

Original article. Investigating the commitment level of athletes in relation to high-performance sports
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Investigating the commitment level of athletes in relation to high-performance sports

Investigación del nivel de compromiso de los atletas en relación con el deporte de alto rendimiento

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Abstract

This study investigated the dedication of university athletes in Metro Manila to high-performance sport, emphasizing training, diet, and recovery habits in connection to perceived performance outcomes. A researcher-created questionnaire was distributed to 788 student-athletes from multiple colleges, employing a quantitative, descriptive-correlational design. The tool received validation from sports science professionals and demonstrated high reliability, with Cronbach's alpha coefficients ranging from 0.82 to 0.88. The analysis employed descriptive statistics and Pearson's r correlation. The results demonstrated a significant commitment to training activities ($M = 3.42$), especially to organized routines such as strength and conditioning, sport-specific drills, and competition-oriented regimens. The commitment to nutritional behaviors was moderate ($M = 3.03$), with limited systematic meal planning and professional nutritional advice. Recovery practices demonstrated a modest level of dedication ($M = 3.18$), highlighting the importance of stretching and rest days, however professional recovery services were inadequately utilized. Correlation analysis indicated robust positive associations between perceived performance outcomes and training ($r = 0.655$), recuperation ($r = 0.878$), and nutrition ($r = 0.942$), with nutrition identified as the most significant predictor. These findings underscore the necessity of incorporating structured nutrition programs, systematic monitoring, and evidence-based recovery measures to improve university sports performance.

Key Words: athlete commitment, performance outcomes, sports training, sports nutrition, recovery strategies

Resumen

Este estudio investigó la dedicación de los atletas universitarios en Metro Manila al deporte de alto rendimiento, enfatizando los hábitos de entrenamiento, alimentación y recuperación en relación con los resultados percibidos de desempeño. Se distribuyó un cuestionario elaborado por los investigadores a 788 estudiantes-atletas de múltiples universidades, empleando un diseño cuantitativo, descriptivo-correlacional. El instrumento fue validado por profesionales en ciencias del deporte y demostró alta confiabilidad, con coeficientes alfa de Cronbach que oscilaron entre 0.82 y 0.88. El análisis utilizó estadística descriptiva y la correlación de Pearson (r).

Los resultados evidenciaron un compromiso significativo con las actividades de entrenamiento ($M = 3.42$), especialmente con rutinas organizadas como el entrenamiento de fuerza y acondicionamiento, ejercicios específicos del deporte y regímenes orientados a la competencia. El compromiso con los hábitos nutricionales fue moderado ($M = 3.03$), con una planificación sistemática de comidas y asesoramiento nutricional profesional limitados. Las prácticas de recuperación mostraron un nivel moderado de dedicación ($M = 3.18$), destacando la importancia de los estiramientos y los días de descanso; sin embargo, los servicios profesionales de recuperación fueron utilizados de manera insuficiente.

El análisis de correlación indicó asociaciones positivas sólidas entre los resultados percibidos de desempeño y el entrenamiento ($r = 0.655$), la recuperación ($r = 0.878$) y la nutrición ($r = 0.942$), identificándose la nutrición como el predictor más significativo. Estos hallazgos subrayan la necesidad de incorporar programas estructurados de

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nutrición, monitoreo sistemático y medidas de recuperación basadas en evidencia para mejorar el rendimiento deportivo universitario.

Palabras clave: compromiso del atleta, resultados de desempeño, entrenamiento deportivo, nutrición deportiva, estrategias de recuperación.

Introduction

In recent times, the sports industry has emphasized different lenses for athlete development, specifically high-performance in nature. According to Dhiman and Kapri (2023), successful athletic performance is no longer just a matter of raw talent but an outcome of a well-balanced synergy among training programs, nutritional practices, and recovery strategies.

Training is one of the key factors in an athlete commitment to high performance. According to Anousaki (2021), a periodized training structure has been a key factor for strength, power, and performance, while reducing overtraining risk. Walts (2021) also noted that flexibility in training, such as workload adjustments, promotes sustained engagement. Moreover, the inclusion of a feedback mechanism strengthens sustainable performance because athletes trust the system (Kupperman et al., 2021). Moreover, structured training program strengthen motivation compared to less organized (Clemente-Suárez et al., 2021).

Another key factor to optimize high performance is nutrition. A prepared athlete strategically manages nutrient intake to support training and competition demands (Amawi et al., 2024). Existing research shows that there is a gap in nutritional knowledge, which can lead to low energy, impaired recovery, and increased risk of injury (Abbey et al., 2021). In addition, micronutrient deficiency and inadequate energy intake lead to reduced metabolic function and performance (D'Amico et al., 2021). The study by De Jesus et al. (2023) revealed that a nutrition program, institutional support and access to high-quality foods have a significant effect on athletes' performances.

Recovery is as important as nutrients and training program. Sleep is associated with better mood, training quality, and energy (Charest & Grander, 2020), while Hayashi et al. (2023) suggested that 90 minutes of daytime sleep effectively enhances an athlete's performance. According to Wilson et al. (2025), irregular sleep patterns disrupt circadian rhythms, weaken recovery, and raise stress. Moreover, recovery includes

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thermoregulatory cold and heat application which reduce muscle discomfort and improves fatigue resistance (Chaillou et al., 2022).

In the Philippine collegiate setting, especially in Metro Manila, where most university competitions are rampant, athletes are highly competitive and expected to deliver high-quality performances. Despite this knowledge, institutional supports still vary. Some universities integrated a sports development program focused on training, nutrition, and recovery, while others relied only on the framework of Physical Education with limited high-performance interventions.

The Philippine setting lacks sufficient access to biomechanical support in the training program. This is supported by Allado et al. (2021), who revealed that access limitation to sports medicine and biomechanical support raise injury risk. Bratsman et al. (2021) said that this concern reflects some international findings that not having an individualized training program creates a space for higher injury rates.

