ISRCTN87042793 https://doi.org/10.1186/ISRCTN87042793

# Can drinking Yakult®, a fermented milk containing Lactobacillus casei strain Shirota, soften stool hardness in healthy people producing hard stools?

**Submission date**
17/06/2021

**Recruitment status**
No longer recruiting

**Registration date**
24/06/2021

**Overall study status**
Completed

**Last Edited**
21/10/2024

**Condition category**
Digestive System

[X] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[_] Record updated in last year

## Plain English summary of protocol

Background and study aims
Yakult® is a fermented milk containing probiotics (friendly bacteria), and it is expected that daily consumption of Yakult® can soften hard stools. The Bristol Stool Form Scale (BSFS) questionnaire is often used to evaluate stool hardness. However, this is subjective and affected by a participant's feelings because the questionnaire is filled out by the participant. Recently a new method using a texture analyser (TA.XT Express Texture Analyser; TAXT) was developed to evaluate stool hardness. A pilot study was conducted to evaluate the impact of Yakult® on stool hardness using a TAXT. It was found that daily consumption of Yakult® contributed to stool softening in subjects with hard stools. The aim of this study is to find out whether Yakult® consumption has a stool softening effect in healthy individuals who produce hard stools.

Who can participate?
Healthy volunteers aged 18-65 who frequently produce hard stools

What does the study involve?
Firstly, participants complete stool hardness questionnaires for 2 weeks. Then, stool samples are collected from participants who produce hard stools for a 5-day period to be evaluated using a texture analyser. Participants who produce hard stools are randomly allocated to the probiotic group or the placebo group. Participants in the probiotic group are asked to consume one bottle of Yakult® daily for 8 weeks. Participants in the placebo group are asked to consume one bottle of placebo (non-fermented milk) daily for 8 weeks. All participants are asked to collect stool samples at three timepoints (before probiotic/placebo consumption, and 4 and 8 weeks after starting probiotic/placebo consumption) for 5 consecutive days (120 hours), and to record defecation frequency, stool hardness and feeling of defecation for all defecations using an online questionnaire until the end of the study.

What are the possible benefits and risks of participating?
Participants in the probiotic group might produce softer stools. There are no risks of taking part

in this study. At the moment Yakult® has a history of safe use in the European population for more than 25 years. Therefore, it's safe for the participants to consume Yakult® or the placebo.

Where is the study run from?
Yakult Honsha European Research Centre for Microbiology VOF (Belgium)

When is the study starting and how long is it expected to run for?
October 2020 to September 2022

Who is funding the study?
Yakult Honsha Co., Ltd. (Japan)

Who is the main contact?
1. Satoshi Tsujibe
satoshi.tsujibe@yher.be
2. Dr Takuya Takahashi
takuya.takahashi@yher.be

# Contact information

### Type(s)
Scientific

### Contact name
Mr Satoshi Tsujibe

### Contact details
Technologiepark 94 bus 3
Zwijnaarde-Ghent
Belgium
9052
+32 (0)9 241 11 34
satoshi.tsujibe@yher.be

### Type(s)
Public

### Contact name
Dr Takuya Takahashi

### Contact details
Technologiepark 94 bus 3
Zwijnaarde-Gent
Ghent
Belgium
9052
+32 (0)9 241 11 34
takuya.takahashi@yher.be

# Additional identifiers

### Protocol serial number
YHER21-YSS

# Study information

### Scientific Title
Evaluation of the impact of fermented milk containing Lactobacillus casei strain Shirota (LcS) on stool consistency in healthy subjects producing hard stools

### Study objectives
Daily consumption of fermented milk containing Lactobacillus casei strain Shirota (LcS) softens stool hardness in subjects producing hard stools compared to daily consumption of a placebo (non-fermented milk without LcS).

### Ethics approval required
Old ethics approval format

### Ethics approval(s)
Approved 08/06/2021, Ethics Committee Research UZ/KU Leuven (Herestraat 49, B 3000 Leuven, Belgium; +32 (0)16 34 86 00; ec@uzleuven.be), ref: S65320

### Primary study design
Interventional

### Study design
Randomized double-blind placebo-controlled parallel-group multi-centre study with two arms

### Study type(s)
Quality of life

### Health condition(s) or problem(s) studied
Healthy individuals who frequently produce hard stools

### Interventions
During 5 days of screening stool collection, stool samples will be collected from study participants and analysed with a texture analyser (TAXT). Then, 120 eligible subjects who produce hard stools (i.e. median value of log-transformed TAXT measurements is higher than 4.5), will be randomised by stratified randomisation to the probiotic group or the placebo group in a 1:1 ratio. Briefly, subjects will be randomised in blocks and stratified by gender, age group (18-49 vs. 50-65), and baseline median TAXT category (4.5 or more and less than 5.2 vs. 5.2 or more). Subjects in the probiotic group will receive one bottle of fermented milk containing LcS daily for 8 weeks. Subjects in the placebo group will receive one bottle of placebo (non-fermented milk without LcS) daily for 8 weeks.

