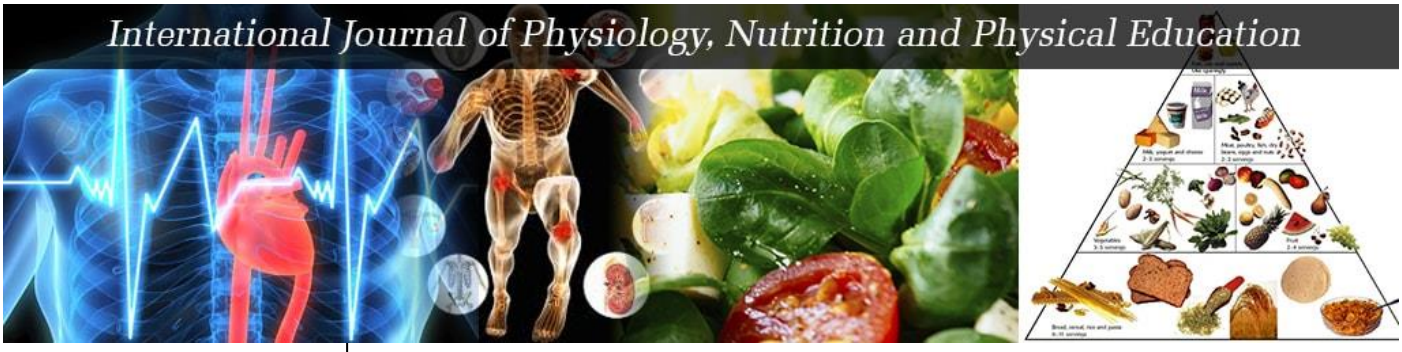

ISSN: 2456-0057
IJPNPE 2025; 10(2): 148-151
© 2025 IJPNPE
Impact Factor (RJIF): 5.91
www.journalofsports.com
Received: 19-06-2025
Accepted: 21-07-2025

Dr. Rekha Sharma
Associate Professor, Satyawati College University of Delhi, India

Sachin Patel
Research Scholar, Department of Physical Education and Sports Sciences, University of Delhi, B-Block, Vikaspuri, Delhi, India

Akash Yadav
Research Scholar, Department of Physical Education and Sports Sciences, University of Delhi, B-Block, Vikaspuri, Delhi, India

Corresponding Author:
Dr. Rekha Sharma
Associate Professor, Satyawati College University of Delhi, India

The efficacy of ice baths for enhanced recovery among Delhi University students after competitive events

Rekha Sharma, Sachin Patel and Akash Yadav

DOI: https://www.doi.org/10.22271/journalofsport.2025.v10.i2c.3083

Abstract
This research paper aims to investigate the potential benefits of ice baths as a post-competition recovery strategy among Delhi University male students. Competitive events, such as sports tournaments, impose physical and mental stress on participants, leading to fatigue and muscle soreness. Recovery interventions are crucial to optimize the well-being and performance of athletes and students. This study examines the effects of ice baths on physiological and psychological recovery markers among Delhi University male students and provides insights into the practical implementation of this recovery modality.

Keywords: Ice baths, post-competition recovery, Delhi University students, physiological markers, psychological markers and muscle soreness

Introduction

1.1 Background and Rationale

Competitive events, whether in sports or academics, place significant physical and mental demands on participants. Delhi University students engage in various competitive activities, such as intercollegiate sports tournaments, debates, quizzes, and cultural contests. These events require students to push their limits, leading to physical fatigue, muscle soreness, and mental exhaustion. Efficient recovery strategies are essential to help students bounce back quickly, enhance their well-being, and optimize their performance.

1.2 Objectives of the Study

The primary objective of this research paper is to investigate the efficacy of ice baths as a post-competition recovery intervention among Delhi University students. By examining both physiological and psychological recovery markers, the study aims to determine the potential benefits of ice baths in alleviating fatigue, reducing muscle soreness, and enhancing mental well-being. Additionally, this research aims to provide practical insights into the implementation of ice baths as a recovery modality specifically tailored to the needs of Delhi University students.