Moreover, most institutions in Metro Manila do not have nutritionists and dieticians; therefore, most athletes just eat what they want and what is available. Li et al. (2022) found that limited access to protein-rich and nutrient-dense foods can demoralize an athlete's performance goals, while Lee et al. (2021) found that awareness is not enough without structural changes, such as aligning food intake with an athlete's individual needs. Lastly, Filipino student athletes are confined to tropical heat and humidity, which elevates cardiovascular strain and increases sweat loss. According to Suppiah (2021), adequate hydration and heat-acclimated training are important. Notably, hydration practices among student-athletes have positive relation in the outcomes of their competition (Quijano et al., 2022).

While there are existing foreign studies that say high-performance practices have an effect on athlete performance, there is a lack of localized studies that focus on the commitment of collegiate athletes in the Philippines. Given the increasing interest in sports development, it is imperative to investigate the commitment of university athletes to developing future champions. This study focused on investigating the commitment level of the university athletes in (1) training practices, (2) nutrition practices, and (3) recovery practices and its relation to their perceived performance outcomes. By

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identifying which habits are strong and where the biggest gaps exist targeted interventions can roll out.

This study sought to examine the commitment levels of university athletes in Metro Manila to high-performance sports and their correlation with perceived performance outcomes. It aims to evaluate athletes' commitment to training methodologies, encompassing periodized regimens, sport-specific exercises, and competition-focused programs; nutritional strategies, including meal organization, nutrient consumption, and compliance with performance-oriented dietary protocols; and recovery techniques, such as sleep habits, rest intervals, thermoregulation methods, and additional recovery measures. The study analyzes the correlations between these commitments and perceived performance outcomes and identifies deficiencies in high-performance practices that may guide focused improvements for collegiate sports programs.

The study holds substantial importance for several parties. It offers universities guidance on resource allocation and the development of structured programs that optimize athlete performance, mitigate injury risk, and enhance competitiveness. Coaches can utilize the data to create personalized, evidence-based training programs, while athletes acquire practical insights to enhance habits that affect performance, health, and resilience. Furthermore, sports organizations and policymakers can leverage the data to enhance high-performance programs and develop future national athletes. The study highlights the importance of comprehensive development, ensuring athletes are taught not only for sports excellence but also for sustained well-being, resilience, and ongoing success in life.

Understanding the relationships among training, nutrition, and recovery and performance outcomes among Filipino athletes can provide a pathway to a more actionable strategy. The study aims to support athletes not only to build to perform but also to build to a healthy, resilient, and prepared state for continued success in sports and life.

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Materials and methods

Research design

This study utilized a quantitative-descriptive correlational design. A quantitative approach is appropriate as it enables the measurement of variables in numerical form and allows for statistical analysis of the strength and direction of their correlations (Creswell & Creswell, 2021). A descriptive-correlational design aims to provide a systematic, accurate, and precise representation of the characteristics and relationships among variables as they occur naturally, without alteration (Dhiman & Kapri, 2023). The study outlined athletes' practices in training, nutrition, and recovery, and examined the relationships among these practices and perceived performance outcomes. This methodology is widely employed in sports science research as it accurately identifies behavioral patterns and clarifies significant relationships between health-related and performance-related variables (Abbey et al., 2021). A quantitative-descriptive correlational methodology was utilized to assess and analyze the links between athlete commitment in training, diet, and recuperation, and perceived performance outcomes. This method is widely used in sports science research because it provides strong, clear information on how different variables are related, which helps inform evidence-based suggestions for helping athletes improve. The statistical procedures ensured that the data were accurate, reliable, and genuine.

Respondents and sampling

The survey included 788 student-athletes chosen from different universities. The study used simple random sampling to ensure that each athlete in the target population had an equal chance of being selected, thereby mitigating selection bias and promoting impartiality in participation (Taherdoost, 2018). This approach ensured a representative and unbiased sample. To ensure adequate statistical power, minimize sampling error, and improve the reliability of the correlation analysis among training, nutrition, recovery, and perceived performance outcomes, a sample size of 788 respondents was maintained (Etikan & Bala, 2017). Furthermore, the external validity and generalizability of the findings were enhanced by the inclusion of participants from a variety of institutions, which facilitated the capture of a wide range of institutional support, training

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environments, and athlete experiences. The study ensured that the results accurately reflect the practices and behaviors of collegiate athletes across Metro Manila by meeting these requirements: equal opportunity of selection, a substantial sample size, and diverse representation.

Data Collection Process

The data were collected through online questionnaires distributed via digital communication platforms and institutional networks. This facilitated athletes' responses, despite their academic and training responsibilities. The methodology is consistent with current sports research, which suggests that digital data capture methods are more effective and acceptable for engaging a broader spectrum of respondents (De Jesus et al., 2023). A researcher-designed online questionnaire was used to collect data from 788 student-athletes at various universities in Metro Manila. To mitigate selection bias and improve sample representativeness, simple random sampling was used to ensure that all athletes had an equal opportunity to participate. The questionnaire was validated by five experts in sports science and physical education for content accuracy and clarity. It was divided into sections focused on training, nutrition, recuperation, and perceived performance outcomes. Cronbach's alpha reliability testing indicated that all sections exhibited high internal consistency (0.82–0.88). The online format enabled participants to respond at their convenience, regardless of their academic or training schedules, thereby ensuring high accessibility and compliance. To preserve the confidentiality and integrity of the data, it was collected securely via institutional digital platforms, encoded, and analyzed using SPSS.

Research instrument

The study employed a researcher-made questionnaire methodically constructed from contemporary literature on (1) training, (2) food, (3) recovery, and (4) performance outcomes. There are 10 questions about training, food, recovery and performance outcomes. To ensure validity, five experts in sports science and physical education evaluated the instrument's content, clarity, and alignment with the study's objectives. This

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content validation process ensured that the items accurately measured their intended constructions (Abbey et al., 2021).

