

PRESS RELEASE

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New scientific publication on 'Macronutrient Distribution and Dietary Sources in the Spanish Population: Findings from the ANIBES Study'

Determined the macronutrients distribution and dietary sources in the Spanish population

- The scientific study, published in the scientific journal **Nutrients**, analyses the amounts consumed of the various macronutrients, as well as the main food and beverage sources that currently contribute to the dietary intake of carbohydrates (including free sugars), lipids (including saturated, polyunsaturated, monounsaturated fatty acids and cholesterol), proteins, fiber and alcohol

The scientific journal [Nutrients](#) has recently published the research 'Macronutrient Distribution and Dietary Sources in the Spanish Population: Findings from [the ANIBES Study](#)'. This is a further step in this survey about anthropometric data, macronutrients and micronutrients intake and their sources, as well as the level of physical activity and socioeconomic data of the population, which has been coordinated by the [Spanish Nutrition Foundation](#) (FEN).

The main aim of this new research, included within the ANIBES Study, was to know the distribution of the different macronutrients, as well as the main food and beverage sources that currently contribute to the dietary intake of carbohydrates (including free sugars), lipids, (including saturated, polyunsaturated, monounsaturated fatty acids and cholesterol), proteins, fiber and alcohol according to sex and age.

"This way, we will have a greater knowledge and more detailed and accurate information on the different food and beverage groups and subgroups that are included in the Spanish diet", remarks Prof. Gregorio Varela-Moreiras, PhD, Chairman of the Spanish Nutrition Foundation (FEN), Director of the Nutrition and Food Sciences Research Group (CEUNUT) and Professor of Nutrition and Bromatology at CEU San Pablo University of Madrid.

As reported in the study, "deep social and economic changes occurred in our country in the last few decades, which also experienced a transition in dietary patterns and lifestyles". As Prof. Gregorio Varela-Moreiras indicates, "some of these changes have had a potentially positive impact, such as increasing the variety of foods, access and food safety. However, globally, these changes are contradictory with adequate food selection and adherence for a healthy Mediterranean diet".

Recommendations and macronutrients

As the Chairman of the FEN continues to explain, "we have observed in this research that overall protein intake was well above the upper recommended limit, set at 15 % of total

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energy". Meat and meat products group, accounting for 33.14%, was the main dietary source of this macronutrient for the whole study population, followed by the cereals and grains group (17.38%) and milk and dairy products group (17.17%).

On the other hand, and in relation to carbohydrates, "higher total carbohydrate consumption was observed in younger age groups as compared to adults and older adults and in men than in women", explains Prof. Varela-Moreiras. In this case, cereals and grains group, accounting for 48.97%, represents the highest dietary contribution of the sample, followed by the groups of milk and dairy products (9.90%) and non-alcoholic beverages (8.36%).

Daily nutrient intake and distribution in the ANIBES Study population (9-75 years old)

Nutrients	Mean	SD
Proteins (g)	74.5	22.4
Carbohydrates (g)	185.4	60.9
Sugar (g)	76.3	33.9
Lipids (g)	78.1	26.1
Saturated Fatty Acids (g)	24.0	9.5
Monounsaturated Fatty Acids (g)	33.7	11.3
Polyunsaturated Fatty Acids (g)	13.4	6.1
Omega-6 (g)	11.1	5.5
Omega-3 (g)	1.3	11.6
Cholesterol (mg)	315.0	137.0
Fiber (g)	12.7	5.6
Alcohol (g)	5.4	10.6
Water (mL)	1,626.0	641.0

The WHO (World Health Organization) and FAO (Food Agriculture Organization) recommended that total carbohydrate in the diet should provide between 50% and 75% of total energy. For its part, the European Food Safety Authority (EFSA) proposed in 2010 a range between 45% and 60% of total energy for carbohydrate intake.

Regarding sugars, the Professor points out that "although the EFSA does not set an upper limit of consumption, the WHO recommends that adults and children should reduce their daily intake of free sugars to less than 10% of their total daily energy intake. This organization has proposed a further reduction in the daily intake of sugars to below 5%, since it could potentially provide health benefits".

Milk and dairy products, which include milk, cheese, yogurt and fermented milks and other dairy products subgroups, were the main contributors of sugar intake by food and beverage group, followed by non-alcoholic beverages group (which includes juices and nectars, sugared soft drinks, coffee and herbal teas, sports drinks, energy drinks, sugar-free soft drinks, water and other non-alcoholic beverages subgroups), fruits, sugars and sweets and cereals and grains. It is important that each group is analyzed separately by subgroup due to the different type of sugars they contribute.

As regards fiber as a macronutrient, the cereals and grains group has been the main dietary source, followed by vegetables and fruits. "Values were much higher in older adults than in the youngest populations. In any case, the recommendations and nutritional goals set for the

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Spanish population are not reached as regards the intake of this dietary component”, comments Prof. Varela-Moreiras.

As far as lipids are concerned, the situation is reversed and “younger people had a greater intake than older adults, and men’s intake was higher than women. Oils and fats group represented the main source of this macronutrient”, continues to explain Prof. Varela- Moreiras. This food group is followed by meat and meat products group and milk and dairy products group.

Both from the WHO and FAO at a global level, and the EFSA at a European level, a lower boundary for the reference lipid intake range of 20% of energy and an upper boundary of 35% of energy have been proposed.

[See details in the publication and representation in the summary and appendix](#)

Ruiz E, Ávila JM, Valero T, del Pozo S, Rodriguez P, Aranceta-Bartrina J, Gil A, González-Gross M, Ortega RM, Serra-Majem LI, Varela-Moreiras G. Macronutrient Distribution and Dietary Sources in the Spanish Population: Findings from the ANIBES Study. *Nutrients*,2016;8(3):177; doi:10.3390/nu8030177.

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Scientific Committee

- **Prof. Javier Aranceta-Bartrina MD, PhD**, Chairman of the Scientific Committee of the Spanish Society of Community Nutrition (SENC), Clinical Director of the Spanish Foundation for Nutritional Research (FIN) and Professor of Community Nutrition at the University of Navarra
- **Prof. Ángel Gil, PhD**, Chairman of the Iberoamerican Nutrition Foundation (FINUT), Director of the BioNit Scientific Group and Professor of Biochemistry and Molecular Biology at the University of Granada
- **Prof. Marcela González-Gross, PhD**, Vice President of the Spanish Nutrition Society (SEÑ), Head of the imFine Research Group and Professor of Sports Nutrition and Exercise Physiology at the Technical University of Madrid
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- **Prof. Gregorio Varela-Moreiras, PhD**, Chairman of the Spanish Nutrition Foundation (FEN), Director of the Nutrition and Food Sciences Research Group (CEUNUT) and Professor of Nutrition and Bromatology at CEU San Pablo University of Madrid

Technical specifications of the ANIBES Study

Design: Representative sample of the resident population in Spain (excluding Ceuta and Melilla)

Sample: Individuals aged between 9 and 75 years old who live in municipalities with more than 2,000 inhabitants

Universe: 37 million inhabitants

Final sample: 2,009 individuals (2.23% error and 95% margin of confidence)

Random sample plus boost: 2,285 participants*

*Boost in the sample size was considered in order to obtain a correct representation

The final protocol of the ANIBES scientific study was previously approved by the Clinical Ethics Committee of the Autonomous Region of Madrid (Spain).

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