social sciences

MDPI

Article

Food and Nutrition Myths among Future Secondary School Teachers: A Problem of Trust in Inadequate Sources of Information

Vanessa P. Moreno-Rodríguez [1], Roberto Sánchez-Cabrero [2,*], Alfonso Abad-Mancheño [3], Almudena Juanes-García [4] and Fernando Martínez-López [1]

1 Department of Education, Faculty of Social Sciences and Applied Languages, Villanueva de la Cañada, Alfonso X the Wise University, 28691 Madrid, Spain; vrodrmor@uax.es (V.P.M.-R.); fmartlpe@uax.es (F.M.-L.)
2 Interfacultative Department of Evolutionary Psychology and Education, Autonomous University of Madrid, 28049 Madrid, Spain
3 Department of Modern Language Studies, Guilford College, Greensboro, NC 27410, USA; amanchen@guilford.edu
4 Education Department of the Government of Madrid, Equipo de Orientación Educativa y Psicopedagógica General de Getafe, C/Montserrat Caballé, 2, 28903 Madrid, Spain; almudena.juanes@educa.madrid.org
* Correspondence: roberto.sanchez@uam.es

Abstract: The Internet and social networks are full of nutrition information, offering people guidance to make healthy eating choices. These sources always present themselves as a gateway to reliable information on healthy eating; however, too often this is not the case. Far from being trustworthy, there are usually plenty of food myths. A food myth is a widespread false belief about food, nutrition, and eating facts that gives rise to certain behaviors, from fashionable trends to diets. Academic training is a valuable tool to combat food myths and the pseudoscience linked to them, but educators must participate in this battle. To test this idea, we analyzed the prevalence of nine highly popular food myths held by 201 secondary school Spanish teachers. The aim was to assess whether expertise in science areas prevents teachers from falling into these food misconceptions. Our study results showed that food myths are held regardless of specialty area. The power of the media in popularizing and spreading nutrition myths among educators may be the cause, even more potent than academic training. We conclude that since scientific knowledge is not enough to erase food myths, we need further actions if we aim to prevent the problems that food myths may cause.

Keywords: food; nutrition; nutrition myths; healthy habits; secondary teachers

Citation: Moreno-Rodríguez, Vanessa P., Roberto Sánchez-Cabrero, Alfonso Abad-Mancheño, Almudena Juanes-García, and Fernando Martínez-López. 2021. Food and Nutrition Myths among Future Secondary School Teachers: A Problem of Trust in Inadequate Sources of Information. *Social Sciences* 10: 325. https://doi.org/10.3390/socsci10090325

Academic Editor: Jean Pierre Poulain

Received: 6 July 2021
Accepted: 23 August 2021
Published: 28 August 2021

1. Introduction

According to current academic researchers, the factor most linked to a person's health is their dietary habits (Mello et al. 2020; Pot 2018; Mochizuki et al. 2017). Dietary habits can be defined as the food choices of people that reflect what food they prefer or what they can get according to their economic level and, consequently, consume (Bello 2005).

According to the IIIrd Study on Health and Lifestyle (AEGON Insurance Group 2020), eight out of ten Spaniards claim to have a varied diet, and seven out of ten keep a close eye on their food intake for health reasons. It seems that Spanish society takes care of its eating habits. It is a fact that eating habits in Western societies are closely affected by beauty standards (Mckay et al. 2018; Sánchez-Cabrero et al. 2020). In Spain, the interest in eating habits has grown faster, either by the influence of beauty standards or by the obsession with being young and healthy (De Los Santos-Mantero 2018; Sánchez-Cabrero et al. 2019; Sánchez-Cabrero 2020; Díaz-Méndez 2006).

Eating habits in secondary school students play an important role in the perception that adolescents have about their lifestyle (Bazán-Riverón et al. 2019; Das et al. 2017). However, while most school children have favorable attitudes toward healthy behaviors,

many of them hold beliefs that are contrary to these attitudes and wishes, and these are due to socio-environmental factors (Velde et al. 2014). To put it differently, knowledge about healthy eating comes from what is learned within one's own family, from nutritional discourses that introduce a certain *'cacophony'* (Dixon and Banwell 2004; Fischler 2011) and, what is more concerning, from the Internet and the media, but not from formal education (Blázquez Barba et al. 2018).

A food myth is a widespread false belief about food and nutrition that ends up in a trend and that ultimately becomes a commonly followed food habit (Feldman and Marks 2005; Lesser et al. 2015; Pomerleau et al. 2001). The World Health Organization (WHO) (World Health Organization Team 2004) establishes that our eating habits are among the highest risk factors leading to chronic disease (Poulain 2020).

For that reason, it is clear that it is necessary to debunk eating myths coming from popular culture because they can lead to unhealthy and dangerous habits, especially during adolescence and youth (Bruckner and Handl 2020; De Los Santos-Mantero 2018), and continue later in life during adulthood before being passed on to the next generations.

From a sociological point of view, it is appropriate to analyze the relationship between the emergence and maintenance of false myths about food, and its relationship with cultural, social and family aspects in a critical way (Janhonen et al. 2016; Poulain 2017; Beardsworth and Keil 1996). It may be relevant to know how nutritional family discourses perpetuate themselves from generation to generation, introducing a *'cacophony'* of incorrect eating myths (Fischler 2011). The fact that this knowledge comes from a trusted circle could prevent the appropriate and objective evaluation and testing of the belief from a scientific standpoint if it does not seem credible (Dixon and Banwell 2004).

It is necessary to food literacy, as the intersection between community and the research, that the food skills that are acquired are not separated from the environmental and social context (Janhonen et al. 2016; Cullen et al. 2015; Truman et al. 2017; Velardo 2015; Zandstra et al. 2001).

Sociologists, biologists, and nutritionists study how food and diet influence health and nutrition. They establish benefits and drawbacks of the consumption and abuse of certain foods, but only a small part of this research and discovery reaches society, despite having been accepted in the academic sphere (Chiles 2017). It is very difficult to distinguish whether a person has real scientific knowledge about a food habit, as the most usual situation is that a person does not know the origin of their knowledge, which they consider to be true. One of the main problems in the differentiation of the scientific knowledge about food myths is that, usually, formal teaching does not deal directly with human nutrition and food habits, although food is essential for human health (De la Cruz Sánchez 2021).

The most widespread food myths are those related to well-accepted alcoholic drinks such as wine and beer (Antoñanzas Villar et al. 2008; Demossier 2010; Samoggia 2016), possibly due to the commercial interests of industrial lobbies. Additionally, it is possible to find many misconceptions regarding the nutrients of legumes (Timsina 2018), the benefits of whole-grain bread (Behall et al. 1999), eggs and their influence on cholesterol (Gray and Griffin 2009), dairy products (Lordan and Zabetakis 2017; Astrup et al. 2019), and heme and non-heme iron (Agencia Española de Seguridad Alimentaria y Nutrición, AESAN 2014), among others. In addition, the National Dietary Intake Survey in Spain (Agencia Española de Seguridad Alimentaria y Nutrición, AESAN 2014) revealed sex differences in consumption patterns of essential minerals such as iron.

Truthful scientific information must find a way to influence people to counter food myths, and this is a task for both academics and teachers (Bruckner and Handl 2020). Let us not forget that, apart from the media and internet, some of these myths are also fed by nutrition handbooks, magazines, and even by some health professionals (Edwards et al. 2019; Juzwiak and Ancona-Lopez 2004).

One way to examine whether some of the most common and harmful food myths arise in our societies and how prevalent they may be is to ask young people trained in

scientific matters. If this population shares these myths, it probably means that we may be facing a severe problem that demands our attention.

In this study, we questioned 201 future secondary school teachers from different academic areas. This study was performed during their initial training while they were studying for the *Master's Degree in Secondary School Teacher Training, Vocational Training, Baccalaureate, and Languages*. The reason why we analyzed this group of secondary school teachers was that they will be the main academic reference for the next generation. As said above, if they hold some of the food myths, the problem, far from being solved, will likely be perpetuated, as these myths will spread among students.

The main hypothesis in the work was that food myths are very widespread among secondary school teachers and that those teachers in the sample (with specializations in biology, physics, and chemistry) would have a greater understanding of nutritional issues with respect to the rest of the sample.

