

Perspective

Establishing Regular Patterns of Cellular Mechanics to Minimize Oncogenesis: Animal Sciences Inspire

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This article establishes a novel global and pragmatic theory to minimize oncogenesis and help prevent cancer and its consequent challenges by establishing regular and rhythmic circadian and circannual patterns of cell mechanics involving biochemical and physiological properties. This strategy can minimize risks of irregularities in cell physiology to postpone aging.

Keywords: Regularity; Pattern; Cell mechanics; Gene; Oncogenesis

Innovations and Analyses

The objective of this forum article was to establish a pragmatic global theory and guideline in preventing and managing oncogenesis and cancer. Cancer is characterized by arrhythmic irregularities in cell biology and gene functioning [1]. Any strategy and action that could reduce such irregularities can have the potential to prevent, postpone and deteriorate cancer-causing factors. An optimal strategy to minimize irregularities in cell ecology would be to establish and retain regularities in cell physiology and metabolism. The theory elaborated further on in the coming lines stems in part from animal model studies where optimizing circadian timing of nutrient intake and metabolism improved animal production and health [2-4]. This suggests that certain rhythms of regularities in cell physiology can protect cell from oncogenic damages. This theory links human health to its natural patterns of life that has been, in varying degrees, interrupted during modernization.

Among the most feasible determinants of life style and quality are nutritional management and physical activity [2-6]. Establishing rhythmic regularities in human nutrition and exercise is considered a key to overcoming cancer related challenges. As far as nutrition is concerned, creating a rhythmic program in the type, amount and timing of nutrient supply to the body and its physiologically versatile tissues and cells are of utmost priority. Rhythmic nutrition is, by definition, a disciplined and timely nutrition [4,7]. From an evolutionary viewpoint, cell physiology demands and dictates that particular nutrients are supplied at particular circadian times (i.e., the 24-h period). For instance, since human endocrinology has evolved to assimilate and metabolize energizing nutrients just prior to the commencement of the activity period in early morning through the late afternoon, effective metabolism does not occur during evening and overnight [3,7]. Thus, care must be exercised to not overload the cells with nutrient oversupply nocturnally [4]. However, more insight must be generated on optimum times of receiving specific types and amounts of different nutrients before rhythmic regularities in nutritional programming of cell physiology may be perfectly established. Nutrition must help drive human cellular rhythms of metabolism and waste management back to natural patterns within a modern lifestyle framework.

Physical activity as another key effector of cell efficiency, human health and life quality must also develop rhythmic regularities in the postmodern man. Despite the extensive research on the inevitability of adequate exercise for optimal cell function and aging [8-10], little contemplation has been devoted to underlining the significance of establishing and maintaining rhythmic regularities in physical activity. Since genes perform steadily in orchestrating cell physiology and aging process [2], any strategy that aims to durably and significantly influence on cell genomics, proteomics and metabolomics should possess a rhythmic and likely a circadian nature. This theory implies that for physical activity to be largely effective in slowing down the aging and minimizing the risk of growing irregularities in cell physiology, it should be performed regularly and certainly enduringly. Such a lasting regularity in exercise will help genes and proteins mentor the cell towards maintaining the uniformity, stability, and rhythmicity in its function and overall body health [11-14]. Characterizing the chronological and circadian nature of such regularities in physical activity requires extensive future research.

Conclusion

The strategies minimizing oncogenesis must focus on training, generating and establishing permanent regularities in cell physiology and mechanics. This bioprocess may appear complicated, but it can be easily accomplished through development of robust and durable rhythms of the important life affairs of mainly nutrition and exercise. The goal is to fit lifestyle into natural harmonies representing circadian and circannual evolution of human ecology.

Acknowledgment

Thanks to Iran's Ministry of Science Research and Technology, National Elite Foundation, and University of Zanjan for supporting the author's global programs of optimizing science edification in the new millennium.

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