Cronbach's alpha, a statistical metric for internal consistency assessing the interrelatedness of scale items measuring the same construct, was employed to evaluate the instrument's reliability (Taber, 2017). Cronbach's alpha values ranging from 0.80 to 0.90 are generally regarded as "good to excellent," indicating that the measurement demonstrates reliability (Trizano-Hermosilla & Alvarado, 2016). The coefficients in this study ranged from 0.82 to 0.88, indicating high consistency across the questionnaire's sections. The elevated reliability indicates that the tool consistently assessed athletes' training, dietary, and recovery practices, hence enhancing the credibility of the results. The reliance on validated and reliable instruments is crucial in sports research, as it ensures that findings drawn from the data are robust and grounded in evidence-based practice (Doherty et al., 2021).

Statistical analysis

This study used Statistical Package for the Social Sciences (SPSS) to encode, organize, and analyze data from respondents. Specifically used the following:

Descriptive statistics were employed to summarize the respondents' demographic characteristics and to clarify their training, nutrition, recovery, and perceived performance outcomes. The means and standard deviations (SDs) were computed to assess athletes' commitment levels in each of the four domains. The application of these descriptive statistics provided a clear representation of the athletes' overall trends and variability in their responses, appropriate for research aimed at clarifying behavioral patterns in sports (Creswell & Creswell, 2021).

The study used Pearson's correlation coefficient to examine the strength and direction of the linear relationship among training, food, and recovery variables and perceived performance outcomes. Pearson's r is considered the most appropriate test for evaluating relationships between continuous variables, as it quantifies the extent to which one variable predicts changes in another (Schober et al., 2021). The correlation results were assessed according to predefined criteria: $r = 0.10$ – 0.29 (weak), $r = 0.30$ – 0.49 (moderate), $r = 0.50$ – 0.69 (strong), and $r = 0.70$ – 1.00 (very strong) (Hayashi et al., 2023).

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The researcher used descriptive statistics, such as means and standard deviations, to summarize participants' traits and determine their levels of commitment across the domains. This gave us a true picture of their behavioral patterns. The researcher used Pearson's r correlation coefficient to assess the strength and direction of linear relationships between continuous variables. This helped us find connections between commitment behaviors and performance outcomes.

Ethical Consideration and Informed consent

The institutional ethics committee conducted a formal review and approval of this study, ensuring that all ethical principles for research involving human participants were rigorously adhered to. The study's purpose, procedures, potential risks, and benefits were completely disclosed to respondents through an online informed consent form, and participation was entirely voluntary. Participants were assured of the study's confidentiality and anonymity, and informed of their right to withdraw at any time without penalty. All responses were utilized exclusively for research purposes, and data were collected and stored securely. These measures safeguarded the rights, privacy, and welfare of all participants throughout the course of the study.

Results

Table 1 presents the respondents' levels of commitment to their training, nutrition, and recovery practices, and their perceived performance outcomes. These tables provide an overview of how committed athletes are from different lenses.

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Table 1. Level of Commitment of Respondents in terms of Tra training, nutrition, and recovery practices, and perceived performance outcomes

Training Practices	Mean	Df	Interpretation	Rank
I follow a structured training schedule consistently throughout the week.	3.37	0.757	Highly Committed	8
I train under the supervision of a qualified coach.	3.51	0.910	Highly Committed	6
I incorporate strength and conditioning exercises into my routine.	3.56	0.765	Highly Committed	2
I perform sport-specific drills at least three times a week.	3.56	0.854	Highly Committed	2
I regularly track my training progress through journals or apps.	2.79	0.965	Committed	10
I include flexibility or mobility drills in every session.	3.53	0.767	Highly Committed	4
I participate in scrimmages or simulated competitions during training.	3.33	0.892	Highly Committed	9
I complete warm-up and cool-down exercises properly.	3.53	0.767	Highly Committed	4
I adjust my training based on competition schedules.	3.58	0.823	Highly Committed	1
I communicate regularly with my coach about training feedback.	3.40	0.849	Highly Committed	7
Overall	3.42	0.672	Highly Committed	
Nutrition Practices	Mean	Df	Interpretation	Rank
I eat three full meals per day with balanced nutrition.	3.05	0.925	Committed	6
I consume protein-rich foods to support muscle recovery.	3.19	0.932	Committed	3
I follow a nutrition plan tailored to my training needs.	2.74	0.954	Committed	9
I avoid processed and fast foods during training season.	2.95	0.899	Committed	7
I hydrate adequately before, during, and after training.	3.44	0.734	Highly Committed	1
I eat carbohydrate-rich meals before intense workouts or games.	3.35	0.813	Highly Committed	2

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I consume fruits and vegetables daily.	3.09	0.947	Committed	5
I use supplements (e.g., vitamins, protein) as recommended.	2.84	0.974	Committed	8
I consult a nutritionist or coach about my diet.	2.56	1.007	Committed	10
I maintain a consistent eating schedule even during competition weeks.	3.12	0.931	Committed	4
Overall	3.03	0.749	Committed	
Recovery Practices	Mean	Df	Interpretation	Rank
I get at least 7–8 hours of sleep on most nights.	3.16	0.814	Committed	7
I take at least one full rest day per week.	3.42	0.763	Highly Committed	2
I perform post-training recovery techniques like stretching or foam rolling.	3.37	0.757	Highly Committed	3
I undergo massage therapy or similar recovery treatments.	2.84	0.949	Committed	9
I use cold therapy (e.g., ice baths) after intense physical activity.	3.12	1.028	Committed	8
I listen to my body and reduce intensity when needed.	3.21	0.940	Committed	6
I track my fatigue or soreness to manage overtraining.	3.23	0.812	Committed	4
I include active recovery (e.g., light walking, yoga) on off days.	3.23	0.812	Committed	4
I avoid alcohol and junk food to enhance recovery.	3.44	0.854	Highly Committed	1
I consult a physical therapist or trainer for injury management.	2.79	1.166	Committed	10
Overall	3.18	0.705	Committed	
Perceived Performance Outcomes	Mean	Df	Interpretation	Rank
I consistently feel physically prepared for competition.	3.26	0.790	Highly Committed	7
I have achieved personal records or milestones in the past year.	3.21	0.914	Committed	8

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I am regularly selected to represent my team in major competitions.	3.21	0.861	Committed	8
My training has led to improvements in my performance.	3.58	0.763	Highly Committed	2
I feel confident in my ability to perform under pressure.	3.37	0.817	Highly Committed	6
I recover quickly after intense games or training.	3.21	0.861	Committed	8
I have won individual or team awards in competitions.	3.40	0.877	Highly Committed	5
I receive positive feedback from my coaches regarding performance.	3.35	0.870	Highly Committed	4
I maintain a high level of motivation and discipline.	3.47	0.667	Highly Committed	3
I perform better when I follow proper training, nutrition, and recovery routines.	3.60	0.695	Highly Committed	1
Overall	3.37	0.676	Highly Committed	

Table 2 provides a summary correlation between training, nutrition and recovery practices to perceived performance outcomes. Understanding this relationship can improve high performance level of athletes.