To investigate this hypothesis (1), we assessed whether the area of expertise of education postgraduates who are studying the official Spanish master's degree that allows them to work as teachers is positively related to their knowledge of nutrition and prevents them from believing in food myths. More specifically, we investigated if those with specialization in biology, physics, and chemistry have greater mastery over nutritional issues. Secondly, (2) we aimed to identify which nutrition myths are more prevalent among future teachers.

2. Materials and Methods

2.1. Study Design and Data Analysis

We carried out a descriptive and ex post facto cross-sectional study of food and nutrition myths among university postgraduates in education that enrolled in a master's degree in the academic year 2019–2020 that entitles them to work as high school teachers. As descriptive statistics, we used the *arithmetic mean* and *standard deviation* for the nutrition myth and the distribution of frequencies for the rest of the variables. For inferential analyses, we used a *Student t-test* for independent samples. Finally, percentages describe the degree of knowledge about food and nutrition.

2.2. Recruitment and Data Collection

The sampling was carried out by cluster sampling among the students on the *Master's Degree in Secondary School Teacher Training, Vocational Training, Baccalaureate, and Languages* at a Private Spanish University. All students in the 2019–2020 academic year from the seven selected areas who voluntarily agreed to participate and who correctly completed the evaluation instrument designed ad hoc for the study were included in the study; 84% of the total population took part in the study. No filter was applied to select participants based on ethnic or social origin. The distribution of profiles and academic areas obtained represents the sampling process followed.

The study sample consisted of 201 participants (110 females and 91 males), who previously graduated with an official university degree with no direct relation to education and are pursuing an official master's degree in secondary education that entitles them to work as teachers. They have an average age of 34.47 years (33.94 for women and 35.12 for men) and a standard deviation of 6.67 (6.82 for women and 6.49 for men). See in Figure 1 the distribution of the sample according to sex and age.

Participants are representatives of the seven different areas of expertise included in the official university master's degree in High School Teacher Training (language and literature; mathematics and economics; biology and geology; physics and chemistry; technology; geography and history; and educational orientation), with the biology and geology modality being the most frequent (n = 55) and the educational orientation modality the least frequent (n = 10), as can be seen in Figure 2.

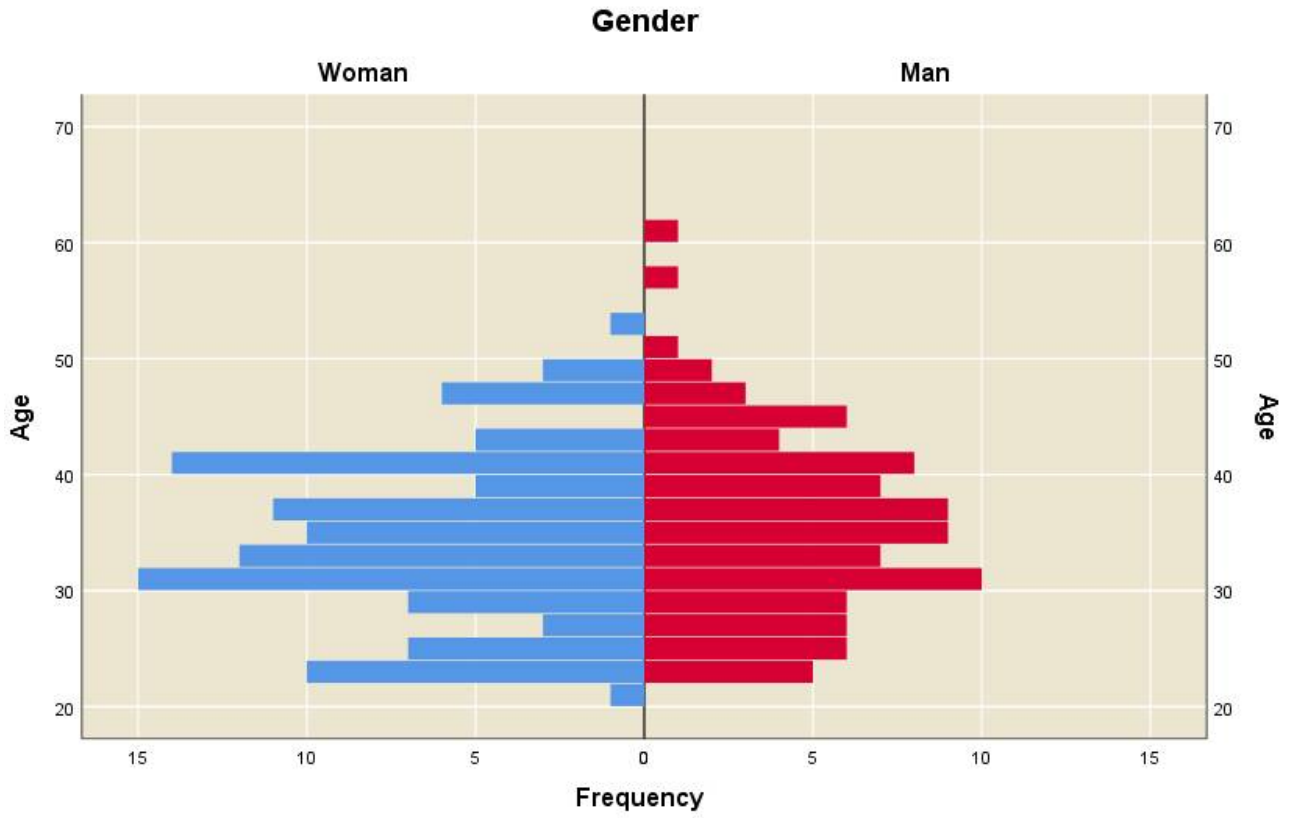

Figure 1. Sample distribution according to age and sex of the participants.

