Abstract

Title: How altered meal frequency has an impact on energy intake in healthy adults - a systematic review

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Background: Understanding how meal frequency affects energy intake is an important part of understanding why healthy adults develop obesity. With more knowledge of this connection, advice concerning meal frequency can be designed to help the individuals to better appetite control and a more controlled energy intake. With a controlled energy intake, risk of developing obesity may decrease and thus also the risk of complications such as diabetes and cardiovascular disease.

Objectives: The purpose of this review is to systematically assess how meal frequency affects the energy intake of healthy adults.

Search strategy: Literature search was performed in the databases PubMed, Scopus and Cochrane. Keywords where: ad libitum, meal frequency, eating frequency, energy intake, isocaloric, isoenergetic, subsequent food intake, meal pattern and satiety

Selection criteria: Randomized controlled trials based on humans, which measured energy intake after an iso-caloric episode. Studies written in English and Swedish with healthy adult study participants.

Data Collection and Analysis: All search hits were examined based on title and abstract by two individuals independently. The chosen articles were thereafter analysed in full text through the SBU form “Kvalitetsgranskning av randomiserade kontrollerade studier” a quality assessment model for randomized controlled trials. Finally, the combined evidence strength was measured according to GRADE.

Results: Three studies in medium high study quality were identified. One of three studies showed a significant difference in energy intake between participants in the control- versus the intervention period depending on meal frequency. During the intervention period which meant a higher meal frequency, the participants had a lower energy intake than during the control period. The other two studies showed no significant difference in energy intake depending on meal frequency.

Conclusion: An increased meal frequency during an iso-caloric period seems to lead to a decrease in energy intake as an acute effect amongst young healthy adults (low evidence ++)

Keywords: Appetite, energy intake, hunger, meal rate, ad libitum, iso-caloric