Table 2. Relationship between respondents training, nutrition and recovery practices to perceived performance outcomes

Variables	Correlation (r) with Self-Performance Outcomes	p-value	Interpretation
Training Practices	0.655	< 0.001	Moderate positive relationship, statistically significant
Nutrition Practices	0.942	< 0.001	Very strong positive relationship, statistically significant
Recovery Practices	0.878	< 0.001	Strong positive relationship, statistically significant

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Discussion

The data from the training practices indicated an overall mean of 3.42 (0.672), signifying "Highly Committed." This indicates that the athletes in the sample excel at adhering to training protocols, including maintaining scheduled weekly plans, performing warm-up and cool-down exercises, engaging in strength and conditioning, and adjusting their training to accommodate competitive requirements. These findings demonstrate that athletes are committed to coach-directed, session-specific routines, which are essential for performance improvement and injury prevention. A notable weakness was observed in self-monitoring behaviors: the least favorable indicator was "I regularly track my training progress through journals or apps", which was exclusively evaluated as "Committed."

The highest score, "I adjust my training according to competition schedules", illustrates the commitment of athletes to align their training loads with the competition calendar. This indicates a widespread recognition of periodization principles, including tapering and peaking strategies, acknowledged for improving competitive readiness while mitigating fatigue. Research consistently demonstrates that competition-aware planning and systematic load modification enhance performance and reduce the risk of overtraining compared to ad hoc training approaches (Nobari et al., 2021; Washif et al., 2025). Coaches employing structured periodization strategies enhance both immediate performance and facilitate long-term athlete development (Macedo et al., 2024). Conversely, the lowest indicator, self-monitoring training, indicates the absence of objective tracking practices, such as session diaries, training software, or wellness questionnaires. Monitoring athletes is increasingly vital for effective training management, as it provides essential feedback loops to identify maladaptation, manage workload, and facilitate recovery (West et al., 2021; Torres-Ronda et al., 2022). Athletes and coaches cannot implement evidence-based modifications without continuous monitoring, thereby diminishing the efficacy of well-structured periodization schemes (Haller et al., 2024). This disparity indicates that athletes engage less in data-driven self-management strategies compared to activities prescribed by their coaches.

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The athletes' dedication to their nutrition practices is evident in the aggregate mean score of 3.03 (SD = 0.749). This implies they are making an effort to maintain eating practices beneficial for training and performance; however, they could still improve their consistency. The most critical metric is the consumption of adequate water before, during, and after training. Subsequently, carbohydrate-rich meals should be consumed before engaging in strenuous exercise or games. Both of these are perceived as highly committed, indicating that athletes prioritize energy preparation and appropriate hydration. Conversely, conversing with a nutritionist or coach about diet and adhering to a nutrition plan tailored to training requirements are the least significant indicators. This implies that athletes consume nutritious foods; however, they do not frequently seek professional guidance or adhere to personalized diet plans. These may be areas where they could improve their performance.

The study found that Filipino student athletes face many nutritional issues and must find creative solutions. Diet, nutrient timing, and hydration affect their competition performance. Hydration was emphasized because tropical temperatures increase heart rate and sweating during training and competition. Planning fluid intake improves endurance and thermoregulation, making structured hydration techniques more important than thirst signals (Kenefick, 2018). This matches athletes' claims that heat and humidity make hydration difficult. New research suggests that competitive athletes, such as para hockey players, exhibit quantifiable changes in fluid equilibrium that affect their readiness (Gavel et al., 2024).

The timing of nutrition also affected treatment efficacy and recovery. Synchronizing carbohydrate and protein intake with exercise cycles improves performance, protein synthesis, and glycogen resynthesis (Kerksick et al., 2017; Thomas et al., 2016). Due to busy school schedules, long commutes, and late training sessions, many student athletes struggled to maintain regular meal times. These concerns often slow recuperation, highlighting the importance of well-planned nutrition regimens for school and sports. Along with sufficient hydration and healthy time, diet greatly affects both short- and long-term health. Martín-Rodríguez et al. (2024) found that sustainable, high-quality diets enhance more than only body composition. They can also improve competitive mental readiness and resilience. Many student athletes in this study reported

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inconsistent eating habits. This was mostly due to poverty and lack of sport-specific nutrition supplements. These findings confirm previous study that game organization makes it difficult for players to meet their nutritional needs. This shows that schools and other institutions must help (Amawi et al., 2024).

Hydration, nutritional timing, and diet affect athletic performance, according to the study. The climate, educational system, and resources accessible to Filipino student athletes create unique problems. Institutionally supported dietary programs, proper food timing, and structured hydration strategies could help athletes improve and become more resilient, narrowing performance differences.

The mean score for recovery practices was 3.18 (SD=0.705), indicating a commitment among individuals. This indicates that athletes have a moderate interest in recovery protocols; yet their practices remain suboptimal and lack systematic organization. The findings indicate that athletes choose fundamental, straightforward strategies such as incorporating rest days, stretching, and avoiding unhealthy foods. Resource-dependent techniques, such as massage therapy and physiotherapy consultations, are hardly utilized. This indicates that healing remains predominantly self-directed and centered on lifestyle modifications rather than on formal, evidence-based interventions.

