

Research trial reveals importance of breakfast in human health

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Researchers from our Department for Health have conducted the first ever randomised controlled trial to examine the effect of regular daily breakfast when compared with extended morning fasting, to measure all

components of energy balance.

Contrary to [popular belief](#), they found little impact on snacking or [portion sizes](#) later in the day and no evidence whatsoever of any change in resting metabolism. However, they did find that those eating [breakfast](#) are likely to expend more energy during daily physical activities.

The findings, published today in the leading nutrition journal *American Journal of Clinical Nutrition*, are part of the Bath Breakfast Project, a randomised [controlled trial](#) funded by the Biotechnology & Biological Sciences Research Council (BBSRC).

As part of the three-year study, the team at Bath randomly allocated people aged between 21 and 60 years into either a 'fasting group' – who consumed no calories until lunchtime (12:00) everyday for six weeks – and a 'breakfast group' – prescribed at least 700 kcal by 11:00 daily for six weeks, with at least the first half consumed within two hours of waking.

Principal Investigator Dr James Betts explained: "The belief that breakfast is 'the most important meal of the day' is so widespread that many people are surprised to learn that there is a lack of scientific evidence showing whether or how breakfast may directly cause changes in our health.

"It is certainly true that people who regularly eat breakfast tend to be slimmer and healthier but these individuals also typically follow most other recommendations for a healthy lifestyle, so have more balanced diets and take more physical exercise. Our randomised controlled trial allowed us to find out whether breakfast is a cause, an effect or simply a marker of good health."

One key novel aspect of the experiment was the use of portable monitors to accurately measure participants' daily activities. Co-author Dr Dylan Thompson commented: "We previously found that these monitors are highly sensitive to changes in spontaneous low-to-moderate intensity activities and this new study shows that these are precisely the type of activities that differ depending on whether a person has or has not eaten in the morning."

Commenting on other research findings, Enhad Chowdhury added: "The common conception that breakfast may facilitate weight management by 'kick-starting metabolism' was not evident at all in our results, with resting metabolic rate stable within just 11 kilocalories per day from the start to the end of the intervention in both groups."

Through the study, the fasting group consumed around 20 per cent less energy than the breakfast group overall each day, indicating that they did not compensate for the energy missed at breakfast by eating more later on.

"It will now be interesting for further research to examine the long-term effects of different types of breakfast on weight management", Enhad Chowdhury added.

Finally, the study reports no negative cardiovascular effects of fasting until midday everyday for six weeks, but some interesting effects on metabolic control.

Dr Judith Richardson who managed the trial noted: "We assessed whole-body metabolic control in response to ingested sugar, which primarily reflects muscle metabolism, but we simultaneously tested glucose metabolism specific to fat tissue using biopsies taken from the same study volunteers."

These molecular assessments were complemented by data from a portable device that measured glucose levels, which revealed less tightly regulated glucose control during the afternoon and evening in the fasting group than in the breakfast group by the final week of the trial.

The second phase of this trial will report results from a more overweight study population.

More information: The open-access paper published in *AJCN*, 'The causal role of breakfast in energy balance and health: a randomized controlled trial in lean adults' is available online:

ajcn.nutrition.org/content/early/recent

Provided by University of Bath

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