European Online Journal of Natural and Social Sciences 2014;
vol.3, No.1, pp. 135-139 ISSN 1805-3602

The effects of swimming training program on psychological health: An experimental design

Korkmaz Yigiter

School of Physical Education and Sport, Duzce University, PO box 81620, Duzce, Turkey

Received for publication: 09 December 2013.
Accepted for publication: 02 February 2014.

Abstract

The present experimental study was conducted to change the locus of control of university students in positive direction through their participation in a swimming training program as a group. For this purpose, 40 volunteer university students participated in the study and they were randomly assigned to experiment and control groups. Each group consisted of 20 students. The experiment group participated in the swimming training program which was conducted in three sessions, each lasting one hour a week. During this period, the control group did not participate in any regular physical activity program regarding swimming training. In this training program, series of freestyle swimming sessions were provided to the university students who had never received any formal swimming instruction before. Rotter's Locus of Control was administered to the participants before and after the 10-week training period. The data was analyzed using SPSS 16.0 Package Program. Descriptive statistics, independent sample t-test and paired samples t test were used to analyze the data. Level of significance was determined to be 0.05. There was a statistically significant difference between experiment group's pre-test and post-test scores ($p<0.05$). There was not a significant difference between control group's pre-test and post-test scores ($p>0.05$). Participants in the experiment group showed more changing in positive direction than those in the control group in terms of the internal locus of control.

Keywords: Locus of control swimming training, university students.

Introduction

Participation in sport activities is an important factor in changing the psychological traits of people. Many health benefits arise from moderate intensity sport in people's daily lives. It is one of the best ways to relieve psychologically and to raise mental health. For example, some studies reported that people engaged in sport increased self-esteem (Yiğiter & Bayazıt, 2013a), assertiveness (Yiğiter, 2013b), body image (Asci, 2004), life satisfaction (Valois et al., 2004) and mental health (Bailey, et al., 2009; Snyder et al., 2010) while reducing anxiety (Berger, 1993; Taylor, 1999), depression (McDonald & Hodgon, 1991; Deslandes et al., 2009). As described above, sport participation is a road map to evolve people's health psychologically in many ways. With these positive impacts of sport participation, people feel better and may be more satisfied with their lives in general. Over and above, they feel confident about themselves and maybe do not have worries regarding their future because they learn how to control their lives and keep their bodies fit.

Sport can also affect people's locus of control positively as locus of control is associated with the psychological aspects. This positive correlation can be explained that improving locus of control involves turning external locus of control into internal locus of control. When the locus of control is examined, typically, it can be said that people with an external locus of control believe that their actions have little impact on outcomes and there is little they can do to alter them (Rotter, 1966). Also, these people are more likely to respond to failure by giving up hope and not trying harder, and believe

Corresponding author: Korkmaz Yigiter, School of Physical Education and Sport, Duzce University, PO box 81620, Duzce, Turkey. Tel:+90 (380) 5421215; E-mail: korkmazyigiter@duzce.edu.tr

that their poor performance was caused by factors outside of their control (Anderman & Midgley, 1997). Nevertheless, those with an internal locus of control believe that outcomes are contingent on their actions and largely under their control (Rotter, 1966). These people tend to be self-motivated, work harder, and persevere longer in order to get what they want. Also, "internals" tend to be happier, less depressed, and less stressed than "externals". It is possible for people to turn their external Locus of control to an internal one by setting realistic and achievable goals and working towards them. This builds self-confidence and ultimately allows a person to see that they can control their own lives (Yiğiter, 2013c; Agulia, 2012). Taking these features of the locus of control into consideraiton, it can be said that sport provides realistic and achievable goals such as teamwork, strategic thinking. Therefore, during swimming training period, students' internal Locus of control can be improved by providing them with socialization opportunities, giving them responsibility, teaching them strategic thinking skills, and showing them how to be team.