The signal with the highest score was "I avoid alcohol and junk food to enhance recovery", classified in the "highly committed" category. This signifies that athletes possess a profound awareness of the significance of their lifestyle and dietary practices for recovery. Previous research indicates that alcohol consumption negatively impacts post-exercise recovery by obstructing muscle adaptation and delaying tissue regeneration (Lakićević, 2019). Similarly, poor dietary practices may hinder recuperation and elevate the risk of tiredness, while proactive lifestyle strategies improve enduring athletic performance (Gulanes et al., 2024). This evidence-based alignment indicates that athletes prioritize preventive efforts to reduce setbacks and enhance recovery efficiency. The indicator with the lowest score was "I consult a physical therapist or trainer for injury management". This score indicates that the individual does not heavily depend on professional rehabilitation support, despite being regarded as dedicated. This disparity may result from factors like as cost, limited availability, or a preference for self-

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management. Expert-led methodologies are crucial as they prevent recurrent injuries and ensure proper recovery (Gulanes et al., 2024). In the absence of systematic monitoring, rehabilitation frequently becomes reactive, resulting in extended downtime and diminished performance longevity. This trend is corroborated by additional evidence. Rest days and stretching/foam rolling garnered elevated scores, consistent with evidence indicating that these practices alleviate muscular discomfort and diminish the risk of overtraining (Dupuy et al., 2018). Active recovery and soreness monitoring received moderate ratings, indicating partial implementation of techniques that promote long-term performance adaptation (Ortiz et al., 2019). Sleep was of a modest grade, which is concerning, as many individuals agree that sufficient sleep is the optimal way for athletes to recover (Walsh et al., 2020).

The findings suggest that lifestyle-focused rehabilitation treatments are more frequently implemented, but organized, professional interventions remain underutilized. Athletes exhibit commendable discipline in abstaining from alcohol and junk food, as well as ensuring adequate sleep; nonetheless, they must still acquire knowledge of science-based and systematic recuperation techniques. Addressing these deficiencies, particularly by helping athletes improve their sleep and access professional support, may enhance their long-term performance and resilience.

The performance outcome practices yielded an aggregate mean of 3.37(SD=0.679), indicating a robust degree of commitment. This indicates that athletes often adhere to their training and performance responsibilities. The highest-rated indicator was "I perform better when I adhere to appropriate training, nutrition, and recovery protocols", indicating "Highly Committed." This illustrates the significance of adopting a holistic approach to sports performance, in which disciplined training, proper nutrition, and effective recovery protocols work in unison. Recent research indicates that incorporating recovery-oriented practices like as sleep treatments and systematic load monitoring, into your regimen can enhance long-term performance and reduce the likelihood of injury (Cunha et al., 2023; Macedo et al., 2024; Walsh et al., 2020). Moreover, data highlight the importance of customized feedback and dietary approaches in sustaining performance and enhancing athletes' adaptability across different training phases (Weakley et al., 2023; Wang et al., 2024). A high score on this indicator indicates

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that the athletes in this study possess extensive knowledge of the importance of thorough preparation and effectively apply these concepts to optimize their readiness for competition. The least favorable indicators, “I have attained personal records or milestones in the past year,” “I am frequently chosen to represent my team in significant competitions,” and “I recuperate swiftly after rigorous games or training”, interpreted as “Committed” suggest challenges in translating preparation into measurable achievements. The results may stem from contextual variables such as competition schedules, athlete specialization, or insufficient institutional support, rather than a deficiency in personal discipline. For example, workload and recovery management are significantly influenced by season and athlete role, which may alter the likelihood of achieving milestones and achieving consistent recovery outcomes (Nobari et al., 2021). Insufficient or inconsistent recovery methods may delay adaptation and prolong fatigue, aligning with research indicating that inadequate sleep and poor load management impair athletes' preparedness and resilience (Walsh et al., 2020; Macedo et al., 2024).

It is noteworthy that statements such as "My training has led to improvements in my performance" and "I maintain a high level of motivation and discipline" received elevated scores. This demonstrates that athletes are highly dedicated to advancing and maintaining self-discipline. Motivation and external feedback are recognized as mediating factors that promote training adaptations, as athletes with elevated motivation and structured guidance show considerable improvements in performance (Weakley et al., 2023). These findings emphasize that while athletes demonstrate commitment to training and discipline, external factors such as access to competitive opportunities, recovery support systems, and institutional endorsement are crucial for translating preparation into tangible results.

The results indicate that athletes exhibit significant dedication to preparation through rigorous exercise, proper nutrition, and disciplined behavior. However, their performance outcomes appear to be constrained by factors such as the efficacy of their recovery management, the level of competition encountered, and the extent of institutional support received. This indicates the necessity for athlete-centered development programs that incorporate systematic load monitoring, evidence-based

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recovery strategies, and structured feedback to ensure athletes remain prepared and effective in competition.

The results of the Pearson correlation analysis showed that self-performance outcomes were positively correlated and statistically significant with each of the three variables: training, nutrition, and recovery behaviors. Training practices demonstrated a robust positive correlation with performance, indicating that improvements in training are associated with higher performance levels. Nutrition practices exhibited the strongest correlation and were statistically significant, indicating a very significant association and underscoring the essential significance of good nutrition in improving performance. Recovery practices had a robust, positive connection with performance, which was statistically significant, highlighting the importance of effective recovery procedures. These findings align with recent research of Doherty et al. (2021) emphasized that controlled recovery protocols, especially sleep, profoundly affect athletic performance. The crucial function of nutrition is further corroborated by Toon et al. (2023), who highlighted that certain nutritional interventions directly improve competitive results. Witard, Hearnis, and Morgan (2025) emphasized the importance of a protein-rich diet for training adaptation and recovery in endurance athletes. Collectively, these investigations validate the current conclusions that diet, and recovery are essential drivers of performance, whereas training approaches are significant but relatively less influential contributors.

