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**Is a Paleolithic Age Diet an Optimal Diet for Modern Human Beings?**

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**Background:** For anthropologists and archaeologists, studying and theorizing about what pre-agricultural peoples ate has been of interest for many decades. In 1985, a physician and an anthropologist from Emory University published an article in *The New England Journal of Medicine* entitled “Paleolithic Nutrition: A Consideration of Its Nature and Current Implications,” which brought the issue more into the arena of the healthcare world.

This seminal work proposed the following train of logic. Our ancestors developed into uniquely big-brained fully modern *Homo sapiens* on a hunter-gatherer diet during the Paleolithic Age. Since that time, human genetic composition has changed only insignificantly. For the vast majority of human beings, major modifications in diet and lifestyle occurred during the shift to an agricultural subsistence about ten thousand years ago and then again during the industrialization of the food supply over the past few hundred years. Essentially, modern human beings are programmed genetically for a diet radically different from the diet most modern people consume, both those living a pre-industrial lifestyle and those in modern industrial nations.

According to the authors, this disparity in nutrition has had various effects. Many of the chronic degenerative diseases which run rampant in industrialized nations today, such as diabetes, coronary artery disease, stroke, hypertension, and some forms of cancer, result in large part from the discord between the diets that we evolved upon and the diets that we currently consume. The article went on to describe a typical Paleolithic Age diet and compared it to the typical modern American diet, noting areas of greatest and most significant discrepancy.

The authors proposed the pre-agricultural diet and lifestyle as a healthy model for modern humans. This view sparked quite a bit of interest and controversy. Some nutrition experts feared that the emphasis on protein and fat in the hunter-gatherer diet would steer consumers away from consumption of beneficial fruits and vegetables and toward higher consumption of saturated fat. Others challenged the view that a pre-agricultural diet might have been a healthy one, even for our ancient ancestors who subsisted upon it. Some felt that such a model could not prove practically useful to modern nutritionists and consumers.

**Objectives:** The authors of the aforementioned article claim that hunter-gatherer lifeways provide a healthy model for modern humans. The purpose of this investigation has been to explore the diet, lifestyle, and health of hunter-gatherers, with the hope of validating or discrediting this claim. A further goal has been to compare and contrast the diet and health of pre-agricultural humans with that of humans in modern industrialized nations, looking at possible connections between dietary differences and health disparities.

First, these goals required investigation of the contents of the typical diet of Paleolithic peoples. The next step entailed a review and evaluation of the arguments revolving around the healthfulness of a Paleolithic diet. The final segment took a look at the markers of health in pre-agricultural groups, comparing them to those of the “civilized” world. My overall goal has been to discover widely agreed-upon hypotheses about health and diet in hunter-gatherers and in industrialized societies, allowing development of some generalizations regarding the connections between nutrition and disease in these peoples.

**Methods:** This effort sought to review the major divergent views on the content and significance of a pre-agricultural diet and the possible connections between that diet and the health of its practitioners. This broad

topic required reading with breadth but not much depth. The project developed into a literature review on Paleolithic nutrition and health, involving extensive searches of medical and anthropological literature. During the data-gathering phase, I conducted repeated searches of the Medline database through Ovid, each building on the previous search, I utilized Science Citations Index, and I reviewed the lists of cited works in the group of accumulating books and journal articles, looking for relevant citations. These searches focused upon finding a range of views on the following topics: the definition of an optimal diet, the contents of a pre-agricultural human diet, the markers of health in pre-agricultural, agricultural, and modern industrialized societies, and connections between the modern affluent diet and modern health concerns. After completion of data gathering, I reviewed the articles and books to organize the topics they addressed into a topic database. The database served to allow organization of a large amount of information into a research paper format.

