

Figure 12. Low Physical Activity Mean Scores

Pairwise comparisons for time x group interaction for moderate physical activity level displayed that comparison group activity level significantly decreased from pre- to post-test in that post-test scores (M=966.11, SD=593.38) considerably lower than pre-test scores (M=972.78, SD=653.07), (see Figure ($p < .001$, see Figure 14). However, experimental group moderate physical activity level did not significantly change from pre- to post-test ($p > .05$).

Pairwise comparisons for time x group interaction for vigorous physical activity level displayed that both experimental and comparison group activity level significantly increased from pre- to post-test in that experimental group post-test scores (M=2532.50, SD=2137.52) considerably higher than pre-test scores (M=1297.22, SD=2285.56), ($p < .001$, see Figure 15).

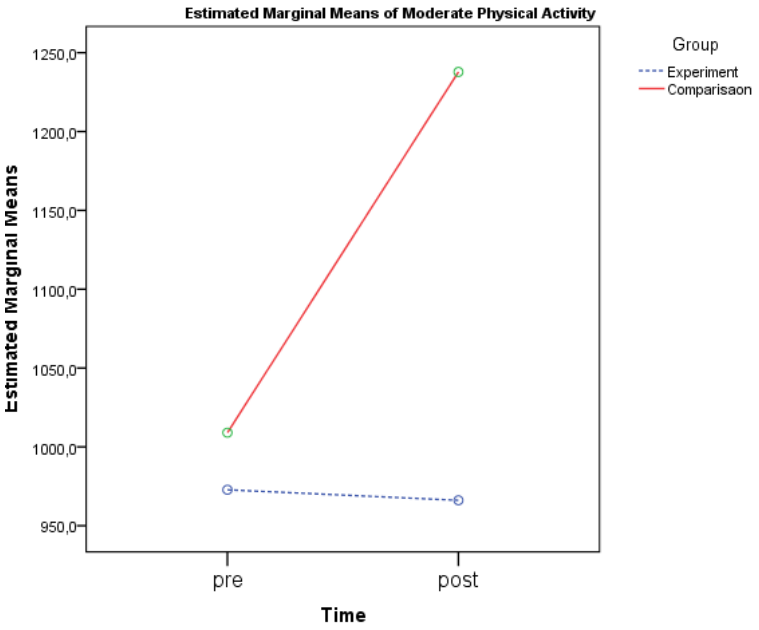

Figure 13. Moderate Physical Activity Mean Scores

These results indicate that not only experimental group but also comparison group improved the level of physical activity at both low and vigorous levels.

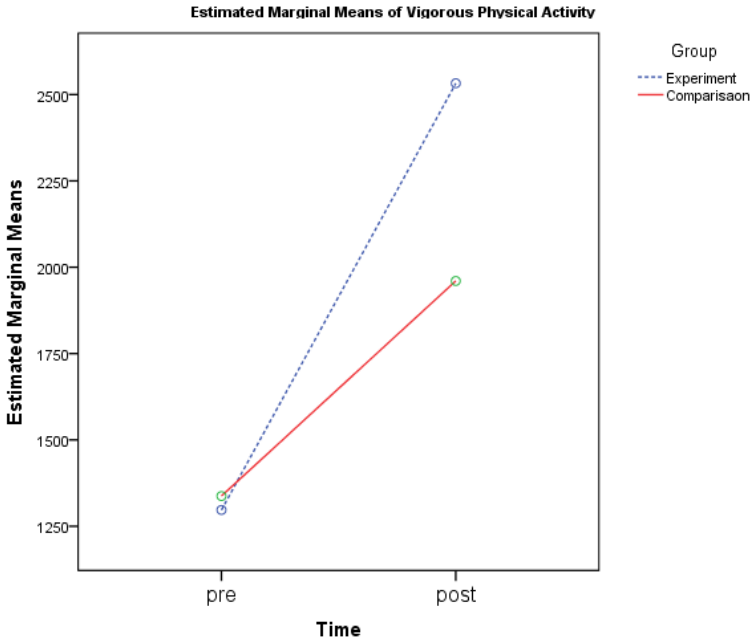

Figure 14. Vigorous Physical Activity Mean Scores

Test of between subjects effect displayed a significant group effect for only low physical activity level, $F\ (1,152) = 27.86$, $p < .0001$, $\eta_p^2 = .16$, which is a low effect. For

moderate and vigorous physical activity level, group main effect did not reach the significant level. This result indicated that experimental group significantly increased the low physical activity level especially at the post-test compared to comparison group, which implies the positive effect of the intervention.

Table 22. Univariate Group Effects Results for Physical activity Level

	PAL	Type III Sum of Squares	Df	Mean Square	F	Sig.	η^2
Group	Vigorous	5421315,61	1	5421315,62	0,64	0,42	0,00
	Moderate	1817728,07	1	1817728,07	2,52	0,12	0,02
	Low	1051989,38	1	1051989,38	27,86	0,00**	0,16

*:p<0,05 **:p<0,01

When we examine the table 20, Pillai's Trace test results of the group variable ($F_{(3, 150)}$=16.555, p<0.01, η^2=0.25), time variable ($F_{(3, 150)}$=99.79, p<0.01, η^2 =0,67) and time*group variable ($F_{(3, 150)}$=20.19, p<0.01, η^2=0.29) interactions have significant effect on physical activity levels of the students. Partial eta squared results found for group variable 0.25, for time variable 0.67 and for time*group variable 0.29. According to findings, time variable has greater than both group and group*time variables.

When we look over the findings of the time variable low (F=228.66, p<0.01, η^2=0.60) vigorous (F=45.52, p<0.01, η^2=0.23), and moderate (F=4.16, p<0.05, η^2=0.03) variables have found significant effect. That is, all three dependent variables values increased from pre- to post-test regardless of the group.

Table 23. Univariate Time Effect Results for Physical Activity Level

	PAL	Type III Sum of Squares	Df	Mean Square	F	Sig.	η^2
Time	Vigorous	66178967.99	1	66178967.99	45.52	0.00**	0.23
	Moderate	945685.65	1	945685.65	4.16	0.04*	0.03
	Low	4487855.79	1	4487855.79	228.66	0.00**	0.60

*:p<0.05 **:p<0.01

4.3. Result for Research Question 3

Research question 3: What is the effect of health related physical education course intervention on 9th grade students' right leg flexibility levels?

In order to answer the research question 3, separate mixed design ANOVA's was conducted for each dependent variable in fitnessgram test.

Right Leg Flexibility

Table 24. Descriptive Statistics for Right Leg Flexibility

	Group	Mean	Std. Deviation	N
Right Flexibility pre	Experimental	23,11	3,50	72
	Comparison	22,04	3,43	82
Right Flexibility post	Experimental	21,58	2,86	72
	Comparison	22,13	3,38	82

A mixed design ANOVA was used to test whether right leg flexibility score of both groups has changed between and within the same group from pre- to post-test. The assumptions for the mixed model ANOVA were analyzed and reported. Before conducting the mixed design ANOVA for right leg flexibility, normality assumption has been checked. Skewness-kurtosis values were analyzed and considered for the normality assumption. The ideal range for skewness -0.8 to 0.8 and for kurtosis -3.0 to 3.0 (Field, 2009). The skewness-kurtosis values for both groups and both measurement were in between those ranges.

Table 25. The skewness-kurtosis values for experimental and comparison group

	Experimental Group		***Comparison Group***	
	Pre-test	Post-test	Pre-test	*Post-test*
Skewness (std. error)	0.74 (0.28)	0.70 (0.28)	0.83 (0.26)	0.72 (0.26)
Kurtosis (std. error)	1.06 (0.56)	1.03 (.55)	2.94 (0.52)	2.6 (0.52)

The sphericity assumption states that the variances of the difference scores in a within-subjects design are equal across all the groups. The hypothesis of sphericity was rejected as Mauchly's W is significant, Mauchly's W = 1.00 p = .000, so the sphericity

assumption has not been met. For that reason, an adjusted critical F-value was used and Greenhouse-Geisser correction was utilized (Field, 2005).

For the assumption of equal variance of the dependent variable was also checked with Levene's test for equality of variances. This test revealed non-significant results for both pre- and post-test, F(1, 152) = 0.37, p = .54 and F(1, 152) = 0.57, p = .45, respectively. Thus, the assumption of equal variances is satisfied.

Table 26. Levene's Test of Equality of Error Variances(a)

	F	df1	df2	Sig.
Right flexibility pre	.37	1	152	.54
Right flexibility post	.57	1	152	.45

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a Design: Intercept+Group
Within Subjects Design: time

For testing homogeneity of covariance matrices, Box's M test was used. As the result of this test was significant, Box's M = 69.15, F(3, 9168491.9) = 22.72, p = .000, Pillai's Trace was reported from the multivariate test table (Tabachnick & Fidell, 2001).

The assumptions for mixed model ANOVA were satisfied to run this analysis. The result of the 2 (time, pre- and post-test) x 2 (group, experimental and comparison) mixed design ANOVA revealed a significant interaction, Pillai's Trace = .45, F(1,152) = 122.23, p <.0001, η_p^2 = .43, which is high effect size and means that 43% of the changes in variance can be explained by right leg flexibility. However, comparison group right leg flexibility values did not significantly change from pre- to post-test (p >.05). Experimental group right leg flexibility values are decreased after the health related physical education course intervention, which is an interesting result as one may want to see an increase of flexibility after the intervention.

Table 27. Mixed Design Anova Results for Right Leg Flexibility

	Pillai's Trace	F	Hypo. df	Error df	Sig.	η^2
Time	.36	86.90	1	152	.00**	.36
Time * Group	.43	112.23	1	152	.00**	.43

Pairwise comparisons for time x group interaction displayed that experimental group right leg flexibility values significantly decreased from pre- to post-test in that post-test scores (M=21.58, SD=2.86) considerably lower than pre-test scores (M=23.11, SD=3.50), ($p < .001$, see Figure 16).

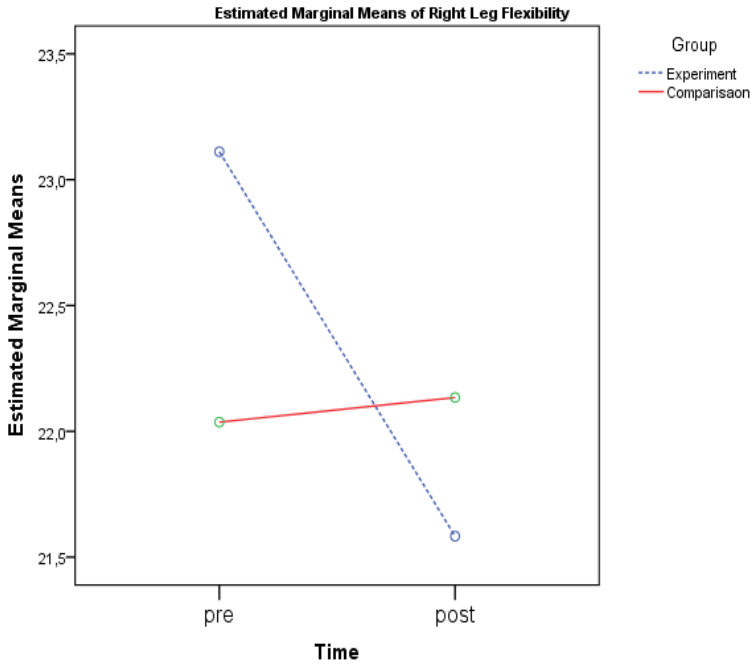

Figure 15. Right Leg Flexibility Test Mean Scores

4.4. Result for Research Question 4

Research question 4: What is the effect of health related physical education course intervention on 9th grade students' left leg flexibility levels?

Table 28. Descriptive Statistics for Left Leg Flexibility

	Group	Mean	Std. Deviation	N
Left Flexibility pre	Experimental	18.56	7.16	72
	Comparison	18.40	5.82	82
Left Fexibility post	Experimental	20.64	5.33	72
	Comparison	21.44	6.43	82

A mixed design ANOVA was used to test whether left leg flexibility score of both groups has changed between and within the same group from pre- to post-test. The assumptions for the mixed model ANOVA were analyzed and reported. Before

conducting the mixed design ANOVA for left leg flexibility scores, normality assumption has been checked. Skewness-kurtosis were analyzed and considered for the normality assumption. The ideal range for skewness -0.8 to 0.8 and for kurtosis -3.0 to 3.0 (Field, 2009). The skewness-kurtosis values for both groups and both measurement were in between those ranges.

Table 29. The skewness-kurtosis values for experimental and comparison group

	Experimental Group		***Comparison Group***	
	Pre-test	Post-test	Pre-test	*Post-test*
Skewness (std. error)	0.55 (0.28)	0.58 (0.28)	0.28 (0.26)	0.67 (0.27)
Kurtosis (std. error)	0.32 (0.56)	0.35 (.55)	-0.26 (0.53)	0.52 (0.53)

The sphericity assumption states that the variances of the difference scores in a within-subjects design are equal across all the groups. The hypothesis of sphericity was rejected as Mauchly's *W* is significant, Mauchly's *W* = 1.00, p = .000, so the sphericity assumption has not been met. For that reason, an adjusted critical F-value was used and Greenhouse-Geisser correction was utilized (Field, 2005).For the assumption of equal variance of the dependent variable was also checked with Levene's test for equality of variances. This test revealed non-significant results for both pre- and post-test, F(1, 152) = 2.86, p = .09 and F(1, 152) = 2.27, p = .13, respectively. Thus, the assumption of equal variances is satisfied.

Table 30. Levene's Test of Equality of Error Variances(a)

	F	df1	df2	Sig.
Left fexibility pre	2.86	1	152	.09
Left fexibility post	2.27	1	152	.13

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a Design: Intercept+Group
Within Subjects Design: time

For testing homogeneity of covariance matrices, Box's M test was used. As the result of this test was significant Box's M = 30.08, F(3, 9168491.9) = 9.98, p = .000, Pillai's Trace was reported from the multivariate test table (Tabachnick & Fidell, 2001).

The assumptions for mixed model ANOVA were satisfied to run this analysis. The result of the 2 (time, pre- and post-test) x 2 (group, experimental and comparison) mixed

design ANOVA revealed a non-significant interaction, Pillai's Trace = .01, F(1,152) = 1.51, p = .22, η_p^2 = .01, which is small effect size. However, effect of time was found to be significant, Pillai's Trace = .22, F(1,152) = 43.63, p < .001, η_p^2 = .22, which is moderate effect size. The main effect of time displayed that left leg flexibility significantly increased on the post-test. Thus, left leg flexibility improved regardless of the intervention.

Table 31. Mixed Design Anova Results for Left Leg Flexibility

Effect	Pillai's Trace	F	Hypo. df	Error df	Sig.	Partial Eta Squared
Time	.22	43.64[a]	1	152	.00	.22
Time * Group	.01	1.51[a]	1	152	.22	.01

Test of between subjects effect displayed a non-significant group effect, F(1,152) = 0.12, p >.05, η_p^2 = .00, which has no effect. This result showed that there is no significant difference between the two groups in terms of left leg flexibility.

Table 32. Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Group	8,03	1	8.03	.12	.73	.00

4.5. Result for Research Question 5

Research question 5: What is the effect of health related physical education course intervention on 9th grade students' push up levels?

Table 33. Descriptive Statistics for Push-up

	Group	Mean	Std. Deviation	N
Push-up pre	Experimental	18.22	6.97	72
	Comparison	18.44	6.40	82
Push-up post	Experimental	20.65	5.77	72
	Comparison	21.11	6.07	82

A mixed design ANOVA was used to test whether pushup score of both groups has changed between and within the same group from pre- to post-test. The assumptions for the mixed model ANOVA were analyzed and reported. Before conducting the mixed design ANOVA for pushup scores, normality assumption has been checked. Skewness-

kurtosis were analyzed and considered for the normality assumption. The skewness-kurtosis values for both groups and both measurement were in between ideal ranges.

The sphericity assumption states that the variances of the difference scores in a within-subjects design are equal across all the groups. The hypothesis of sphericity was rejected as Mauchly's *W* is significant, Mauchly's *W* = 1.00 p = .000, so the sphericity assumption has not been met. For that reason, an adjusted critical F-value was used and Greenhouse-Geisser correction was utilized (Field, 2005).

Table 34. The skewness-kurtosis values for experiment and comparison group.

	Experimental Group		***Comparison Group***	
	Pre-test	Post-test	Pre-test	*Post-test*
Skewness (std. error)	0.79 (0.28)	0.60 (0.28)	0.02 (0.26)	0.46 (0.26)
Kurtosis (std. error)	1.08 (0.55)	0.27 (.55)	-0.68 (0.52)	0.94 (0.52)

For the assumption of equal variance of the dependent variable was also checked with Levene's test for equality of variances. This test revealed non-significant results for both pre- and post-test, F(1, 152) = 0.03, p = .86 and F(1, 152) = 0.04, p = .85, respectively. Thus, the assumption of equal variances is satisfied.

Table 35. Levene's Test of Equality of Error Variances(a)

	F	df1	df2	Sig.
Pushup pre	.03	1	152	.86
Pushup post	.04	1	152	.85

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a Design: Intercept+Group
Within Subjects Design: time

For testing homogeneity of covariance matrices, Box's M test was used. As the result of this test was significant Box's M = 8.79, F(3, 9168491.9) = 2.87, p = .03, Pillai's Trace was reported from the multivariate test table (Tabachnick & Fidell, 2001).

The assumptions for mixed model ANOVA were satisfied to run this analysis. The result of the 2 (time, pre- and post-test) x 2 (group, experimental and comparison) mixed design ANOVA revealed a non-significant interaction (See Table 36), Pillai's Trace = .001, F(1,152) = 0.09, p = .77, η_p^2 = .001, which is small effect size. However, effect of

time was found to be significant, Pillai's Trace = .20, F(1,152) = 38.61, p < .001, η_p^2 = .20, which is moderate effect size. The main effect of time displayed that pushup scores significantly increased on the post-test.

Table 36. Mixed Design Anova Results for Push-up

Effect	Pillai's Trace	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Time	.20	38.61[a]	1	152	.00	.20
Time * Group	.00	.09[a]	1	152	.77	.00

Thus, similar to left leg flexibility, pushup scores improved regardless of the intervention. Test of between subjects effect displayed a non-significant group effect, F(1,152) = 0.13, p >.05, η_p^2 = .00, which has no effect. This result showed that there is no significant difference between the two groups in terms of push up muscular endurance.

Table 37. Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Group	8.70	1	8.70	.13	.72	.00

4.6. Result for Research Question 6

Research question 6: What is the effect of health related physical education course intervention on 9th grade students' pacer test levels?

Table 38. Descriptive Statistics for Pacer

	Group	Mean	Std. Deviation	N
Pacer pre	Experimental	10.24	9.51	72
	Comparison	11.94	10.36	82
Pacer post	Experimental	14.31	10.51	72
	Comparison	12.44	10.43	82

A mixed design ANOVA was used to test whether pacer scores of both groups has changed between and within the same group from pre- to post-test. The assumptions for the mixed model ANOVA were analyzed and reported. Before conducting the mixed design ANOVA for pacer scores, normality assumption has been checked. Skewness-

kurtosis values were analyzed and considered for the normality assumption. The skewness-kurtosis values for both groups and both measurement were in between ideal ranges.

Table 39. The skewness-kurtosis values for both groups

	Experimental Group		***Comparison Group***	
	Pre-test	Post-test	Pre-test	*Post-test*
Skewness (std. error)	0.82 (0.28)	0.78 (0.28)	0.78 (0.26)	0.83 (0.26)
Kurtosis (std. error)	3.03 (0.56)	3.06 (.55)	0.34 (0.52)	0.51 (0.52)

The sphericity assumption states that the variance of the difference scores in a within-subjects design are equal across all the groups. The hypothesis of sphericity was rejected as Mauchly's W is significant, Mauchly's $W = 1.00$, $p < .01$, so the sphericity assumption has not been met. For that reason, an adjusted critical F-value was used and Greenhouse-Geisser correction was utilized (Field, 2005).

For the assumption of equal variance of the dependent variable was also checked with Levene's test for equality of variances. This test revealed non-significant results for both pre- and post-test, $F(1, 152) = 1.8$, $p = .18$ and $F(1, 152) = 0.28$, $p = .60$, respectively. Thus, the assumption of equal variances is satisfied.

Table 40. Levene's Test of Equality of Error Variances(a)

	F	df1	df2	Sig.
Pacer pre	1.80	1	152	.18
Pacer post	.28	1	152	.60

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a Design: Intercept+Group
Within Subjects Design: time

For testing homogeneity of covariance matrices, Box's M test was used and the result displayed a non-significant result Box's $M = 5.38$, $F(3, 9168491.9) = 1.77$, $p > .05$. Thus, Wilks' Lambda was reported from the multivariate test table (Tabachnick & Fidell, 2001).

The assumptions for mixed model ANOVA were satisfied to run this analysis. The result of the 2 (time, pre- and post-test) x 2 (group, experimental and comparison) mixed

design ANOVA revealed a significant interaction (See Table 42), Wilks' Lambda = .72, $F(1,152) = 58.04$, $p < .0001$, $\eta_p^2 = .28$, which is a moderate effect size and means that 28% of the changes in variance can be explained by pacer. However, effect of time was found to be significant, Wilks' Lambda = .62, $F(1,152) = 95.12$, $p < .001$, $\eta_p^2 = .39$, which is large effect size. On the other hand, comparison group pacer scores did not significantly change from pre- to post-test ($p > .05$).

Table 41. Mixed Design Anova Results for Pacer Test

Effect	Wilks' Lambda	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Time	.62	95.12[a]	1	152	.00	.39
Time * Group	.72	58.04[a]	1	152	.00	.28

Test of between subjects effect displayed a non-significant group effect, $F(1,152) = 0.03$, $p > .05$, $\eta_p^2 = .001$, which is a low effect. This result showed that even though there was no significant difference between the two groups, experimental group pacer scores were increased after the health related physical education course intervention.

Pairwise comparisons for time x group interaction displayed that experimental group pacer scores significantly increased from pre- to post-test in that post-test scores ($M=14.31$, $SD=10.51$) considerably higher than pre-test scores, ($M=10.24$, $SD=9.51$) ($p < .0001$ see Figure 17).

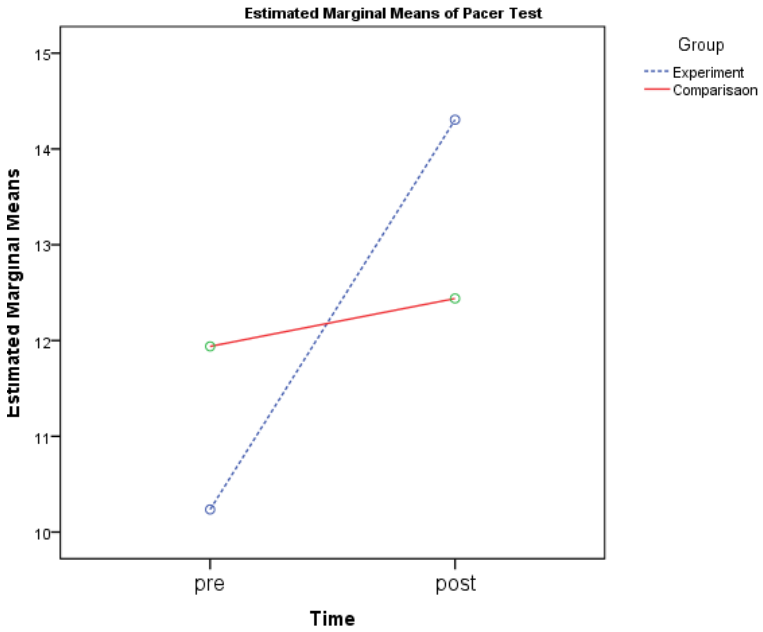

Figure 16. Pacer Test Mean Scores

4.7. Result for Research Question 7

Research question 7: What is the effect of health related physical education course intervention on 9th grade students' curl up levels?

Curl-up

Table 42. Descriptive Statistics

	Group	Mean	Std. Deviation	N
Curlup pre	Experimental	22.47	12.36	72
	Comparison	22.37	10.47	82
Curlup post	Experimental	35.13	10.12	72
	Comparison	23.07	9.94	82

A mixed design ANOVA was used to test whether curl-up scores of both groups has changed between and within the same group from pre- to post-test. The assumptions for the mixed model ANOVA were analyzed and reported. Before conducting the mixed design ANOVA for curl-up scores, normality assumption has been checked. Skewness-kurtosis values were analyzed and considered for the normality assumption. The skewness-kurtosis values for both groups and both measurement were in between the ideal ranges.

Table 43. The skewness-kurtosis values for experiment and comparison group.

	Experimental Group		***Comparison Group***	
	Pre-test	Post-test	Pre-test	*Post-test*
Skewness (std. error)	0.82 (0.28)	0.72 (0.28)	0.65 (0.26)	0.98 (0.26)
Kurtosis (std. error)	1.00 (0.56)	0.07 (.56)	0.71 (0.52)	0.70 (0.52)

The sphericity assumption states that the variance of the difference scores in a within-subjects design are equal across all the groups. The hypothesis of sphericity was rejected as Mauchly's *W* is significant, Mauchly's *W* = 1.00, p = .000, so the sphericity assumption has not been met. For that reason, an adjusted critical F-value was used and Greenhouse-Geisser correction was utilized (Field, 2005).

