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Full Length Research Paper

A consideration of the relationship between fitness and mental preparation of non-athlete and athlete students in Alame Tabatabae`i University, Iran

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The present study tries to investigate the relationship between physical fitness and psychological fitness of male and female student athletes and non athletes of Allameh Tabatabae`i University in Tehran. To do so, here, descriptive and correlation research methods as well as field study were taken into account. Our statistical population were 100 students at Allameh Tabatabae`i University that were selected randomly. Fitness tests included modified sit-up, modified pull-up, vertical jump, 4.9 shuttle run, 45 and 800 m run and (SASI Psych) was used to test mental preparation. This test consisted of six labels as motivation, focus, self-esteem, control levels of psychological (stress), mental imaging and goal selection. In addition, each label, in turn, encompassed 10 questions. Descriptive statistics was used to describe the status of subjects and their mental preparation scores and the Pearson correlation test was used as part of the inferential statistics.

Key words: Physical fitness, mental preparation, physical activity, mental health, mental skills.

INTRODUCTION

Fitness is effective in providing health and is considered the most important factor to such an extent that even also affects people on the mental aspect. Today, all that physical activity and exercise is considered to have an important role in health and fitness improvement and disease prevention (Daley and Parfitt, 1996). Research results of Cainey et al. (2009), Drista et al. (2009) and Thorsen et al. (2005) showed that participation in physical activity can reduce psychological problems such as anxiety and depression, while those who do less physical activity suffer from psychological problems such as depression and anxiety (Thorsen et al., 2005; Drista et al., 2009; Cairney et al., 2009). Sui et al. (2008) have stated that individuals participating in aerobic activities shall witness a tremendous reduction in their depression (Sui et al., 2008). Research results of Uemura and Machida (2003), Salmon (2001) showed that muscular strength and mental health were greatly related (Salmon, 2001; 2001; Uemura and Machida, 2003). Kenneth and (Anderson, 2000; Williams, 2001). So it seems reasonable to assume that some of the acquisition in women increases mental disorders and, consequently, their chance of committing suicide (Kenneth and Matthew, 2009). Study results of Eklund (1996), Orlick and Partington (1988), and Privette and Bundrick (1997) showed that successful professional athletes enjoyed higher mental skills than their counterparts.

In other studies (Durand-Bush et al. (2001), Fletcher and Hanton (2001), Gould et al. (1999), Williams and Krane (2001), and Zaichowsky and Baltzell (2001) specifically found that coping skills, confidence, goal selection, setting up anxiety, extensive use of mental imaging were associated with better performance (Durand-Bush et al., 2001; Fletcher and Hanton, 2001; Gould et al., 1993, 1999; Williams and Krane, 2001; Zaichowsky and Baltzell, 2001). It is likely that highly skilled athletes include mental skills into their regular workout regime to upgrade their performance. It seems that many elite-level competitors to be aware of the effects of psychological skills. As it has been quoted in

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many books of Applied Sport Psychology (Anderson, 2000; Williams, 2001) there are differences in actual acquisition and application of psychological skills (Anderson, 2000; Williams, 2001). So it seems reasonable to assume that some of the acquisition factors moderate mental skills. Of course, mental health and improved athletic performance have often been considered in the various definitions of sport psychology (Weinberg and Gould, 2003). A comparison between athletes who won medals in the tournament and a group that did not win medal revealed that the only significant difference amongst them was in terms of stress management skills (Salmela et al., 2009). Bernier and Fournier (2007) considered the "gender" effects on the mental skills in which elite French athletes reported higher OMSAT-3scores regarding scales of higher self-esteem, stress response, relaxation and mental visualization, while the women recorded a higher score in tournament planning (Bernier and Fournier, 2007).