As discussed in the first part, a range of psychological, behavioral, social, and environmental variables are associated with exercise adherence (Bauman et al., 2002; Trost et al., 2002), as is the case in the present study. Additionally, exercise is assumed to be a "social experience!'' as people exercise and interact with others, meet new people, continue to develop relationships, and make friends (Willis & Campbell, 1992: Yiğiter, 2013d). In the light of this information, the swimming training program in the present study focused on changing the locus of control of the university students in positive direction. Moreover, the present study was conducted as a group and was planned by considering positive psychological outcomes for university students. The purpose of the present study is to investigate the impact of a swimming training program for ten weeks (60 min per day, 3 days per week) on locus of control of the university students. It is hypothesized that the participants in the experiment group will turn their external locus of control into an internal locus of control by participating in swimming training as a group.

Methodology

Participants

Participants were chosen from different programs of the university were volunteer students and randomly assigned to experiment group and control group. Each group was consisted of 20 students. The students with an external locus of control were observed to see what kind of changes they would experience during the 10 weeks swimming training program according to the results of the data collection tool. The swimming training program was performed in the olympic swimming pool of the university and twenty volunteer university students were accepted because of the limited capacity of the swimming pool. The attendance of the participants was regularly taken and noted by the swimming instructor.

Instrument

The Rotter Internal-External Control Scale

The Rotter Internal-External Control Scale measures an individual's locus of control. Locus of control refers to the degree to which people attribute the source of control over events to themselves (internal locus of control) or to external measures (external locus of control) (Rotter, 1966). The inventory was adapted into Turkish in 1991 by Da (Da, 1991). The questionnaire consisted of 29 questions, with 23 items offering choices between internal and external locus of control statements and six items acting as filler questions (Thompson, 2010). Internal consistency numbers ranged from .65 to .79 and test-retest reliability numbers ranged from .49 to .83. In the study conducted by Rotter, the Cronbach's alpha was found to be .69 (Rotter, 1966).

Procedure

In this swimming training program, a series of freestyle swimming sessions were provided to the university students who had never received any formal swimming instruction before. At the end of the swimming training program, all participants learned how to swim technically at the intermediate level. Before the training sessions, a meeting was held with the participants in the experiment group and all of them were given information about training times, days, how to learn during the training program, what they will learn at the end of the training program, the schedule of the sessions throughout the swimming training program and their voluntary participation. But they were not told that they were included in the experiment group and there was a control group. Moreover, the participants were made sure that all their record

would be kept confidential. In the meeting, the researcher reported that no participant in either group knew how to swim and none of them had taken any swimming training before. The researcher administered a survey to 300 students from different programs of the university to determine participants for the experiment and the control groups. As a result, the experiment and the control groups were chosen from 300 university students and they did not know each other. Students in the experiment group were asked to bring a medical report regarding swimming training. The experiment group participated in the swimming training sessions in the swimming pool of the university for 60 minutes per day, three days per week, and for ten weeks. The sessions began with 15 min of warm-up activities. After the warm-up activities, the students were provided with 30 min of swimming training and 15 min of cool-down. The control group was told to continue their normal daily life without participating in any organized or structured swimming training. During the meeting, informed consent was signed by each participant before the psychological measurement was taken and while all scale responses were still anonymous. Consent from Research and Ethics Committee of The University was obtained for the present research.

Data Analysis

All data were coded numerically for data entry and analysis. Participant ID codes were used to match the first and the second tests. The data was analyzed using SPSS 16.0 Package Program. Descriptive statistics, independent sample t-test and paired samples t test were used to analyze the data. Level of significance was determined to be 0.05.

Results

As can be seen Table 1, minimum score of locus of control was found to be 7 for pre-test and 5 for post-test in both group. Maximum score of locus of control was found to be for pre-test 18 and 14 for post-test in both group. Score of locus of control regarding all students was found to be $\bar{X}$ 13,15±2,34 for pre-test and $\bar{X}$ 10,77±2,59 for post-test in both group (Table 1).

Table 1. Desciriptive statistics for all students regarding age and scores of locus of control.

	N	Min	Max	Mean	SD
Age	40	17	22	18,80	1,04
Pre-test	40	7	18	13,15	2,34
Post-test	40	5	14	10,77	2,59

Table 2. Differences between the pre-test and the post-test regarding both groups.

