

**REPUBLIC OF TURKEY
FIRAT UNIVERSITY
INSTITUTE OF HEALTH SCIENCES
DEPARTMENT OF PHYSICAL EDUCATION AND
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**INVESTIGATION OF THE EXERCISE
DEPENDENCE OF ATHLETES' KICK
BOXING, TAEKWONDO AND MUAY THAI**

MASTER THESIS

BOTAN JAWHAR SADIQ

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APPROVAL

Prof. Dr. Mustafa KAPLAN
Principal of Institute of Health Sciences

This thesis was found fit to Master's Degree Thesis standards.

Prof. Dr. Cengiz ARSLAN
Department of Physical Education and Sport Sciences

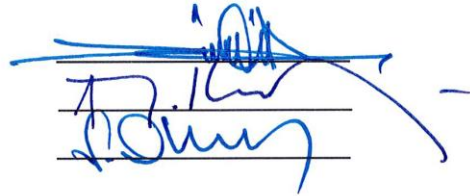
**The thesis was read and accepted as a Master's Degree Thesis in terms of
extent and quality.**



Assoc. Prof. Dr. Serdar ORHAN
Advisor

Master's Degree Exam Jurors

Prof. Dr. Vedat ÇINAR
Assoc. Prof. Dr. Alper KARADAĞ
Assoc. Prof. Dr. Serdar ORHAN





ETHICAL DECLARATION

I declare that I have carried out this thesis study with my own studies, that it is not contrary to the ethics at all stages from the planning of the works, to the obtaining of the findings and to the writing phase, that I have obtained all information and data in this thesis under the academic and ethical rules, that I refer to sources, information and interpretations that are included in this thesis but which are not included in the findings of this thesis.

Botan Jawhar SADIQ

10.01.2018

A blue ink signature of Botan Jawhar SADIQ.

Serdar ORHAN

Advisor

Department of Physical Education and Sport

ELAZIĞ

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LIST OF ABBREVIATIONS

BMI	: Body Mass Index
DSM-IV	: Diagnostic and Statistical Manual of Mental Disorder
EDS	: Exercise Dependence Scala
IAMTF	: International Assembly Muay Thai Kickboxing Federation
ICD	: International Classification of Diseases



1. ABSTRACT

INVESTIGATION OF THE EXERCISE DEPENDENCE OF ATHLETES' KICKBOXING, TAEKWONDO AND MUAYTAI

There is needs of researching to determine the differences in exercise dependence of individuals participating in Kickbox, Taekwondo and Muaytai exercises, which require special discipline and regular work, according to exercise type, exercise age and loading dynamics. The purpose of this research is determined the investigation of the Exercise Dependence of Athletes' Kickboxing, Taekwondo and Muaytai.

A total of 141 volunteer athletes Kickbox (n=76), Taekwondo (n=28) and Muaytai (n=37), from ages 18 and over, who trained Kickbox, Taekwondo and Muaytai at least for 1 years. Exercise Dependence Scale composed of 21 items developed by Hausenblas and Downs and adapted to Turkish version by Yeltepe and İkizler were applied to athletes. The obtained data were analyzed in statistical packages program, Mann-Whitney U, Kruskal Wallis and Dunnet's test of variance analysis were performed to compare.

In the result of the research; while athletes showed more sensitivity against exercise dependence scale (= 71.41), also this scale was defined as symptomatic. When categorizing the exercise addiction averages of the participating participants, it was found that 5 athletes (3.5%) were asymptomatic-nondependent, 117 athletes (83.0%) were symptomatic-nondependent and 19 athletes (13.5%) were at-risk for exercise dependence.

When the averages of exercise dependence were compared with the variables, it was seen that there was a significant difference between regular training and daily training numbers ($p < 0.05$). Multiple comparisons were made to determine which group originated the difference. Variance in the regular training variant was found to be from the asymptomatic group ($p < 0.01$). According to the number of daily training, the difference was found to be due to the symptomatic group ($p < 0.01$). It was determined that participants who participated in the study did not have a statistically significant difference between the genders, age, exercise age, marital status, education level, sports branch, job, weekly training day, the daily exercise duration, physical apperance and cause of exercise compared to the total exercise addiction score ($p > 0.05$).

As a result of this study, it is possible to say that; regular training can be effective to appear the exercise dependence.

Keywords: Dependence, symptomatic-asymptomatic, kickboks, taekwondo, muaytai.

2. ÖZET

KICKBOKS, TAEKWONDO VE MUAYTAİ SPORCULARININ EGZERSİZ BAĞIMLILIĞININ İNCELENMESİ

Egzersiz türüne, egzersiz yaşına ve yükleme dinamiklerine göre, özel disiplin ve düzenli çalışma gerektiren Kickbox, Taekwondo ve Muaytai egzersizlerine katılan bireylerin egzersiz bağımlılığındaki farklılıkları belirlemek için araştırmaya ihtiyaç duyulmaktadır. Bu araştırmanın amacı Kickboks, Taekwondo ve Muaytai sporcularının egzersiz bağımlılığının incelenmesidir.

Çalışmaya Kickbox (n = 76), Taekwondo (n = 28) ve Muaytai (n = 37) sporcularından, 18 yaş ve üstü en az 1 yıl antrenman yapan toplam 141 gönüllü sporcu katıldı. Sporculara, Hausenblas ve Downs tarafından geliştirilen ve Yeltepe ve İkizler tarafından Türkçe'ye uyarlanan 21 maddeden oluşan Egzersiz Bağımlılığı Ölçeği uygulandı. Elde edilen veriler istatistiksel paket programında analiz edildi, parametrik testlerden Mann-Whitney U ile nonparametrik testlerden Kruskal Wallis ve Dunnet's uygulandı.

Araştırma sonucunda; sporcuların egzersiz bağımlılığı ölçeğine (= 71.41) karşı daha fazla duyarlılık gösterdiyse de, bu ölçek semptomatik olarak tanımlandı. Sporcuların egzersiz bağımlılığı ortalamaları kategorize edildiğinde, 5 sporcunun (% 3.5) asemptomatik, 117 sporcunun (% 83.0) bağımlı olmayan semptomatik, 19 sporcunun (% 13.5) ise egzersiz bağımlılığı riskinde olduğu bulundu. Egzersiz bağımlılığı ortalamaları değişkenlerle karşılaştırıldığında, düzenli antrenman ile günlük antrenman sayıları arasında istatistiksel olarak anlamlı farklılık olduğu görüldü ($p < 0.05$). Çoklu karşılaştırmalarda düzenli antrenman yapma durumuna göre farklılığın asemptomatik gruptan, günlük antrenman sayısına göre ise semptomatik gruptan kaynaklandığı görüldü ($p < 0,01$).

Cinsiyet, yaş, spor yaşı, medeni durum, eğitim düzeyi, spor branşı, meslek, haftalık antrenman günü, günlük egzersiz süresi, fiziksel görünüş ve antrenman yapma nedeninin egzersiz bağımlılığını etkilemediği tespit edildi ($p > 0,05$). Sonuç olarak, düzenli egzersizin, egzersiz bağımlılığı için etkili olabileceği söylenebilir.

Anahtar Kelimeler: Bağımlı, semptomatik-aseptomatik, kickboks, taekwondo, muaytai.

3. INTRODUCTION

Experimental studies have proven that exercise has positive effects on physical and mental development. It has been observed that exercise has a negative effect on depression, anxiety, premenstrual syndrome, helps to cope with stress and positively affects on body sensation, mood and self-esteem. (1,2,3). The physical benefits of exercise include reducing risk of coronary heart disease, weight control, flexibility, improving muscle strength and durability, reducing back and waist problems (4,5).

When a person is exercising regularly, he or she may feel an internal pressure to continue exercising beyond healthy doses. It can be normal for relatives and friends to spend all their spare time training. Because the goal is to achieve a certain performance. However, if the individual feels that he or she is always missing in exercises made for quality living, and if the desire is constantly increasing, this behavior becomes a problem (6). Today, it is important to remember that many healthy people who take exercise seriously and make their lives an important element (7). However, those who target a perfection that can not be reached through exercise can be called dependent. It is known that exercise increases endorphin production, makes the individual feel good in himself, and creates a demand again in the organism (8, 9).

Exercise dependence; is defined as the exercise routine to control the individual, the duration and duration of the exercise to increase the frequency and severity of the exercise, the ability to take time away from exercising with family and friends, to exercise instead of participating in social activities and to rehabilitate the individual's life within the framework of exercise habits (2, 10).

Exercise dependence, in particular, expresses the desire to exercise with a strong emotion in every leisure time of a person (11). It manifests itself with physiological symptoms (tolerance, avoidance) or psychological symptoms (depression, tension) in the exercise process. Hausenblas and Symons explain this with the term "Exercise Addiction". It is not known what prevalence of exercise dependence is. However, quite a few of the male and female athletes have heavy dependency statements. Multidimensional exercise addiction measurements show that men are more exercise addicted than women (12). In contrast, weight control It is emphasized that women tend to be more addictive than men (2, 13).

