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A Comparative Study of Nutritional Knowledge among Rural and Urban Wrestlers in Maharashtra

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ABSTRACT: Nutrition plays a decisive role in enhancing athletic performance, recovery, and long-term health, particularly in physically demanding sports such as wrestling. Wrestlers require optimal intake of macronutrients, micronutrients, and fluids to sustain high-intensity training and competition. However, the level of nutritional knowledge may vary significantly based on geographical and socio-cultural factors. The present study aimed to assess and compare the nutritional knowledge of rural and urban wrestlers in Maharashtra. A total of 50 wrestlers (25 rural and 25 urban), aged between 16 and 23 years, were selected using a simple random sampling technique. A standardized nutritional knowledge questionnaire developed by Dr. Netaji Jadhav was administered. Descriptive statistics, mainly percentage analysis, were used to interpret the data. The findings revealed that while both rural and urban wrestlers possessed basic awareness regarding nutrition and its role in performance, several misconceptions were observed in both groups, particularly related to energy sources, macronutrient functions, and vitamin classification. Urban wrestlers demonstrated comparatively better awareness in certain aspects such as supplementation and post-exercise nutrition, whereas rural wrestlers showed better understanding of traditional food sources. The study concludes that systematic nutrition education programmes are essential for both rural and urban wrestlers to bridge knowledge gaps and enhance performance.

KEYWORDS: Nutrition knowledge, Wrestlers, Rural and Urban.

I. INTRODUCTION

Nutrition is a scientific discipline that studies food, its components, and their utilization by the body for growth, energy, and maintenance of health. In sports, nutrition plays a critical role in determining athletic performance. Wrestlers, due to the intense and physically demanding nature of their sport, require carefully planned diets that meet high energy and nutrient demands.

Although the importance of nutrition is widely acknowledged, the level of nutritional knowledge among athletes may differ based on factors such as education, access to resources, coaching facilities, and geographical location. Rural wrestlers often rely on traditional dietary practices and locally available foods, while urban wrestlers may depend more on modern dietary supplements and processed foods. These variations may influence not only dietary habits but also performance and recovery.

Despite wrestling being a prominent sport in Maharashtra, limited research has been conducted to compare the nutritional knowledge of rural and urban wrestlers. Therefore, the present study attempts to fill this gap by systematically assessing and comparing nutritional knowledge between these two groups.



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II. BACKGROUND OF THE STUDY

Wrestling is one of the oldest sports known to humankind and holds a place of exceptional importance in Indian culture and tradition. In India, wrestling is popularly known as kushti or mallayuddha, and wrestlers are traditionally trained in akhadas. Historically, wrestling was practiced on earthen pits prepared with red or black soil, especially in rural regions. These traditional practices not only emphasized physical strength but also discipline, moral values, and lifestyle regulation, including diet. With modernization and globalization, wrestling has evolved into a highly competitive sport governed by national and international federations. Modern wrestling requires athletes to train on synthetic mats, follow standardized rules, and adopt scientific training methods. Despite these changes, the importance of diet and nutrition remains constant. Nutrition provides the energy required for training, supports muscle growth and repair, enhances recovery, and prevents injuries. Wrestling demands high levels of strength, endurance, agility, flexibility, and mental concentration, all of which are influenced by dietary intake.

In Maharashtra, wrestling enjoys immense popularity, particularly in districts such as Kolhapur, Sangli, Satara, Pune, and Solapur. The state has produced legendary wrestlers like Khashaba Jadhav, India's first Olympic medalist in an individual sport. Traditional Maharashtrian wrestlers often follow diets rich in milk, ghee, almonds, cereals, pulses, fruits, and vegetables. Urban wrestlers, on the other hand, are more exposed to modern dietary concepts, supplements, and professional nutritional guidance. These differences highlight the need to study and compare nutritional knowledge among rural and urban wrestlers.

III. METHODOLOGY

Research Design

The present study adopted a descriptive survey research design, which was considered appropriate for the nature and purpose of the investigation. This design enabled the researcher to systematically collect, analyse, and interpret data related to the nutritional knowledge of rural and urban wrestlers as it existed at the time of the study. Since the primary objective was to assess and compare the existing level of nutritional knowledge between the two groups, no attempt was made to manipulate or control any variables. The descriptive survey method provided a realistic picture of the current status of nutritional awareness among wrestlers and allowed for meaningful comparison between rural and urban participants. This approach was particularly suitable because it helped in understanding naturally occurring differences in nutritional knowledge based on the living environment of the subjects, thereby ensuring the authenticity and validity of the findings.

