



Influence of Nutrition, Physical Health, and Mental Well-Being on Athlete Performance in Tamil Nadu: A Mixed-Method Study

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Abstract:

Athlete performance is influenced by nutrition, physical health, and mental well-being. This mixed-method study analyzed 355 athletes in Tamil Nadu to determine how these factors impact performance. Data were collected via questionnaires, focus groups, and interviews. Proper nutrition, hydration, and mental resilience significantly enhanced performance, whereas supplement use and minor health issues had less impact. Recommendations include sport-specific diet plans, stress management, and awareness of sports medicine.

Keywords: nutrition, injuries, stress, mixed method, athlete performance

Introduction:

The word “sport” comes from Italian, meaning “fun spending time.” Sports involve physical effort and skill and are generally performed for enjoyment or competition. Athletes require physical training, exercise, and a balanced diet. Exercise improves mood, reduces stress, and enhances brain function.

Sports also foster teamwork, leadership, and social skills, which benefit academic and personal development. Healthy athletes strengthen society, and nations aim to showcase athletic talent globally.

Study Purpose:

This study assessed how nutrition, physical health, and mental health influence performance of athletes studying in Tamil Nadu.

Materials and Methods:

Study Design: Sequential explanatory mixed-method approach combining quantitative questionnaires with qualitative interviews and focus groups.

Participants: 355 athletes aged 16–35 years, recruited from school, college, university, and professional levels across Tamil Nadu.

Data Collection:

- Quantitative: Questionnaires on diet, health, sports participation, injuries, and stress
- Mental Health: CES-D depression scale and Perceived Stress Scale (PSS)
- Qualitative: Focus group discussions and personal interviews

Data Analysis: SPSS was used for descriptive statistics and chi-square tests. Interviews were thematically coded.

Results:**Participant Characteristics:**

Most participants (70.1%) were aged 21–25; 59% were male and 41% female.

Table 1: Participant Demographics

Variable	Frequency (n)	Percentage (%)
Age 16–20	69	19.4
Age 21–25	249	70.1
Age 26–30	30	8.5
Age 31–35	7	2.0
Male	209	59
Female	146	41

Nutrition Practices:

- 8.75% followed a mixed diet; few used carbohydrate-focused diets during practice/competition
- 58.75% did not use supplements
- 20.61% relied on internet for nutrition information
- Common foods: sprouts, eggs, nuts, meat, milk
- Hydration: 3–4 liters daily, 7 liters during workouts

Table 2: Sources of Nutrition Information

Source	Percentage (%)
Internet	20.61
Media	19.78
Doctor	15.04
Coach	9.75
Dietician	8.64
Self-informed	8.64
Parents	6.69

Table 3: Nutrition and Hydration Practices

Practice	Details
Diet Type	8.75% mixed diet, few carbohydrate-focused diets
Supplement Use	58.75% did not take supplements
Common Special Foods	Sprouts, eggs, nuts, meat, milk
Hydration	3–4 liters daily; 7 liters during workouts

Physical Health:

- Injuries were common but managed with physiotherapy and rest
- Minor health issues (asthma, vision problems, typhoid, PCOD) did not hinder participation

Table 4: Physical and Mental Health

Aspect	Observation
Injuries	Common; managed with physiotherapy and rest
Minor Health Issues	Asthma, vision problems, typhoid, PCOD; did not hinder performance
Stress	Sports reduced stress; stress caused by personal or competition-related issues
Depression	Lower in team sports than individual sports

Factors Affecting Performance:

Significant factors: diet type, hydration, nutrition knowledge, confidence, positive attitude

Non-significant: supplement use, minor health conditions

Table 5: Factors Affecting Performance

Factor	Significance	Notes
Diet Type	Significant	Protein-rich diet improves performance
Hydration	Significant	Adequate water intake enhances endurance
Nutrition Knowledge	Significant	Awareness improves diet adherence
Confidence & Attitude	Significant	Positive mindset enhances performance
Supplement Use	Not Significant	Minimal impact
Minor Health Conditions	Not Significant	Manageable through care

Qualitative Findings:

- Nutrition: Preference for protein-rich foods; adequate hydration emphasized
- Physical Health: Awareness of injuries and first aid improved performance
- Mental Health: Sports reduced stress; focus, confidence, visualization, and teamwork were key strategies

Discussion:

Most athletes relied on a mixed diet; internet and media were primary nutrition sources. Injuries and minor health conditions were common but manageable. Team sports had lower stress and depression prevalence, highlighting the importance of social support.

Conclusion:

Nutrition, physical fitness, and mental resilience are critical for athlete performance. Injuries are common but manageable. Personal and professional challenges cause stress, but sports activities reduce stress and enhance resilience.

Recommendations:

1. Follow sport-specific diet charts
2. Institutions to provide nutritious meals for athletes
3. Teach stress management, positive mindset, and willpower
4. Financial support for economically disadvantaged athletes
5. Promote awareness of sports medicine for injury recovery

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