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Food Stop: a population-based randomised trial assessing child and adult snack food intake in response to manipulated food quantity and snack box size

Submission date
27/04/2017

Recruitment status
No longer recruiting

Registration date
16/05/2017

Overall study status
Completed

Last Edited
29/10/2020

Condition category
Nutritional, Metabolic, Endocrine

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Eating high-calorie snack foods can lead to obesity. The number of snack food portions and the dishware that snack foods are presented in could be changed to reduce over-consumption. This study is designed to measure the snacking behaviours of 11-12-year-old Australian children and their midlife parents. In doing so, the aim is to collect data that could be used to improve obesity interventions for the whole population. In particular, the aim is to measure how children and adults eat in response to excess snack foods and how this behaviour might be changed by different snack box sizes.

Who can participate?
Children (age range 11-12) and their midlife parents from the B-cohort of the Longitudinal Study of Australian Children (LSAC)

What does the study involve?
Each child and one parent attend an Assessment Centre moves around Australia; here they complete a circuit of 17 15-minute health assessment stations (e.g. dental, bone, heart health assessments), of which this study is one station. Upon arriving at the station, participants receive one of four pre-packaged snack boxes, randomly allocated by day of participation, so that the child and their parent receive the same type of snack box but participate separately.
1. Small number of snack food portions in a small snack box
2. Small number of snack food portions in a large snack box
3. Large number of snack food portions in a small snack box
4. Large number of snack food portions in a large snack box
Participants are told that they have a 15-minute break before their next physical health assessment. At the end of the 15-minute period, another researcher collects the participant and takes them to their next assessment. The leftover food is weighed with kitchen scales and the amount of total snack foods they have consumed is entered into a secure database.

What are the possible benefits and risks of participating?
There is no immediate benefit for participants, but the results may shape the design of future interventions to prevent childhood overeating and obesity. Participants are under no risk of mental or physical harm, and are asked to disclose any food allergies at the start of the study and those with food allergies do not participate.

Where is the study run from?
The study team is based at the Murdoch Childrens Research Institute in Melbourne, Australia. The mobile Assessment Centre moved around the following Australian cities for data collection: Melbourne, Canberra, Sydney, Brisbane, Adelaide and Perth.

When is the study starting and how long is it expected to run for?
February 2015 to January 2016

Who is funding the study?
1. Australian National Health and Medical Research Council (NHMRC) (Australia)
2. National Heart Foundation of Australia (Australia)
3. Murdoch Childrens Research Institute (Australia)

Who is this main contact?
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Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
N/A

Study information

Scientific Title
Child and adult snack food intake in response to manipulated food quantity and snack box size: population-based randomised trial

Acronym
Food Stop

Study objectives
Participants will consume more snack foods when:
1. Provided with more (vs. less) snack food portions
2. The snack foods are presented in a large (vs. small) snack box

The trial will also explore:
1. Whether snack box size and number of portions interact to predict consumption
2. Whether the obtained effects are similar among 11-12-year-old children and mid-life adults (who are the child's parent)

Ethics approval required
Old ethics approval format

Ethics approval(s)
1. The Royal Children's Hospital (RCH) Ethics Committee, 21/11/2014, ref: 33225D
2. Australian Institute of Family Studies (AIFS) Ethics Committee, 12/12/2014, ref: 14-26

Study design
Cross-sectional randomised controlled trial

Primary study design
Interventional

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Overconsumption of energy-dense snack foods

Interventions
This cross-sectional randomised controlled trial (RCT) took place within the Child Health CheckPoint (CheckPoint), nested within the established population-representative birth-cohort The Longitudinal Study of Australian Children (LSAC). CheckPoint (conducted in 2015) was a cross-sectional physical and biomarkers module that was nested between the sixth (2014) and seventh (2016) waves of LSAC for the B-cohort of children. Each child and one parent attended an Assessment Centre that moved around Australia; here they completed a circuit of 17 15-minute health assessment stations (e.g. dental, bone, heart health assessments), of which the Food Stop study was one station. Because Food Stop was only included at the larger/main centres throughout Australia, ≈1300 families participated in Food Stop.

This intervention tested the effect of manipulating snack box size and number of snack box portions on the snack food intake of 11-12-year-old children and mid-life adults.

Each study child and their parent independently attended the Food Stop for a 15-minute break from the other physical health assessments that were occurring within the CheckPoint Assessment Centre.

Participants were randomly allocated to one of four experimental conditions (NB: random assignment was by day of participation, therefore the study child and their parent were assigned to the same condition, but participated separately to one another):
Condition 1 (control): Small number of snack food portions, small snack box (18.0cm x 12.0cm x 5.0cm; volume 1080cm3)
Condition 2: Small number of snack food portions, large snack box (19.5cm x 14.0cm x 56.5cm; volume 1774.5cm3)
Condition 3: Large number of snack food portions, small snack box (18.0cm x 12.0cm x 5.0cm; volume 1080cm3)
Condition 4: Large number of snack food portions, large snack box (19.5cm x 14.0cm x 56.5cm; volume 1774.5cm3)

The random assignment schedule was generated by an independent statistician by day of participation in blocks of four for each assessment centre location. Therefore, all participants who participated in Food Stop on the same day were assigned to the same condition.

