ACTA SCIENTIFIC NUTRITIONAL HEALTH

Volume 3 Issue 1 January 2019

Guest Editorial

Circadian Timing of Eating and Exercise towards Optimal Lifestyle: A Postmodern Approach

Akbar Nikkhah*

[1]*Principal Distinguished Scientist for Dairy-Beef Industries and Public Health, Ferdows Pars Agri-Livestock Holding Co., Mostazafan Foundation and National Elite Foundation, Iran*

[2]*Chief Highly Distinguished Professor, Faculty of Agriculture, University of Zanjan, Iran*

***Corresponding Author:** Akbar Nikkhah, Principal Distinguished Scientist for Dairy-Beef Industries and Public Health, Ferdows Pars Agri-Livestock Holding Co., Mostazafan Foundation and National Elite Foundation and Chief Highly Distinguished Professor, Faculty of Agriculture, University of Zanjan, Iran.

Received: October 29, 2018; **Published:** November 30, 2018

This editorial aims to propose a new postmodern strategy to optimize health through optimizing the circadian time of eating and exercise. This written also serves as a global call for further research on this topic. Recent findings suggest that evening instead of morning feed delivery improves circadian feed intake and rumen fermentation, and thereby, increases milk production in lactating dairy cows [1-7]. This in mind, it is notable to indicate that ruminants are very different than humans in eating behavior, gut nutrient assimilation, and intermediary metabolism. For instance, ruminants rely mostly on rumen fermentation of the feeds eaten, whereas humans do not have pre-gastric fermentation and possess only some post-gastric hindgut fermentation. As a result, the majority of feed energy comes from volatile fatty acids produced during rumen fermentation of feeds in ruminants.

Humans have evolved to have higher energy requirements during morning and day time because evening is for rest, preparing the body for night sleeping. Normal humans show higher intrinsic circulating glucose levels in the morning and have a daily rhythm in glucose tolerance [8,9]. However, ruminants usually exhibit two main eating/grazing activities, one in early morning and another in late afternoon and early evening. Consequently, they ruminate mostly overnight. Taken these together, humans are expected to respond differently to time of eating and exercise, when compared to ruminants. Since, glucose metabolism in humans is higher during day than overnight, it is proposed to not overload the body with nutrients overnight. This suggests that large evening meals should be avoided to reduce risks from obesity and diabetes. Accordingly, evening exercise may enable the human body to more effectively and healthily utilize nutrients. However, this would not mean that evening meals could be larger if preceded by evening exercise. Instead, it implies that evening meals should in any circumstances be limited in size and be complemented with exercise to reduce metabolic disorders and health issues. To note, it is suggested to considerably reduce the evening and night eating of the foods that are high in energy (fats, sugars, starches, and proteins). This would not include fruits and vegetables that are rich in fiber, vitamins, minerals, and functional known and unknown nutrients. Fruits and vegetables are not indeed concentrated as much in energy.

Future research will need to further extensively experiment and analyze the theory that circadian time of eating and exercise matters in affecting human health and life quality. Public education must be continually revisited and refined and underline the significance of optimizing eating and exercise time in approaching optimal lifestyle and life quality for postmodern humans.

Acknowledgments

Sincere and cordial thanks to Ferdows Pars Holding Co., (Mostazafan Foundation) for supporting the author's global programs of optimizing science and public education.

Bibliography

1. Nikkhah A. "Timing of feeding: a postmodern management strategy to modulate chronophysiological rhythms in rumen fermentation kinetics". *Biological Rhythm Research* 45 (2014): 533-540.

2. Nikkhah A. "Review: Ruminant feed intake regulation evolution: Chronophysiological rhythms perspectives". *Biological Rhythm Research* 45 (2014): 563-577.

3. Nikkhah A. "Time of Feed Provision (2100 vs. 0900 h) Orchestrates Postprandial rhythms of food intake and peripheral glucose in lactating cows". *Biological Rhythm Research* 44.1 (2013): 33-44.

4. Nikkhah A. "Chronophysiology of ruminant feeding behavior and metabolism: an evolutionary review". *Biological Rhythm Research* 44.2 (2013): 197-218.

5. Nikkhah, A. "Bioscience of ruminant feed intake evolution: feeding time models". *Advances in Bioscience and Biotechnology* 2 (2011): 271-274.

6. Nikkhah, A., *et al*. "Feed delivery at 2100 h vs. 0900 h for lactating dairy cows". *Canadian Journal of Animal Science* 91.1 (2010): 113-122.

7. Nikkhah, A., *et al*. "Effects of Feed Delivery Time on Feed intake, Rumen Fermentation, Blood Metabolites and Productivity of Lactating Cows". *Journal of Dairy Science* 91 (2008): 1-12.

8. la Fleur SE., *et al*. "A daily rhythm in glucose tolerance: A role for the suprachiasmatic nucleus". *Diabetes* 50 (2001): 1237-1243.

9. Arslanian, S., *et al*. "Demonstration of a dawn phenomenon in normal adolescents". *Hormone Research* 34 (1990): 27-32.

Volume 3 Issue 1 January 2019