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ORIGINAL RESEARCH

Evolution of the human diet: linking our ancestral diet to modern functional foods as a means of preventing chronic diseases - A review of the evidence

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ONLINE ARTICLE

ARTICLE INFORMATION

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1. ABSTRACT

The analyzed study proposes that the progressive shift away from minimally processed foods, rich in fiber and nutrients, toward industrial products high in sodium, hydrogenated fats, and low in fiber may contribute to the burden of chronic diseases. The available material is only an abstract: it describes the general rationale and mentions interventions using Paleolithic dietary models, but does not report an experimental protocol, a study population, or original quantitative results.In the narrative of "The Choice to Live in Health or Illness" by Dr. A. Colonnese and R. Panzironi, the publication contributes primarily to the passage linking the increase in processed foods and the reduction of fiber to conditions favorable to obesity, metabolic alterations, and cardiovascular diseases. Independent evidence shows that an ultra-processed diet can increase spontaneous energy intake and weight in the short term; synthesis studies associate a higher intake of fiber with lower cardiometabolic risks. A Mediterranean model has also reduced major cardiovascular events in high-risk individuals. However, it is not proven that distance from the Paleolithic diet alone is the sole cause of such diseases.

MISSION

LIFE Science Hub – Journal of Science was founded with the aim of making scientific knowledge accessible without giving up methodological rigour, quality of sources and authoritativeness of content. The journal promotes the dissemination of knowledge in the health, nutrition, medical and longevity sciences, building a bridge between the world of research and society.

Through articles, reviews, in-depth analyses and expert contributions, the Journal champions evidence-based medicine and science, fostering a correct interpretation of scientific data and countering misinformation. Every piece of content is developed with the aim of translating the complexity of research into understandable, useful and applicable information, while keeping intact the principles of accuracy, transparency and scientific independence.

Free from political, industrial and commercial influence, the journal stands as an authoritative and independent editorial space, dedicated to promoting scientific culture, professional development and the growth of health awareness among the public.

2. ANALYZED STUDY

The research question is whether the evolution of human nutrition, from the patterns presumably available in the Paleolithic era to modern patterns rich in processed products, can help explain the rise of chronic diseases and identify dietary components useful for prevention.The hypothesis described is that the replacement of fruits, vegetables, fiber, lean meats, and fish with products low in fiber and high in sodium, hydrogenated fats, and refined ingredients has altered nutritional parameters relevant to health. The relevance to the book's section therefore concerns the segment of the narrative ranging from changes in modern diet quality to the potential increase in cardiometabolic risk.The study can support a biologically plausible framework and an interpretive synthesis of the literature available at the time. However, based solely on the available abstract, it cannot prove that a single historical change in diet has caused obesity, diabetes, atherosclerosis, or cancer. Nor can it demonstrate that fully reconstructing a Paleolithic diet is necessary or sufficient to prevent these conditions.

3. MATERIALS AND METHODS OF THE ORIGINAL STUDY

This text indicates that the authors discussed the dietary transition of the last 10,000 years, interventions that adopted Paleolithic patterns, and the potential benefits of ingredients defined as functional foods, such as omega-3, polyphenols, fiber, and plant sterols.The formal design of the publication is not reported in the available material. There is no mention of a bibliographic search strategy, inclusion criteria for studies, the number of publications examined, participant characteristics, duration of interventions, control groups, statistical analyses, or risk of bias assessment. Therefore, there is insufficient information to consider this publication a systematic review or to quantify the overall quality of the selected evidence.

4. RESULTS

The abstract reports that the transition from ancestral to modern dietary patterns has led to increased consumption of processed foods with higher sodium and hydrogenated fat content, alongside lower dietary fiber intake. The authors link these changes to unfavorable dietary parameters and an increase in obesity and chronic diseases, including cardiovascular disease, type 2 diabetes, and cancer.The most relevant finding for this section of the book is the statement that certain interventions based on Paleolithic patterns have shown favorable changes in cardiovascular and diabetes-related risk factors. However, the abstract does not specify which studies were included, how many people participated, which values changed, nor the magnitude or statistical significance of the differences.The authors also point out potential limitations of a complete return to a Paleolithic diet: a potentially low intake of vitamin D and calcium, and possible exposure to environmental contaminants through fish. They therefore suggest focusing on beneficial nutritional components, rather than presenting the Paleolithic diet as a model to be replicated literally.

5. INTERPRETATION

In simple terms, the study argues that it is not just about how many calories are consumed, but also where they come from and their nutritional structure when they reach the body. A diet low in whole plant-based foods and fiber tends to provide fewer substances that promote satiety, bowel regularity, and the control of certain cardiovascular risk factors.The segment actually documented by the publication subject to the Evidence Review is primarily conceptual and nutritional: a modern diet richer in processed products and poorer in fiber a potentially unfavorable profile of dietary exposures a higher probability of risk factors for chronic diseases. Chronic inflammation, insulin resistance, and atherosclerosis are biologically plausible consequences, but they are not directly measured in the available abstract.The publication does not attribute the entire effect to industrial processing itself. The same processed products can differ in composition, energy density, salt content, added sugars, fat quality, and fiber quantity. Therefore, the most prudent message is that the overall quality of the dietary pattern is relevant, not that every processed food automatically produces the same effect.