For the assumption of equal variance of the dependent variable was also checked with Levene's test for equality of variances. This test revealed non-significant results for both pre- and post-test, F(1, 152) = 0.94, p = .33 and F(1, 152) = 0.02, p = .88, respectively. Thus, the assumption of equal variances is satisfied.

Table 44. Levene's Test of Equality of Error Variances(a)

	F	df1	df2	Sig.
Curlup pre	,94	1	152	,334
Curlup post	,02	1	152	,884

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a Design: Intercept+Group
Within Subjects Design: time

For testing homogeneity of covariance matrices, Box's M test was used. As the result of this test was significant Box's M = 32.46, F(3, 9168491.9) = 10.67, p = .0001, Pillai's Trace was reported from the multivariate test table (Tabachnick & Fidell, 2001).

The assumptions for mixed model ANOVA were satisfied to run this analysis. The result of the 2 (time, pre- and post-test) x 2 (group, experimental and comparison) mixed design ANOVA revealed a significant interaction (see Figure 22), Pillai's Trace = .68, F(1,152) = 315.29, p <.00001, η_p^2 = .68, which is a high effect size and means that 68% of the changes in variance can be explained by curl-up scores. Yet, effect of time was found to be significant, Pillai's Trace = .72, F(1,152) = 394.39, p < .001, η_p^2 = .72, which is large

effect size. However, comparison group curl-up scores did not significantly change from pre- to post-test (p >.05).

Table 45. Mixed Design Anova Results for Curl-up

Effect	Pillai's Trace	F	Hypo. df	Error df	Sig.	Partial Eta Squared
Time	.72	394.39[a]	1	152	.00	.72
Time * Group	.68	315.29[a]	1	152	.00	.68

Moreover, test of between subjects effect displayed a significant group effect, $F(1,152) = 12.79$, $p = .0001$, $\eta_p^2 = .08$, which is a low effect. This result showed that experimental group had better curl-up scores in the post-test compared to comparison group. Thus, increased curl-up scores in the experimental group was stem from the health related physical education course intervention.

Table 46. Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Group	2833.57	1	2833.57	12.79	.00	.08

Pairwise comparisons for time x group interaction displayed that experimental group curl-up scores significantly increased from pre- to post-test in that post-test scores (M=35.13, SD=10.12) considerably higher than pre-test scores, (M=22.24, SD=12.36) (p < .0001 see Figure 22).

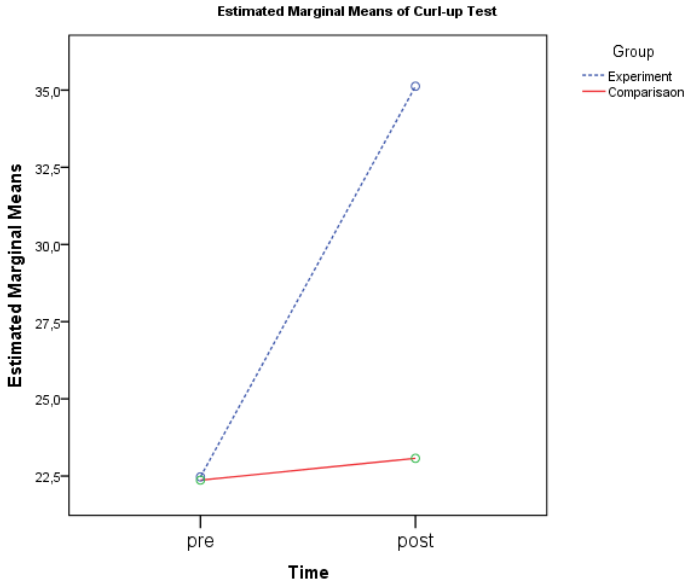

Figure 17. Curl-up Test Mean Scores

4.8. Result for Research Question 8

Research question 8: What is the effect of health related physical education course intervention on 9th grade students' BMI levels?

Table 47. Descriptive Statistics

	Group	Mean	Std. Deviation	N
BMI pre	Experimental	23.05	3.51	72
	Comparison	22.06	3.41	82
BMI post	Experimental	21.58	2.87	72
	Comparison	22.09	3.35	82

A mixed design ANOVA was used to test whether BMI values of both groups has changed between and within the same group from pre- to post-test. The assumptions for the mixed model ANOVA were analyzed and reported. Before conducting the mixed design ANOVA for BMI values, normality assumption has been checked. Skewness-kurtosis values were analyzed and considered for the normality assumption. The skewness-kurtosis values for both groups and both measurement were in between the ideal ranges.

Table 48. The Skewness-Kurtosis Values for Experiment and Comparison group.

	Experimental Group		***Comparison Group***	
	Pre-test	Post-test	Pre-test	*Post-test*
Skewness (std. error)	0.77 (0.28)	0.75 (0.28)	0.73 (0.32)	0.88 (0.52)
Kurtosis (std. error)	0.87 (0.56)	0.99 (.57)	2.42 (0.57)	2.97 (1.01)

The sphericity assumption states that the variances of the difference scores in a within-subjects design are equal across all the groups. The hypothesis of sphericity was rejected as Mauchly's *W* is significant, Mauchly's $W = 1.00$, $p = .000$, so the sphericity assumption has not been met. For that reason, an adjusted critical F-value was used and Greenhouse-Geisser correction was utilized (Field, 2005).

For the assumption of equal variance of the dependent variable was also checked with Levene's test for equality of variances. This test revealed non-significant results for both pre- and post-test, $F(1, 152) = 0.48$, $p = .49$ and $F(1, 152) = 0.57$, $p = .45$, respectively. Thus, the assumption of equal variances is satisfied.

Table 49. Levene's Test of Equality of Error Variances(a)

	F	df1	df2	Sig.
BMI pre	,484	1	152	,488
BMI post	,571	1	152	,451

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a Design: Intercept+Group
Within Subjects Design: time

For testing homogeneity of covariance matrices, Box's M test was used. As the result of this test was significant Box's M = 148.08, F(3, 9168491.9) = 48.65, p = .0001, Pillai's Trace was reported from the multivariate test table (Tabachnick & Fidell, 2001).

The assumptions for mixed model ANOVA were satisfied to run this analysis. The result of the 2 (time, pre- and post-test) x 2 (group, experimental and comparison) mixed design ANOVA revealed a significant interaction (within subjects effect), Pillai's Trace = .45, $F(1,152) = 122.63$, $p < .0001$, $\eta_p^2 = .45$, which is high effect size and means that 45% of the changes in variance can be explained by BMI. However, effect of time was found to be significant, Pillai's Trace = .42, $F(1,152) = 110.87$, $p < .001$, $\eta_p^2 = .42$, which is large

effect size. However, comparison group BMI values did not significantly change from pre- to post-test (p >.05).

Table 50. Mixed Design Anova Results for BMI

Effect	Pillai's Trace	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Time	,42	110,87[a]	1	152	,00	,42
Time * Group	,45	122,63	1	152	,00	,45

Test of between subjects effect displayed a non-significant group effect, F(1,152) = 0.20, p >.05, η_p^2 = .001, which is a low effect. This result showed that even though there is no significant difference between the two group, experimental group BMI values are decreased after the health related physical education course intervention.

Table 51. Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Group	4,34	1	4,34	,20	,65	,00

Pairwise comparisons for time x group interaction displayed that experimental group BMI values significantly decreased from pre- to post-test in that post-test scores (M=21.58, SD=2.87) considerably lower than pre-test scores, (M=23.05, SD=5.51) (p < .0001, see Figure19).

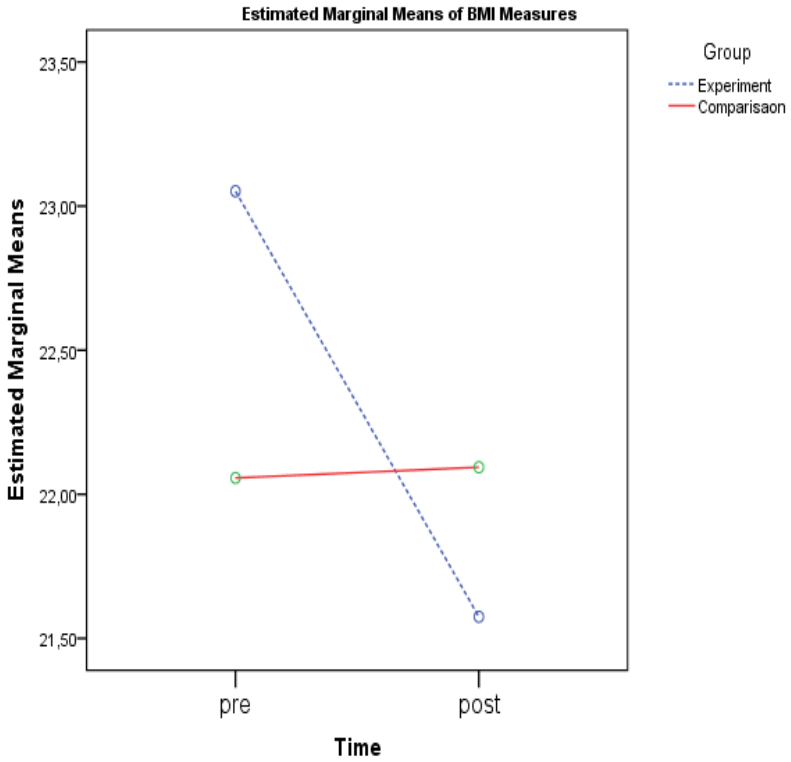

Figure 18. BMI Mean Values

4.9. Summary of Results

Research question 1: What is the effect of health related physical education course intervention on 9th grade students' total and sub health related fitness knowledge?

The results of first research question demonstrated that students who took health related fitness intervention significantly improved their health related fitness level over the intervention time period more than comparison group (see Table 10 and 12). In detail health related fitness intervention significantly increased students cardiovascular endurance, muscular endurance, training principles and general health knowledge level (see Table 15).

Research question 2: What is the effect of health related physical education course intervention on 9th grade students' total and sub physical activity level?

The results for the second research question indicated that health related fitness intervention significantly affected the three sub parameters of physical activity levels over the intervention period more than comparison group (see Table 18 and 20). In particular

health related fitness intervention significantly increased students low and vigorous physical activity level (see table 23).

Research question 3: What is the effect of health related physical education course intervention on 9th grade students' right leg flexibility levels?

The results of the third research question indicated that health related fitness physical education intervention significantly affected students right leg flexibility over he intervention period more than comparison group (see Table 24 and 27).

Research question 4: What is the effect of health related physical education course intervention on 9th grade students' left leg flexibility levels?

The results of the forth research question indicated that health related fitness physical education intervention did not have any significant effect on students left leg flexibility over he intervention period (see Table 28 and 31).

Research question 5: What is the effect of health related physical education course intervention on 9th grade students' push up levels?

The results of the fifth research question indicated that health related fitness physical education intervention did not have any significant effect on students' push-up level over the intervention period (see Table 33 and 36).

Research question 6: What is the effect of health related physical education course intervention on 9th grade students' pacer test levels?

The results for the sixth research question indicated that health related fitness intervention significantly affected the pacer level of the students over the intervention period more than comparison group (see Table 38 and 41).

Research question 7: What is the effect of health related physical education course intervention on 9th grade students' curl up levels?

The results for the seventh research question indicated that health related fitness intervention significantly affected the curl-up level of the students over the intervention period more than comparison group (see Table 33 and 46).

Research question 8: What is the effect of health related physical education course intervention on 9th grade students' BMI levels?

The results for the eight-research question indicated that health related fitness intervention significantly affected the BMI level of the students over the intervention period more than comparison group (see Table 48 and 51).

CHAPTER V

V. DISCUSSION

The purpose of this study was to examine the impact of an 8 weeks health related fitness physical education course (HRFPC) intervention that was based on fitness knowledge, physical activity level and fitness level of the 9th grade students.

This section is organized with regard to hypothesis of the current study and the results were discussed in line with the current literature. A general discussion and the limitations are also presented at the end of this chapter.

5.1. Effects of Health Related Fitness Physical Education Course on Students' Knowledge

The findings of the current study indicated that students in experimental group significantly increased health related fitness knowledge level over the intervention time period more than comparison group. In other words, 9th grade students who took part in the health related fitness physical education course had a significant increase in their knowledge level from pre-test to post test.

In particular, results indicated that there was significant improvement in four subscales of health related fitness knowledge, which are cardiovascular endurance, muscular endurance, training principles, and general health knowledge. The improvement of these subscales showed that implied HRFPC significantly enhanced the students' individual perceptions about having enough knowledge to be a physically educated healthy person.

The improvement of cardiovascular endurance subscale showed that there was a significant improvement on students' cardiovascular endurance knowledge level that is students had more knowledge about exercise types volumes and intensities, energy systems, heart rate exercise relation and health benefits of cardiovascular exercises.

The improvement of muscular endurance subscale showed that there was a significant improvement on students' muscular endurance knowledge level that is students had more knowledge about specific muscular endurance exercises such as squats, pushups etc. and principles of muscular training such as set, repetition, and recovery.

The improvement of training principles subscale showed that there was a significant improvement on students' training principles knowledge level.

In recent years school physical education programs paid pretty emphasis on HRF or conceptual physical education, focused on the knowledge, skill and behaviors necessitate to enhance health and well-being and to encourage active lifestyles (Harris, 1994). Lupo (2010) emphasized that the cognitive objectives are undeniably related to the affective and PHYSICAL objectives. In an investigation, Losch and Strand (2004) revealed noticeable findings when assessing the health and fitness knowledge level of students' assessed by Fit Smart test. The results revealed that HRFC showed great influence on students' overall HRF knowledge level. In partial, the highest scores were on the exercise prescription component, and then the components of physical fitness & scientific principles of exercise followed by the nutrition injury prevention, and other issues.

The improvement of general health knowledge subscale showed that there was a significant improvement on students' general health knowledge level that is students had more knowledge about physical activity, physical fitness and health benefits concepts.

In consistent with the hypothesis of this study, the improvement in flexibility and body composition knowledge subscale was not significant. This means health related fitness physical education course did not affect the experimental groups' flexibility and body composition knowledge level.

Unexpected result of the current study with regard to the flexibility level finding could be explained by the nature of the flexibility itself. In manyresearchesintended to investigate the effects of force, muscle lengthening contractions were resulted in severe sudden pain in the stretched muscle groups and for the following 2–3 days, muscle found to basislarger fatigue and late muscularachesoreness and tenderness than either isometric or concentric (shortening) contractions (Allen,2006).

On the other hand stretching activities has not received remarkable attention of the PE teachers, were much focused on the objectives of skill constructing activities and modest to vigorous physical activity (MVPA) more than 50% of the allotted 60-minute of the physical education course, only 5-min preparation warm up with stretching and 5-min finishing cool-down devoted for the physical education course in practice (USDHHS, 2010).

However, elastic tubing stretching and resistant training are more practicable and effective strategies for increasing stretching and muscular endurance aspects of health-related fitness in adolescents (Lubans D.R., et al 2010).

Considering the literature above, the previous stretching experience, and the content of physical education course and not to use elastic tubes for the courses could be the reason of non-significant improvement in flexibility sub scales of health related fitness knowledge test.

Schools have an essential role for adopt and sustaindiet, food and physical activity attitudes in children and adolescents. School-based health and nutrition education programs were placed in national curriculums for providing a healthy future to children, all over the world. Health Information Course takes place both in secondary and high school curriculums in Turkey. The body mass index (BMI; weight [kg]/stature^2 [m^2]) is among the most important issue in the Health Information Course content. Calculating BMI and determining body composition such as underweight, healthy weight, overweight and obesity can be listed in expected learning outcomes of Health information Course (TAF Preventive Medicine Bulletin, 2011). On account of the themes described above

body composition knowledge level subscale of the students may showed no significant improvement in the current study.

In another study students that are presented a choice of physical activities are willing to take part in lesson and not feel rough about being able to executeamongst their peers (Rheingold, 2010). Providing numerious of fitness activities in physical education classes can promote expected learning outcomes and create further sensible learning environment (Lambert, 2000). Team sports, running and jogging, swimming, weight lifting, are the preliminary choices of the students, where as individual sports and gymnastics aerobics are the least preferred activities. Consequently students' perception and knowledge on preferred exercise changes positively. On the other hand student's attendance to PE lessons decreasesconsiderably with high schooll, the highestdecreaseappearingamongthe 8th and 11th grade (DeMarco, Sidney 1998). The P.E teachers, still teaching individual sports besides rigid military walking and calisthenics exercises were graduated from skill based university degree with low level of HRF knowledge (İnce, Hünük, 2013). In the current study body composition subtopic of the HRFC was not so meaningful for the students or they were already gained this knowledge from other courses. Considering the literature above, the previous body composition experience, and the content of HRFPC could be the reason of non-significant improvement in body composition sub scales of health related fitness knowledge test.

According to Lubans & Cliff (2011) the concept of physical self worth has many national, traditional, cultural and educational containing of parameter self-perceptions (e.g. sport capability, physical attraction, body condition, and physical strength) The amount of these physical self-perception parameters could influence on an youngster's physical self-worth is determined on the value located on each parameter, which is directly influenced by gender and culture. In many Western civilizations, adolescent girls engaged a huge worth to slim body and figures corresponding the cultural background. Contrary, to be masculine in manysocieties is to expose physical power and strength, and the sport fields has been recognized as a stand for adolescent boys to demonstrate theirman hood

(Harter S., 1981). Students attitudes towards to exercise selection may vary according to gradual, gender, and culture.

In accordance, fitness knowledge (a component of health knowledge) is understood to influence the health and exercise behaviors of individuals (Zhu et al., 1999). Research suggests that individuals who have increased fitness knowledge via health education are more likely to be active and fit (Petersen, Byrne, & Cruz, 2003). The results of the current study suggest that the administration of the HRF assisted students in understanding the components of an essential determinant of health (i.e., physical fitness). These components include knowledge belong to the health-related importance and functionality of the cardiovascular endurance, muscular strength & endurance, flexibility, body composition, training principles and general health and knowledge (Zhu et al., 1999). These results are in line with the HRFPE objectives, lots of useful information provided to participants' consequence of an experiential learning process which is functionally planned for the each component of HRFPE course. Besides, it is recommended that knowledge acquisition and retention is superiorly accomplished via experiential education versus the traditional methods of knowledge translation (Lewis & Williams, 1994). HRFPE provides unique learning experiences that allow students to holistically engage in the subject matter with a great knowledge acquisition and retention.

5.2. Effects of HRF Physical Education Course on Students' Physical Activity Levels

The outcomes of the current study indicated that students in experimental group significantly increased their overall physical activity level after the intervention time period more than comparison group. In other words, 9th grade students who took part in the health related fitness physical education course had a significant increase in their physical activity level from pre-test to post test. Research (Petersen, Byrne, & Cruz, 2003) suggests that students who have increased physical activity level via health education are more likely to be active and fit.

The literature about health related fitness course and physical activity level parallels with the outcomes of the current study. In a study of elementary students participated EPEC (Exemplary Physical Education Curriculum) program which aims to improve physical fitness and physical activity level displayed significant positive treatment effect on students' Physical activity levels. Researchers had noticed that EPEC was more efficient than regular PE programson developing of physical activity and motor skill performance (Holmes et al., 2010). In another study (n=2348) which aims to evaluated the effectiveness of a school-based health related fitness physical education intervention on the promotion of physical activity among high school students. The results indicated that special HRF intervention was effective at reducing the prevalence of physical inactivity (Barros at al., 2009).

In particular, results indicated that there was a significant change in three subscales of physical activity level, which is low physical activity, moderate physical activity and vigorous physical activity. The improvement of these subscales showed that implied HRFPC significantly improved students' physical activity sub levels. The effect of HRFPC intervention was higher for the low physical activity group respectively to moderate physical activity and vigorous physical activity group in order. The last item of the IPAQ questions and provides information about duration & frequency of weekly walking activities, in detail. The results also points out that students in the low physical activity level increased their walking duration in proportion to comparison group after health related physical education intervention.

Health related fitness physical education studies in the literature promote physical activity level moderate to vigorous (Sallies et al., 1997). However, in the literature there are limited health related fitness studies increases the low level physical activity of high school girls. In this manner, the intervention and content of the health related fitness course draws attention and makes this study differ from others. In detail during the intervention period, it was expected participants to prove their homework physical activities and prepare portfolios about their extracurricular physical activities. When it was

looked at the portfolios walking exercises are seen in almost every participant. This study may take place about current health related fitness literature in terms of creating interest and increasing girls' physical activity and sport participation.

On the other hand both the experimental and comparison groups mean scores were increased during intervention and this alteration may be explained by Loucaides, Chedzoy, and Bennett (2004) study that PA levels varied by seasons among adolescents (aged 14-17) living in Cyprus. Those adolescents were physically more active during spring and summer months compared to autumn and winter months.

The results of the current study with regard to the significant increase in moderate to vigorous physical activity are in agreement with similar studies reported by various researches. The school based health related fitness interventions on students meaningfullyimprovedoverall time in moderate-to-vigorous physical activity (MVPA), their time in MVPA periods extended at least 8 minutes. School based health related fitness intervention for 10^{th} grade students showed a significant increase in MET values and decrease in body fat percent, and waist circumference (Gorely, Nevill, Morris, Stensel & Nevill A.,2009).

In another conceptual physical education study in Switzerland children (n=502) participated a poli-dimentional physical education package that contained three hours physical education classesevery week, mini activity breaks for every day, and extra curricula physical activity assignments. The results indicated that intervention group increased their moderate-vigorous physical activity in school all day moderate vigorous activity and overall physical activity and physical quality of life (Kriemler et al., 2010).

Beets, Bornstein, and colleagues (2010) have been reported same results in their studies those aimed to evaluate the effectiveness of PA patterns of youths taking health related fitness course. Youths with low and moderate PA levels tend to increase their physical activity level. However youths with moderate-vigorous physical activity level stays steady during and after health related fitness physical education course intervention.

Although the researches explained the positive effects of the HRFPEC, still there are different recommendations to have effective retention influence of interventions (Kriemler et al., 2011). However researchers proposals meet in common decisive denominator that is a theoretical framework and adopt a multi-component approach, that is environmental and family combined school PE programs (Dobbins et al., 2009; Kriemler et al., 2011) or qualified physical educators (McKenzie et al., 2001; Morgan and Hansen, 2008a,b; Sallis et al., 1997) for improving the worth of phsical education programs and instruction, and rising the volume of vigorous physical activity in school, brings physical fitness profits (Kriemler et al., 2011). In that point the current study meets the expectations of the literature in terms of design, instruction and content.

5.3. Effects of HRF Physical Education Course on Students' Physical Fitness Levels

The results of the current study indicated that students in experimental group significantly improved the right leg flexibility; 20-meter aerobic performance and curl up abdominal muscle endurance test scores and body mass index ratio over the intervention time period more than comparison group. In other words, 9th grade students who took part in the health related fitness physical education course had significant enhanced in their right leg flexibility, aerobic capacity and curl-up endurance levels and body composition.

The results of the current study with regard to the significant increase in total HRF and components have been indicated by various researches. In a study of 12-week HRF intervention showed that Physical fitness of the participants changed positively for males and females. The results of the study showed that all of the health-related components of fitness, which were assessed with the fitnessgram, increased after intervention. However, the number of completed curl-ups, exhibited impressive enhancement and significantly increased from pre-intervention to post-intervention for both males and females such increases are indicative of greater upper body strength, particularly in the abdominal or core area. Further the results of 12-week health related

fitness course intervention indicated that there were significant increase on pacer and push up test scores. In particular, males exhibited greater absolute levels of physical fitness than females. These results are typical of this age group, as males have been shown to participate in more aerobic and strength requiring activities, leading to higher fitness and activity levels (Sallis et al., 1997). Thus, this study pointed that the afterschool HRF intervention played a positive role in the increase of physical fitness levels of the participants.

Slawta et al. (2008) executed a health related fitness study called Be a Fit Kid, the structures and results of the physical fitness measures are similar to the findings of the current study. The results of these studies showed an increase in the number of sit-ups, curl-ups, and shuttle runs of pacer, completed correctly, demonstrating an improvement in muscular endurance.

Additionally, Colchico, Zybert and Basch (2000) found significant increases in the 1 mile run, push-ups, curl-ups and flexibility in their twelve week pilot after-school program. These results are similar to the findings of this study as flexibility, curl-ups, and pushups increased significantly from pre to post intervention.

In a recent HRF longitudinal study have found that over a three-year middle school period, absolute fitness scores increase faster among boys than girls in the pacer, curl-up, and push-up, whereas scores of girls increase faster than boys' in estimated percent body fat, BMI, and sit and reach (Liu, Zillifro, & Nichols, 2012). The data reveals a trend for boys to score higher than girls on push-ups and for the girls to score higher than the boys on the right leg back-saver sit & reach test (measure of right hamstring flexibility) and curl up test.

Farris, Taylor, Williamson, & Robinson (2011) found similar results in their interdisciplinary intervention program that was designed to improve the health of children who were obese. Participated were involved in three 90 minute sessions of guided exercise per week for 12 weeks. The researchers found that this amount of activity elicits measurable and significant gains in cardiovascular and muscular fitness, muscular strength and muscular endurance. In detail applied HRF program significantly increases in both

the push-up and curl-up performances of the students at the post intervention measurements.

Murray, Eldridge, Silvius, Silvius, & Squires (2012), conducted a school based cross-sectional study evaluating individual Fitnessgram performances of 6th grade students comparing scores (year 1) with products of a physical activity implementation of 2nd and 3rd year. The outcomesreveals that the "Fitnessgram® Friday" involvement significantly improved the ratio of males and femas that bothencountered healthy fitness zone (HFZ) standards, and surpassed them for pushups, curl ups, and the mile run. The standards reflect significantstages of fitness, which could be accomplished by most youngsters who consistently take part in numerous types of HRF physical activities.

