

Effect of Eight-week Exercise Program on Social Physique Anxiety Conditions in Adult Males

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Abstract

Physiological changes occurring with physical activity have played role in appearance of a different field of study. Thus, examination of the effect of eight-week exercise program on SPA in adult males forms the purpose of the study. 20 sedentary males aged 18-25 voluntarily participated in the research. Volunteers were applied resistance exercise at a severity of 40-60% for eight weeks. All participants were made to fill out Social Physique Anxiety Scale (SPAS) 8 weeks before starting and after the exercises. SPSS package program (version 15.0) and wilcoxon signed-rank test of non-parametric tests were used in data analysis. Changes, which occurred in strength following eight-week exercise program, were found to be statistically significant at levels varying from $p \leq 0.05$ to $p \leq 0.01$ in various movements used in the exercise. A difference at a rate of $p \leq 0.05$ occurred in body weight. A statistically significant difference occurred before and after the eight-week exercise according to SPAS survey data of the participants ($P \leq 0.05$). As a consequence, it is possible to state that the exercise program we applied had positive effect on strength. In addition, the positive difference which occurred when SPAS preliminary and final data were compared can be considered together with the increase in strength and hence, physical appearances.

Keywords: social physique anxiety, sedentary, exercise

1. Introduction

In recent years, psychological characteristics concerning the body such as satisfaction of person of his own body and his concerns about his appearance, as well as relation of such psychological characteristics with participation in physical activity have often been handled by researchers (Ballı, & Aşçı, 2006). Negative opinions of others related to physical appearances of individuals, which exist or are considered to exist, as well as the pressures brought by the sense of ideal physique of society can cause them to become distant from exercise, which would contribute to their physical development and reduce their negative opinions about their own physical appearances (Brunet, & Sabiston, 2009). "There is a direct interrelation between the physiological capacity mechanisms and the practice level of physical exercise, which is influenced by a series of factors, of which environment and its characteristics are the most important" (Badau, Ungur, & Badau, 2015). As being not content with physical appearance is a positive factor increasing participation in physical activity, it may also be a reason for not participating in physical activity in order not to be subject to negative evaluations that may be experienced due to physical appearance. Thus, SPAS is one of the psychological factors required to be examined in exercise environments, and thus, concern due to physical appearance has recently become a popular subject of research for researchers in the area of sport and exercise psychology.

Social Physique Anxiety (SPA) concept is located within the self-representation theory, which is the attempt of individual to control his behaviours and to adjust his appearance before others (Arabacı, Kuter, & Doğan, 2008). A thin physical structure in women, and muscular body structure in men, which have become a socially accepted value, are reflected as a cultural value in commercials, magazine and TV programs, and the ideal physical structure adopted can often get ahead of the individual's opinions, behaviours and successes (Pekdağ & Coşkın, 2010). These values created in the society related to physical appearance create pressure on individuals with regards to reaching unrealistic physical standards (Hausenblas & Mack, 1999) and when individuals go beyond these standards, they can have wrong emotions and opinions that their appearances are not liked by others, and are concerned with evaluation of their bodies by others (Hart, Leary & Rejeski, 1989). Creation of the individual's sense of body starts upon end of childhood and entering puberty, and is in continuous change and development throughout life (Harris, 1987). This change and development occurs under the influence of difference variables. Along with the personality traits of individual, social expectation, that is the value given by society to appearance of the body, has also great effect on the sense of body (Ergür, 1996).

Adolescents, who do not know what change will take place in their bodies, experience conflicts with the effect of ideal body designs and their senses of body are distorted. Distortions in the individual's sense of body in puberty period also affect his sense of body in his future life (Uğurlu & Akın, 2008). In addition to the emotions, opinions and behaviours belonging to the individual himself, sense of body has also loaded important functions related to his interaction with his environment. When considered in this context, negative imaginations in both cognitive and emotional terms loaded by the individual to his body also affect his communication with himself as well his environment negatively. While individuals are interested with their own body appearances, they are interested in body appearances of others as well. The belief that the opposite party does the same thing is another factor that causes anxiety (Aşçı, Tüzün & Koca, 2006). Social physique anxiety includes two subtitles. They are the individual's being uncomfortable with his physical appearance, and the expectation of his physical appearance being negatively evaluated by others. These two conditions create social anxiety in individuals (Doğan, Sapmaz & Totan, 2011). Individuals with social physique anxiety have the expectation that others will negatively evaluate their body (Ballı, & Aşçı, 2006). Such negative expectations developed create anxiety (Dilbaz, 2000).

