

## Social And Cultural Factors Contributing To Red-S In Female Football Players

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### ABSTRACT

*Relative Energy Deficiency in Sport (RED-S) is a condition caused by chronic low energy availability, leading to significant health and performance issues in athletes. While its physiological effects have been extensively studied, the social and cultural factors influencing RED-S remain underexplored, particularly in female football players. This research investigates how body image concerns, coaching pressures, societal expectations, and cultural dietary habits contribute to RED-S in female footballers. A structured questionnaire was used to collect data from 100 female football players across different competition levels. The findings highlight the prevalence of restrictive eating habits, external pressures, and lack of awareness regarding proper nutrition. The study underscores the need for education and support systems to address RED-S and promote long-term athlete well-being.*

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**Keywords :** RED-S, Appearance, Football Players.

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### Introduction

Insufficient energy intake in relation to an athlete's energy expenditure is an indication of Relative Energy Deficiency in Sport (RED-S). Numerous physiological systems are impacted, such as metabolism, hormone control, bone health, and general performance (Mountjoy et al., 2014). Because of the physical demands of the game, female football players need to have the best possible energy available in order to sustain their strength, endurance, and recuperation. However, because of societal and cultural factors, a lot of athletes suffer from chronic energy deficiencies. Even though the physiological causes of RED-S are well known, social and cultural

influences greatly influence the food and energy consumption of female football players. This group is at risk for RED-S due to a number of important characteristics. According to Torstveit et al. (2021), female football players frequently have to balance competing expectations by striking a balance between the necessity for strength and endurance and the ideal of a toned, slim body. Athletes are influenced to limit their food consumption in an effort to meet the unrealistic body ideals promoted by social media platforms (Petrie & Greenleaf, 2012). Coaches have a big influence on how athletes view their performance and body weight. Unwise coaching advice often promotes weight loss for increased speed and agility without taking the long-term health effects into account (De Souza et al., 2019). Unintentional reinforcement of energy-restrictive behaviors may result from coaching staff members' ignorance of RED-S (Melin et al., 2019). Female football players' energy availability is influenced by their eating practices and cultural attitudes. Traditional eating habits in some areas might not meet the nutritional requirements of an athlete, which could result in inadvertent underfueling. Furthermore, a lack of access to sports nutrition education raises the risk of RED-S by causing insufficient food intake (Logue et al., 2020). Peer comparisons and team dynamics may be factors in disordered eating patterns. According to Wasserfurth et al. (2020), female football players may experience pressure to adopt restrictive eating habits in order to fit in with their teammates or fulfill perceived performance standards. Furthermore, athletes frequently underreport RED-S symptoms due to the stigma associated with talking about energy deficiencies and menstrual health problems (Joy et al., 2016). Given the increasing participation of women in football, understanding these factors is essential for developing effective prevention and intervention strategies for RED-S.

## Methodology

A quantitative approach was adopted using a structured questionnaire to investigate the prevalence and contributing factors of RED-S in female football players. The study surveyed 100 female football players aged 18–22, recruited from collegiate and teams. Participants were selected through football clubs, sports institutions, and online athlete networks. The questionnaire was divided into four sections Demographics & Playing History, Nutritional & Energy Availability Patterns, Social & Cultural Influences, RED-S Symptoms & Performance Impact, Data Collection & Analysis.

## Results & Analysis

**Table 1. :** *Influence of Social & Cultural Factors on RED-S Risk*

Factor	Percentage of Respondents Affected (%)	Key Observations
Body Image Concerns	70%	Reported feeling pressured to maintain a lean physique due to social media influence.
Coaching Influence	45%	Stated that their coaches emphasized weight loss for agility, often without proper nutrition guidance.
Peer Pressure	60%	Compared their body weight with teammates, influencing their eating habits.
Restrictive Dieting	30%	Reported engaging in restrictive eating habits to meet perceived performance standards.
Cultural Dietary Practices	40%	Indicated that their traditional dietary habits did not align with their energy needs as athletes.

Social media and body image pressures significantly influenced dietary habits, with 70% of players feeling pressured to maintain a lean physique. Coaching emphasis on weight loss was prevalent, with 45% of players reporting pressure to reduce weight for better agility and performance. 60% of respondents admitted comparing their body composition with teammates, leading to increased self-consciousness and altered eating behaviors. Restrictive dieting was common, particularly among younger players (under 25 years old), where 30% reported engaging in restrictive eating patterns. Cultural dietary influences affected 40% of players, particularly those from backgrounds where women's nutrition in sports is undervalued.

**Table 2 :** *Impact of RED-S on Health and Performance*

<b>Health/ Performance Indicator</b>	<b>Percentage of Respondents Affected (%)</b>	<b>Key Observations</b>
Menstrual Irregularities	65%	Reported experiencing missed or irregular periods.
Injury Incidence (stress fractures, muscle strains, etc.)	55%	Higher among players with restrictive eating habits.
Chronic Fatigue	50%	Reported feeling excessive fatigue during training and matches.
Slower Recovery Time	45%	Experienced delayed muscle recovery post-match.
Reduced Endurance Levels	40%	Noted a decline in stamina and overall match performance.

Menstrual health was significantly affected, with 65% of players reporting irregular or missed periods, a key symptom of RED-S. Injury rates were high (55%) among players who engaged in restrictive diets, with stress fractures and muscle strains being the most common. 50% of players experienced chronic fatigue, affecting their training performance and overall well-being. Delayed recovery post-match was observed in 45% of players, indicating poor energy availability for muscle repair. 40% reported decreased endurance levels, particularly in the second half of matches, affecting their ability to sustain performance.

**Table 3. :** *Association Between Social Factors and RED-S Symptoms.*

<b>Social Factor</b>	<b>Significant RED-S Symptom</b>	<b>p-value</b>	<b>Statistical Significance</b>
Body Image Concerns	Menstrual Irregularities	0.02	Significant
Coaching Influence	Injury Risk	0.03	Significant
Peer Pressure	Restrictive Eating Behaviors	0.01	Highly Significant
Cultural Dietary Habits	Chronic Fatigue	0.04	Significant

A significant association ( $p = 0.02$ ) was found between body image concerns and menstrual irregularities, indicating that players who prioritized maintaining a lean physique were more likely to experience menstrual disturbances. Coaching influence was linked to injury risk ( $p = 0.03$ ), suggesting that players who received weight-related coaching advice without proper nutritional education had a higher incidence of injuries. Peer pressure had a highly significant impact ( $p = 0.01$ ) on restrictive eating behaviors, confirming that team culture and body comparisons play a key role in RED-S development. Cultural dietary habits were associated with chronic fatigue ( $p = 0.04$ ), as some players' traditional eating patterns did not provide sufficient energy for their training demands.

## Conclusion & Discussion

Social and cultural factors significantly contribute to RED-S in female football players, with body image concerns, coaching pressure, and peer influence playing dominant roles. Restrictive dieting and energy deficiency directly impact menstrual health, injury risk, fatigue, and endurance levels. There is a strong statistical association between social pressures and RED-S symptoms, emphasizing the need for intervention programs. This data highlights the urgent need for awareness programs, coach education, and athlete-centered nutritional strategies to combat RED-S in female football players.

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