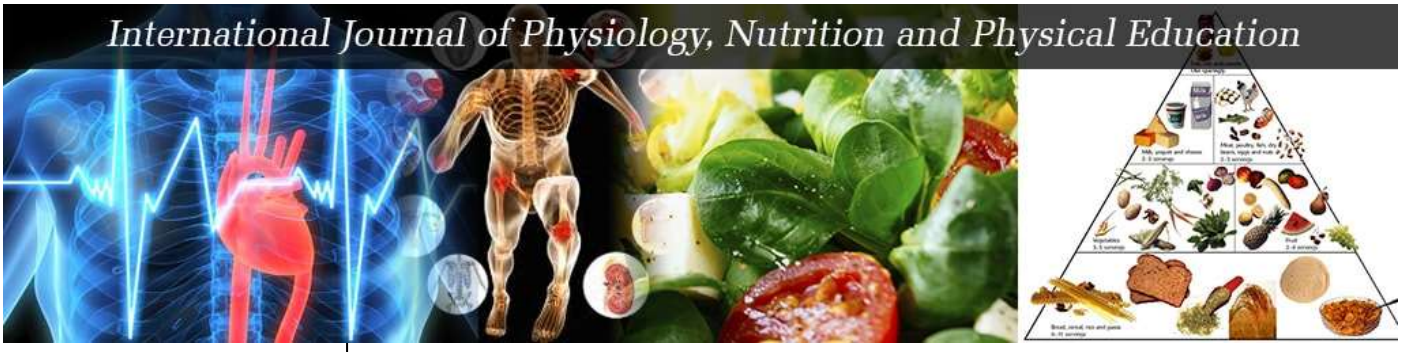

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Relationship between flow state and mental imagery of female college level athletes in racket games

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Abstract
Background: The study and implementation of psychological variables helps to build confidence and improve concentration of an athlete. This helps an athlete to master their mind in the training as well as during and after the competition. The aim of the study is to find the relationship among Flow state and mental imagery of female college athletes in badminton and ball badminton.
Methods: The study is a survey study designed to find out the relationship between Flow state and Mental Imagery in Racket games (Badminton and ball badminton). The sample consists of 150 female college athletes of Racket games, badminton and ball badminton. The purposive sampling method is used to select the participants.
Results: Results of the study indicated that Flow state has a highly significant relationship with mental imagery for Racket games, badminton and ball badminton players.
Conclusion: It has been concluded that female college athletes of Racket game (badminton and Ball badminton) revealed significant relationship between Flow state and Mental Imagery variables.

Keywords: Flow state, mental imagery, racket games

Introduction
Sports psychology not only studies the behaviour of a sports person but also the impact of various psychological variables which have a direct or indirect relation with the performance of the sports person. Another important field of psychology called the counselling psychology looks at the personal as well as professional scenarios of a sports person, digs deep into the life of an individual under the concern of a psychologist whether it is a family, a team, a coach, an organization or any personal issue related to the sports person for the mental makeup and performance of the individual. (Hardy *et al*., 1996) [6]. The area of sports psychology has grown tremendously in couple of years, as the physical educationists, coaches and sports persons search for the sports psychology and the psychologists for the rising competition in sports. (Alderman, R.B. (1974) [1]. The individuals have opted for various psychological training programmes, counsellors to learn how to manage stress and anxiety, and how to increase attention and concentration in various sports like Archery and shooting. Various psychological interventions are taught and learned by the sports psychologist and the coaches in order to create a positive and dynamic climate in and outside the mind of a sports person which helps them to perform at their best level.

Flow: In the mid 1970‘s Mihaly Csikszentmihalyi developed the concept of Flow and started working in other social and educational settings. The field of research has made a contribution in understanding of a fundamental question of positive psychology by Nkamura & Csikszentmihalyi (2002). The concept of Flow provides a perspective about what constitutes a-good life‖. Also, Flow is an optimal psychological state that occurs when there is a balance between perceived challenges and skills in an activity where both (challenge and skills) are higher than the person‘s subjective average experience. It is state characterized by total absorption in the task and number of other positive experiential qualities (Mihaly Cskszzentmihalyi, 1990) [2].