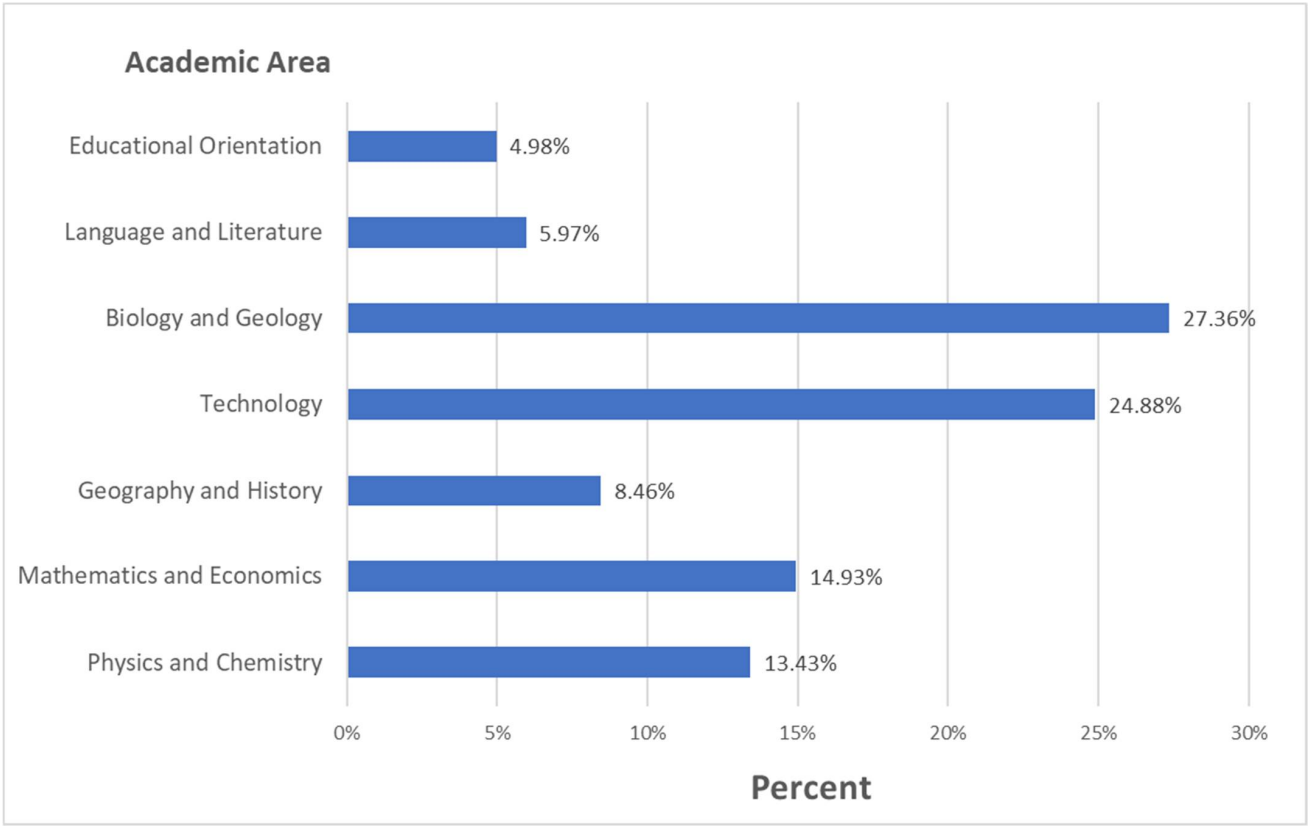

Figure 2. Sample distribution according to academic area.

It should be noted at this point that the academic areas in the *master's degree* do not reflect a single degree, but rather sets of similar studies; for example, the technology area is made up of computer and telecommunications degrees and educational orientation (understood as educational guidance) is made up of degrees close to education and psychology.

We used a cluster sampling survey of students pursuing a university master's degree in *Secondary School Teacher Training* at a Private Spanish University. No extra selection was applied, and participants have different professional profiles and backgrounds. They come from all Spanish regions because the master's degree is taught online.

2.3. Instrument for Obtaining Evaluated Data and Variables

An ad hoc 2-page/12-item online questionnaire was designed and hosted on the private server encuestafacil.com so that all participants could access it anywhere and with any type of electronic device connected to the internet. The questionnaire was validated by the Scientific and Ethical Committee of the UAX (Meeting Acta 1) and underwent a strict validation process by external experts. Acceptance of the informed consent was addressed on the first page and accepting was a requirement to participate in the survey.

The variables evaluated are described below:

- Sex, as a dichotomous variable (female or male).
- Age, as a discrete quantitative variable.
- Academic area of expertise, area of training in one of the seven specialties offered in the master's degree. It is treated as a nominal categorical variable with seven categories: language and literature; mathematics and economics; biology and geology; physics and chemistry; technology; geography and history; and educational orientation.
- Nutrition myths. Continuous quantitative variable. It consists of the sum resulting from the participant's response to nine myths of food and nutrition. Each myth poses a statement that can be positive. False is evaluated on an ordinal scale of two conditions (0 = TRUE, wrong; 1 = FALSE, right). The myths are based on:
    - Nutrition Myths
    - Vegetables do not contain significant amounts of iron
    - One glass of wine a day is good for health
    - It is not possible to follow a 100% vegan diet and be healthy
    - Whole-grain bread is less fattening than white bread
    - If one suffers from high cholesterol, it is better not to consume eggs or eat just one per week
    - Legumes are rich in carbohydrates and poor in protein intake
    - Dairy products intake is essential to keep calcium to an optimal level
    - When there is no time to eat some fruit, having a natural fruit juice is an equally valid option
    - Light and skim products help us lose weight

We chose nine prevalent food myths through consultation and final validation with nutrition experts. Each of the selected myths was the most widespread in each of the main areas considered. As a result, we chose myths regarding intake of essential minerals, intake of alcoholic beverages, vegan diets, cereals, cholesterol, legumes, dairy, fruits, and light products.

The evaluated myths were:

2.3.1. MYTH 1: 'Vegetables Do Not Contain Significant Amounts of Iron'. FALSE

The National Institute of Health (NIH) advises an iron Recommended Dietary Allowance (RDA) of 9 mg (men) and 18 mg (women) between the ages of 20 and 49 (Institute of Medicine (US) Panel on Micronutrients 2001).

The iron amounts were consulted on the Agricultural Research Service website of the United States Department of Agriculture (USDA) (U. S. Department of Agriculture 2021). According to this source, the amount of iron found in vegetables is as follows: spinach,

3.18 mg/100 g; lentils, 3.32 mg/100 g, and dark chocolate 0.92 mg/100 g. According to the USDA, meat has a heme-iron amount of 1.5–2 mg/100 g t (including chicken, beef, and pork) (U. S. Department of Agriculture 2021).

There are two iron types: heme-iron (present in fish and meat) and non-heme iron (in vegetables). Besides the iron amounts, one noteworthy parameter is the bioavailability (BA), expression of the available fraction of a compound total mass, which depends on the iron-type and the combination of the foods. Non-heme-iron has a 5–12% absorption rate whereas heme-iron has 14–20% absorption rate (Cámara-Martos 2004; Hurrell and Egli 2010). Nevertheless, according to NIH, it is necessary to indicate that some vegetables have significant amounts of non-heme iron (black and white beans, whole cereals, nuts, raisins, etc.) but their ingestion must be linked to acids, e.g., a vitamin C intake (citruses, strawberries, red pepper, tomatoes, broccoli, etc.) (Hurrell and Egli 2010). Thus, the myth is false because of these data.

2.3.2. MYTH 2: 'One Glass of Wine a Day Is Good for Health'. FALSE

The polyphenols discovered in wine are the origin of this myth.

Fresh grapes contain up to 300 mg of polyphenols/per 100 g, and some of them are polyphenolic antioxidants (PA), as resveratrol. On average between red and white grapes, resveratrol is up to 15–100 µg/g in fresh grapes, so 15 g of fresh grapes has 0.75–1.5 mg of resveratrol (Murtaza et al. 2013).

However, the resveratrol amount depends on the type of wine. The average total resveratrol content in red, rosé, white, and cava Spanish wines is: 7.55 mg/L, 2.15 mg/L, 0.48 mg/L and 0.67 mg/L, respectively (Gonzalo et al. 1995).

Some studies have found a link between wine consumption as a protector in heart disease and stroke (Sacco et al. 1999), but in general, resveratrol studies have found that it is a potent antioxidant and can afford health promotion in several chronic conditions, but it has been using supplements of grapes concentrates, not always using wine (Downer et al. 2019; Singh et al. 2015).

Besides, in this breakdown of effects, we cannot leave out the potent neurotoxic effect of wine (Erdozain et al. 2014), and the effects of its continuous consumption on general health (Samoggia 2016; Downer et al. 2019), as well as its possible negative social effects (Spear 2018). In general, no level of alcohol consumption improves health (Burton and Sheron 2018).

Hence, the myth is false. Current research suggests, clearly, no level of alcohol consumption improves health (Burton and Sheron 2018).

2.3.3. MYTH 3: 'It Is Not Possible to Follow a 100% Vegan Diet and Be Healthy. FALSE

A vegan is a person who has decided not to exploit animals in any way and, therefore, to follow a vegan diet means not eating meat, fish, dairy products, honey, and/or eggs.

Vegan diets enjoy numerous benefits recognized by the WHO (World Health Organization) and other studies (Trepanowski and Varady 2015; Borude 2019; Rogerson 2017) with only one consideration that must be taken into account. An exclusively vegan diet seems to lack Vitamin B12, which is the only nutrient that needs to be taken as a supplement to balance that nutritional guideline nowadays (Ankar and Kumar 2021). A possible lack of Vitamin B12 is one of the problems a vegan may face, as a low B12 intake can lead to anemia and nervous system impairment (Guney et al. 2016). Vitamin B12 biosynthesis is confined to few bacteria, and as such its production relies on microbial fermentation (Martens et al. 2002). Although vitamin B12 appears to be synthesized by intestinal bacteria in the ileum of the large intestine, its utilization would be minimal due to an uncoupling between synthesis and absorption due to multiple factors. It is true that vitamin B12 is the only supplementary nutrient that needs to be taken to balance that nutritional guide-line in a vegan person, but its deficiency is not only found in vegans but also in people with an omnivorous diet (Ankar and Kumar 2021).

