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Decreasing consumption of sugar-sweetened beverages and raising tap water consumption through Interventions based on nutrition and sustainability for kids: the DRINK study

Submission date
25/05/2021

Recruitment status
No longer recruiting

Registration date
24/06/2021

Overall study status
Completed

Last Edited
10/10/2025

Condition category
Other

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

Plain English summary of protocol
Background and study aims.
Regular sugar-sweetened beverage (SSB) consumption is at the top of the alarming dietary habits worldwide due to its well-established association with weight gain, obesity and dental caries in children. Although various environmental interventions, mainly focusing on nutritional and health components, have been implemented, the effectiveness of actions to reduce the consumption of sweetened beverage (SB) and the methods for evaluating them need to be improved. Furthermore, in a context of growing awareness of the need to rethink sustainable food systems, little is known about sustainability-focused interventions to positively address children's behavior including beverage consumption. The objective of this cluster randomized controlled trial is to evaluate the long-term effectiveness of nutrition- and sustainability-based interventions on the reduction in SB intake and on the increase in tap water consumption in primary grade children.

Who can participate?
French-speaking Belgian primary schools will be randomized using a factorial plan, in four groups: one nutrition-based, one sustainability-based and one both-based intervention group along with one control without intervention. The estimated sample to include is of 48 schools for a total of 3.500 pupils followed-up over two years.

What does the study involve?
The study will be conducted over two school years, with interventions implemented at the beginning of the year, i.e. October 2021 and 2022. Interventions will include an information meeting for the school staff, parents, and children, and conducted by dietitians; an encouragement to teachers to include "water breaks" using tap water during the school day; posters and flyers and provision of reusable cups and glass bottles. The distinction between intervention groups will be made through the nature of the information and documents given (nutrition based and/or sustainability based). Before (June 2021) and after each intervention period (June 2022 and 2023), children and schools will be evaluated through various

questionnaires and audit, respectively.
The main quantitative judgement criterion will be the change over time in mean SB consumption in the intervention group in comparison with the control group. The daily mean children's SB consumption will be estimated through an auto-administered 4-day diary, before and after each intervention period. The measurement error in beverage intake will be taken into account through an internal calibration study in a subset of 130 participants. Other nutrition-related behaviors and wellbeing, perception of environmental risks and related behaviors, and socioeconomic characteristics will be collected among children and their parents. A repeated audit will be carried out in all the selected schools in order to assess the process by which interventions are effective or not. Within the project, a qualitative work based on behavioral theories will be developed. It aims at identifying barriers and enablers in the transmission of health-related messages coming from the school environment to the children's caregivers. At last, the total cost of interventions will be monitored to support decision-makers who would like to generalize the interventions in schools under their authority.

What are the possible benefits and risks of participating?
For the schools included in an intervention group, pupils, parents and school staff will benefit from nutritional and/or environmental information, targeted information materials, and a continuous support through the provision of materials. By taking part in this study there are no risks of physical or psychological injury or harm.

Where is the study run from?
The DRINK study is being run by the School of Public Health of the Université libre de Bruxelles (Belgium)

When is the study starting and how long is it expected to run for?
April 2021 to December 2023

Who is funding the study?
Fonds de la Recherche Scientifique (FNRS) (Belgium)

Who is the main contact?
Prof. Katia Castetbon, katia.castebon@ulb.be

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
FNRS, Projet de recherche: T.0032.21 (Ref. e-space : 40003510)

Study information

Scientific Title
Cluster randomized controlled trial of nutrition- and sustainability-based interventions aimed at reducing the consumption of sweetened beverages and at increasing the consumption of tap water in primary school children in French-speaking Belgium

Acronym
DRINK

Study objectives
Nutrition- and sustainability-based interventions towards primary-school children in French-speaking Belgium can be effective in the long term to reduce the consumption of sugar-sweetened beverages and increase the consumption of tap water.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 05/04/2021, Ethics Advisory Committee of the Faculty of Psychology and Education (Université libre de Bruxelles, Avenue Franklin D. Roosevelt 50, CP 135, 1050 Brussels, Belgium; no telephone number provided; Ethique.Psychologie@ulb.be), ref: 073/2021

Study design
Interventional cluster randomized controlled trial

Primary study design
Interventional

Study type(s)
Prevention

Health condition(s) or problem(s) studied

Prevention of non-communicable diseases due to high consumption of sugar-sweetened beverages in primary-school children

Interventions
The French-speaking Belgian primary schools are randomized in four groups using a factorial plan: (i) control; (ii) nutrition-based intervention; (iii) sustainability-based intervention; and (iv) both.
Interventions consist in meetings for the parents of the pupils and the school staff, in an encouragement to teachers to plan water breaks during school days, and in the provision of posters, flyers, reusable cups and glass bottle, in all schools included in the intervention groups. The interventions take place on 2021-2022 and 2022-2023 school years.