Researchers found exercise dependence as negative dependence; Anxiety, depression, nervousness, insomnia (14) and positive dependence when the person exercising excessive exercise can not exercise; exercise in order to cope with the difficulties encountered by the individual in his / her life (15). Abroad, it is indicated that exercise dependence is associated with factors such as personality traits, psychological factors, physiological factors, type of exercise, gender and years of participation in exacerbations (14, 16).

There is a need for studies on the status of these factors in a group of Turkish populations. The purpose of researching these needs was to determine the differences in exercise dependence of individuals participating in Kickbox, Taekwondo and Muaytai exercises, which require special discipline and regular work, according to exercise type, exercise age and loading dynamics. The participants who take place in this study were defined as exercise dependence, nondependent-symptomatic and nondependentasymptomatic. The purpose of this

research is determined the investigation of the Exercise Dependence of Athletes' Kickboxing, Taekwondo and Muaytai.

3.1. General Information

3.1.1. What is Taekwondo?

Taekwondo is one of the military arts, the art of self protection. It reaches back over 1000 years and emanated in Korea. It is a social game executed in nearly 140 countries while 120 countries are formal members of Taekwondo World Championships. Taekwondo appeared as a demonstration competition in 1988_1992 Olympic (17). It is a full-contact combat between two boxers and includes weight and gender restrictions. The aim of combat is to grapple an opponent by gaining either a greater quantity of points for the execution of knocking and punching techniques to permitted scoring areas or by attaining a technical knockout. Taekwondo combats are contested within a 10 x10 meter area and consist of three rounds of 2 minutes, with a 1 min rest break separating each round. During a Taekwondo championship successful competitors are required to compete in qualifying, semifinal, and final stage combats within a day (18).

3.1.2. What is Kickboxing?

Kickboxing is the martial art of Thailand. It allows the use of punches, kicks, knees, hits and elbows. It encourages both physical and mental development, with many teachers placing great stress on discipline, respect, and spirituality. It is quickly increasing in popularity and has an estimated one million participants in the world wide (International Muay Thai Kickboxing Federation (IAMTF) International Office) (19).

Although little has been known about the type of injuries that occur of this sport. This is in great contrast compare it to other martial arts like; taekwondo and karate, about which much more works have been published. The nature of the activity involved will rely on the level of the individuals, and its classes usually begin with a 15–30 minute session of warm up, stretching, and calisthenics. This is totally followed by kick, punch, knee, hits and elbow drills and then many amounts of pad, bag, and sparring work. Sparring contact varies with the levels. Starters are allowed no contact. In contrast, Amateurs are let full contact and wear shin guards, groin protector, trunk pads, boxing gloves, elbow pads, mouth guards, and protective headgear. Professionals, who are very specialized, use full contact and wear mouth guards, groin protectors, and boxing gloves. All body targets are allowable except for the groin. A literature search for Muay Thai and kick boxing realized only a case report, a single study monitoring renal and liver works and muscle injuries. The case report was a 23 year old kick boxer with spontaneous burst of the extensor procedures longus tendon, which happened while he was doing opposite press ups on the dorsum of his hands with his wrists hyperflexed.² Sangsirisuwan et al examined renal and liver function and muscle harms during training and after competition. They found no impact on liver or renal function but damage to skeletal muscle may happen in both settings. A review of published data for all martial arts found various number of trends. Soft tissue trauma, hematomas, and lacerations have consistently been noted to be the most common injuries and body damages (18).

Younger participants and those with less experiences have much more risks of injury. Sparring, tournaments, and competitions are found with fewer

injuries, but those that occur are more severe compare it to the others. The head, face, and neck have been become to be the site of about 50% of all injuries. The most common types of injuries while playing are lacerations, contusions, epistaxis, and hematomas. And the lower extremity is the next most commonly injured site. Again, lacerations, contusions and hematoma formation are the most common injuries. 10 Fractures of the digits are relatively common too. This is not astonishing as the feet and legs are often given little or no protection, and the forces made are large. Different martial arts are associated with particular injury patterns. Taekwondo and karate are associated with trauma to the lower extremities and head, kendo with left side harms and judo with complete acromioclavicular separation Japanese kickboxing appeared in the 1960s, with competitions held since that time. And American kickboxing originated in the 1970s and was brought to prominence in September 1974, when the Professional Karate Association (PKA) held the first World Championships (19).

3.1.3. What is Muay Thai?

The Muay Thai boxing is a special Thai national sport. It includes some technical movement to defend their selves. Its history goes back to the last half of the 20th century in the old Siamese stadium. The Maui Thai federation in the world is working with five other federations and 110 countries are members of this federation (20).

This game has complex movements and it needs special techniques to win. In the championships, the game includes short times in the style of dynamic phases. In this period the player tries to beat the opponent and score points, and on the other hand the player tries to defend their selves when their opponent attacks.

Each player through their boxing gloves tries to attack the opponent and get points at the times of attacking and defending. According to their age, the participant has three minutes for each round and one minute for break. To get the physical ability, the players use too much oxygen across the championships. It is in the shape of the army weapon as in taekwondo and karate (21).

3.1.4.What is Exercise Benefits?

Exercising has great advantages for human beings, (e.g. Aerobics) it activates our bodies and extends our exercises, it plays a big role by pushing more blood from heart into the veins. It keeps us away from many sicknesses, for instance (Coronary Artery). Doing exercises affects on heart's orders and its blood veins by working systematically, and also it arranges decreasing and increasing Oxygen for heart specially for those who have got heart blood vein diseases. Besides, it effects body activities properly and protects body from exercises disadvantages too. The competence and teachers are mainly allowed to arrange the exercises for the participants and they will decide about any changes from the exercise plan (22).

Doing exercise has great effects on reducing unnecessary fat in the body, circling blood properly and organizing diabetes in the blood and also it decreases heart pressure especially in those people who have got pressure disease. Lastly, we realized that Exercise benefits means organizing human health generally and makes human to be far from sicknesses and it gives a healthy life to humans (22).

3.2. What is the Exercise Affiliation and Exercise Dependence Type

The term “exercise dependence” was used for the first time to describe the types of “over devotion” in the middle-aged men who were continuing to do exercises in spite of suffering from injuries and other complications. This conception was empowered by some facts while the experiments were done to study the influences of exercise deprivation on sleep (13).

Participants did not want to give up from exercise even if they were given gifts. Baekeland imagined that participants were dependent to do exercises because of their interests. Besides, Baekeland also found that his participants were moving back from the game because of their increased anxieties, exhaustion, sexual stress, and bad sleep. Regarding these observations, the concept of "exercise dependence" changed to the general dependence field – a field that has been defined as being in a state of “conceptual chaos”(13).

This is noticed by many controversial discussions within the field of not able to stop it to dependence including such basic topics. Traditionally, definitions of dependence were directed only to psychoactive substance ingestion (Maddux and Desmond 2000). This was reinforced by the diagnostic criteria for dependence in classifications of psychiatric disorders, e.g. International Classification of Diseases; World Health Organization, 1992) (ICD-10) and Diagnostic and Statistical Manual of Mental Disorder (American Psychiatric Association 1994) (DSM-IV). The definitions presented in ICD-10 and DSM-IV are based on the dependence syndrome (Edwards 1986; Edwards et al. 1981; Edwards and Gross 1976) and also presenting a disease model of dependence.

Three criteria have been examined in the relation between addiction and disease (Heyman 1996). The first criterion is the degree to which a reliable pattern of signs and symptoms is present. The second criterion is the degree to which such signs and symptoms compromise well-being. The final criterion is the degree to which the signs and symptoms are involuntary. However, dependence is not restricted to the ingestion of drugs, and can include behavioral addictions (Orford 1985; Holden 2001; Griffiths 2005). By widening the boundaries of dependence, such activities as excessive gambling (Griffiths 1995), eating disorders (Davis and Claridge 1998), or excessive Internet use (O'Reilly 1996) have the potential to be described as an addiction. Despite many similarities between chemical and behavioral addictions, there are also many differences (Marks 1990; Griffiths 2005). Since the first writings on excessive exercise, there has been an increased interest in exercise dependence². One of the major consequences of this raising interest has been the developed of several conceptualizations (i.e. definitions and assessments) in the literature.

Definitions of exercise dependence sometimes highlights behavioral factors (e.g. exercise frequency or duration), psychological factors (e.g. compulsive behavior), and/or physiological factors (e.g. tolerance and withdrawal) (13). In an attempt to assess exercise dependence, studies have used many methods, including qualitative interviews (e.g. Sachs and Pargman 1979; Bamber et al. 2000; Cox and Orford 2004), case studies (e.g. Cripps 1995; Griffiths 1997), and self-report questionnaires (e.g. Ogden et al. 1997; Loumidis and Wells 1998; Terry et al. 2004). Beyond this methodological diversity, conceptualizations of exercise dependence have been consistently switched by

debates in the literature. Each new definition or measure provides some kind of advance in the explanations of exercise dependence (23).