**Results:** This research paper found that anthropologists disagreed on many issues related to Paleolithic nutrition and health, but it also discovered concurrence on some major points. Using evidence from comparative anatomy and physiology, from the ancient remains of hunter-gatherers, and from field studies of modern tribes, anthropologists addressing this topic have generally agreed that both ancient and contemporary hunter-gatherers ate diets consisting of uncultivated fruits and vegetables, and wild game, which has a significantly lower fat content than livestock. Protein and fat intake levels varied, contributing a greater percentage of the diet at higher latitudes. Fat intake included more omega three fatty acids than omega six (a reversal of the contemporary pattern), and included no trans fats. Most hunter-gatherers probably ate less saturated fat but about the same amount of cholesterol as modern Americans. They rarely consumed grains and ate no dairy products after weaning. In contrast to the diet of a typical modern industrial nation, this diet provided much more fiber, much less sodium, considerably more vitamins and minerals, and in general consisted of foods with a significantly lower glycemic index. Refined carbohydrates and other “empty calories” did not exist.

Many anthropologists writing on this topic agree that our genus (*Homo*) lived and thrived on a hunter-gatherer diet for the vast majority (over 99%) of our history (10,000 of 2.5 million years). They believe that our proto-human ancestors evolved into big-brained fully modern humans on a diet that included an ever-increasing amount of meat. In fact, brain enlargement and corresponding gastrointestinal tract shrinkage probably depended upon this improving dietary quality. (Dietary quality refers to the nutrient and energy density of a foodstuff; the more kilocalories and higher concentration of nutrients per weight, the higher the dietary quality.) Anthropologists also appear to agree that genetically we have changed very little since the Stone Age. Finally I found wide acceptance of the evidence produced in 20<sup>th</sup> century field studies with hunter-gatherer tribes which showed a very low occurrence of diabetes, stroke, heart disease, and hypertension in these societies.

**Conclusions:** The research question for this literature review has been: Is a Paleolithic Age diet an optimal diet for modern human beings? The evidence, such as it is, certainly points that way. The evidence doesn't come from randomized clinical trials, but rather from a vast array of anthropological work and medical population studies.

For those living a hunter-gatherer lifestyle, obesity was unheard of and diet-related degenerative diseases such as diabetes, coronary artery disease, and stroke were apparently rare. (Their poor life expectancy figures resulted from higher levels of infectious disease and the lack of sophisticated medical understanding and treatment, especially as these factors affected infant mortality.)

Although the specific links between diet and the degenerative diseases haven't all been conclusively identified, evidence mounts connecting the consumption of refined carbohydrates and fats (especially trans fats) with obesity, diabetes, coronary heart disease, and stroke. Lack of exercise also plays a key role. For most human beings, caloric intake did not begin to become disconnected from caloric expenditure until the Industrial Revolution.

The field of nutrition flames with controversy. The media and medical institutions take evidence from a line of study, draw conclusions, and make recommendations to the public that often are rescinded within ten years,

based upon new findings. The public, assailed with contradictory information, becomes confused and skeptical. Meanwhile shoppers are surrounded by thousands of food products, many touting health claims. These products, produced for profit rather than nutritional quality, have become the fruits of the jungle in which we forage. We often find ourselves disconnected from our food sources, separated from ancestral knowledge about food use, and misled by advertising, which has become the new authority on what to eat. In the recent past, final versions of the federal government's published food pyramid have been heavily influenced by the food industry. The FDA cannot always effectively combat one of the wealthiest and most powerful industries in the world.

Modern humans cannot and would not return to a hunter-gatherer lifestyle. However, the aspects of that lifestyle that may have resulted in the lack of degenerative disease occurrence in hunter-gatherers could be used as a model for healthful living today. These diet and lifestyle patterns can be emulated and they can point to areas of fruitful nutrition and exercise research. Our modern efforts to define and characterize healthful living could be focused by the utilization of a paradigm such as this.

Unsurprisingly, resistance to the use of such a paradigm occurs. Ever since the majority of humans turned away from the hunter-gatherer lifestyle, we have looked down upon it. The general prejudice sees that way of life as primitive, backward, and unpleasant. However, reaching beyond that view, anthropologic investigations have shown that these humans generally had plenty to eat, better health, and less stressful lives with more time for leisure and socializing than we typically enjoy today in western industrialized societies. Perhaps we have been ignoring a vital source of wisdom for how to live a healthy life.