



## Measure the Influence of Yoga Biomechanics, Psychological Relaxation Techniques and Sports Nutrition on Physical and Psychological Well-Being of University Players

Narendra Kumar\*

Research Scholar

JANARDAN RAI NAGAR RAJASTHAN VIDYAPEETH, UDAIPUR, INDIA  
(DEEMED-TO-BE UNIVERSITY)

Dr. Rohit Kumawat\*\*

Assistant Professor

JANARDAN RAI NAGAR RAJASTHAN VIDYAPEETH, UDAIPUR, INDIA  
(DEEMED-TO-BE UNIVERSITY)

### Article History

Volume 6, Issue 12, 2024

Received: June 10, 2024

Accepted: July 5, 2024

doi:

10.48047/AFJBS.6.12.2024.5066-5073

### Abstract

The study measures the influence of yoga biomechanics, psychological relaxation techniques and sports nutrition on physical / psychological well-being of university players. A survey method was being used to find the dependency between the various aspects. The sample size of 120 respondents was being considered using the sampling technique convenience sampling method. Based on the research questions three major null hypotheses were being framed  $H_01$ ,  $H_02$  and  $H_03$ . In order to test the hypotheses Chi-Square test was being applied. The findings suggest that there is a positive influence of Yoga Biomechanics, Psychological Relaxation Techniques, Sports Nutrition sessions on the physical and psychological well-being of university players.

**Keywords:** Yoga Biomechanics, Psychological Relaxation Techniques, Sports Nutrition, Physical Well-Being

### 1. Introduction

The impact of Yoga Biomechanics, Psychological Relaxation Techniques, and Sports Nutrition on the Physical and Psychological Well-Being of University Players is a comprehensive study that aims to explore and understand how these three factors collectively influence the holistic health and performance of university-level athletes.

**Yoga Biomechanics:** This aspect delves into the scientific analysis of how the mechanics of yoga postures affect the body. By studying the intricate relationship between movement science and yoga, the research seeks to identify how specific muscle movements, joint alignments, and overall biomechanics contribute to physical well-being.

**Psychological Relaxation Techniques:** This component focuses on the impact of relaxation techniques on the mental well-being of athletes. The study likely investigates how practices such as progressive muscle relaxation and deep breathing exercises influence psychological factors such as anxiety levels, stress management, and overall mental composure.

**Sports Nutrition:** This dimension examines the role of nutrition in sports performance. It explores how dietary choices and nutritional intake contribute to the physical health, endurance, and overall well-being of university players.

The study's overarching goal is to provide a holistic understanding of the interplay between physical and psychological factors in the context of university-level sports. By analyzing Yoga Biomechanics, Psychological Relaxation Techniques, and Sports Nutrition collectively, the research aims to offer insights that can inform training programs, enhance athlete performance, and contribute to the overall well-being of university players.

The holistic approach recognizes that optimal athletic performance is not only about physical strength but also involves mental resilience, relaxation, and proper nutritional support.

## **2. Literature Review**

Vijayalakshmi and Jayobal (2013) study delve into the intricate dynamics of performance assessment in athletes, emphasizing the roles of feedback and self-awareness. It underscores the profound impact of assessments on both physical and mental dimensions, highlighting the potential repercussions of negative feedback. The exploration extends beyond physicality, delving into mental fortitude and composure, particularly emphasizing the coveted state of "flow." This mental state, described as being "in the zone," is transformative, showcasing the intricate interplay between physical and mental facets in athletic performance.

Gallwey (2008) research explores the multifaceted dynamics of performance assessment in athletes, with a focus on feedback and self-awareness. The study emphasizes the profound influence of assessments on both physical and mental aspects of an athlete's prowess. It discusses the potential repercussions of negative feedback, leading to physiological responses and diminished agility. Beyond physicality, the research delves into mental fortitude, highlighting the paramount importance of achieving a state of "flow" for optimal athletic performance.

Sakhare (2018) study investigates the impact of relaxation techniques on cognitive anxiety, somatic anxiety, and self-confidence in athletes. Utilizing progressive muscular relaxation (PMR) and autogenic relaxation, the research observes significant improvements in both groups compared to the control group. Reductions in somatic and cognitive anxiety levels are notable, alongside enhanced self-confidence. While no significant difference is found between PMR and autogenic relaxation, the study underscores the efficacy of these techniques in managing performance-related anxiety and boosting self-assurance. Further exploration is recommended for understanding long-term effects and applicability in diverse contexts.

Kalra, N., Khakha, D., Satapathy, S., & Dey, S. (2021) explored the impact of Jacobson Progressive Muscle Relaxation (JPMR) and Deep Breathing Exercises on anxiety, psychological distress, and sleep quality in hospitalized older adults, highlighting the potential of non-pharmacological interventions for improving mental well-being in this demographic.

