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Dear colleagues, Conference delegates and Proceedings' readers,

The Faculty of Kinesiology University of Zagreb is organising the International Conference on Kinesiology for the sixth time. Everything began more than 15 years ago when the initiators – Prof. Milanović, still bursting with new ideas, and the late Prof. Mraković, started to advocate the idea of an international conference as a forum for kinesiologists or sport scientists, as a place where their research findings could be presented and discussed, as a meeting point of globally recognized scientists, or authorities in their field of research and research novices. In those days, in 1997, before the First Conference in Dubrovnik, it all seemed so surreal. However, this conference is alive; it grows and becomes ever more sophisticated. Therefore, it is feasible to expect that the forthcoming discussions, talks, dialogues, or whatever kind of idea exchange will result, as they have until now, with new research ideas, insights, research teams and projects the eventual outcome of which is further advances in kinesiology and the cognate and adjacent scientific areas.

The motto of this year's conference is the "Integrative Power of Kinesiology". It indicates the close relationships among various scientific fields when they contribute to the promotion of physical exercise and various kinds of physical activities in the areas of kinesiological education, high performance sports, kinesiological recreation, health-enhanced kinesiology, kinesitherapy and rehabilitation, sport for physically and mentally challenged persons, school sports, military kinesiology, and many others.

Simultaneously with the organisation of the 6th Conference, the Faculty of Kinesiology is celebrating the 40th anniversary of the publication of the scientific journal KINESIOLOGY. Nowadays it is a recognized international scientific journal with an IF of 0.525 for the year 2010.

The Conference and the journal KINESIOLOGY have contributed considerably to the affirmation of the name "kinesiology" in the neighbouring European areas. Although both are focused on science, the Conference and the accompanying regular KINESIOLOGY International Editorial Board meetings have also been opportunities for scholars and institution delegates from all over the world to establish close personal contacts, thus opening doors for joint research projects. The basic scientific concept of the Conference, with the working sections that cover the fundamental and applicative disciplines of kinesiology, has been kept from the beginning. This year's conference will have 12 oral and poster sections in the framework of which the delegates will present 220 full text contributions and abstracts written by 300 authors from 32 countries. Each presented and published paper or abstract has been subjected to a review process performed by at least two prominent referees.

For the first time the Conference is hosting a satellite symposium HEPA (Health Enhanced Physical Activity). The purpose of the symposium is to inform delegates from the neighbouring countries, which have not yet become HEPA association member countries, with the basic principles and directives of the movement and to encourage them to become promoters of the idea of health-oriented physical activity in their communities. The World Health Organization has stimulated the design of the Croatian National Action Plan for the implementation and improvement of HEPA in the Republic of Croatia. A presentation of the Action Plan and the planned round table should also be stimulating to colleagues to undertake similar steps in their communities.

From the very beginning the Croatian Academy of Sciences and Fine Arts has given its highly respected patronage to the Conference, thus underpinning the recognition of kinesiology in the structure of sciences. The organisation of such conferences would not be viable without the powerful support from the Croatian Ministry of Science, Education and Sport and the University of Zagreb. The patronage and support are indicators of a notable position the Conference and its organiser, the Faculty of Kinesiology University of Zagreb (established in 1959), have in the Croatian academic and research community.

We wish to express much gratitude to all the authors of the papers, reviewers, conference participants, members of the Organisation Committee, Section Leaders, Section Secretaries, technical support staff, and sponsors for their contributions, time and effort inbuilt in the quality of the 6th Conference on Kinesiology and its Proceedings. Our special gratitude goes to the Croatian Office of the World Health Organization.

We wish success in the conference work to all the participants and enjoyable time in Opatija. We are convinced the Conference will give the expected impetus to further cooperation between scholars and institutions. Looking forward in advance to meeting you again at the 7th International Conference on Kinesiology in 2014.

The Organising Committee

COMPETITIVE STATE ANXIETY IN FEMALE VOLLEYBALL PLAYERS

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Abstract

A revised version of the Competitive State Anxiety Inventory-2 (CSAI 2-R, Jones and Swain, 1992) was used on a sample of 66 female volleyball players competing at the junior championships of Dalmatia to test the level and direction of their competitive state anxiety. All subjects filled out the inventory about an hour before the beginning of the game. After the championship had ended, teams taking 1st to 6th place were identified. Descriptive indicators show that on average female volleyball players have a low level of somatic anxiety and a moderate level of cognitive anxiety and self-confidence. They view somatic and cognitive anxiety as irrelevant to their performance in the competition. They believe that self-confidence has a moderately positive effect on their performance. The univariate analysis of variance showed that there is a significant difference between teams in cognitive anxiety, and the level and direction of self-confidence. A Scheffe post-hoc analysis was also conducted on these variables in order to determine the significance of differences between certain teams. The analysis proved that the fourth-place team experienced a significantly greater level of self-confidence right before the first championship game than the first-place and sixth-place team. In addition, the fourth-place team found that their self-confidence had a significantly more positive effect on their game performance than the first-place and second-place team.

