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**Divyam Patidar**  
Lakshmbai National Institute of  
Physical Education, Gwalior,  
Madhya Pradesh, India

**Madhu Baghel**  
Lakshmbai National Institute of  
Physical Education, Gwalior,  
Madhya Pradesh, India

**Corresponding Author:**  
**Divyam Patidar**  
Lakshmbai National Institute of  
Physical Education, Gwalior,  
Madhya Pradesh, India

## Comparison of the mental toughness among National and International level artistic male gymnasts

**Divyam Patidar and Madhu Baghel**

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### Abstract

The purpose of this study was to compare Mental Toughness among national and international level male artistic gymnastics players. The study was delimited to male Artistic Gymnastics. For this study a total of subjects (N=40) were chosen, national-level gymnasts (N=20) and international-level gymnasts (N=20). The subjects were chosen using the purposive sampling method and their age ranged between  $22.34 \pm 2.55$  years. The subjects were the senior category gymnast with a minimum of five times national participation for the national level gymnast and one international level participation for the international gymnast recognized by the GFI, "Gymnastics Federation of India" and IGF, "International Gymnastics Federation". Mental Toughness was measured using the Alan Heary Questionnaire (2015) which consisted of 24 questions measuring four factors namely Motivation, Concentration Confidence Control Under Pressure, and an independent sample t-test was used to compare the Mental Toughness. The results showed that there is a significant difference between national and international-level male artistic gymnastic players in terms of motivation, concentration, and overall mental toughness with international gymnasts achieving higher in all factors. Whereas there was no significant difference in terms of confidence, control under pressure.

**Keywords:** Sports Psychology, mental toughness, mental toughness, positive behavior

### Introduction

Sports Psychology is the branch of Psychology that deals with the positive behavior of sportspersons during training and competition periods to increase performance, Sports have now become a profession for lots of players. In today's world, there is lots of competition going on among the players. And to perform constantly at higher level competition and to maintain or keep up the execution or performance the players must be physically fit as well as must be mentally or psychologically solid. These days sports competitions are very tough. Players use the best techniques and best training methods for better results during competitions.

The attraction of sport for many players in general and top players, in particular, is that it offers numerous opportunities to stretch them physically. The higher the level of the sport the harder the competition and the greater the demands made on the players. Undoubtedly the goal in top-class sports is to win, to gain a successful outcome in whatever contest one is engaged in. The concept of sports psychology is being changed. Today's players face acute and unique challenges. The standards are higher, the competition is tougher, and the stakes are higher. Among the best, physical preparation is complete, and more psychological component is more important than ever before.

Gymnastics and other sports are about much more than physical skills and talent. Gymnasts require focus, concentration, endurance, patience, and the ability to bounce back from setbacks. Those are all mental toughness skills and to become a champion the gymnasts need to consistently work on their mental side abilities. Gymnastics are currently training close to their bio-physical limits and with an evolving code of points (F.I.G, 2013) and a desire to continually strive for complex and innovative moments, it is desirable to enhance training by using objective criteria against which skill development pathways can be measured.

Mental toughness is closely related to contests and makes difference both winning and losing. Top athletes believe that the psychological factors play an important role as physical attributes and learned skills for the achievement. During the competitions mental toughness appears to carry great psychological significance, when the momentum starts to shift in one direction to another. Athletes remain completely focused based on the different level of situation during the training and competitions. The situational factors are more important for every individual or team athlete. (Williams, 1998)<sup>[3]</sup>

Psychological skills training will then be demonstrated, including goal setting, team dynamics, imagery, positive self-in relation to achieving peak sporting performance. The importance of exercise and sport psychology in increasing human potential is seen by observing however it affects high-performance athletes, sports consultants, visual image and the imagery in this discipline. Mental toughness is having the natural or developed psychological edge that enables you to generally cope better than your opponents with the many demands like competition, training, and lifestyle that sport places on a performer, and specifically, be more consistent and better than your opponents in remaining determined, focused, confident, and in control under pressure. Mental toughness associated with the peak performance in sports and the necessity in competitive sports. (Williams, 1998)<sup>[3]</sup>

Sports Psychology is the branch of Psychology which deals with positive behavior of sportsperson during training and competition period to increase performance. Mental toughness is commonly used conversation to any set of positive attributes that helps a person to cope with difficult situations. Coaches and sport critics freely use the term mental toughness to define the mental state of athletes who continue through difficult sport situations to succeed. In backing of this, a number of studies have associated mental toughness to sporting success or achievement. However, it is often simply applied as a default explanation for any victory, which is highly problematic as an attribution. The term mental toughness plays a vital role in sports performance and many studies support its role in success. International and National Male Artistic Gymnastics Players possess different level of performance, So the researcher wants to examine mental toughness difference between these two groups.