Selection of Subjects

A total of 50 wrestlers from Maharashtra were selected for the study. The age of the subjects ranged from 16 to 23 years. A simple random sampling technique was employed to select the participants. The sample consisted of both male and female wrestlers, equally divided into rural ($n = 25$) and urban ($n = 25$) groups.

Inclusion and Exclusion Criteria

The present study included wrestlers aged between 16 and 23 years, comprising both male and female participants, who belonged to the state of Maharashtra. Wrestlers from states other than Maharashtra were excluded from the study. Additionally, wrestlers below 16 years and above 23 years of age were not considered for inclusion in order to maintain age uniformity and ensure the relevance of findings to the selected age group.

Variable of the Study

The primary variable of the study was nutritional knowledge of wrestlers.

Tool Used

Nutritional knowledge was assessed using a standardized questionnaire developed by Dr. Netaji Jadhav. The questionnaire consisted of multiple-choice and opinion-based questions related to macronutrients, micronutrients, hydration, supplementation, and pre- and post-exercise nutrition.

Procedure: Prior permission was obtained from the authorities of akhadas and training centers. Informed consent was taken from all participants. The questionnaire was administered personally by the investigator in a calm and conducive environment. The data were collected between 1 November 2025 and 10 November 2025.



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Statistical Analysis: The collected data were analysed using descriptive statistics. Percentage analysis was employed to interpret and compare responses of rural and urban wrestlers.

IV. STATISTICAL TABLE ANALYSIS AND RESULTS

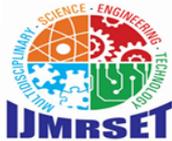
The analysis of responses revealed that both rural and urban wrestlers strongly agreed that nutritional knowledge enhances performance, indicating universal awareness regarding the importance of nutrition. Urban wrestlers showed higher awareness regarding vitamin sources, supplementation, and post-exercise nutrition. Rural wrestlers demonstrated comparatively better understanding of traditional food sources such as milk, fruits, and cereals. However, significant misconceptions were observed in both groups regarding the primary and secondary sources of energy during wrestling, classification of carbohydrates, and solubility of vitamins. Many wrestlers incorrectly identified protein as the main energy source instead of carbohydrates. Confusion was also observed regarding the conversion of nutrients after digestion and the role of fats and vitamins.

Overall, the results suggest that while basic nutritional awareness exists, scientific understanding of sports nutrition principles is inadequate among both rural and urban wrestlers.

Table no.1

Aspect of Analysis	Rural Wrestlers	Urban Wrestlers	Overall Statistical Inference
General awareness of nutrition	Very high (100%)	Very high (100%)	Both groups show universal awareness of the importance of nutrition
Knowledge of vitamins & minerals	Moderate (56–72%)	Moderately high (64–92%)	Urban wrestlers demonstrate better micronutrient awareness
Knowledge of ideal dietary composition	Higher awareness (68%)	Low awareness (16%)	Rural wrestlers outperform urban wrestlers in traditional dietary balance
Understanding of energy sources	Low correct responses (16–44%)	Low to moderate (20–60%)	Major misconceptions about carbohydrate and protein roles in both groups
Post-exercise nutrition knowledge	High (56–88%)	High (60–92%)	Urban wrestlers show more scientific recovery practices
Hydration-related knowledge	High (80–96%)	High (76–100%)	Excellent awareness in both groups
Supplement-related knowledge	Moderate (64%)	Moderate to slightly high (68%)	Limited but comparable understanding in both groups
Fat-related nutritional knowledge	Moderate (56–72%)	High (80–88%)	Urban wrestlers possess superior knowledge of fat metabolism
Physiological concepts (blood glucose, digestion, metabolism)	Low (20–44%)	Low to moderate (24–56%)	Poor conceptual understanding across both groups
Traditional food knowledge	Strong (soybean, milk-based diets)	Moderate	Rural wrestlers retain stronger traditional nutrition concepts
Scientific sports nutrition concepts	Limited	Comparatively better	Urban wrestlers show marginal advantage
Areas of confusion	Energy value, vitamin solubility	Energy value, vitamin solubility	Common confusion prevalent in both groups
Overall nutritional knowledge level	Basic to moderate	Moderate	Neither group demonstrates comprehensive scientific knowledge

Table no.1: The table presents a comparative analysis of nutritional knowledge among rural and urban wrestlers, revealing both strengths and gaps across different aspects of nutrition. Both rural and urban wrestlers demonstrated



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universal awareness of the importance of nutrition, indicating a strong foundational understanding in both groups. Urban wrestlers showed comparatively better knowledge of vitamins, minerals, fat metabolism, post-exercise nutrition, and scientific sports nutrition concepts, suggesting greater exposure to modern and evidence-based nutritional information. In contrast, rural wrestlers exhibited higher awareness regarding ideal dietary composition and traditional food practices, reflecting reliance on balanced home-based and culturally rooted diets. However, both groups showed notable deficiencies in understanding energy sources, physiological concepts such as blood glucose regulation, digestion, and metabolism, along with persistent confusion regarding energy values of nutrients and vitamin solubility. Hydration-related knowledge was found to be high in both groups, highlighting good awareness of fluid intake importance. Overall, while urban wrestlers displayed a moderate level of nutritional knowledge and rural wrestlers showed basic to moderate understanding, neither group possessed comprehensive scientific knowledge of sports nutrition, indicating a clear need for structured nutrition education programs for wrestlers across both settings.

