Editorial

Ruminants as sophisticated applicable models for human medical research: beyond traditions

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Editorial

The objective of this editorial is to critically underline the metabolic significance of ruminants as working models for mechanistically studying of the most common human diseases and health issues. These include but are not limited to obesity, metabolic syndrome, diabetes mellitus, high blood pressure, immune deficiency, hepatitis, gastric malfunction, and cancer. Animal science research has periodically encountered major limitations in research funds over the last few decades.[1] This shortage in funding must logically fuel innovations in research insights into animal science towards multidisciplinary and interdisciplinary visions.[2] As a result, efforts, although largely inadequate, have been made to highlight the necessity of co operations between animal agricultural and biomedical research scientists.[2,3] However, far more extensive work needs to be been done to introduce and analyze areas of common interest.[4,5]

Most recently, interdisciplinary research has opened new horizons into studying human medicine and nutrition within a public health framework with livestock, mainly ruminants, as applicable models.[6–12] Improving heart and cardiovascular function, overcoming metabolic challenges related to obesity, and modulating appetite are amongst the most important disciplines investigated.[5,7,9,11,12] The majority of the novel findings and innovative perspectives have been generated through contemplating the data resulted from dairy and beef cattle experiments in light of comparative physiology.[6] Timing of nutrient consumption, for instance, has served human medical and health as a highly feasible cutting-edge and state-of-the-art science.[9–11] Relating circadian changes in eating to circadian insulin function and sensitivity has led to development of simple strategies to prevent and minimize obesity as an increasingly devastating problem in the new era.[12] Chronophysiomics has been another emerging science out of bridging animal and human studies.[11] Despite these accomplishments, ruminants do have sophisticated physiology and intermediary metabolism that originate from their extensive pregastric fermentation, unlike humans. Thus, care and caution must be taken in interpreting ruminant data in integrating innovative ideas into sound theories for feasible experimentation and discoveries in human research.

All in all, human biology will have more than much to learn from clinical ruminant physiological studies at animal, organ, tissue, cell, and gene levels. Omics technologies may facilitate inter-analysis and networking of human and ruminant data. Before such inter-species extendable concepts can be built, education in colleges, universities and research institutes must take initiatives in familiarizing the forthcoming bright minds with the collaborative nature of research in ruminant animal and human sciences. That is, by all means, a matter of vision and not fund, that must go beyond traditions.

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Conflict of interest

Author declares that there is no conflict of interest.

References

1. Loosli JK. Problems and prospects in animal science research. *J Anim Sci.* 1966;25(1):244–246.
2. Reynolds LP, Benson ME, Wulster-Radcliffe M, et al. Animal scientists urge NIH and USDA-NIFA to continue dual purpose with dual benefit program. *J Anim Sci.* 2012;90(13):4679–4680.
3. Reynolds LP, Ireland JJ, Seidel GE Jr. Brain drain and loss of resources jeopardize the continued use of domestic animals for agricultural and biomedical research. *J Anim Sci*. 2008;86(10):2445–2446.
4. Hein WR, Griebel PJ. A road less travelled: large animal models in immunological research. *Nature Rev Immunol.* 2003;3:79–84.
5. Nikkhah A. Science of eating time: A novel chronophysiological approach to optimize glucose-insulin dynamics and health. *J Diab Mellit*. 2011;2(1):8–11.
6. Nikkhah A. Time of Feeding an Evolutionary Science. Germany: GmbH & Co. KG, Lap Lambert Publishing; 2012.
7. Nikkhah A. Circadian synchrony of insulin and intake patterns: Towards a rational anti-obesity theory. *Endocrinol Metab Synd*. 2014;3(2):1000e122.
8. Nikkhah A. Dairy ruminant nutrient intake orchestration: A novel chronophysiological discipline. *J Adv Dairy Res*. 2014;2(2):1000e111.
9. Nikkhah A. Optimizing cardiovascular health via food intake timing: Bioengineering of internal physiology. *Austin J Biotechnol Bioeng.* 2014;1(2):2.
10. Nikkhah A. Evolutionary co-emergence of appetite and hormonal rhythms: A molecular highway to overpass obesity. *J Biodivers Biopros Dev.* 2014;1(1):1000e105.
11. Nikkhah A. On chronophysiomics: Prospects to optimize appetite and health. *SAJ Biotechnol.* 2014;1(1):103.
12. Nikkhah A. When to eat to beat obesity and diabetes? *J Diabetes Metab*. 2014;5:7.

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