When approaches related to social physique anxiety are examined, cognitive behavioural method draws attention: Individual has expectations that he himself as well as other individuals evaluate his physical appearance negatively. Individuals even tend to evaluate their bodies more negatively with the effect of the anxiety they experience (Russell, 2002). Cognitive behavioural approach will be effective in restructuring of such beliefs. In cognitive behavioural approach unrealistic opinions are identified, and conditions that create anxiety in individual are stated to be his expectations and interpretations related to the situation, in which he is not himself. In recent years, psychological characteristics concerning the body such as satisfaction of person of his own body and his concerns about his appearance, as well as relation of such psychological characteristics with participation in physical activity have often been handled by researchers (Ballı, & Aşçı, 2006). Negative opinions of others related to physical appearances of individuals, which exist or are considered to exist, as well as the pressures brought by the sense of ideal physique of society can cause them to become distant from exercise, which would contribute to their physical development and reduce their negative opinions about their own physical appearances (Brunet, & Sabiston, 2009). As being not content with physical appearance is a positive factor increasing participation in physical activity, it may also be a reason for not participating in physical activity in order not to be subject to negative evaluations that may be experienced due to physical appearance. Thus, SPAS is one of the psychological factors required to be examined in exercise environments, and thus, concern due to physical appearance has recently become a popular subject of research for researchers in the area of sport and exercise psychology.

Self-presentation is an important factor of interpersonal behaviour. It affects the individual's social life, work and private relations. Behaviour is an important determinant of cognition and affect in the area of exercise and sport as well. Visual-cognitive components are realized in line with a specific purpose also in tests related to exercise (Akyüz, Uzaldi, Akyüz, Ö & Dođru, 2016). Named as impression management, this concept spreads into every area of individual. Individual tries to create the impression he desires in various environmental and social surroundings such as job interview, school environment, shopping, a social meeting, being with a very physically beautiful or handsome person, and having eyes on him in a place where exercise or sport is made. In addition, people, who care about how others perceive them in terms of situational norms, have concerns regarding social approval or non-approval, and since evaluations of others affect persons, the way their physical appearances is evaluated can be a problem. Within this concept, Leary (1992) named "Social Physique Anxiety" the emotional reaction, which causes anxiety regarding how the bodies of individuals are judged within the frame of the self-presentation concept (Koca, & Aşçı, 2006).

Social physique anxiety, which claims that humans have a natural motivation towards establishing a positive impression in the eyes of others, and theoretical foundations of which are based on the theories of self-presentation and impression management, are claimed to appear also in cases where people think they are insufficient in establishing the image they desire in the eyes of others in terms of their physical appearances (Hagger & Stevenson, 2010). The most important thing to do to be able to motivate people is to determine their needs (Akyüz, Ađar, Akyüz, Ö & Dođru, 2016). In studies performed based on the self-presentation theory in particular, it has been emphasized that social physique anxiety is closely associated with various physiological and behavioural factors such as physical dissatisfaction (Crawford & Eklund, 1994), eating attitudes, avoiding from behaviours related to health (Leary, Tchividjian & Kraxberger, 1994), and low self-esteem (Kowalski, Crocker & Kowalski, 2001).

2. Method

2.1 Participants Selection

This study was performed with participation of 20 sedentary male individuals aged 18-25. Voluntary participants of the study were determined through leaflets and face-to-face interviews. Criteria for involvement in the study are the fact

that they have not dealt with sports before, and are male aged between 18 and 25. The study was conducted in accordance with the principles of Helsinki Declaration.

2.2 Study Design

Exercise program in our study was executed at sports hall. Strength machines were used while executing the exercise program. Jimsa (Turkey) brand resistance machines and dumbbells were used in chest press, seated row, shoulder press, triceps extension, leg extension, left curl, abduction, adduction biceps curl and stations. Participants were made to do resistance exercise for approximately 1 hour a day, 3 days a week for 8 weeks. "Social Physique Anxiety Scale" (SPAS) composed of 12 articles, which was developed by Hart et al, (1989), was filled out before and after 8 weeks.

