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ORIGINAL RESEARCH

Stone Age humans in the fast lane: chronic-degenerative diseases from an evolutionary perspective - Evidence review

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1. ABSTRACT

The analyzed publication proposes an evolutionary interpretation of chronic diseases: biological traits selected in contexts with nutrition, movement, and food availability very different from current ones may interact unfavorably with the modern environment. The available text is only an abstract and does not describe an experiment, a cohort, or a systematic review with explicit selection criteria.In section 1.1 of “The Choice to Live in Health or Illness” by Dr. A. Colonnese and R. Panzironi, the study contributes primarily to the narrative of the discordance between human biology and the contemporary environment, rather than to the direct demonstration of the composition of a Paleolithic diet. Independent studies in humans show that more Westernized contexts are associated with a higher frequency of diabetes and obesity, while populations with subsistence lifestyles exhibit very low levels of atherosclerosis. Furthermore, syntheses of observational studies associate greater exposure to ultra-processed foods with unfavorable cardiometabolic outcomes. Overall, the narrative is moderately supported, but it does not allow for attributing all chronic diseases to a single evolutionary cause.

ONLINE ARTICLE

ARTICLE INFORMATION

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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 implicit research question is whether many modern chronic diseases can be understood as a consequence of a discordance between human biological characteristics, shaped over a long evolutionary period, and an environment that has changed rapidly in recent millennia. The authors hypothesize that diet, physical activity, and exposure to harmful substances may interact with gene-influenced biological processes and promote atherosclerosis, hypertension, diabetes, obesity, certain cancers, and other chronic conditions.The relevance to the book's section therefore concerns the general concept of evolutionary discordance: cultural and environmental change can be faster than the biological adaptation of populations. The analyzed study does not directly evaluate a Paleolithic diet, does not quantitatively compare specific macronutrients, and does not demonstrate that a single modern dietary characteristic causes a specific disease. Its contribution is conceptual and pathophysiological: it provides a possible interpretive framework for linking lifestyle transformations to the rise in chronic diseases.

3. MATERIALS AND METHODS OF THE ORIGINAL STUDY

This text presents a perspective article on evolutionary biology that integrates knowledge of genetics, the environment, and chronic diseases; however, it does not report a research protocol, study inclusion criteria, bibliographic strategy, number of participants, comparison groups, observation period, statistical analyses, or pre-defined endpoints.Therefore, no participants, interventions, dosages, follow-ups, or experimental measures are described. This information is not provided in the available material. Consequently, the publication cannot be interpreted as a clinical trial or a quantitative meta-analysis; instead, it presents a general biological hypothesis based on the convergence of observations available at the time.

4. RESULTS

In the abstract, the authors argue that the human genetic makeup has changed relatively little compared to the profound cultural transformations that have occurred, especially since the advent of agriculture and the Industrial Revolution. They describe the possibility that this discrepancy between biology and environment promotes chronic diseases through the interaction between gene-controlled biochemical processes and lifestyle factors, including nutrition, physical activity, and exposure to harmful substances.The authors also state that so-called diseases of civilization account for approximately 75% of deaths in Western nations and were less frequent in individuals with lifestyles more similar to pre-agricultural ones. However, the available material does not report the source of this estimate, absolute data, confidence intervals, statistical probability values, or the method by which such comparisons were made.The most relevant finding for the book is therefore the proposal that a rapid transformation of the environment can increase the burden of chronic diseases when it interacts with biological characteristics formed under historically different conditions. Conversely, the claim that a particular distribution of proteins, carbohydrates, or sugars was “perfectly” suited to human metabolism is not directly documented in the available abstract.

5. INTERPRETATION

In simple terms, the proposed idea is that the human body responds to food, movement, sleep, toxic substances, and infections through biological mechanisms built up over time. If the environment changes rapidly, some responses that were useful or neutral in the past can become unfavorable. This is a plausible hypothesis regarding the interaction between genetic heritage and the environment, not proof that evolution designed a single optimal diet for everyone.Regarding the section "The Choice to Live in Health or Illness" by Dr. A. Colonnese and R. Panzironi, the segment documented by the publication subject to the Evidence Review is: rapid transformation of environment and lifestyle interaction with relatively stable biological processes possible increase in chronic diseases. The research does not prove the entire chain proposed in the book, particularly the details on the Paleolithic diet or the autonomous effect of individual nutrients. For this reason, its value is primarily interpretive and must be integrated with independent epidemiological data.