The study has limitations, such as the reliance on a self-reported questionnaire, which may be subject to bias, as athletes might have overstated their level of commitment to training, nutrition, and recovery practices. The study is limited to athletes in Metro Manila, and therefore, the results may not fully represent the experience in other regions of the Philippines. Next, the study established a correlation between training, nutrition, recovery, and perceived performance outcomes; however, an interconnection cannot be inferred due to the descriptive correlational design. Lastly, professional staff, such as medical experts, and socioeconomic factors were not controlled, which may have influenced the level of commitment of athletes.

Future research could expand upon the existing findings by adding mixed-methods approaches, combining quantitative surveys with qualitative interviews or focus

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groups. This would allow researchers to gain deeper insights into athletes' motivations, obstacles, and the contextual factors that influence their dedication to training, nutrition, and recovery routines. To provide a more thorough picture of collegiate athletes' experiences across the country, research could broaden its geographic focus to include athletes from other parts of the Philippines.

Additionally, future research may evaluate the influence of institutional resources and professional support, such as access to sports medical specialists, nutritionists, strength and conditioning coaches, and financial or socioeconomic issues. Controlling for these variables could clarify how external resources effect athlete dedication and performance outcomes. To examine how commitment behaviors change and affect real performance outcomes rather than just perceived ones, longitudinal studies could follow athletes over time. Finally, research might study the impact of specialized high-performance programs, comparing athletes with tailored training, nutrition, and recovery plans versus those following general programs, to provide actionable suggestions for institutions and coaches to enhance athlete development.

Conclusions

The study found that university athletes demonstrate a high level of commitment to training practices, particularly in structured routines such as strength and conditioning, sport-specific drills, warm-up and cool-down exercises, and competition-oriented modifications.

According to the survey, university athletes show a high degree of dedication to their training regimens, especially to organized routines such as warm-up and cool-down exercises, sport-specific drills, strength and conditioning, and competition-oriented adjustments. However, self-monitoring measures, such as progress tracking through journals, applications, or wellness questionnaires, were infrequently adopted, limiting the potential for data-informed adjustments to training regimens. In terms of nutrition, athletes were usually devoted, with consistent adherence to hydration and pre-competition meals, although formal nutritional planning, meetings with nutritionists, and regular meal scheduling were not consistently observed. Recovery practices indicated moderate dedication, with emphasis on rest days, stretching, and avoidance of alcohol,

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however professional recovery treatments, such as physiotherapy or massage therapy, were rarely sought, possibly due to budgetary and accessibility constraints. Despite these limitations, athletes demonstrated awareness of the importance of training, nutrition, and recovery for performance enhancement. Correlation studies found that nutrition had the strongest positive correlation with perceived performance outcomes, followed by recovery and training, underscoring the crucial role of nutritional and recovery habits in supporting high-performance sports achievements. These data imply that while athletes are engaged in essential performance-related activities, systemic restrictions, particularly in institutional support and access to professional recovery tools, may constrain the translation of these practices into quantitative performance outcomes.

References:

- Abbey, E. L., Wright, C. J., & Kirkpatrick, C. M. (2021). Nutrition practices and knowledge among collegiate athletes: A scoping review. *Nutrients*, *13*(7), 2273. <https://doi.org/10.3390/nu13072273>
- Allado, E., Ankri, M., Khiami, F., Tamgho, T., Hamroun, A., Proença Lopes, C., Poussel, M., & Chenuel, B. (2021). Case Report: Stress Fracture in an International Triple Jumper: Importance of an Integrated Care Approach Which Also Incorporates Biomechanics. *Frontiers in Sports and Active Living*, *3*, 683691. <https://doi.org/10.3389/fspor.2021.683691>
- Amawi, A., AlKasasbeh, W., Jaradat, M., Almasri, A., Alobaidi, S., Hammad, A. A., Bishtawi, T., Fataftah, B., Turk, N., Saoud, H. A., Jarrar, A., & Ghazzawi, H. (2024). Athletes' nutritional demands: a narrative review of nutritional requirements. *Frontiers in nutrition*, *10*, 1331854. <https://doi.org/10.3389/fnut.2023.1331854>
- Anousaki, E., Zaras, N., Stasinaki, A. N., Panidi, I., Terzis, G., & Karampatsos, G. (2021). Effects of a 25-Week Periodized Training Macrocycle on Muscle Strength, Power, Muscle Architecture, and Performance in Well-Trained Track and Field Throwers. *Journal of strength and conditioning research*, *35*(10), 2728–2736. <https://doi.org/10.1519/JSC.0000000000004098>
- Bratsman, A., Wassef, A. W., Wassef, C. R., Jayaram, P., Mosely, J. B., & Shybut, T. B. (2021). Epidemiology of NCAA Bone Stress Injuries: A Comparison of Athletes in

Original article. Investigating the commitment level of athletes in relation to high-performance sports
Vol. 12, n. ° 2; p. 1-25, April 2026. <https://doi.org/10.17979/sportis.2026.12.2.12610>

Divisions I, II, and III. *Orthopaedic Journal of Sports Medicine*, 9 (7).
<https://doi.org/10.1177/23259671211014496>

Chaillou, T., Treigyte, V., Mosely, S. *et al.* (2022). Functional Impact of Post-exercise Cooling and Heating on Recovery and Training Adaptations: Application to Resistance, Endurance, and Sprint Exercise. *Sports Med - Open* 8, 37.
<https://doi.org/10.1186/s40798-022-00428-9>

Charest, J., & Grandner, M. A. (2020). Sleep and Athletic Performance: Impacts on Physical Performance, Mental Performance, Injury Risk and Recovery, and Mental Health. *Sleep medicine clinics*, 15(1), 41–57.
<https://doi.org/10.1016/j.jsmc.2019.11.005>

Clemente-Suárez, V. J., Ramos-Campo, D. J., Tornero-Aguilera, J. F., Parraca, J. A., & Batalha, N. (2021). The Effect of Periodization on Training Program Adherence. *International Journal of Environmental Research and Public Health*, 18(24), 12973. <https://doi.org/10.3390/ijerph182412973>

Creswell, J. W., & Creswell, J. D. (2021). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.

