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Does eating sourdough bread daily for 8 weeks improve gut health and wellbeing compared to white bread?

Submission date 18/03/2026	**Recruitment status** Recruiting	[X] Prospectively registered [_] Protocol [_] Statistical analysis plan [_] Results [_] Individual participant data [X] Record updated in last year
Registration date 19/03/2026	**Overall study status** Ongoing	
Last Edited 21/04/2026	**Condition category** Digestive System	

Plain English summary of protocol

Background and study aims
Bread is one of the most widely consumed foods globally. Different types of bread, such as sourdough and white bread, are made using very different processing methods, and this may affect how our bodies digest them and how they influence our gut health. This study aims to find out whether eating sourdough bread daily for 8 weeks has a different effect on gut health, gut bacteria, and overall wellbeing compared to eating white bread.

Who can participate?
Healthy adult volunteers (male and female), aged 20 to 45 years, who report mild to moderate gut discomfort based on a standard questionnaire

What does the study involve?
Participants will be randomly assigned to eat either sourdough bread or white bread (approximately 180 g per day) for 8 weeks. The study lasts 14 weeks in total, including a 2-week baseline period before the intervention and a 4-week washout period afterwards. Participants will visit the UCD Institute of Food and Health five times over the course of the study. At these visits, measurements will be taken, including body weight and height, gut health questionnaires, gut transit time (using a blue food dye method), stool samples, continuous blood glucose monitoring, and exhaled hydrogen levels.

What are the possible benefits and risks of participating?
Possible benefits include learning more about how different types of bread may affect gut comfort and related health measures. However, participants may not personally benefit. Potential risks are expected to be low and mainly relate to eating bread daily (for example, temporary digestive changes), completing questionnaires, wearing portable monitoring devices, and providing faecal samples, which some people may find inconvenient or unpleasant.

Where is the study run from?
Institute of Food and Health, University College Dublin (UCD) (Ireland)

When is the study starting and how long is it expected to run for?
The study is expected to start in early 2026, pending ethics approval. Each participant will be involved for 14 weeks. The full study is expected to be completed by late 2026.

Who is funding the study?
The study is funded by Enterprise Ireland through the Innovation Partnership Programme, in partnership with an industry partner (Aryzta Food Solutions).

Who is the main contact?
Dr Emma Feeney, emma.feeney@ucd.ie

Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Study information

Scientific Title
The effect of daily sourdough bread consumption on gastrointestinal symptoms, gut microbiota composition, and metabolic markers in healthy adults with mild to moderate gut discomfort compared to white bread: a randomised parallel-group dietary intervention trial

Study objectives

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 10/02/2026, UCD Human Research Ethics Committee - Sciences (UCD Office of Research Ethics, UCD Research Building, University College Dublin, Belfield, Dublin, D04 V1W8, Ireland; +353 (0)1 716 7777; research.ethics@ucd.ie), ref: LS-25-70-Feeney-2

Primary study design
Interventional

Allocation
Randomized controlled trial

Masking
Open (masking not used)

Control
Active

Assignment
Parallel

Purpose
Treatment

Study type(s)

Health condition(s) or problem(s) studied
Mild to moderate gastrointestinal discomfort in healthy adults

Interventions
Participants will be randomly assigned to one of two parallel groups: daily consumption of sourdough bread (intervention arm) or white bread (control arm), at a dose of approximately 180 g per day, for a period of 8 weeks. Randomisation will be performed prior to the start of the intervention.

The study follows a parallel-group, randomised controlled design and lasts 14 weeks in total, comprising three phases: a 2-week baseline period, an 8-week dietary intervention period, and a 4-week washout period. Study bread will be provided to participants throughout the 8-week intervention period. Participants will be instructed to consume the allocated bread daily as part of their habitual diet.

Participants will attend the UCD Institute of Food and Health for 5 study visits over the course of the 14 weeks. At each visit, the following assessments will be conducted: anthropometric measurements, gut health and symptom questionnaires, dietary intake assessment using the FoodBook24 online 24-hour dietary recall tool, gut transit time measurement using the blue dye method, and collection of faecal samples using a home collection kit provided to participants. Continuous blood glucose will be monitored using a wearable continuous glucose monitor (CGM), and carbohydrate malabsorption will be assessed via exhaled hydrogen levels using a portable breath analysis device.

Intervention Type
Behavioural

Primary outcome(s)
1. Gut health and gastrointestinal symptoms measured using the Structured Assessment of Gastrointestinal Symptoms questionnaire at baseline (week 0), end of intervention (week 10), and end of washout (week 14)

Key secondary outcome(s)

Completion date
31/12/2026

Eligibility

Key inclusion criteria
1. Aged 20–45 years
2. Self-reported mild to moderate gastrointestinal discomfort or transit issues, as assessed by screening questionnaire

Healthy volunteers allowed
Yes

Age group
Adult

Lower age limit
20 years

Upper age limit
45 years

Sex
All

Total final enrolment
0

Key exclusion criteria
1. Diagnosed irritable bowel syndrome (IBS)
2. Diagnosed inflammatory bowel disease (IBD)
3. Coeliac disease or gluten/wheat intolerance or allergy

Date of first enrolment
01/06/2026

Date of final enrolment
30/06/2026

Locations

Countries of recruitment
Ireland

Sponsor information

Organisation
University College Dublin

ROR
https://ror.org/05m7pjf47

Funder(s)

Funder type

Funder Name
Enterprise Ireland

Alternative Name(s)
The Enterprise Ireland

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
Ireland

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available