

Timing of Appetite to Optimize Cardiovascular Health

Policy Article

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Abstract

This public policy article establishes circadian timing of appetite and nutrient consumption as a pragmatic science to feasibly optimize cardiovascular health. Conventionally, almost all scientific efforts have focused on managing daily quantity and quality of nutrient intake in programming public nutrition and health. However, a very significant applied science, incrementally emerging recently, is timing of appetite and eating different nutrients over the 24-h period.

Keywords: Vascular Health; Metabolism; Disease; Timing of Appetite.

Discoverers and Discussion

The science of appetite and eating timing stems from the principle that the circadian evolutionary nature of human life has led to development of almost 24-h rhythms in cell physiology and function [1-3]. As a result, metabolism extent and rate differ substantially during different hours of the 24-h period that are also independent from food intake per se [4-6]. Eating and appetite as a biological synchronizer of cell metabolism is highly integrated with the time when it occurs in regulating biochemical reactions [7, 8]. This means that eating the same amount of the same food at different hours of the 24-h period has different metabolic and health consequences. In other words, cell metabolism and waste management efficiency and thus sensitivity to pathological conditions and agents depend highly on when during 24-h period (i.e., early to late morning, noon, mid to late afternoon, evening, overnight) nutrients are taken.

Basically, human glucose intolerance and insulin insensitivity develop as day leaves for night [4, 9]. This phenomenon provides an evolutionary proof for the circadian nature of human activity and resting time that keeps the body and its differential cells well-prepared for varying functions [10]. Endocrinologically, resting

can occur most desirably when the gastrointestinal system and interrelated splanchnic and peripheral tissues are not overly involved in nutrient bioprocessing and energetics. Owing to such reduced energy demands at times of limited activity during evening and later demands, the body has not learnt to require insulin and other facilitating hormones and proteins to assimilate nutrients. As such, any overflow of glucose and energy-producing nutrients later in evening and overnight would oppose human evolution in healthy management of cell physiology. Thus, at certain circadian times, human is more prone to cardiovascular complexities and obesity.

The public education programs must increasingly communicate the significance of timing of food intake as an emerging public science in improving human health and welfare. Appetizing and eating energizing foods during day especially early morning must be encouraged. On the other hand, taking large and concentrated meals overnight must be discouraged and minimized [8, 10]. Healthy appetite and eating behaviour demand taking frequent but rather small meals during day and avoiding a large single evening meal. This is the lesson that evolution teaches humans [11]. Such guidelines must be expanded and specified for different age groups, physiological states, work conditions, and other

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relevant divisions according to research findings and be included in future public recommendations. The current dietary references of intake do not have such information yet [12].

Implications

The increasing rates of obesity, diabetes and related metabolic and cardiovascular complexities with the modernizing trends of human life necessitate developing feasible and simple approaches of prevention and treatment. When to develop appetite and to healthfully eat will be an ultimate frontier to accomplishing such a global triumph. However, despite its simplicity, effective timing of appetite and eating requires diligent and hard efforts to make it a workable daily routine alongside a well-disciplined exercise program. The future of obesity prevention will highly depend on this innovative science [13, 14].

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