Fallby et al. (2006) aimed to assess the question whether there was a relationship between measuring behaviors associated with personal control and mental skills. In doing so, they began their study using (OMSAT-3) questionnaires, (Salmela et al., 2009) locus of control and sense of coherence in (Bernier and Fournier, 2007) 198 Swedish elite athletes. In the beginning, there was no significant difference between men and women. Nevertheless, the results revealed that individuals with internal locus of control and higher rates of sense of coherence achieved significantly higher scores in 9 out of 12 mental skills than other athletes (Fallby et al., 2006). Using OMSAT -3, Fernier et al. (2005) found out that the focus on skills increased again after 10 months of mental training program significantly, while the stress response showed no significant change (Fournier et al., 2005). Durand-Bush et al. (2001) found that there was a significant difference for all mental skills profile between Canadian and international athletes who had a lower skill level (Durand-Bush et al., 2001). Dominikus et al. (2009) in examining "the relationship between psychological skills and interpretation of anxiety in high school hockey athletes in the 54 boys and 54 girls ages 14 to 17 years using a questionnaire of "mental skills assessment tool (OMSAT-3) and a competitive state anxiety questionnaire" (Modified CSAI-2) (Fournier et al., 2005). Fournier et al. 2005 noticed that as far as the four skills that is, goal selection, arousal, mental practice and planning were concerned, boys were significantly superior to girls in this regard. Girls had a significant advantage over boys in terms of "stress management skills". Again no significant difference existed between boys and girls regarding self-confidence, commitment, response to stress, relaxation, mental imaging, focus and concentration. As for goal selection and competition planning, there was an average positive and significant relationship with three elements of competitive state anxiety that is, cognitive guidance, physical conduct and directed self-confidence.

Considering self-confidence, motivation, relaxation, mental imaging and mental practice, there was a positive relationship between self-confidence and competitive anxiety. In conclusion, athletes who want to be in a peak of exercise should be familiar with mental concepts (Dominikus et al., 2009) and make use of them in order to be successful (Chuo, 2003). Now considering further studies in this area, these questions raised: whether there is a correlation between physical fitness of athletes with mental preparation? Whether there is a correlation between physical fitness of non-athletes with mental preparation? And whether gender influences this relationship? Knowing this relationship leads to a handful of benefits including the creation of mental health along with "health" (International journal of sport psychology, 2008).

The main purpose

A consideration of the relationship between fitness and mental preparation of non-athletes and t athletic students in Alame Tabatabae`i University, Tehran.

Research hypotheses

1) There is a significant relationship between physical fitness and mental preparation of male student athletes in Allameh Tabatabae`i University.
2) There is a significant relationship between physical fitness and mental preparation of male non- athletes in Allameh Tabatabae`i University.
3) There is a significant relationship between physical fitness and mental preparation of female student athletes in Allameh Tabatabae`i University.
4) There is a significant relationship between physical fitness and mental preparation of female non- athletes in Allameh Tabatabae`i University.

METHODOLOGY

Descriptive- correlation and applied research methods carried out as a field study and survey. The statistical population of this research was male and female students in Tehran's Allameh Tabatabae`i University of whom 100 people were selected randomly – that is, 50 athletes (25 male and 25 female) and 50 non-athletes (25 male and 25 female).

Measurement tool

To test the subjects' fitness, we took modified sit-up, modified pull-up, vertical jump, 4.9 shuttle run, 45 and 800 m, into consideration. Additionally, South Australian Sports Institute Test (SASI Psych) was applied to assess the subjects`mental preparation. SASI Psych is one of the questionnaires designed to measure mental skills of champion and includes six factors as motivation, focus, self-esteem

Table 1. Descriptive statistics, mean, maximum, minimum, standard deviation of subjects` age.

Groups`statistics	Age (years)			
	Mean	Maximum	Minimum	Standard deviation
Male athletes	23.8	28	19	2.52
Male non-athletes	24.5	29	19	2.76
Female athletes	22.2	27	20	1.33
Female non-athletes	23.43	28	18	2.61

Table 2. Percentage subjects of B.A and M.A undergraduates.

Groups `statistics			Male athletes	Male non-athletes	Female athletes	Female non-athletes	Total
University degree	B.A	Frequency	14	16	17	13	60
		Percentage	14	16	17	13	60
	M.A	Frequency	11	9	8	12	40
		Percentage	11	9	8	12	40

Table 3. Average scores of subjects.

Groups `statistics	Scores of subjects `mental preparation			
	Mean	Maximum	Minimum	Standard deviation
Male Athletes	251.25	292	222	29.42
Male Non-athletes	212.18	278	137	48.63
Female athletes	239.84	286	216	36.27
Female non-athletes	206.12	266	126	52.72

enhancement, control levels of psychological (stress), exercise and mental imaging. Plus, each factor, in turn, encompasses 10 questions. All the subjects were asked to come in a specific day and time for tests. Due to determination of the relationship of physical fitness and mental preparation in this study, the researchers didn`t manipulate the control variables and merely described and measured them. Here, descriptive statistics such as: tables, mean and standard deviation scores were used to describe the status of subjects and pearson coefficient was taken into account as the inferential statistic to test their mental preparation.

