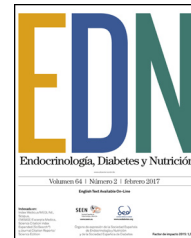




# Endocrinología, Diabetes y Nutrición

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## ORIGINAL ARTICLE

### Assessment of dietary intake in Spanish university students of health sciences

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#### KEYWORDS

Dietary intake;  
Micronutrients;  
Macronutrients;  
University students

#### Abstract

**Introduction:** Nutritional intake during early ages has been associated to disease onset later in life. This study aimed to assess dietary intake in Spanish university students of health sciences as compared to national recommended dietary intakes (DRIs).

**Methods:** A cross-sectional study was conducted including 585 university students of health sciences aged 18–25 years. Dietary intake was assessed using a 72-h diet recall. A control group was selected from Spanish National Dietary Intake Survey (ENIDE) data.

**Results:** Intake of energy, protein, fat, fatty acids, and cholesterol was significantly lower ( $p < 0.001$ ) in university students compared to controls, while fiber intake showed the opposite trend ( $p < 0.001$ ). Total fat and carbohydrate intake was consistent with recommendations, but protein intake was lower than recommended. Intake of saturated fatty acids (SFAs) was markedly higher than nutrition goals, while intake of monounsaturated fatty acids (MUFAs) was lower. Both students and the reference control group did not reach the optimal dietary intake of iodine and vitamins D and E, while sodium intake was excessive in both groups.

**Conclusions:** Dietary habits of university students were mainly characterized by low intakes of energy, protein, fats, fatty acids, and cholesterol, and high intake of fiber as compared to the general population. Intake of iodine and vitamins D and E was low, while sodium intake was excessive in both university students and the general population. Dietary interventions should be considered to prevent nutritional deficiencies and to ensure a balanced diet.

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## PALABRAS CLAVE

Ingesta dietética;  
Micronutrientes;  
Macronutrientes;  
Estudiantes  
universitarios

## Evaluación de la ingesta alimentaria en estudiantes universitarios españoles de ciencias de la salud

### Resumen

**Introducción:** La ingesta nutricional durante las edades tempranas se ha asociado con enfermedades que se inician en etapas más avanzadas de la vida. Nuestro objetivo fue evaluar la ingesta alimentaria entre los estudiantes universitarios españoles de ciencias de la salud en relación con la ingesta diaria recomendada (DRI) nacional.

**Métodos:** Se realizó un estudio transversal entre 585 estudiantes universitarios de ciencias de la salud, de 18 a 25 años de edad. La ingesta dietética se evaluó utilizando un recordatorio de la dieta de 72 h. Se seleccionó un grupo control de los datos de la Encuesta Nacional de Ingesta Dietética (ENIDE).

**Resultados:** La ingesta de energía, proteínas, grasas, ácidos grasos y colesterol fue significativamente menor ( $p < 0,001$ ) entre los estudiantes universitarios en comparación con los controles, mientras que la ingesta de fibra mostró una tendencia opuesta ( $p < 0,001$ ). La ingesta total de grasas y carbohidratos estuvo en consonancia con las recomendaciones, sin embargo, la ingesta de proteínas fue superior a las recomendaciones. La ingesta de ácidos grasos saturados (AGS) fue notablemente superior a los objetivos nutricionales, mientras que la ingesta de ácidos grasos monoinsaturados (AGM) fueron menores. Los estudiantes, así como el grupo de control, no alcanzaron una ingesta dietética óptima de yodo, vitaminas D y E, mientras que la ingesta de sodio fue excesiva.

**Conclusiones:** Los hábitos alimenticios en los estudiantes universitarios se caracterizan principalmente por una baja ingesta de energía, proteínas, grasas, ácidos grasos y colesterol, y un alto consumo de fibra en comparación con la población general. Existe una ingesta deficitaria de yodo, vitaminas D y E tanto en estudiantes universitarios como en la población general, así como un consumo de sodio superior al recomendado. Deben considerarse intervenciones dietéticas para prevenir las deficiencias nutricionales y garantizar una dieta equilibrada.

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## Introduction

Unfavorable nutritional intakes have been considered as risk factor for several chronic diseases including obesity, osteoporosis or type 2 diabetes among others.<sup>1–3</sup> In addition, it has been well established that nutritional intake during early ages is associated with diseases onset later in life.<sup>4</sup>

Young adults, and especially university students, are accepted as being a risk population for nutritional deficiencies due to unhealthy dietary habits. In fact, starting university has been related to improper intake pattern by adopting a more westernized diet characterized by a low consumption of fresh fruits and vegetables, monounsaturated fatty acids (MUFA), polyunsaturated fatty acids (PUFA) and fish and an increased intake of sugar, alcohol and fast food.<sup>5–8</sup> This pattern seems to be worsened as far as the academic course goes on growing the risk of malnutrition and/or obesity, metabolic and cardiovascular diseases in this population.<sup>5</sup>

Previous studies conducted in different countries have identified undesirable nutritional status among university students with a diet poor in important nutrients such as dietary fiber, folate, calcium, iron and vitamin A.<sup>9–11</sup> Also, some of them have reported important rates of overweight particularly in men.<sup>10,11</sup> Potential causes including changes in living arrangements, cost resources, lack of experience

in the planning of meals and an increase in consumption of fast food and snacks have been identified.<sup>6,12</sup>

Among university students, those who are studying health sciences deserves special attention, since are supposed to be more aware of the importance of dietary habits for health status and the relevance of dietary intake during early ages in the development of chronic diseases later in life.<sup>13–15</sup> Therefore, the analysis of dietary intake among this specific group of university students is of interest. Although previous reports at Spanish national level have investigated the dietary intake across young adults, there is limited information available on energy/nutrient intake among Spanish university students<sup>16–18</sup> and in particular among health science students. Thus, the purpose of this study was to investigate the dietary habits among health sciences university students.

## Methods

### Design and sample

A cross-sectional study was conducted among health sciences students of the University of Granada (Spain) including nurses, physiotherapists and occupational therapists. A convenience sample of five hundred and eighty-five students (68.54% females and 31.45% males) (72% nurses, 17% physiotherapist and 11% occupational therapists), aged 18–25

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