Key words: junior female players, CSAI 2-R, competition ranking, analysis of variance

Introduction

Anxiety is defined as a complex, uncomfortable feeling of uneasiness, fear and tension accompanied by the activation of the autonomic nervous system. The state of anxiety, resulting from environmental stimuli, is connected with the increase of arousal. Arousal is a neutral psychological phenomenon which might be connected to negative (anxiety) and positive (flow) affects.

It is important to study emotions in sports because they affect the performance and give information about the relationship of the athlete and his/her environment (e.g. competition). The information may help understanding the behaviour of the athletes and create a programme for the improvement of certain athletes' performance. Along with challenges and stimuli, sport is also characterised by great uncertainty. Stress and uncertainty may increase the motivation level in some athletes, and they may cause anxiety in others. If the athletes have a positive perspective on their abilities (i.e. the abilities of the team in team sports), and if they believe that they have control over the situation in the competition, they will generally view the anxiety symptoms as positive (Kais, 2005). The multidimensional anxiety theory (Martens et al., 1990) assumes a negative linear correlation of cognitive anxiety and sports performance, a reverse "U"-shape relationship between somatic anxiety and performance and a positive linear correlation of self-confidence and sports performance. Martens et al. created a questionnaire comprising 27 statements (CSAI-2) to evaluate certain anxiety components. Jones and Swain (1992, according to Kais, 2005) claim that the way in which the athlete perceives anxiety is also very important, so this directional component or the direction of anxiety was included in the questionnaire. The CSAI2-R questionnaire, consisting of 17 statements, was created as a response to the critique of the factor structure of the questionnaire (Cox, Martens and Russell, 2003).

Studies identifying the relationships between certain anxiety components and sports performance (Woodman and Hardy, 2003) have determined that cognitive anxiety has a significantly greater negative effect on sports performance in male athletes in comparison to female athletes. In addition, the negative effect of this component was also greater in competitions of greater quality and importance. Self-confidence had a significantly greater positive effect on the sports performance of men and in competitions of higher levels of quality. Craft et al. (2003) did not find a significant correlation between cognitive anxiety and sports performance, while the correlation between somatic anxiety and sports performance was negligible, negative and did not prove to be statistically significant. A positive correlation between self-confidence and sports performance was identified albeit it was less than expected. The aim of this research was to determine the correlation between particular anxiety components and performance of junior female volleyball players in a competition.

Methods

The sample of subjects in this research included 66 female volleyball players, members of 6 teams which competed in the 2010 championship of Dalmatia. All of the subjects filled out the CSAI2-R questionnaire (Cox, Martens and Russell, 2003) about an hour prior to the start of their first game. The CSAI2-R consists of 17 statements evaluated on a four-point Likert scale:

- 1. Completely incorrect
- 2. Mostly incorrect
- 3. Mostly correct
- 4. Completely correct

Out of 17 items in the questionnaire, seven evaluate the somatic anxiety component (e.g. "I feel excited", "My body feel tense"), while the cognitive component (e.g. "I am concerned about choking under pressure", "I am concerned that we can lose the game") and self-confidence (e.g. "I am confident that I can meet the challenge", "I am confident of coming through under pressure") are assessed by five items each.

The results in the items belonging to the same anxiety component are added so three variables (anxiety components) are obtained from these 17 items:

CSAI SOM - somatic component, CSAI KOG - cognitive component, CSAI SAM - self-confidence

The possible range of results in the somatic anxiety component spans from 7 to 28, and the cognitive component and self-confidence from 5 to 20.

The subjects also evaluated the direction or the "directional perception" of anxiety for each item (statement) (Jones and Swain, 1992, according to Kais, 2005). Thereby, they responded to the statement:

"For my performance this is": ... They circled numbers on a scale from -3 (very negative) to 0 (irrelevant) to +3 (very positive).

The results obtained from the same components are added in this case as well, so the variable of somatic direction ("USMJSOM") may assume values from -21 to +21, and the cognitive direction ("USMJKOG") and self-confidence ("USMJSAM") from -15 to +15. The situational performance of female players was evaluated with regard to their competition ranking. The teams were ranked from 1st to 6th place according to this criterion.

Data were processed in such a way so that the distribution normality of six variables was initially tested in order to assess the intensity and the direction of particular anxiety components. Afterwards, basic descriptive indicators were calculated: mean value, standard deviation, and minimal and maximal values.

The univariate analysis of variance tested the significance of differences in the measured variables with regard to team rankings. Differences between individual teams were analysed for the variables which obtained significant differences by Scheffe post-hoc analysis.