The schools included in the control group have no specific intervention.

All the included schools are aware of the arm of inclusion, the intervention being open due to its content.

Intervention Type
Behavioural

Primary outcome(s)
Daily mean sweetened beverage consumption estimated through a 4-day diary completed by children before the beginning of the interventions in Spring 2021, and at the end of each school year of intervention in Spring 2022 and 2023

Key secondary outcome(s))
1. Potential interactions between nutrition- and sustainability-based information provided within the interventions; measured by the factorial plan at baseline, 12 and 24 months
2. Individual and family moderators in the intervention effectiveness; measured by auto-administrated questionnaires for children and parents at baseline, 12 and 24 months
3. School staff adherence to the set of interventions; measured with the identification of obstacles and facilitators in the implementation of the interventions through audits and qualitative interviews at baseline and 24 months
4. Total cost of the interventions; measures by monitoring of the project and audits of the schools at the end of the study

Completion date
21/12/2023

Eligibility

Key inclusion criteria
French-speaking regular primary schools in Wallonia and Brussels; pupils from 3rd to 5th grade at the time of the first assessment (Spring 2021)

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Child

Sex
All

Key exclusion criteria
Pupils whose parents have refused them to fill the questionnaires and the 4-day diary (or who have refused themselves). To note, the intervention being set at cluster level, all pupils are exposed.

Date of first enrolment
22/04/2021

Date of final enrolment
21/10/2021

Locations

Countries of recruitment
Belgium

Study participating centre
Université libre de Bruxelles
Research Center in Epidemiology, Biostatistics and Clinical Research
School of Public Health
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Sponsor information

Organisation
Université Libre de Bruxelles

ROR
https://ror.org/01r9htc13

Funder(s)

Funder type
Government

Funder Name
Fonds De La Recherche Scientifique - FNRS

Alternative Name(s)
Belgian National Fund for Scientific Research, F.R.S. - FNRS, Fund for Scientific Research - FNRS, Fund for Scientific Research (F.R.S.–FNRS), FNRS

Funding Body Type
Government organisation

Funding Body Subtype
Local government

Location
Belgium

Funder Name
Université Libre de Bruxelles

Alternative Name(s)
ULB

Funding Body Type
Private sector organisation

Funding Body Subtype
Universities (academic only)

Location
Belgium

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.
Name and email: Pr. Katia Castetbon, katia.castetbon@ulb.be
Type of data: individual de-indentified and raw data
Available from 2022 and for 10 years
Access criteria: data available only upon reasonable request by public research organizations in Belgium, subject to scientific relevance and an agreement signed between the organization and the Université libre de Bruxelles. This agreement will govern the conditions of use of these data in collaboration with the research team.
Consent from participants: given the nature of the data collected, the anonymous and confidential nature of the data collection, and the nature of the interventions conducted

collectively at the school level, in an open-ended manner, and comparable to traditional school-based health promotion interventions, parents may refuse the participation of their child with a refusal form given along with an information letter. Moreover, participants (students, parents) may refuse to complete the proposed questionnaires. An internal calibration study is additionnally conducted among 130 pupils (recruitment in progress), for whom an active consent by parents is collected.
Data anonymisation: The only re-identifiable data is the month and year of birth of the pupil, which are requested in the self-administered questionnaire, in order to perform analyses by age group. At the end of the collection, the link between the individual data and the name of the school will be removed, in order to make the database available to the research team completely anonymous. The telephone interviews for the 24-hour recalls required by the calibration substudy among 130 students requires a list of selected pupils in a few selected schools, with their first and last names and telephone number or e-mail adress . At the end of this collection phase, these identifiers will also be destroyed at the level of the research team and the dieticians who conducted the 24-hour recalls.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol article		26/09/2023	27/09/2023	Yes	No
Interim results article	Baseline assessment	09/10/2025	10/10/2025	Yes	No