Lee, M., Huntoon, E. A., & Sinaki, M. (2019) conducted a biomechanical analysis on soft tissue and bony injuries related to yoga practice, shedding light on injury patterns and implications for management, emphasizing the need for a comprehensive understanding of biomechanics in yoga to prevent injuries.

Rejinadevi and Ramesh (2017) explored the impact of AVM Pranayama on physiological variables in elite basketball players, demonstrating significant improvements in systolic and diastolic blood pressure, highlighting the positive physiological effects of yoga on athletes.

Shaikh (2013) focused on the philosophical and practical aspects of yoga, presenting it as a disciplined approach for self-realization and physical fitness among college-age female students, emphasizing the alignment of mind, intellect, and self.

Tells, S., et al. (2018) investigated the changes in vigilance, self-rated sleep, and state anxiety in military personnel in India following yoga, indicating beneficial effects on attentiveness, anxiety reduction, and sleep quality, particularly relevant for high-stress professions like border security.

### **3. Objectives**

The main objectives related to research questions are being expressed as follows:

- 1.) Measure the impact of Sports Nutrition on physical and psychological well-being of university players.
- 2.) Evaluate the impact of Yoga Biomechanics on physical and psychological well-being of university players.
- 3.) Assessing the Role of Psychological Relaxation Techniques in physical and psychological well-being of university players.

### **4. Research Hypotheses**

The hypotheses related to research questions are being stated as follows:

H<sub>0</sub>1: There is no significant impact of Sports Nutrition on physical and psychological well-being of university players.

H<sub>a</sub>1: There is significant impact of Sports Nutrition on physical and psychological well-being of university players.

H<sub>0</sub>2: There is no significant impact of Psychological Relaxation Techniques on physical and psychological well-being of university players.

H<sub>a</sub>2: There is significant impact of Psychological Relaxation Techniques on physical and psychological well-being of university players.

H<sub>0</sub>3: There is no significant impact of Yoga Biomechanics on physical and psychological well-being of university players.

H<sub>a</sub>3: There is significant impact of Yoga Biomechanics on physical and psychological well-being of university players.

### **5. Research Methodology**

#### **5.1 Scope of Study**

This research endeavours to comprehensively explore the impact of Yoga Biomechanics, Psychological Relaxation Techniques, and Sports Nutrition on the Physical and Psychological Well-Being of University Players. Embracing a holistic approach, the study aims to dissect the intricate connections between physical and mental dimensions in the performance of university-level athletes. It will scrutinize the biomechanical intricacies of yoga postures to unravel their preventive and therapeutic effects, assess the influence of relaxation techniques on psychological resilience, and delve into the role of sports nutrition in optimizing physical health. With a specific focus on university athletes in Rajasthan, the research aims to provide region-specific insights, considering diverse districts within the state.

The study's scope encompasses a nuanced examination of competitive spirit, mood states, muscular strength, coordination ability, mental attitudes, and stress management. Utilizing a structured questionnaire for data collection, the research aspires to contribute valuable knowledge to sports science, fostering a more holistic approach to athlete training and development in the specified context.

#### **5.2 Type of Research**

The research work measures the impact of Psychological Relaxation Techniques, Yoga Biomechanics and Sports Nutrition on Physical / Psychological Well-Being of university players.

#### **5.3 Nature of Research**

The study uses Quantitative research technique to find the association between Psychological Relaxation Techniques, Yoga Biomechanics, Sports Nutrition and Physical / Psychological Well-Being.

#### 5.4 Types of Data Required in Research

The research relies on collecting primary data, indicating that the information is directly acquired from the study participants, emphasizing the firsthand nature of the data collection process.

#### 5.5 Data Collection Methods

Data gathering involves employing two primary strategies: primary data collection and secondary data collection. This research incorporates both these methods to ensure a comprehensive approach. The primary data collection utilizes a questionnaire as the principal tool. The questionnaire is structured into two sections; the first section focuses on gathering demographic information, while the second section is dedicated to acquiring insights into the influence of Yoga Biomechanics, Psychological Relaxation Techniques, and Sports Nutrition on the Physical / Psychological well-being of university-level players.

#### 5.6 Sampling Design

Sample Size: 120 participants or respondents (University Players)

Sampling techniques: Non-Probability Based Sampling Technique: Convenience sampling method was being adopted for sample selection.

#### 5.7 Statistical Methods Used

Initially cumulative frequency, percentage analysis and cross tabulation was done while for finding the dependency and relationship between Sports Nutrition, Yoga Biomechanics, Psychological Relaxation Techniques sessions and Physical / Psychological Well-Being the Likelihood Ratio, Linear-by-Linear Association and Pearson Chi-Square test was being applied.