Mental preparation for sports is a basic part of fruitful game execution at all levels. The higher the degree of rivalry, the more prominent the mental requests of the performers. Indeed many game analysts would contend that mental preparation for sports execution is the most significant piece of sports performance. Elite sports entertainers utilize mental methods previously, during, and after game execution, both deliberately and unconsciously. To adequately recommend methodologies to improve the entertainer's mental outlook an inside and out comprehension of the hypotheses and models supporting mental techniques is essential. Psychological preparation for sport is reliant on a wide scope of variables, which contrast for every individual and group game performer. Therefore, understanding the basic mental standards and models will empower procedures to be adjusted for a wide scope of explicit circumstances. Most

psychologists play different roles in the lives of their athletes trained professional psychologists, friends, and sounding boards, confidantes, and advisors are each possible and the relationship that may develop in practice A sports psychologist can facilitate an athlete's focus additional on the aspects of the game that are under their management. As there are continuously some uncontrollable things in sports, performance is left up to chance to some extent. To help an athlete get the chance aspect out of their mind some sports teams and athletes have chosen to hire a sports psychologist. After reviewing the literature related to the above-mentioned variables and how mental toughness and their variable like motivation, concentration, and control under-pressure confidence influence the performance of national and intonation gymnast, the researcher has decided to undertake the present study. Therefore, mental toughness plays a very vital role in the Gymnastics performance of every person. Based on that present researcher wants to compare mental toughness among national and international level gymnastic players.

### Methodology

For the Comparison of Mental Toughness among national and international level male artistic gymnastics players total forty Indian Gymnastics Player were selected based on purposive sampling technique, in which 20 players were from national and 20 were from international level gymnast and their age ranged between  $22.34 \pm 2.55$  years. The subjects were the senior category gymnast with a minimum of five times national participation for the national level gymnast and one international level participation for the international gymnast recognized by the GFI, "Gymnastics Federation of India" and IGF, "International Gymnastics Federation". After reviewing the related literature and based on personal experience about the role of sports psychology the variable selected for the study is Mental Toughness among gymnasts which included commitment/motivation, concentration control under pressure, and confidence.

To Assess the mental toughness of gymnasts Alan Heary Mental Toughness Questionnaire was used. This questionnaire measures four mental toughness variables such as commitment/motivation, concentration, control under pressure and confidence. Each variable consisted of six statements and the subject had to tick that statement which he feels true for him otherwise he was allowed to leave that statement. Before collecting the data all the information and proper guidelines were given through online zoom meeting to avoid misinterpretation of items. The data was collected from National and International Artistic Gymnasts from various sports institutions all over India on mental toughness through Google Forms which were sent through emails.

### Results

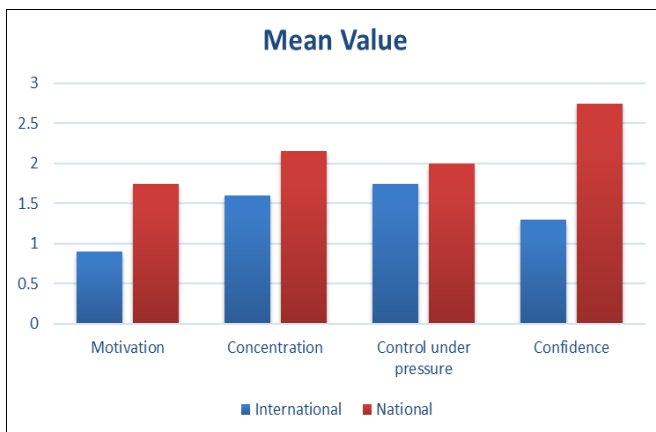
For statistical analysis of the data, descriptive statistics such as arithmetic mean (AM) and standard Deviation (SD) were calculated to get a basic idea of the data distribution. For analysis of data two sample independent t-test were applied at 0.05 level of significance.