6. INDEPENDENT SUPPORTING EVIDENCE

A particularly relevant human comparison studied Pima populations in Mexico and the United States. The Pima groups shared considerable genetic similarity compared to other Native American populations, but lived in very different contexts. The prevalence of type 2 diabetes was 6.9% in Mexican Pima and 38% in US Pima; obesity and physical inactivity were also much less frequent in the Mexican group. The study cannot definitively separate diet, physical activity, social conditions, and other environmental factors, but it directly confirms that the environment associated with Westernization is linked to a higher frequency of obesity and diabetes even in genetically similar people [1].A second study examined 705 Tsimane adults from Bolivia, a population with high physical activity and a subsistence lifestyle based on hunting, gathering, fishing, and farming. Computed tomography showed an absence of calcium in the coronary arteries in 85% of participants; only 3% had scores above 100, indicative of a greater amount of coronary calcification. Even over the age of 75, 65% showed no coronary calcium. These data are consistent with a low frequency of atherosclerosis in a context very different from the urban-industrial one, but they do not prove that the type of diet alone explains the result, because physical activity, rare smoking, blood pressure, glycemia, body composition, and other factors also contribute [2].The part of the paragraph dedicated to industrially processed foods finds observational confirmation in an umbrella review of meta-analyses. Greater exposure to ultra-processed foods, i.e., products industrially formulated with ingredients and processes not common in home cooking, was found to be associated with a higher risk of obesity, type 2 diabetes, mortality from heart disease, and all-cause mortality. For example, the association with type 2 diabetes corresponded to an odds ratio of 1.40, with a 95% confidence interval from 1.23 to 1.59: greater exposure was therefore associated with a higher probability of the outcome. However, the evidence collected was largely observational and often of low or very low quality; it does not prove that the industrial processing of food is, by itself, the cause of the events [3].

7. CONFLICTING EVIDENCE

No directly conflicting evidence of sufficient relevance has been identified; this does not prove the absence of contrary results.The main caution arises from the nature of the available evidence. Comparisons between populations can simultaneously reflect diet, physical activity, income, access to healthcare, smoking, infections, social structure, and environmental conditions. Associations between ultra-processed foods and chronic diseases can also be influenced by the overall quality of the diet and other behaviors. Furthermore, the notion of evolutionary discordance is a broad explanatory framework: it does not identify a single causal mechanism valid for obesity, type 2 diabetes, cardiovascular diseases, cancer, autoimmune disorders, and neurodegenerative diseases.

8. QUADRO COMPARATIVO E SINTESI DELLE EVIDENZE

The table distinguishes the conceptual publication subject to the Evidence Review from the independent research used to evaluate the narrative of the paragraph.

Quadro comparativo

Reference	Study type	Population or model	Main result	Direction of evidence	Strength of evidence
Original study	Evolutionary perspective article; text available: abstract only	No population or experimental model reported	Proposes that the discordance between the modern environment and biological characteristics may promote chronic diseases	biologically consistent evidence	preliminary
[1]	Comparative cross-sectional observational	Pima adults in Mexico, Pima in Arizona, and non-Pima Mexicans	Type 2 diabetes less frequent in Mexican Pima compared to US Pima; higher physical activity in Mexican groups	direct confirmation	moderate
[2]	Population-based cross-sectional study	705 Tsimane adults from Bolivia, aged 40 and older	85% had no coronary calcium; conventional cardiovascular risk factors were generally rare	indirect confirmation	moderate
[3]	Umbrella review of observational meta-analysis	Human populations included in available meta-analyses	Higher exposure to ultra-processed foods associated with increased risk of cardiometabolic outcomes and mortality	biologically consistent evidence	moderate

9. SINTESI EDITORIALE E CONCLUSIONI

CONCLUSIONS

The study analyzed offers a coherent evolutionary framework for interpreting the relationship between rapid lifestyle changes and chronic diseases. The passage relevant to the book is moderately supported by independent human data: more Westernized contexts are associated with a higher frequency of type 2 diabetes and obesity, while subsistence lifestyles are associated with a low prevalence of coronary atherosclerosis.It remains necessary to distinguish the plausibility of the general framework from the causal demonstration of individual factors. The evidence justifies neither a complete return to ancestral dietary patterns nor the attribution of chronic diseases to a single food, nutrient, or evolutionary mechanism. The narrative is useful as an integrative hypothesis, but it requires specific evaluations for each exposure and each health outcome.

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.

11. RIFERIMENTI BIBLIOGRAFICI

[1] **Effects of Traditional and Western Environments on Prevalence of Type 2 Diabetes in Pima Indians in Mexico and the U.S.**
Schulz et al., 2006
Diabetes Care
DOI: https://doi.org/10.2337/dc06-0138

[2] **Coronary atherosclerosis in indigenous South American Tsimane: a cross-sectional cohort study**
Kaplan et al., 2017
The Lancet
DOI: https://doi.org/10.1016/S0140-6736(17)30752-3

[3] **Ultra-processed food exposure and adverse health outcomes: umbrella review of epidemiological meta-analyses**
Lane et al., 2024
BMJ
DOI: https://doi.org/10.1136/bmj-2023-077310