2.3 Strength Measurements

Before applying strength exercise on participants for approximately 1 hour a day, 3 days a week for 8 weeks, a workout phase, which covers the exercises to be used with low weights (30%, 10 repetitions, 2 days a week) within the scope of anatomic adaptation, was applied for 2 weeks. Throughout this phase, participants were given training on correct grip, correct inhaling, and lifting weight with correct technique. Individual training loads of the participants, whose anatomic adaptation was ensured, were determined by projecting their 1 TM loads using 10 Repetition Maximum (RM) method. Participants, who worked out with such loads determined for the first 4 weeks of the resistance training program (3 sets, 12 repetitions in 40% of estimated 1 TM), were subjected to strength measurement again in order to detect the new loads when the 5th week of the training was reached. By detecting the new approximate 1 TM level of each participant, new loads were calculated accordingly and registered in training cards (3 sets, 12 repetitions in 60% of estimated 1 TM).

2.4 Measurement of Social Physique Anxiety Scale

12-article SPAS was developed by Hart et al (1989) in order to determine the social physique anxiety levels of individuals. Articles in the inventory are replied using five-point scale (completely wrong, generally wrong, sometimes wrong, sometimes correct, usually correct, completely correct). The lowest point that can be received from the inventory is 12, and the highest is 60. The higher point a person receives from SPAS, the higher the level of anxiety from his appearance becomes. Articles 1, 2, 5, 8 and 11 are graded in reverse. Studies performed (Eklund, Mack, & Hart, 1996) reveal that SPAS is composed of two sub-dimensions, being physical appearance comfort (person feeling discomfort regarding his physical appearance) and expectation to be negatively evaluated (expectation that his physique will be negatively evaluated by others). Validity and reliability study of this tool for the Turkish population was performed by Ballı & Aşçı (2004).

2.5 Data Analysis

Data were analysed using SPSS package program (version 15.0) with nonparametric test. The differences between pre-test and post-test intervention were determined by using the wilcoxon signed-rank test. Statistical significance was defined at $p < 0.05$ level.

3. Results

Table 1. General characteristics of participants at baseline

Parameters	N	Min-Max	X	SD
Age (yr)	20	18-25	22.57	3.25
Height (cm)	20	168-185	172.1	2.14
Body weight (kg)	20	65.2-82.1	70.1	6.18

Table 2. Changes in pre-exercise and post-exercise characteristics of participants

Parameters	Pre-Exercise		Post-Exercise		P
	X	SD	X	SD	
Body weight (kg)	70.1	6.18	64.98	9.7	.05
Chest Press	25.3	4.04	35.5	2.75	.02
Stead Row	46.2	4.14	53.11	1.49	.02
Shoulder Press	20.26	4.93	28.21	3.35	.05
Triceps Extension	16.25	6.83	22.7	2.42	.05
Biceps Curl	15.2	5.6	25.58	1.87	.01
Leg Extension	40.4	5.75	53.2	7.35	.01
Leg Curl	26.3	6.22	33.45	4.2	.05
Abduction	35.1	9.27	42.25	8.41	.02
Adduction	46.85	8.55	53.22	7.52	.02

$p \leq 0.05$

Definitive statistics of the participants are shown in Table 1. Pre-exercise arithmetic mean, standard deviation, and

minimum and maximum values of all parameters are provided. Data of 20 volunteers were used in analyses. Rate of participation in the training program occurred at 100% for exercise groups since participants were motivated very well throughout the study. Changes, which occurred in strength were found to be statistically significant at levels varying from $p \leq 0.05$ to $p \leq 0.01$ in various movements used in the exercise. A significant difference at a rate of $p \leq 0.05$ occurred in body weight (Table 2).

SPAS survey data of the participants are shown in Table 3. A statistically significant difference occurred before and after the eight-week exercise.

Table 3. Changes in Social Physique Anxiety Scale (SPAS) of participants

Parameters	Minimum	Maximum	X	SD	P
Pre-Exercise	19.00	36.00	26.4	4.54	.05
Post-Exercise	24.00	36.00	30.1	4.12	

$P \leq 0.05$

4. Discussion

Studies performed on exercise mostly focused on SPAS and exercise behaviour. Some of these studies found positive or negative relation between SPAS and participation in exercise, while some did not. These inconsistent results have brought with it the probability that factors such as gender, age and depression can be effective in the relation between SPAS and exercise (Tenenbaum, & Eklund, 2007). For instance, while a negative relation was found between SPAS and participation in exercise in youth, no such relation was found in adults (Lantz, Hardy, & Ainsworth, 1997; Treasure, Lox, & Lawton, 1998) However, it has been claimed that SPAS level in adult women participating in exercise can be related to self-presentation. While a negative relation was observed in a study between SPAS and physical activity level in adult women who have middle and high level of self-presentation, no relation was found between physical activity level and SPAS level in women having low self-presentation (Wininger, 2007). In our study, a significant difference occurred in SPAS as a result of the exercise program applied. It is possible to state that the exercise program applied by our participants affected their social physique anxiety conditions positively.