6. INDEPENDENT CONFIRMING EVIDENCE

A controlled clinical trial in a hospital setting compared an ultra-processed diet and an unprocessed diet in 20 adults for two weeks each, in random order. During the ultra-processed diet, participants consumed an average of about 500 kilocalories more per day. They also gained 0.9 kg, while during the unprocessed diet, they lost an average of 0.9 kg. This study does not directly measure atherosclerosis or diabetes, but it experimentally confirms a step upstream of the book's narrative: a dietary pattern composed of ultra-processed foods can promote higher energy intake and weight gain in the short term [1]. The small sample size, short duration, and the impossibility of isolating a single element of food processing limit its generalizability.The scarcity of dietary fiber, mentioned in the book's paragraph, is supported by a vast synthesis of 185 prospective studies and 58 clinical trials. Comparing people with the highest fiber intake to those with the lowest, observational studies indicated 15-30% reductions in cardiovascular mortality and the incidence of coronary heart disease, stroke, and type 2 diabetes. In trials, higher fiber intake was associated with lower body weight, systolic blood pressure, and total cholesterol [2]. Observational data alone do not prove causality, because those who consume more fiber may also have other favorable behaviors; however, the convergence with clinical studies makes the passage biologically and clinically consistent.An additional piece of the puzzle concerns the book's proposal to recover nutritional principles compatible with contemporary life, without fully imitating an ancient diet. In the PREDIMED trial, 7,447 Spanish people at high cardiovascular risk were assigned to a Mediterranean diet enriched with extra virgin olive oil or nuts, or to guidelines for a low-fat diet. After a median of 4.8 years, the rate of major cardiovascular events was lower in the two Mediterranean groups; the hazard ratios were 0.69 with extra virgin olive oil and 0.72 with nuts. A hazard ratio of less than 1 indicates a lower rate of event occurrence compared to the control group [3]. This does not validate a Paleolithic diet, but it confirms that a model rich in plant-based foods and less dependent on refined products can reduce cardiovascular events in a selected population.

7. CONFLICTING EVIDENCE

Associations between ultra-processed foods and cardiovascular diseases are not uniform across all outcomes. A systematic review with dose-response meta-analysis found an overall association between higher consumption of ultra-processed foods and more cardiovascular events, but did not observe a statistically significant association with the risk of cerebrovascular disease when considered separately [4]. This result does not negate the possible role of diet quality in cardiometabolic risk, but it shows that it is incorrect to automatically transfer a general association to every single outcome, such as stroke.Furthermore, much of the evidence on ultra-processed foods comes from observational studies that classify foods using the NOVA system. This classification is useful for describing the degree of processing, but it does not always allow for the precise separation of the effects of industrial processing from those of calories, texture, consumption speed, added sugars, salt, fat quality, and food substitutions. No directly conflicting evidence sufficiently relevant to the benefit of higher dietary fiber intake has been identified; this does not prove the absence of contrary results.

8. QUADRO COMPARATIVO E SINTESI DELLE EVIDENZE

The table distinguishes the publication subject to the Evidence Review from independent research that confirms or defines specific steps of the narrative.

Quadro comparativo

Reference	Study type	Population or model	Main result	Direction of evidence	Strength of evidence
Original study	Narrative synthesis; abstract only available	Literature on ancestral diet, functional foods, and chronic diseases	Describes the transition toward processed foods, which are low in fiber and potentially unfavorable to health.	biologically consistent evidence	preliminary
[1]	Inpatient crossover RCT	20 adults	The ultra-processed diet increased energy Intake by approximately 500 kcal/day and weight by 0.9 kg in two weeks.	direct confirmation	moderate
[2]	Systematic reviews and meta-analysis	185 prospective studies and 58 trials; approximately 135 million person-years	Higher fiber is associated with fewer cardiometabolic events and lower mortality; trials show lower weight, blood pressure, and cholesterol.	direct confirmation	high
[3]	RCT	7,447 Spanish adults at high cardiovascular risk	Two Mediterranean models reduced major cardiovascular events compared to the low-fat control.	indirect confirmation	high
[4]	Systematic review and dose-response meta-analysis	Observational studies in adults	Overall positive association with cardiovascular events, but not significant for isolated cerebrovascular disease.	discordant evidence	moderate

9. SINTESI EDITORIALE E CONCLUSIONI

CONCLUSIONS

The publication analyzed is consistent with the book's section because it frames the shift toward more processed, low-fiber foods as a potential risk factor for chronic diseases. Independent evidence confirms several specific points quite well: an ultra-processed diet can promote higher energy intake and weight gain, while fiber and dietary patterns rich in minimally processed foods are associated with better cardiometabolic outcomes. However, the complete chain leading from each processed food to inflammation, insulin resistance, and atherosclerosis requires further long-term causal validation.

Aggiornato al 17/11/2026. Questo contenuto riflette una sintesi divulgativa delle evidenze scientifiche al momento della pubblicazione e non sostituisce il parere medico.

10. TRANSPARENCY AND SCIENTIFIC RESPONSIBILITY

Artificial Intelligence was used solely as a tool for editorial and documentary support. All content, interpretations, bibliographic citations and conclusions have been verified, reviewed and approved by the author, who assumes full scientific responsibility for them.

The manuscript was also subjected to independent peer review prior to publication.

To ensure the greatest transparency, the complete history of the article, including the dates of submission, revision, acceptance and publication, as well as information on the peer review process, is available on the dedicated Article History page.

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