### Intervention Type
Other

### Primary outcome(s)
Stool consistency measured by a texture analyser (TA.XT Express Texture Analyser) before consumption of the investigational product (IP), and 4 and 8 weeks after starting IP consumption

### Key secondary outcome(s)
1. Stool hardness measured using the Bristol Stool Form Scale score evaluated by an expert before consumption of the investigational product (IP), and 4 and 8 weeks after starting IP consumption
2. Stool water content measured by subtracting dried stool weight from raw stool weight before consumption of the investigational product (IP), and 4 and 8 weeks after starting IP consumption

### Completion date
14/09/2022

## Eligibility

### Key inclusion criteria
1. Informed consent obtained before any study-related activities
2. Healthy female or male aged 18–65 years (inclusive)
3. Produces hard stools (BS1 and 2 stools) with a frequency of 50% or more during 2 weeks of screening data period (between V1 or Call 1, depending on if a washout period is required, and V2)
4. Produces hard stool with log-transformed TAXT median value of >4.5 (ln g) during 5 days of screening stool collection, this after the 2 weeks data collection determined in inclusion criteria 3
5. Is willing and able to collect every stool at home during 5 consecutive days and this 1 time during the screening period and 2 times during the treatment period, to store the samples in appropriate conditions and to return the samples within the required timeframe
6. Is willing and able to complete an electronic diary on an internet-connected device (smartphone, tablet, laptop,..) during the screening and treatment period in order to collect information about the form of the stools (based on the Bristol Stool Form Scale classification) and bowel habit
7. Prepared not to change the current drinking, eating, smoking and exercising habits during the course of the study
8. Understands the Dutch, French or English language (reading, writing, speaking)

### Participant type(s)
Healthy volunteer

### Healthy volunteers allowed
No

### Age group
Adult

### Lower age limit
18 Years

### Sex
All

### Total final enrolment
120

### Key exclusion criteria

1. Language barrier, mental or legal incapacity, unwillingness or inability to understand or not being able to participate in the study
2. Is vegetarian or vegan
3. Is treated (i.e., currently treated, treated within 1 month before screening) by a doctor for her /his constipation
4. Has any history of gastrointestinal surgery except for appendectomy
5. Has any history of chronic/severe gastrointestinal disorders
6. Females of child-bearing potential who are pregnant, breastfeeding or intend to become pregnant or are not using adequate contraceptive methods (e.g., oral contraceptive, intrauterine device, abstinence)
7. Is unable to refrain from or anticipates the use of antibiotics and/or laxatives
8. Has any history of drug and/or alcohol abuse
9. Has milk allergies
10. Is intolerant to lactose
11. Any clinically significant disease which in the Investigator's opinion could interfere with the safety of study participants or with the results of the study
12. Use of disallowed concomitant medications and concomitant products (see section 13) within 2 weeks before the start of screening data collection. If the subject takes any of these medications or products, a washout period of 2 weeks is needed (Optional call 1)
13. Cancer (past or present, except basal cell skin cancer or squamous cell skin cancer), which in the Investigator's opinion could interfere with the results of the study
14. Previous participation in this study. Participation is defined as screened. Re-screening is therefore not allowed
15. Participation in another interventional clinical study or receipt of any investigational product within 1 month before Visit 1

### Date of first enrolment
09/08/2021

### Date of final enrolment
06/05/2022

## Locations

### Countries of recruitment
Belgium

### Study participating centre
**KU Leuven**
Herestraat 49
Leuven
Belgium
3000

### Study participating centre
**SGS Belgium**
Lange Beeldekensstraat 267

Antwerp
Belgium
2060

**Study participating centre**
**AZ Sint-Maarten**
Liersesteenweg 435
Mechelen
Belgium
2800

**Study participating centre**
**Center of Investigation in Clinical Nutrition**
Rue du Maraton 3
Louvain-La-Neuve
Belgium
1348

# Sponsor information

**Organisation**
Yakult Honsha (Japan)

**ROR**
https://ror.org/03wmnrc91

**Organisation**
Yakult Honsha European Research Centre for Microbiology VOF

# Funder(s)

**Funder type**
Industry

**Funder Name**
Yakult Honsha Co., Ltd.

# Results and Publications

### Individual participant data (IPD) sharing plan
The datasets generated and/or analysed during the current study will be included in the subsequent results publication.

### IPD sharing plan summary
Other