

Federal University of São Paulo

Research Project

Title:

**“Food and Nutrition Education for Adolescent Female Soccer Players:
Influence on Eating Practices and the Promotion of Women’s Health”**

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1. INTRODUCTION

Adolescence represents a critical period of physical growth, cognitive development, and consolidation of lifestyle habits, including dietary habits. During this phase, adequate nutrition not only supports growth and physical performance but also influences health throughout adulthood¹.

In adolescent athletes, nutritional demands are even more complex, as they are added to the requirements inherent to sports training, body composition control, and post-exercise recovery².

UN Women has encouraged sports organizations to seek measures to promote gender equality and safe spaces for the development of technical and tactical skills, as well as formative competencies for adulthood^{3, 4}.

In a context of overcoming barriers and prejudice related to women's sports, soccer is an increasingly consolidated reality in the national scenario^{5, 6}, and structural reforms have enabled women to access adequate physical and technical preparation⁷.

Although soccer training for men and women is technically and tactically similar, the differences between genders are evident and must be taken into consideration for the maintenance of women's health⁸.

The risk of lower limb injuries in women is higher compared to men, mainly due to the hip angle that causes greater knee instability during sprint movements^{9, 10}. Girls tend to have a higher risk of anemia and nutritional problems due to restrictive diets and menstrual flow¹¹.

Furthermore, according to hormonal fluctuations in females, studies indicate worsening sports performance in young athletes with excessive menstrual bleeding, menstrual cramps, and breast pain^{12, 13}.

Recent literature data indicate that 95% of female soccer players experience daily menstrual cycle symptoms, but few perceive themselves as having sufficient knowledge on the subject¹⁴. Therefore, the International Federation of Association Football (FIFA) has encouraged studies on female performance, educating coaching staff and players themselves regarding hormones, recovery, nutrition, and injury prevention¹⁵.

The assessment of eating habits, supplement use, and hydration must also be considered¹⁶. Unfortunately, nutritional knowledge among young athletes is still obtained from multiple sources and references, such as coaches, physical trainers, family members, and the internet¹⁷. Energy deficits arise, leading to the acquisition of inadequate eating behaviors^{18, 19}. Concomitantly, a nutrient-poor diet rich in saturated

fats has contributed to increased fat mass, worsening body composition, and consequently poorer sports performance^{20, 21, 22}.

In this context, it is recognized that adequate nutritional knowledge is an important determinant of food choices that favor both health and sports performance.

Significant gaps in knowledge about sports nutrition and eating habits persist among adolescent athletes, which may compromise diet optimization, increasing the risk of insufficient energy intake, micronutrient deficiencies, and low energy availability — factors that may negatively impact sports performance and health²³.

Adolescents and children may encounter several barriers to maintaining healthy eating behavior, depending on the low or limited health knowledge of their parents or caregivers. In addition, the influence of family economic status and its possible association with food insecurity and diet quality may also negatively affect the physiological and psychological development of this population²⁴.

Most athletes do not have access to reliable nutritional information. Studies show that nutritional knowledge is obtained from a mix of sources and references, such as coaches and physical trainers, medical staff, family members, and through the internet and social media²⁵.

Nutrition education programs have been proposed as effective strategies to reinforce understanding of nutritional concepts and promote the adoption of healthier eating behaviors in young populations. Nutrition education can play a dual role: not only improving sports performance but also contributing to the development of healthy eating habits that extend beyond the training field and integrate aspects of health, self-image, and food autonomy.

The present study proposes to investigate changes in nutritional knowledge and eating practices among adolescent girls who practice field soccer in a social inclusion project context, evaluating the effects of an intervention based on nutrition education workshops. By integratively assessing knowledge and eating behavior in response to the intervention, it is expected to contribute to the scientific and practical advancement of nutritional strategies that support health, development, and the retention of girls in sports.

2. OBJECTIVE

Primary

To evaluate the nutritional knowledge of adolescent female field soccer players before and after a nutrition education program and its possible influence on this group's eating practices.

Secondary

-To identify changes in the sample's body composition after a nutrition education program.

-To identify changes in the sample's eating practices after a nutrition education program.

-To analyze premenstrual symptoms and their relationship with caloric intake and macro and micronutrient intake.

3. METHODS

3.1 Study Design

Prospective cohort study with intervention through a food and nutrition education program. The study was approved by the Research Ethics Committee of the Federal University of São Paulo (UNIFESP), under opinion number 7.027.045.

3.2 Study Period

From January 2025 to December 2025.

3.3 Assessment Instruments Before and After the Intervention

3.3.1 Body Composition Assessment

3.3.2 Self-administered questionnaire on nutritional knowledge

3.3.3 24-hour dietary recall

3.3.4 Survey of premenstrual symptoms

3.4 STUDY SUBJECTS

3.4.1 Definition of subjects

Fifty adolescent female athletes aged between 15 and 17 years and 11 months, amateur soccer players.

3.4.2 Inclusion Criteria:

- Age between 15 and 17 years and 11 months
- Of reproductive age (menacme)

3.4.3 Exclusion Criteria:

- Comorbidities

3.5 STUDY VARIABLES

3.5.1 DEPENDENT VARIABLE (OUTCOME)

Primary: Positive change in the score of the nutrition education questionnaire with positive changes in eating practices after the nutrition education program.

3.5.2 INDEPENDENT VARIABLES (EXPOSURE)

3.5.2.1 Sociodemographic variables: age

3.5.2.2 Dietary intake/pattern assessment: number of meals per day, use of sports supplementation, hydration level, caloric intake, macro- and micronutrient intake

3.5.2.3 Clinical variables: body composition, skinfold thickness, weight, height, premenstrual symptoms, hours of sleep

3.5.2.5 Nutritional knowledge variables: score on the nutrition education questionnaire

3.6 INTERVENTION

The intervention in this study will occur through a food and nutrition education program, based on the score of correct answers in the nutritional knowledge questionnaires.

Five activities will be planned, one per month, structured as a lecture followed by a playful pedagogical activity based on the content addressed in the class.

4.RESULTS

The results of the study are still under analysis.

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