Many researchers have found a high level of relation between participation in exercise and SPAS (Hausenblas, & Fallon, 2006; Hausenblas, Brewer, & Van Raalte, 2004; Koca, & Aşçı, 2006). Ballı, & Aşçı, (2006) have stated that individuals with high SPAS level exercise more than the individuals with low SPAS level. On the other hand, Koca & Aşçı (2006) have revealed that individuals avoid from exercise since they are afraid of being evaluated by others during exercise. Lantz & Hardy (1997) have stated that people with high SPAS level avoid from exercises, which prioritize the body (including aerobic exercises that may be beneficial for them), and try to change their physical appearances through harmful means (such as diets that cause rapid weight loss) (Hart, Leary, & Rejeski, 1989). In accordance with such approaches, Frederick and Morrison (1996) have observed high level of SPAS in those who do not exercise, and those who over-exercise. Contrary to these findings, several recent studies have stated that participation in exercise is not associated with SPAS (Aşçı, Tüzün, & Koca, 2006; Ballı & Aşçı, 2004). Considering such contradictory information on the direction of the relation between SPAS and exercise behaviour, it is claimed that body perception can be a very important variant that determines the direction of this relation. It is considered that SPAS may not be effective in tendency towards exercise in persons who are satisfied with their body, while in case of being dissatisfied with one's body, the relation between SPAS and tendency towards exercise would be observed more clearly (Atalay, & Gençöz, 2008). A similar relation is also seen in nutrition behaviour. Sabiston, Sedgwick, Crocker, Kowalski, & Mack (2007) have detected that both nutrition and exercise are highly associated with controlling SPAS. In studies investigating the relation between SPAS and exercise behaviour, place of exercise, exercise method, clothes worn during exercise as well as persistency in participation in exercise and various psychological characteristics are also investigated. Studies performed have shown that those with high SPAS level tend to participate in physical activity alone rather than in crowded environments. Calogero (2004) has claimed that exercising in a private place such as home ensures the required solitude and reduces the potential of negative evaluation of the type experienced by those with high SPAS. Eklund & Crawford (1994) have revealed that individuals with high SPAS level have low rate of participation in exercise with others, and are reluctant to engage in social environments occupied by others. Crawford & Eklund (1994) found in a study they performed among university student women that exercise environments, which emphasize physical appearance or do not prioritize physical appearance, are significantly associated with SPAS. Brewer, Diehl, Cornelius, Joshua, & Van Raalte (2004) have stated that when a participant of exercise with high SPAS joins a sport group in a public place, he often prefers a place such as the rearmost part of the class or gym, where physical evaluations would be minimum. In parallel with these findings, it was concluded that those with high SPAS level have low tendency to continue physical activity, while those with low SPAS level have high tendency to continue physical activity (Finkenbergh, DiNucci, McCune, Chenette, & McCoy, 1998; Frederick & Morrison 1996; Lantz, & Hardy, 1997). In another study observed positive effects of walking exercises on body composition (Doğru, Büyükyazı, Ulman, Taneli,

Tıkız, Göral, & Esen, 2016). It is possible to state that the exercise program we applied in our study had positive effect on strength. It can be said that the positive changes that occurred in strength caused the difference between SPAS preliminary and final evaluations.

5. Conclusion

Being dissatisfied with physical appearance can create anxiety in individuals. When considered in terms of genders, men in particular give importance to their physical appearances. Hence, SPAS is one of the psychological factors requiring examination, therefore it is possible to state that the exercise program we applied on male sedentary participants aged 18-25 for eight weeks had positive effect on strength. In addition, the positive difference which occurred when SPAS preliminary and final data were compared can be considered together with the increase in strength and hence, physical appearances. Application in different populations considering factors such as gender and age, and through exercise programs in different styles can provide benefit in terms of SPAS, which has been the area of interest of researchers in recent years.