### 6. Data Analysis and Results

#### 6.1 Respondents Profile:

Gender Wise Classification:

About 50% respondents were male which accounts for 60 number of respondents or participants and similarly about 50% respondents were female which also accounts for 60 number of respondents as university players.

Table 4.1: Gender wise classification

		Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	60	50.0	50.0	50.0
	Male	60	50.0	50.0	100.0
	Total	120	100.0	100.0	

Age Wise Classification:

The respondents age groups were being classified in varied, with most falling between 18-23 years (40.0%).

#### 6.2 Sports Nutrition Sessions and Physical/Psychological Well-Being:

The cross tabulation table presents the relationship between the engagement level in Sports Nutrition sessions and the perceived levels of Physical/Psychological Well-Being among the participants.

Table 4.2: Crosstabulation: Sports Nutrition and Physical / Psychological Well-Being

Crosstabulation: Sports Nutrition Sessions and Physical / Psychological Well-Being							
Count							
		Physical and Psychological Well-Being					Total
		Very Low	Low	Medium	High	Very High	
Engagement Level Psychological Relaxation Technique	Very Low Engagement	0	1	1	0	7	9
	Low Engagement	0	3	0	0	3	6
	Medium	4	4	2	0	5	15
	High Engagement	8	5	18	12	10	53
	Very High Engagement	4	7	8	8	10	37
Total		16	20	29	20	35	120

$H_0$ 1: There is no significant impact of Sports Nutrition on physical and psychological well-being of university players.

$H_a$ 1: There is significant impact of Sports Nutrition on physical and psychological well-being of university players.

The Chi-Square Test was used to find the dependency between Sports Nutrition and physical and psychological well-being of university players.

Table 4.3:  $H_0$ 1: Hypothesis Testing Chi-Square Test Results

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	33.099 <sup>a</sup>	16	.007
Likelihood Ratio	37.597	16	.002
Linear-by-Linear Association	2.011	1	.156
N of Valid Cases	120		
a. 16 cells (64.0%) have expected count less than 5. The minimum expected count is .80.			

The Chi-Square Test statistics shows that the calculated Pearson Chi-Square value is 33.099, Linear-by-Linear Association is 2.011 and the Likelihood Ratio value is 37.597 at 16, 1 and 16 degree of freedom values respectively. As the P-Value for Pearson Chi-Square and Likelihood Ratios is found to be 0.007 and 0.002 respectively which is quite less than the standard alpha value of 0.05 which confirms that the null hypothesis  $H_0$ 1 is being rejected confirming that there is significant impact of Sports Nutrition on physical and psychological well-being of university players. It can be concluded that a positive relationship prevails between Sports Nutrition and physical / psychological well-being.

### 6.3 Psychological Relaxation Technique and Physical/Psychological Well-Being:

The crosstabulation table presents the relationship between the engagement level in Psychological Relaxation Techniques and the perceived levels of Physical/Psychological Well-Being among the participants.

Table 4.4: Crosstabulation: Psychological Relaxation Techniques and Physical / Psychological Well-Being

Crosstabulation: Psychological Relaxation Techniques and Physical / Psychological Well-Being							
Count							
		Physical / Psychological Well-Being					Total
		Very Low	Low	Medium	High	Very High	
Engagement Level Psychological Relaxation Techniques	Very Low Engagement	0	1	8	15	5	29
	Low Engagement	0	0	2	4	0	6
	Medium Engagement	6	1	2	2	1	12
	High Engagement	1	0	2	0	5	8
	Very High Engagement	5	13	10	12	25	65
Total		12	15	24	33	36	120

H<sub>02</sub>: There is no significant impact of Psychological Relaxation Techniques on physical and psychological well-being of university players.

H<sub>a2</sub>: There is significant impact of Psychological Relaxation Techniques on physical and psychological well-being of university players.

The Chi-Square Test was used to find the dependency between Psychological Relaxation Techniques and physical / psychological well-being of university players.

Table 4.5: H<sub>02</sub>: Hypothesis Testing Chi-Square Test Results

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	55.863 <sup>a</sup>	16	.000
Likelihood Ratio	54.205	16	.000
Linear-by-Linear Association	.076	1	.783
N of Valid Cases	120		

a. 17 cells (68.0%) have expected count less than 5. The minimum expected count is .60.