Consequently, the myth is false because it is possible to be on a healthy vegan diet including supplementary B12 intake.

2.3.4. MYTH 4: 'Whole-Grain Bread Is Less Fattening than White Bread'. FALSE

White bread is made with refined flour, whereas whole bread is made with the complete grain of the cereal. It is true that the Glycemic Index (GI) in white bread is indeed higher than whole bread (Behall et al. 1999). According to the Glycemic Index Foundation, GI is a relative ranking of carbohydrates in foods according to how they affect blood glucose levels. Carbohydrates with a low GI value (55 or less) are more slowly digested, absorbed, and metabolized and cause a slower rise in insulin levels (Gao et al. 2019; Lau et al. 2005; Holscher 2017; Myhrstad et al. 2020).

However, if we review their tendency to fatten, there are no major differences in calories: white bread provides 277 Kcal (1.6 mg iron, 0.6 mg zinc, and 25 mg magnesium) per 100 g and whole bread provides 259 Kcal (2.7 mg iron, 1.8 mg zinc, 76 mg magnesium), in 100 g (Ruiz-Moreno et al. 2019).

Thus, whole bread is not a lower-calorie food, but it might be better for health according to its GI, and the amounts of minerals.

2.3.5. MYTH 5: 'If One Suffers from High Cholesterol, It Is Better Not to Consume Eggs or Eat Just One per Week'. FALSE

Eggs have a high nutritional value, are rich in essential amino acids, and are an easily digestible protein, while also being high in healthy fatty acids, vitamins (it contains all the vitamins that the human being needs), and minerals. According to the USDA, for each egg, we consume 266 mg of cholesterol, which would represent 89% of the daily recommendations (on a 2000 Kcal diet). An egg also provides 2 g of saturated fats, 2.4 g of monounsaturated fats, and 0.9 g of polyunsaturated fats, as well as 47 mg of Omega-3 fatty acids and 723 mg of Omega-6. The egg white contains water and proteins, whereas the yolk contains fat-soluble vitamins (A, D, E, and K); thiamine; biotin; pantothenic acid; folic acid; and vitamins B12 and B6. Minerals include phosphorus, zinc, iron, iodine, and selenium (Richter et al. 2019).

However, although it contains significant amounts of cholesterol, it does not seem to have a direct link with the elevation of blood cholesterol (Gray and Griffin 2009; Richter et al. 2019; Shin et al. 2013).

The Dietary Guidelines for Americans in 2015 (U.S. Department of Agriculture, USDA 2020) removed the prior recommendation to limit the consumption of dietary cholesterol per day. The same applies to the different Dietary Guidelines for the Spanish population. Consequently, the myth is false.

2.3.6. MYTH 6: 'Legumes Are Rich in Carbohydrates and Poor in Protein Intake'. FALSE

According to the EFSA (European Food Safety Authority), the protein intake for adults is a minimum of 0.83 g, per kilogram, per day. Adults older than 65 need a bit more (Richter et al. 2019). To give an example, an adult of 60 Kg needs, approximately, 49.8 g/protein/day.

According to data from the USDA (U.S. Department of Agriculture, USDA 2020), lentils, chickpeas, and white beans have a combined average of 9.2 g of protein, 24 g of carbohydrates, and 7.26 g of dietary fiber, per 100 g. To compare these numbers with the data from the most consumed meats, chicken, veal, and pork have a combined average value of 17.2 g of protein, 0 g of carbohydrates, and 0 g of fiber.

The protein digestibility corrected amino acid score (PDCAAS) depends on the foods. Chickpeas and soybeans have 0.78 and 0.91 values respectively, whereas veal has 0.92. Considering the amino acid typology, legumes are rich in arginine and lysine, but poor in methionine and glycine (Ruiz-Moreno et al. 2019; Chen and Eriksson 2019).

Fiber is present in legumes, which is essential for good intestinal health. To obtain a good-quality protein, it is advisable to mix legumes with foods rich in the latter two

amino acids, for instance, whole cereals (Escudero Álvarez and González Sánchez 2006; Cid-Gallegos et al. 2020).

Therefore, the myth is false.

2.3.7. MYTH 7: 'Dairy Products Intake Is Essential to Keep Calcium to an Optimal Level'. FALSE

Calcium is essential for heart functioning as well as for muscles and nerves. In addition, it plays a major role in blood coagulation, although the reason why it is best known is that its insufficiency may cause osteoporosis. However, supplemental calcium has limited efficacy in the prevention of bone fracture (Lesser et al. 2015).

The NIH recommended daily intake is 1000 mg of calcium for adults (1200 mg for pregnant women and people over 70) (van Dronkelaar et al. 2018).

The calcium absorbable fraction (AF) is very different between foods. For example, cow's milk has 125 mg of calcium/100 g (a small cup), but its AF is only 32% (i.e., 40 mg absorbed calcium/100 g) (Martínez de Victoria 2016). Almonds have 250 mg of calcium per 100 g (approx.), with 21.2% AF, and approx. 50 to 60 mg are absorbed per 100 mg. Broccoli has approx. 40 mg/100 g (AF 25 mg of calcium absorbed) and cauliflower has 70/100 g (AF 35 mg of calcium absorbed) (Rodríguez Huertas et al. 2019).

Although vegetables are indeed a good calcium source, and we can live without dairy products, milk is the best way to get a rapid calcium intake (Rodríguez Huertas et al. 2019).

Finally, a further deepening is needed in relation to calcium absorption. For good calcium absorption, homeostasis, calcium-phosphorus, and correct vitamin D values (among others) must be taken into account, For calcium to be assimilable, the Ca/P ratio must be 2:1 and must have a good concentration of vitamin D (Veldurthy et al. 2016).

According to the NIH, the recommended daily amount of vitamin D is 600 IU (1 microgram vit D = 40 IU); 80–90% of the total body's vitamin D is vitamin D3, which comes from de novo after exposure to UVB radiation. The rest is achieved through nutrition: salmon (600 IU), sardine (400 IU), tuna (230 IU), egg yolk (25 IU), and mushrooms (100 IU) per 100 g of product (National Institute of Health 2021).

The best things to do to improve calcium intake are eating well, receiving enough sun exposure, and watching your calcium/phosphorus/Vit D ratio (Yao et al. 2019).

2.3.8. MYTH 8: 'When There Is No Time to Take Some Fruit, Having a Natural Fruit Juice Is an Equally Valid Option'. FALSE

An orange provides approximately 70 Kcal and 3.5 g of fiber, and orange juice approximately 100 Kcal and 0.5 mg of fiber. Juice has less fiber and also free-natural-sugars.

Fiber is a non-digestible food constituent that is essential for enteric maintenance (Bustos A and Medina P 2020).

Daily fiber intake must be 25–30 g/per day for adults according to Reynolds (Reynolds et al. 2019).

Besides, free sugars must be studied when we talk about juice. The fruit has its own sugars along with its fiber, making them less bioavailable. Free sugars in a juice are very bioavailable to the body. Free sugars are very bioavailable to the body. The fruit has its sugars along with its fiber, making them less bioavailable. According to Bernstein et al. (Bernstein et al. 2016), free sugars are linked to an increased risk of obesity, cardiovascular disease, diabetes, and tooth decay.

2.3.9. MYTH 9: 'Light and Skim Products Help Us Lose Weight'. FALSE

According to the Spanish Interministerial Commission for Food Regulation, a lite product is one that has reduced (not eliminated) from the original product its content in calories coming from fats and sugars at least by 30%. The WHO recommends not exceeding 25 g of sugar intake per day (World Health Organization (WHO) 2015).

The bottom line is that, although lite products provide fewer calories, some do so by replacing fat with sugars and sweeteners that give them greater palatability. Another important aspect is the tendency to consume more of the product thinking that it can be

abused because it is lite, which leads to the fact that, in many cases, the consumption of these products is directly associated with weight gain, not with the weight reduction they claim (Sánchez-Cabrero et al. 2020; Ruiz-Moreno et al. 2019; Richter et al. 2019).

3. Results

In response to the first research goal, Table 1 shows the mean and standard deviation of total hits in the nine food myths obtained by the participants according to their specialty. Each success yields one point and mistakes do not score, so each participant has a score between 0 and 9.