RESEARCH FINDINGS

Table 1 presents descriptive statistics, mean, maximum, minimum, standard deviation of subjects` age. Table 1 shows that the average age of the subjects was as follows:

Male athletes (23.8 ± 2.52), male non-athletes ± 2.76) (24.5, female athletes (2.22 ± 1.33) and female non-athletes (23.4 ± 2.61).

Table 2 shows that 60 and 40% of subjects were B.A and M.A undergraduates, respectively. Table 3 shows that the average scores of subjects are as follows:

Male athlete's psychological preparation (42.29 ± 25.251), male non-athletes (63.48 ± 18.212), female athletes (27/36 ± 84/239) and female non- athletes (72.52 ± 12.206.

Research hypotheses

Pearson test (Thorsen et al., 2005) showed that is a significant relationship between physical fitness and mental preparation of male athletes ($0.05 \geq p = 0.025$), so that the obtained value of this Pearson test was 0.654 (Table 4). Coefficient pearson test (Sui et al., 2008) showed that there was no significant relationship ($0.05 \leq p = 0.583$) between physical fitness and mental preparation of non-athlete male students, so that the value of this PEARSON correlation was 128.0 (Table 5). Coefficient Pearson test (Uemura and Machida, 2003) showed that there was a significant relationship between physical fitness and mental preparation of female athletes ($0.05 \geq p = 0.032$), so that the obtained value of Pearson was 531.0 (Table 6). Coefficient Pearson test (Salmon, 2001) showed that there was no significant relationship ($p = 0.727 \geq 0.05$), between physical fitness and mental preparation of non-athletic female students in such a way that Pearson correlation value was 0.870 (Table 7).

Table 4. The relationship between physical fitness and mental preparation of male athletes (results of Pearson).

Statistical indicators variables	Pearson correlation coefficient (r)	Degrees of freedom (Df)	Significant level (Sig)
Fitness Mental preparation	0.654	23	0.025

Table 5. The relationship between physical fitness and mental preparation of non-athlete male students (results of coefficient of Pearson).

Statistical indicators variables	Pearson (r)	Degrees of freedom (df)	Significant level (sig)
Fitness Mental preparation	0.128	23	0.583

Table 6. The relationship between physical fitness and mental preparation of female athlete students (results of Pearson).

Statistical indicators variables	Pearson (r)	Degrees of freedom (df)	Significant level (sig)
Fitness Mental preparation	0.531	23	0.032

Table 7. The relationship between physical fitness and mental preparation of female non-athlete students (results of Pearson).

Statistical indicators variables	Pearson (r)	Degrees of freedom (Df)	Significant level (Sig)
Fitness Mental preparation	0.087	23	0.727

DISCUSSION AND CONCLUSION

The results indicate that there was a significant and positive relationship between physical fitness and mental preparation of male student athletes in Allameh Tabatabae`i University( r = 0.654) but ,there was no significant relationship between physical fitness and mental preparation of non-athlete male students Similarly,there was a significant and positive relationship between physical fitness and mental preparation of female student athletes in Allameh Tabatabae`i University(r = 0.531) but, there was no significant relationship between physical fitness and mental preparation of non-athlete female students In the analysis of factors associated with physical fitness and mental preparation, the results showed that with Regard to Mental preparation ,the 800 m endurance test had the highest correlation coefficient between the male athletes. Also, athletes could score higher on tests of mental preparation tests. Because comparison of both athletes and non-athletes showed that the better they were physically. The more mentally prepared they were. Because there is no specific research in this field, so its results can't be compared with previous research, but in general it can be explained as follows:

The first result of this study derived from four hypotheses reflected the relationship between Fitness and mental preparation of athlete students (boys and girls) and generally it is consistent with the study results of Cainey (2009), Drista (2009), Thorsen (2005), Sui et al. (2008), Uemura (2005), Salmon (2001), Kenneth and Matthew (2009), Durand-Bush et al. (2001), Fletcher and Hanton (2001), Gould et al. (1993), Gould et al. (1999), Williams and Bone (2001) and Zaichowsky and Baltzell (2001).

All kind of match that expressed fitness and physical activity with mental preparation (mental skills) is related to fitness and good performance requires mental preparation is desirable. The latter result was obtained from the study indicated higher mental preparation scores for athlete students than non-athlete students. This results goes with the research results of Salmla et al. (2009) and Durand-Bush et al. (2001). They stated that professional athletes had higher mental preparation than amateur athlete and the difference was significant. We also found that "mental preparation scores" of male athlete and non-athlete students were far more than those of female students. Also, this result is consistent with the research result of Fernier and Bernier (2007) who stated that mental skills of French men were much higher than women.

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