**Table 1:** Descriptive Statistics of Mental Toughness among National and International Gymnasts

Factor	Groups	N	Mean	Std. Deviation	Std. Error Mean
Motivation	International gymnasts	20	.9000	.55251	.12354
	National gymnasts	20	1.7500	1.51744	.33931
concentration	International gymnasts	20	1.6000	1.23117	.27530

	National gymnasts	20	2.1500	1.63111	.36473
Control Under Pressure	International gymnasts	20	1.7500	1.68195	.37609
	National gymnasts	20	2.0000	1.62221	.36274
Confidence	International gymnasts	20	1.3000	.97872	.21885
	National gymnasts	20	2.7500	2.07428	.46382

Table 1 showed the descriptive Statistics in terms of Mean, Standard Deviation and Standard Error of mean and it is evident that the mean score of every measures of mental toughness were more in national level gymnasts [Motivation (1.7500), concentration (2.1500), control under pressure (2.0000), confidence (2.7500), and] than international Level gymnasts as [Motivation (.9000) concentration (1.6000), control under pressure (1.7500)confidence (.3000)] and as per the question the higher value of the factor in term of mental toughness indicated more struggling which means there is a low level of mental toughness and in case of lower value it indicates the thriving which means that there is a high level of mental toughness possess by gymnasts. Hence, it can be assumed that the mental toughness of international-level gymnasts is more in comparison to the of national-level gymnasts according to the questionnaire and the scoring system developed by Alan Heary. The graphical representation of the mean value defining mental toughness is also given below in Figure 1.



**Fig 1:** Graphical representation of selected psychological variables

As the descriptive statistics clearly showed difference in mean values of the Mental Toughness factor comparing National level gymnast with international level gymnasts, so to find out whether the difference was significant or not, the independent t-test was also applied at 0.05 level of significance given below in the table.

**Table 2:** Comparative statistics of mental toughness variables, N=40

Factor	T-Value	DF	Sig. (2-Tailed)
Commitment/Motivation	2.354	38	.024*
Concentration	1.204	38	.236*
Control Under Pressure	.478	38	.635
Confidence	2.827	38	.007*

\*Significant at 0.05 level of significance

Table 2, shows the comparative outcome (t-value) of all mental toughness-related factors of national and international gymnasts and results showed that there was a significant difference in their mean value in the case of confidence, concentration, and motivation as the p-value of all these factors was less than the 0.05 level of significance. The study indicated that t statistics in the case of levels of

Commitment/Motivation ( $t=2.354$ ;  $p=0.024$ ), Concentration ( $t=1.204$ ;  $p=0.236$ ) and Confidence ( $t=-2.827$ ;  $p=0.007$ ) while comparing international and national gymnasts in their mental toughness competency.

On the other hand, there was no significant difference found in Control under Pressure ( $t=-0.478$ ;  $p=0.635$ ) as the p-value was more than the significance value ( $p>0.05$ ).

### Discussion of findings

The findings of the study showed that international-level gymnasts are significantly better than national-level gymnasts in three factors of mental toughness (MT) namely Concentration ability, Motivation, and, in the case of the ability to control under pressure factor both were found no significant difference. The significant difference in the levels of motivation and concentration is due to their exposure to International Gymnasts at higher competition levels, they are more used to training under higher pressure so their level of concentration will be comparatively higher when compared with national-level gymnasts.

To fulfill the requirement of higher competition level they must keep them motivated so there is a significant difference in the level of motivation in international level gymnasts. This may be also because of that usually high-level players usually commit less number of unforced errors than low-level players. It may be said that with higher level of competition experience develops a greater capability of concentration and motivation factors, (Asamoah, 2013; Williams, 1998) [3, 1] indicated that accumulative previous tournament experience is a strong indicator of achievement ability, psychological dynamics, and perceived cognitions in a competitive environment. In addition, familiarity and prior experience within a competitive setting are thought to facilitate coping resources and the perceived possibilities for success. An elite athlete must be able to handle pressure, have self-belief, and avoid lifestyle distractions. They must have that urge to win and know that they have all the capabilities to do anything they desire. This separates good athletes from the elite athletes. However, no significant difference was found between National and International level gymnasts on control under pressure factor of mental toughness. This may be due to their determination, interest, and seriousness to play in such competitions. International gymnasts can handle competitive pressures and concentrate better in difficult competitive situations.

### Conclusions

The mental Toughness questionnaire consists of four factors namely Motivation, Concentration, Confidence and Control Under Pressure and based on the results, the following conclusions were made in the present study: The results showed that international-level male artistic gymnastic players were found better in terms of motivation, Concentration, and confidence as compared to the national level gymnasts. It also showed that there was no significant difference in terms of Control Under Pressure when comparing national and international level gymnasts.

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