Table 1. The total score obtained in the myths of food according to academic specialties.

Area of Specialty	N	Mean	Standard Deviation
Physics and Chemistry	27	6.52	1.42
Mathematics and Economics	30	6.80	1.35
Geography and History	17	6.29	1.65
Technology	50	6.88	1.67
Biology and Geology	55	6.84	1.91
Language & Literature	12	6.08	2.07
Educational Orientation	10	6.10	1.45
TOTAL	201	6 67	1.68

At first glance, we see that neither participants with a biology or geology specializations, nor participants with physics and chemistry specialization are the ones that obtained the best results. However, it is necessary to see Table 2, where we see a comparison between the scores obtained by the participants within the areas of biology and geology and physics and chemistry as opposed to the rest of the areas. t-contrasts were used to determine whether these differences observed in Table 1 were statistically significant and to confirm or reject the initial hypothesis that participants with science majors are better prepared to identify food myths.

Table 2. Comparison of the score obtained in food myths by the participants of 'Biology and Geology' and 'Physics and Chemistry' with the rest of the areas through t-contrasts for independent samples.

Area of Specialty	*gl*	*t*	*p*
Physics and Chemistry	199	0.508	0.612
Biology and Geology	199	−0.853	0.395
Physics and Chemistry + Biology and Geology	199	−0.420	0.675

None of the contrasts carried out showed significant differences when compared to the rest of the participants specialized in the other academic areas related to social sciences and humanities; hence, neither the students of biology and geology, nor those of physics and chemistry, nor those formed by the confluence of both groups, are better prepared to identify food and nutrition myths.

Therefore, we can reject the initial hypothesis of the study, stating that students with a background in biology, physics, and chemistry, who are studying for a master's degree in teacher training, show a better background of nutritional knowledge concerning food myths.

In response to the second research goal, Table 3 shows the percentages of correct responses for each myth.

It is noteworthy how the myth 'A glass of wine a day is beneficial for health' is the myth in which participants failed the most. In contrast, the myth 'Legumes are rich in carbohydrates and poor in protein intake' was correctly identified with a rate of correct answers of nearly 90%.

Table 3. Success percentages for each feeding myth.

Feeding Myths	Correct Answers Percentage
Vegetables do not contain significant amounts of iron	86.1
One glass of wine a day is good for health	46.8
It is not possible to follow a 100% vegan diet and be healthy	66.7
Whole-grain bread is less fattening than white bread	69.7
If one suffers from high cholesterol, it is better not to consume eggs or eat just one per week	82.1
Legumes are rich in carbohydrates and poor in protein intake	88.6
Dairy products intake is essential to keep calcium to an optimal level	69.7
When there is no time to eat some fruit, having a natural fruit juice is an equally valid option	83.1
Light and skim products help us lose weight	74.6

4. Discussion

Regarding the first objective of the research, it is noteworthy to see how there were no significant differences between education postgraduates of very different specializations, including degrees such as biology and physics and chemistry, which, in theory, should imply greater nutritional knowledge. This result is particularly remarkable because it shows that university graduates in experimental and natural areas such as biology, physics, or chemistry have erroneous food beliefs that, in some cases, are contrary to their training (Blázquez Barba et al. 2018; Feldman and Marks 2005; Velde et al. 2014). If we discard the academic field as the main source of information on nutrition, we are left with the family-cultural sphere (Dixon and Banwell 2004; Fischler 2011), the internet, and the media (Blázquez Barba et al. 2018) as the main sources of knowledge.

On the one hand, apart from general traditions and their link with food (Poulain 2017; Beardsworth and Keil 1996), nutritional discourses coming from the family sphere that introduce a certain *'cacophony'* from generation to generation must be regarded as a great influence (Dixon and Banwell 2004; Fischler 2011). Sociologically, we must be critical of Western societies if they are not able to adequately incorporate scientific knowledge as the main knowledge of trust, not only in the nutritional field, since it is possible that the results shown in this study are only a small example of the flow of inadequate social knowledge in societies that define themselves as the *'Knowledgeable source'*, where scientific knowledge is as close to society as it has never been before in history.

On the other hand, the hypothesis that food myths may be more related to mass media and internet information and, therefore, the channels of formal education are not sufficient to fight misrepresentations, is supported by authors such as Blázquez Barba et al. (2018).

According to Truman et al. (2017), it is necessary to achieve a good food literacy level in society. This would range from the acquisition of functional knowledge, concerning skills, abilities, and choices about food, to critical knowledge concerning understanding and possibly questioning read information.

Healthy eating habits are a significant nutrition literacy issue, probably due to information divulged by mass media (Velardo 2015). Existing nutritional literacy measuring tools tend to emphasize literacy and numerical skills and/or nutritional knowledge (Velardo 2015), but very few of them assess future teachers who will have an impact on future students.

In the current study, we performed just this and found an average of 25% of errors in the nine selected myths. This comprises a considerable number of future secondary school teachers who are in a position of spreading the myths analyzed herein. It is far from what would be desirable, i.e., a 100% success rate among secondary school teachers when identifying food myths.

Furthermore, there were no significant differences between education postgraduates of very different specializations, including degrees such as biology and physics and chemistry, which, in theory, should have greater knowledge about nutrition than, for example,

graduates of economics, language, or history. Let us not forget that in our societies, science and health teachers are the role models of academic knowledge for young people. If students mirror what they have learned from teachers who have conceptual errors, this can become a problem in the future because it could result in failures in their learning, as well as further perpetuating the transmission of the same mistakes (Fischler 2011).

Regarding the second research objective, it is striking that Myth 2 'One glass of wine a day is beneficial for health' is the most prevailing one. This result is in line with what was found by Samoggia (2016) and Demossier (2010), who studied the role played by social aspects in the rise and continuation of wine consumption myths. In this sense, it is possible that having a long tradition of producing and drinking wine, as in Spain and France, explains the diffusion and maintenance of this myth. The fact that Spain is a country with a great tradition in winemaking may have a decisive influence on the dissemination and maintenance of this myth (Antoñanzas Villar et al. 2008). However, it would be necessary to contrast these results obtained with other similar ones in other countries with different cultures and traditions around wine.

Likewise, free sugars must be studied when we talk about juice. Fruit has its own sugars along with fiber, making them less bioavailable. Free sugars in a juice are very bioavailable to the body. According to Bernstein et al. (2016), free sugars are linked to an increased risk of obesity, cardiovascular disease, diabetes, and tooth decay. The bottom line is that, although lite products provide fewer calories, some do so by replacing fat with sugars and sweeteners that give them greater palatability. Another important aspect is the tendency to consume more of the product thinking that it can be abused because it is lite, which leads to the fact that, in many cases, the consumption of these products is directly associated with weight gain, not with the weight reduction they claim (Sánchez-Cabrero et al. 2019; Sánchez-Cabrero 2020; Zandstra et al. 2001).

Fortunately, we can see that this does not occur with other myths such as legumes and proteins, vegetables and amounts of iron, or eggs and cholesterol, which are less prevailing, probably because of the known beneficial effects of legumes as potential anticarcinogens (Cid-Gallegos et al. 2020), the improved understanding of iron absorption (Hurrell and Egli 2010), and better understanding of cholesterol metabolism (Gray and Griffin 2009).

We did find a trend, but not a significant one, in some myths related to vegan food in general and its calcium intake. The latter is normal since dairy intake is still the easiest, not the only but the simplest way to ingest this mineral (Rodríguez Huertas et al. 2019).

Another inconclusive result, but showing a trend, was regarding the fattening capacity of whole-grain bread. It may indicate a poor understanding of the concept of fiber and most probably a lack of knowledge of what fiber means for the health of the gut microbiota (Holscher 2017; Myhrstad et al. 2020). This is a point to be considered in our future research.

As a limitation, it should be noted that perhaps all these inconclusive, but trending, results could have been corrected or, at least, studied in more depth if a control group of nutrition graduates had been used in the study. In addition, it would be necessary to carry out the same study with Primary Teachers Training Students and check whether they are better or worse trained in nutrition.