Another research (Rengasamy, 2012) for secondary school girls took part in a ten-week program, which aims to develop chosen health-related components with a physical fitness intervention during physical education classes. The outcomes show that cardiovascular endurance and flexibility domains have statistically significant difference between experimental and comparison group regarding to post test measurements. On the other hand result was not significant for push up muscular strength. Parallel studies reported. The same significant differences in cardiovascular endurance are in agreement with the studies stated by Singh (2005), Ignico and Mahon (1995), Derri et al. (2004), and Sallis et al. (1997).

In a study four exercises with four minutes were executed during the intervention phase. The intervention and the warm up periods were occupied twelve to thirteen minutes increased intensity levels of exercise two times in a week. The training volume of experimental group could be improvedby the intervention group, which contributed to the significant improvement among them. The consequencestressed out a statistically significant difference between the flexibility of experimental and comparison group of girls (Rengasamy, 2012). Parallelfindingsapplying intervention programs have stated significant progresses in flexibility (Derri et al., 2004; Ignico & Mahon, 1995; Faigenbaum & Mediate, 2006).

Earlier study has showed that HRF physical education interventions are related with the objective of increased physical activity in school (Mckenzie et al., 2004 and Sallis et al., 1997) and that youthfulscholars who take part in school-oriented HRF interventions as a portion of physical education lessons establishenhanced cardiovascular fitness regarding to students partaking regular physical education lessons (Beets and Pitetti, 2005 and Beets et al., 2009).

Another outstanding study states that after one-year involvementa program grounded on presenting daily HRFPE lessons, rather than the typical two lessons a week, (Walther et al, 2010) witnessed development of 3.7 mL/kg/min in the VO_2max, but discovered no significant improvements in coordination and balance. Another HRF intervention, involment of 60 min of physical activity each day in schoolduring 2-year statistically significantly increased VO_2max compared to two lesoons of 45 minutes standard physical education weekly. Studies constructed on the rise of the number of physical education lessons determined in significant improvements in the VO_2max (Kriemler et al.,2010).

According to Prentice (1997), numerous school based HRF studies have shown that, walking can be a very effective component of a weight-loss program. It is the preliminary beneficial physical activity for lowering BMI and walking ranks high compared to other popular exercise activities such as walking at 4 miles per hour, matches bicycling at 10 miles per hour. Striding at a more leisurely rate at 3 miles per hour requires the same energy as cycling at 5 miles per hour.

Outcomes comparable to current study can be found in a recent review, concerning the body mass index. The effect of the HRF intervention on body composition has been satisfactory. (Aguilar at al 2010) For example, Yin et al. (2008) found no variances in anthropometric parameters, such as body mass index and waist circumference, after a one-year intervention, but did report a decrease in the amount of body fat measured by means of dual-energy X-ray absorptiometry (DEXA), indicating the significance of an accurate measurement.

On the other hand, in consistent with the hypothesis of this study, the improvement in left leg flexibility subscale of the HRF was not significant. This means that HRFPEC content and instruction during the interventions did not affect the experimental groups' left leg flexibility level. Unexpected result of the current study with regard to the left leg flexibility finding could be explained by the nature of the stretching, given importance to stretching and the bilateral differences among the dominant and non-dominant limbs.

This result was supported by previous findings of Miller (1994), that dominantly used limbs are more flexible than non-dominant ones. The inability to stretch far forward indicates tightness in the low back and hamstrings due to inactivity (Lidell, 1997). Calabrese (2001,) also supports the fact that tight hamstrings limit lower back flexibility, which results in back pain. It was previously reported that the effects of force for lengthening the muscle were caused severe sudden pain in the stretched muscle group (Allen, 2006).

Hart and Gabbard (1996) revealed that legs are oftenengaged bilaterally and limb preference may change depending on the complexity and investigational circumstances. In reaction to exercise, it is recommended that asymmetries remainpersistent between the legs because limbs display alike development in performance over the diverse periods of youth ful growth (Teixeira and Teixeira, 2008).

In another HRF study, (Katz et al., 2010) the influence of the program for flexibility was assessed, but no significant differences were established after intervention. In contrast, in a study realized in Chilean children graounded on the insertion of active life with asupplementary weekly 90 min of physical activity, there searcher did attain significant enhancements in lumbar flexibility, (Kain, 2004) along the lines of current results.

Another study in Sweden where a controlled six-month school based study exercise intervention was conducted on adolescent girls 13-20 years of age. Lindwall (2004) found that girls were increased both left and right flexibility scores.

On the other hand as it was mentioned before stretching activities has not received remarkable attention of the physical education teachers, only 5-min warm-up with stretching and 5-min cool-down devoted for the weekly 80 minutes physical education course in practice (USDHHS, 2010).

The findings of the current study indicated that students in experimental group did not significantly increase their push up numbers over the intervention time period regarding to comparison group. In other words, 9th grade students who took part in the health related fitness physical education course did not improved their arm and upper body strength. This inconsistent situation, regarding the 65% female population of the study, could be explained by the following studies about female body attractiveness, body satisfaction and self-perception of sport concepts.

Previous research supports gender difference plays an important role for physical activity selection. Welk & Eklund (2005) found that boys might possess higher expectations for success in sports and physical activity due to a more male dominant gendered learning context in Physical Education classes. Raustorp et al. (2005) found that body attractiveness in girls and boys exhibits alternation parallel with the maturation in that; increases in perceived body attractiveness for girls and increases in perceived sport competence, strength, and stamina for boys were significantly correlated with increased physical self-worth. Boys tend to have more aerobics, strengths, and competency exercises whereas girls tend to have more walking, gymnastics, and abdominal (pilates, yoga, etc.) exercises.

Lindwall (2004) found that after six month HRF intervention 10th grade students perceived physical condition and perceived body attractiveness increased significantly. The results of study, physical self-worth changes in the girls were related to increases walking time and flexibility and decrease waist circumference. However physical self-worth changes in the boys were related to increases muscle tone in upper body, abdominal strengths and aerobic capacity.

According to another Fitnessgram based study results was found that boys in the experimental groups made some significant improvement compared to their pre-test results. For example, boys ages 14-15 in the experimental group made a significant improvement in the curl-up test, as compared to the control group. Girls made even more improvement. Not only did the girls in experimental groups make significant improvement in FITNESSGRAM compared to their results one school year ago; the girls ages 12-13 made a significant improvement in curl-up, skinfold and 1-mile run tests compared to control groups. In addition, girls ages 14-15 made significant improvement in curl-up, push-up and one mile run tests, as compared to those in control groups (Fox and Corbin, 1989).

5.4. Summary of Discussion

In spite of having similarities with the literature about the benefits health related fitness intervention this study revealed important discussion issues for the field of physical education both in theory and practice. This study showed that students in experimental group increased overall HRF knowledge level in parallel with overall physical activity level and some fitness levels as well.

In Turkey health related fitness studies were realized by the academicians and mostly focused on development of self-regulatory skills and self-perceived health promoting activities (Ince, 2008 & Muftuler, 2012). In both studies the health related fitness knowledge level of university students were increased during intervention and internalization of the value and meaning of regular physical activity were evidenced in this studies. On the other hand skill based physical education course content, which is taught as a must course in the schools, did not consist health information and behavioral component to develop the meaning and value of the physical activity in terms of high school students. In that point health related fitness intervention for the 9th grade high school students brings new perspectives to the literature.

This study is also important for the aspect of application of a health related fitness intervention by a physical education teacher. Because physical education teachers in Turkey have propensity to teach skill based physical education course because of his or her education background and low health related fitness content knowledge level. In this mannerthe professional development of physical education teachers with modernized pedagogical information should be considered and revised. The current study could be a reference for the researchers to estimate the optimal conditions for an effective health related fitness physical education intervention in terms of the qualifications of the physical education and HRF physical education course content and teaching styles.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the conclusions of the present results, implications and further research recommendations based on the present results are provided.

6.1. Conclusions

The first lane of this study showed the effect of health related fitness intervention on 9th grade students' health related fitness knowledge levels. Our findings showed that overall health related fitness levels of children were positively and significantly affected by eight-week HRFPEC interventions. Specifically, cardiovascular endurance, muscular strength & endurance, body composition, training principles sub knowledge concepts were increased significantly. In contrary to expected hypothesis giveneight-week health related fitness intervention did not make any significant differenceon 9th grade students' flexibility and general health knowledge levels.

This study defended the assumption of health related fitness physical education course is more effective than skill oriented physical education program. The health related fitness physical education course for the current study is compressed of health related fitness course content, instruction and teaching strategies. A recommendation for the physical education teachers and curriculum specialist might be giving more importance and duration for the stretching and flexibility activities not the beginning and the end of the lessons. The rubber tapes or elastic stretching goods might be another recommendation about stretching materials that could be attractive for stretching and makes stretchingeasier.

The second lane of this study showed the effect of health related fitness intervention on 9th grade students' physical activity levels. The findings of the study showed that health HRFPEC intervention was significantly increased students' overall physical activity levels. This study is one of the advocates of health related fitness physical education intervention is more effective than skill based physical education program. In particular, HRFEC intervention significantly increased students' low and vigorous physical activity sub levels. The intervention has been most effective for low physical activity sub level. In conclusion HRFPC intervention have the potential to change young people's PA behavior initiating sports with low level of physical activities (walking, jogging, etc.) at least in the short term.

It could be recommended for the physical educators to include peer, family, social environment, and home work to HRFPEC interventions. Also the long term follow-ups could be recommended for the further researchers to discover the effects of HRFPEC in long term.

The third lane of the current study revealed the effect of health related fitness intervention on 9th grade students' physical fitness levels. The findings of the study demonstrated that HRPEC was significantly increased students' aerobic capacity (pacer test), abdominal muscles strength and endurance (sit-up test), right leg flexibility (sit and reach test) and body mass index (kg/m^2) levels. In contrary to expected hypothesis, given eight week health related fitness intervention did not make any significant difference on 9th grade students' left leg flexibility and upper body strength (push up test) levels.

The recommendations given for the flexibility knowledge could be applicable for the practical aspects of the study in that leaving more time for the stretching with elastic goods could increase students' flexibility levels or at least flexibility exercises seems more attractive for the students.

Girls mostly worry about muscular workout for the reason of oversized muscle and masculine appearance. Physical educators should bring a solution to girls' muscular appearance problem without ignoring the importance of the upper body strength for the

maintenance of the daily physical activities. Another recommendation for the physical educators The content of physical education program should be reconstructed to give more detailed information about muscular workouts in terms of type, intensity and volume which may cause appearance dissatisfaction. In addition girls are more engaged with stretching, walking, aerobics and Pilates exercises whereas boys are strength and aerobic exercises, it could also be recommended for physical educators to bring strength exercises in an attractive, and facilitator form with new sport equipment.

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APPENDICES

Appendix A

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER

ORTA DOĞU TEKNİK ÜNİVERSİTESİ
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2.04.2014

Gönderilen : Y. Doç. Dr. Saadettin Kirazcı
Beden Eğitimi Spor

Gönderen : Prof. Dr. Canan Özgen
IAK Başkanı

İlgi : Etik Onayı

Danışmanlığını yapmış olduğunuz Beden Eğitimi Spor Bölümü öğrencisi Yasin Akıncı'nın "Sağlıkla İlgili Fiziksel Aktivite Programının 9. Sınıf Öğrencilerinin Başarısına Etkisi" isimli araştırması "İnsan Araştırmaları Komitesi" tarafından uygun görülerek gerekli onay verilmiştir.

Bilgilerinize saygılarımla sunarım.

Etik Komite Onayı

Uygundur

2/04/2014

Prof.Dr. Canan Özgen
Uygulamalı Etik Araştırma Merkezi
(UEAM) Başkanı
ODTÜ 06531 ANKARA

Appendix B

Sayı : TEDANK-L-900.01/224
Konu : Yasin AKINCI hk.

13.Şubat 2014

Genel Müdürlüğe,

Kısmımızda Beden Eğitimi Öğretmeni olarak görev yapmakta olan Yasin AKINCI, Orta Doğu Teknik Üniversitesi Beden Eğitimi Spor Bölümü'ndeki tez çalışması ile ilgili olarak 11 Şubat -08 Nisan 2014 tarihleri arasında Salı günleri 09/L, M, N, O, S, T, U ve V sınıflarına 5.- 6. ve 7.-8. ders saatleri arasında Fitnessgram Fiziksel Performans Testi, Fiziksel Uygunluk Testi ve Fiziksel Aktivite Değerlendirme Anketi uygulamayı planlamaktadır.

Beden Eğitimi Öğretmeni Yasin AKINCI'nın Müdürlüğümüze vermiş olduğu 24 Ocak 2014 tarihli dilekçesi ilişikte sunulmuş olup, öğretmenimizin konu ile ilgili talebi Müdürlüğümüzce de uygun görülmektedir.

Makamınızca da uygun görüldüğü takdirde onayınıza arz ederim.

Aydın ÜNAL
Lise Müdürü

Ek : 1 sayfa dilekçe
9 sayfa doküman

UYGUNDUR
13/02/2014
Sevinç ATABAY
Genel Müdür

Appendix C

Sayın Veli,

TED Ankara Koleji Vakfı Okullarında izlenilen Beden Eğitimi ve Spor dersinin içeriğini değişmektedir. Yeni programda yer alan "sağlık için fiziksel aktivite" teması aynı zamanda ODTÜ Beden Eğitimi Spor Bölümünde doktora çalışmasını yapan beden eğitimi öğretmenimiz Yasin AKINCI'nın tez çalışmasıdır.

Programın işlerliği ve uygulanabilirliği açısından da TED okullarına fayda sağlayacak olan 8 haftalık çalışmada 9. Sınıf öğrencileri yer alacaktır. İlk olarak öğrencilerimizin hangi seviyede fiziksel aktivitelere katıldığını değerlendirmek için 7 soruluk uluslar arası fiziksel aktivite anketi ardından 36 soruluk fiziksel uygunluk bilgi testi ve son olarak Fitnessgram fiziksel uygunluk testlerinden boy, ağırlık, mekik koşusu, şınav, esneklik ve mekik testlerine katılmaları beklenmektedir.

Bu araştırmadaki tüm veriler çalışmayı yürüten kişiler tarafından yalnızca bu çalışmada kullanılacak ve tamamen gizli tutulacaktır. Kaydedilen video görüntüleri tez savunmasının ardından silinecektir. Bu araştırmaya katılmak tamamen isteğe bağlıdır. Katıldığınız takdirde çalışmanın herhangi bir aşamasında herhangi bir sebep göstermeden onayınızı çekmek hakkına da sahipsiniz.

Bu koşullarda araştırmaya kızım/~~oğlum~~ [redacted] katılmasına izin veriyorum.

Veli Adı-Soyadı: [redacted]

İmzası: [redacted]

İletişim için Yasin Akıncı: +90 312 586 90 00-183 yasakinci@hotmail.com

Yrd. Doç. Dr Saadettin Kirazcı +90 312 210 40 18 skirazci@metu.edu.tr

Çocuğunuzun katılımı ya da haklarının korunmasına yönelik sorularınız varsa ya da çocuğunuz herhangi bir şekilde risk altında olabileceğine, strese maruz kalacağına inanıyorsanız Orta Doğu Teknik Üniversitesi Etik Kuruluna (312) 210-7348 telefon numarasından ulaşabilirsiniz.

Appendix D

ÇOCUKLAR İÇİN FİZİKSEL UYGUNLUK BİLGİ TESTİ

Sevgili öğrenci,

Bu çalışmanın amacı, sizin sağlıkla ilgili fiziksel aktivite bilgi düzeyinizi gözden geçirmenize yardımcı olmaktır. Testi doldurmanız yaklaşık 25-30 dakikanızı alacaktır. Vereceğiniz bilgiler bu çalışma dışında hiçbir yerde kullanılmayacaktır. Bilgi düzeyinizin doğru ve güvenilir bir şekilde değerlendirilebilmesi için tüm soruların eksiksiz cevaplandırılması gerekmektedir. Göstereceğiniz özenden dolayı şimdiden teşekkür ederiz.

Yönerge: Her bir ifadeyi dikkatlice okuyunuz. Şıklardan en uygun olduğunu düşündüğünüz ifadeyi işaretleyiniz.

1. Kalp bir .....
   a) kemiktir.
   b) kastır.
   c) ciğerdir.
2. Isınma (enetme,açma-germe) ..... olmana yardımcı olur.
   a) daha esnek
   b) daha az esnek
   c) kaslı
3. Kalp atımı .....
   a) Kalbin büyüklüğüdür.
   b) Kalbinin ne kadar sağlıklı olduğudur.
   c) Kalbinin bir dakikada ne kadar attığıdır.
4. Mekik, barfiks ve şınav çekmek ..... geliştirir.
   a) Kas dayanıklılığını
   b) Kalp-dolaşım sistemi dayanıklılığını
   c) Esnekliğini
5. Aşağıdakilerden hangisi aerobik bir aktivitedir?
   a) Bowling
   b) İp atlamak
   c) Golf

Arka sayfaya geçiniz.

6. Yürüyüş sırasında ayağının hangi kısmı ilk olarak yerle temas etmelidir?

    a) Ayak ucu
    b) Yan tarafı
    c) Topuk

7. Aerobik çalışmada amaç ..... ulaşmaktır.

    a) En düşük ağırlığa
    b) Parmak uçlarına
    c) Hedeflenen kalp-atım hızına

8. Kendi kendinize yapabileceğiniz en iyi fiziksel uygunluk etkinliği aşağıdakilerden hangisidir?

    a) Evinizin çevresinde bir tur bisiklete binmek
    b) 1.6 km yürüyüş yapmak
    c) Bilgisayar oyunları oynamak

9. Bir egzersiz programını devam ettirebilmek için ihtiyacım olan şey .....

    a) Özel bir plana sahip olmamaktır.
    b) Yapmaktan zevk aldığım aktiviteleri seçmektir.
    c) Arkadaşlarımdan kaçmaktır.

10. Aerobik bir aktivitenin sonunda önemli olan .....

    a) Soğuma yapmaktır.
    b) Oturmaktır.
    c) Isınma yapmaktır.

11. Mekik hareketi ..... güçlendirmek için iyidir.

    a) Karın kaslarımı
    b) Bacak kaslarımı
    c) Kol kaslarımı

12. Fiziksel olarak fit olmak istiyorsanız ..... egzersiz yapmalısınız.

    a) Haftada bir defa
    b) Düzenli olarak
    c) Sadece bir arkadaşınızla

13. Kalp-dolaşım sistemi ..... için önemlidir.

    a) Sadece çocuklar için
    b) Sadece büyükler için
    c) Herkes için

Sonraki sayfaya geçiniz.

14. Yürüyüş sırasında nefes alışverişi .....

a) Rahat olmalıdır.
b) Hızlı olmalıdır.
c) Durmalıdır.

15. Aerobik ..... demektir.

a) Oksijensiz
b) Oksijenli
c) Güçlendirme

16. Aşağıdakilerden hangisi egzersizin faydalarından biri **değildir?**

a) Stresi azaltır.
b) Kan basıncını azaltır.
c) Kan yağı değerini yükseltir.

17. 100m sürat koşusu ne tür bir etkinliktir?

a) Aerobik
b) Anaerobik
c) Kas dayanıklılığı

18. Gerdirme yaparken ..... .

a) Yavaş hareketler kullanmalısın.
b) Sıçramalısın.
c) Daima ayakta olmalısın.

19. Fiziksel uygunluğun en önemli parçası .....

a) Kassal kuvvetdir.
b) Kalp-dolaşım sistemi dayanıklılığıdır.
c) Esnekliktir.

20. Soğuma egzersizleri önemlidir çünkü kalbin .....

a) Daha hızlı atmasını sağlar.
b) Daha güçlü olmasını sağlar.
c) Yavaşça toparlanmasını sağlar.

21. Kalp-dolaşım sistemi dayanıklılığının gelişmesini sağlayan en iyi aktivite .....

a) Yürüyüştür.
b) Futboldur.
c) Ağırlık kaldırmaktır.

Arka sayfaya geçiniz.

22. Aerobik dansın en **öncelikli** amacı .....

a) İyi bir dansçı olmaktır.
b) Kalp-dolaşım sistemi dayanıklılığını arttırmaktır.
c) Dans rutinlerini öğrenmektir.

23. Doğru jogging (hafif tempo koşu) formunda, vücut .....

a) Kusursuz derecede düz olmalıdır.
b) Yavaşça öne doğru eğilmelidir.
c) Geriye, bele doğru yaslanır.

24. Aerobik dayanıklılığı geliştirebilmek için, ... egzersiz yapılmalıdır.

a) Haftada üç kez veya daha fazla
b) Haftada iki kez
c) Haftada bir kez

25. Bireysel fiziksel uygunluk programında .....
a) İhtiyaçlarına uygun olan egzersizleri kullanmalısın.
b) Sadece kolay olan egzersizleri yapmalısın.
c) Daima aynı egzersizleri kullanmalısın.

26. Uzmanların önerilerine göre fiziksel olarak sağlıklı kalabilmek için günde kaç adım atmalıyız?

a) 1000
b) 5000
c) 10000

27. Barış okulun atletizm takımındadır. Her antrenman öncesinde ısınma egzersizleri yapmaktadır. Aşağıdakilerden hangisi Barış'ın her antrenman öncesinde ısınma egzersizleri yapmasının **nedeni/nedenlerindendir**?

a) Ortaya çıkabilecek sakatlıkları önlemek
b) Vücudu fiziksel olarak yapılacak egzersize hazırlamak
c) Hepsi

28. Düzenli ağırlık antrenmanı yapan bir kişide belirli bir süre sonrasında kişinin kas yapısında ..... meydana gelir.

a) Kasın sayısında artış
b) Kasın büyüklüğünde artış
c) Kasın boyunda uzama

29. Fiziksel etkinlik sonrası soğuma için ..... **<u>en uygundur.</u>**

a) Basketbol oynamak
b) Yüksek tempoda bisiklet sürmek
c) Yürüme, yavaş tempoda koşu ve esnetme

30. ve 31. soruları aşağıdaki paragrafa göre cevaplayınız.

Nurdan'ın annesi sırt ağrısı problemi çekmektedir. Doktorları yaptığı testler sonucunda annesinin bel ve sırt esnekliklerinin düşük olduğunu ve bunu geliştirmesi gerektiğini söylemiştir. Nurdan annesi için egzersiz planı hazırlamak istemektedir. **Sonraki sayfaya geçiniz.**

30.Nurdan'a aşağıdaki esneklik hareketlerinden hangilerini mutlaka seçmesini önerirsiniz?

A) 

B) 

C) 

D) 

a) A ve B
b) B ve C
c) C ve D

31. Nurdan'ın annesi haftada en az ..... gün esneklik çalışması yapmalıdır.

a) 1 gün
b) 3 gün
c) 5 gün

32 . ..... sporcularının kaslarının daha esnek olması beklenir?

a) Cimnastik
b) Futbol
c) Voleybol

33. ..... kas dayanıklılığının geliştirilmesinde **<u>daha etkili</u>** olacaktır.

a) Yavaş tempoda koşu
b) Ağırlık kaldırma: 1-5 tekrarlı ağır yüklerle yapılan etkinlikler
c) Ağırlık kaldırma : 20-30 tekrarlı düşük yüklerle yapılan etkinlikler

34., 35. ve 36. soruları aşağıdaki paragrafa göre cevaplayınız.

Selçuk 13 yaşındadır ve kilo vermesi gerekmektedir. Bunun için fiziksel aktivite düzeyini artırmak istemektedir.

34. Selçuk ..... türde fiziksel etkinlikler seçmelidir.

a) Takım oyunları (futbol, basketbol vb)
b) Hızlı yürüyüş, yavaş koşu, bisiklet sürme, yüzme vb
c) Ağırlık kaldırma

35. Egzersiz yaparken dakikadaki kalp atım hızı hedefi nasıl olmalıdır?

a) 100 atım/ dk dan düşük olmalıdır
b) En az 20 dk egzersiz sürdürebilecek kadar olmalıdır
c) 180 atım/ dk dan daha yüksek olmalıdır

36. Selçuk, ... sıklıkta egzersiz yapmalıdır.

a) Tercihen hergün
b) Haftada 2 gün
c) Haftada 3 gün

HRF-KNOWLEDGE TEST CEVAP ANAHTARI

1.B 2.A 3.C 4.A 5.B 6.C 7.C 8.B 9.B 10.A 11.A 12.B 13.C 14.A 15.B 16.C 17.B 18.A 19.B 20.C 21.A 22.B 23.B 24.A 25.A 26.C 27.C 28.B 29.C 30.B 31.C 32.A 33.C 34.B 35.B 36.A

Appendix E

	Q1-2	Q3-4	Q4	Q5	Q6-7	Q8-9	Q10-26	Q27	Q28-29	Q30	Q31	Q32	Q33	Q34	Q35	Q36
Knowledge	A C B	A C B	A C B	C	A C B		A C B		A C B		C	A C B	C		C	C
Comprehension				A B		A C B		A C B		A C B	A B		A B	A C B	A B	B A
Aplication																
Analysis																
Evaluation																
Synthesis																

INDEPENDENT OBSERVER ASSESMENT of HRFKT
According to Blooms' Taxonomy

A : Dr. SK, B: Dr.DH, C: EÖ

Appendix F FİZİKSEL AKTİVİTE ANKETİ

Değerli TED Ankara koleji öğrencileri, günlük hayatınızın bir parçası olarak yaptığınız fiziksel aktivite tiplerini bulmaya çalışıyoruz.

