



REVIEW: INTERMITTENT FASTING – AN OVERVIEW OF ITS HISTORY, HEALTH BENEFITS, AND CURRENT UNDERSTANDING

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What is Intermittent Fasting?

Intermittent fasting is an eating pattern that cycles between periods of eating and voluntary fasting. Unlike traditional diets that focus on *what* to eat, IF emphasizes *when* to eat. Common methods include:

- **Time-Restricted Eating (TRE):** Limiting eating to a specific window each day (e.g., 16:8 method, where one fasts for 16 hours and eats within an 8-hour window).
- **Alternate-Day Fasting (ADF):** Alternating between days of normal eating and days of significant caloric restriction or complete fasting.
- **5:2 Diet:** Eating normally for five days a week and significantly restricting calories on two non-consecutive days.

Intermittent fasting, while a popular health trend today, has deep roots in ancient medicine and spiritual practices across various civilizations. It was often viewed not just as a dietary regimen but as a holistic approach to purifying the body and mind, fostering spiritual connection, and promoting overall well-being.

History of Intermittent fasting in various medicine literature-

Ancient Greece

- **Hippocrates**, often considered the "father of medicine," is famously attributed with the saying, "To eat when you are sick, is to feed your illness." While the exact quote's origin is debated, the sentiment reflects a belief in the body's natural healing capabilities when given a break from digestion.
- In ancient Greece, fasting was practiced for "**purification of the soul and body.**" Philosophers like **Plato and Socrates** reportedly praised fasting for clarifying the mind and strengthening personal discipline.
- In **Hellenistic mystery religions**, such as the healing cult of Asclepius, devotees would fast to prepare themselves for visions and dreams where divine teachings or healing insights were revealed.

Ayurveda (Ancient India)

- In **Ayurveda**, an ancient Indian system of medicine, fasting is known as "**Upavasa**" (or Upawasa). It's considered an integral practice to purify the body, enhance digestion ("Agni" or digestive fire), and remove accumulated toxins ("Ama").
- Ayurveda emphasizes a **personalized approach** to fasting, suggesting different methods based on an individual's dominant "dosha" (Vata, Pitta, Kapha) and the changing seasons.
- Benefits attributed to Upavasa in ancient Ayurvedic texts include improved metabolism, cellular repair, and psychological benefits like improved mood, alertness, and a sense of well-being. It was also indicated as a treatment for various ailments, including certain cardiac disorders, fevers, and digestive issues.

Traditional Chinese Medicine (TCM)

- In **Traditional Chinese Medicine (TCM)**, fasting has been a part of Taoist spiritual and medical traditions for millennia. It's believed to be key to achieving superior health and longevity.
- A specific ancient fasting method within Qigong traditions is called **Pi Gu**. This practice involves abstaining from grains, meat, and processed foods, and at higher levels, involves juice, water, or even dry fasting, sometimes for extended periods (7 to 45 days) under supervision.
- TCM views fasting as a way to **address "stagnation"** (of energy and blood) in the body, promoting a "total body reset." It aims to bring the body back into balance, particularly by controlling the balance of fat intake and storage. Some TCM schools, however, cautioned against excessive fasting, believing it could damage the spleen.

Overarching Themes in Ancient Fasting Practices

Across these diverse cultures, several common themes emerge regarding the purpose and perceived benefits of fasting:

- **Purification and Detoxification:** A widespread belief that abstaining from food cleanses the body of impurities and toxins.
- **Spiritual and Mental Clarity:** Fasting was frequently linked to spiritual elevation, enhanced mental focus, discipline, and a clearer mind.
- **Rest for Digestive Organs:** The idea that giving the digestive system a break allows the body to heal and restore balance.
- **Healing and Prevention:** Many ancient physicians and traditions used fasting as a primary tool to combat illness and prevent disease, often for conditions now understood to be related to metabolism (e.g., diabetes, epilepsy).
- **Involuntary Adaptation:** It's also important to acknowledge that early humans, as hunter-gatherers, often experienced involuntary periods of food deprivation, suggesting that the human body evolved with an inherent ability to adapt to such cycles.

While these ancient practices provide a rich historical context for intermittent fasting, modern intermittent fasting is a more formalized dietary approach, often incorporating scientific understanding of metabolic changes that occur during fasting. However, the foundational ideas of health, balance, and the body's innate healing capacity resonate strongly with ancient wisdom.

Purported Benefits for Cardiovascular Health

Early research and short-term studies have suggested several potential benefits of intermittent fasting for cardiovascular health, often attributed to its effects on metabolic risk factors:

- **Weight Loss and Body Composition:** IF can lead to mild to moderate weight loss (typically 1-8% from baseline), which in itself is beneficial for reducing cardiovascular risk, especially in individuals with overweight or obesity.
- **Improved Lipid Profiles:** The Canvas states that intermittent fasting can lead to "reductions in 'bad' low-density lipoprotein (LDL) cholesterol and triglycerides, while potentially improving 'good' high-density lipoprotein (HDL) levels." High LDL cholesterol and triglycerides are significant risk factors for plaque buildup in the arteries (atherosclerosis). By improving these lipid markers, intermittent fasting *may* indirectly contribute to a reduction in atherosclerotic risk.
- **Reduced Inflammation and Oxidative Stress:** The Canvas also mentions that "IF may decrease markers of inflammation and oxidative stress, both of which are known contributors to the development and progression of heart disease." Inflammation plays a crucial role in the initiation and progression of atherosclerosis. Therefore, a reduction in inflammation and oxidative stress could potentially slow down or prevent the development of atherosclerotic plaques.
- **Enhanced Insulin Sensitivity and Blood Sugar Control:** Fasting periods may improve the body's response to insulin, helping to regulate blood sugar levels and reduce the risk of type 2 diabetes, a major risk factor for cardiovascular disease.
- **Lowered Blood Pressure:** Reductions in both systolic and diastolic blood pressure have been observed in some studies, contributing to a decreased burden on the cardiovascular system.
- **Reduced Inflammation and Oxidative Stress:** IF may decrease markers of inflammation and oxidative stress, both of which are known contributors to the development and progression of heart disease.
- **Hormonal Balance:** Effects on hunger hormones (ghrelin, leptin), growth hormone, and stress hormones like cortisol.

- **Cellular and Molecular Mechanisms:**

- **Autophagy:** The process of cellular "self-cleaning" where cells remove damaged components, and how IF influences this.
- **Mitochondrial Health:** The impact on cellular energy factories and overall cellular longevity.
- **Oxidative Stress and Inflammation:** Further detail on how IF may reduce markers of these harmful processes at a cellular level.

- **Brain Health and Cognitive Function:**

- **Neuroprotection:** Its potential role in protecting against neurodegenerative diseases (like Alzheimer's and Parkinson's).
- **Cognitive Enhancement:** Effects on memory, learning, focus, and overall mental clarity.

- **Gut Microbiome:**

- How different fasting patterns might alter the composition and diversity of gut bacteria, and the implications for overall health..

- **Specific Populations:**

- Research on IF in athletes, older adults, or individuals with specific medical conditions (e.g., cancer, autoimmune disorders), always emphasizing the need for medical supervision.
- Unique considerations for women's hormonal health.

- **Practicality and Adherence:**

- The different types of IF protocols (e.g., 16:8, 5:2, Alternate-Day Fasting, OMAD) and their feasibility, compliance rates, and potential side effects.

- **Long-term Safety and Efficacy:**

- The critical need for more long-term, high-quality human studies to fully understand its sustained effects and potential risks over many years.
- The importance of the nutritional quality of food consumed during eating windows..

Emerging Concerns and Controversies

While the short-term metabolic benefits are often cited, recent findings have introduced caution regarding the long-term effects of intermittent fasting, particularly certain protocols:

- **Increased Cardiovascular Mortality Risk:** A significant point of discussion arose from a preliminary observational analysis presented at the 2024 American Heart Association (AHA) conference. This study, involving over 20,000 U.S. adults, suggested that individuals who followed an 8-hour time-restricted eating schedule had a 91% higher risk of death from cardiovascular disease compared to those who ate over a 12-16 hour period. This increased risk was also observed in individuals with existing heart disease or cancer.
- **Caveats:** It is crucial to note that this was an observational study based on self-reported data over a short period (2 days of dietary recall used to estimate 16 years of habits), and it showed an *association*, not *causation*. Confounding factors (e.g., demographics, existing health conditions, quality of food consumed during eating windows, loss of lean muscle mass) could influence these findings. Experts have called for more robust randomized controlled trials to establish causality.
- **Loss of Lean Mass:** Some intermittent fasting protocols, particularly those leading to significant weight loss, may result in a higher loss of lean muscle mass, which can have adverse health implications, especially for cardiovascular fitness.
- **Circadian Misalignment and Poor Dietary Choices:** Concerns have been raised that IF might lead to circadian misalignment of food consumption (e.g., skipping breakfast, eating late at night) or promote "reward-based eating" where individuals make less nutritious food choices during their eating windows. These behaviors are associated with elevated blood pressure, metabolic dysfunction, and increased cardiovascular risk.

Limitations of Current Research

Despite the growing interest, the body of high-quality, long-term human studies on IF and cardiovascular health remains limited. Many studies are:

- **Short-term:** Most trials assess effects over weeks or a few months, not years.
- **Small sample size:** Many studies involve a limited number of participants.
- **Observational:** While useful for identifying associations, observational studies cannot prove cause and effect.
- **Variability in protocols:** Different IF methods (TRE, ADF, 5:2) and their specific durations make direct comparisons challenging.
- **Lack of controlled dietary intake:** Many studies do not control the *quality* of food consumed during eating windows, which is a critical factor for heart health.

Conclusion and Discussion-

Intermittent fasting presents a complex picture regarding its effects on cardiovascular health. While short-term studies highlight potential benefits related to weight loss, lipid profiles, insulin sensitivity, and blood pressure, recent preliminary data raise significant concerns about potential long-term risks, particularly for specific time-restricted eating patterns.

The current evidence does not definitively establish IF as a superior or universally safe strategy for cardiovascular disease prevention or management. More extensive, long-term, and well-controlled randomized clinical trials are urgently needed to fully understand the benefits, risks, and optimal

implementation of various intermittent fasting protocols, especially for individuals with pre-existing cardiovascular conditions or other chronic diseases.

intermittent fasting's potential positive effects on atherosclerosis are inferred through its ability to improve lipid profiles and reduce inflammation and oxidative stress, which are key drivers of the disease.

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