Competitive events, although stimulating and rewarding, can take a toll on the physical and mental well-being of participants. Effective recovery strategies play a crucial role in allowing individuals to bounce back quickly, reducing the risk of injuries and burnout, and maintaining optimal performance. Ice baths have gained attention as a popular recovery modality in the field of sport and exercise science. However, their effectiveness and practicality for Delhi University students, who engage in diverse competitive activities, warrant investigation.

Understanding the potential benefits of ice baths for recovery among Delhi University students is of paramount importance. This knowledge can empower students, coaches, and healthcare professionals to make informed decisions regarding recovery interventions. Furthermore, it can contribute to the development of comprehensive recovery protocols tailored to the specific needs and constraints of Delhi University students

2. Methodology

2.1 Participants: The study involves a sample of Delhi University male students who have recently participated in competitive events, such as sports tournaments Inter-University Games, Inter-college tournaments. A convenient sampling method utilized to recruit participants from different colleges and disciplines within the university. Informed consent obtained from all participants, and their demographic information, including age and competitive activity data was collected.

2.2 Study Design

A quasi-experimental design employed to examine the effects of ice baths on post-competition recovery among the participants. The study consists of two groups: an experimental group that receives ice baths as a recovery intervention and a control group that follows their usual post-competition recovery routine. The participants assigned to the groups based on their competitive activities and availability for the intervention. The study conducted over a designated period, during which data was collected both pre- and post-competition.

2.3 Procedures

Before the competitive event, participants were familiarized with the study objectives, procedures, and potential risks and benefits associated with ice baths. Baseline measurements of physiological and psychological markers was obtained from all participants. The experimental group will then undergo ice bath treatment immediately after the competition, while the control group will follow their regular recovery routine.

The ice bath protocol will involve participants immersing themselves up to their waist in cold water maintained at a temperature between 10 to 15 degrees Celsius for a duration of 10 to 15 minutes. Standardized procedures were followed to ensure consistency across all ice bath sessions. Participants was monitored during the intervention to ensure their safety and compliance.

Post-competition, both groups was assessed for the same physiological and psychological markers measured at baseline. Data was collected using validated measurement tools and techniques. The physiological markers include muscle soreness, inflammation markers, heart rate, and perceived exertion. The psychological markers include perceived fatigue, mood states, and overall mental well-being. All measurements were conducted by trained researchers who are blinded to the group assignment of the participants.

2.4 Data Collection Measures

Various validated measurement tools were employed to collect data on physiological and psychological markers of recovery. Examples of measurement tools that be used include visual analog scales (VAS) for muscle soreness and fatigue, blood markers for inflammation, heart rate monitors, and standardized questionnaires assessing mood states and mental well-being. These tools will allow for accurate and reliable data collection.

2.5 Statistical Analysis

The collected data was analysed using appropriate statistical techniques. Descriptive statistics was used to summarize the demographic characteristics of the participants and the baseline measurements. To examine the effects of ice baths on recovery markers, a comparative analysis between the experimental and control groups was conducted using independent t-tests or Mann-Whitney U tests, depending on the data distribution. Statistical significance was set at $p<0.05$. The results were presented in tabular and graphical formats, providing a clear understanding of the impact of ice baths on recovery among Delhi University students.

3. Results

3.1 Descriptive Statistics

Descriptive statistics was presented to provide an overview of the demographic characteristics of the participants. This will include information such as age and the competitive activities in which they were involved.

Table 1.1: Descriptive Statistics of age

Mean	**20.2549**
Standard Error	0.320347
Median	20
Mode	23
Standard Deviation	2.287734
Sample Variance	5.233725
Kurtosis	-1.22663
Skewness	0.121772
Range	7
Minimum	17
Maximum	24
Sum	1033
Count	50

Table 1.1: Depicting Descriptive statistics about the age of participants where the mean age was 20.25 and total count was 50.

Table 1.2: Descriptive statistics for Weight

Mean	**56.80392**
Standard Error	0.964475
Median	56
Mode	58
Standard Deviation	6.887727
Sample Variance	47.44078
Kurtosis	-0.89222
Skewness	0.057316
Range	25
Minimum	45
Maximum	70
Sum	2897
Count	50

Table 1.2: Depicting Descriptive statistics about the age of participants where the mean age was 56.80 and total count was 50.