	Locus of control				
	N	Pre-test M&SD	Post-test M&SD	P	
Experimental group	20	12,90±2,51	9,60±2,85	0.000	p<0.05
Control group	20	13,40±2,21	11,95±1,66	,006	p>0.05
P		,508	0.003		
		p>0.05	p<0.05		

As can be seen Table 2, there was a statistically significant difference between experiment group's $\bar{X}$ locus of control pre-test score 12,90±2,51 and $\bar{X}$ locus of control post-test score 9,60±2,85 (p<0.05). There was not a significant difference between control group's $\bar{X}$ locus of control pre-test score 13,40±2,21 and $\bar{X}$ locus of control post-test score 11,95±1,66 (p>0.05) (Table 2).

Discussion

The present study was conducted to investigate

the impact of participation in the swimming training program on students' locus of control. The results of the present study indicated significant differences in the students' locus of control as a group. The results also support the hypothesis of the study that the external locus of control was turned into an internal locus of control in positive direction through the 10-weeks period. It is also important to note that the scores for locus of control in the experiment group became lower at the end of the training program. This reduction means that "As the scores of locus of control are reduced, the internal locus of control increases".

Considering the related studies in the literature, there are other studies about locus of control, but none of the studies in the literature came up with a correlation between a swimming training program and the locus of control of the university students. Therefore, this research can be classified as a pilot study as it used a small sample size and it is the first attempt to establish such a correlation. Also, because of the lack of previous research in this consideration, the results of the present study are very promising for the future studies. However, some studies confirmed that locus of control was associated with sport participation. Physical fitness can be an indicator of the internal locus of control since physically-fit people were found to be more internal compared to others (Adame & Johneson, 1989). Yi□iter (2013d) revealed that sport participation was an essential factor associated with the locus of control. According to this study, students engaged in sport displayed an improvement in their self-esteem, and locus of control turned into more internal locus of control by participating in the team sport program. Likewise, the present study indicated that teaching how to swim to students who had never taken swimming training before could change the locus of control of the students.

In connection with methodological considerations, Morgan 1977 put forward certain methods for studies investigating the impacts of exercise on mental health. The present study used experimental design with random assignment of the participants to experiment and control groups, as suggested by Morgan. In addition, the ethical guidelines of American College of Sports Medicine were used in the exercise sessions and informed consent was obtained from each participant before the swimming training program in this study. A valid and reliable instrument was used to determine the locus of control. Also, this study was designed considering the recommendation of Mandell who reported that 60 minutes of exercise might result in more psychological benefits (Asci, 2003; Yi□iter, 2013c). In this context, the study was designed in such a way that there were swimming training sessions of 60 min per day, three days per week for ten weeks.

There are some limitations in the present study which should also be noted for the future studies. In the present study, a small sample size was used and this study was the first attempt to investigate the impact of a swimming training program on the locus of control of students attending different programs of the university. Therefore, the present study provides preliminary findings for the future researchs on a correlation between swimming training and the locus of control. Also, the further researchs are needed to investigate the locus of control of a greater number of students from different programs of the universities, and more inventories related to locus of control should be administered to participants regarding psychological parameters to reach more trustable data.

Conclusions

To sum up, it can be concluded that the swimming training is a good way of turning the external locus of control to internal locus of control of the students from different programs of the university in the experiment group in positive direction. Also, all participants in the experiment group learned how to swim technically and had a chance for social interaction. In conclusion, the present study suggests that learning how to swim is an essential variable on changing the locus of control in positive direction. The findings of the present study provide evidence for this and contribute to the future studies on correlation between sport participation and psychological health. In this way, similar programs can be improved for improving the psychological well-being in many aspects such as problem solving skill, motivation, self-esteem, and they can be added to education curriculum of the universities.

References

Adame, D., & Johnson, T. (1989). Physical fitness, body image, and locus of control in college freshman men and women. P*erceptual and Motor Skills, 68:* 400-402.

Agulia, H. (2012). T*he use of an internal locus of control scale as a predictor of exercise adher-*

ence in children ages 6-12. Master's thesis, Arizona State University, Arizona.

Anderman, E.M., & Midgley, C. (1997). Changes in achievement goal orientations, perceived academic competence, and grades across the transition to middle-level schools. *Contemporary Educational Psychology, 22:* 269-298.

