

# Minimizing Obesity and Diabetes by Optimizing Meal Size, Frequency, Timing and Sequence

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**Policy Article**

Volume 1 Issue 3

**Received Date:** October 07, 2016

**Published Date:** October 14, 2016

**DOI:** 10.23880/doi-16000129

## Abstract

Obesity particularly in visceral and abdominal regions is a rising problem in modern lifestyles. Minimizing the problem requires optimizing meal properties. This involves optimizing meal size, frequency, timing and sequence. Frequent smaller meals evenly distributed over day-time with no large evening meals, and inclusion of fibrous plant meals in-between are an obligation. These should allow the gut to maintain its healthiness towards optimal splanchnic and peripheral metabolism.

**Keywords:** Obesity; Meal; Timing of Meals; Eating Sequence

## Discussion

Obesity is a rising problem in modern humans that predisposes the body to a variety of complicated disorders. This reduces life quality dramatically [1-3]. Thus, interventions are needed to prevent the problem from happening. One significant area to work on is "meal properties". Meal properties include meal size, frequency, timing and sequence. Taking large infrequent meals is not considered healthy since it stimulates higher insulin peaks and increases adiposeness, which in turn increases visceral adiposity. Instead, frequent small meals help the intermediary endocrinology to smoothen metabolism with no major shocks to the body. Maintaining a balance between substrate supply and use is key in preventing many complexities such as cancer [4-7].

Human has evolved to be active during day and inactive overnight. As such, human body is better prepared to assimilate nutrients during morning and day-

time than evening and overnight [3,8]. This means that heavy food meals must not be taken overnight when the body cannot tolerate substrate overloads. Timing of meals, thus, needs to be optimized, which necessitates taking frequent meals during day and no large meal overnight [8-10].

Meal sequence requires increasing attention in today's modern and postmodern lifestyles. Frequent animal foods should be separated with frequent matching plant meals, supporting normal gut function and health with adequate fibrous (i.e., plant cell wall) materials. Such plant meals inhibit insulin shocks and help smoothen substrate absorption through the gut wall. In addition, plant and vegetable meals help successfully excrete fat residuals including cholesterol. Moreover, gut motility is maintained within healthy ranges, thus helping to reduce gut diseases with aging [11].

Successful practice of meal optimization requires working on all meal properties. Thus, efforts must be made to optimize meal size, frequency, timing and sequence altogether and all the time to be able to observe positive outcomes.

## Conclusion

Optimizing meal properties involves taking frequent small meals evenly distributed over day-time with no large evening meals. This should be accompanied with plant meal intervals prepared from fibrous plant materials. Such a well-practiced formula should result in overcoming obesity and diabetes related problems.

## Acknowledgments

Thanks to the Ministry of Science Research and Technology and National Elite Foundation for supporting the author's global initiatives and programs of optimizing science edification in the third millennium.

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