Mentai-Imagery: Mental imagery means visualization or mental rehearsal. Imagery means using all of your senses such as, feel, hear, taste, smell, and see to rehearse your sport.

Imagery helps to get the most out of training extensively to build their strength and eliminate their weaknesses. It helps an individual to compete more effectively. Imagery helps to regulate anxiety during the competition. It also helps athletes to 5 remain mentally tough and focussed during the whole process of training and competition. It helps them to speed up their progress and leads them to the top elite level. Elite athletes use imagery throughout their career as a tool for developing their sport skills. Use of imagery helps athletes to remain motivated along the way and helps them to maintain the vision of what they would achieve in their sport. During athlete's career when injury will occur which will cause them to miss the training sessions, these situations, athletes can use imagery to help them maintain their abilities during the rehabilitation process.

Methods

The present study is the survey study designed to find out the relationship between Flow state and mental imagery of Racket games (badminton and ball badminton) on the sample of 150 female college level athletes. The subjects were selected under purposive sampling from Inter college tournaments of Panjab University. To evaluate the two variables, two different standardized tests are administered to the female athletes of various colleges affiliated to Panjab University of Chandigarh. The tools used during the test are Dispositional Flow State scale-2 (DFS-2) and the Sports Imagery Activation Form (SIAF).

Table 1: Correlation between Flow state and Mental Imagery for Racket games

	Flow State	Mental Imagery
Pearson correlation	1	-0.27**
p-value		0.00
N	150	150

**Correlation significant at 0.01 level

In the above table I, when flow state was correlated with mental imagery, negative and highly significant correlation, where r = -0.27, at $p<0.01$ was observed at 0.01 level of significance. Hence, hypothesis H:01 that *there would be a significant relation among Flow State and Mental Imagery of female college level athletes in Racket games* is accepted. Therefore, we concluded that the flow state has a highly significant relationship with mental imagery. Further, Scattered diagram between Flow scale and Metal Imagery for Racket Game is shown in Figure 1.