Son 7 günde **yaptığınız** şiddetli aktiviteleri **düşünün.** Şiddetli fiziksel aktiviteler **çok fiziksel efor harcanan ve nefes almanın normalden çok daha fazla olduğu aktiviteleridir. Sadece herhangi bir zamanda en az 10 dakika yaptığınız bu aktiviteleri düşünün.**

1. **Geçen 7 gün** içerisinde kaç gün ağır kaldırma, kazma, aerobik, basketbol, futbol veya hızlı bisiklet çevirme gibi şiddetli fiziksel aktivitelerden yaptınız?

   Haftada___gün

   ☐ Şiddetli fiziksel aktivite yapmadım. → (**3.soruya gidin.**)

2. Bu günlerin birinde şiddetli fiziksel aktivite yaparak genellikle ne kadar zaman harcadınız?

   Günde ___ saat

   Günde ___ dakika

   ☐ Bilmiyorum/Emin değilim

Geçen 7 günde yaptığınız **orta dereceli** fiziksel aktiviteleri düşünün. **Orta dereceli** aktivite orta derece fiziksel güç gerektiren ve normalden biraz sık nefes almaya neden olan aktivitelerdir. Yalnız bir seferde en az 10 dakika boyunca yaptığınız fiziksel aktiviteleri düşünün.

3. **Geçen 7 gün** içerisinde kaç gün hafif yük taşıma, normal hızda bisiklet çevirme, halk oyunları, dans, bowling veya çiftler tenis oyunu gibi **orta dereceli** fiziksel aktivitelerden yaptınız? Yürüme hariç.

   Haftada___gün

   ☐ Orta dereceli fiziksel aktivite yapmadım. → (**5.soruya gidin.**)

4. Bu günlerin birinde **orta dereceli** fiziksel aktivite yaparak genellikle ne kadar zaman harcadınız?

   Günde ___ saat

   Günde ___ dakika

   ☐ Bilmiyorum/Emin değilim

Geçen 7 günde <u>yürüyerek</u> geçirdiğiniz zamanı düşünün. Bu işyerinde, evde, bir yerden başka bir yere ulaşım amacıyla veya sadece dinlenme, spor, egzersiz veya hobi amacıyla yaptığınız yürüyüş olabilir.

5. Geçen 7 gün, bir seferde en az 10 dakika yürüdüğünüz gün sayısı kaçtır?

   Haftada___gün

   ☐ Yürümedim. → (**7.soruya gidin.**)

6. Bu günlerden birinde **yürüyerek** genellikle ne kadar zaman geçirdiniz?

   Günde ___ saat

   Günde ___ dakika

   ☐ Bilmiyorum/Emin değilim

Geçen 7 günde hafta içinde **<u>oturarak</u>** geçirdiğiniz zamanlarla ilgilidir. İşte, evde, çalışırken ya da dinlenirken geçirdiğiniz zamanlar dahildir. Bu masanızda, arkadaşınızı ziyaret ederken, okurken, otururken veya yatarak televizyon seyrettiğinizde oturarak geçirdiğiniz zamanları kapsamaktadır.

7. **Geçen 7 gün** içerisinde, günde **<u>oturarak</u>** ne kadar zaman harcadınız?

   Günde ___ saat

   Günde ___ dakika

   ☐ Bilmiyorum/Emin değilim

Appendix G

TED ANKARA KOLEJİ KYS	TS-EN-ISO 9001:2008 KYS ETKİNLİK HAZIRLAMA FORMU TEDANK-KYS-F-23

DERS: BEDEN EĞİTİMİ VE SPOR
SINIF: 9
ETKİNLİĞİN ADI: KARDİYO I
TAHMİNİ SÜRE: 45 Dakika
DOĞRUDAN GELİŞTİRİLECEK BECERİLER: Temel hareket becerileri, aerobik dayanıklılık, esneklik
GELİŞİMİNE KATKI GETİRİLMESİ DÜŞÜNÜLEN BECERİLER: Dikkat, motivasyon, esneklik, aerobik dayanıklılık
ÖĞRENME ALANI: ZİNDELİK
KAZANIMLAR:
(Z) 9.1. Çevresindeki fiziksel etkinlik ve spor imkanlarını kullanarak haftada en az üç gün orta ve yüksek şiddetli fiziksel etkinliklere katılır.
(Z) 9.3. Sağlıkla ilgili fiziksel uygunluğun minumum düzeyini korur.
YÖNTEM-TEKNİK-TAKTİK: Sunuş, Buluş
AÇIKLAMA: Bu etkinlikle öğrencilere fiziksel aktivite kavramları, fiziksel aktiviteler için malzeme seçimi, kalp atımına göre egzersiz şiddeti ayarlamaya yönelik farkındalık kazandırmak amaçlanmaktadır.
GEREKLİ MATERYALLER: Ek-I "Kalp Dolaşım Sistemi Antremanları" adlı çalışma yaprağı
İŞLENİŞ
I-DERSTEN ÖNCE
1. Ek-I "Kalp Dolaşım Sistemi Antremanları" adlı çalışma yaprağı öğrenci sayısı kadar çoğaltılır.

II-DERSTE
Kendini Değerlendirme-Katılım-Yönlendirilmiş Buluş (45 Dakika)
2. Öğrencilere fiziksel aktivitelerde kullanılan kişisel malzemelerin ne tür ve hangi niteliklerde olması gerektiği sorularak ders esnasında kullanılan kıyafetlerin ter emme özelliğinin olması pamuk ve hareketleri kısıtlamayacak şekilde rahat olması gerektiğinin üzerinde durulur. Fiziksel aktiviteler sırasında ayakkabı seçiminin önemi vurgulanarak, bir spor ayakkabısında şok emme, arkasının topuk kemiğini kavrama düzeyi ve esneklik özelliklerinin önemli kriterler olduğu uzun mesafe koşularda yere önce ayak tabanının

temasından dolayı ayakkabının bu kısmının yüksek olması ve parmak ucuna doğru tabanın alçalması gerektiği vurgulanır. Derslere bu özellikleri taşıyan malzemelerle katılıma dikkat etmeleri gerektiği hatırlatılır.

3. Kalp atımının 'karotid' ve 'radial' arter üzerinden nasıl ölçüleceği öğrencilere gösterilerek anlatılır. Farklı şiddetteki egzersizlerde (yavaş-hızlı yürüme/koşma) kalp atım değişikliklerini izlemeleri sağlanır. Öğrencilere durur vaziyette kendi 'dinlenme' kalp atımları ölçtürülür. Egzersizin şiddeti arttıkça kalp atımının arttığı ve egzersizin süresinin sürdürülebilirliğinin azaldığı, egzerisiz şiddeti azaldıkça kalp atımının da azaldığı ve egzersizi daha uzun süre sürdürülebildiği öğrencilerce keşfedilmesine rehberlik edilir.

IV-DEĞERLENDİRME

Çalışma Yaprağı

4. Kalp dolaşım sistemi geliştirme için hedef kalp atımının nasıl belirleneceği hakkında konuşulur. Ek-I'deki çalışma yaprağı öğrencilere dağıtılır. Çalışma yaprağının nasıl doldurulacağı ile ilgili bilgilendirme yapılır. Öğrencilerden bir sonraki derse kalp dolaşım sistemi dayanıklılıklarını geliştirmek için kendi minumum ve maksimum hedef kalp atımlarını hesaplamış olarak gelmeleri istenir.

Ek-I

TED ANKARA KOLEJİ KYS	**TS-EN-ISO 9001:2008 KYS ÇALIŞMA YAPRAĞI HAZIRLAMA FORMU TEDANK-KYS-F-22**

Öğrencinin Adı Soyadı:
KARDİYO I
DERS: BEDEN EĞİTİMİ VE SPOR
SINIF DÜZEYİ: 9
TAHMİNİ SÜRE:
BECERİLER:
KAZANIMLAR:
(Z) 9.1. Çevresindeki fiziksel etkinlik ve spor imkanlarını kullanarak haftada en az üç gün orta ve yüksek şiddetli fiziksel etkinliklere katılır.

(Z) 9.3. Sağlıkla ilgili fiziksel uygunluğun minumum düzeyini korur.

Sevgili Öğrenciler,

Güvenli bir şekilde kalp dolaşım sistemi dayanıklılığınızı geliştirmeniz için fiziksel aktivite sırasında kalp atım düzeyini takip etmeniz ve uygun kalp atım aralığında kalmanız önemlidir. Aşağıdaki hesaplama yöntemi sizin için en uygun kalp atımı aralığını hesaplamanızı sağlayacaktır. İstenilen aralıktaki ölçümleri yaparak yazınız.

1- Tahmini maksimum kalp atımını hesapla

   220-yaş:----------atım/dk

2- Dinlenme kalp atımını hesapla(bedenin dinlenmiş ve rahat olduğu bir zamanda ölçerek belirle)

   Dinlenme kalp atımı: ----------atım/dk

3- Tahmini kalp atımı rezervini bul

   Maksimum kalp atımı-dinlenme kalp atımı: ----------atım

4- Kalp atım rezervinin %50 ve %85'ini hesapla

   Kalp atım rezervinin %50'si: ----------atım

   Kalp atım rezervinin %85'i:----------atım

5- Kalp dolaşım sistemi çalışmaları için uygun minumum kalp atımını hesapla

Kalp atım rezervinin %50'si + dinlenme kalp atımı:……...atım/dk

6- Kalp dolaşım sistemi çalışmaları için uygun maksimum kalp atımını hesapla

Kalp atım rezervinin %85'i + dinlenme kalp atımı:…….atım/dk

Appendix H

TED ANKARA KOLEJİ KYS	TS-EN-ISO 9001:2008 KYS ETKİNLİK HAZIRLAMA FORMU TEDANK-KYS-F-23

DERS: BEDEN EĞİTİMİ VE SPOR

SINIF: 9

ETKİNLİĞİN ADI: KARDİYO II

TAHMİNİ SÜRE: 45 Dakika

DOĞRUDAN GELİŞTİRİLECEK BECERİLER: Temel hareket becerileri, aerobik dayanıklılık

GELİŞİMİNE KATKI GETİRİLMESİ DÜŞÜNÜLEN BECERİLER: Dikkat, motivasyon, aerobik dayanıklılık

ÖĞRENME ALANI: ZİNDELİK

KAZANIMLAR:

(Z) 9.1. Çevresindeki fiziksel etkinlik ve spor imkanlarını kullanarak haftada en az üç gün orta ve yüksek şiddetli fiziksel etkinliklere katılır.

(Z) 9.3. Sağlıkla ilgili fiziksel uygunluğun minumum düzeyini korur.

YÖNTEM-TEKNİK-TAKTİK: Sunuş, Buluş

AÇIKLAMA: Bu etkinlikle öğrencilere kalp dolaşım sistemi dayanıklılığı (aerobik dayanıklılık) kavramları ve antrenmanlarına yönelik farkındalık kazandırmak amaçlanmaktadır.

GEREKLİ MATERYALLER: Ek-I "Sağlık için fiziksel aktivite yapıyor muyum?" adlı çalışma yaprağı

İŞLENİŞ

I-DERSTEN ÖNCE

1. Ek-I "Sağlık için fiziksel aktivite yapıyor muyum?" adlı çalışma yaprağı öğrenci sayısı kadar çoğaltılır.

II-DERSTE

Kendini Değerlendirme-Katılım-Yönlendirilmiş Buluş (45 Dakika)

2. Öğrencilere güvenli bir şekilde kalp dolaşım sistemi dayanıklılığının geliştirilmesi için fiziksel aktivite sırasında kalp atım düzeyinin takip edilmesi ve uygun kalp atım aralığında kalmanın önemi hatırlatılır.

3. Öğrencilerden bir önceki derste istenen "kalp dolaşım sistemi dayanıklılığını geliştirmek için minumum ve maksimum hedef kalp atımlarını hesaplama" ölçümleri kontrol edilir.

4. Ölçümler sırasında öğrencilerin zorlandıkları bölümler olup olmadığı sorularak 'karotid' ve 'radial' arter üzerinden kalp atımının nasıl hesaplanacağı tekrar gösterilir. Bu ölçümlerin polar saat ve nabız ölçerle de ölçülebileceği, bu cihazların nabzın belirtilen aralığın dışına çıkması halinde uyarı verdiği vurgulanır.

5. Öğrenciler 3 gruba ayrılır. Sahada bir tur koşmaları istenir. Her gruptan sorumlu öğretmen tur bitiminde öğrencilerin 15 sn nabızlarını ölçmeleri ve çıkan değeri 4 ile çarpıp kendi nabız aralıklarında olup olmadığını kontrol etmelerini ister.

6. Nabız aralığının altında olan öğrencilere koşu tempolarını arttırmaları söylenirken, nabız aralığının üzerinde olan öğrencilerden ise koşu tempolarını düşürmeleri istenilir. Öğrencilerden 15 dk bu tempoda atletizm sahasında koşmaları beklenir. Bunu gerçekleştirmede zorlanan öğrenciler zaman zaman yürüyüp tekrar koşu yapabilirler.

7. 15 dk sonunda öğrencilerden tekrar nabızlarını 15 sn kontrol etmeleri istenilir. Sonra yine bu sayı 4 ile çarpılır ve çalışma bitiğindeki nabızlarının ne olduğu bulunur.

IV-DEĞERLENDİRME

Kendini Değerlendirme -Çalışma Yaprağı

8. Öğrencilere "Sağlık için yeterince fiziksel aktivite yapıyor musunuz?" sorusu yöneltilir. Bu soruyu cevaplamak için iki ölçme yönteminden (adımsayarla, fiziksel aktivite anketini doldurarak) yararlanacağı belirtilir.

9. Öğrencilerden Ek-I' deki çalışma yaprağını incelemeleri, bu iki yöntemden birini seçerek bir haftalık "fiziksel aktivite düzeylerini" değerlendirmeleri istenir.

Ek-I

TED ANKARA KOLEJİ KYS	TS-EN-ISO 9001:2008 KYS ÇALIŞMA YAPRAĞI HAZIRLAMA FORMU TEDANK-KYS-F-22

Öğrencinin Adı Soyadı:
SAĞLIK İÇİN YETERİNCE FİZİKSEL AKTİVİTE YAPIYOR MUYUM?

DERS: BEDEN EĞİTİMİ VE SPOR
SINIF DÜZEYİ: 9
TAHMİNİ SÜRE: 40 dakika
BECERİLER: Yorumlama, ilişkilendirme, değerlendirme
KAZANIMLAR:
(Z) 9.1. Çevresindeki fiziksel etkinlik ve spor imkanlarını kullanarak haftada en az üç gün orta ve yüksek şiddetli fiziksel etkinliklere katılır.
(Z) 9.3. Sağlıkla ilgili fiziksel uygunluğun minumum düzeyini korur.

Sevgili Öğrenciler,

Günlük yaşam içerisindeki egzersizlerinizi düşünerek "Sağlık için yeterince fiziksel aktivite yapıyor muyum?" sorusunun cevabını arayınız. Bu soruyu cevaplamak için iki ölçme yönteminden yararlanabilirsiniz. Bunlar;

1) adımsayar'la (pedometre) günlük adım sayınızı ölçmeniz, ve/veya

2) fiziksel aktivite anketini bir önceki hafta yapmış olduğunuz fiziksel etkinliklerden yola çıkarak doldurup, puanlama yönergesine göre hesaplayarak, ilgili normlara göre değerlendirmenizdir.

Lütfen bu iki yöntemden birini seçerek "fiziksel aktivite düzeyinizi" değerlendiriniz.

1. ADIMSAYARLA ÖLÇÜM

Bir adımsayarı cebinizde veya kemerinizde taşıyarak gün boyu atmış olduğunuz adım sayısını ölçünüz. Ölçtüğünüz adım sayısını aşağıya yazınız ve düzeyinizi belirleyiniz.

Toplam adım sayım:……adım

Değerlendirme

Günlük adım sayısı	*Varsayılan düzey*
5000'den az	Yetersiz fiziksel aktivite
5000-7499 arası	Düşük fiziksel aktivite
7500-9999 arası	Orta düzeyde fiziksel aktivite
10000-12499 arası	Yeterli fiziksel aktivite
12500'den fazla	Yüksek fiziksel aktivite

2. FİZİKSEL AKTİVİTE ANKETİ İLE ÖLÇÜM

FİZİKSEL AKTİVİTE ANKETİ

Son 7 günde yaptığınız **şiddetli aktiviteleri** düşünün. **Şiddetli fiziksel aktiviteler** çok fiziksel efor harcanan ve nefes almanın normalden çok daha fazla olduğu aktiviteleri ifade eder. Sadece herhangi bir zamanda en az 10 dakika yaptığınız bu aktiviteleri düşünün.

8. **Geçen 7 gün** içerisinde kaç gün ağır kaldırma, kazma, aerobik, basketbol, futbol veya hızlı bisiklet çevirme gibi şiddetli fiziksel aktivitelerden yaptınız?

   Haftada___gün

   ☐ Şiddetli fiziksel aktivite yapmadım. → **(3.soruya gidin.)**

9. Bu günlerin birinde şiddetli fiziksel aktivite yaparak genellikle ne kadar zaman harcadınız?

   Günde ___ saat

   Günde ___ dakika

   ☐ Bilmiyorum/Emin değilim

Geçen 7 günde yaptığınız **orta dereceli** fiziksel aktiviteleri düşünün. **Orta dereceli** aktivite orta derece fiziksel güç gerektiren ve normalden biraz sık nefes almaya neden olan aktivitelerdir. Yalnız bir seferde en az 10 dakika boyunca yaptığınız fiziksel aktiviteleri düşünün.

10. **Geçen 7 gün** içerisinde kaç gün hafif yük taşıma, normal hızda bisiklet çevirme, halk oyunları, dans, bowling veya çiftler tenis oyunu gibi **orta dereceli** fiziksel aktivitelerden yaptınız? Yürüme hariç.

Haftada___gün

☐ Orta dereceli fiziksel aktivite yapmadım. → (**5.soruya gidin.**)

11. Bu günlerin birinde **orta dereceli** fiziksel aktivite yaparak genellikle ne kadar zaman harcadınız?

Günde ___ saat

Günde ___ dakika

☐ Bilmiyorum/Emin değilim

Geçen 7 günde <u>yürüyerek</u> geçirdiğiniz zamanı düşünün. Bu işyerinde, evde, bir yerden başka bir yere ulaşım amacıyla veya sadece dinlenme, spor, egzersiz veya hobi amacıyla yaptığınız yürüyüş olabilir.

12. Geçen 7 gün, bir seferde en az 10 dakika yürüdüğünüz gün sayısı kaçtır?

Haftada___gün

☐ Yürümedim. → (**7.soruya gidin.**)

13. Bu günlerden birinde **yürüyerek** genellikle ne kadar zaman geçirdiniz?

Günde ___ saat

Günde ___ dakika

☐ Bilmiyorum/Emin değilim

Geçen 7 günde hafta içinde **<u>oturarak</u>** geçirdiğiniz zamanlarla ilgilidir. İşte, evde, çalışırken ya da dinlenirken geçirdiğiniz zamanlar dahildir. Bu masanızda, arkadaşınızı ziyaret ederken, okurken, otururken veya yatarak televizyon seyrettiğinizde oturarak geçirdiğiniz zamanları kapsamaktadır.

14. **Geçen 7 gün** içerisinde, günde **<u>oturarak</u>** ne kadar zaman harcadınız?

Günde ___ saat

Günde ___ dakika

☐ Bilmiyorum/Emin değilim

Puanlama Yönergesi

Yürüme METdk/hafta = 3.3 x Toplam Yürüme dk X Toplam Yürüme Gün Sayısı

Orta Şiddette Fiziksel aktivite MET dk/hafta = 4.0 x Toplam Orta Şiddette Fiziksel Aktivite dk'sı x Toplam Orta Şiddette Fiziksel Aktivite Gün Sayısı

Şiddetli Fiziksel Aktivite MET dk/hafta = 8.0 x Toplam Şiddetli Fiziksel Aktivite dk'sı x Toplam Şiddetli Fiziksel Aktivite Gün Sayısı

Toplam Fiziksel Aktivite MET dk/hafta = Yürüme+Orta Şiddette Fiziksel Aktivite + Şiddetli Fiziksel Aktivite

MET: Metabolik değer (Metabolic Equivalent)

Toplam Fiziksel Aktivite MET dk/hafta değeriniz: ……

Değerlendirme

Günlük adım sayısı	*Varsayılan düzey*
> 600 MET dk/haftadan	Düşük
601-3000 MET dk/hafta arası	Orta
< 3000 MET dk/hafta	Yüksek

Kaynakça

http://www.ipaq.ki.se/scoring.htm

Tudor-Locke C. & Bassett D.R. (2004) How many steps/day are enough? *Sports Med*, 34(1), 1-8.

Appendix I

TED ANKARA KOLEJİ KYS	TS-EN-ISO 9001:2008 KYS ETKİNLİK HAZIRLAMA FORMU TEDANK-KYS-F-23

DERS: BEDEN EĞİTİMİ VE SPOR
SINIF: 9
ETKİNLİĞİN ADI: KAS DAYANIKLILIĞI I
TAHMİNİ SÜRE: 45 Dakika
DOĞRUDAN GELİŞTİRİLECEK BECERİLER: Temel hareket becerileri, kasdayanıklılığı
GELİŞİMİNE KATKI GETİRİLMESİ DÜŞÜNÜLEN BECERİLER: Dikkat, motivasyon, kas dayanıklılığı
ÖĞRENME ALANI: ZİNDELİK
KAZANIMLAR:
(Z) 9.1. Çevresindeki fiziksel etkinlik ve spor imkanlarını kullanarak haftada en az üç gün orta ve yüksek şiddetli fiziksel etkinliklere katılır.
(Z) 9.3. Sağlıkla ilgili fiziksel uygunluğun minimum düzeyini korur.
YÖNTEM-TEKNİK-TAKTİK: Sunuş, Buluş
AÇIKLAMA: Bu etkinlikle öğrencilere kas dayanıklılığı kavramları ve antrenmanlarına yönelik farkındalık kazandırmak amaçlanmaktadır.
GEREKLİ MATERYALLER: Ek-I "Kendin için kas dayanıklılığı antrenmanı hazırla" adlı çalışma yaprağı
İŞLENİŞ
I-DERSTEN ÖNCE
1. Ek-I "Kendin için kas dayanıklılığı antrenmanı hazırla" adlı çalışma yaprağı öğrenci sayısı kadar çoğaltılır.
II-DERSTE

Kendini Değerlendirme-Katılım-Yönlendirilmiş Buluş (45 Dakika)

2. Öğrencilerle kol, omuz, kalça ve bacak bölgeleri için esnetme hareketi yapılır.
3. Hareketlerin ardından bir önceki hafta "sağlıkları için hangi seviyede fiziksel aktivite yaptıklarını" değerlendiren çalışma yapraklarına yönelik geribildirimler alınır.
4. Öğrencilerin fiziksel aktivite sonrası adımsayar ve MET (metabolik değer) değerleri ile ilgili ölçüm sonuçları paylaşılır. MET Hesaplamasında zorlanan öğrencilere yardım edilir.
5. Sağlık için aerobik dayanıklılık kadar kas dayanıklılığının da önemli olduğu vurgulanır. Öğrencilere "Sizce kas dayanıklılığı neden önemlidir?" sorusu yöneltilerek cevapları alınır. İskelet sisteminin kaslarla desteklendiği, duruş ve iyi bir vücut kompozisyonu için kas dayanıklılığı çalışmalarının yararlı olduğu belirtilir.

6. Öğrencilere "Sizce sizin yaş grubu için ağırlık çalışmaları uygun mu?" sorusu yöneltilerek avantaj ve dezavantajları konusunda öğrencilerin cevapları üzerine tartışılır. "Kassal kuvveti ve dayanıklılığı artırmak için çok ağırlıkla yapılan egzersizler bu dönemde tercih edilmez. Henüz büyüme plakları kapanmadığı için aşırı ağırlıkla yapılan egzersizler kemik gelişimini olumsuz etkileyebilir" bilgisi verilir. Bu yaş grubunda ağırlık çalışması yerine kendi vücut ağırlıklarıyla çalışmanın daha sağlıklı bir uygulama olacağı belirtilir.
7. Öğrencilerde 3'erli gruplar olmaları ve kendilerine bir minder almaları istenilir. Mekik, sıçrama, şınav ve diz çekme hareketleri öğrencilere gösterilir. 15 sn süre içerisinde eşlerden birisi mekik, sıçrama, şınav ve diz çekme hareketlerinden birini seçerek çalışırken, diğerleri de yardım ederler. Eşler kendi aralarında yer değiştirir. 2 set hareketler tekrar edilir.
8. Çalışmanın sonunda öğrencilere çalışma sırasında neler hissettikleri, hangi hareketin kendilerini zorladığı ve neden zorlamış olabileceği, bu çalışmanın neden setler halinde yapıldığı soruları yöneltilir.
9. Öğrencilere egzersizler sırasında yeterli oksijen alımının yaşadıkları zorlanmaları gidereceği belirtilir. "Kalp ve solunum sisteminin dayanıklılığı, çalışan kaslara gerekli oksijeni sağlayan akciğer, kalp ve kan damarlarının ne etkinlikte çalıştığını gösterir. Kaslara yetersiz oksijen gittiği zaman çalışma kapasitesi aniden düşer. Vücut ne kadar oksijen alabilir ve kullanabilirse, yorgunluk açığa çıkmadan o kadar fazla iş yapabilir" bilgisi öğrencilere verilir.
10. Enerji gereksinimini sağlamak için vücutta iki önemli sistem görev yapar:
a- Anaerobik sistem (oksijensiz enerji üretimi), kısa süre içinde yüksek enerji harcaması gerektiren durumlarda kullanılır. İki dakikaya kadar olan egzersizlerde enerji ihtiyacı anaerobik sistemden karşılanır. Bu sistemde adonezintrifosfat (atp), kreatinfosfat (cp) ve glikoz enerji kaynağı olarak kullanılır.
b- Aerobik sistem (oksijenli enerji üretimi) daha uzun sürede düşük enerji harcaması gerektiren işler için enerji sağlar. Bu sistemde sırasıyla glikoz, yağ asitleri ve amino asitler enerji kaynağı olarak kullanılır. Aerobik eğitim tekrarlı ritmik hareketleri içerir. Burada amaç kalp ve solunum yollarının dayanıklılığını artırmaktır. Bu tip aktivitelerde oksijen tüketimi önemlidir. Değerlendirilmesinde maksimum oksijen tüketimi hesaplanır. Yürüme, koşma, yüzme, bisiklet gibi sporlar aerobik dayanıklılığı arttırmak için tercih edilen spor dallarıdır.