Table No. 2

Group	N	Mean Nutritional Knowledge (%)	Standard Deviation (%)	df	Cal value t-	Tabulated t value	Level of Significance
Rural Wrestlers	25	58.40%	9.25	48	2.01	2.94	0.05 level
Urban Wrestlers	25	65.80%	8.60				

Table no.2: The table presents a comparison of nutritional knowledge between rural and urban wrestlers using an independent *t*-test. A total of 25 rural and 25 urban wrestlers were included in the study. The mean nutritional knowledge score of rural wrestlers was **58.40%** with a standard deviation of **9.25**, indicating a basic to moderate level of nutritional knowledge. In contrast, urban wrestlers recorded a higher mean score of **65.80%** with a standard deviation of **8.60**, reflecting a comparatively better level of nutritional awareness. The calculated *t* value was **2.94**, which is greater than the tabulated *t* value of **2.01** at the **0.05 level of significance** with 48 degrees of freedom. This indicates that the difference in nutritional knowledge between rural and urban wrestlers is statistically significant.

Overall Statistical Conclusion

The consolidated percentage analysis reveals that both rural and urban wrestlers possess basic nutritional awareness, particularly regarding performance, hydration, and calcium intake. However, scientific understanding of sports nutrition—especially energy metabolism, macronutrient functions, and physiological processes—is inadequate in both groups. Urban wrestlers show a numerical advantage in several areas, while rural wrestlers demonstrate stronger traditional dietary awareness. This result clearly suggests that residential background has a significant influence on the nutritional knowledge of wrestlers. However, although urban wrestlers demonstrated comparatively higher knowledge, the overall level of nutritional understanding in both groups was not comprehensive, highlighting the need for systematic nutrition education programmes for wrestlers in both rural and urban settings.

V. DISCUSSION

The findings of the present study are consistent with earlier research indicating limited nutritional knowledge among athletes despite generally positive attitudes toward nutrition. Similar observations were reported by **Cupisti et al. (2002)**, who found that competitive athletes possessed inadequate scientific understanding of nutrition even though they recognized its importance for performance. Likewise, **Rosenbloom et al. (2006)** reported gaps between athletes' nutritional beliefs and actual dietary practices, emphasizing the need for formal education. The higher nutritional awareness observed among urban wrestlers in the present study may be attributed to improved access to qualified coaches, sports science support, and media exposure. This explanation aligns with the findings of **Sundgot-Borgen (2013)**, who highlighted the role of professional guidance and structured support systems in enhancing athletes' nutrition knowledge. In contrast, rural wrestlers, though less exposed to scientific concepts of sports nutrition, often rely on traditional dietary practices that are culturally ingrained and nutritionally dense. Similar conclusions were drawn by **Sharma and Singh (2014)**, who observed that indigenous diets can contribute positively to athletic health



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despite limited formal knowledge. The misconceptions identified among both urban and rural wrestlers underscore the urgent need for structured and sport-specific nutrition education programmes. Previous studies by Heaney et al. (2011) emphasized that targeted educational interventions significantly improve athletes' dietary behaviour and performance outcomes. Therefore, coaches, physical education teachers, and sports authorities must take an active role in disseminating accurate and practical nutritional knowledge to wrestlers, ensuring the integration of nutrition education within regular training programmes.

VI. CONCLUSION

The present study concludes that both rural and urban wrestlers of Maharashtra possess a basic level of awareness regarding nutrition and its role in enhancing sports performance. Despite this general awareness, substantial gaps and misconceptions were observed in relation to the scientific principles of sports nutrition. Although urban wrestlers demonstrated comparatively higher nutritional knowledge than their rural counterparts, neither group exhibited a comprehensive or adequate understanding required for optimal athletic performance. In light of these findings, the study strongly recommends the implementation of systematic, structured, and region-specific nutrition education programmes. Such programmes should be integrated into regular training schedules and delivered through qualified coaches, physical education professionals, and sports nutrition experts to enhance wrestlers' knowledge, dietary practices, and overall performance outcomes.

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