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ORIGINAL RESEARCH

Paleolithic nutrition: twenty-five years later - A review of the evidence

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1. ABSTRACT

The analyzed study re-examines, twenty-five years after the formulation of the "evolutionary discordance" hypothesis, the potential gap between human dietary and physical activity habits of the past and those of the present day. Since only the abstract is available, it is not possible to reconstruct in detail the methods, source selection criteria, or quantitative analyses. The authors report that anthropological reconstructions indicate ancestral diets with fewer refined carbohydrates and less sodium, more dietary fiber and protein, and a similar but predominantly unsaturated fat content.In the section "The Choice to Live in Health or Illness" by Dr. A. Colonnese and R. Panzironi, the publication contributes primarily to the description of the nutritional profile attributed to hunter-gatherer populations: a greater presence of animal-based foods and protein, a reduced presence of refined carbohydrates, and a higher intake of dietary fiber compared to modern diets. Independent ethnographic analyses support the frequent importance of animal-based foods in hunter-gatherer societies, while small human studies suggest short-term metabolic improvements with dietary patterns inspired by these characteristics. However, definitions of the "Paleolithic diet" are variable, and meta-analysis results do not show a clear superiority in glycemic control compared to other healthy diets. The narrative is therefore moderately supported, primarily on a descriptive and mechanistic level, rather than as a demonstration of a single ancestral diet or lasting clinical benefits.

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MISSION

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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 was whether the hypothesis that the departure from the dietary and physical activity habits of hunter-gatherers has contributed to modern chronic diseases still holds scientific interest after twenty-five years. The hypothesis evaluated is that certain recurring elements of ancestral diets, such as the lower presence of refined carbohydrates and the higher content of fiber and protein, differed substantially from contemporary dietary habits.The reason for its relevance to the book's section is primarily descriptive. The publication subject to the evidence review reports that anthropological evidence indicates a greater availability of protein and fiber and lower exposure to refined carbohydrates compared to modern dietary patterns. It therefore supports the nutritional segment of the narrative, but it does not directly document the specific historical reconstruction that cooperative hunting allowed for the acquisition of larger prey.The analyzed study cannot demonstrate what a single Paleolithic diet was, because populations of the past lived in very different geographical and seasonal contexts. Nor can it prove that a single dietary factor causes contemporary chronic diseases. The authors themselves, in the available abstract, specify that evolutionary reconstructions generate hypotheses to be verified through epidemiological, clinical, and laboratory studies.

3. MATERIALS AND METHODS OF THE ORIGINAL STUDY

This publication is a conceptual summary of the anthropological, nutritional, and clinical literature developed around the evolutionary discordance hypothesis. The authors generally compare the traits attributed to hunter-gatherer diets with those of modern diets and highlight the existence of controlled trials conducted in groups at high metabolic risk.The available material does not report a review protocol, the databases consulted, the search period, the inclusion or exclusion criteria for publications, the number of studies evaluated, a formal assessment of the risk of bias, or statistical methods for combining results. This information is not provided in the available material.Furthermore, participants, control groups, duration of interventions, dosages, or the quantitative composition of a specific diet are not reported. Therefore, the publication does not appear to be usable as a direct clinical trial, but rather as an interpretive article based on evidence cited by the authors.

4. RESULTS

In the abstract, the authors report that ancestral human diets were characterized by much lower levels of refined carbohydrates and sodium, higher levels of fiber and protein, and amounts of fat and cholesterol considered overall comparable, with a prevalence of unsaturated fats. Unsaturated fats are fats found, for example, in fish, nuts, and many plant-based foods; their presence does not automatically equate to a favorable clinical effect, which depends on the entire dietary pattern and individual context.The authors add that the physical activity of hunter-gatherers was greater than that of modern humans and that this resulted in higher energy expenditure. The available text does not provide quantitative values for physical activity, macronutrient estimates, confidence intervals, P-values, or details on the anthropological populations considered. This information is not reported in the available material.The most relevant result for the book's paragraph is therefore the general statement that anthropological reconstructions describe, compared to modern diets, a lower presence of refined carbohydrates and a higher presence of fiber and protein. The abstract also reports that randomized clinical trials had begun to show potential advantages of dietary patterns inspired by hunter-gatherers in certain at-risk groups, but it does not report which studies, which participants, or which specific outcomes.

5. INTERPRETATION

In simple terms, the study's message is that food processing and reduced physical activity have together changed how we eat and consume energy. In the passage relevant to the book, the publication does not demonstrate that every Paleolithic population ate in the same way. Instead, it documents a scientific proposal: in the available reconstructions, many hunter-gatherer groups would have had a diet with less refined foods, richer in fiber and protein, and with different fat sources than those dominant today.The chain segment supported by the publication is:

availability of wild foods and animals lower exposure to refined carbohydrates and higher presence of protein and fiber a dietary profile distinct from the modern one. The next step, namely that this profile reduces the demand for insulin or protects against insulin resistance, requires separate experimental and clinical studies. Insulin resistance is a condition in which cells respond less effectively to insulin, the hormone that helps regulate blood glucose.The interpretive strength of the study is limited by the heterogeneous nature of ancestral populations and by the fact that diet, physical activity, food availability, infections, and living conditions cannot be precisely separated in historical reconstructions. For this reason, the publication is consistent with the paragraph's narrative, but it does not authorize transforming an anthropological description into a generalized clinical prescription.