V-DEĞERLENDİRME

Kendini Değerlendirme -Çalışma Yaprağı

11. Ek I'deki çalışma yaprağı öğrencilere dağıtılır ve yönergeler doğrultusunda bir haftalık kas dayanıklılığı antrenman programı hazırlamaları istenir.

Ek-I

TED ANKARA KOLEJİ KYS	TS-EN-ISO 9001:2008 KYS ÇALIŞMA YAPRAĞI HAZIRLAMA FORMU TEDANK-KYS-F-22

Öğrencinin Adı Soyadı:

KENDİN İÇİN KAS DAYANIKLILIĞI ANTRENMANI HAZIRLA

DERS: BEDEN EĞİTİMİ VE SPOR

SINIF DÜZEYİ: 9

TAHMİNİ SÜRE: 40 dakika

BECERİLER: Yorumlama, değerlendirme

KAZANIMLAR:

(Z) 9.1. Çevresindeki fiziksel etkinlik ve spor imkanlarını kullanarak haftada en az üç gün orta ve yüksek şiddetli fiziksel etkinliklere katılır.

(Z) 9.3. Sağlıkla ilgili fiziksel uygunluğun minumum düzeyini korur.

Sevgili Öğrenciler,

Sağlık için fiziksel aktivitenin önemli parçalarından birisi kas dayanıklılığı çalışmalarıdır. Kas dayanıklılığı kasların bir dirence karşı uzun süre dayanabilme kapasitesidir. Mekik, şınav, barfiks ve çeşitli sıçrama hareketleri vücudunuzun farklı bölgelerindeki kas dayanıklılığınızı geliştirmek için oldukça etkili egzersizlerdir. Kas dayanıklılığı geliştirmek için hareket seçerken vücudumuzdaki karın, sırt, omuz, kol ve bacaklardaki büyük kas gruplarının bütünü hedeflenmelidir. Örnek olarak karın kasları için mekik, kol ve omuz kasları için şınav-barfiks, bacak kasları için çeşitli sıçrama hareketleri seçilebilir.

Hareketleri seçtikten sonra, her bir hareketi yoruluncaya kadar "kaç adet" veya "ne kadar süre" yapabildiğinizi test edebilirsiniz. Örneğin mekik çekiyorsanız, durmadan kaç tane çekebildiğinizi test edin. Örneğin 30 adet çekebiliyorsanız, bunun %60-80'ini

hesaplayın. Kas dayanıklılığı çalışmalarına yeni başlayan birisi iseniz daha düşük (% 60-70 civarında), bu tür çalışmalarda deneyimli biri iseniz daha yüksek (%70-80) tekrar sayısı hesaplamak sizin için daha uygun olacaktır.

Tekrar sayısının belirledikten sonra 2-4 set bu hareketleri yapınız. Sizler için set aralarında 1,5-2 dakikalık dinlenme yeterli olacaktır.

Bu tür çalışmaları haftada 2-3 kez yapmak kas dayanıklılığı gelişiminizi yeterince destekleyecektir.

KAS DAYANIKLILIĞI ANTRENMAN PROGRAMINI HAZIRLA!

Vücut Bölgesi	**Seçtiğin Hareket (ler)**	Hareketi yoruluncaya kadar "kaç kez" veya "ne kadar süre" yapabiliyorsun? Test et ve değeri aşağıya yaz.	Setli çalışmada her bir sette "kaç adet" veya "ne kadar süre" yapacaksın? Hesapla ve tekrar sayısını/süreyi buraya yaz.
Karın			
Sırt			
Omuz ve Kol			
Bacaklar			

Hedeflediğin Set Sayısı :……

Set Arası Dinlenme Süresi :……

Appendix J

TED ANKARA KOLEJİ KYS	TS-EN-ISO 9001:2008 KYS ETKİNLİK HAZIRLAMA FORMU TEDANK-KYS-F-23

DERS: BEDEN EĞİTİMİ VE SPOR
SINIF: 9
ETKİNLİĞİN ADI:KAS DAYANIKLILIĞI II
TAHMİNİ SÜRE: 45 Dakika
DOĞRUDAN GELİŞTİRİLECEK BECERİLER: Temel hareket becerileri, kas dayanıklılığı
GELİŞİMİNE KATKI GETİRİLMESİ DÜŞÜNÜLEN BECERİLER: Dikkat, motivasyon, kas dayanıklılığı
ÖĞRENME ALANI: ZİNDELİK
KAZANIMLAR:
(Z) 9.1. Çevresindeki fiziksel etkinlik ve spor imkanlarını kullanarak haftada en az üç gün orta ve yüksek şiddetli fiziksel etkinliklere katılır.
(Z) 9.3. Sağlıkla ilgili fiziksel uygunluğun minimum düzeyini korur.
YÖNTEM-TEKNİK-TAKTİK: Sunuş, Buluş
AÇIKLAMA: Bu etkinlikle öğrencilere kas dayanıklılığı kavramları ve antrenmanlarına yönelik farkındalık kazandırmak amaçlanmaktadır.
GEREKLİ MATERYALLER: Ek-I "Kendin için kas dayanıklılığı antrenmanı hazırla" adlı çalışma yaprağı
Ek- II "Vücut ağırlığı egzersizleri periyodik cetveli" adlı çalışma yaprağı

İŞLENİŞ
I-DERSTEN ÖNCE

1. Ek- II "Vücut ağırlığı egzersizleri periyodik cetveli" adlı çalışma yaprağı öğrenci sayısı kadar çoğaltılır.
2. Spor salonuna bilgisayar ve projeksiyon kullanıma hazır halde bulunur.

II-DERSTE

Kendini Değerlendirme-Katılım-Yönlendirilmiş Buluş (45 Dakika)

3. Öğrencilerle kol, omuz, kalça ve bacak bölgeleri için esnetme hareketi yapılır.

4. Hareketlerin ardından bir önceki hafta kas dayanıklılığıyla ilgili yapılan şınav, Diz çekerek koşu, Mekik ve Sıçrama çalışmalarında hangi kas gruplarının etkin çalıştığı

sorularak cevapları hatırlatılır.(Şınav kol kasları itme grubu sırt kasları, karın kasları, diz çekerek koşu; bacak kasları karın kasları, omuz kasları, mekik; üst karın ve sırt kasları sıçrama; bacak kasları ve karın kasları.)

5. Bir önceki ders öğrencilerden hazırlanmaları istenilen "kas dayanıklılığı antrenmanı programları" incelenerek öğrencilere egzersiz türü, şiddeti süresi ile ilgili geri bildirimler verilir önerilerde bulunulur.

6. Antrenman programlarında yer alan karın bölgesi egzersizleri, sırt bölgesi egzersizleri, omuz ve kol egzersizleri ve bacak bölgesini çalıştıran egzersizler sınıftaki diğer öğrencilerle deneyimlenir. Ardından öğrencilerden eşli olmaları ve kendilerine birer minder almaları istenilir ve kendi çalışma programlarını 3 set uygulamaları istenilir. Önce bir öğrenci karın bölgesi çalışması yapar sonra diğer öğrenci karın bölgesi çalışması yapar ve 3 set bu çalışma tekrarlandıktan sonra sırt, omuz- kol ve bacak bölgesi egzersizleri aynı şekilde 3 set uygulanır. Setler arasında 1.5 - 2 dk dinlenme öğrenciler için yeterli olacaktır. Öğrenciler hareketi zorlandıkları yerde eşlerinden yardım alabilirler. Yine hareketi yaparken hareketteki herhangi bir form bozukluğu olursa arkadaşının düzeltmesi beklenilmektedir.

7. Öğrencilere "**Vücut ağırlığıegzersizleri periyodik cetveli**" çalışma yaprağı dağıtılır ve çalışma yaprağının bulunduğu web sayfası projeksiyondan salondaki perdeye yansıtılır (http://www.strengthstack52.com/periodic-table-of-bodyweight-exercises/). Ardından öğrencilere buradaki hareketlerden seçmeleri istenilir ve seçilen hareketi bütün öğrenciler uygulamaya çalışırlar. Her seviyeden ve kas grubundan 2 şer hareket seçilerek öğrencilerin denediği egzersizlere çeşitlilik kazandırılır.

8.Çalışmanın sonunda öğrencilere çalışma sırasında denedikleri egzersizlerin hangi kas grubunu çalıştığını yazmaları istenilir.

Appendix K

TED ANKARA KOLEJİ KYS	TS-EN-ISO 9001:2008 KYS ETKİNLİK HAZIRLAMA FORMU TEDANK-KYS-F-23

DERS: BEDEN EĞİTİMİ VE SPOR

SINIF: 9

ETKİNLİĞİN ADI: ESNETME / GERME (STRETCHING) HAREKETLERİ

TAHMİNİ SÜRE: 40+40 Dakika

DOĞRUDAN GELİŞTİRİLECEK BECERİLER: Temel hareket becerileri

GELİŞİMİNE KATKI GETİRİLMESİ DÜŞÜNÜLEN BECERİLER: Dikkat, motivasyon

ÖĞRENME ALANI: HAREKET

KAZANIM:

(H) 9.3. Sağlıkla ilgili fiziksel uygunluğun minumum düzeyini korur.

YÖNTEM-TEKNİK-TAKTİK: Sunuş, Buluş

AÇIKLAMA: Bu etkinlikle öğrencilere, sağlıkla ilgili fiziksel uygunluk (fitness) için önemli öğelerden esnekliğe yönelik farkındalık kazandırmak amaçlanmaktadır.

GEREKLİ MATERYALLER: Ek-I "streching" video, Ek-II "Yoga" çalışma yaprağı, Ek-III "Streching" çalışma yaprağı, Ek-IV "Streching Egzersizleri" çalışma yaprağı, Ek- V "yoga" video, Ek- VI "yoga" ppt sunum

NOT: Yoga uygulaması Ek-V' deki video ile yapılabileceği gibi derse yoga uzmanı konuk edilerek de gerçekleştirilebilir.

İŞLENİŞ:

I- DERSTEN ÖNCE:

1. Ek-II (1.grup kız öğrenci sayısı), Ek-III (2. grup erkek öğrenci sayısı), Ek- IV (1 ve 2. grup toplam öğrenci sayısı) kadar çoğaltılır.

II- DERSTE

Sunum (5 Dakika)

2. Öğrencilere sağlık için fiziksel uygunluğun (fitness) önemli ögelerinden birinin esneklik olduğu özellikle sırt-bel-üst bacak grubu esnekliğinin önemli olduğu vurgulanır. Vücudun

bu bölümlerindeki esnekliğin düşük olmasıyla hareket kapasitesinin ve verimliliğin düşeceği, duruş bozuklukları, sırt ağrısı ve bel fıtığı gibi sağlık problemleri ile karşılaşılabileceği hatırlatılır.

3. Öğrenciler kızlar ve erkekler olmak üzere 2 gruba ayrılır. I. grup kızlar ile yoga içerisinde streching uygulamaları, II. grup erkeklerle statik streching uygulamaları setler halinde uygulanır.

Alıştırma- Yoga / Streching (35 dakika)

4. I. Grup kız öğrencilere streching (esneme-germe) hareketlerinin en etkili yogada kullanıldığı belirtilerek yoga hakkında neler bildikleri, neden yoga yapılması gerektiği, sağlık yoga ilişkisinin ne olduğu ve faydaları sorularak cevapları aranır. Ek- VI'daki powerpoint sunum ile soruların cevaplarına yönelik bilgilendirme yapılır.

5. Soruların ardından 30 dakikalık orjinal yoga sistemi çalışması gerçekleştirilir.

6. Nefes çalışmalarıyla bedenler hazırlandıktan sonra sırayla ayakta, oturarak, sırtüstü, yan üstü ve yüzüstü duruşlar uygulanır.

7. Derin gevşeme çalışması ile çalışma tamamlanır.

Alıştırma- Statik Streching (35 dakika)

8- II. Grup erkek öğrencilerle Ek-I' deki video açılarak statik streching hareketleri model eşliğinde gerçekleştirilir.

- Boyun (sağa sola öne arkaya germe)
- Omuz (kolları düz olarak geriye döndür)
- Oturarak Geriye Uzanma
- Kolları Düz Olarak Geriye Döndürme
- Kol Arkası Enseden Aşağıya Germe
- Üst Sırt göğsün önünde kol çaprazlama
- Kolları gergin olarak baş üzerine kaldırma
- Bel omurga döndürme
- Sırtüstü yatarak diz bükme
- Oturarak ayak ucuna değme
- Yarım mekik esneme

III- DEĞERLENDİRME

Çalışma Yaprağı (10 Dakika)

9. Ek-II, Ek-III ve Ek-IV'te yer alan çalışma yaprakları öğrencilere dağıtılarak uygulatılır. Streching hareketleri sırasında neler hissettikleri ve hangi kaslarının daha çok çalıştığı sorulur.

Ek- II

TED ANKARA KOLEJİ KYS	TS-EN-ISO 9001:2008 KYS ÇALIŞMA YAPRAĞI HAZIRLAMA FORMU TEDANK-KYS-F-22

ESNETME / GERME (YOGA) HAREKETLERİ

DERS : BEDEN EĞİTİMİ

SINIF DÜZEYİ : 9

TAHMİNİ SÜRE : 10 dk.

BECERİLER : Bilgiyi kullanma, yorumlama

ÖĞRENME ALANI/TEMA/ÜNİTE: Zindelik

KAZANIM:

(Z) 9.3. Sağlıkla ilgili fiziksel uygunluğun minumum düzeyini korur.

Sevgili Öğrenciler,

Katıldığınız Orijinal Yoga Sistemi çalışmasına ilişkin aşağıdaki soruları yanıtlayınız.

1. Yoga çalışmasında hangi kaslarınız çalıştı?

2. Yoga çalışması zihinsel ve ruhsal olarak sizde herhangi bir değişiklik oluşturdu mu? Neler hissettiğinizi açıklayınız.

3. Yoga çalışmasından keyif aldınız mı?

4. Bu tür bir etkinliğe tekrar katılmak ister misiniz?

Ek- III

TED ANKARA KOLEJİ KYS	**TS-EN-ISO 9001:2008 KYS ÇALIŞMA YAPRAĞI HAZIRLAMA FORMU TEDANK-KYS-F-22**

ESNETME / GERME (STRETCHING) HAREKETLERİ

DERS: BEDEN EĞİTİMİ

SINIF DÜZEYİ: 9

TAHMİNİ SÜRE: 10 dk.

BECERİLER: Bilgiyi kullanma, yorumlama

ÖĞRENME ALANI/TEMA/ÜNİTE: Zindelik

KAZANIM:

Z.9.3. Sağlıkla ilgili fiziksel uygunluğun minumum düzeyini korur.

GEREKLİ MATERYALLER (Varsa):

Sevgili Öğrenciler,

Esnetme / Germe (stretching) hareketlerine ilişkin aşağıda verilen soruları yanıtlayınız.

Esnetme / germe (stretching) hareketleri ile ilgili olarak aşağıda verilen ifadeleri dikkatlice okuyunuz. İfadeler doğru ise boş bırakılan yere "D" yanlış ise "Y" yazınız. Yanlış olduğunu düşündüğünüz ifadedeki yanlışı düzeltiniz.

[ ] Sportif etkinliğe başlamadan önce germe hareketlerini mutlaka yapmalıyız.

……
……

[ ] Uzun süreli koşu yaptığımızda sadece bacak kaslarını esnetme hareketleri yapmalıyız.

……
…….

[ ] Germe hareketleri yapmak sakatlık riskini azaltır.

……
……

[ ] Germe hareketleri yapmak sportif etkinlik sonrası kas ağrılarının oluşmasını engeller.

……
……

[ ] Germe hareketleri yapmak özellikle bel ve boyun için tehlikelidir.

……
……

[ ] Spor öncesi ve sonrası 5-8 saniyelik germe hareketleri yapmak yeterlidir.

……
……

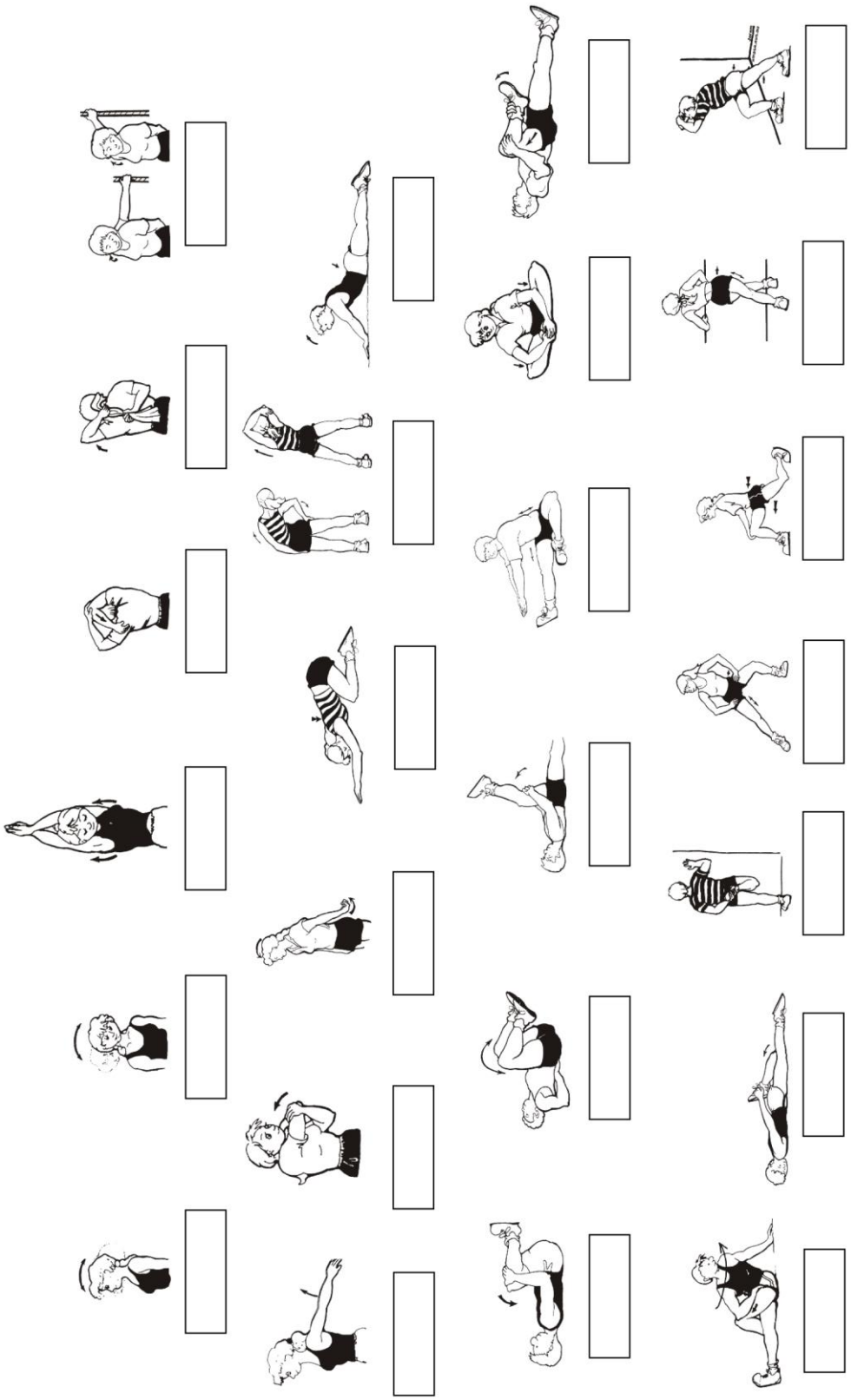
[ ] Beden Eğitimi derslerinde yaptığımız esnetme hareketlerinin dinamik olması gerekir.

……
……

[ ] Acı yoksa kazançta yok" sözü stretching içinde geçerlidir.

……
……

Ek- IV: Aşağıdaki çizimleri inceleyiniz. Çizimlerde gösterilen esneme/germe hareketlerinin hangi kasları çalıştırdığını altında verilen boşluklara yazınız?



Appendix L

TED ANKARA KOLEJİ KYS	TS-EN-ISO 9001:2008 KYS ETKİNLİK HAZIRLAMA FORMU TEDANK-KYS-F-23

DERS: BEDEN EĞİTİMİ VE SPOR

SINIF: 9

ETKİNLİĞİN ADI: ANDROID ETKİNLİKLER

TAHMİNİ SÜRE: 45 Dakika

DOĞRUDAN GELİŞTİRİLECEK BECERİLER:

GELİŞİMİNE KATKI GETİRMESİ DÜŞÜNÜLEN BECERİLER:

ÖĞRENME ALANI: HAREKET

KAZANIMLAR:

(Z) 9.2. Fiziksel uygunluk düzeyini analiz etmek için teknolojiyi kullanır.

(Z) 9.3. Sağlıkla ilgili fiziksel uygunluğun minumum düzeyini korur.

(Z) 9.4. Günlük ve haftalık harcadığı kalori ve aldığı kalori dengesini takip eder.

YÖNTEM-TEKNİK-TAKTİK: Sunuş, Buluş

AÇIKLAMA: Bu etkinlikle öğrencileri android,pc ve tablet üzerindeki sağlıklı yaşama ilişkin yazılımlar hakkında bilinçlendirmek amaçlanmaktadır.

GEREKLİ MATERYALLER: Projeksiyon, bilgisayar, Ek-I'deki ppt sunum

NOT: Bu ders planının uygulaması sırasında öğrencilerin teknolojiyi etkin kullanması desteklenmelidir.

İŞLENİŞ

I- DERSTEN ÖNCE

1. Ek-I' deki ppt sunum bilgisayara yüklenir.

2. Sunum yapılan mekanda projeksiyon düzeneği hazırlanır.

II- BİRİNCİ DERSTE

Soru-Yanıt-Sunum (45 dakika)

3. Öğrencilere sağlıklı yaşam için dengeli ve düzenli beslenme ile fiziksel aktivitenin önemi hatırlatılır. Günümüzde teknolojinin bu kadar yaygın kullanıldığı bir dönemde akıllı telefon ve tabletler ile pc'de kullanılabilecek sağlıklı yaşamla ilgili birçok yazılımın mevcut olduğu belirtilir. Bu yazılımlar ile günlük kilo ve kalori takibi ile kilo kontrolü sağlanabildiği gibi fiziksel aktivite öneren android programlarında kişileri sağlıklı ve zinde tuttuğu bilgisi verilir.

4. Öğrencilere günlük yaşantıda kilo kontrolünün önemli bir konu olduğu belirtilerek günlük ve haftalık kilo takibinin yapılmasının bir gereklilik olduğu belirtilir. Sağlıklı yaşamla ilgili android yazılım "kalori takip" ve internet üzerinden takibi yapılabilen "kilo takibi" programlarının bu amaca hizmet ettiği söylenir.

5. Ek- I' deki ppt sunumu açılarak ya da **http://www.kilotakibi.com/** linkinden, 1-6. slaytlardaki " kilo takibi" programının ekran görüntüleri üzerinden bireysel kilo ve kalori takibinin nasıl yapılacağı gösterilir. Aynı şekilde android telefonlar üzerinden 7. slayttaki "kalori takip" programı açılarak uygulama ekranı incelenir. Uygulama adımları ile kilo ve kalori takibi android telefonlar üzerinden yansıtılarak gösterilir.

6. Powerpoint sunumun 8. ve sonraki slaytları açılarak fiziksel uygunluk ve sağlıklı yaşam ile ilgili diğer android uygulamalar hakkında bilgilendirme yapılır.

III- DEĞERLENDİRME

Öz Değerlendirme

7. Öğrencilerden android telefonlar ya da pc üzerinden bir haftalık kilo takip ve kalori takip programını kullanarak kilo ve günlük kalori alımlarını takip etmeleri istenir. Bir haftalık takip sonucu uygulama ekranlarından print screen yapılarak verileri paylaşmaları istenir.