Cunha, L. A., Costa, J. A., Marques, E. A., Brito, J., Lastella, M., & Figueiredo, P. (2023). The Impact of Sleep Interventions on Athletic Performance: A Systematic Review. *Sports medicine - open*, 9(1), 58. <https://doi.org/10.1186/s40798-023-00599-z>

D'Amico, E., Grosso, G., Nieves, J. W., Zanghi, A., Factor-Litvak, P., & Mitsumoto, H. (2021). Metabolic Abnormalities, Dietary Risk Factors and Nutritional Management in Amyotrophic Lateral Sclerosis. *Nutrients*, 13(7), 2273.
<https://doi.org/10.3390/nu13072273>

De Jesus, M. J. R. M. ., Fabian, L. N. ., Javeluna, J. C. ., Laquimin, S. D. ., Cayanan, C. M. D. ., & Dizon, S. G. . (2023). Nutritional Knowledge and Dietary Habits of Student-Athletes in a State University: Towards a Contextualized Nutrition Education Plan. *International Journal of Multidisciplinary: Applied Business and Education Research*, 4(9), 3141-3163. <https://doi.org/10.11594/ijmaber.04.09.08>

Dhiman, C., & Kapri, B.C. (2023) Optimizing Athletic Performance and Post-Exercise Recovery: The Significance of Carbohydrates and Nutrition. *Montenegrin Journal*

Original article. Investigating the commitment level of athletes in relation to high-performance sports
Vol. 12, n. ° 2; p. 1-25, April 2026. <https://doi.org/10.17979/sportis.2026.12.2.12610>

of Sports Science and Medicine, 19(2), 49-56.
<https://doi.org/10.26773/mjssm.230907>

Doherty, R., Madigan, S. M., Nevill, A., Warrington, G., & Ellis, J. G. (2021). The Sleep and Recovery Practices of Athletes. *Nutrients*, 13(4), 1330.
<https://doi.org/10.3390/nu13041330>

Dupuy, O., Douzi, W., Theurot, D., Bosquet, L., & Dugué, B. (2018). An Evidence-Based Approach for Choosing Post-exercise Recovery Techniques to Reduce Markers of Muscle Damage, Soreness, Fatigue, and Inflammation: A Systematic Review With Meta-Analysis. *Frontiers in physiology*, 9, 403.
<https://doi.org/10.3389/fphys.2018.00403>

Etikan, I., & Bala, K. (2017). Sampling and sampling methods. *Biometrics & Biostatistics International Journal*, 5(6), 215–217. <https://doi.org/10.15406/bbij.2017.05.00149>

Gavel, E. H., Rae, S., & Logan-Sprenger, H. M. (2024). *Fluid balance of female para hockey players during simulated competition. Frontiers in Sports and Active Living.*
<https://doi.org/10.3389/fspor.2024.1479879>

Gulanes, A. A., Fadare, S. A., Pepania, J. E., & Hanima, C. O. (2024). Preventing Sports Injuries: A Review of Evidence-Based Strategies and Interventions. *Salud, Ciencia Y Tecnología*, 4, 951. <https://doi.org/10.56294/saludcyt2024951>

Haller, N., Strepp, T., & Stöggel, T. (2024). The puzzle of monitoring training load in winter sports - A hard nut to crack? . *Current Issues in Sport Science (CISS)*, 9(3), 008. <https://doi.org/10.36950/2024.3ciiss008>

Hayashi, R., Yoshida, T., & Kariyama, Y. (2023). Comparison of Joint-Level Kinetics During Single-Leg and Double-Leg Weightlifting Derivatives. *Journal of Strength and Conditioning Research*. 37(5), 1017-1022.
<https://doi.org/10.1519/JSC.0000000000004355>

Kenefick R. W. (2018). Drinking Strategies: Planned Drinking Versus Drinking to Thirst. *Sports medicine (Auckland, N.Z.)*, 48(Suppl 1), 31–37.
<https://doi.org/10.1007/s40279-017-0844-6>

Kerksick, C.M., Arent, S., Schoenfeld, B.J. et al. (2017). International society of sports nutrition position stand: nutrient timing. *J Int Soc Sports Nutr* 14, 33.

Original article. Investigating the commitment level of athletes in relation to high-performance sports
Vol. 12, n. ° 2; p. 1-25, April 2026. <https://doi.org/10.17979/sportis.2026.12.2.12610>

- Kupperman, N., Curtis, M. A., Saliba, S. A., & Hertel, J. (2021). Quantification of workload and wellness measures in a women's collegiate volleyball season. *Frontiers in Sports and Active Living*, 3, 702419. <https://doi.org/10.3389/fspor.2021.702419>
- Lakićević N. (2019). The Effects of Alcohol Consumption on Recovery Following Resistance Exercise: A Systematic Review. *Journal of functional morphology and kinesiology*, 4(3), 41. <https://doi.org/10.3390/jfmk4030041>
- Lee, K. M., Dias, G. M., Boluk, K., Scott, S., Chang, Y. S., Williams, T. E., & Kirkpatrick, S. I. (2021). Toward a Healthy and Environmentally Sustainable Campus Food Environment: A Scoping Review of Postsecondary Food Interventions. *Advances in nutrition (Bethesda, Md.)*, 12(5), 1996–2022. <https://doi.org/10.1093/advances/nmab026>
- Li, X., Braakhuis, A., Li, Z., & Roy, R. (2022). How Does the University Food Environment Impact Student Dietary Behaviors? A Systematic Review. *Frontiers in nutrition*, 9, 840818. <https://doi.org/10.3389/fnut.2022.840818>
- Martín-Rodríguez, A., Belinchón-deMiguel, P., Rubio-Zarapuz, A., Tornero-Aguilera, J. F., Martínez-Guardado, I., Villanueva-Tobaldo, C. V., & Clemente-Suárez, V. J. (2024). Advances in Understanding the Interplay between Dietary Practices, Body Composition, and Sports Performance in Athletes. *Nutrients*, 16(4), 571. <https://doi.org/10.3390/nu16040571>
- Nobari, H., Vahabidelshad, R., Pérez-Gómez, J., & Ardigò, L. P. (2021). Variations of training workload in micro- and meso-cycles based on position in elite young soccer players: A competition season study. *Frontiers in Physiology*, 12, Article 668145. <https://doi.org/10.3389/fphys.2021.668145>
- Ortiz, R. O., Jr, Sinclair Elder, A. J., Elder, C. L., & Dawes, J. J. (2019). A Systematic Review on the Effectiveness of Active Recovery Interventions on Athletic Performance of Professional-, Collegiate-, and Competitive-Level Adult Athletes. *Journal of strength and conditioning research*, 33(8), 2275–2287. <https://doi.org/10.1519/JSC.0000000000002589>
- Quijano Jr, R., Dela Cruz, L. D., Dela Cruz, J. R. A., & Hooi, L. B. (2022). Relationships of the Student-Athletes' Hydration Awareness, Perspectives & Practices with the

Original article. Investigating the commitment level of athletes in relation to high-performance sports
Vol. 12, n. ° 2; p. 1-25, April 2026. <https://doi.org/10.17979/sportis.2026.12.2.12610>

Outcome of Competition. *International Journal of Health Sciences*, 6(S2), 615–624. <https://doi.org/10.53730/ijhs.v6nS2.5048>

Schober, P., Boer, C., Schwarte, & Lothar A. (2018). Correlation Coefficients: Appropriate Use and Interpretation. *Anesthesia & Analgesia* 126(5):p 1763-1768. <https://doi.org/10.1213/ANE.0000000000002864>

Suppiah, H. T., Ng, E. L., Wee, J., Taim, B. C., Huynh, M., Gastin, P. B., Chia, M., Low, C. Y., & Lee, J. K. W. (2021). Hydration Status and Fluid Replacement Strategies of High-Performance Adolescent Athletes: An Application of Machine Learning to Distinguish Hydration Characteristics. *Nutrients*, 13(11), 4073. <https://doi.org/10.3390/nu13114073>

Taber, K. S. (2017). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Research in Science Education*, 48, Article 6. <https://doi.org/10.1007/s11165-016-9602-2>

Taherdoost, H. (2018). Sampling methods in research methodology: How to choose a sampling technique for research. *International Journal of Academic Research in Management*, 10(2), 10–18. <https://doi.org/10.2139/ssrn.3205035>

Thomas, D. T., Erdman, K. A., & Burke, L. M. (2016). Position of the Academy of Nutrition and Dietetics, Dietitians of Canada, and the American College of Sports Medicine: Nutrition and Athletic Performance. *Journal of the Academy of Nutrition and Dietetics*, 116(3), 501–528. <https://doi.org/10.1016/j.jand.2015.12.006>

Toon, A., Bailey, S., & Roelands, B. (2023). Effects of Nutritional Interventions on Athletic Performance. *Nutrients*, 15(21), 4498. <https://doi.org/10.3390/nu15214498>

Torres-Ronda, L., Beanland, E., Whitehead, S., Sweeting, A., & Clubb, J. (2022). Tracking systems in team sports: A narrative review of applications of the data and sport-specific analysis. *Sports Medicine – Open*, 8, Article 15. <https://doi.org/10.1186/s40798-022-00408-z>

Trizano-Hermosilla, I., & Alvarado, J. M. (2016). Best Alternatives to Cronbach's Alpha Reliability in Realistic Conditions: Congeneric and Asymmetrical Measurements. *Frontiers in psychology*, 7, 769. <https://doi.org/10.3389/fpsyg.2016.00769>

Original article. Investigating the commitment level of athletes in relation to high-performance sports
Vol. 12, n. ° 2; p. 1-25, April 2026. <https://doi.org/10.17979/sportis.2026.12.2.12610>

- Walsh, N. P., Halson, S. L., Sargent, C., Roach, G. D., Nédélec, M., Gupta, L., Leeder, J., Fullagar, H. H., Coutts, A. J., Edwards, B. J., Pullinger, S. A., Robertson, C. M., Burniston, J. G., Lastella, M., Le Meur, Y., Hausswirth, C., Bender, A. M., Grandner, M. A., & Samuels, C. H. (2020). Sleep and the athlete: narrative review and 2021 expert consensus recommendations. *British journal of sports medicine*, bjsports-2020-102025. Advance online publication. <https://doi.org/10.1136/bjsports-2020-102025>
- Walts, C. T., Murphy, S. M., Stearne, D. J., Rieger, R. H., & Clark, K. P. (2021). Effects of a Flexible Workout System on Performance Gains in Collegiate Athletes. *Journal of strength and conditioning research*, 35(5), 1187–1193. <https://doi.org/10.1519/JSC.0000000000004031>
- Wang, L., Meng, Q., & Su, C.-H. (2024). From Food Supplements to Functional Foods: Emerging Perspectives on Post-Exercise Recovery Nutrition. *Nutrients*, 16(23), 4081. <https://doi.org/10.3390/nu16234081>
- Weakley, J., Cowley, N., Schoenfeld, B.J. *et al.* The Effect of Feedback on Resistance Training Performance and Adaptations: A Systematic Review and Meta-analysis. *Sports Med* 53, 1789–1803 (2023). <https://doi.org/10.1007/s40279-023-01877-2>
- Wilson, S.M.B., Gooderick, J., Driller, M.W. *et al.* (2025). Sleep Health in the Student-Athlete: A Narrative Review of Current Research and Future Directions. *Curr Sleep Medicine Rep* 11, 26. <https://doi.org/10.1007/s40675-025-00341-z>
- Witard, O.C., Hearn, M. & Morgan, P.T. (2025). Protein Nutrition for Endurance Athletes: A Metabolic Focus on Promoting Recovery and Training Adaptation. *Sports Med* 55, 1361–1376. <https://doi.org/10.1007/s40279-025-02203-8>