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Alessandro Laviano
Sapienza University of Rome, Italy

Caloric restriction, fasting-mimicking diet and time restricted diet for the prevention of chronic diseases

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Sapienza University of Rome, Italy

Global statistics reveal that average human lifespan steadily increased over the last decades. However, a similar increase of average human healthspan has not been observed due to the close link between longevity and chronic diseases. Among other factors, nutrition plays a role in improving lifespan and delaying the onset of chronic diseases. Caloric restriction (i.e., restricting energy intake by 20%-40% below requirements without causing malnutrition) has been demonstrated to reduce the incidence of chronic diseases and prolong survival in many experimental models. In healthy humans, long-term caloric restriction is associated to improved surrogate markers of longevity (i.e, body weight, blood pressure, core temperature, heart rate, etc.), but compliance remains disappointing. To improve long-term compliance a 5-day hypocaloric dietary regimen eliciting similar biochemical and clinical effects of long-term caloric restriction, has been developed (i.e., Fasting-Mimicking Diet, FMD). Monthly cycles of FMD showed improved lifespan and healthspan in animal models. In healthy humans, cycles of DFMD improved surrogate markers of longevity. These effects persist over 3 months and suggest that cycles of FMD can be repeated every 4-6 months. More recently, cycles of FMD have been preliminary shown to represent a potential adjuvant treatment for chronic diseases, including cancer, type 1 diabetes mellitus, multiple sclerosis. Modulation of timing of eating may also contribute to increase longevity and healthspan. Maintaining a daily feeding/fasting cycle of 12h/12h (feeding in the active period) has been shown to yield to improved metabolic profile in animal models. Recently, a pilot study showed that obese menopausal women observing a daily feeding /fasting cycle of 8h/16h doubled their body weigh loss when compared to controls receiving the dame diet but eating ad libitum. Modulation of the composition of the diet and of the timing of eating represent easily achievable strategies to promote lifespan and healthspan.

Biography:

Alessandro Laviano, MD, is associate professor of Internal Medicine at the Department of Clinical Medicine, Sapienza University of Rome, Italy. He holds a clinical position at the Internal Medicine and Clinical Nutrition Unit, University Hospital "Policlinico Umberto I" of Rome. Also, Dr. Laviano holds a position of Visiting Research Professor at Upstate Medical University, Syracuse, NY, USA. Dr Laviano received his MD degree at the Sapienza University of Rome, Italy, where he also completed the residency programmes in Internal Medicine and Nephrology.

Dr. Laviano's main research interests are: regulation of food intake under physiological and pathological conditions, disease-associated anorexia and cachexia, hyperphagia and obesity, impact and treatment of hospital malnutrition. In particular, Dr. Laviano has been studying the role of brain activity in the pathogenesis of cancer anorexia and cachexia, and the potential benefit deriving from the integration of a pharmacologic and nutritional approach to cancer patients.

In the period 2010-14, Dr. Laviano has been the chairman of the Educational and Clinical Practice Committee of the European Society for Clinical Nutrition and Metabolism (ESPEN). He is currently the Director of the ESPEN LLL programme, as well as Coordinator of the Supervisory Board of the ESPEN project, nutritionDay. In the period 2005-2009, Dr. Laviano served as European Co-Editor of Nutrition. In the period 2011-2013, Dr. Laviano served as First Editor of British Journal of Nutrition. In 2017, he served as Section Editor of Elsevier's Reference Modules. Dr. Laviano is currently: Editor in Chief of Nutrition; Associate Editor of Clinical Nutrition; Associate Editor of Journal of Cachexia, Sarcopenia and Muscle; Section Editor of Current Opinion in Clinical Nutrition and Metabolism. Dr. Laviano's studies have been funded by private and public institutions, including the Italian Ministry of Scientific Research. Dr. Laviano has a total of more than 200 publications in international peer reviewed journals.

email: alessandro.laviano@uniroma1.it