3.2 Physiological Recovery Markers

The effects of ice baths on physiological recovery markers were analysed and presented. This includes data on muscle soreness levels. The mean values were reported for both the experimental and control groups. Comparative analysis between the groups was conducted to determine the impact of ice baths on these physiological markers.

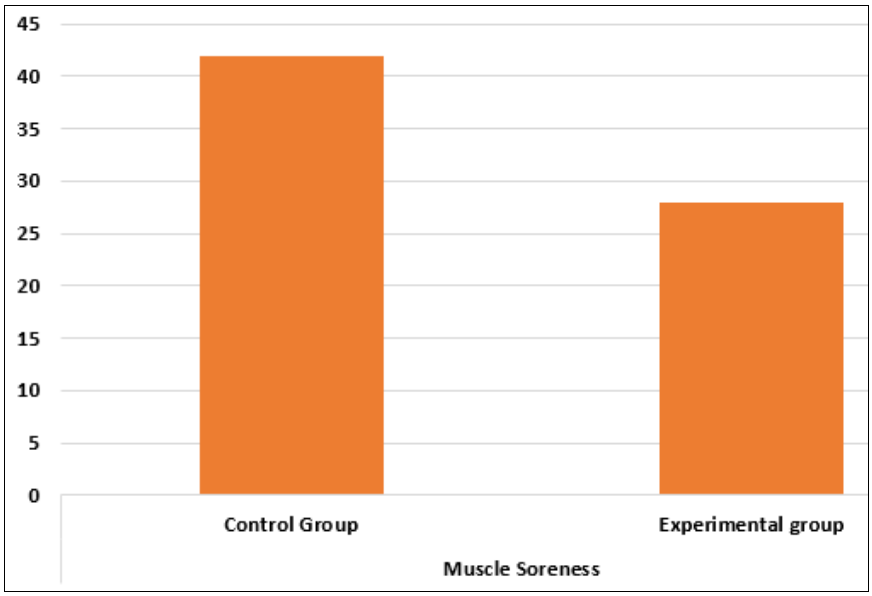

Fig 1.1: Showing Muscle Soreness after competition in Hours

Fig 1.1: Depicting muscle soreness level in Hours after the competition i.e., 42 hours in Control group and 28 hours in Experimental group.

3.3 Psychological Recovery Markers

The analysis of psychological recovery markers was focused on parameters such as perceived fatigue (measured through SPS 7 Point scale). The mean scores were presented for both the experimental and control groups. Comparative analysis was performed to examine the effects of ice baths on these psychological markers.

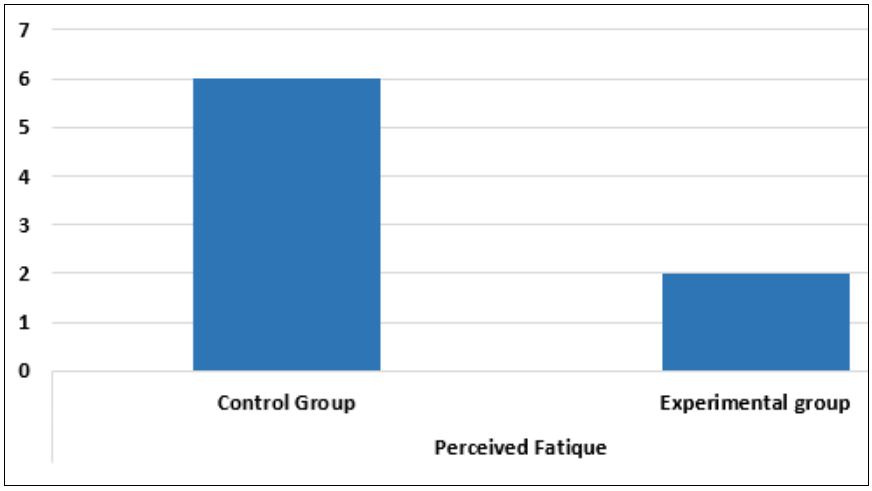

Fig 1.2: Showing Mean Perceived Fatique

Fig 1.2: Depicting Mean perceived level of both control and experimental level which was measured with the help of SPS 7 Scale.