Regarding to the media, science journalists and propagators play a crucial role. However, not all of them have the necessary training to understand some pieces of information and the results contained in scientific articles. In this sense, having more scientific advisory committees in those media would be the first step in combating misinformation.

Moreover, we should put more effort into the filters and controls that take place during scientific dissemination. In our country, having scientific awards and fostering and rewarding outstanding scientific blogs and any other initiative of the Spanish Science, Technology, and Innovation System (SECTI) will help in this regard, but may not be enough.

5. Conclusions

From the results of this study, it can be concluded that food literacy is necessary for the training of future teachers, not only of science but of all possible disciplines and levels.

The fact that there are no significant differences between educational professionals with different specialties regarding food myths reflects that the root of the problem lies in the fact that, generally, the population does not know how to recognize reliable and unreliable sources of information in this field. Therefore, it is not so much a problem of truthful information or access to information, but of consumption and food habits, as well as the cultural information dominated by the media.

Perhaps it is a bit daring to propose the creation of a network of dissemination standards by subject or field, for example, nutrition, mental health, sexuality, etc., and that experts should oversee evaluation of what is to be published or shown in the media. We are not suggesting censorship, but rather to control the quality of what is disseminated so we protect knowledge from falling prey to myths in the era of post-truth.

Author Contributions: Conceptualization, V.P.M.-R., and R.S.-C.; methodology, V.P.M.-R., and R.S.-C.; software, R.S.-C.; validation, A.J.-G., F.M.-L. and A.A.-M.; formal analysis, R.S.-C.; investigation, V.P.M.-R., and R.S.-C.; resources, V.P.M.-R.; data curation, A.J.-G., F.M.-L., A.A.-M., and R.S.-C.; writing—original draft preparation, V.P.M.-R., and R.S.-C.; writing—review and editing, A.J.-G., F.M.-L., A.A.-M., V.P.M.-R., and R.S.-C.; visualization, V.P.M.-R. and R.S.-C.; supervision, A.J.-G., F.M.-L., and A.A.-M.; project administration, A.J.-G., F.M.-L., and A.A.-M. All authors have read and agreed to the published version of the manuscript.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Scientific and Ethical Committee of the University Alfonso X the Wise (Meeting Acta 1 on 29 February 2020).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data presented in this manuscript is original and is available at https://datadryad.org/stash/share/L6DXyjwREIpRGzgz8EPLkxeQ_aqVl2YmgiDI5I54HIg (accessed on 26th August 2021). The presented data is not inappropriately selected, manipulated, enhanced, or fabricated. This includes (1) exclusion of data points to enhance significance of conclusions, (2) fabrication of data, (3) selection of results that support a particular conclusion at the expense of contradictory data, (4) deliberate selection of analysis tools or methods to support a particular conclusion (including p-hacking).

Acknowledgments: The authors would like to express their gratitude to the managing team of Encuestafacil.com, which lent out their application free of charge so that we could create the questionnaire, and their servers in order to collect the data.

Conflicts of Interest: The authors declare no conflict of interest.

References

AEGON Insurance Group. 2020. *III Estudio de Salud y Estilo de Vida de AEGON*. Madrid: AEGON Insurance Group.

Agencia Española de Seguridad Alimentaria y Nutrición, AESAN. 2014. *ENIDE, Encuesta Nacional de Ingesta Dietética (2009–2011)*. Evaluación nutricional de la dieta española I. Madrid: Gobierno De España, Vol. Energía y macronutrientes.

Ankar, Alex, and Anil Kumar. 2021. Vitamin B12 Deficiency. In *StatPearls*. Treasure Island: StatPearls Publishing.

Antoñanzas Villar, Fernando, María Puy Martínez-Zárate, and Roberto Pradas Velasco. 2008. Las bebidas alcohólicas en España: Salud y economía. *Gaceta Sanitaria* 22: 175–78. [CrossRef]

Astrup, Arne, Nina Rica Wium Geiker, and Faidon Magkos. 2019. Effects of Full-Fat and Fermented Dairy Products on Cardiometabolic Disease: Food Is More Than the Sum of Its Parts. *Advances in Nutrition* 10: 924S–30S. [CrossRef] [PubMed]

Bazán-Riverón, Georgina Eugenia, Maricela Osorio-Guzmán, Laura Evelia Torres-Velázquez, Jorge Iván Rodríguez-Martínez, and José Antonio Ocampo-Jasso. 2019. Validación de una escala sobre estilo de vida para adolescentes mexicanos. *Revista Mexicana de Pediatría* 86: 112–18. Available online: https://www.medigraphic.com/pdfs/pediat/sp-2019/sp193e.pdf (accessed on 26 August 2021).

Beardsworth, Alan, and Teresa Keil. 1996. *Sociology on the Menu: An Invitation to the Study of Food and Society*. London: Routledge, ISBN 978-0-415-11425-7.

Behall, Kay M., Daniel J. Scholfield, and Judith Hallfrisch. 1999. The Effect of Particle Size of Whole-Grain Flour on Plasma Glucose, Insulin, Glucagon and Thyroid-Stimulating Hormone in Humans. *Journal of the American College of Nutrition* 18: 591–97. [CrossRef]

Bello, José. 2005. *Calidad de Vida, Alimentos y Salud Humana*. Fundamentos Científicos. Madrid: Ediciones Díaz de Santos, S.A.

Bernstein, Jodi T., Alyssa Schermel, Christine M. Mills, and Mary R. L'Abbé. 2016. Total and Free Sugar Content of Canadian Prepackaged Foods and Beverages. *Nutrients* 8: 582. [CrossRef] [PubMed]

Blázquez Barba, Minerva, Dolores Gómez Romero, Isidora Frontaura Fernández, Abdón Camacho Ojeda, Francisco M. Rodríguez Salas, and Higinio Toriz Cano. 2018. Uso de Internet por los adolescentes en la búsqueda de información sanitaria. *Atención Primaria* 50: 547–52. [CrossRef]

Borude, Sanjay. 2019. Which Is a Good Diet—Veg or Non-Veg? Faith-Based Vegetarianism for Protection From Obesity—A Myth or Actuality? *Obesity Surgery* 29: 1276–80. [CrossRef]

Bruckner, Irene, and Stephanie Handl. 2020. Survey on the Role of Nutrition in First-opinion Practices in Austria and Germany: An Evaluation of Knowledge, Preferences and Need for Further Education. *Journal of Animal Physiology and Animal Nutrition* 2. [CrossRef]

Burton, Robyn, and Nick Sheron. 2018. No Level of Alcohol Consumption Improves Health. *Lancet (London, England)* 392: 987–88. [CrossRef]

Bustos A, Edson, and Alexis Medina P. 2020. Recomendaciones y Efectos de La Fibra Dietaria En Niños. *Revista Chilena de Nutrición* 47: 457–62. [CrossRef]

Cámara-Martos, Fernando. 2004. *Biodisponibilidad Mineral de Menús Escolares*. Córdoba: Universidad de Córdoba.

Chen, Ariel, and Göran Eriksson. 2019. The Mythologization of Protein: A Multimodal Critical Discourse Analysis of Snacks Packaging. *Food, Culture & Society* 22: 423–45. [CrossRef]

Chiles, Robert Magneson. 2017. Hidden in Plain Sight: How Industry, Mass Media, and Consumers' Everyday Habits Suppress Food Controversies. *Sociologia Ruralis* 57: 791–815. [CrossRef]

Cid-Gallegos, María Stephanie, Xariss M. Sánchez-Chino, Milagros Faridy Juárez Chairez, Isela Álvarez González, Eduardo Madrigal-Bujaidar, and Cristian Jiménez-Martínez. 2020. Anticarcinogenic Activity of Phenolic Compounds from Sprouted Legumes. *Food Reviews International* 1–16. [CrossRef]

Cullen, Tracy, Janelle Hatch, Wanda Martin, Joan Wharf Higgins, and Rosanna Sheppard. 2015. Food Literacy: Definition and Framework for Action. *Canadian Journal of Dietetic Practice and Research: A Publication of Dietitians of Canada = Revue Canadienne De La Pratique Et De La Recherche En Dietetique: Une Publication Des Dietetistes Du Canada* 76: 140–45. [CrossRef]

Das, Jai K., Rehana A. Salam, Kent L. Thornburg, Andrew M. Prentice, Susan Campisi, Zohra S. Lassi, Berthold Koletzko, and Zulfiqar A. Bhutta. 2017. Nutrition in Adolescents: Physiology, Metabolism, and Nutritional Needs. *Annals of the New York Academy of Sciences* 1393: 21–33. [CrossRef] [PubMed]

De la Cruz Sánchez, Ernesto Elías. 2021. La educación alimentaria y nutricional como hecho educativo. *LAURUS* 17: 232–53.

