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Type 2 diabetes: The perfect model!

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In recent years, various animal models of diabetes and metabolic alterations, especially rodents, have been characterized. The induction of diabetes can be done by surgery, chemicals treatments or genetic modification. However, these models are more close to type 1 diabetes mellitus associated with pancreatic dysfunction than to type 2 diabetes (T2D).

But, over 90% of cases of diabetes in humans are represented by T2D. That diabetes mellitus is associated, in most cases, to high fat diet (HFD), physical inactivity and obesity. In fact, eating habits influenced by human socialization and industrialization of societies, have been modified by a diet rich in fat. In addition, the adoption of a style of life "easy" characterized by working conditions and lack of exercise is the cause of the increased prevalence of obesity in most parts of the world. To understand the pathophysiological characteristic patterns of food consumption in today's world, the choice of a characteristic model of human evolution was paramount. The animal species most representative of metabolic alterations and T2D in humans related to food is not yet known. However, the HFD fed mice model remains the best choice. This experimental model is widely used since the metabolism of mice is well established. Also, mice have omnivorous feeding habits, comparable to that of man "before the Industrial Revolution", predominantly vegetarian composed primarily of grains, vegetables, fruits and some meat or Cheese. In addition, several companies developed diet whose composition was established close to that consumed by humans in industrialized countries and is associated with obesity and T2D. Thus, up to date, we can consider that HFD--fed mice as the closer model to the human T2D characteristics.

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Page 55