Appendix M

TED ANKARA KOLEJİ **KYS**	**TS-EN-ISO 9001:2008 KYS** **ETKİNLİK HAZIRLAMA FORMU** **TEDANK-KYS-F-23**

DERS: BEDEN EĞİTİMİ VE SPOR

SINIF: 9

ETKİNLİĞİN ADI: TEKNİK OLARAK ANALİZ EDELİM

TAHMİNİ SÜRE: 45 Dakika

DOĞRUDAN GELİŞTİRİLECEK BECERİLER: Dijital fiziksel etkinlik teknolojilerini kullanma

GELİŞİMİNE KATKI GETİRMESİ DÜŞÜNÜLEN BECERİLER: Temel hareket becerileri, koordinasyon, dikkat, işbirliği, etkili iletişim, öz yönetim, yaratıcılık, kendini ifade etme, liderlik

ÖĞRENME ALANI: ZİNDELİK

KAZANIMLAR:

(Z) 9.2. Fiziksel uygunluk düzeyini analiz etmek için teknolojiyi kullanır.

YÖNTEM-TEKNİK-TAKTİK: Sunuş, Buluş

AÇIKLAMA: Bu etkinlikle öğrencilerin dijital fiziksel performans değerlendirme aracı olan ubersense veya coach's eye programını etkili kullanmaları amaçlanmaktadır.

GEREKLİ MATERYALLER: Projeksiyon, tablet, Ubersense yada Coach's Eye uygulaması

İŞLENİŞ

I- DERSTEN ÖNCE

1. Sunum yapılan mekanda projeksiyon ve tablet düzeneği hazırlanır.

2. Ubersense ve Coach's Eye programları kullanılarak örnek bir hareket analizi kullanılır

II- BİRİNCİ DERSTE

3. öğrencilerden ikişerli sıaralarda sahanın etrafında hafif tempo 5 tur koşmaları istenilir

4. koşudan sonra öğrenciler 4 erli sıraya gecerler ve basketbol ve voleybol yan çizgileri üzerinde birbirlerini etkilemiycek şekilde sıraya gecerler.

5. esnetme hareketlerini yapmak isteyen bir öğrenci ortaya geçerek baştan aşağı esnetme hareketlerini yapar

6. Öğrencilerden eşli olmaları istenilir ve kendilerine %70 hızda alçak çıkış yaparak 30 metre arttırmalı koşu yapacakları anlatılır. 3 tur yaptıktan sonra hızlarını %100 e kadar çıkarmaları istenilir. Öğrencilerden serbest olarak bacak bölgesini esnetmeleri istenilir 3 dk kadar ardından öğrencilerden şınav yapmaları istenilir öğrencilerin şınav performansları da kaydedilir ve öğrenciler kol bölgelerini esnetirler. Son olarak öğrencilerden çift ayak sıçrama yapmaları ve dizlerini karınlarına çekmeleri istenilir. Öğrencilerin bütün hareket performansları bir öğretmen yada bir öğrenci tarafından kaydedilir.

Soru-Yanıt- Gösteri (Demonstrasyon)(15 dakika)

7 öğrencilerden perdeye yansıyan görüntüyü görecek şekilde yerleşmeleri istenilir ve aşağıdaki sorular sorulur: Daha önce aranızda hiç hareket analiz programı gören oldu mu? Evet, ise: İsmini hatırlıyor musun? Ne amaçla kullanıldığını biliyor musun? Hayır, ise: sporda üst düzey performans elde etmek için hareketlerin doğru teknikle gerçekleştirilmesi oldukça önemlidir. Sporculara sağlanılan geribildirimin daha anlamlı olabilmesi açısından görsel olarak kendi teknik performansının analiz edilmesi çok önemlidir. Örneğin 100 metre dünya şampiyonu Ussain Bolt eğer koşu sırasında tabanını yere basarsa yüz metreyi yaklaşık 12 saniyede koşardı. Şimdi sizlerle beraber iki farklı kişinin kısa mesafe koşu tekniğini analiz edelim.

8. Duvara yansıtılan Coach's Eye uygulaması kullanılarak koşucuların çıkış çizgisindeki, ilk 20 metredeki ve koşudaki fiziksel görünüşleri teknik olarak analiz edilir.

Çıkışta olması gerekenler: 45 derece vücut pozisyonu yere göre, omuzlar ve kalça birbirine paralel, gerideki ayağın açısı 130 derece, öndeki ayağın açısı 95 derece, kollar gergin ve yere 90 derece, start çizgisine bakılmalıdır.

İlk 20 metrede olması gerekenler: kısa küçük adımlar 75-90 cm kadar, tamamen parmak ucunda, vücut 45 derece kadar öne eğik, kafa yere bakıyor olamalıdır.

Koşu süresince olması gerekenler: kollar 90 derecede salınım yapmalı, kalça yükselmiş ve vücut tamamen dik dizler 90 dereceye kadar çekilmeli yere bacak tamamen gergin basılmalı, yerden kalkan ayak geriye tekme atıyormuş gibi olmalı ve kalçaya yaklaşmalı.

9. İkinci bir çalışma olarak sınıftan rastgele 2 öğrenci seçilir ve bu öğrencilerin koşu teknikleri yukarıda belirtilen noktalara dikkat edilerek analiz edilir. Analiz yapılırken öğrencilerden buldukları hataları kırmızıyla işaretlemeleri istenilir ardından olması gereken şekli yeşil renkle düzeltirler.

10. aynı uygulamayı öğrenciler bu defa şınav hareketi için uygularlar Öğlecilere şınav hareketinin şekli konusunda sorular sorulur. Örnek vermek gerekirse; Kolların açıklığı ne kadar olmalıdır?(omuz genişliğinde) Bacaklar açık mı kapalımı olmalıdır (kapalı olmalıdır)? Vücudun formu nasıl olmalıdır? (ayak parmak ucundan başa kadar doğrusal bir pozisyonda olmalıdır, özellikle kalça aşağıda yda yukarıda olmamalıdır) Dirsekler kaç dereceye kadar eğilmelidir minimum 90 derece)? Baş boyun pozisyonu nasıl olmalıdır? (Yere veya karşıya bakacak şekilde düz olmalıdır)

11. Öğrencilerden eşli olarak önümüzdeki haftaya istedikleri bir spor dalına özgü tekniği analiz etmeleri ve poster hazırlamaları istenilir. Örneğin basketbolda şut tekniği, serbest stil yüzme tekniği, voleybolda manşet tekniği veya teniste forehand vuruş tekniği gibi.

III- DEĞERLENDİRME

Akran Değerlendirme (10 dakika)

7. Hazırladıkları posterleri spor salonunun duvarlarına yapıştırmalarını ve diğer arkadaşlarının değerlendirme yapmaları beklenmektedir. Her eş 1 geliştirilmesi gerek -2 iyi - 3 çok iyi, şeklinde posterleri değerlendirecektir. En fazla puana sahip olan poster sınıf birincisi seçilerek o hafta boyunca spor salonu duvarında kalacaktır.

Appendix N

Sevgili Öğrenciler,

Bedenimiz var olma aracımızdır. Düzenli bir şekilde egzersiz yapmak bedenimizi korumanın en iyi yoludur. Düzenli egzersiz yapan bireylerin yaşam enerjileri artar, kendilerini daha iyi hisseder ve daha iyi görünürler. Sizler 8 hafta boyunca kalp damar sistemini kuvvetlendiren çalışmaların yanı sıra kas gücünü ve esnekliğini geliştirmeye yönelik çalışmalar yaptınız. Son olarak vücut ağırlığı yönetimi konusunda uygulamada bulundunuz. Aşağıdaki link'te sizlere her derste dağıtılan 8 haftalık çalışma yaprakları yer almaktadır. Sizlerden beklenilen haftalık çalışma yapraklarını yönergeye göre doldurmanız ve dosyalayarak beden eğitimi öğretmeninize teslim etmenizdir.

	Fiziksel Etkinlik Türü ve Şiddeti	***Saat***	***Süre***	***Yer***
Pazartesi				
Salı				
Çarşamba				
Perşembe				
Cuma				
Cumartesi				

Son olarak yaşam boyu egzersiz yapmanın faydaları saymakla bitmez. Tüm bu faydaları düşünerek kendinize haftalık bir hareket hedefi belirleyiniz. Aşağıdaki çizelgeyi belirlediğiniz hedef doğrultusunda en az 3 gün orta ve yüksek şiddetli egzersizler planlayarak ve uygulayarak doldurunuz.

https://www.dropbox.com/s/b209diqegbalswp/ders%20izlencesi.docx

Haftalık hareket hedefim_____

Appendix O

BASKETBOLI

Dersin Adı	Beden Eğitimi
Sınıf	**9**
Ünitenin Adı/ No	Basketbol
Konu	Basketbol ile ilgili temel becerileri geliştirme
Önerilen süre	80 Dakika
Hedef ve davranışlar	Basketbol da pas çeşitleri ve Top sürme tekniğinin kusursuz yapılması, basketbol da temel bilgi ve becerilerin edinilmesi
Ünite kavramları ve sembolleri	
Güvenlik Önlemleri	
Öğretme-Öğrenme-Yöntem ve Teknikleri	Sunuş, Buluş
Kullanılan Eğitim Araç Gereçleri • **Öğretmen** • **Öğrenci**	Basketbol topu

Dersin işlenişi

BAŞLAMA DEVRESİ

Selamlaşma ve yoklamanın alınması.

Tempolu koşular.

Açma ve germe hareketleri ile özel ısınma hareketleri.

ESAS DEVRE I

a-) Top tutma ve temel vücut pozisyonu topsuz olarak gösterilir.

b-) Ayaklar omuz genişliğinde açılır, vücut ağırlığı her iki bacakta eşit olarak dağıtılmış dizler bükülü, gövdenin üst kısmı hafif öne eğik, kollar öne uzatılmış dirsekler yere paralel, avuç içi topa temas etmez.

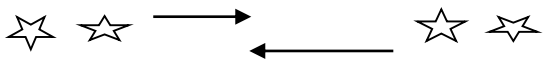
c-) Topu en son işaret parmakları terk eder. Kollar gergin el bileği düşürülmelidir. Vücut topu takip etmelidir, adım pası kolaylaştırır.

GÖĞÜS PASI

Bacaklar adım durumunda vücut ağırlığı her iki bacağa eşit olarak dağıtılmış dirsekler vücuda yakın şekilde iken top kolların hızla öne doğru uzatılması ve kuvvetli el bileği hareketi ile elden çıkartılır.

BAŞ ÜSTÜ PAS

Yine öğrenci atış pozisyonunda vücut adım pozisyonundadır. Kollar başın üstünde dirsekler kulak hizasındadır topa iyi bir temas ve bileklerin kuvvetli itmesi ile pas yapılır. Gövde hafif öne eğik ağırlık bacaklarda ve parmak ucundadır. Pas verilince bilekler topu takip eder.



YERDEN PAS (BAUNS PAS)

Bacaklar adım pozisyonunda top oyuncunun elinden çıkarken öne bir adım alınır. Pas alınırken bir adım geriye alınır. Pas uzaklığın 3/2 mesafesine yere vurularak kol ve bilek itmesi ile yapılır.

TEK EL PAS

Bacaklar adım pozisyonunda iken top oyuncunun elinden çıkarken tek elden çıkacaktır. Pas göğüs hizasından veya yere vurdurularak yapılır. Pas dirsek ve bileğin kuvvetli itmesi ile yapılır.

ÇENGEL PAS

Burada vücut pas atacağımız tarafa yan dönük belden yukarısında atış yönüne dönüş yapar tek kolla pas yapılır, baş üstünde bilek hareketi ile pas yapılır. Diğer kol topun korunmasını sağlar.

HAREKET HALİNDE PASLAŞMA

Top koşan oyuncunun koşu yönünde verilmeli önce yavaş ve gittikçe tempolu yapılmalıdır. Tüm pas çeşitleri kullanılmalıdır.

ESAS DEVRE II

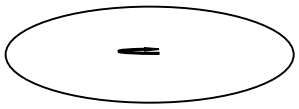
a-) Top sürme tekniği teorik olarak anlatılır. Basketbol da Dripling alçak ve yüksek olmak üzere iki şekildedir. Rakip baskısının olduğu durumlarda alçak top sürme, rakip baskısının olmadığı veya hızlı hücuma çıkılan noktalarda yüksek top sürme tekniği kullanılır.

b-) Top sürmede bilek hareketinin önemi belirtilir.

c-) diz ustu duruş pozisyonunda bilek hareketi ile top sürme her iki el kullanılır.

d-) Oturarak top sürme, yatarak üz üstü pozisyonda top sürme, bacaklar arasında top sürme bacaklar arasında sekiz çizdirme.

e-) Belirlenmiş alanda öğrenciler alçak top sürme tekniğini kullanarak hareketli olarak top sürme çalışması.



f-) Alçak top sürme tekniğine pasif savunma yaptırılarak top sürülür.

h-) Yüksek top sürme çalışması önce yürüyerek, sonra hızlı olarak yaptırılır.

k-)Tam saha guruplar halinde alçak ve yüksek top sürme tekniği yarışma halinde top sürme çalışması yaptırılır.

BİTİRİŞ DEVRESİ

Öğrenciler iki guruba ayrılır ve on pas oyunu oynatılarak pasların pekiştirilmesi sağlanır.

Selamlaşma ile ders bitirilir.

BASKETBOL II

Dersin Adı	**Beden Eğitimi**
Sınıf	**9**
Ünitenin Adı/ No	**Basketbol**
Konu	**Pas çeşitleri**
Önerilen süre	**80 Dakika**
Hedef ve davranışlar	Basketbol da pas çeşitleri ve kombine çalışmalar
Ünite kavramları ve sembolleri	
Güvenlik Önlemleri	
Öğretme-Öğrenme-Yöntem ve Teknikleri	Sunuş, Buluş
Kullanılan Eğitim Araç Gereçleri • **Öğretmen** • **Öğrenci**	**Basketbol Topu**

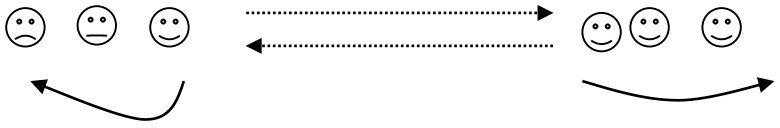
Dersin işlenişi

BAŞLAMA DEVRESİ:

1. Selamlaşma ve yoklama.
2. Düzen alıştırmaları
3. Hafif tempolu koşu.
4. Yerinde sıra olarak baş ile daire çiz.
5. Omuz ve kolları öne ve geriye çevir.
6. Eller ensede kilitli sağ sola dönüşler yapılması
7. Eller belde gövde ile daire çiz.
8. Dizleri bükmeden öne ve geriye esnetme hareketleri yap.
9. El ve ayak bilekleri çevirerek ısıt.
10. Eller kilitli yukarıya doğru uzanma ile esnetme yapılması
11. Hamlelerle esnetme yapılması

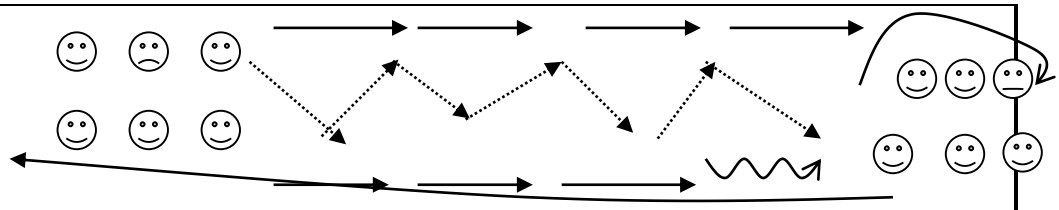
ESAS DEVRE I:

1. Sınıfın gruplara ayrılarak derin kolda sıra olarak karşılıklı geçmelerinin sağlanması
2. Pas çeşitlerinin gösterilmesi ve açıklanması
3. Öğrencilerin sıra ile paslaşmaları sağlanması



4. Top sürmede dikkat edilmesi gereken noktaların açıklanması
5. Öğrencilerin belirli noktaya kadar top sürmeleri ve geri gelmeleri sağlanması

6. Öğrencilerin paslaşmaları ve top sürmeleri istenmesi.



7. Hareketlerin yeterince tekrar edilmesi ve hataların düzeltilmesi

DAVRANIŞLAR:

1. Temel pas ile paslaşabilme
2. Alçak ve yüksek top sürme

1. Basketbol da oyun nasıl başlar
2. Sayıların değerlerini açıklayınız

BİTİRİŞ DEVRESİ:

1. Basketbol oyunu oynatılması
2. Selamlaşma ve bitiriş.

BASKETBOL III

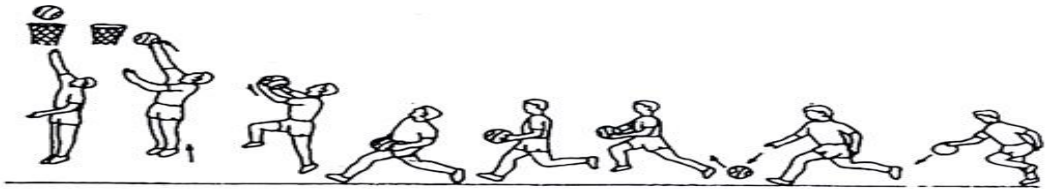
Dersin Adı	**Beden Eğitimi**
Sınıf	**9**
Ünitenin Adı/ No	Basketbol
Konu	Basketbol ile ilgili temel becerileri geliştirme
Önerilen süre	**80 Dakika**
Hedef ve davranışlar	Pas attıktan sonra turnike atışı ve Çembere atış hareketinin öğretilmesi
Ünite kavramları ve sembolleri	
Güvenlik Önlemleri	Çembere tek atış yapmalarını sağlama
Öğretme-Öğrenme-Yöntem ve Teknikleri	Sunuş, Buluş
Kullanılan Eğitim Araç Gereçleri • **Öğretmen** • **Öğrenci**	Basketbol topu, pota
Dersin işlenişi	
BAŞLAMA DEVRESİ Selamlaşma ve yoklamanın alınması. Tempolu koşular. Açma ve germe hareketleri ile özel ısınma hareketleri. **ESAS DEVRE I**	

Öğrenciler dağınık şekilde koşarlarken düdükle verilen komut ile sağ dizlerini karınlarına çekerek sol ayak üzerinde sıçrama yaparlar ve iki ayak üzerinde düşerler.

Dağınık düzende yürürken komutla üç adıma girilmesi için önce büyük bir sağ adım sonra küçük bir sol adımla sıçranır, çift atakla yere düşülür.

Üç saniye bölgesine konulan işaretlerin hizasına basarak topsuz turnike çalışması yapılır.

Topla turnike çalışması, büyük sağ adım küçük sol adım ve sıçrama ile top pota üzerindeki küçük karenin içine vurdurularak sayı yapılmaya çalışılır.



ESAS DEVRE II

a-) Hareket teorik olarak anlatılır.(Bir ayak önde vücut dizlerden hafif bükülü ağırlık pivot atağı üzerinde hafif önde, kollar önde el bileği topun altında sol el topu yandan destekleyecek şekilde parmaklar hafif açıktır. Ayakların hafif yaylanması ile topun baş üzerinde dirseğin düzeltilmesi ve el bileğinin topu itmesi ile şut gerçekleşir. Topun elden çıkması ile birlikte el bilekten yere doğru düşer.

b-) Öğrenciler hareketi topsuz olarak yaparlar.

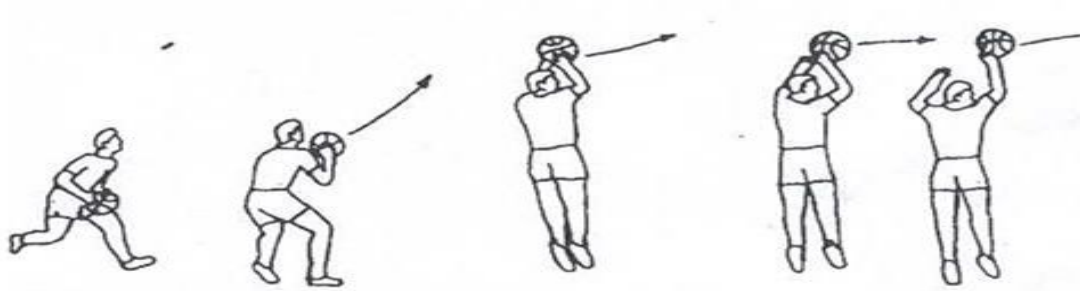
c-) Öğrenciler duvarda yakın mesafeden kendi belirledikleri alana şut çalışması yapar.

d-) Aynı çalışmayı mesafeyi artırarak yaparlar. Dikkat edilmesi gereken konu topu hep aynı noktaya vurdurmaktır.

e-)Öğrenciler ikişerli olarak üç metre mesafede karşılıklı olarak şut çalışması yapar.

f-) Öğrenciler serbest atış noktasından potaya şut çalışması yapılır.

g-) Öğrenciler değişik mesafe ve değişik yönlerden potaya şut çalışması yapılır.



BİTİRİŞ DEVRESİ

Öğrenciler iki gruba ayrılırlar bir grup bir potaya diğer grup diğer potaya turnike atarlar topu sıradaki arkadaşına verir sıranın arkasına geçer.

Kurallar çerçevesinde basketbol maçı yapılır, turnike ve şut ile sayı yapılmaya çalışılır. Selamlaşma ile ders bitirilir.

VOLEYBOL I

Dersin Adı	**Beden Eğitimi**
Sınıf	**9**
Ünitenin Adı/ No	**Voleybol**
Konu	**Voleybol oyun formu- Parmak Pas**
Önerilen süre	**80 Dakika**
Hedef ve davranışlar	Voleybolu tanıma Saha ölçüleri, teçhizat ve düzeni tanıma Voleybol topunu değişik şekillerde yönlendirebilme
Ünite kavramları ve sembolleri	
Güvenlik Önlemleri	
Öğretme-Öğrenme-Yöntem ve Teknikleri	Sunuş, Buluş
Kullanılan Eğitim Araç Gereçleri • **Öğretmen** • **Öğrenci**	**Voleybol topu duvar file**

Dersin işlenişi

BAŞLAMA DEVRESİ:

1. Selamlaşma ve yoklama.
2. Düzen alıştırmaları
3. Hafif tempolu koşu.
4. Değişik şekil ve tempoda koşular
5. Yerinde sıra olarak baş ile daire çiz.
6. Omuz ve kolları öne ve geriye çevir.
7. Eller ensede kilitli sağ sola dönüşler yapılması
8. Eller belde gövde ile daire çiz.
9. Dizleri bükmeden öne ve geriye esnetme hareketleri yap.
10. El ve ayak bilekleri çevirerek ısıt.
11. Sağa ve sola hamle ile esnetme yapılması
12. Engel oturuşundan öne ve geriye esneme yapılması

ESAS DEVRE

1. Geniş kolda birerli ve ikişerli sıra olunması
2. Derin kolda birerli ve ikişerli sıra olunması
3. Rahat ve hazır ol duruşlarının gösterilmesi ve öğrenciler tarafından tekrar edilmesi
4. Voleybol oyununun tanımının yapılması
5. Voleybol oyun saha ölçülerinin açıklanması
6. Voleybol oyun teçhizatının açıklanması
7. Voleybol oyun düzeninin açıklanması

OYUN KURALLARI

Oyun alanı, 18x9 m ölçülerinde bir dikdörtgendir ve en az 3 m genişliğinde olan bir serbest bölge ile çevrilmiştir.
Oyun sahasının üzerinde bulunan serbest oyun boşluğu, her türlü engelden arındırılmış olmalıdır. Serbest oyun boşluğu, oyun sahasının yüzeyinden ölçüldüğünde en az 7 m yüksekliğinde olmalıdır.
FIVB Dünya Müsabakalarında serbest bölge yan çizgilerden ölçüldüğünde en az 5 m ve dip çizgilerden ölçüldüğünde en az 8 m genişliğinde olacaktır. Serbest oyun boşluğu ise oyun sahasının yüzeyinden ölçüldüğünde en az 12.5 m yüksekliğinde olacaktır.
File, orta çizginin üstünde ve buna dik olarak yer alır; erkekler için 2.43 m ve bayanlar için 2.24 m yüksekliğindedir.
Bir takım en fazla 12 oyuncu, bir koç, bir yardımcı koç, bir masör ve bir tıp doktorundan oluşur.
Bir set (netice seti -5'inci- hariç) en az 2 sayı farkla 25 sayıya ulaşan takım tarafından kazanılır. Sayılarda 24-24'lük eşitlik olması halinde oyun iki sayılık farka ulaşılana kadar (26-24, 27-25) devam eder.
Maç, üç seti alan takım tarafından kazanılır.
Setlerde 2-2'lik eşitlik olması halinde, netice seti (5'inci) en az 2 sayı farkla 15 sayı üzerinden oynanır.
Eğer bir takım sahaya davet edildikten sonra oynamayı reddederse, maçta hazır bulunmadığı ilan edilir ve ceza olarak setleri 25-0, maçı da 3-0'lık sonuçla kaybeder

ESAS DEVRE II (Parmak Pas):

1. Öğrencilerin onar kişilik gruplara ayrılmalarının istenmesi
2. Grupların daire oluşturmaları sağlanması
3. Voleybolda parmak pas açıklanarak gösterilmesi
4. Gruplarda dairenin içine bir öğrenci geçip sırayla top atıp diğerleri topu parmak pasla karşılamaları istenmesi
5. Manşet pas gösterilerek açıklanması
6. Gruplarda dairenin içine bir öğrenci geçip sırayla top atıp diğerleri topu manşet pasla karşılamaları istenmesi
7. Servis gösterilerek açıklanması
8. Sırayla servis çalışması yapılması
9. Hareketlerin yeterince tekrar edilmesi ve hataların düzeltilmesi.