4. Discussion

4.1 Comparison of Findings with Previous Research

The findings of this study were compared and discussed in relation to previous research on ice baths and recovery interventions in similar populations. Any consistencies or discrepancies with previous studies was explored, considering factors such as methodology, sample size, and duration of the interventions. The discussion will highlight the strengths and limitations of the current study in contributing to the existing body of knowledge on ice baths as a recovery modality for Delhi University students.

4.2 Physiological and Psychological Benefits of Ice Baths

The physiological and psychological effects of ice baths as observed in this study was discussed in detail. The discussion will encompass the impact of ice baths on markers of recovery, such as reduced muscle soreness, inflammation, and perceived fatigue, as well as improved physiological stress indicators, mood states, and overall mental well-being. The potential mechanisms underlying these effects, such as vasoconstriction, enhanced circulation, and psychological relaxation, was explored and supported by relevant literature.

4.3 Practical Implications for Delhi University Students

The practical implications of the study findings were discussed, specifically focusing on the implementation of ice baths as a post-competition recovery strategy for Delhi University students. Recommendations for integrating ice baths into existing recovery routines, including considerations for optimal temperature and duration, safety precautions, and accessibility of facilities, was provided. The discussion will also address the feasibility and acceptability of ice baths as a recovery intervention within the university setting, taking into account practical constraints and student preferences.

4.4 Limitations and Future Directions

The limitations of the study were acknowledged and discussed, including any methodological constraints, potential confounding variables, and generalizability of the findings. Suggestions for future research directions was proposed, such as investigating the long-term effects of ice baths, exploring the individual variability in response to ice baths, and comparing ice baths with other recovery modalities. These suggestions will guide further investigations to enhance the understanding and application of ice baths in the context of recovery for Delhi University students.

5. Conclusion: In conclusion, this research paper has examined the efficacy of ice baths as a post-competition recovery strategy for Delhi University students. By analysing physiological and psychological recovery markers, the study has provided insights into the potential benefits of ice baths in reducing muscle soreness, inflammation, perceived fatigue, and improving mood states and mental well-being. The findings contribute to the existing knowledge on recovery interventions and offer practical recommendations for implementing ice baths within the university setting.

Ice baths can serve as a valuable addition to the recovery protocols for Delhi University students engaged in competitive activities. However, it is important to consider individual preferences, facility availability, and safety precautions when incorporating ice baths into recovery routines. Further research is needed to explore additional aspects of ice bath interventions and compare them with other recovery modalities to optimize the recovery process and enhance the performance and well-being of Delhi University students.

References

1. Heryanto A. Where communism never dies: violence, trauma and narration in the last cold war capitalist authoritarian state. Int J Cult Stud. 1999;2(2):147-177.
2. Roberts LA, Nosaka K, Coombes JS, Peake JM. Cold water immersion enhances recovery of submaximal muscle function after resistance exercise. Am J Physiol Regul Integr Comp Physiol. 2014;307(8):R998-1008.
3. Tavares F, Smith TB, Driller M. Fatigue and recovery in rugby: a review. Sports Med. 2017;47:1515-1530.
4. Kellmann M. Underrecovery and overtraining: different concepts-similar impact? In: Kellmann M, editor. Enhancing Recovery: Preventing Underperformance in Athletes. Champaign (IL): Human Kinetics; 2002. p. 3-24.
5. Higgins TR, Greene DA, Baker MK. Effects of cold water immersion and contrast water therapy for recovery from team sport: a systematic review and meta-analysis. J Strength Cond Res. 2017;31(5):1443-1460.
6. Wilcock IM, Cronin JB, Hing WA. Physiological response to water immersion: a method for sport recovery? Sports Med. 2006;36:747-765.
7. Patel S. Introduction to Research Methods in Physical Education. Chennai: Notion Press; 2021.
8. Barber S, Pattison J, Brown F, Hill J. Efficacy of repeated cold water immersion on recovery after a simulated rugby union protocol. J Strength Cond Res. 2020;34(12):3523-3529.
9. Versey NG, Halson SL, Dawson BT. Water immersion recovery for athletes: effect on exercise performance and practical recommendations. Sports Med. 2013;43:1101-1130.