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Starvation versus calorie restriction: Our road to food insecurity or health

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Advantages of calorie restriction have been well documented in human and animal studies. Research has demonstrated the benefits of calorie restriction: extended life-span, delay to inhibition of cancer, obesity and disease prevention, e.g., Okinawa, Japan. Some propose calorie restriction as undernutrition without malnutrition and starvation. Physiological response to grades of starvation or calorie restriction associated with increased triglyceride lipolysis related increase in plasma free fatty acid levels, accumulation of myocardial triglyceride and decreased diastolic myocardial function. In starvation, myocardial uptake of fatty acids exceeding the myocardial fatty acid oxidation has been proposed. Historically, children who survived severe calorie restriction in St. Petersburg, 1940-43, showed a higher risk for arteriosclerosis with lower life expectancy. Holocaust victims who survived extreme calorie restriction showed a higher cancer risk. Second generational effects of starvation survivors have been documented: higher risk for blood sugar imbalance, diabetes, obesity, cancer, psychological problems and reduced height. Epigenetic memory and food insecurity-obesity paradox have been reported. Milder calorie restriction survivors, e.g. Norway during World War II, showed though lower cancer risk. Survival experience of the Dutch Famine, 1944-45, is mixed; reports of lower mortality, no overall effect and higher rates of breast cancer have been reported. These studies indicate that the age of onset, duration, severity of calorie restriction and generational effects could be critical in qualifying outcome. Research on this, in order to better ascertain when the concept of health and longevity on calorie restriction might be usurped by the concept of food insecurity and morbidity-mortality is pertinent.

Biography

Shoma Berkemeyer has completed her studies in Nutrition from the University of Delhi, Economics from the University of Reading and her PhD in Nutrition from the Rheinische Friedrich-Wilhelms University Bonn. Currently, she is a research scientist at the University Hospital of Muenster. She has published more than 20 papers in reputed journals, is serving as advisory board member of EuroMDNet and has recently joined the Editorial Board of the International Journal of Nutrition and Dietetics (IJND).

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