

P22-026-23 Effect of Dairy Fat Consumption on Insulin Sensitivity in People With Overweight or Obesity With Prediabetes: A 12-Week Randomized Controlled Trial Protocol

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Objectives: Type 2 diabetes (T2D) is a major public health issue worldwide. Recent epidemiological evidence shows that higher intake of total dairy foods is associated with lower T2D risk, especially when dairy-specific fatty acids are used as biomarkers of dairy fat intake. Evidence from randomized controlled trials (RCT) is inconclusive, possibly due to the use of surrogates of insulin sensitivity (IS). Our primary objective is to determine the effect of dairy fat intake on IS in individuals with prediabetes. We also assess changes in glycemic measures, body composition, and cardiovascular markers as secondary outcomes.

Methods: We aim to recruit 75 males and females aged 30–65y with overweight or obesity with prediabetes. Eligible individuals enter a 2-week run-in period with an intake of 1 serving/d of low-fat dairy foods. Adherent participants ($n = 60$) are randomized (1:1:1 stratified by sex) to 1 of the 3 groups for the 12-week intervention: 1) ≤ 1 dairy serving/d; 2) 2–3 servings/d of skim milk, non-fat yogurt and low-fat cheese; 3) 2–3 servings/d of regular-fat milk, yogurt and cheese. Participants are instructed to incorporate study foods while maintaining their usual body weight ($\pm 5\%$) and lifestyle. Adherence is assessed by dairy intake logs, monthly 3-day image-based food diaries, and serum proportion of 15:0, 17:0, and t16:1n7 fatty acids as dairy fat biomarkers. Physical activity is assessed with a questionnaire and accelerometry. For the primary outcome, we assess changes in IS with the gold-standard hyperinsulinemic-euglycemic clamp before and after the intervention. Briefly, insulin is infused intravenously at 40 mU/m²/min for 2 h; 20% glucose is infused at variable rates to maintain serum glucose levels at 5.5 mmol/L, determined by 5-min measurements. Moreover, we measure glucose tolerance by the 75 g oral glucose tolerance test, body composition by dual-energy X-ray absorptiometry, and lipid profile by clinical chemistry. The effects on measured outcomes will be assessed using linear mixed models in intent-to-treat and per-protocol analyses.

Results: The trial is registered on ClinicalTrials.gov (NCT05421390). Recruitment and data collection are ongoing.

Conclusions: Our findings will help resolve current uncertainties about the role of dairy in T2D at an early stage and this could impact dietary recommendations.

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P22-027-23 Menu Design in the UK Food Service Sector: Nudging Consumers Towards More Environmentally Sustainable Food Choices (Study Protocol)

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Objectives: Since the introduction of the United Nations Sustainable Development Goals in 2015, there has been a growing recognition of the importance of pro-environmental behaviour, and an increasing level of conscious consumerism over sustainable and plant-based eating. In 2022, households in the UK spent an average of £1,628 (\$1,946) on eating out in restaurants; the contribution that the food service sector can make to a more environmentally sustainable food system is substantial. In previous studies, food menus have been used to effectively influence consumer food choice through changes to menu labelling, altering the layout, and manipulating the type of information provided. This study will investigate the design of menus in small and medium-sized enterprises (SME) in the UK and develop and implement a menu-based intervention to promote environmentally sustainable dishes.

Methods: Data will be collected through one-to-one interviews with restaurant head chefs ($n = 20$) and focus groups with adult consumers ($n = 24$). This qualitative component will explore participants' awareness and perceptions of sustainable food. Participants will be head chefs and customers drawn from SMEs that offer mid-range, à la carte, cook-to-order dishes with table ordering and service. Qualitative data will be analysed using an inductive thematic approach, and findings, alongside input from professional bodies, will inform the development of a menu-based intervention. Menus will be evaluated using a Sustainable Food Profiling Model to rank dishes in order of their environmental impact and identify the dishes to be promoted. The intervention will then be implemented in two restaurants. Data (e.g., dishes ordered, dish category) will be collected over four (baseline) and six (intervention) weeks using the restaurants' Electronic Point of Sale system. The data will be examined to determine consumer food choices and the selection of menu items, and whether selection of the promoted sustainable dishes changed during the intervention.

Results: N/A.

Conclusions: This study will extend the evidence on menu design and sustainability performance of restaurants. The work will also inform the discussion on the potential of nudge-based approaches in influencing consumer behaviour.

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