3.3. Exercise Dependence and Partnership with Some Disorders

3.3.1. Wight

Investigators; dependence (Conboy 1994, Crossman et al 1987, Davis 1990, Greenberg et al 1999, Morris et al 1990, Szabo and Parkin 2001), overuse (Chapman and Decastro 1990, Davis et al., 1993 Overactivity behavior with some personality traits such as perfectionism (Davis, Gulker et al., Hausenblaus and Downs, 2002) and anxiety (Chapman and Decastro, Frederick and Morrison, 1996; Hausenblaus and Fallon, 2002) .

3.3.2. Sexual

Carmack and Martens (1979) observed gender differences on the training (cohesion) skills and on several different questions (length, conditional frequency, running reasons, non-running feelings, perceived conditional dependency, etc.). The feeling of uneasiness felt when they did not practice (training/cross) was mostly observed in women ($p < 0.05$). However, there was no significant differences between men and women at the level of perceived status dependency. In the mean circumstance and the frequency of occurrence, the male had higher significance than the female. $F(1,311) = 10.71$, $P < 0.001$. The data collected in the sample belong to marathon runners. There was no difference between men and women in terms of numbers of previous marathoners, training distances, training ages, time to finish the race or training. However, it was observed that women had higher significance scores than men. Interestingly, significant relationship training

in men ($r = .52$), training hours ($r = .47$) and bitter time ($r = .47$) in women it was seen that this relationship was meaningless in all variables ($r \leq 0.30$). It is surprising that there is no difference between groups on performance variables or on each training in the discovery (24).

Masters and Lambert estimates show that female marathon runners are more likely to perceive themselves as addictive than male colleagues. Because traditionally women do not need to accept and receive positive support for their participation in situations where endurance is required. Thus, women may be perceived as having a greater sense of dependence despite their efforts.

Pierce, Rohaly and Fritchley; (Pierce et al., 1997) observed the exercise dependence between male ($n = 18$) and female ($n = 14$) on marathon runners. Using the negative addiction scale (Hailey and Bailey, 2002), it was determined that the exercise addiction scores of female marathon runners were higher than the male ones. However, there was no significant difference in the intensity of training between men and women in this sample (25).

According to the exercise dependence tests performed by many researchers, there was no significant difference between men and women. Davis and colleagues in their study of 88 male and 97 female samples; there were no gender differences in exercise addiction scale and physical activity frequency (26).

There was no significant difference between negative addiction scores and gender in their studies using the Furst and Germone negative addiction scale (27).

When Hausenblaus and Downs evaluated many features on the exercise addiction subscale, it was found that the scores of the men were higher than those of the women (Hausenblaus and Downs, 2002). (attention deficit $F(1,385) = 28.38, p < .001$, tolerance $F(1,385) = 28.00, P < .001$, continuity $F(1,385) = 33.14, P < 25.83, P < .001$, time $F(1,385) = 19.27, P < .001$ and request, effort $F(1,385) = 27.88, P < .001$). However, there was no difference between the sexes when the exercise was discontinued (28).

3.3.3. Year and spore starting age (age of participation)

The Masters and Lambert (1989) scale (questionnaire) has been found to have a relationship between individuals who have been exercising for years. However, when we look at the differences between the sexes, this meaningful relationship ends. There was no difference in the sample of women and men when looking at the age groups, but for males, a meaningful relationship with the trained men is found, but the same relationship is not significant for women. Hailey and Bailey (1982) and Furst and Germone (1993) used the negative addiction scale (29).

At the same time, they observed that there was a high level of significance on exercise addiction scores in participants with long-term physical activity. Hailey and Bailey have divided the group of 60 male runners into 3 groups of participants in the same age group. For these 3 groups, the addiction scores (4 years or more) were significantly lower than those of the first group ($t(59) = 2.72, p < .005$). was found to be at a better level of significance. In the same way, addiction scores were found to be more significant for group 2 (1 to 4 years) than for group 1 ($t(59) = 2.52, p < .01$). However, there was no statistically

significant difference in the dependency of the 2nd and 3rd groups. Furst and Germone have found similar results in their study of 188 runners in the same age group by separating 6 groups. This is because studies have shown that there is a significant difference between negative addiction scores and physical activity age. $F(5,82) = 6.39, p < .01$. It has been determined that all of the other groups have a lower level of dependency (with an average of 1-15 years and more) than the mean of addiction scores for group 1 (less than 1 year experience). It was also observed that the 5th goblet (with up to 10 and 15 experiments) had the highest addiction point average (29).

3.3.4. Body composition and body mass index (BMI)

While the authors observed body composition and body mass index, they used physiological measures to assess the control group to compare other variables. Davis and Fox observed adult body fat index and average body 19 fat ratio (using skinfold) in 351 adult women (29).

1993 BMI (Body Mass Index) equation (weight / height) was used to measure body mass index while exercise participation was taken into account as an addictive scale. Again, in this study, it has been determined that those who exercise overweight with a similar age and body mass index distinguish themselves psychologically from those who do not exercise. Exercise women are reported to be more satisfied with their body appearance than those who do not, focus on good body measurements, have better emotional reactions, and are more outwardfacing. However, no statistically significant interaction was observed between exercise participation and age, body dissatisfaction, body mass index,

body mass index, mean body fat percentage, and external turnover in any of the samples (29).

Davis et al. (1993) observed the mean body fat ratio, but only the preliminary values in the measurements were scored on the exercise dependence scale by comparing the participant's personal variability. ($F(1,183) = 128.90$, $p < .0001$) were found to have a better average body fat ratio than males in the 88 male and 97 female samples, which were called "recreational facilities and health clubs". Weight anxiety is the strongest indication for exercise in men and women (even if the average body fat ratio is constant or low). In addition, $F(1,183) = 41.66$, $p < .0001$, while there was no significant difference between male and female according to exercise dependence scale. Exercise dependence or psychological conditions in the exercise are not related to low body fat ratio. That is why Davis and colleagues suggest eating disorders should be separated from overdose exercises (29).

Recently Hausenblas and Fallon (2002) have studied exercise dependence in a predictive manner in body mass index and exercise behaviors for external appearance satisfaction and social physical anxiety (using exercise dependence scale). 231 males and 243 females found a body mass index as a strong determinant of social physical anxiety and body measurements (external appearance) satisfaction for female participants in a sample of 474 high school students. It has also been determined that for male participants, the social behavioral anxiety is the strongest predictor of body physical anxiety. In other words, the dissatisfaction with social physical anxiety and body measurements in women is related to higher body mass index, while in men very body size

satisfaction and low social physical anxiety are related to exercise behaviors. So, after the authors, body mass index and the effects of exercise behaviors on body image were checked, the results of the basic exercise addiction symptoms played a good role in the body image. Studies have been used only to evaluate the body composition to control the effect on the body image. And there is only a definite relationship between exercise dependence and specific behaviors. It is therefore thought that it is very difficult to achieve a result by considering the relationship between exercise dependence and body fat percentage in fitness assessment (30).

3.4. Exercise Dependence and Loyalty Behaviors

3.4.1. Delivery disorders and weight anxiety

It can be argued that eating disorders or weight anxiety can cause exercise dependence. However, many writers think that these behaviors are independent of each other. Through in-depth (extensive) interviews, Yates and colleagues compared the need for anorexia nervosa with the need for a cross-section (Yates et al., 1992)(31). And in both groups they have hypothesized by determining exercise activities or socio-cultural effects in diet selection. A total of 77 cross-country runners, who have at least 15 km per week of men and women, have been identified. However, 11 of them were removed from work because an eating disorder was detected.

The remaining 66 participants were categorized into 20 unscheduled male (sedanter), 10 running male, 19 non-running female (sedanter) and 17 running women. In addition to the interviews, work has been completed with many evaluations such as depression, eating habits, and personality to determine the

emotional state of the participants. There was no significant difference in the average of groups on the eating habits test. However, 5 women and 2 men were scored higher than 30. This can be a sign of eating disorder. At the same time, it has been determined that coaches who make sports a necessity have more behaviors that affect the emotional state, such as the desire for loneliness and exercise in a rigid rules, restrictive diets, and physical anxiety (32).

Blumenthal and colleagues have designed studies to test whether the anorexia nervosa is in the process of running (Blumenthal et al., 1984). The sample consisted of 67 persons, 24 of which were anorectic patients (2 males, 22 females) and 43 professional coaches (22 males, 21 females). All coaches completed the Minnesota versatile inventory of intimacy (Hathaway and McKinley, 1948) and the mandatory exercise questionnaire. $F(1,65) = 90,0$ $p < .0001$, when the compulsory exercise questionnaire was compared with the scoring performed for the coaches, it was determined that 20 volunteers selected by chance had higher significance than those obtained from the control group. In the versatile inventory of intimacy, no difference was observed between male and female cohorts. When examining the profiles of versatile personality inventory it was seen that no scoring was achieved beyond normal range in any man or woman. However, 5 out of 24 anorectic patients have formed a profile at normal limits in this inventory. Thus, the authors have come to the conclusion that forced coaches can not have psychopathological boundaries at the same time as anorexic patients. Because co-workers with anorectic patients have almost four times the rate compared to pathological results. This means that although anorexic patients are required to practice, swim and exercise, exercise is just weight loss (33).

