

## Scheduling Exercise-Eating to Optimize Gut Probiotics: A Global Invention

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### Abstract

This article describes how optimizing exercise timing can improve gut physiology and health. The goal is to avoid prolonged gut retention of digesta especially overnight. Suboptimal fermentation and eating-exercise timing are among shortcuts to unhealthy gut. It is suggested that early morning and evening physical work supplemented by small and minor evening and night food meals minimizes risks of unnecessary overdigestion and hindgut ill-fermentation, thus improving gut integrity and metabolism. Large evening meals must be avoided in any scenario. Day-time meals should be frequent but small. This helps ensure continuous and modest ingesta digestion and splanchnic metabolism and well-managed waste.

**Keywords:** Gut; Physiology; Health; Probiotics; Exercise

### Innovative Science and Philosophy

Gut physiology and health are highly dependent on quantity and quality of digestion and fermentation. Human is an omnivorous mammal that is capable to consume and obtain energy from both animal and plant products. Partial ability to digest and ferment plant cell walls in hindgut provides opportunities to utilize organic acids and peptides. However, imbalance in dietary provision of animal and plant foods makes human easily prone to digestive malfunction [1-3]. The over modernization trends of human ecology have reduced resting and driven overintake of unhealthy foods at suboptimal times of the circadian period. This could be among the reasons for dramatic increases in obesity and overweightness in various global populations [4,5].

Increased work hours (not indeed physically enough) and decreased sleeping time are exacerbated by no or little time for adequately intense physical exercise. In addition, as a result of the increased static working, unnecessary eating of especially junk and fast foods has significantly increased in today's modern lifestyles. This has adversely affected gut physiology and health [6-9]. Notably important, timing of food intake over the circadian period has recently been a public subject of research [10-13]. For instance, evening large meals are to be avoided for those seeking optimal body fitness and overall health [5,10]. This is because human cells are rather intolerant of additional glucose and other substrates overnight when human has not evolved to be adequately and physically active. As such, any overintake of nutrients later in evening and night greatly interferes with normal cell metabolism and waste management. This knowledge leads the current public health programs to move towards minimizing chances of energy overconsumption as evening and night commence [14].

Timing of exercise can well be optimized to help avoid untimely large food meals [15-17]. Night overeating substantially increases digesta retention along the gastrointestinal tract and induces risks of unhealthy fermentation and suboptimal microbial establishment [18,19]. Adequately intense late afternoon or early evening exercise complemented by large night meals avoidance will considerably

reduce nocturnal digestion and unhealthy overfermentation. Such a nocturnally relieved gut would optimally begin to resume dynamics via some morning exercise, thus preparing to effectively manage morning and day-time frequent small food meals [20,21]. Furthermore, to induce satiety and control nocturnal hunger, bulky and low-energy fruits and vegetables should be taken post-evening exercise to increase the success of the regimen developed in this pragmatic communication. Timely and sufficiently intense circadian exercise is an evolutionary proof for quality human life that is inspired by nature and its rhythms the foremost [22,23].

### Conclusion

Physical work and eating must be carefully timed and exercised over the circadian period to ensure that gut physiology and health are not jeopardized in today's overmodernized lifestyles. In a nutshell, well-distributed frequent but small food meals during morning and day-time followed by no major evening and night meals set the stage for adequately intense late afternoon or early evening exercise. This regimen has immense capacity to improve gut physiology and health as well as intermediary metabolism.

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