Asci, H. (2003). The effects of physical fitness training on trait anxiety and physical self concept of female university students. *Psychology of Sport and Exercise, 4*, 255-264.

Asci, H. (2004). Physical self perception of elite athletes and non-athletes: a Turkish sample. *Perceptual and Motor Skills, 99,* 1047-1052.

Bailey, R., Armour, K., Kirk, D., Jess, M., Pickup, I., Sandford, R., & BERA Physical Education and Sport Pedagogy Special Interest Group (2009). The educational benefits claimed for physical education and school sport: an academic review. *Research Papers in Education, 24*(1), 1-27.

Bauman, A.E., Sallis, J.F., Dzewaltowski, D.A., & Owen, N. (2002). Toward a beter understanding of the influences on physical activity: The role of determinants, correlates, causal variables, mediators, moderators, and confounders. *American Journal of Preventative Medicine, 23*(2), 5-14.

Berger, B.G. (1993). Exercise and psychological well-being-introduction. *International journal of sport psychology, 24*(2), 87-93.

Dağ, I. (1991). Rotter'in İç-Dış Kontrol Odağı Ölçeği'nin üniversite öğrencileri için güvenirliği ve geçerliliği. *Psikoloji Dergisi, 26*, 10-16.

Deslandes, A., Moraes, H., Ferreira, C., Veiga, H., Silveira, H., Mouta, R., Pompeu, F., Coutinho, E., & Laks, J. (2009). Exercise and mental health: May reasons to move. *Neuropsychobiology, 59*,191-198.

McDonald, D.G., & Hodgdon, J.A. (1991). *The psychological effects of aerobic fitness training: Research and theory*. New York: Springer-Verlag.

Morgan, W.P. (1977). Involvement in vigorous physical activity with special reference to adherence. In L.I. Gedvillas & M.E. Kneer (Eds.), N*ational College Physical Education Association Proceedings.*Chicago: University of Illinois-Chicago.

Snyder, A.R., Martinez, J.C. Bay, R., Parsons, J.T. Sauers, E.L. & Malovich McLeod, T.C. (2010). Health-related quality of life differs between adolescent athletes and adolescent athletes. *Journal of Sport Rehabilitation, 19*(3), 237-248.

Rotter, J.B. (1966). General expectancies for internal versus external control of reinforcement. *Psychological Monographs: General & Applied, 80*(1), 1-28.

Taylor, S., Rabian, B., & Fedoroff, I. (1999). Anxiety sensitivity: progress, prospects, and challenges. In: S. Taylor (Ed.), A*nxiety sensitivity: theory, research, and treatment of the fear of anxiety* (pp. 339–353). Mahwah, NJ: Erlbaum.

Thompson, T.S. (2010). *The impact of locus of control on decision making styles of mid-level managers*. Doctoral Dissertation, Capella University, Minneapolis.

Trost, S.G., Owen, N., Bauman, A.E., Sallis, J.F., & Brown, W. (2002). Correlates of adults' participation in physical activity: Review and update. *Medicine & Science in Sports & Exercise, 54*(12), 1996-2001.

Valois, R.F., Zullig, K.J., Huebner, E.S., & Drane, J.W. (2004). Physical activity behaviors and perceived life satisfaction among public high school adolescents, 74: 59-65.

Willis, J.D., & Campbell, L.F. (1992). *Exercise Psychology*. Leeds. Human Kinetics, Champaign, IL.

Yiğiter, K., & Bayazıt, B. (2013). The effect of recreational physical activities on university students' problem solving skills and self-esteem. *European Online Journal of Natural and Social Sciences, 2*(3), 424-429.

Yiğiter, K. (2013b). Improving the university students' Locus of Control and Self-Esteem by participating in Team Sports Program, *European Journal of Scientific Research, 107*(1), 64-70.

Yigiter, K. (2013c). The examining problem-solving skill and preferences of university students in relation to sport and social activity, E*ducational Research International, 1*(3).

Yigiter, K. (2013d). Improving the assertiveness of nursing students by participating in the recreational physical activities. I*nternational Journal of Sport Studies, 3*(3), 258-262.