Bitiriş Devresi:

1. Voleybol oyunu oynatılması
2. Selamlaşma ve bitiriş.

VOLEYBOL II

Dersin Adı	**Beden Eğitimi**
Sınıf	**9**
Ünitenin Adı/ No	**Voleybol**
Konu	**Parmak pas – Alttan Servis**
Önerilen süre	**80 Dakika**

Hedef ve davranışlar	**Voleybol topunu değişik şekillerde yönlendirebilme**
Ünite kavramları ve sembolleri	
Güvenlik Önlemleri	
Öğretme-Öğrenme-Yöntem ve Teknikleri	Sunuş, Buluş
Kullanılan Eğitim Araç Gereçleri • **Öğretmen** • **Öğrenci**	

Dersin işlenişi

BAŞLAMA DEVRESİ

Selamlaşma ve yoklamanın alınması.

Tempolu koşular.

Açma ve germe hareketleri ile özel ısınma hareketleri.

ESAS DEVRE

PARMAK VE EL BİLEKLERİNİN DURUMU

Topa vuruş anında parmaklar yarım küre şeklinde birbirinden açılarak topun avuç içine değmesi engellenir. Parmakların gerilme derecesi sürat ve kuvveti ile orantılı olarak ayarlanır.

Topa temas anında parmakların tamamının topa değmesi gerekir. Baş parmak topun geriye gitmesini önlerken ikinci parmak topu itişi sağlar, diğer parmaklarsa topa yön veriri.

Bilekler topa vuruş anında topun gönderilmek istendiği yöne doğru hareket eder. Oyuncu pas verirken topun geliş şekli ve yönünü devamlı takip etmek zorundadır. Baş boyun ve gövde zemine dik olacak şekilde tutulması gerekmektedir.

Topa vuruş anında kolların arasına başı alarak topa vurulması ve gidiş yönünün takip edilmesi gerekir.

Topu karsilayan oyuncunun ayak parmak uçlarında bulunması hareket yönünde kolaylık sağlarken topa vuruş anında tabanlarla yere basılması dengeli vuruşla beraber kolların topun topu takip edecek şekilde uzanmasında ayak uçlarına doğru yükselerek dizler ve bütün vücudun açılması hareketi topun istenilen yere gönderilmesini sağlar.

- Topsuz temel pozisyon
- Topu temel tutuştan kolları ve bilekleri gererek itme.
- Kısa mesafeden atılan topa parmak pası.
- Her adımda kontrol pas çalışması.

- Kontrol pasında topu yere düşürüp alçak pozisyonda tekrar kontrol pas yapılması.
- Duvarda parmak pas çalışması.
- Duvarda göğüs hizasında pas çalışması.
- Karşılıklı pas çalışması.
- Otururken parmak pas çalışması.
- Otururken bacaklar acık parmak pas çalışması.
- File üzerinde kısa ve uzun parmak pas çalışması.

ESAS DEVRE (Alttan Servis)

Sol ayağın biraz önde olması sağ kolun dik olarak topa vuruş için yerden geriye doğru atılarak hız alınması elin parmaklar birleşikler birleştirilerek avuç içi ile bileği bükmeden bacaklar hafif bükülü biçimde kol geriye hızla gelirken topun önce altına istikrar sağladıktan sonrada alt yanına vurulması sağlanmalıdır.

-Çeşitli şekillerde sağ ve sol avuç içi ile topa vuruş çalışması.

- Öğrenciler karşılıklı olarak yakından uzağa doğru açılırken servis çalışması
- Öğrenciler karşılıklı olarak yakından uzağa doğru açılırken servis çalışması
- 3m çizgisinden geriye doğru servis atarak açılırlar dikkat edilecek nokta vuruş tekniği ve isabet.
- Sahada belirtilen noktalara servis çalışması
- Rakip sahanın son çizgisine isabet çalışması.

BİTİRİŞ DEVRESİ

File üzerinde parmak pas kullanılarak voleybol maçı yapılır.

Selamlaşma ile ders sona erdirilir.

VOLEYBOL III

Dersin Adı	**Beden Eğitimi**
Sınıf	**9**
Ünitenin Adı/ No	**Voleybol**
Konu	**Manşet- Servisi Manşetle Karşılama**
Önerilen süre	**80 Dakika**
Hedef ve davranışlar	
Ünite kavramları ve sembolleri	
Güvenlik Önlemleri	
Öğretme-Öğrenme-Yöntem ve Teknikleri	Sunuş, Buluş
Kullanılan Eğitim Araç Gereçleri • **Öğretmen** • **Öğrenci**	**Voleybol topu- saha- voleybol filesi**

Dersin işlenişi

BAŞLAMA DEVRESİ

Selamlaşma ve yoklamanın alınması.

Tempolu koşular.

Açma ve germe hareketleri ile özel ısınma hareketleri.

ESAS DEVRE (Manşet)

Vücut pozisyonunun gösterilmesi. (Vücut dik ağırlık ayak parmak uçlarındadır. Dizler hafif bükülü ayaklar omuz genişliğinde açık, kollar dirsekten bükülü, hareket omuzdan yapılmalı dirsek eklemi kullanılmamalıdır.)

--Yanlara öne geriye adım alarak manşet pas pozisyonu alma.

--Topu havaya atarak manşet pozisyonu alınarak topu kontrol altına alma.

--Topu dengeli şekilde havaya atıp kontrol manşet yapma.

--Gelen topa karşı alınan pozisyonda kol ve bacakların durumu önemlidir. Temel pozisyonda kollar gergindir, kol ve bacakların yardımı ile topu istenilen bölgeye sevk etmektir.

--Diz çökerek gelen topa manşet pas çalışması.

--Topu duvara atarak duvardan gelen topu kayma adımları ile karşılayıp tekrar duvara gönderme.

--Topun öne sağa sola geriye top atılarak manşet pas çalışması yapılır.

--Eşler file üzerinde karşılıklı manşet pas çalışması yapılması.

--Üç kişi eşit aralıklarla dizilir, yanlardaki öğrenciler ortadaki öğrenciye normal parmak pas yaparken ortadaki öğrenci geriye manşet pas yapar.

ESAS EVRE (Servisi Manşetle Karşılama):

1. Öğrencilerin gruplara ayrılmalarının sağlanması
2. Öğrencilerin duvar önünde derin kol sıra olmaları istenmesi ve parmak ve manşet pas yapmaları sağlanması
3. Öğrencilerin dörderli karşılıklı geçmeleri sağlanması ve parmak ve manşet pas yapmaları istenmesi

4. Servis atış bölgesinde derin kolda sıra olup Servis atışı gösterilmesi ve öğrenciler tarafından uygulanması

5. Karşı sahaya hedef yerleştirilip bu hedefe servis atışı yapmaları istenmesi
6. Hareketlerin yeterince tekrar edilmesi ve hataların düzeltilmesi

DAVRANIŞLAR:

1. Parmak pas ile paslaşma
2. Manşet pas ile paslaşama
3. Servis atma

DEĞERLENDİRME:

1. Servis hatalarını söyleyiniz
2. Dört ve çift vuruş nedir?

BİTİRİŞ DEVRESİ:

1.Voleybol oyunu oynatılması
2.Selamlaşma ve bitiriş.

BİTİRİŞ DEVRESİ

--Öğrenciler altışarla takımlara ayrılır, mini manşet pas zorunlu voleybol maçı turnuvası yapılır. Birinci olan takım alkışlanarak ödüllendirilir.

CİMNASTİK I

Dersin Adı	Beden Eğitimi
Sınıf	9
Ünitenin Adı/ No	Düzen alıştırmaları
Konu	Temel jimnastik duruşları
Önerilen süre	80 Dakika
Hedef ve davranışlar	Düzgün duruş alışkanlığı kazanma Beden eğitimi dersinde ve ders dışı çalışmalarında düzeni sağlamak
Ünite kavramları ve sembolleri	
Güvenlik Önlemleri	
Öğretme-Öğrenme-Yöntem ve Teknikleri	Sunuş, Buluş

Dersin işlenişi

BAŞLAMA DEVRESİ

Selamlaşma ve yoklamanın alınması.

Tempolu koşular.

Açma ve germe hareketleri ile özel ısınma hareketleri.

ESAS DEVRE

TEMEL CİMNASTİK DURUŞLARI

1-Bacaklar kapalı ayakta duruş: Bacaklar bitişik, kollar yanlarda gövdeye paralel, baş ve gövde dik olarak yapılan duruş.

2-Bacaklar açık ayakta duruş: Ayaklar omuz genişliğinde açık, kollar yanda gövdeye paralel, baş ve gövde dik olarak yapılan duruş.

3-Çömelik duruş: Baş ve gövde dik, vücut ağırlığı ayak uçlarında çömelme hareketidir. Bu duruşta kalça ve topuklar bitişik kollar gövdeye paraleldir.

4-Dört ayak duruşu: Diz ustu duruşta eller omuz hizasında avuç içi yere dayanır. Dizler kolların arasında kalır.

5-Diz üstü duruşu: Bacaklar dizlerden bükülü alt bacak ayak bilekleri gergin olarak yere dayalıdır. Buna bağlı üst bacak ve gözde dik, kollar yanlarda gövdeye paraleldir.

6-a) Diz üstü oturuş: Diz üstü duruştayken arkaya topuklar üzerine oturuş şeklidir.

b)Yan oturuş: Diz üstü oturuştayken yana oturuş şeklidir.

7-Bank duruşu: Diz üstü duruştan kollar önde yere dayanır. Üst bacak ve kollar yere dik birbirine paraleldir.

Ters bank duruşu: Bank duruşunun tersidir. Sırt yere göğüs yukarı dönüktür. Kollar ve bacaklar birbirine paralel yere dik, ayak ve avuç içleri yere dayalıdır. Baş arkada serbesttir.

8-Cephe duruşu: Bank duruşunda bacaklar arkaya gergin uzatılarak ayak uçları yere dayanır. Kollar yere dik vücut baştan ayak uçlarına kadar gergindir.

Ters cephe duruşu cephe duruşunun tersidir.

Cephe duruşunun vücudun önü yukarıya, arkasının yere dönük olma durumuna ters cephe duruşu denir. Ayak bilekleri gergin, topuklar yerde, eller ayakların doğrultusunda yere dayalıdır.

Yan cephe duruşu: Cephe durumunun yan olarak tek kol ve tek ayağın dış yüzüne dayanılarak yapılmasıdır.

9-Uzun oturuş: Gövde dik, kalça yerde, bacaklar öne gergin olarak uzatılır. Kollar yanlarda gövdeye paraleldir.

Açık bacak uzun oturuş: Uzun oturuşta bacaklar yanlara (V) şeklinde açılır.

Engel oturuşu: Uzun oturuşta bir bacağın dizden bükülerek arkaya alınmasıdır.

10-Bacaklar bükülü oturuş: Uzun oturuşta her iki bacağın dizlerden bükülerek tabanların yere dayanmasıdır.

11-Çakı duruşu: Uzun oturuşta veya bacaklar bükülü oturuşta; bacakların gergin olarak 45 derece yukarıya kaldırılmasıdır. Kollar dirsekten hafif bükülü eller kalça yanında yere dayalı veya yanlarda omuz hizasında açıktır. Dayanak yüzeyi sadece kalçadır.

12-Bağdaş oturuşu: Açık bacak uzun oturuşta bacakların dizlerden bükülerek önde çaprazlanmasıdır. Gövde dik, kollar yanlarda serbesttir.

13-Sırt üstü yatış: Bacaklar bitişik ve gergin gövde sırt üstü yatar durumdadır. Kollar gövdenin iki yanında gergin, avuçlar yerdedir.

14-Yüz üstü yatış: Dayanak yüzeyi vücudun ön yüzü alınarak yapılan yatıştır. Kollar dirseklerden bükülü, eller üst üste konularak çene altına yerleştirilir.

15-Yan yatış: Sağa ve sola olmak üzere dayanak yüzeyi gövdenin yanı ile gergin bulunan bacaklardır. Yatış yönünün kolu yan yukarı uzatılmış ve baş altına destek olarak konmuştur. Aksi kol gövdenin yanında gergin olarak uzatılmıştır.

16-Mum duruşu: Sırt üstü yatışta ellerle gövde yanlardan kavranır. Bacaklar gergin olarak kaldırırken dirseklere dayanarak ağırlığı omuzlara aktarılır. Dayanak yüzeyi omuzlar ve üst koldur. Vücut ayak uçlarına kadar gergin ve yere diktir.

17-Hamle duruşu: Küçük adımla yapılan hamle hareketine basit hamle büyük adımla yapılana derin hamle denir. Basit hamlede her iki ayak tabanları yerde derin hamlede gergin bacağın ayak ucu yerdedir.

18-Planör duruşu: Vücut ayak ağırlığı tek bacak üzerindedir. Diğer bacak gergin olarak yukarıya kaldırılır. Kollar omuz hizasında yanlarda açık gövde ile beraber yere paraleldir.

19-Kartal duruşu: Bacaklar açık ayakta duruşta gövde öne bükülerek yere paralel durumuna getirilir. Kollar omuz hizasında açık ve gergin yere paraleldir.

Selamlaşma ile ders sona erdirilir.

CIMNASTIK II

Dersin Adı	Beden Eğitimi
Sınıf	9
Ünitenin Adı/ No	Düzen alıştırmaları
Konu	Temel jimnastik duruşları
Önerilen süre	80 Dakika
Hedef ve davranışlar	Düzgün duruş alışkanlığı kazanma Beden eğitimi dersinde ve ders dışı çalışmalarında düzeni sağlamak
Ünite kavramları ve sembolleri	
Güvenlik Önlemleri	
Öğretme-Öğrenme-Yöntem ve Teknikleri	Sunuş, Buluş

Dersin işlenişi

BAŞLAMA DEVRESİ

Selamlaşma ve yoklamanın alınması.

Tempolu koşular.

Açma ve germe hareketleri ile özel ısınma hareketleri.

HAZIRLAYICI EKSERSİZLER

Minder üzerinde tavşan sıçraması, ayaklardan ellere doğru yapılan sıçramada ellere gelindiğinde dizler bükülerek ellere yakın çekilir.

- El arabası durumunda baş içeriye alınarak kollar bükülür ve ense mindere gelir. Sırtta yumuşak bir yuvarlanma ile bacaklar bükülerek ayağa kalkılır.

- 10-15 cm yüksekliğindeki minderin kenarına oturularak geriye doğru beşik hareketiyapılır, öne doğru gelişte bacaklar bükülerek ayağa kalkılır.

GELİŞTİRME YÖNTEMLERİ

-Sıçrama tahtası üzerine konulmuş minder sisteminde (Eğimli minder) eller mindere yerleştirilir, bacaklar ileriye doğru iterken ense eller arasına gelir. Minderin eğiminden yararlanılarak yumuşak bir yuvarlanma ile takla yapılmış olur.

- Aynı sistemde hızlandırılan takladan takladan sonra kollar yukarıya doğru savrulara sıçrama yapılır.

- Minder ve sağlık topu sisteminde birinci takladan sonra top üzerinden sıçrayarak ikinci takla yapılır.

BİTİRİŞ DEVRESİ

Öğrenciler iki gruba ayrılarak içinde öne takla olan stafet yarışı yaptırılarak oyun ile hareket pekiştirilir.

Selamlaşma ile ders sona erdirilir.

Appendix P Item Analysis & KR20 Reliability Analysis

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
P	,99	,99	,94	,95	,98	,73	,76	,72	,7	,75	,96	,94
q	,01	,01	,06	,05	,02	,27	,24	,28	,3	,25	,04	,06
p*q	,01	,01	,06	,04	,02	,2	,18	,2	,21	,19	,04	,06
ss	,11	,08	,23	,21	,14	,45	,43	,45	,46	,43	,19	,23
	Q13	**Q14**	**Q15**	**Q16**	**Q17**	**Q18**	**Q19**	**Q20**	**Q21**	**Q22**	**Q23**	**Q24**
P	,99	,95	,71	,91	,39	,9	,69	,86	,93	,93	,63	,86
q	,01	,05	,29	,09	,75	,1	,31	,14	,07	,07	,37	,14
p*q	,01	,04	,21	,08	,19	,09	,21	,12	,07	,07	,23	,12
ss	,11	,21	,45	,29	,43	,31	,46	,34	,26	,26	,48	,35
	Q25	**Q26**	**Q27**	**Q28**	**Q29**	**Q30**	**Q31**	**Q32**	**Q33**	**Q34**	**Q35**	**Q36**
P	,84	,55	,66	,62	,9	,47	,4	,91	,6	,69	,6	,6
q	,16	,45	,34	,38	,1	,53	,68	,09	,4	,31	,4	,4
p*q	,14	,25	,23	,24	,09	,25	,22	,08	,24	,21	,24	,24
ss	,37	,5	,48	,49	,3	,5	,47	,29	,49	,46	,49	,49

Kuder-Richardson 20

*KR-20: K/K-1(1-TOPLAMP*Q/Sx2)*	0,74
KR-21: K/K-1(KX-X2/KSX2)*	

Appendix R

Turkish Summary

Giriş

Günümüzde sağlıklı yaşamın en önemli belirleyicilerinden biri de düzenli fiziksel aktiviteye (FA) katılım olarak bilinmektedir. Çocukluk ve ergenlik döneminde kazanılan fiziksel aktivite alışkanlığı; sağlık yönünden kalıcı fayda sağlaması ve yetişkinlik döneminde düzenli fiziksel aktivite alışkanlığına sahip olunması açısından oldukça önemlidir. Yaşamın ilk yıllarından itibaren kazanılan düzenli fiziksel aktivite alışkanlığının yetişkinlik döneminde büyük ölçüde devam ettiği gözlenmektedir (Hallal, Victora, Azevedo ve Wells, 2006).

Birçok çalışma ergenlik döneminde fiziksel aktiviteye (FA) katılımın önemli ölçüde azaldığını göstermektedir (Hirvensalo ve Lintunen, 2011). Bununla birlikte fiziksel aktiviteye ve okullardaki beden eğitimi derslerine katilim azalırken, çocuklarda ve ergenlerde aşırı kilo ve obezite durumu artmaktadır (UNESCO, 2012). Bu yaş grubunda hareketsiz yasam tarzı gelişmiş ülkelerin ve Türkiye'nin ciddi bir sorunudur. Bu duruma müdahale etmek amacıyla Dünya Sağlık Örgütü (DSÖ, 2011) okul çağındaki çocuklar ve gençler (5-17 yas arası) için günlük en az 60 dakika orta yada yüksek şiddette fiziksel aktivite yapmalarını ayrıca haftada en az 3 defa kas ve kemik sistemini kuvvetlendiren fiziksel aktivite çalışmalarına katılmalarını tavsiye etmektedir. Bu ve benzeri küresel tavsiyelerin ve ulusal politika ve programların uygulanabildiği ve sonuçlarını süreç içerisinde değerlendirilebildiği eşsiz bir yer olan okullar beden eğitimi alanında yeniliklerin uygulandığı essiz bir yerdir. Kavramsal beden eğitimi birçok gelişmiş ülkenin müfredatında 90`li yılların başında yerini aldı ve sağlıkla ilgili fiziksel aktivite (SİFA) temalı beden eğitimi dersinin düzenli fiziksel aktiviteye katılımını arttırdığını ve sağlık yönünden fayda sağladığını gösteren birçok çalışma bulunmaktadır. Türkiye'de Milli

Eğitim Bakanlığı 2007 yılında beden eğitimi müfredatı değiştirdi ve SIFA konusunu yeni müfredata eklendi. Ankara'da yapılan bir çalışmada beden eğitimi öğretmenlerine göre müfredatta yer alan kazanımların neredeyse % 80`inin gerçekleştirilemediği belirlenmiştir (Demirhan ve ark., 2003). Ayrıca, kapalı ve açık hava etkinliklerinin yanında, disiplin problemleri, okul spor malzemeleri, bürokratik görevleri, sporcu öğrencilerin sorunları, özel günler ve törenler (Seçme, 2008: 10-11) beden eğitimi öğretmenleri sorumluluğundadır.

Öte yandan beden eğitimi ve spor lisans derecesine sahip beden eğitimi öğretmenleri mezun oldukları üniversitelerinde beceri tabanlı beden eğitimi dersi alanında öğrenim görmüşlerdir. Yeni müfredatta sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersi programda yer almaktadır. Ancak, tecrübeli beden eğitimi öğretmenlerinin sağlıkla ilgili fiziksel aktivite bilgi seviyesinin yeterli olmadığı ve bu öğretmenlerin öğretme becerilerinin ise orta seviyede olduğu yapılan çalışmalarda belirtilmiştir. Bu nedenle öğretmenler, okullarda SİFA öğretmeyi tercih etmemektedir (İnce & Hunuk 2013).

SİFA`nin etkinliği ile ilgili uygulamalar çoğunlukla Türkiye'deki üniversite öğrencilerinin katıldığı çalışmalarda gerçekleştirilmiş ve bu alanda yapılan çalışmalar üniversite öğrencilerinin fiziksel aktivite seviyelerinin ve serbest zaman fiziksel aktivite davranışlarının arttığı gözlenmiştir. Türkiye'de lise öğrencileri için beden eğitimi öğretmenleri tarafından yapılan herhangi SİFA çalışması henüz alan yazında yer alamamaktadır. Gerçek beden eğitimi ortamında SİFA temalı beden eğitimi dersinin nasıl hazırlanılacağı ve uygulanacağı konusunda yeterli bilgi yoktur. Bu çalışma okul ortamında SİFA temalı beden eğitimi dersinin uygulanabilirliğini kanıtlamaktadır. Öte yandan bu çalışmanın bir beden eğitimi öğretmeni tarafından ve gerçek bir beden eğitimi dersi ortamında gerçekleştirilmiş olması 9. sınıf öğrencileri için SİFA temalı beden eğitimi dersinin içeriği ve uygulamaları açısından alan yazına katkıda bulunmaktadır.

YÖNTEM

Araştırma Deseni

Bu çalışmada uygun örneklem öntest-sontest karşılaştırma grup araştırma yöntemiyle gerçekleştirilmiştir. Bu yöntemde bir grup öğrenci araştırmaya uygun olduğu için çalışmaya dahil edilmiş olsa da öğrencilerin deney yada karşılaştırma grubunda olması rastgele belirlenmiştir. Deney grubundaki öğrenciler 8 hafta boyunca SİFA temalı beden eğitimi derslerine katılırken, karşılaştırma grubu öğrencileri ayni sure boyunca beceri merkezli beden eğitimi dersleri uygulamalarına katılmışlardır. SİFA temalı beden eğitimi dersinin etkilerini incelemek amacıyla on testte ve son testte öğrencilere bilgi testi, anket ve fiziksel olum testleri uygulanmıştır.

Katılımcılar

Bu çalışmaya 154 lise öğrencisi (Myaş = 14.6, 90 kadın, 64 erkek) gönüllü olarak katılmıştır. Öğrencilerden 72 si (45 kadın, 27 erkek) deney grubuna, 82 ise (45 kadın, 37 erkek) karşılaştırma grubunda yer almıştır. Okul takımlarında ve kulüp takımlarında yarışan sporcu öğrenciler aykırı değer olarak kabul edileceğinden çalışmadan çıkarılmıştır bu sayede çalışmaya katılan öğrenciler 9uncu sınıf öğrencilerini genelleyecek şekildedir. Bu çalışmada gönüllü katılım esas alınmış olup her iki gruptaki öğrencilere bilgilendirilmiş onam sunulmuştur.

Eğitim

SİFA temalı beden eğitimi dersi uygulamaları 2013-2014 eğitim öğretim II. Döneminde 8 hafta boyunca devam etmiştir. Her iki gruptaki Öğrenciler haftada 2 ders saati (90 dk.) beden eğitimi dersine katılmışlardır ve her dersin görüntüleri kayıt altına alınmıştır. 8 haftalık SİFA temalı beden eğitimi dersinde ilk 2 hafta kalp ve dolaşım sistemi dayanıklılığı konusuyla ilgili olarak spora uygun malzeme seçimi, sağlığın minimum standartlarını koruma, nabız olçumu ve kendine uygun egzersiz şiddetinde çalışma hazırlama ve uygulama ilk 2 hatalık derslerde öğrencilerden beklenilen öğrenim çıktıları arasında yer almaktadır.

SİFA temalı beden eğitimi dersinin 3. ve 4. haftalarındaki konusu kas dayanıklılığıdır. Öğrencilerden yaş gruplarına uygun vücut ağırlığıyla yapılacak olan egzersizlerin secimi, kas sisteminin çalışması, kullanılan enerji kaynaklarının neler olduğunun bilinmesi, set prensibinde egzersiz yapmanın faydaları ve kas sistemi sağlığın minimum standartlarını korumanın önemi gibi öğrenim çıktılarına ulaşması beklenilmektedir.

5. ve 6. haftalardaki SİFA temalı beden eğitimi derslerinin konusu esnekliktir. Bu derslerde öğrencilere farklı esnetme teknikleri, yaşlarına uygun statik esneklik çalışmaları ve esnekliğin minimum standartlarının kazanmaları ve korumanın önemi öğrencilere aktarılır ve çalışma yapraklarındaki egzersizlerle pekiştirilir.