Wheeler, and his friends, are in dependent cohorts; personality and eating habits using inventory (Wheeler et al., 1986). to work; long distance coaches (40 km per week), and a total of 67 coach volunteers divided into 2 groups as short distance coaches. 18 sedanter male control group (not including physical exercise). There was higher significance in eating habits scores in the cohort. However, no difference was observed in the control group and the individual cohort groups (9.6 ± 0.8 in long distance cohorts: 10.4 ± 1.3 in short distance cohorts, 7.4 ± 1.2 in control group). In both groups defined as anorexia nervosa, 30 points were not reached. Thus, the authors have come to the conclusion that there is no evidence for the criteria that determine the anorexia nervosa in all the runners. At the same time, contrary to the anecdotal evidence made by Morgan (1979), they suggest that coaches routinely neglect family responsibilities and jobs and therefore should not be shown as evidence of high percentages for such athletes (34).

(Pasman and Thompson, 1988), Gulker and colleagues (2001) observed conditions in the cohort to measure weakness (body structure) and body dissatisfaction (Pasman and Thompson, 1988 Gulker and colleagues, 2001). As a result, it was determined that the individuals with over-exercising had a higher level of body satisfaction than those who did not overexcuse $F(4,167) = 357, p < .001$ (35).

Hausenblaus and Fallon (2002) observed weight-anxiety status using the subscale of eating disorders inventory-2 for weakness (thin body structure). However, participants in the risk group interval are in favor of eliminating the

devastating effects of secondary exercise dependence (moderate) with measurements made in this study (30).

Seven men and 28 female participants were left out of the analysis because of the high scoring on the weakness subscale in the survey of four hundred and fourteen people. Hausenblaus and Downs (2002) also observed weight dissatisfaction with 862 participants in the risk group ($n = 27$), independent symptomatic ($n = 490$) or independent asymptomatic ($n = 345$) for exercise dependence. Participants have determined that "ideal weight is below real weight" and "weight dissatisfaction" (30).

3.4.2. Frequency / intensity of exercise

Chapman and DeCastro (1990) compared the average training duration and frequency of participants according to the requirements of the coach dependency scale and the coercive scale (23). It was determined that the training duration and the training frequency were related to each other in both men and women ($p < .05$) according to the data obtained by the applied coercive addiction scale (36).

Hausenblaus and Downs (2002) have published two studies by observing physical activity with the Leisure-Time Exercise Questionnaire (LTEQ; Godin et al., 1986) and the exercise addiction scale. In their initial study, participants were found to be an important positive predictor of exercise dependence ($p < .001$), according to the results of free-time exercise questionnaire (16).

The same results were obtained in the second study, but they differed more among the various exercise addictive groups to be selected. And according to the free time exercise questionnaire, when the risk group was compared with all

independent groups, the risk group scores were found to be at a high level of significance ($p < .001$). In addition, independent symptomatic group scores were found to have a higher level of significance than independent asymptomatic group on many measurements ($p < .001$). According to these results, we can say that individuals with exercise dependence perform more intense and more frequent training (exercise) than their independent peers or friends. However, it is possible for non-dependent individuals to exercise more than addicted individuals. Because exercise dependence is related to how the individual sees the exercise, the variety of exercise, and many other factors (such as lack of training, liking or liking of running, constant weight lifting, etc.). Therefore, exercise dependence may be more related to what the individual exercise motivation is from the level of physical activity (37).

4. MATERIALS AND METHODS

In this section, the purpose of the research, the variables involved in the research, the universe and sample of the researcher, the data collection tools used in the study, the procedures for collecting the data and the analysis methods used in analyzing the obtained data are explained.

4.1. Purpose of Study

The purpose of this research is determined the investigation of the exercise dependence of athletes' kickboxing, taekwondo and muaytai.

4.2. Research Universe and Sampling

In this research, the general screening model, which is one of the descriptive research methods, were be used. While Kickbox, Taekwondo and Muaytai athletes represent the universe of work, Kickboks, Taekwondo and Muaytai athletes who exercise regularly for more than a year in private and official sports clubs in Elazığ province.

The data from the sample were obtained easily by sampling method. A total of 141 volunteer athletes Kickbox (n=76), Taekwondo (n=28) and Muaytai (n=37), ranging from ages 18 and over, who trained Kickbox, Taekwondo and Muaytai at least for 1 years.

However, a total of 200 questionnaires were applied. Of these, 33 were withdrawn from work (their questionnaires were returned) and 26 people were not assessed because the questionnaire was incorrect / incomplete. Thus, the survey of 141 participants was taken into consideration.

4.3. Data Collection Techniques

Exercise Dependence Scale composed of 21 items developed by Hausenblas and Downs and adapted to Turkish version by Yeltepe and İkizler were applied to athletes (38).

Face to face interview technique was applied and questionnaire data were collected via mail. The measuring instruments and test protocols used in the study are stated below.

4.4. Data Collection Tool

The Personal Information form was prepared by the researcher. In order to be able to carry out the research on personal information form better. It was prepared as a form in which questions related to gender, age, sports branch, sports age, education status, marital status, type of exercise, exercise frequency, duration of exercise were included.

The EDS-21 is a Likert type (never-1 and always-6) measure consisting of 21 questions developed to determine exercise dependence. EDS-21 has seven sub-dimensions. These; (1) Avoidance (I am exercising to avoid tensions), (2) Continuity (I am exercising even when I am hurt), (3) Tolerance (I am constantly increasing exercise intensity to improve the desired effect), (4) Control Loss (6) Time (I spend a lot of time on the exhaust) and (7) Effect of Intention (I exercise longer than I planned), (5) Decrease of other activities (I think about exercise, even if I have to focus on work or lessons) (39, 40, 41, 42).

4.5. Obtaining Data

Within the scope of the research, descriptive statistics will be used to summarize the demographic and personal information of the sample group and the data will be evaluated in the statistical package program. In order to determine the level of exercise dependence of the sample group, 7 dimensions of EDS-21 were evaluated as exercise addicts with score of 5-6 in at least 3 dimensions, individuals who showed scores of exercise dependency in 3-4 range (symptomatic) (asymptomatic) who are not exercise-dependent (18). In addition, t-test after normality test and variance analysis (ANOVA) in group comparisons will be used to determine the differences according to the dimensions of the EDS-21, the sex of the sample group, the exercise test, the exercise age, exercise frequency and duration of exercise. For statistical significance, $p < 0.05$ significance level will be accepted.

4.6. Ethical Approval

This work has been approved ethnically by Fırat University NonInterventional Research Ethics Committee with the date of (04/052017) and decision number (08/15). In addition to this, participants were informed about the subject before the work, voluntary participation was provided to the participant.

4.7. Statistical Analysis

The obtained data were analyzed in statistical package program. According to the normality test, it was seen that the data were not normally distributed. Mann-Whitney U was used for comparison of two independent variables, Kruskal-Wallis H test was used in the intergroup comparisons. In the different

groups, Dunnet's T3 was used to determine which group originated the difference. Significance level was accepted as 0,05 and 0,01.

5. FINDINGS

Table 1. Participants' demographic characteristics

	f	%		f	%		f	%
Gender			Job			Number of daily workouts		
Male	87	59,6	Student	78	55,3	1 training	84	59,6
Female	54	38,3	Official	18	12,8	2 training	19	13,5
Age			Worker	14	9,9	3 training	26	18,4
18-22 year	84	59,6	Unemployed	23	16,3	4 training	6	4,3
23-27 year	29	20,6	Self-employed	8	5,7	5 training and over	6	4,3
28-32 year	12	8,5	Sports Age			Daily training time		
33-37 year	8	5,7	1-2 year	45	31,9	Less than 30 m	16	11,3
38 year and over	8	5,7	3-4 year	33	23,4	30-60 m	24	17,0
Marital Status			5-6 year	28	19,9	60-90 m	51	36,2
Single	94	66,7	7-8 year	10	7,1	90-120 m	36	25,5
Married	29	20,6	9 year and over	25	17,7	120 m and over	14	9,9
Divorced	9	6,4	Regular training			Physical appearance		
Widow	9	6,4	1-2 year	50	35,5	Yes	72	51,1
Education Level			3-4 year	43	30,5	Partially	54	38,3
Primary school	14	9,9	5-6 year	28	19,9	No	15	10,6
Secondary school	13	9,2	7-8 year	5	3,5	Cause of training		
High school	55	39,0	9 year and over	15	10,6	Like	13	9,2
Degree	45	31,9	Weekly training day			To feel good	30	21,3
Graduate	14	9,9	Irregular	28	19,9	Being healthy	41	29,1
Sports Branch			1-2 day	24	17,0	Succeed	47	33,3
Kickboks	76	53,9	3-4 day	61	43,3	Material gain	7	5,0
Taekwondo	28	19,9	5-6 day	16	11,3	Other	3	2,1
Muaytai	37	26,2	7 day	12	8,5			

According to table 1; 59.6% of male respondents, 59.6% in the 18-22 age range, the 66.7% single, 39.0% the high school level, 53.9% of the Kickboxing athletes, students, 55.3% of nudes, 31.9% have 1-2 years of sports age, 66.0% have regular exercise, 43.3% have 3 to 4 days of training per week, and 59.6% have only one day of training. 36.2% of the participants were training for 60-90 minutes, 51.1% were satisfied with the physical appearance, and 62.4% were trained to be healthy and to be successful.