Upon arriving at the Food Stop, participants were provided with one of these pre-packaged snack boxes and told that they had a 15-minute break before their next physical health assessment. At any stage, there could be a minimum of one participant and a maximum of four participants together at Food Stop. At the end of the 15-minute period, another researcher collected the participant and took them to their next assessment.

At the end of each assessment day, another researcher (not from Food Stop) collected the snack boxes and recorded whether each snack food item had been unopened, partially or fully eaten. Food scales/balance (BSK500BSS) were used to weigh leftover items and were sensitive to the nearest 1 gram. This remaining weight (grams) of partially eaten items was recorded so that we could calculate total grams and kilojoules consumed as:
Item grams consumed = unopened item grams – item gram remaining
Total grams consumed = sum of all item grams consumed
Item kilojoules consumed = (item grams consumed / unopened item grams) x item total kilojoules
Total kilojoules consumed = sum of all item kilojoules consumed

The previously calculated ‘item grams’ and ‘total grams’ were then used to calculate the nutrients per item and in total. On the back of the item packaging, each item had listed its total number of kilojoules (kj), protein (g), total fat (g), saturated fat (g), carbohydrate (g), sugar (g) and sodium (mg). These listed values were multiplied by the proportion of the item consumed by participants (e.g. item sugar = (grams of item consumed/total grams of unopened item) x total grams of sugar listed for the unopened item). Once this calculation was completed for all food items, the items were summed to generate total values (e.g. total sugar consumed).

Intervention Type
Other

Primary outcome(s)
Grams and kilojoules of snack foods consumed during a standardised 15-minute period, measured by weighing leftover items using food scales/balance (BSK500BSS)

Key secondary outcome(s))
Total sugar (g), fat (g), saturated fat (g), protein (g), carbohydrate (g), and sodium (mg) consumed during a standardised 15-minute period, measured by weighing leftover items using food scales/balance (BSK500BSS)

Completion date
23/01/2016

Eligibility

Key inclusion criteria
Food Stop was part of the Child Health CheckPoint (CheckPoint), which was nested within the Birth-cohort (B-cohort) of the Longitudinal Study of Australian Children (LSAC). LSAC is the only nationally-representative children's longitudinal study in Australia. The study involves biennial data collection waves from two cohorts (B- and K-cohorts) of population-representative children and their parents. The CheckPoint study only recruited those children (age range 11-12) and their midlife parents from LSAC's B-cohort who agreed to be contacted by the CheckPoint team (n=3513). Of the 3513 families that were invited to participate in CheckPoint, 1874 child-parent dyads took part in CheckPoint throughout Australia.

Participant type(s)
All

Healthy volunteers allowed
No

Age group
Mixed

Sex
All

Total final enrolment
1874

Key exclusion criteria
If the participant had a food allergy they did not participate in Food Stop

Date of first enrolment
01/12/2014

Date of final enrolment
23/01/2016

Locations

Countries of recruitment
Australia

Study participating centre
CheckPoint Melbourne Assessment Centre
Australia
3207

Study participating centre
CheckPoint Queanbeyan/Canberra Assessment Centre
Australia
2620

Study participating centre
CheckPoint Sydney Assessment Centre
Australia
2006

Study participating centre
CheckPoint Brisbane Assessment Centre
Australia
4101

Study participating centre
CheckPoint Adelaide Assessment Centre
Australia
5000

Study participating centre
CheckPoint Perth Assessment Centre
Australia
6150

Sponsor information

Organisation
Murdoch Childrens Research Institute

ROR
https://ror.org/048fyec77

Funder(s)

Funder type
Research council

Funder Name
National Health and Medical Research Council (1041352, 1109355)

Alternative Name(s)
National Health and Medical Research Council, Australian Government, NHMRC National Health and Medical Research Council, NHMRC

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
Australia

Funder Name
National Heart Foundation of Australia (100660)

Alternative Name(s)
Heart Foundation

Funding Body Type
Private sector organisation

Funding Body Subtype
Trusts, charities, foundations (both public and private)

Location
Australia

Funder Name
Murdoch Childrens Research Institute

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study will be stored in a publically available repository and will be available for use from December 2017 (repository name: Longitudinal Study of Australian Children; http://growingupinaustralia.gov.au/data/dataaccess.html).

IPD sharing plan summary

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/10/2019	28/01/2020	Yes	No
Results article	results	04/07/2019	29/10/2020	Yes	No
Participant information sheet		28/04/2017	16/05/2017	No	Yes