De Los Santos-Mantero, Ma Dolores. 2018. Análisis de creencias y hábitos sobre alimentación y riesgo de Trastornos de la Conducta. *Journal of Negative and No Positive Results* 768–88. [CrossRef]

Demossier, Marion. 2010. *Wine Drinking Culture in France: A National Myth or a Modern Passion?* Cardiff: University of Wales Press.

Díaz-Méndez, Cecilia. 2006. The Sociology of Food in Spain: European Infuences in Social Analyses on Eating Habits. *Comparative Sociology* 5: 353–80. [CrossRef]

Dixon, Jane, and Cathy Banwell. 2004. Heading the Table: Parenting and the Junior Consumer. *British Food Journal* 106: 182–93. [CrossRef]

Downer, Mary K., Stacey A. Kenfield, Meir J. Stampfer, Kathryn M. Wilson, Barbra A. Dickerman, Edward L. Giovannucci, Eric B. Rimm, Molin Wang, Lorelei A. Mucci, Walter C. Willett, and et al. 2019. Alcohol Intake and Risk of Lethal Prostate Cancer in the Health Professionals Follow-Up Study. *Journal of Clinical Oncology: Official Journal of the American Society of Clinical Oncology* 37: 1499–511. [CrossRef]

van Dronkelaar, Carliene, Aafke van Velzen, Maya Abdelrazek, Anouk van der Steen, Peter J. M. Weijs, and Michael Tieland. 2018. Minerals and Sarcopenia; The Role of Calcium, Iron, Magnesium, Phosphorus, Potassium, Selenium, Sodium, and Zinc on Muscle Mass, Muscle Strength, and Physical Performance in Older Adults: A Systematic Review. *Journal of the American Medical Directors Association* 19: 6–11.e3. [CrossRef] [PubMed]

Edwards, Peter, Wenbo Zhang, Ben Belton, and David C. Little. 2019. Misunderstandings, Myths and Mantras in Aquaculture: Its Contribution to World Food Supplies Has Been Systematically over Reported. *Marine Policy* 106: 103547. [CrossRef]

Erdozain, Amaia M., Benito Morentin, Lynn Bedford, Emma King, David Tooth, Charlotte Brewer, Declan Wayne, Laura Johnson, Henry K. Gerdes, Peter Wigmore, and et al. 2014. Alcohol-Related Brain Damage in Humans. *PLoS ONE* 9: e93586. [CrossRef] [PubMed]

Escudero Álvarez, E., and P. González Sánchez. 2006. La Fibra Dietética. *Nutrición Hospitalaria* 21: 61–72.

Feldman, Stanley, and Vincent Marks. 2005. *Panic Nation: Unpicking the Myths We're Told About Food and Health*. London: John Blake.

Fischler, Claude. 2011. The nutritional cacophony may be detrimental to your health. *Progress in Nutrition* 13: 217–21.

Gao, Ruirui, Whitney Duff, Donna Chizen, Gordon A. Zello, and Philip D. Chilibeck. 2019. The Effect of a Low Glycemic Index Pulse-Based Diet on Insulin Sensitivity, Insulin Resistance, Bone Resorption and Cardiovascular Risk Factors during Bed Rest. *Nutrients* 11: 2012. [CrossRef] [PubMed]

Gonzalo, Albert, Pere Vidal, Santiago Mínguez, and Ramon Antolí. 1995. Concentration of Resveratrol in Wines from Catalonia, Spain. *Journal of Wine Research* 6: 213–18. [CrossRef]

Gray, J., and B. Griffin. 2009. Eggs and Dietary Cholesterol—Dispelling the Myth. *Nutrition Bulletin* 34: 66–70. [CrossRef]

Guney, Tekin, Aysun Senturk Yikilmaz, and Imda Dilek. 2016. Epidemiology of Vitamin B12 Deficiency. In *Epidemiology of Communicable and Non-Communicable Diseases: Attributes of Lifestyle and Nature on Human-Kind*. Croatia: IntechOpen.
Holscher, Hannah D. 2017. Dietary Fiber and Prebiotics and the Gastrointestinal Microbiota. *Gut Microbes* 8: 172–84. [CrossRef]
Hurrell, Richard, and Ines Egli. 2010. Iron Bioavailability and Dietary Reference Values The American Journal of Clinical Nutrition Oxford Academic. *The American Journal of Clinical Nutrition* 91: 1461S–7S. [CrossRef]
Institute of Medicine (US) Panel on Micronutrients. 2001. *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc*. Washington, DC: National Academies Press (US), ISBN 978-0-309-07279-3.
Janhonen, Kristiina, Johanna Mäkelä, and Paivi Palojoki. 2016. Food Education: From Normative Models to Promoting Agency. In *Learning, Food, and Sustainability: Sites for Resistance and Change*. New York: Palgrave Macmillan US, pp. 93–110. [CrossRef]
Juzwiak, Claudia Ridel, and Fabio Ancona-Lopez. 2004. Evaluation of Nutrition Knowledge and Dietary Recommendations by Coaches of Adolescent Brazilian Athletes. *International Journal of Sport Nutrition and Exercise Metabolism* 14: 222–35. [CrossRef]
Lau, Cathrine, Kristine Færch, Charlotte Glümer, Inge Tetens, Oluf Pedersen, Bendix Carstensen, Torben Jørgensen, and Knut Borch-Johnsen. 2005. Dietary Glycemic Index, Glycemic Load, Fiber, Simple Sugars, and Insulin Resistance: The Inter99 Study. *Diabetes Care* 28: 1397–403. [CrossRef] [PubMed]
Lesser, Lenard I., Mary Carol Mazza, and Sean C. Lucan. 2015. Nutrition Myths and Healthy Dietary Advice in Clinical Practice. *American Family Physician* 91: 634–38. [PubMed]
Lordan, R., and I. Zabetakis. 2017. Invited Review: The Anti-Inflammatory Properties of Dairy Lipids. *Journal of Dairy Science* 100: 4197–212. [CrossRef]
Martens, Janina Herber, Heiko Barg, Martin J. Warren, and Daniel Jahn. 2002. Microbial Production of Vitamin B12. *Applied Microbiology and Biotechnology* 58: 275–85. [CrossRef]
Martínez de Victoria, Emilio. 2016. El Calcio, Esencial Para La Salud. *Nutrición Hospitalaria* 33: 26–31. [CrossRef] [PubMed]
Mckay, Ashley, Shannon Moore, and Wendee Kubik. 2018. Western Beauty Pressures and Their Impact on Young University Women. *International Journal of Gender & Women's Studies* 6: 1–11. [CrossRef]
Mello, Aline Veroneze de, Jaqueline Lopes Pereira, Ana Carolina Barco Leme, Moises Goldbaum, Chester Luiz Galvao Cesar, and Regina Mara Fisberg. 2020. Social Determinants, Lifestyle and Diet Quality: A Population-Based Study from the 2015 Health Survey of São Paulo, Brazil. *Public Health Nutrition* 23: 1766–77. [CrossRef]
Mochizuki, Kazuki, Natsuyo Hariya, Kazue Honma, and Toshinao Goda. 2017. Relationship between Epigenetic Regulation, Dietary Habits, and the Developmental Origins of Health and Disease Theory. *Congenital Anomalies* 57: 184–90. [CrossRef] [PubMed]
Murtaza, Ghoulam, Usman Latif, Muhammad Najam-Ul-Haq, and Ashif Sajjad. 2013. Resveratrol: An Active Natural Compound in Red Wines for Health. *Journal of Food and Drug Analysis* 21: 1–12. [CrossRef]
Myhrstad, Mari C. W., Hege Tunsjø, Colin Charnock, and Vibeke H. Telle-Hansen. 2020. Dietary Fiber, Gut Microbiota, and Metabolic Regulation—Current Status in Human Randomized Trials. *Nutrients* 12: 859. [CrossRef]
National Institute of Health. 2021. Dietary Supplement Fact Sheets. Available online: https://ods.od.nih.gov/factsheets/list-all/ (accessed on 15 August 2021).
Pomerleau, Joceline, Martin McKee, Aileen Robertson, Kamelija Kadziauskiene, Algis Abaravicius, Roma Bartkeviciute, Sirje Vaask, Iveta Pudule, and Daiga Grinberga. 2001. Dietary Beliefs in the Baltic Republics. *Public Health Nutrition* 4: 217–25. [CrossRef]
Pot, Gerda K. 2018. Sleep and Dietary Habits in the Urban Environment: The Role of Chrono-Nutrition. *Proceedings of the Nutrition Society* 77: 189–98. [CrossRef] [PubMed]
Poulain, Jean-Pierre. 2017. *The Sociology of Food: Eating and the Place of Food in Society*. New York: Bloomsbury Publishing.
Poulain, Jean-Pierre. 2020. Risques et inquiétudes alimentaires. *Raison Presente N°* 213: 61–71. [CrossRef]
Reynolds, Andrew, Jim Mann, John Cummings, Nicola Winter, Evelyn Mete, and Lisa Te Morenga. 2019. Carbohydrate Quality and Human Health: A Series of Systematic Reviews and Meta-Analyses. *Lancet (London, England)* 393: 434–45. [CrossRef]
Richter, Margrit, Kurt Baerlocher, Jürgen M. Bauer, Ibrahim Elmadfa, Helmut Heseker, Eva Leschik-Bonnet, Gabriele Stangl, Dorothee Volkert, Peter Stehle, and On behalf of the German Nutrition Society (DGE). 2019. Revised Reference Values for the Intake of Protein. *Annals of Nutrition and Metabolism* 74: 242–50. [CrossRef]
Rodríguez Huertas, Jesús, Avilene Rodríguez Lara, Olivia González Acevedo, María Dolores Mesa, Jesús Rodríguez Huertas, Avilene Rodríguez Lara, Olivia González Acevedo, and María Dolores Mesa. 2019. Leche y Productos Lácteos Como Vehículos de Calcio y Vitamina D: Papel de Las Leches Enriquecidas. *Nutrición Hospitalaria* 36: 962–73. [CrossRef]
Rogerson, David. 2017. Vegan Diets: Practical Advice for Athletes and Exercisers. *Journal of the International Society of Sports Nutrition* 14: 36. [CrossRef]
Ruiz-Moreno, Emma, Zuriñe Eibar-Morales, Karla Verazas, Aitor Trabanco Galván-Llano, Teresa Valero-Gaspar, Paula Rodríguez Alonso, José Manuel Ávila Torres, and Gregorio Varela Moreiras. 2019. *Guía de Alimentación: Tu Elección Saludable*. Fundación Española de la Nutrición (FEN). Madrid: Serunion.
Sacco, Ralph L., Mitchell Elkind, Bernadette Boden-Albala, I. Feng Lin, D. E. Kargman, W. Allen Hauser, Steven Shea, and y Myunghee C. Paik. 1999. The Protective Effect of Moderate Alcohol Consumption on Ischemic Stroke. *JAMA* 281: 53–60. [CrossRef] [PubMed]
Samoggia, Antonella. 2016. Wine and Health: Faraway Concepts? *British Food Journal* 118: 946–60. [CrossRef]