6. INDEPENDENT SUPPORTING EVIDENCE

An independent ethnographic reconstruction analyzed the relationship between plant and animal foods in hunter-gatherer societies distributed across different environments. The authors estimated that 73% of the societies considered derived more than half of their subsistence from animal foods and calculated an estimated protein intake between 19% and 35% of energy, with carbohydrates estimated between 22% and 40%. This result directly confirms the passage in the book regarding the relevance of animal foods and the higher protein share, but it derives from indirect reconstructions and does not measure what original Paleolithic populations actually ate [1].A small before-after study conducted on 12 young Australian Aboriginal adults evaluated two weeks of a diet based almost exclusively on seafood. The model was very low carb, low fat, and high protein; it represented a traditional seasonal situation with low availability of plant foods. Fasting triglycerides decreased from 1.32 ± 0.33 to 0.61 ± 0.08 mmol/L, and a small but significant improvement in glucose tolerance and a reduction in the insulin response were observed. The study confirms that a specific low carb and high protein model can modify certain metabolic indicators in the short term, but it does not completely separate the role of diet from that of adaptation and does not represent all ancestral diets [2].A further controlled clinical trial followed nine healthy, sedentary, and non-obese adults during ten days of a diet consisting of lean meat, fruit, vegetables, and nuts, without grains, dairy, and legumes. Without planned weight loss, the area under the insulin curve after an oral glucose load was significantly reduced; total cholesterol, LDL cholesterol, and triglycerides also decreased. The area under the curve indicates the body's overall exposure to a measured value over time. This evidence is biologically consistent with the idea that a dietary pattern rich in unrefined foods can reduce insulin secretion in the short term, but the sample was very small and multiple characteristics of the diet changed simultaneously [3].Taken together, these studies support the general direction of the narrative: in some traditional models or those inspired by them, animal foods can play a relevant role, while the absence of refined products and the presence of vegetables can be accompanied by favorable metabolic changes in the short term. However, they do not prove that such results depend exclusively on the distribution of macronutrients, nor that they are attributable to a single Paleolithic dietary model.

7. CONFLICTING EVIDENCE

A systematic review with meta-analysis of four randomized trials, involving a total of 98 participants with glucose metabolism disorders, found no statistically significant differences between Paleolithic diets and other diets considered healthy regarding fasting glycemia, fasting insulin, glycated hemoglobin, and the HOMA-IR index. The HOMA-IR index is an indirect estimate of insulin resistance derived from fasting glucose and insulin levels. For example, for fasting glycemia, the standardized mean difference was –0.343, with a confidence interval from –0.867 to 0.181 and a P-value of 0.200: the data is compatible with both a possible small benefit and no real difference [4].This evidence does not contradict the anthropological description of diets containing few refined foods, more fiber, or higher protein proportions. However, it scales back the idea that a diet generically defined as “Paleolithic” is certainly superior to other healthy diets for glucose and insulin control. The main limitations are the small number of studies and participants, the short duration of the interventions, and the differences between the diets labeled as “Paleolithic.”No directly conflicting evidence sufficiently relevant to the greater relative

importance of animal foods in many ethnographic reconstructions has been identified; this does not prove the absence of contrary results. Reconstructions of the prehistoric diet remain inevitably indirect and dependent on ecological, seasonal, and cultural contexts.

8. QUADRO COMPARATIVO E SINTESI DELLE EVIDENZE

The table distinguishes the publication under review from independent evidence. Evidence regarding the profile of ancestral diets is primarily based on anthropological reconstructions; evidence concerning metabolic effects in humans is available but still limited in terms of size and duration.

Quadro comparativo

Reference	Study type	Population or model	Main result	Direction of evidence	Strength of evidence
Original study	Narrative synthesis based on anthropological, nutritional, and clinical evidence	Not reported in the available abstract alone	Reports fewer refined carbohydrates and sodium, and more fiber, protein, and primarily unsaturated fats in reconstructed ancestral diets	biologically consistent evidence	moderate
[1]	Ethnographic analysis and nutritional reconstruction	Global hunter-gatherer societies	73% of societies derived over half of their subsistence from animal foods; protein estimated at 19-35% of energy	direct confirmation	moderate
[2]	Non-randomized pre-post study	12 young Australian Aboriginal adults	A fish-based, very low carb and high-protein diet associated with a reduction in triglycerides and improved glucose tolerance	indirect confirmation	low
[3]	Controlled clinical trial	9 healthy, sedentary, non-obese adults	After ten days, a reduction in insulin following a glucose load and in certain plasma lipids	biologically consistent evidence	low
[4]	Systematic review and meta-analysis of randomized trials	98 participants with impaired glucose metabolism	No statistically significant difference compared to other healthy diets for glycemia, insulin, glycated hemoglobin, or HOMA-IR	discordant evidence	moderate

9. SINTESI EDITORIALE E CONCLUSIONI

CONCLUSIONS

The study analyzed consistently supports the descriptive transition showing that diets attributed to hunter-gatherers differed from modern diets due to a lower presence of refined foods and a greater relative importance of protein and fiber. Independent evidence confirms this general reconstruction quite well, especially regarding the often significant role of animal foods in many traditional populations.The favorable metabolic effects observed in some small human studies are promising but do not prove that a single Paleolithic diet exists, nor that it is necessarily superior to other healthy diets in the long term. The link to the prevention of insulin resistance is supported at a biologically plausible level and is clinically preliminary, but it requires larger, longer-term studies with uniformly defined dietary patterns.

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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