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## **Metabolic signatures in nutrition and health : short-term diet response, sexual dimorphism and hormone chronobiology**

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## PROPOSITIONS

1. An intermittent vegan diet regimen alternated with a healthful balanced omnivorous diet reduces the unsustainable impact of animal-based products on the earth while meeting human nutritional requirements. (Chapters 2,3)
2. Short term, healthful diet challenges can potentiate immediate metabolic improvements. (Chapters 2,3)
3. Sexually dimorphic proteins may influence the identification of clinically useful biomarkers for diagnosis and therapy. (Chapter 4)
4. Healthy women's menstrual cycle phases reflect significant metabolic differences with particular regard to the luteal phase. (Chapter 5)
5. Women utilize amino acids differently than men in a sex hormone specific manner. (Della Torre, Cell, 2018). The reason for this is probably that women have higher protein needs than men during times of physiological stress such as hormone changes and fasting.
6. Ninety-five percent of adolescent girls have menstrual disorders (Abdelmoty, et al. BMC Women's Health 2015). While nutrition is strongly associated with growth and development, connections between adolescent girls' hormonal health symptoms and nutrition therapy are grossly under-represented in the published research literature.
7. Individuals who adhere to public health nutrition recommendations based on population averages experience differences in response due to variability and complexity in genetics and environmental interactions. (van Ommen, Nutrition Reviews, 2017). Therefore, the interpretation of double-blind, placebo controlled diet interventions and population based research does not serve the needs of personalized clinical practice.
8. An integrative Personal Omics Profile (iPOP) can be used to interpret healthy and disease states of an individual; however, much technology development needs to be done for this approach to serve the field of personalized nutrition. (Snyder, Cell, 2012). Although not practiced yet, individuals who wish to improve their health through nutrition are best served by observing how their own health symptoms and biomarkers change with self-designed diet experiments than by following standard public health recommendations alone.

9. In systems thinking, a living system, organism or other entity arises from an integrated whole of connected relationships and context that cannot be reduced to its parts. (Capra, *The Systems View of Life*, Cambridge University Press, 2014). This approach may have more impact on the health systems, as the art of successful clinical practice lies in the capacity to help improve the health of the patient not only in the office but in their usual environment.
10. According to the ancient Chinese text, *Yi Jing*, an individual's internal environment is a reflection of the external environment. (van der Greef, *Planta Med*, 2010). This supports the notion that humans experience health and stress according to the food we eat, the company we keep and the air we breathe.
11. The secret to staying healthy is to experiment with veganism and design a diet to support sex (hormones).
12. Healthy metabolism is rhythmic, dynamic, non-static, and extraordinarily personal.
13. A healthy challenge diet experiment can change your metabolic trajectory overnight and even after just one meal.
14. To study disease is to learn how to have disease. To study health is to learn to have health.