Sánchez-Cabrero, Roberto. 2020. Mejora de la satisfacción corporal en la madurez a través de un programa específico de imagen corporal. *Universitas Psychologica* 19: 1–15. [CrossRef]
Sánchez-Cabrero, Roberto, Ana C. León-Mejía, Amaya Arigita-García, and Carmen Maganto-Mateo. 2019. Improvement of Body Satisfaction in Older People: An Experimental Study. *Frontiers in Psychology* 10: 2823. [CrossRef]
Sánchez-Cabrero, Roberto, Fernando Martínez-López, and Reyna Guadalupe Euán-Ramírez. 2020. Body Image of People over 50 in Spain Measured Using the BSQ Test. *BMC Research Notes* 13: 50. [CrossRef] [PubMed]
Shin, Jang Yel, Pengcheng Xun, Yasuyuki Nakamura, and Ka He. 2013. Egg Consumption in Relation to Risk of Cardiovascular Disease and Diabetes: A Systematic Review and Meta-Analysis. *The American Journal of Clinical Nutrition* 98: 146–59. [CrossRef]
Singh, Chandra K., Xiaoqi Liu, and Nihal Ahmad. 2015. Resveratrol, in Its Natural Combination in Whole Grape, for Health Promotion and Disease Management. *Annals of the New York Academy of Sciences* 1348: 150–60. [CrossRef]
Spear, Linda P. 2018. Effects of Adolescent Alcohol Consumption on the Brain and Behaviour. *Nature Reviews Neuroscience* 19: 197–214. [CrossRef]
Timsina, Jagadish. 2018. Can Organic Sources of Nutrients Increase Crop Yields to Meet Global Food Demand? *Agronomy* 8: 214. [CrossRef]
Trepanowski, John F., and Krista A. Varady. 2015. Veganism Is a Viable Alternative to Conventional Diet Therapy for Improving Blood Lipids and Glycemic Control. *Critical Reviews in Food Science and Nutrition* 55: 2004–13. [CrossRef]
Truman, Emily, Daniel Lane, and Charlene Elliott. 2017. Defining Food Literacy: A Scoping Review. *Appetite* 116: 365–71. [CrossRef] [PubMed]
U. S. Department of Agriculture. 2021. *USDA National Nutrient Database-Iron*; Washington, DC: USDA Nutrient Data Laboratory.
U.S. Department of Agriculture, USDA. 2020. *2015–2020 Dietary Guidelines Fpr Americans*, 8th ed.; ISBN HHS-ODPHP-2015-2020-01-DGA-A. Available online: https://health.gov/sites/default/files/2019-09/2015-2020_Dietary_Guidelines.pdf (accessed on 15 August 2021).
Velardo, Stefania. 2015. The Nuances of Health Literacy, Nutrition Literacy, and Food Literacy. *Journal of Nutrition Education and Behavior* 47: 385–89.e1. [CrossRef] [PubMed]
Velde, Saskia J. te, Amika Singh, Mai Chinapaw, Ilse De Bourdeaudhuij, Natasa Jan, Eva Kovacs, Elling Bere, Froydis N. Vik, Bettina Bringolf-Isler, Yannis Manios, and et al. 2014. Energy Balance Related Behaviour: Personal, Home- and Friend-Related Factors among Schoolchildren in Europe Studied in the ENERGY-Project. *PLoS ONE* 9: e111775. [CrossRef]
Veldurthy, Vaishali, Ran Wei, Leyla Oz, Puneet Dhawan, Yong Heui Jeon, and Sylvia Christakos. 2016. Vitamin D, Calcium Homeostasis and Aging. *Bone Research* 4: 1–7. [CrossRef] [PubMed]
World Health Organization Team. 2004. *Global Strategy on Diet, Physical Activity and Health*. Switzerland: World Health Organization, ISBN 92-4-159222-2.
World Health Organization (WHO). 2015. Guideline: Sugars Intake for Adults and Children. Available online: https://www.who.int/publications-detail-redirect/9789241549028 (accessed on 15 August 2021).
Yao, Pang, Derrick Bennett, Marion Mafham, Xu Lin, Zhengming Chen, Jane Armitage, and Robert Clarke. 2019. Vitamin D and Calcium for the Prevention of Fracture: A Systematic Review and Meta-Analysis. *JAMA Network Open* 2: e1917789. [CrossRef] [PubMed]
Zandstra, E. H, C. de Graaf, and W. A. Van Staveren. 2001. Influence of Health and Taste Attitudes on Consumption of Low- and High-Fat Foods. *Food Quality and Preference* 12: 75–82. [CrossRef]