Fat vs Carbohydrates – understanding diet needs across genders

Description

Is the ‘healthy diet’ similar for men and women? A recent study conducted by researchers at the University of Waterloo in Canada highlights some interesting data regarding the differences in diet requirements and metabolism in males and

females.

One of the key results points that while men may respond better to breakfast rich in carbohydrates, it is fat which is better for women. The reason for this finding lies in the fact that the metabolism in men primarily favours carbohydrate as fuel and in women, lipids are a more favoured fuel. For this study, multiscale sex-specific models were developed, which allowed simulation the effects of carbohydrate and fat rich diets in males and females. Their extensive study on liver metabolism revealed significant differences between both sexes.

The overall rate of gluconeogenesis (the process of production of glucose from a non-carbohydrate source) was observed to be higher in females, with utilisation of more glycerol. On the other hand, the glycogenolysis (breaking down of carbohydrate glycogen to glucose) is lower in females. Overall, the net glucose production is lower in females than in males. The higher reliance on a lipid-based diet is hypothesised to be due to the differences in liver and adipose tissue. Another revelation is that women store more fat during the absorptive phase, but also burn more fat later on to produce energy. Women also utilise the fat more efficiently than men for their energy requirements.

This study provides important predictions of sex-specific nutritional needs. How the gender-differences affect metabolism at various organ levels and its consequences are yet to be explored. It is noteworthy that such gender differences in metabolism and response to various diets can have significant effect on the risk and protection from various metabolic diseases.

Reference: *https://www.sciencedirect.com/science/article/pii/S0010482524011090, https://doi.org/10.1016/j.compbiomed.2024.109024*

Category

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