References

- Akyüz, M., Açar, M., Akyüz, Ö., & Doğru, Y. (2016). Motivational Factors Affecting Athletes in Selecting the Sport Branches of Athletics, Ski and Tennis. *Journal of Education and Training Studies*, 4(12), 160-165. <https://doi.org/10.11114/jets.v4i12.1961>
- Akyüz, M., Uzaldi, B. B., Akyüz, Ö., & Doğru, Y. (2016). Comparison of Sprint Reaction and Visual Reaction Times of Athletes in Different Branches. *Journal of Education and Training Studies*, 5(1), 94-100. <https://doi.org/10.11114/jets.v5i1.1987>
- Arabacı, R., Kuter, F. Ö., & Doğan, A. (2008). Investigation on Relationship between Social Physique Anxiety And Some Physical Fitness Characteristics. *Sport Sciences*, 3(4), 185-193.
- Aşçı, F. H., Tüzün, M., & Koca, C. (2006). An examination of eating attitudes and physical activity levels of Turkish university students with regard to self-presentational concern. *Eating Behaviors*, 7(4), 362-367. <https://doi.org/10.1016/j.eatbeh.2005.11.011>
- Atalay, A. A., & Gençöz, T. (2008). Critical factors of social physique anxiety: Exercising and body image satisfaction. *Behaviour Change*, 25(03), 178-188. <https://doi.org/10.1375/bech.25.3.178>
- Badau, A., Ungur, R. N., & Badau, D. (2015). Influence of water gymnastics on strength development. *Palestrica of the Third Millennium Civilization & Sport*, 16(3).
- Ballı, Ö. & Aşçı, F.H. (2004). Body related perception of exercisers and non-exercisers. 10. ICHBER-SD ICHPER – SD European Congress & the TSSA 8. International Sports Science Congress, Kemer. 17- 20 November, 80.
- Ballı, Ö. M., & Aşçı, F. H. (2006). “Reliability and Validity of “Social Physique Anxiety Scale”, *Hacettepe J. of Sport Sciences*, 17(1), 11-19.
- Brewer, B. W., Diehl, N. S., Cornelius, A. E., Joshua, M. D., & Van Raalte, J. L. (2004). Exercising caution: Social physique anxiety and protective self-presentational behavior. *Journal of Science and Medicine in Sport*, 7, 47–55. [https://doi.org/10.1016/S1440-2440\(04\)80043-4](https://doi.org/10.1016/S1440-2440(04)80043-4)
- Brunet, J., & Sabiston, C. M. (2009). Social Physique Anxiety and Physical Activity: A Self Determination Theory Perspective. *Psychology of Sport and Exercise*, 10(3), 329-335. <https://doi.org/10.1016/j.psychsport.2008.11.002>
- Calogero, R. M. (2004). A test of objectification theory: The effect of the male gaze on appearance concerns in college women. *Psychology of Women Quarterly*, 28(1), 16-21. <https://doi.org/10.1111/j.1471-6402.2004.00118.x>
- Crawford, S., & Eklund, R. C. (1994). Social physique anxiety, reasons for exercise, and attitudes toward exercise settings. *Journal of sport and exercise psychology*, 16, 70-70.
- Dilbaz, N. (2000). Social anxiety disorder: diagnosis, epidemiology, etiology, clinical and differential diagnosis. *Journal of Clinical Psychiatry*, 2, 3-21.
- Doğan, T., Sapmaz, F., & Totan, T. (2011). Adaptation of the Body Image Coping Strategies Inventory to Turkish: a validity and reliability study. *Anatolian Journal of Psychiatry*, 12, 121-129.
- Doğru, Y., Büyükyazı, G., Ulman, C., Taneli, F., Tıkız, H., Göral, M., & Esen, H. (2016). Effects of two different eight-week walking programs on insulin resistance and ER stressrelated markers in pre-menopausal women, *Turkish Journal of Biochemistry*, 41(5), 322-330. <https://doi.org/10.1515/tjb-2016-0047>
- Eklund, R. C., & Crawford S. (1994). Active women, social physique anxiety, and exercise. *Journal of Sport and Exercise Psychology*, 16, 431-448. <https://doi.org/10.1123/jsep.16.4.431>
- Eklund, R. C., Mack, D., & Hart, E. (1996). Factorial validity of the social physique anxiety scale for females. *J. Sport Exercise Psy.*, 18, 281-295. <https://doi.org/10.1123/jsep.18.3.281>