The Chi-Square Test statistics shows that the calculated Pearson Chi-Square value is 55.863, Linear-by-Linear Association is 0.076 and the Likelihood Ratio value is 54.205 at 16, 1 and 16 degree of freedom values respectively. As the P-Value for Pearson Chi-Square and Likelihood Ratio is found to be 0.000 and 0.000 respectively which is quite less than the standard alpha value of 0.05 which confirms that the null hypothesis  $H_02$  is being rejected confirming that there is significant impact of Psychological Relaxation Techniques on physical and psychological well-being of university players. It can be concluded that a positive relationship prevails between Psychological Relaxation Techniques and physical / psychological well-being.

#### 6.4 Yoga Biomechanics and Physical/Psychological Well-Being:

The crosstabulation table presents the relationship between the engagement level in Yoga Biomechanics and the perceived levels of Physical/Psychological Well-Being among the participants.

Table 4.6: Crosstabulation: Yoga Biomechanics and Physical / Psychological Well-Being

Crosstabulation: Yoga Biomechanics and Physical / Psychological Well-Being							
Count							
		Physical / Psychological Well-Being					Total
		Very Low	Low	Medium	High	Very High	
Engagement Level Yoga Biomechanics	Very Low Engagement	0	2	1	1	8	12
	Low Engagement	0	3	0	0	5	8
	Medium	4	5	2	0	5	16
	High Engagement	4	0	6	0	2	12
	Very High Engagement	5	10	15	19	23	72
Total		13	20	24	20	43	120

$H_03$ : There is no significant impact of Yoga Biomechanics on physical and psychological well-being of university players.

$H_a3$ : There is significant impact of Yoga Biomechanics on physical and psychological well-being of university players.

The Chi-Square Test was used to find the dependency between Yoga Biomechanics and physical and psychological well-being of university players.

f

The Chi-Square Test statistics shows that the calculated Pearson Chi-Square value is 43.476, Linear-by-Linear Association is 0.377 and the Likelihood Ratio value is 49.186 at 16, 1 and 16 degree of freedom values respectively. As the P-Value for Pearson Chi-Square and Likelihood Ratio is found to be 0.000 and 0.000 respectively which is quite less than the standard alpha value of 0.05 which confirms that the null hypothesis  $H_03$  is being rejected confirming that there is significant impact of Yoga Biomechanics on physical and

psychological well-being of university players. It can be concluded that a positive relationship prevails between Yoga Biomechanics and physical / psychological well-being.

### 7. Conclusion:

The study aimed to investigate the impact of Yoga Biomechanics, sports nutrition, and psychological relaxation techniques on the physical and psychological well-being of university players. The analysis of the hypotheses revealed compelling evidence against the null hypotheses ( $H_01$ ,  $H_02$  and  $H_03$ ) for all three aspects. The rejection of these hypotheses indicates a significant impact of Yoga Biomechanics, sports nutrition, and psychological relaxation techniques on the overall well-being which includes (both physical and psychological well-being) of university players. These findings underscore the importance of incorporating these elements into the training and development programs for athletes to enhance both their physical and psychological dimensions. The study contributes valuable insights to sports science and coaching, emphasizing the multifaceted nature of factors influencing athletes' well-being and performance. As a result, coaches, sports psychologists, and nutritionists should consider adopting a holistic approach to athlete development that addresses both physical and psychological aspects for optimal performance and well-being.

### 8. References:

- Gallwey, W. T. (2008). *The Inner Game of Tennis*. Random House Trade Paperbacks.
- Kalra, N., Khakha, D., Satapathy, S., & Dey, S. (2021). Impact of Jacobson Progressive Muscle Relaxation (JPMR) and Deep Breathing Exercises on Anxiety, Psychological Distress and Quality of Sleep of Hospitalized Older Adults. *Indian Journal of Gerontology*, 35(2), 318-328.
- Lee, M., Huntoon, E. A., & Sinaki, M. (2019). Soft Tissue and Bony Injuries Attributed to the Practice of Yoga: A Biomechanical Analysis and Implications for Management. *Mayo Clinic Proceedings*. <https://doi.org/10.1016/j.mayocp.2018.09.024>
- Rejinadevi and Ramesh (2017). *AVM Pranayama*, Kolkata Anand Printers, pp. 16-17.
- Sakhare Nitin (2018). Effect of progressive muscular relaxation technique and autogenic relaxation technique on pre-competitive state anxiety and self-confidence in athletes. *International Journal of Advance Research, Ideas and Innovations in Technology*, 4(6), 403. ISSN: 2454-132X.
- Shaikh (2013). *The Sivananda Companion to Yoga*, (New York: Fireside book, p.10).
- Tells, S., et al. (2018). Changes in Vigilance, Self-Rated Sleep and State Anxiety in Military Personnel in India Following Yoga. *BMC Notes*, 28(1), P. 518.