Table 2. Mean frequencies and percentage overall score of exercise dependence scale.

N.	Questions		Never	Rarely	Sometimes	Usually	Frequently	Always
1	I exercise to avoid feeling irritable	f	32	9	29	43	18	10
		%	22,7	6,4	20,6	30,5	12,8	7,1
2	I exercise despite recurring physical problems	f	11	38	30	30	20	12
		%	7,8	27,0	21,3	21,3	14,2	8,5
3	I continually increase my exercise intensity to achieve the desired effects/benefits	f	5	18	42	31	29	16
		%	3,5	12,8	29,8	22,0	20,6	11,3
4	I am unable to reduce how long I exercise	f	23	21	30	37	14	16
		%	16,3	14,9	21,3	26,2	9,9	11,3
5	I would rather exercise than spend time with family/friends	f	19	20	29	30	30	13
		%	13,5	14,2	20,6	21,3	21,3	9,2
6	I spend a lot of time exercising	f	14	20	40	27	13	27
		%	9,9	14,2	28,4	19,1	9,2	19,1
7	I exercise longer than I intend	f	16	28	40	28	15	14
		%	11,3	19,9	28,4	19,9	10,6	9,9
8	I exercise to avoid feeling anxious	f	12	34	25	36	18	16
		%	8,5	24,1	17,7	25,5	12,8	11,3
9	I exercise when injured	f	17	19	50	29	14	12
		%	12,1	13,5	35,5	20,6	9,9	8,5
10	I continually increase my exercise frequency to achieve the desired effects/benefits	f	7	23	21	49	24	17
		%	5,0	16,3	14,9	34,8	17,0	12,1
11	I am unable to reduce how often I exercise	f	24	20	33	22	24	18
		%	17,0	14,2	23,4	15,6	17,0	12,8
12	I think about exercise when I should be concentrating on school/work	f	17	24	26	26	20	28
		%	12,1	17,0	18,4	18,4	14,2	19,9
13	I spend most of my free time exercising	f	22	22	32	29	27	9
		%	15,6	15,6	22,7	20,6	19,1	6,4
14	I exercise longer than I expect	f	15	32	41	20	21	12
		%	10,6	22,7	29,1	14,2	14,9	8,5
15	I exercise to avoid feeling tense	f	15	23	37	32	17	17
		%	10,6	16,3	26,2	22,7	12,1	12,1
16	I exercise despite persistent physical problems	f	19	24	36	25	16	21
		%	13,5	17,0	25,5	17,7	11,3	14,9
17	I continually increase my exercise duration to achieve the desired effects/benefits	f	15	23	33	26	27	17
		%	10,6	16,3	23,4	18,4	19,1	12,1
18	I am unable to reduce how intense I exercise	f	22	15	40	31	13	20
		%	15,6	10,6	28,4	22,0	9,2	14,2
19	I choose to exercise so that I can get out of spending time with family/friends	f	36	23	35	25	9	13
		%	25,5	16,3	24,8	17,7	6,4	9,2
20	A great deal of my time is spent exercising	f	21	35	37	24	14	10
		%	14,9	24,8	26,2	17,0	9,9	7,1
21	I exercise longer than I plan	f	14	28	40	20	20	19
		%	9,9	19,9	28,4	14,2	14,2	13,5

According to table 2; athletes are at the exercise addiction scale; at least 3.5% answered the third question “I continually increase my exercise intensity to achieve the desired effects/benefits” and at most 70.3% answered the 9th and 10th questions “I exercise when injured” and “I continually increase my exercise frequency to achieve the desired effects/benefits”.

Table 3. Mean overall score of exercise dependence scale.

Scala	n	Min	Max	Scala Score	Scala Value
Exercise Dependence Scale	141	26,00	107,00	71,41	3,40

According to table 3; when respondents' responses to the exercise addiction scale were examined, a minimum of 26.00 was found to be a maximum of 107.00 and an average score of 71.41. This scale was defined as symptomatic with a score of 3.40.

Table 4. Mean overall score of exercise dependence symptoms (Kruskall Wallis, Anova).

ExerDepSymp	n	%	$\bar{x}$	SD	F	p
Asymptomatic	5	3,5	34,00	0,40	150,882	,000*
Symptomatic	117	83,0	69,00	0,25		
Dependence	19	13,5	96,11	0,32		

* The mean difference is significant at the .05 level.

** The mean difference is significant at the .01 level.

According to table 4; when categorizing the exercise addiction averages of the participating participants, it was found that 5 athletes (3.5%) were asymptomatic-nondependent, 117 athletes (83.0%) were symptomatic-nondependent and 19 athletes (13.5%) were at-risk for exercise dependence. There was a significant difference between the symptoms of exercise dependence ($p < 0.05$).

Table 5. Comparison of mean overall score of exercise dependence symptoms with variables (Kruskall Wallis, Anova)

ExerDepSymp (I)	ExerDepSymp (J)	Mean Difference (I-J)	Std. Error	Sig.
Asymptomatic	Symptomatic	-35,00000(**)	2,66155	,000
	Dependence	-62,10526(**)	2,95126	,000
Symptomatic	Asymptomatic	35,00000(**)	2,66155	,000
	Dependence	-27,10526(**)	1,67145	,000
Dependence	Asymptomatic	62,10526(**)	2,95126	,000
	Symptomatic	27,10526(**)	1,67145	,000

* The mean difference is significant at the .05 level.

** The mean difference is significant at the .01 level.

According to table 5; the symptomatic group was significantly different from the asymptomatic group and the dependent group ($p < 0,01$).

Table 6. Comparison of mean overall score of exercise dependence symptoms with gender variables (Mann-Whitney U)

	ExerDepSymp	N	Mean Rank	U	p
Gender	Asymptomatic	5	44,00	2319	,845
	Symptomatic	117	72,92		
	Dependence	19	66,26		

* The mean difference is significant at the .05 level.

According to table 6; there was no significant difference between gender variables and exercise addiction scores ($p > 0,05$).

Table 7. Comparison of mean overall score of exercise dependence symptoms with variables (Kruskall Wallis, Anova)

	ExerDepSymp	N	Mean Rank	Chi-Square	p
Age	Asymptomatic	5	105,60	4,906	,086
	Symptomatic	117	70,18		
	Dependence	19	66,95		
Marital status	Asymptomatic	5	84,40	2,732	,255
	Symptomatic	117	72,14		
	Dependence	19	60,45		
Education level	Asymptomatic	5	100,90	3,249	,197
	Symptomatic	117	69,33		
	Dependence	19	73,42		
Job	Asymptomatic	5	71,50	0,034	,983
	Symptomatic	117	71,21		
	Dependence	19	69,55		
Sports branch	Asymptomatic	5	48,90	1,892	,388
	Symptomatic	117	72,06		
	Dependence	19	70,32		
Sports age	Asymptomatic	5	30,80	5,337	,069
	Symptomatic	117	72,53		
	Dependence	19	72,16		
Regular training	Asymptomatic	5	25,50	7,192	,027*
	Symptomatic	117	72,09		
	Dependence	19	76,26		
Weekly training day	Asymptomatic	5	33,40	5,743	,057
	Symptomatic	117	71,12		
	Dependence	19	80,16		
Number of daily workouts	Asymptomatic	5	42,50	11,023	,004**
	Symptomatic	117	75,53		
	Dependence	19	50,63		
Daily training time	Asymptomatic	5	75,90	0,095	,954
	Symptomatic	117	70,65		
	Dependence	19	71,84		
Physical appearance	Asymptomatic	5	86,90	1,863	,394
	Symptomatic	117	71,62		
	Dependence	19	63,03		
Cause of training	Asymptomatic	5	45,50	4,262	,119
	Symptomatic	117	69,97		
	Dependence	19	84,03		

* The mean difference is significant at the .05 level.

** The mean difference is significant at the .01 level.

According to table 7; when the averages of exercise dependence were compared with the variables, it was seen that there was a significant difference between regular training and daily training numbers ($p < 0.05$).

Table 8. Comparison of mean overall score of exercise dependence symptoms with variables differences (Post Hoc Test, Dunnet's T3)

Dependent Variable	ExerDepSymp (I)	ExerDepSymp (J)	Mean	Std. Error	Sig.
			Difference (I-J)		
Regular training	Asymptomatic	Symptomatic	-1,28205(**)	,12130	,000
		Dependence	-1,26316(**)	,22739	,000
	Symptomatic	Asymptomatic	1,28205(**)	,12130	,000
		Dependence	,01889	,25772	1,000
	Dependence	Asymptomatic	1,26316(**)	,22739	,000
		Symptomatic	-,01889	,25772	1,000
Number of daily workouts	Asymptomatic	Semptomatik	-,94017(**)	,11079	,000
		Dependence	-,15789	,08595	,221
	Semptomatik	Asymptomatic	,94017(**)	,11079	,000
		Dependence	,78228(**)	,14022	,000
	Dependence	Asymptomatic	,15789	,08595	,221
		Semptomatik	-,78228(**)	,14022	,000

* The mean difference is significant at the .05 level.

** The mean difference is significant at the .01 level.

Multiple comparisons were made to determine which group originated the difference. Variance in the regular training variant was found to be from the asymptomatic group ($p < 0.01$). According to the number of daily training, the difference was found to be due to the symptomatic group ($p < 0.01$). It was determined that participants who participated in the study did not have a statistically significant difference between the genders, age, exercise age, marital status, education level, sports branch, job, weekly training day, the daily exercise duration, physical appearance and cause of exercise compared to the total exercise addiction score ($p > 0,05$).

Table 9. Cross-comparison of gender variables and exercise dependence symptoms

			ExerDepSymp			
			Asymptomatic	Symptomatic	Dependence	Total
Gender	Male	Count	5	69	13	87
		% within	5,7%	79,3%	14,9%	100,0%
		% within EDS	100,0%	59,0%	68,4%	61,7%
	Female	Count	0	48	6	54
		% within	,0%	88,9%	11,1%	100,0%
		% within EDS	,0%	41,0%	31,6%	38,3%
Total	Count		5	117	19	141
	% within		3,5%	83,0%	13,5%	100,0%
	% within EDS		100,0%	100,0%	100,0%	100,0%

According to table 9; that shows cross table between gender and exerdepsymp and atios percentage in all the case. So that we note that the more people are class male and symptomatic reaching an in dependent 79.3% of the total.

Table 10. Cross-comparison of age variables and exercise dependence symptoms

			ExerDepSymp			Total
			Asymptomatic	Symptomatic	Dependence	
Age	18-22 age	Count	1	71	12	84
		% within Yas	1,2%	84,5%	14,3%	100,0%
		% within EDS	20,0%	60,7%	63,2%	59,6%
	23-27 age	Count	1	23	5	29
		% within Yas	3,4%	79,3%	17,2%	100,0%
		% within EDS	20,0%	19,7%	26,3%	20,6%
	28-32 age	Count	1	11	0	12
		% within Yas	8,3%	91,7%	,0%	100,0%
		% within EDS	20,0%	9,4%	,0%	8,5%
	33-37 age	Count	1	6	1	8
		% within Yas	12,5%	75,0%	12,5%	100,0%
		% within EDS	20,0%	5,1%	5,3%	5,7%
	38 age and over	Count	1	6	1	8
		% within Yas	12,5%	75,0%	12,5%	100,0%
		% within EDS	20,0%	5,1%	5,3%	5,7%
Total	Count		5	117	19	141
	% within Yas		3,5%	83,0%	13,5%	100,0%
	% within EDS		100,0%	100,0%	100,0%	100,0%

According to table 10; that shows cross table between age and exerdepsymp and ratios percentage in all the case. So that we note that the more people are class (18-22) age and symptomatic reaching an in dependent 84.5%% of the total.

Table 11. Cross-comparison of marital status variables and exercise dependence symptoms

			ExerDepSymp			Total
			Asymptomatic	Symptomatic	Dependence	
Marital Status	Single	Count	2	77	15	94
		% within	2,1%	81,9%	16,0%	100,0%
		% within EDS	40,0%	65,8%	78,9%	66,7%
	Married	Count	3	22	4	29
		% within	10,3%	75,9%	13,8%	100,0%
		% within EDS	60,0%	18,8%	21,1%	20,6%
	Divorced	Count	0	9	0	9
		% within	,0%	100,0%	,0%	100,0%
		% within EDS	,0%	7,7%	,0%	6,4%
	Widow	Count	0	9	0	9
		% within	,0%	100,0%	,0%	100,0%
		% within EDS	,0%	7,7%	,0%	6,4%
Total	Count		5	117	19	141
	% within		3,5%	83,0%	13,5%	100,0%
	% within EDS		100,0%	100,0%	100,0%	100,0%

According to table 11; that shows cross table between Marital Status and exerdepsymp and ratios percentage in all the case. So that we note that the more people are class Single and symptomatic reaching an in dependent 81.9% of the total.

Table 12. Cross-comparison of education level variables and exercise dependence symptoms

			ExerDepSymp			Total
			Asymptomatic	Symptomatic	Dependence	
Education Level	Primary school	Count	0	14	0	14
		% within	,0%	100,0%	,0%	100,0%
		% within EDS	,0%	12,0%	,0%	9,9%
	Secondary school	Count	0	13	0	13
		% within	,0%	100,0%	,0%	100,0%
		% within EDS	,0%	11,1%	,0%	9,2%
	High school	Count	1	42	12	55
		% within	1,8%	76,4%	21,8%	100,0%
		% within EDS	20,0%	35,9%	63,2%	39,0%
	Degree	Count	3	35	7	45
		% within	6,7%	77,8%	15,6%	100,0%
		% within EDS	60,0%	29,9%	36,8%	31,9%
	Graduate	Count	1	13	0	14
		% within	7,1%	92,9%	,0%	100,0%
		% within EDS	20,0%	11,1%	,0%	9,9%
Total	Count		5	117	19	141
	% within		3,5%	83,0%	13,5%	100,0%
	% within EDS		100,0%	100,0%	100,0%	100,0%

According to table 12; that shows cross table between education level and exerdepsymp and ratios percentage in all the case. So that we note that the more people are class high school and symptomatic reaching an in dependent 76.4% of the total.

Table 13. Cross-comparison of job variables and exercise dependence symptoms

			ExerDepSymp			Total
			Asymptomatic	Symptomatic	Dependence	
Job	Student	Count	2	64	12	78
		% within	2,6%	82,1%	15,4%	100,0%
		% within EDS	40,0%	54,7%	63,2%	55,3%
	Official	Count	2	15	1	18
		% within	11,1%	83,3%	5,6%	100,0%
		% within EDS	40,0%	12,8%	5,3%	12,8%
	Worker	Count	1	12	1	14
		% within	7,1%	85,7%	7,1%	100,0%
		% within EDS	20,0%	10,3%	5,3%	9,9%
	Unemployed	Count	0	21	2	23
		% within	,0%	91,3%	8,7%	100,0%
		% within EDS	,0%	17,9%	10,5%	16,3%
	Self-Employment	Count	0	5	3	8
		% within	,0%	62,5%	37,5%	100,0%
		% within EDS	,0%	4,3%	15,8%	5,7%
	Total	Count	5	117	19	141
		% within	3,5%	83,0%	13,5%	100,0%
		% within EDS	100,0%	100,0%	100,0%	100,0%

According to table 13; that shows cross table between job and exerdepsymp and ratios percentage in all the case. So that we note that the more people are class student and symptomatic reaching an in dependent 82.1% of the total.

Table 14. Cross-comparison of sports branch variables and exercise dependence symptoms

			ExerDepSymp			
			Asymptomatic	Symptomatic	Dependence	Total
Sports Branch	Kickboks	Count	4	64	8	76
		% within	5,3%	84,2%	10,5%	100,0%
		% within EDS	80,0%	54,7%	42,1%	53,9%
	Taekwondo	Count	1	17	10	28
		% within	3,6%	60,7%	35,7%	100,0%
		% within EDS	20,0%	14,5%	52,6%	19,9%
	Muaytai	Count	0	36	1	37
		% within	,0%	97,3%	2,7%	100,0%
		% within EDS	,0%	30,8%	5,3%	26,2%
	Total	Count	5	117	19	141
% within		3,5%	83,0%	13,5%	100,0%	
% within EDS		100,0%	100,0%	100,0%	100,0%	

According to table 14; that shows cross table between sports branch and exerdepsymp and ratios percentage in all the case. So that we note that the more people are class Kick box and symptomatic reaching an in dependent 84.2% of the total.

Table 15. Cross-comparison of sports branch variables and exercise dependence symptoms

			ExerDepSymp			Total
			Asymptomatic	Symptomatic	Dependence	
Sports Age	1-2 year	Count	4	37	4	45
		% within	8,9%	82,2%	8,9%	100,0%
		% within EDS	80,0%	31,6%	21,1%	31,9%
	3-4 year	Count	1	26	6	33
		% within	3,0%	78,8%	18,2%	100,0%
		% within EDS	20,0%	22,2%	31,6%	23,4%
	5-6 year	Count	0	22	6	28
		% within	,0%	78,6%	21,4%	100,0%
		% within EDS	,0%	18,8%	31,6%	19,9%
	7-8 year	Count	0	8	2	10
		% within	,0%	80,0%	20,0%	100,0%
		% within EDS	,0%	6,8%	10,5%	7,1%
	9 year and over	Count	0	24	1	25
		% within	,0%	96,0%	4,0%	100,0%
		% within EDS	,0%	20,5%	5,3%	17,7%
Total	Count		5	117	19	141
	% within		3,5%	83,0%	13,5%	100,0%
	% within EDS		100,0%	100,0%	100,0%	100,0%

That shows cross table between sports age and exerdepsymp and ratios percentage in all the case. So that we note that the more people are class 1-2 years and symptomatic reaching an in dependent 82.2% of the total.

Table 16. Cross-comparison of regular training variables and exercise dependence symptoms

			ExerDepSymp			Total
			Asymptomatic	Symptomatic	Dependence	
Regular Training	1-2 year	Count	5	42	3	50
		% within	10,0%	84,0%	6,0%	100,0%
		% within EDS	100,0%	35,9%	15,8%	35,5%
	3-4 year	Count	0	32	11	43
		% within	,0%	74,4%	25,6%	100,0%
		% within EDS	,0%	27,4%	57,9%	30,5%
	5-6 year	Count	0	25	3	28
		% within	,0%	89,3%	10,7%	100,0%
		% within EDS	,0%	21,4%	15,8%	19,9%
	7-8 year	Count	0	4	1	5
		% within	,0%	80,0%	20,0%	100,0%
		% within EDS	,0%	3,4%	5,3%	3,5%
	9 year and over	Count	0	14	1	15
		% within	,0%	93,3%	6,7%	100,0%
		% within EDS	,0%	12,0%	5,3%	10,6%
Total	Count		5	117	19	141
	% within		3,5%	83,0%	13,5%	100,0%
	% within EDS		100,0%	100,0%	100,0%	100,0%

That shows cross table between regular training and exerdepsymp and ratios percentage in all the case. So that we note that the more people are class 1-2 years and symptomatic reaching an in dependent 84.0% of the total.

Table 17. Cross-comparison of weekly training day variables and exercise dependence symptoms

			ExerDepSymp			Total
			Asymptomatic	Symptomatic	Dependence	
Weekly training day	Irregular	Count	3	23	2	28
		% within	10,7%	82,1%	7,1%	100,0%
		% within EDS	60,0%	19,7%	10,5%	19,9%
	1-2 day	Count	1	21	2	24
		% within	4,2%	87,5%	8,3%	100,0%
		% within EDS	20,0%	17,9%	10,5%	17,0%
	3-4 day	Count	1	49	11	61
		% within	1,6%	80,3%	18,0%	100,0%
		% within EDS	20,0%	41,9%	57,9%	43,3%
	5-6 day	Count	0	13	3	16
		% within	,0%	81,3%	18,8%	100,0%
		% within EDS	,0%	11,1%	15,8%	11,3%
	7 day	Count	0	11	1	12
		% within	,0%	91,7%	8,3%	100,0%
		% within EDS	,0%	9,4%	5,3%	8,5%
Total	Count		5	117	19	141
	% within		3,5%	83,0%	13,5%	100,0%
	% within EDS		100,0%	100,0%	100,0%	100,0%

That shows cross table between weekly day and exerdepsymp and ratios percentage in all the case. So that we note that the more people are class 3-4year and symptomatic reaching an in dependent 80.3% of the total.

Table 18. Cross-comparison of number of daily workouts variables and exercise dependence symptoms

			ExerDepSymp			Total
			Asymptomatic	Symptomatic	Dependence	
Number of daily workouts	1 training	Count	5	63	16	84
		% within	6,0%	75,0%	19,0%	100,0%
		% within EDS	100,0%	53,8%	84,2%	59,6%
	2 training	Count	0	16	3	19
		% within	,0%	84,2%	15,8%	100,0%
		% within EDS	,0%	13,7%	15,8%	13,5%
	3 training	Count	0	26	0	26
		% within	,0%	100,0%	,0%	100,0%
		% within EDS	,0%	22,2%	,0%	18,4%
	4 training	Count	0	6	0	6
		% within	,0%	100,0%	,0%	100,0%
		% within EDS	,0%	5,1%	,0%	4,3%
	5 training and over	Count	0	6	0	6
		% within	,0%	100,0%	,0%	100,0%
		% within EDS	,0%	5,1%	,0%	4,3%
Total	Count		5	117	19	141
	% within		3,5%	83,0%	13,5%	100,0%
	% within EDS		100,0%	100,0%	100,0%	100,0%

That shows cross table between number of daily workouts and exerdepsymp and ratios percentage in all the case. So that we note that the more people are 1 training and symptomatic reaching an in dependent 75.0% of the total.

Table 19. Cross-comparison of daily training time variables and exercise dependence symptoms

			ExerDepSymp			
			Asymptomatic	Symptomatic	Dependence	Total
Daily training time	Less than 30m	Count	0	16	0	16
		% within	,0%	100,0%	,0%	100,0%
		% within EDS	,0%	13,7%	,0%	11,3%
	30-60 m	Count	1	19	4	24
		% within	4,2%	79,2%	16,7%	100,0%
		% within EDS	20,0%	16,2%	21,1%	17,0%
	60-90 m	Count	2	40	9	51
		% within	3,9%	78,4%	17,6%	100,0%
		% within EDS	40,0%	34,2%	47,4%	36,2%
	90-120 m	Count	2	28	6	36
		% within	5,6%	77,8%	16,7%	100,0%
		% within EDS	40,0%	23,9%	31,6%	25,5%
	120 m and over	Count	0	14	0	14
		% within	,0%	100,0%	,0%	100,0%
		% within EDS	,0%	12,0%	,0%	9,9%
Total	Count		5	117	19	141
	% within		3,5%	83,0%	13,5%	100,0%
	% within EDS		100,0%	100,0%	100,0%	100,0%

That shows cross table between daily training time and exerdepsymp and ratios percentage in all the case. So that we note that the more people are class 60-90 minute and symptomatic reaching an in dependent 78.4% of the total.

Table 20. Cross-comparison of physical appearance variables and exercise dependence symptoms

			ExerDepSymp			
			Asymptomatic	Symptomatic	Dependence	Total
Physical appearance	Yes	Count	1	60	11	72
		% within	1,4%	83,3%	15,3%	100,0%
		% within EDS	20,0%	51,3%	57,9%	51,1%
	Partially	Count	4	42	8	54
		% within	7,4%	77,8%	14,8%	100,0%
		% within EDS	80,0%	35,9%	42,1%	38,3%
	No	Count	0	15	0	15
		% within	,0%	100,0%	,0%	100,0%
		% within EDS	,0%	12,8%	,0%	10,6%
Total	Count		5	117	19	141
	% within		3,5%	83,0%	13,5%	100,0%
	% within EDS		100,0%	100,0%	100,0%	100,0%

That shows cross table between physical appearance and exerdepsymp and ratios percentage in all the case. So that we note that the more people are class (yes) and symptomatic reaching an in dependent 83.3% of the total.

Table 21. Cross-comparison of cause of training variables and exercise dependence symptoms

Cause of training	of Like		Count	Asymptomatic	ExerDepSymptomatic	Dependence	Total
				1	9	3	13
		Like	% within	7,7%	69,2%	23,1%	100,0%
			% within EDS	20,0%	7,7%	15,8%	9,2%
			Count	1	28	1	30
	To feel good		% within	3,3%	93,3%	3,3%	100,0%
			% within EDS	20,0%	23,9%	5,3%	21,3%
			Count	3	35	3	41
	Being healty		% within	7,3%	85,4%	7,3%	100,0%
			% within EDS	60,0%	29,9%	15,8%	29,1%
			Count	0	37	10	47
	Succeed		% within	,0%	78,7%	21,3%	100,0%
			% within EDS	,0%	31,6%	52,6%	33,3%
			Count	0	6	1	7
	Material gain		% within	,0%	85,7%	14,3%	100,0%
			% within EDS	,0%	5,1%	5,3%	5,0%
			Count	0	2	1	3
	Other		% within	,0%	66,7%	33,3%	100,0%
			% within EDS	,0%	1,7%	5,3%	2,1%
			Count	5	117	19	141
Total			% within	3,5%	83,0%	13,5%	100,0%
			% within EDS	100,0%	100,0%	100,0%	100,0%
			Count	5	117	19	141

That shows cross table between causeof training and exerdepsymp and ratios percentage in all the case. So that we note that the more people are class succeed and symptomatic reaching an in dependent 78.7% of the total.

6. DISCUSSION

The aim of this study is to examine the symptom of exercise dependence in healthy individuals who regularly go to sport center at least 2 or 3 days a week. A total of 141 people, 87 male and 54 female which was like that; 28 taekwondo, 76 kickboxing and 37 Muaythai participated in the study.

In this study, 59.6% of male respondents, 59.6% in the 18-22 age range, the 66.7% single, 39.0% the high school level, 53.9% of the Kickboxing athletes, 55.3% students of nudes, 31.9% have 1-2 years of sports age, 66.0% have regular exercise, 43.3% have 3 to 4 days of training per week and 59.6% have only one day of training. 36.2% of the participants were training for 60-90 minutes, 51.1% were satisfied with the physical appearance, and 62.4% were trained to be healthy and to be successful.

When respondents' responses to the exercise addiction scale were examined, a minimum of 26.00 was found to be a maximum of 107.00 and an average score of 71.41. This scale was defined as symptomatic with a score of 3.40.

When the averages of exercise dependence were compared with the variables, it was seen that there was a significant difference between regular training and daily training numbers ($p < 0.05$). Multiple comparisons were made to determine which group originated the difference. Variance in the regular training variant was found to be from the asymptomatic group ($p < 0.01$). According to the number of daily training, the difference was found to be due to the symptomatic group ($p < 0.01$).

It was determined that participants who participated in the study did not have a statistically significant difference between the genders, age, exercise age, marital status, education level, sports branch, job, weekly training day, the daily exercise duration, physical appearance and cause of exercise compared to the total exercise addiction score ($p>0,05$).

When categorizing the exercise addiction averages of the participating participants, it was found that 5 athletes (3.5%) were asymptomatic-nondependent, 117 athletes (83.0%) were symptomatic-nondependent and 19 athletes (13.5%) were at-risk for exercise dependence.

Exercise dependence is not a frequently observed phenomenon, as noted in previous studies. These studies show that the rate of exercise addiction is between 3-12% (14,43,44). Zırhlıoğlu (2011) did not observe exercise-related symptoms in the study(45).

Although the incidence of exercise dependence symptom is low in the study groups, it is observed that this symptomatic group is high in a risk of dependence in the exercise dependency classification, and it is supported by findings of this study and previous studies (56-82.9%) (14,30,43,44,45).

Based on these findings, it is possible to say that the risk of exercise dependence is high in individuals exercising regularly.

In this study participants that make living shape mostly (55%) have a high school level education and (55,3%) student of job. When evaluated in terms of exercise dependence, they are usually symptomatic (83,0%). If education of individuals who exercise is reviewed, Amedaki findings show that most of the individuals are educated (43,45).

In this study, individuals who exercise regularly (%52,1), middle-income and socio-economic terms who have an exercise addiction (%47,1) are determined to be among symptomatic level. Similar findings were found in Bavli et al. In addition, it has been determined that the participants are included in the professions that can be defined as private sector. In this case, the private sector comparing to other occupational groups showed that they could spend more time together. Individuals who exercise to get rid of the stress of exercise may prefer etmiğ as a tool they can use to socialization (43).

It has been determined that the reason for exercising by individuals participating in the study is generally (%27,3) healthy lifestyles. A similar finding was also found in Zırhlioğlu (2011) study. This finding may explain why participants choose to exercise regularly on healthy living demands. In this study, it has been determined that the individuals exercising regularly exercise mostly in the condition (66,0%) and kickboks (53,9%). In similar studies, it was determined that the participants preferred to exercise regularly in the football type (38.3%) (45), and in the sports halls they prefer exercise in the type of running, jogging and weight lifting (43).

In a similar study, Davis et al. (1993) found that there was no significant difference in BMD between men and women, but a high positive correlation between exercise weight (25). Furst and Germone (1993) found no difference between genders in terms of exercise dependence(46). In another study Pierce et al (1997) found that females had a higher score of exercise dependence than males. However, there was no gender difference in exercise frequency in the same study (24).

As a result of this study, it was determined statistically different ($7 \pm 0,1$ days, $4 \pm 0,1$ hours, $16 \pm 5,65$ years) in terms of exercise frequency, daily exercise duration and exercise age variables of dependent group. The group with the symptom of exercise dependence had a statistically higher frequency of weekly exercise than the other groups ($7 \pm 0,1$ days), daily exercise time ($4 \pm 0,1$ hours) and exercise life ($16 \pm 5,65$ years). Studies have supported this finding and have produced results (43,45,47).

As a result of this study, 19 of participant were dependence, 117 of participant was symptomatic and 5 of participants were asymptomatic. In addition there were significant differences between dependence group and other groups according to total scale point. Besides it is found that there were significant difference between symptomatic group and other groups according to regular training. It is found that there were significant difference between asymptomatic group and other groups according to number of daily workouts. It is possible to say that; regular training can be effective to appear the exercise dependence.

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8. ADDS

Ek-1: Questionnaire Form

Personal Information Form

Dear participant,

The research called " Investigation the effects of participation Kickboxing, Taekwondo and Muaytai training on exercise dependence" was carried out by Bootan Sadeq, a graduate student at Firat University Institute of Health Sciences Physical Education and Sports, Assoc. Dr. It is a master thesis research conducted by Serdar Orhan's thesis advisor.

In this study, it was aimed to reveal the exercise addiction levels of the individuals who practice Kickbox, Taekwondo and Muaytai. Your information will be of great scientific value. For this purpose, you will be asked some questions. You are expected to answer these questions with open heart. The answers we receive from you will not be used anywhere but this research. Moreover, no judicial conclusions about the individual will be made from the responses obtained.

Participation in research is voluntary. Once you have participated in the survey, you are completely free to withdraw from the survey at any time. To ensure privacy in research, please do not write your name and other personal information on this form.

Bootan Sadeq
Graduate Student

Exercise Dependence Scale-21

Instructions. Using the scale provided below, please complete the following questions as honestly as possible. The questions refer to current exercise beliefs and behaviors that have occurred in the past 3 months. Please place your answer in the blank space provided after each statement.

1	2	3	4	5	6
Never					Always

1. I exercise to avoid feeling irritable. _____
2. I exercise despite recurring physical problems. _____
3. I continually increase my exercise intensity to achieve the desired effects/benefits. _____
4. I am unable to reduce how long I exercise. _____
5. I would rather exercise than spend time with family/friends. _____
6. I spend a lot of time exercising. _____
7. I exercise longer than I intend. _____
8. I exercise to avoid feeling anxious. _____
9. I exercise when injured. _____
10. I continually increase my exercise frequency to achieve the desired effects/benefits. _____
11. I am unable to reduce how often I exercise. _____
12. I think about exercise when I should be concentrating on school/work. _____
13. I spend most of my free time exercising. _____
14. I exercise longer than I expect. _____
15. I exercise to avoid feeling tense. _____
16. I exercise despite persistent physical problems. _____
17. I continually increase my exercise duration to achieve the desired effects/benefits. _____
18. I am unable to reduce how intense I exercise. _____
19. I choose to exercise so that I can get out of spending time with family/friends. _____
20. A great deal of my time is spent exercising. _____
21. I exercise longer than I plan. _____

Ek-2: INFORMED VOLUNTARY FORM

Dear Athlete;

The use of scientific methods is important in understanding and increasing the performance limits of the athlete in each sport. This research will be conducted for the purpose of "Investigation the effects of participation Kickboxing, Taekwondo and Muaytai training on exercise dependence".

(Researcher's Declaration)

Participation in the study is based on volunteerism. If you want to participate in the investigation after reading and understanding the explanations given before your decision, sign the form. An example of the Informed Consent Form you have signed will be given to you. As soon as you inform the responsible worker, you can exit at any time without this work. If you do not agree to participate in the work, there will be no disruption. Do not hesitate to consult your doctor about any work and documentation related to the study.

You will not be charged any fees to participate in this study. No additional payment will be made to you for participating in the study. Information about you will be kept confidential, but only if required by the officials, ethics committees or public authorities that supervise the quality of the work. You can refuse to participate in this work. Participation in this research is entirely voluntary. You also have the right to appeal at any stage of your work. You also have the right to leave at any stage of the work without working. You can reach Bootan SADEQ on 0545 5225998 by phone for your questions.

(Participant's Statement)

Mr. Bootan SADEQ informed me of the above information about this research, which will be done by Firat University Physical Education and Sports Department. After this information I was invited to participate in such a research as a "participant". I have a thorough understanding of the purpose and nature of the work, possible risks and disturbances, and I fully understand them. If I take part in this research, I believe that the confidentiality of my information that must be kept with the researcher is treated with great care and respect during this research. I am confident that my personal information will be preserved with care during the use of research results for educational and scientific purposes.

I can get out of the study without any reason during the execution of the research. (I am aware that it would be appropriate for me to notify in advance that I will withdraw without research to keep researchers in a difficult situation). I do not have any financial responsibility for the expenditures for the research. No payment will be made to me. I do not have to participate in this research and I may not agree. I have not experienced any compelling behavior in participating in the investigation. I have full understanding of all the explanations made to me. I took the decision to participate as a "participant" (subject) in this research, which was at the end of a certain period of thinking. I accept the invitation in this regard with great satisfaction and volunteerism. A copy of this signed paper will be given to me.

(I agree to voluntarily participate in the investigation.)

Participant interview witness

Name, surname:

Address:

Phone:

Signature:

Researcher:

Bootan SADEQ

Graduate Student

Firat University Sports Sciences Faculty

0545 5225998 151301112@firat.edu.tr

Signature:

9. AUTOBIOGRAPHY

My name is Botan Jawhar Sadiq. I was born in 1986 Erbil. I graduated at Physical Education Department from Salahaddin University in 2007. I am working as a head assistant of high school now and I have 8 years of experience as a teacher. Furthermore I have achieved many rewards on the level of educations. I was a coach of young man and woman basketball and track and field teams. Then I have worked as a referee for three years. I am a coach of Chihan sport team and also coach of sports and youth center. Lastly I like reading books, traveling and voluntary.