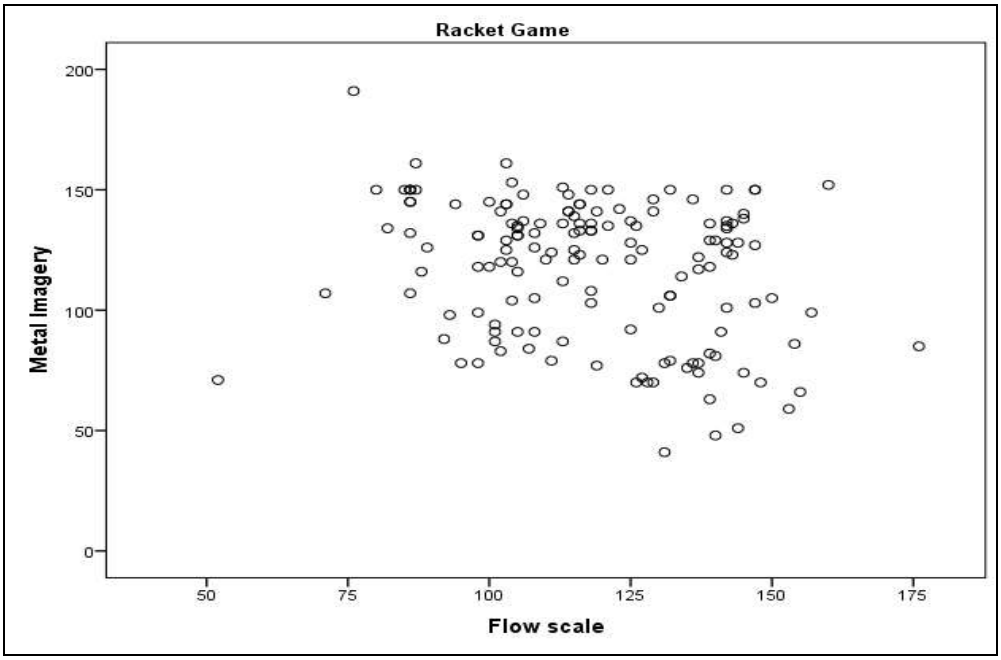

Fig 1: Scattered diagram between Flow scale and Metal Imagery for Racket Game

It is cleared observed for Figure 1, the pattern of dots is downward which mean as the scores of Flow scale on the X-axis is increasing, the score of Metal Imagery on Y-axis is decreasing significantly downward. This pattern showed that correlation between Flow scale and Mental Imagery is negative and significant in nature.

Results

The table 1 shows, when the flow is correlated with Mental Imagery, negative and highly significant correlation, where r =-0.27.at $p<0.01$ was observed at 0.01 level of significance. Hence, there would be a significant relation among Flow State and mental imagery of female college level athletes in Racket games is accepted. Therefore, we concluded that Flow state has a highly significant relationship with Mental Imagery. Further, scattered diagram between Flow scale and Mental Imagery for Racket game shows the pattern of dots is downwards which mean as the score of Flow scale on the X-axis is increasing; the score of Mental Imagery on Y-axis is decreasing significantly downwards. This pattern showed that correlation between Flow scale and Mental Imagery is negative and significant in nature.

Discussion of the findings

Earlier it was hypothesised that *"There would be a significant relation among flow state and mental imagery of female college level athletes in racket games.*

For the present study on Flow state 150 college level athletes aged between 17-25 years were selected. Standardized questionnaires were administrated to female athletes in order to measure the mentioned variable. The questionnaire administered was; Dispositional Flow State Scale-2(DFS-2).

Without flow one might lose the feeling of enjoyment in doing sports (Jackson & Csikszentmihalyi, 1999). Mihaly Csikszentmihalyi (1977) was the first to use the flow concept in western psychology. Further the present study has been supported by Deci & Ryan (1985) [5] as they proposed that flow can signify a purer instance of intrinsic motivation and an autotelic experience happens when a person does something that is intrinsically motivating. Csikszentmihalyi (1991) has suggested that experiencing the state of flow in an activity several times, a person will perform that activity for its own sake; thus the activity becomes intrinsically motivated. Past researchers such as Schreiber *et al*. (1991) [10], Onestak (1997) [8], Pates and Maynard (2002) [9], Pates *et al*. (2001), Pates *et al*. (2002) [9], and Nicholls *et al*. (2005) have utilized more personalized approaches when designing and implementing their mental practice interventions.

According to the available results, a significant relationship was revealed. The above table and figure depicts the results obtained after finding out the relationship between flow state and mental imagery on racket games. The basic purpose of the study was to find out the relationship if any so that it would be helpful for coaches, trainers and physical educationists in scheduling of training and coaching programmes for the Racket games. To serve the purpose 150 sample of college level female athletes were selected by purposive sampling method that aged 17-25 years of age group from inter-college tournaments of Panjab University, Chandigarh.

Conclusion

Flow State and Mental Imagery are correlated with each other in Racket games (badminton and ball badminton).The findings of the study also concluded that Flow state in female college level athletes showed highly significant relationship with Mental Imagery. The coaches as well as the female athletes would be aware of the psychological interventions in training and during the competition. The female athletes would have practised mental imagery during the training, and the coaches would have also taught and implemented the psychological interventions. The female athletes who experienced Flow in their sport would have visualised the sport during the training session which helped them to concentrate on the sport and felt in the zone during the training and the competition season.

Future studies of this scope and scale could benefit from additional researchers who serve to remind and encourage participants to practice their mental imagery Flow, Mental Imagery or through the creation of individualized mental imagery interventions for each participant based upon their own athletic skill-set and experiences with flow. This could increase the participant's desire to practice, as the recording would be more personally relevant to them.

Limitations of the Study

The present study consists of 150 sample size which is small size for generalizing the results. So, Future research could be on a larger sample. The future research can be done on both female and male college athletes.

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