- Ergür, E. (1996). The relationship between body-self-perception and mental health in university students. (Master's thesis, Ege University, İzmir, Turkey).
- Finkenber, M. E., DiNucci, J. M., McCune, S. L., Chenette, T., & McCoy, P. (1998). Commitment to physical activity and anxiety about physique among collage women. *Perceptual and Motor Skills*, 87, 1393-1394. <https://doi.org/10.2466/pms.1998.87.3f.1393>
- Frederick, C. M., & Morrison, C. S. (1996). Social physique anxiety: Personality constructs, motivations, exercise attitudes, and behaviors. *Perceptual and Motor Skills*, 82(3), 963-972. <https://doi.org/10.2466/pms.1996.82.3.963>
- Hagger, M. S., & Stevenson, A. (2010). Social physique anxiety and physical self-esteem: Gender and age effects. *Psychology and Health*, 25(1), 89-110. <https://doi.org/10.1080/08870440903160990>
- Harris, D. V. (1987). The psychological health of the athlete. *Sport psychology*, 99-115.
- Hart, E. A., Leary, M. R., & Rejeski, W. J. (1989). The Measurement of Social Physique Anxiety. *Journal of Sport And Exercise Psychology*, 11(1), 94-104. <https://doi.org/10.1123/jsep.11.1.94>
- Hausenblas, H. A., & Fallon, E. A. (2006). Exercise and body image: A meta-analysis. *Psychology and Health*, 21(1), 33-47. <https://doi.org/10.1080/14768320500105270>
- Hausenblas, H. A., & Mack, D. E. (1999). Social Physique Anxiety and Eating Disorder Correlates among Female Athletic And Nonathletic Populations. *Journal of Sport Behavior*, 22(4), 502.
- Hausenblas, H. A., Brewer, B. W., & Van Raalte, J. L. (2004). Self-presentation and exercise. *Journal of Applied Sport Psychology*, 16, 3-18. <https://doi.org/10.1080/10413200490260026>
- Koca, C., & Aşçı, F. H. (2006). An examination of self-presentational concern of Turkish adolescents: An example of physical education setting. *Adolescence*, 41(161), 185-197.
- Kowalski, N. P, Crocker, P. R. E., & Kowalski, K. C. (2001). Physical self and physical anxiety relationships in college women: Does social physique anxiety moderate effects? *Research Quarterly for Exercise and Sport*, 72, 55-62. <https://doi.org/10.1080/02701367.2001.10608932>
- Lantz, C. D., Hardy, C. J., & Ainsworth, B. E. (1997). Social physique anxiety and perceived exercise behavior. *Journal of Sport Behavior*, 20(1), 83.
- Leary, M.R. (1992). Self-Presentational processes in exercise and sport, *Journal of Sport & Exercise Psychology*, 14, 339-351. <https://doi.org/10.1123/jsep.14.4.339>
- Pekdağ, F., & Coşkun, F. (2010). Social Physique Anxiety and Body Image Satisfaction Levels Of Collegian Dancers. *Pamukkale Journal Of Sport Sciences*, 1(2), 17-24.
- Russell, W. D. (2002). Comparison of self-esteem, body satisfaction, and social physique anxiety across males of different exercise frequency and racial background. *Journal of Sport Behavior*, 25(1), 74.
- Sabiston, C. M., Sedgwick, W. A., Crocker, P. R. E., Kowalski, K. C., & Mack, D. E. (2007). Social physique anxiety in adolescence: An exploration of influences, coping strategies, and health behaviors. *Journal of Adolescent Research*, 22(1), 78-101. <https://doi.org/10.1177/0743558406294628>
- Spink, K. S. (1992). Relation of anxiety about social physique to location of participation in physical activity, *Perceptual and Motor Skills*, 74, 1075-1078. <https://doi.org/10.2466/pms.1992.74.3c.1075>
- Tenenbaum, G., & Eklund, R. C. (Eds.). (2007). *Handbook of sport psychology* (pp. 516-518). Hoboken, NJ: Wiley. <https://doi.org/10.1002/9781118270011>
- Treasure, D. C., Lox, C. L., & Lawton, B. R. (1998). Determinants of physical activity in a sedentary, obese female population. *Journal of Sport and Exercise Psychology*, 20, 218-224. <https://doi.org/10.1123/jsep.20.2.218>
- Uğurlu, N., & Akın, H. (2008). Relation of Body-Ego Perception with Symptoms Psychological Distress of Muğla University School of Health Students. *Journal of Anatolia Nursing and Health Sciences*, 11(4).
- Wininger, S. R. (2007). Self-determination theory and exercise behavior: An examination of the psychometric properties of the exercise motivation scale. *Journal of Applied Sport Psychology*, 19(4), 471-486. <https://doi.org/10.1080/10413200701601466>

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