SİFA temalı beden eğitimi dersinin 7.ve 8. haftalarındaki konusu vücut ağırlığı yönetimi ve genel değerlendirme olarak uygulanmıştır. Bu derslerde öğrencilerden günlük ve haftalık alınan ve harcanılan kalori takibini yapmaları, çevresindeki spor imkânlarını kullanarak haftanın en az 3 günü orta ve yüksek şiddette egzersiz yapmaları, kendi sağlığı için uygun standartları belirleme ve bu yönde hazırlanan programı değerlendirmesi beklenilen öğrenim çıktıları arasında yer almaktadır.

Deney grubu yukarıdaki çalışmaları gerçekleştirirken karşılaştırma grubu 8 hafta boyunca basketbol voleybol ve jimnastik konularında çalışma yaparak ders islemişlerdir.

Ölçüm Araçları

Bu çalışmada hem deney grubu hem de karşılaştırma grubu "Sağlıkla İlgili Fiziksel Uygunluk Bilgi Testi", "Uluslararası Fiziksel Aktivite Anketi-Kısa Form" ve "Fitnessgram" testlerinden elde edilen nicel veriler kullanılmıştır.

Sağlıkla Ilgili Fiziksel Uygunluk Bilgi Testi:

İlk olarak 1991 yılında Mott ve arkadaşları tarafından geliştirilen Öğrencilerin sağlıkla ilgili fiziksel aktivite bilgi seviyelerini ölçmek için kullanılan test sonraları Türkçeye çevrilerek 2008-2010 yılları arasında birçok çalışmada kullanılmıştır (Hünük & İnce). Sağlıkla İlgili Fiziksel Uygunluk Bilgi Testi çoktan seçmeli 36 sorudan oluşmaktadır

ve testin geçerliliği ve güvenirliği hem bu çalışmada hem de ayni yaş grubu için daha önceki çalışmalarda sağlanmıştır.

Uluslararası Fiziksel Aktivite Anketi-Kısa Form

Katılımcıların fiziksel aktivite (FA) seviyesi belirlenmesi için kullanılan "Uluslararası Fiziksel Aktivite Anketi-Kısa Form" (UFAA; Craig ve diğ., 2003) anketti son 7 gün içerisinde yapılan fiziksel aktivitenin sıklığını, süresini ve şiddetini değerlendirir. UFA anketinin yönergesinde (IPAQ, 2005) belirtilen metabolik eşdeğer hesaplaması yapılabilir. Yapılan hesaplamalar doğrultusunda bireylerin fiziksel aktivite seviyesi düşük, orta ve yüksek düzey şeklinde sınıflandırılabilir. Bu anketin Türkçe uyarlaması Sağlam ve arkadaşları tarafından 2010 yılında yapılmıştır.

Fitnessgram testleri

Boy Uzunluğu:

Öğrencilerin boy uzunluklarını ölçmek için hassasiyeti ± 1mm olan (Holtain, UK) stadiometre kullanılmıştır. Boy uzunlukları; anatomik duruşta, ayakkabısız, ayak topukları birleşik, nefesini tutmuş, baş dik, baş üstü tablası en üst noktaya değecek şekilde pozisyon alındıktan sonra 'cm' olarak ölçülmüştür (Lohman ve diğ., 1988).

Vücut ağırlığı:

Öğrencilerin vücut ağırlıklarını ölçmek için hassasiyeti ± 0.1kg olan standart klinik baskülü kullanılmıştır. Öğrencilerin vücut ağırlıkları; spor kıyafetleriyle, ayakkabısız ve anatomik duruş pozisyonunda iken 'kg' olarak ölçülmüştür. (Lohman ve diğ., 1988).

Beden Kitle İndeksi (BKİ):

Öğrencilerin vücut ağırlığı ve boy uzunluğu ölçümleri alındıktan sonra BKİformül 1 yardımıyla hesaplanmıştır. BKİ = Vücut Ağırlığı (kg) / (Boy Uzunluğu (m))2

20 Metre Mekik Koşusu:

Bu test (Cooper Institute for Aerobics Research, 1992) öğrencilerin aerobik kapasitelerini ölçmek için uygulanmıştır. 20 metre mekik koşusu testi, 8.5 km.s-1(9sn)'dan başlayan ve her 1 dakikada koşu hızının 0.5 km.s-1 arttığı, 20 metrelik mesafenin gidiş-dönüş olarak koşulan bir testtir. Koşu hızı belli aralıklarla sinyal veren bir kayıtla denetlenmiştir. Test, öğrenci iki sinyale üst üste yetişemediği zaman ya da testi bıraktığı zaman sonlandırılmıştır.

Esneklik:

Öğrencilerin esneklik ölçümleri otur eriş testiyle yapılmıştır. Test, uzunluğu 35 cm. genişliği 45 cm. ve yüksekliği 32 cm. üst yüzey uzunluğu 55 cm, genişliği 45 cm.; ayrıca üst yüzeyi ayakların dayandığı yüzeyden 15 cm. dışarıda olan; üst yüzeyi üzerinde 0-50 cm`lik ölçüm cetveli bulunan bir sehpa ile yapılmıştır (Tamer 2000), ve ölçümden önce çocuklara ölçümün nasıl yapılacağı açıklanmıştır. Test üç defa tekrar edilen ve yüksek olan ölçüm sonucu bilgi formuna kayıt edilmiştir.

Mekik:

Öğrencilerin karın kuvveti ve dayanıklılığını ölçmek için mekik testi kullanılmıştır. Test dizler yaklaşık 140 derece bükülü, ayak tabanları yere temas eder ve bacaklar hafifçe aralık olarak sırtüstü pozisyonda mindere uzanarak başlar. Avuç içi mindere dönük, parmaklar serbest ve parmak uçları 11.4 cm`lik işaretlenmiş şeridin üst kenarına dokunacak şekilde yerleştirilir. Yatış pozisyonunda ellerin 11.4 cm`lik alanın üst sınırına kalkışta ise alt sınıra değmesi istenilir. Bir deneme hakkı verildikten sonra, öğrencilerin minderde sırtüstü pozisyona her dönüşü bir mekik olarak sayılmıştır. Hareket sırasında ayakların yerden kalktığı, öğrencinin şeridin alt kenarına uzanmadığı ve başlangıç pozisyonuna dönemediği durumlarda mekik doğru olarak değerlendirilmeyerek toplam sayıya dâhil edilmemiştir. Öğrenciler 75 tekrarı tamamlayıncaya kadar ya da artık devam edemeyinceye kadar test devam edeceklerdir.

Şınav:

Öğrencilerin kol kuvveti ve dayanıklılığını ölçmek için şınav testi kullanılmıştır. Test kollar omuz genişliğinde açık, ayaklar hafif aralıklı olarak pozisyon alırlar. Öğrencilerden dirseklerinin 90 derecelik açı yapacak şekilde vücudun yere paralel olması ve tekrardan vücudun başlangıç pozisyonuna gelmesi 1 şınav olarak sayılmıştır. Hareketin formunda bozukluk olmaya başladığında ya da dirsekler uygun açıya gelmediğinde değerlendirme yapılmamıştır. İki değerlendirme yapılmayacak şekilde şınav yapan öğrencilerin testi bıraktırılmıştır. Öğrenciler 75 tekrarı tamamlayıncaya kadar ya da devam edemeyinceye kadar teste devam etmişlerdir.

İstatistiksel Analiz

Bu çalışmada elde edilen nicel veriler hem tanımlayıcı hem de çıkarımsal istatistiksel analiz yöntemleri ile incelenmiştir. Sağlıkla ilgili fiziksel aktivite bilgi testinden ve Uluslararası Fiziksel Aktivite Anketi-Kısa Form anketinden elde edilen nicel veriler karışık desen çok değişkenli varyans analizi ile analiz edilirken fitnessgram ölçümleri için karışık desen tek değişkenli varyans analizi kullanılmıştır. Çıkarımsal analiz yöntemleri için istatistiksel anlamlılık seviyesi (p değeri) .05 olarak belirlenmiştir.

BULGULAR

Araştırma Sorusu 1: SİFA temalı beden eğitimi dersinin 9. sınıf öğrencilerinin sağlıkla ilgili fiziksel aktivite bilgi seviyesine etkisi nedir?

Sağlıkla ilgili fiziksel aktivite bilgi testi 6 alt boyuttan oluşmaktadır. Her alt boyut hem deney ve karsilastirma grubu hem de öntest ve sontest değerleri için karışık desen çok değişkenli varyans analizi yöntemiyle yordanmıstır. Elde edilen bulgulara göre, SİFA temalı beden eğitimi dersinin gruplar ($V = 0.11$, $F(6, 147) = 13.95$, $p < .05$), zaman ($V = 0.31$, $F(6, 147) = 11.12$, $p < .05$) ve grup ve zaman etkileşimi ($V = 0.36$, $F(6, 147) = 13.95$, $p < .05$) üzerinde anlamlı etkisi olduğu bulunmuştur.

Grup ve zaman etkileşimi üzerinde elde edilen anlamlı farklılık için yürütülen tek değişkenli varyans analizi sonuçlarına göre, SIFA temalı beden eğitimi uygulamalarının

kalp dolaşım sistemi bilgi seviyesine F(1, 152) = 48.61, p < .0001), kas dayanıklılığı bilgi seviyesine F(1, 152) = 24.35, p < .0001), antrenman prensipleri bilgi seviyesi, F(1, 152) = 9.23, p < .005) ve genel sağlık bilgi seviyesi F(1, 152) = 9.23, p < .05) boyutlarında anlamlı etkisi olduğu saptanmıştır. Ancak grup ve zaman etkileşiminin esneklik F(1, 152) = .63, p < .05) ve vücut kompozisyonu F(1, 152) = .004, p < .05) üzerinde anlamlı etkisi yoktur. Tanımlayıcı istatistiksel analizi bulgularına göre, deney grubu öğrencilerinin kalp dolaşım sistemi, kas dayanıklılığı, antrenman prensipleri ve genel sağlık bilgisi ve esneklik bilgi seviyesi ön testten son teste kadar artmış olmasına rağmen karşılaştırma grubunda genel sağlık bilgisi hariç tüm alt boyutlarda azalma görülmektedir.

Araştırma Sorusu 2: SİFA temalı beden eğitimi dersinin 9. sınıf öğrencilerinin fiziksel aktivite (FA) seviyelerine etkisi nedir?

Fiziksel aktivite seviyesi düşük, orta ve yüksek olmak üzere 3 alt boyuttan oluşmaktadır. Her alt boyut hem deney ve karşılaştırma grubu hem de öntest ve sontest değerleri için karışık desen çok değişkenli varyans analizi yöntemiyle yordanmıstır. Elde edilen bulgulara göre, SİFA temalı beden eğitimi dersinin gruplar (V = .25, F(3,152) = 16.56, p <.0001), zaman (V = .67, F(3,152) = 99.79, p <.002) ve grup ve zaman etkileşimi (V = .28, F(3,152) = 20.19, p <.0001) üzerinde anlamlı etkisi olduğu bulunmuştur.

Grup ve zaman etkileşimi üzerinde elde edilen anlamlı farklılık için yürütülen tek değişkenli varyans analizi sonuçlarına göre, SIFA temalı beden eğitimi uygulamalarının düşük fiziksel aktivite F(1,152) = 36.11, p <.0001, orta fiziksel aktivite F(1,152) = 4.67, p <.05 ve yüksek F(1,152) = 4.94, p <.05 fiziksel aktivite boyutlarında anlamlı etkisi olduğu saptanmıştır.

Tanımlayıcı istatistiksel analizi bulgularına göre, deney grubu öğrencilerinin düşük ve yüksek fiziksel aktivite seviyelerinin ön testten son teste kadar artmış olmasına rağmen orta fiziksel aktivite seviyesinde azalma gözlenmektedir.

Araştırma Sorusu 3: SİFA temalı beden eğitimi dersinin 9. sınıf öğrencilerinin sağ bacak esnekliğine etkisi nedir?

Fitnesgram performans testlerinden olan sağ bacak esneklik ölçümleri deney ve karşılaştırma gruplarinin, öntest ve sontest değerleri karışık desen tek değişkenli varyans analizi yöntemiyle yordanmıstır. Elde edilen bulgulara göre grup ve zaman etkileşimi (V = .45, F(1,152) = 122.23, p <.0001 üzerinde anlamlı etkisi olduğu bulunmuştur. Ancak karşılaştırma grubunun ontest, son test sonuçları anlamlı değişiklik göstermemiştir(p >.05).

Araştırma Sorusu 4: SİFA temalı beden eğitimi dersinin 9. sınıf öğrencilerinin sol bacak esnekliğine etkisi nedir?

Fitnesgram performans testlerinden olan sağ bacak esneklik ölçümleri deney ve karşılaştırma gruplarının, öntest ve sontest değerleri karışık desen tek değişkenli varyans analizi yöntemiyle yordanmıstır. Elde edilen bulgulara göre grup ve zaman etkileşimi (V = .01, F(1,152) = 1.51, p = .22) üzerinde anlamlı etkisi bulunmamıştır. Ancak zaman etkileşimi (V= .22, F(1,152) = 43.63, p < .001), üzerinde anlamlı etkisi bulunmuştur. Sol bacak esnekliğindeki değişimin uygulanan SİFA temalı beden eğitimi dersinden bağımsız olarak değiştiğini gösterir.

Araştırma Sorusu5: SİFA temalı beden eğitimi dersinin 9. sınıf öğrencilerinin şınav *bacak esnekliğine etkisi nedir?*

Fitnesgram performans testlerinden olan şınav ölçümleri deney ve karşılaştırma gruplarinin, öntest ve sontest değerleri karışık desen tek değişkenli varyans analizi yöntemiyle yordanmıstır. Elde edilen bulgulara göre grup ve zaman etkileşimi (V = .001, F(1,152) = 0.09, p = .77) üzerinde anlamlı etkisi bulunmamıştır. Ancak zaman etkileşimi (V= .20, F(1,152) = 38.61, p < .001) , üzerinde anlamlı etkisi bulunmuştur. Uygulanan SİFA temalı beden eğitimi dersinin şınav performansının anlamlı bir etkisi olmadığı sonucu ortaya çıkmıştır.

Araştırma Sorusu 6: SİFA temalı beden eğitimi dersinin 9. sınıf öğrencilerinin mekik koşusu performansına etkisi nedir?

Fitnesgram performans testlerinden olan mekik kosusu aerobik dayaniklilik testi ölçümleri deney ve karşılaştırma gruplarinin, öntest ve sontest değerleri karışık desen tek

değişkenli varyans analizi yöntemiyle yordanmıstır. Elde edilen bulgulara göre grup ve zaman etkileşimi (V = .72, F(1,152) = 58.04, p <.0001) üzerinde anlamlı etkisi olduğu bulunmuştur. Ancak karşılaştırma grubunun ontest, son test sonuçları anlamlı değişiklik göstermemiştir(p >.05). Uygulanan SİFA temalı beden eğitimi dersinin mekik koşusu aerobik dayanıklılık performansına anlamlı bir etkisi olduğu sonucu ortaya çıkmıştır.

Araştırma Sorusu 7: SİFA temalı beden eğitimi dersinin 9. sınıf öğrencilerinin mekik etkisi nedir?

Fitnesgram performans testlerinden olan karin ve sirt kaslarinin dayanikliligini olcen mekik testi ölçümleri deney ve karşılaştırma gruplarinin, öntest ve sontest değerleri karışık desen tek değişkenli varyans analizi yöntemiyle yordanmıstır. Elde edilen bulgulara göre grup ve zaman etkileşimi (.68, F(1,152) = 315.29, p <.00001) üzerinde anlamlı etkisi olduğu bulunmuştur. Ancak karşılaştırma grubunun ontest, son test sonuçları anlamlı değişiklik göstermemiştir(p >.05). Uygulanan SİFA temalı beden eğitimi dersinin mekik testi karin kası dayanıklılık performansına anlamlı bir etkisi olduğu sonucu ortaya çıkmıştır.

Araştırma Sorusu 8: SİFA temalı beden eğitimi dersinin 9. sınıf öğrencilerinin VKI performansına etkisi nedir?

Fitnesgram ölçümlerinden olan vücut kitle indeksi deney ve karşılaştırma gruplarinin, öntest ve sontest değerleri karışık desen tek değişkenli varyans analizi yöntemiyle yordanmıstır. Elde edilen bulgulara göre grup ve zaman etkileşimi (.45, F(1,152) = 122.63, p <.0001) üzerinde anlamlı etkisi olduğu bulunmuştur. Ancak karşılaştırma grubunun ontest, son test sonuçları anlamlı değişiklik göstermemiştir (p>.05). Uygulanan SİFA temalı beden eğitimi dersinin vücut kitle indeksinin olumlu yönde değişmesine anlamlı bir etkisi olduğu sonucu ortaya çıkmıştır.

TARTISMA VE SONUÇ

Bu çalışmada deney grubundaki öğrencilerin Sağlıkla İlgili Fiziksel Uygunluk Bilgi Testi seviyelerinin SIFA temalı beden eğitimi dersi uygulamasından sonra anlamlı bir artış göstermiştir. Özellikle kalp dolaşım sistemi dayanıklılığı, kas sistemi dayanıklılığı, antrenman prensipleri ve genel sağlık bilgisi alt ölçeklerinde anlamlı bir artış gözlenirken esneklik ve vücut kompozisyonu bilgisi alt ölçeklerinde anlamlı bir fark ortaya çıkmamıştır. Yapılan birçok çalışmada SiFA temalı beden eğitimi dersini uygulamalarından sonra öğrencilerin bilgi seviyelerinin egzersiz secimi, fiziksel performans, bilimsel antrenman prensipleri, beslenme ve sakatlıklardan korunma ve ilkyardım gibi konularda arttığı belirlenmiştir (Lossch ve Strand, 2004).

Öte yandan esneklik ve vücut kompozisyonu bilgi seviyesi alt ölçeklerindeki beklenmedik sonucun nedenleri ise esneklik çalışmalarına okullardaki beden eğitimi derslerinde yeterince önem verilmemesinden ve esneklik çalışmalarındaki kas boyundaki ani uzamanın acı verici etkilerinden dolayı öğrencilerin bu konuya ilgisinin olmamasıyla açıklanabilir (Allen, 2006). Vücut kompozisyonu konusu ilköğretim 7. sınıf ve lise 9. sınıf müfredatında sağlık bilgisi dersinde izlenilmektedir. Bu nedenden öğrencilerin ortalama değerlerinin yüksek olması ve hem gruplar arasında hem de on test son test arasında fark olmaması konusunda açıklayıcı olabilir.

Deney grubundaki öğrencilerin fiziksel aktivite seviyelerini ön test, son test ölçümleri boyunca karşılaştırma grubuna göre anlamlı bir şekilde arttırmıştır. Bu çalışmadaki sonuçlar alan yazındaki benzer çalışmalarla paralellik göstermektedir. Lise 10.sinif öğrencileriyle yapılan bir çalışmada sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersini uygulanmıştır ve öğrencilerin orta ve yüksek şiddetteki fiziksel aktivite seviyeleri MET değerlerinin arttığı ve vücut yağ oranlarının ve bel çevrelerinin azaldığı sonucu ortaya çıkmıştır (Gorely, Nevill, Morris, Stensel ve Nevill A., 2009)

Son olarak çalışmada Fitnessgram performans testlerinin sonuçları ön test son test suresi boyunca deney ve karşılaştırma grupları arasında sol bacak esnekliği ve şınav performanslarında anlamlı bir artış olmadığı saptanmıştır. Ancak sağ bacak esneklik,

mekik koşusu (aerobik dayanıklılık), vücut kitle indeksi ve mekik (karin sırt kasları dayanıklılığı) performans testlerinde anlamlı artış gözlenmiştir. Literatürde yer alan bir çok çalışmada Ignico ve Mahon (1995), Sallis ve arkadaslari (1997) Derrie ve arkadaslari (2004) Singh (2005) ve Rengassamy (2012) sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersleri uygulamalarının öğrencilerde basta aerobik kapasite olmak üzere diğer fiziksel performansları da arttırdığını göstermiştir. Çalışmanın beklenmedik sonuçları arasında yere alan şınav performansındaki anlamlı değişiklik olmaması çalışmaya katılan öğrenci popülasyonunun %65 kadın olmasından dolayı ve şınav, barfiks gibi kol ve omuz kaslarını geliştiren çalışmaları erkeksi buldukları için daha çok aerobik, yürüyüş, jimnastik, pilates ve yoga gibi egzersizleri tercih etmektedirler (Raustorp ve arkadaslari 2005). Çalışmanın diğer beklenmedik sonucu olan sol bacak esnekliğinde anlamlı değişiklik olmaması, esnetme çalışmalarına beden eğitimi derslerinde yeterince önem verilmemesi (Katz ve arkadaslari, 2010), dominant ayağın diğer ayağa göre daha güçsüz ve esnekliğinin daha az olması (Hard ve Gabbard, 1996) ve esneklik çalışmaları sırasında kas boyundaki ani uzamadan dolayı oluşan acıdan, öğrencilerin esneklik çalışmalarını önemsemedikleri ve bu uygulamalara katılmada isteksiz oldukları gözlenmiştir.

Bu çalışmada deney grubundaki öğrenciler fiziksel aktivite düzelerini ve bazı fiziksel performans (fitness) seviyelerini ve sağlıkla ilgili fiziksel aktivite bilgi düzeyini artırdığını göstermiştir. SIFA temalı benden eğitimi uygulamaları literatür ile olan benzerliklerine rağmen bu çalışma beden eğitimi alanında teori ve pratikte önemli tartışma konuları ortaya çıkardı.

Türkiye'de sağlıkla ilgili fiziksel aktivite çalışmaları akademisyenler tarafından gerçekleştirildi ve çoğunlukla öz-düzenleme becerileri ve öz-algılanan sağlık geliştiren fiziksel aktivite (İnce, 2008 & Müftüler, 2012) konularına odaklanmıştır. Zorunlu bir ders olan beden eğitimi derslerinde beceri merkezli beden eğitimi derslerinin uygulanması ve bu yas grubundaki öğrencilerin fiziksel aktiviteye katılımındaki düşüşü ve diğer sağlıkla ilgili sıkıntıları da göz önünde bulundurursak bu çalışma beden eğitimi alanına yeni bir bakış getirmektedir.

Bu çalışma aynı zamanda bir beden eğitimi öğretmeni tarafından sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersi içeriğinin ve uygulamasının etkili olması açısından önemlidir. Türkiye'deki beden eğitimi öğretmenleri beceri merkezli beden eğitimi derslerini tercih etmelerinin nedeni bu alanda eğitim almamış olmamaları ve bu alandaki bilgi eksikliği olarak sayılabilir. bu çalışma, araştırmacılara sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersi islenebilmesi için uygun okul ve öğretmen profili hakkında bilgi sağlar. Bu çalışma ayni zamanda sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersi islemek isteyen öğretmenler için bir kaynak olmakla beraber, da bu konuda öğretmenlerin kendilerini yenilemek ve alan bilgilerini arttırma da yardımcı kaynak olarak kullanılabilir.

ÖNERİLER

Bu çalışmanın bulguları ışığında:

1. Beden eğitimi derslerinde esneklik çalışmalarına önem verilmesi
2. Esneklik çalışmalarında dominant ve dominant olmayan bölgeleri esneten egzersizler ayni sure ve sıklıkta olması
3. Sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersinin etkili olabilmesi için içeriğinde öğrencilerin okul dışında da aktif olmalarını sağlayacak ev ödevlerinin olması ve bu programın aile ile paylaşılması
4. Esneklik çalışmalarını cazip hale getirecek elastik bantlar gibi araçların derslerde kullanılması
5. Kas dayanıklılığı çalışmalarına kız öğrencilerin katılımını arttırmak için egzersizlerin tipi şiddeti, kapsamı ve yoğunluğu konusunda detayli bilgi sağlanması
6. Türkiye'deki beden eğitimi öğretmenlerini için yapılacak olan hizmet içi eğitim seminerlerinde öğretmenlerin sağlıkla ilgili fiziksel aktivite temalı beden eğitimi dersiyle ilgili eğitim hazırlanması tavsiye edilebilir.

Appendix S

Curriculum Vitae

PERSONAL INFORMATION

Surname, Name : AKINCI, Yasin

Date and Place of Birth : 29 Ekim 1977, Manisa

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EDUCATION

Degree	Institution	Year
MS	Middle East Technical University, Physical Education and Sport Department	2005
BS	Middle East Technical University, Physical Education and Sport Department	2001

WORK EXPERIENCE

2010 – Present	Physical Education Teacher at Ted Ankara College
2007 – 2010	Basketball Coach for the Women 1st Division Team
2001-2007	Physical Education Teacher at Ari College

PUBLICATIONS

1. Ozdurak, R.H., Düz, S., Arsal, G., Akinci, Y., Kablan, N., Işikli, S., Korkusuz, F., (2003) Quantitative forearm muscle strength influences radial bone mineral density in osteoporotic and healthy males. *Technology and health care: official journal of the European Society for Engineering and Medicine 2003; 11(4): 253-61.*

Appendix T

TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü	☐
Sosyal Bilimler Enstitüsü	X
Uygulamalı Matematik Enstitüsü	☐
Enformatik Enstitüsü	☐
Deniz Bilimleri Enstitüsü	☐

YAZARIN

Soyadı : AKINCI
Adı : Yasin
Bölümü : Beden Eğitimi ve Spor

TEZİN ADI (İngilizce): Effect of Health Related Fitness Physical Education Intervention on 9th Grade Students' Health Related Fitness Knowledge, Physical Activity and Physical Fitness Levels.

TEZİN TÜRÜ : Yüksek Lisans ☐ Doktora X

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir. X
3. Tezimden bir (1) yıl süreyle fotokopi alınamaz. ☐

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: