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Optimal or Obsessive: Mental Skills and Orthorexia Nervosa Among Athletes

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ABSTRACT

In sports and performance psychology, mental skills—such as focus, emotional regulation, and resilience—are essential for athletic success. However, their role in shaping dietary behaviors, particularly Orthorexia Nervosa (ON), remains underexplored. ON involves an obsessive focus on eating only "pure" or "healthy" foods, often resulting in rigid eating patterns and psychological distress. Athletes may be especially vulnerable due to structured routines, performance-driven mindsets, and pressure to maintain ideal physiques.

This quantitative observational study examined whether mental skills predict ON tendencies among athletes. A purposive sample of 83 athletes (aged 18–55, mean age = 21.3) from various competitive levels completed two validated instruments: the Unified Mental Skills Assessment Tool-6 Short Form 18 (UMSAT-6) and the ORTO-R questionnaire. Statistical analyses, including regression and ANOVA, assessed the predictive relationship between mental skills and ON. Results showed that 61% of athletes exhibited ON tendencies and mental skills significantly predicted these ON behaviors. Notably, goal setting and competitive anxiety were associated with stronger orthorexic tendencies, suggesting that highly disciplined athletes may transfer their performance-driven mindset to dietary habits. These findings reveal a complex dynamic where beneficial psychological traits may inadvertently foster disordered eating. While mental skills enhance performance and discipline, they may also contribute to anxiety and dietary rigidity if not balanced. This underscores the need for integrated mental training approaches that support both psychological resilience and healthy nutrition. Future research should investigate long-term effects and interventions to promote more adaptive mental and dietary practices in sport. The study contributes to the U.N. Sustainable Development Goal 3 of Good Health and Well-Being as it brings awareness to Orthorexia Nervosa is a disordered eating pattern centered around an obsession with healthy eating, which can have both physical and mental health implications.

Keywords: *Athletes, Dietary habits, Mental skills, Orthorexia nervosa*.

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1. INTRODUCTION

The pursuit of health and wellness has evolved into a widespread cultural movement, with individuals increasingly focusing on nutrition, physical fitness, and self-care. While this shift promotes positive lifestyle changes, it has also led to an excessive preoccupation with consuming only "clean" or "pure" foods, a pattern associated with Orthorexia Nervosa (ON). Athletes, in particular, are more vulnerable to developing orthorexic tendencies due to the emphasis on dietary precision, performance optimisation, and body composition control in their training regimens. The pressure to maintain a strict diet,

combined with external influences from coaches, peers, and social media, can lead to obsessive behaviours surrounding food choices. While structured nutrition is crucial for peak performance (Austin & Seebohar, 2011), extreme dietary rigidity may result in psychological distress, impaired flexibility, and potential nutritional deficiencies.

Orthorexia Nervosa is characterised by an obsessive focus on consuming only "healthy" or "pure" foods, leading to strict dietary rules, anxiety over food choices, and disruptions in daily life (McGregor, 2017). Individuals with ON often exhibit rigid eating patterns, experiencing guilt and distress when deviating from their perceived healthy diet. This fixation can cause social isolation as eating outside their controlled environment may provoke anxiety (Tragantzopoulou & Giannouli, 2024). Among athletes, ON can be driven by perfectionism, self-discipline, and the belief that dietary control enhances performance. However, excessive restriction may result in psychological strain, decreased adaptability, and increased vulnerability to disordered eating patterns.

Alongside physical training and nutrition, mental skills play a fundamental role in athletic performance. These skills, including goal setting, attentional control, emotional regulation, and self-talk, help athletes manage stress, maintain focus, and optimise their cognitive functioning. However, while strong mental skills are typically seen as beneficial, they may also contribute to rigid behaviours and perfectionist tendencies, potentially reinforcing ON symptoms. For instance, goal setting—a crucial skill for athletes—can become problematic when applied too rigidly to dietary habits, leading to excessive control over food intake (Moroze, et. al., 2015). Similarly, high levels of self-discipline and attentional control may contribute to obsessive preoccupation with nutrition, making it difficult for athletes to maintain a flexible and balanced approach to eating.

Several psychological theories can be adapted to further explore the relationship between mental skills and ON in athletes. Cognitive-Behavioural Theory (CBT) suggests that rigid beliefs about food purity and self-worth reinforce restrictive eating behaviours, influencing goal setting and self-talk. While these factors can enhance focus and discipline, they may also contribute to increased anxiety and decreased adaptability. Self-Determination Theory (Deci, & Ryan, 2012) explains how athletes may adopt strict dietary habits to enhance their sense of competence and autonomy. However, when these behaviours are influenced by external pressures, such as coaches or sports culture, they may result in heightened stress and decreased emotional regulation. Additionally, Dual Process Theory suggests that athletes with ON may rely too heavily on conscious cognitive control over their diet, suppressing intuitive decision-making (Evans & Stanovich, 2013). This excessive monitoring may negatively affect automaticity, making it harder for athletes to perform under pressure without overthinking food choices.

This study examined the association between mental skills (including Cognitive skills, Psychosomatic skills and Recovery) and orthorexic behaviours among athletes, particularly in competitive settings. It also explored whether specific cognitive and emotional traits contributed to ON susceptibility. Understanding these relationships provided valuable insights for sports psychologists, coaches, and athletes, helping differentiate healthy discipline from harmful obsession. The findings highlighted the need for balanced mental training approaches that support both psychological resilience and sustainable nutritional behaviours, ultimately contributing to a more holistic approach to athlete well-being.

Previous literature has suggested a link between cognitive and behavioural patterns. Bahman Bahmani (2015) assessed the mental skills of college student-athletes and found basic, psychosomatic, and cognitive skills, indicating that these athletes lacked several mental sub-skills and required specialized training for competition preparation. Similarly, Sertaç Erciş (2018) identified that elite athletes had higher levels of goal setting, self-confidence, commitment, stress reactions, relaxation, fear control, activation, focusing, imagery, competition planning, mental practice, and refocusing.

Dagmara Budnik-Przybylska (2024) identified that mastery might be linked with problematic eating behaviour among female athletes with over 11 years of experience. Wiktoria Staśkiewicz-Bartecka (2024) found that social media and socio-cultural attitudes toward body image on ON risk among female football highlighted the role of external pressures in dietary behaviors. Dunn & Bratman (2016) supported this notion, suggesting that high-achieving individuals, including elite athletes, face a greater ON risk due to perfectionistic tendencies.

2. METHODOLOGY

This study was conducted in 2025 among athletes, aims to investigate the effects of Mental Skills on Orthorexia Nervosa among adults. And aims to find an additional indicator of Orthorexia Nervosa.

This study employs a purposive sampling method, this study was conducted in 83 athletes (53 male: 30 female), who are above 18 years who have completed recreational or higher levels. Participants who were in rehabilitation, have physical disabilities, illness, disorder and clinical conditions were excluded from the study. items with response options structured on a 7-point Likert scale. This scale was designed as a measure of athlete's mental skills.

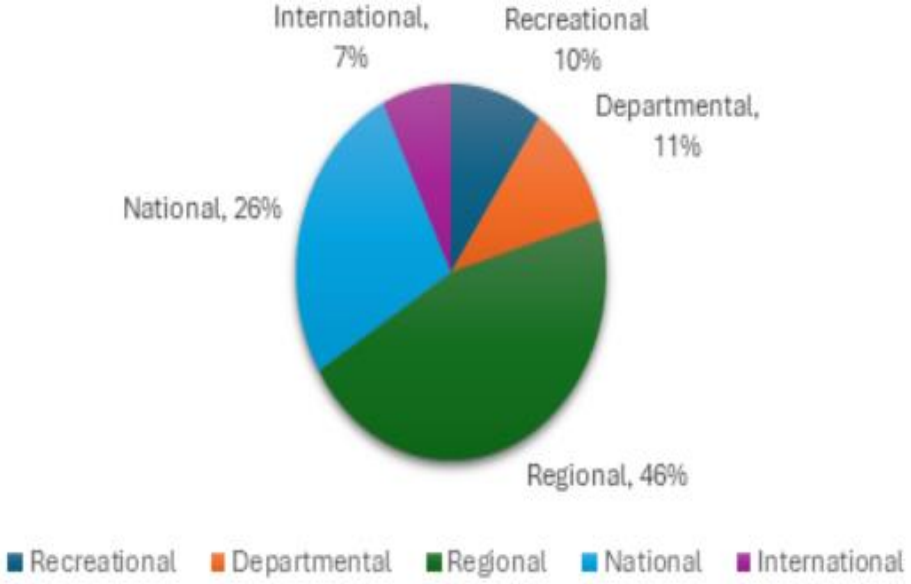
The ORTO-R is the short version of one of the most popular measures of Orthorexic thoughts and behaviours and ORTO-R consists of 6 items with response options structured on a 5-point Likert-type scale.

Linear Regression was employed to analyse the relationship between the variables, and examine the predictive values, and ANOVA to compare different subscales, post-hoc tests were performed to analyse the interplay between the study parameters from the collected data. The analysis incorporated socio-demographic variables such as age, gender, level of practice in sports, socioeconomic status were utilized in the analysis.

3. RESULTS

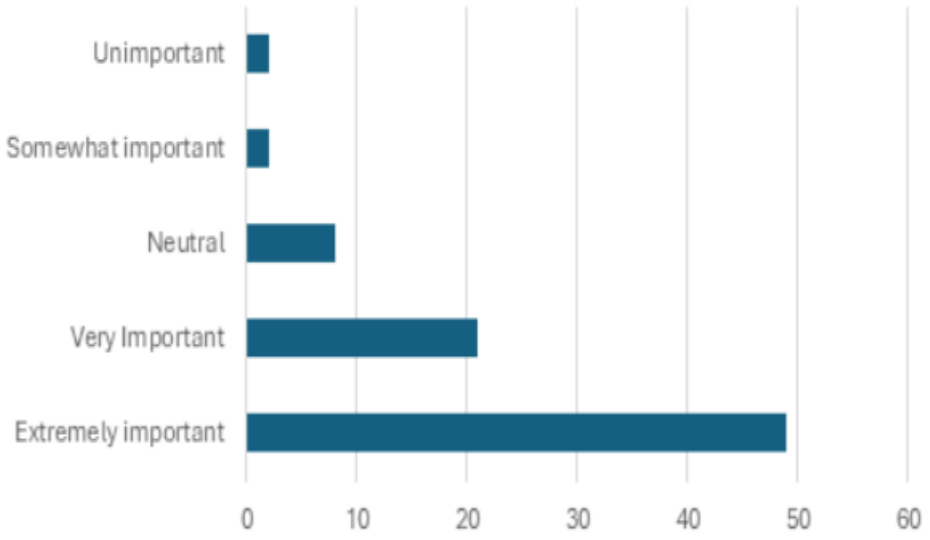
Out of 83 participants (53 male, 30 female : mean age: 21.3 years) it identified that 61% (51 participants) had ON tendencies. of positive score is The distribution of participants on various levels of training in terms of competitiveness is shown in Figure 1.

Figure 1: Participants Distribution on levels of practice



Data was collected on athletes' perception of role of mental training in sports. Analysis revealed that majority of athletes (59%) considered mental training as extremely important in competitive sports.

Figure 2: Athletes perception of mental training in sports



The relationship between the variables of interest was assessed using regression analysis to identify if mental skills predicted ON among athletes.

Table 1: Regression analysis of Orthorexia Nervosa on Mental Skills among athletes.

Predictor	Estimate	SE	t	p-value
Intercept	8.607***	3.6658	2.20	< .001
Mental Skills	0.143**	0.0422	3.39	0.001

N = 83
R = 0.354
R^2 = 0.124
F = 11.5** (df_1 = 1 & df_2 = 81)
p-value = 0.001

Results revealed that the mental skills significantly predicted orthorexia nervosa among athletes ($p<0.01$), with R^2 Value of 0.124 suggests that 12.4% of the variance in Mental Skills is explained by Orthorexia Nervosa. This is found to be a statistically significant yet moderate relationship. With 12% of the model explained using mental skills, there is room to understand the role of various other factors like as personality traits, social influences, nutritional knowledge, and the specific demands of the sport that might also influence orthorexia nervosa among athletes. The findings of this study are in line with the findings of Junger & van Kampen, (2010) who explained that adolescents with higher levels of cognitive skills might contribute to increase in compulsive behavioural tendencies. Mental skills including Focus- refocus abilities, goals setting ability, competitive anxiety, and ability to use imagery would boost athletes' ability to follow strict dietary regiments. The intense focus and ability to refocus swiftly can lead athletes to adhere strictly to dietary plans, believing it will optimize performance, potentially fostering obsessive behaviours. Goal setting, while essential for achieving peak performance, can become excessively rigid, causing athletes to adopt extreme and unrealistic dietary goals. Competitive anxiety, driven by the pressures to perform, may push athletes to extreme dietary habits in an effort to gain a competitive edge, further exacerbating the risk of orthorexia nervosa. Lastly, imagery or visualization techniques, which help athletes mentally rehearse performance, can lead to the idealization of perfect dietary habits, creating unrealistic standards for food consumption and increasing the likelihood of developing orthorexia nervosa as athletes strive to meet these imagined ideals. Together, these mental skills might underscore the need for a balanced approach to mental training and dietary habits to support athletes' overall well-being.

Table 2: Relationship between Varied Training Levels on Imagery, Goal Setting, and Mental Skills

Level of Training	F	df_1	df_2	p-value
Imagery	3.672*	4	29.5	0.015
Goal Setting	6.018**	4	30.4	0.001
Mental Skills	4.192**	4	29.2	0.008

The analysis reveals that training level significantly influences cognitive skills. For imagery (F = 3.672, p = 0.015), the effect is statistically significant, indicating that different training levels impact the ability to use mental imagery. Goal setting (F = 6.018, p = 0.001) shows a Highly Significant effect, suggesting that higher training levels strongly enhance goal-setting abilities. Similarly, mental skills (F = 4.192, p = 0.008) are significantly affected by training level, highlighting their role in shaping psychological preparedness.

These findings suggest that as training levels increase, individuals develop stronger psychological skills, particularly in goal setting. Where athletes participating in International level of training showed significantly higher levels of cognitive skills. This might be because athletes at this elite level of competition might have undergone longer and more intense training. Athletes at this level might also face higher levels of competitiveness which might lead them to develop their cognitive coping abilities. Additionally, individuals with less mental skills would inevitably be unable to reach the higher competitive standards.

Table 3: Disparities in Imagery Among National and International-Level Participants

Imagery		International
National	Mean difference	– 2.71*
	p-value	0.015

The table indicates a statistically significant difference with a p-value (0.015), suggesting that national-level participants have scored significantly lower in imagery than international-level participants.

Table 4: Comparison of Goal Setting Among National and International-Level Participants

Goal Setting		International
Recreational	Mean difference	– 2.78*
	p-value	0.041
Regional	Mean difference	– 2.06*
	p-value	0.011
National	Mean difference	– 2.93**
	p-value	0.009

The negative mean differences indicate that Recreational, Regional, and National participants reported lower Goal Setting skills than International participants.

The statistically significant p-values (< 0.05) suggest that these differences are unlikely due to chance.

Table 5: Discrepancies in Mental Skills Among National and International-Level Participants

Mental Skills		International
National	Mean difference	– 10.74*
	p-value	0.023

The table indicates a statistically significant difference with a p-value (0.023), suggesting that national-level participants have scored significantly lower in mental skills than international-level participants.

Beyond psychological influences, physiological factors also played a role in the development of ON in athletes. Intense training schedules require adequate nutrition for recovery and performance, but excessive focus on dietary optimisation can lead to nutrient deficiencies, metabolic imbalances, and impaired recovery. Chronic energy deficits—common in athletes with overly restrictive diets—can disrupt hormonal balance, increase injury risk, and impact overall well-being. Additionally, the gut-brain axis may play a role, as restrictive eating patterns can alter gut microbiota composition, potentially affecting mood, cognition, and anxiety levels related to food consumption.

4. CONCLUSION

The goal of this study was to explore and investigate the relationship between mental skills and Orthorexia Nervosa among athletes.

The following are the major findings of the study

Mental skills moderately predicted ON among athletes.

There is a significant difference in mental abilities among athletes from the different levels of training.

Implications
The findings of the study emphasize the role of mental training in athletic development and suggest that structured psychological skill building can enhance performance across training levels.

Future studies should investigate
Interventions to improve goal setting, imagery, particularly among lower-level athletes, to bring the psychological gap between national level and international level competitors.

Institutional approaches to mental training, to identify best practices for integrating psychological skills into athlete development programmes.

The significant relationship between Orthorexia Nervosa and Mental Skills (P=0.001) indicates that the cognitive

dimensions of an athlete may affect and influence their eating habits and behaviours. Orthorexia Nervosa is a pathological obsession, fixation or preoccupation with healthy food which is not recognized as an eating disorder but is closely linked with Obsessive Compulsive Disorder and Feeding and Eating Disorder, as they involve intrusive and persistent thoughts. Orthorexia is also linked with cognitive rigidity. These attributes though might seem positive and normal for athletes, they might cause psychological distress and affect the quality of life.

The findings in Table 1 indicate a significant connection between Orthorexia Nervosa (ON) and mental skills ($p = 0.001$), with an R^2 value of 0.124, meaning that ON accounts for 12.4% of the variation in mental skills. This suggests that individuals who are highly focused on healthy eating may develop stronger mental skills, possibly due to the discipline, structure, and self-control associated with their dietary habits. However, it is important to approach this relationship cautiously, as an excessive preoccupation with food could also lead to psychological stress, which might ultimately hinder performance. Future research should further investigate whether ON supports mental resilience or if its potential benefits are outweighed by its negative effects on psychological well-being.

The ANOVA test reveals that higher training levels have a strong level in imagery, goal setting, and mental skills.

The ANOVA and post-hoc test reveal that there is a significant difference in comparison with international-level athletes to other athletes. The International level athletes consistently score higher in mental skills in its three skill categories (Cognitive, Psychosomatic, Recovery) and all 6 dimensions: Concentration, Imagery, Planning, Activation, Pre-competitive Anxiety, and Recovery.

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[1]**Yashwardhini Sivakumar**: Conceptualization, data curation, formal analysis, writing original draft.
[2]**Harshini Gandhirajan**: Conceptualization, data curation, formal analysis, writing original draft.
[3]**Durga Rangaswamy Pandian**: Supervision, Software, Resources, Writing-Review and editing.
[4*]**Darshini Madanagopal**: Supervision, Software, Resources, Methodology, Writing-Review and editing, Visualization.
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