Results

Table 1. Descriptive indicators of certain anxiety evaluation variables: mean (AS), minimal (MIN) and maximal (MAKS) values; standard deviation (SD) and the Kolmogorov-Smirnov normality test (KS)

| | AS | MIN | MAKS | SD | KS* |
|---------|--------|---------|--------|-------|------|
| CSAISOM | 12.652 | 7.000 | 21.000 | 3.130 | 0.13 |
| CSAIKOG | 11.318 | 6.000 | 18.000 | 2.684 | 0.13 |
| CSAISAM | 13.227 | 7.000 | 19.000 | 2.618 | 0.10 |
| USMJSOM | 1.621 | -10.000 | 20.000 | 5.670 | 0.13 |
| USMJKOG | -0.879 | -14.000 | 11.000 | 4.770 | 0.10 |
| USMJSAM | 5.576 | -8.000 | 14.000 | 5.283 | 0.10 |

*d value of the KS test for N=66 equals 0.17

The results of every variable in the Kolmogorov-Smirnov test for distribution normality assessment (table 1, column 6) are lower than the limit values for the studied sample of subjects. Therefore, it may be concluded that all variables have a normal distribution, and that it is possible to continue with further parametric data processing. By analysing the obtained descriptive statistical parameters (table 1, columns 2-5), it may be noted that female volleyball players have on average a low level of somatic and cognitive anxiety, which is only slightly higher than the minimal values. The subjects generally regard the somatic and cognitive anxiety as something irrelevant to their performance, and they believe that self-confidence has a moderately positive effect on their performance.

| RANKING | CSAISOM | CSAIKOG | CSAISAM | USMJSOM | USMJKOG | USMJSAM |
|----------|---------|---------|---------|---------|---------|---------|
| 1 | 11.18 | 10.36 | 11.18 | 0.64 | -2.00 | 2.73 |
| 2 | 13.40 | 11.70 | 13.40 | 0.30 | -0.10 | 2.50 |
| 3 | 12.33 | 10.83 | 13.75 | 3.00 | -0.50 | 6.33 |
| 4 | 11.58 | 9.75 | 15.58 | 3.50 | 0.75 | 10.08 |
| 5 | 13.09 | 12.82 | 13.27 | 2.09 | -0.27 | 6.64 |
| 6 | 14.70 | 12.80 | 11.80 | -0.40 | -3.50 | 4.30 |
| F-test | | 2.88* | 5.31*** | | | 4.11** |
| SCHEFFE | | | 4:1** | | | 4:1* |
| POST-HOC | | | 4:6* | | | 4:2* |

Table 2. Descriptive variable indicators with regard to team rankings (1-6), univariate analysis of variance (F test) and Scheffe posthoc test

* p < 0.05; ** p < 0.01; ***p < 0.001

Table 2 shows mean values of analysed variables for each team separately, as well as the results of the analysis of variance in these variables with regard to team rankings. Univariate analyses of variance showed significant differences between the teams in three out of six observed variables: the level of cognitive anxiety, the level of self-confidence and the direction of self-confidence. Post-hoc analysis determined a significantly greater level of self-confidence in the fourth team in comparison to the teams which took first and sixth place. It was also found that the fourth-place team believed that self-confidence had a significantly more positive effect on performance than the first-place and second-place teams.

Discussion and conclusion

Performance in a competition depends on numerous factors: fitness abilities, techniques and tactics, commitment, team cohesion, etc. The level of individual anxiety components right before the competition may also contribute to or decrease performance. If the competition results were only affected by the level of certain anxiety components, it would be possible to predict that the team which took 4th place in the championship would win the championship based on the results from the CSAI2-R questionnaire obtained in this research. Such a prediction may be explained by the lowest level of their cognitive anxiety and the highest level of self-confidence and the direction of self-confidence. Recent studies confirm the negative linear correlation of cognitive anxiety and competition performance and the positive linear correlation of self-confidence and Hardy 2003, Craft et al. 2003).

The fourth-place team entered the competition as a favourite on paper. Based on the descriptive variable indicators, it may be assumed that they too were aware of this role (lower level of somatic and cognitive anxiety and more self-confidence compared to the other teams). It is possible that this casual and confident approach to the competition resulted in a decreased involvement at the beginning of the competition (underestimating the opponent). And when performance was not going in the right direction, they didn't properly respond as a team, so the results were not good. On the other hand, the first-place team was not a favourite, which is also confirmed by the low level of their self-confidence prior to the beginning of the championship in comparison to the other teams. It can be assumed that the level of self-confidence rose during the competition as it was influenced by the good results. The limitations of this study arising from the fact that it is not possible to come to more certain conclusions are as follows:

- situational performance is determined by the ranking of the team which is only a framework performance criterion (e.g. a much more precise quality indicator is the situational performance of female players assessed on the basis of the quality of performance of technical and tactical elements of particular female players)
- the questionnaire was filled out only once, i.e. immediately prior to the first game played by a particular team in the championship. In that way it is not possible to identify potential changes in the anxiety level of particular female players at different stages of the competition.

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