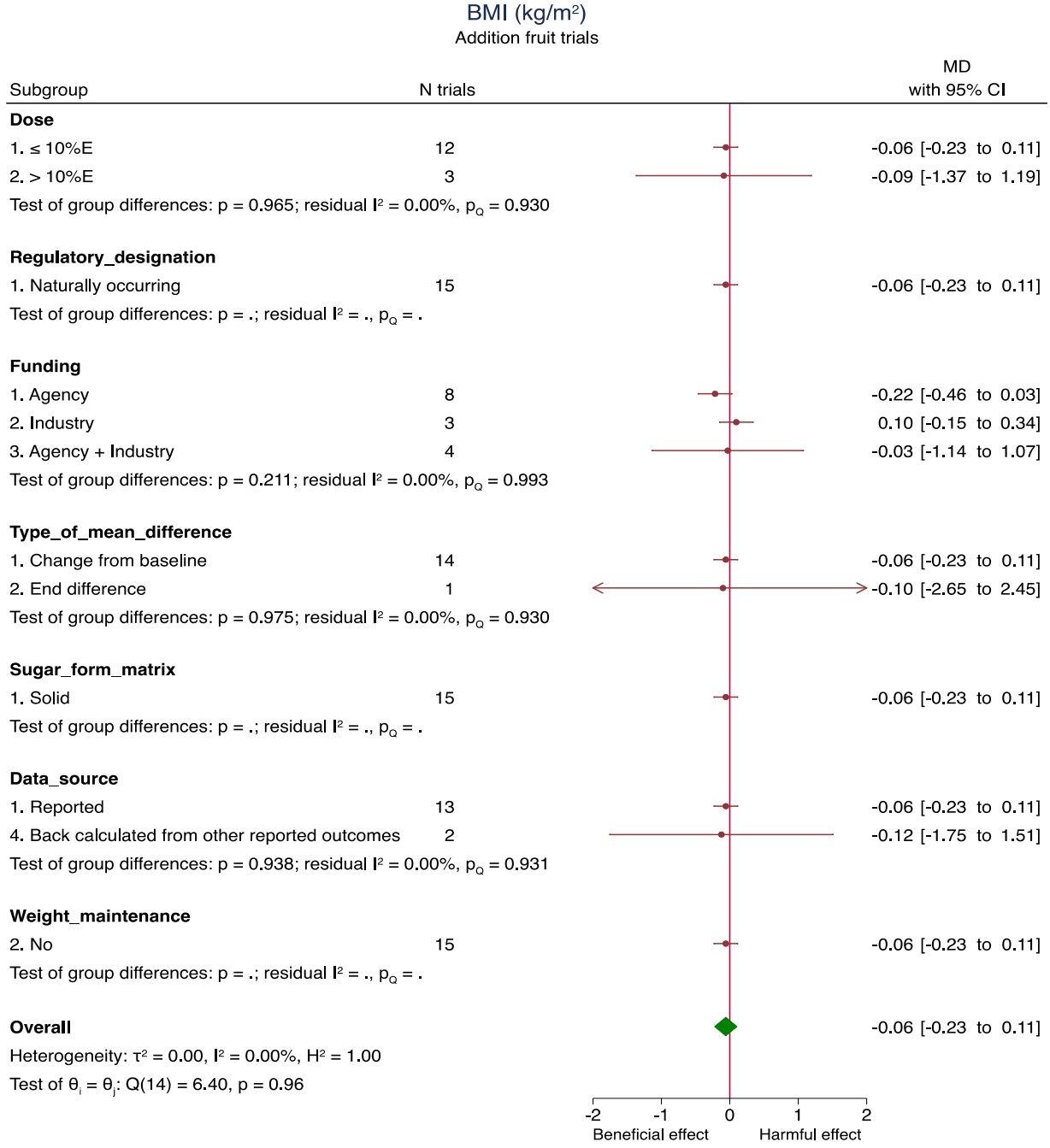
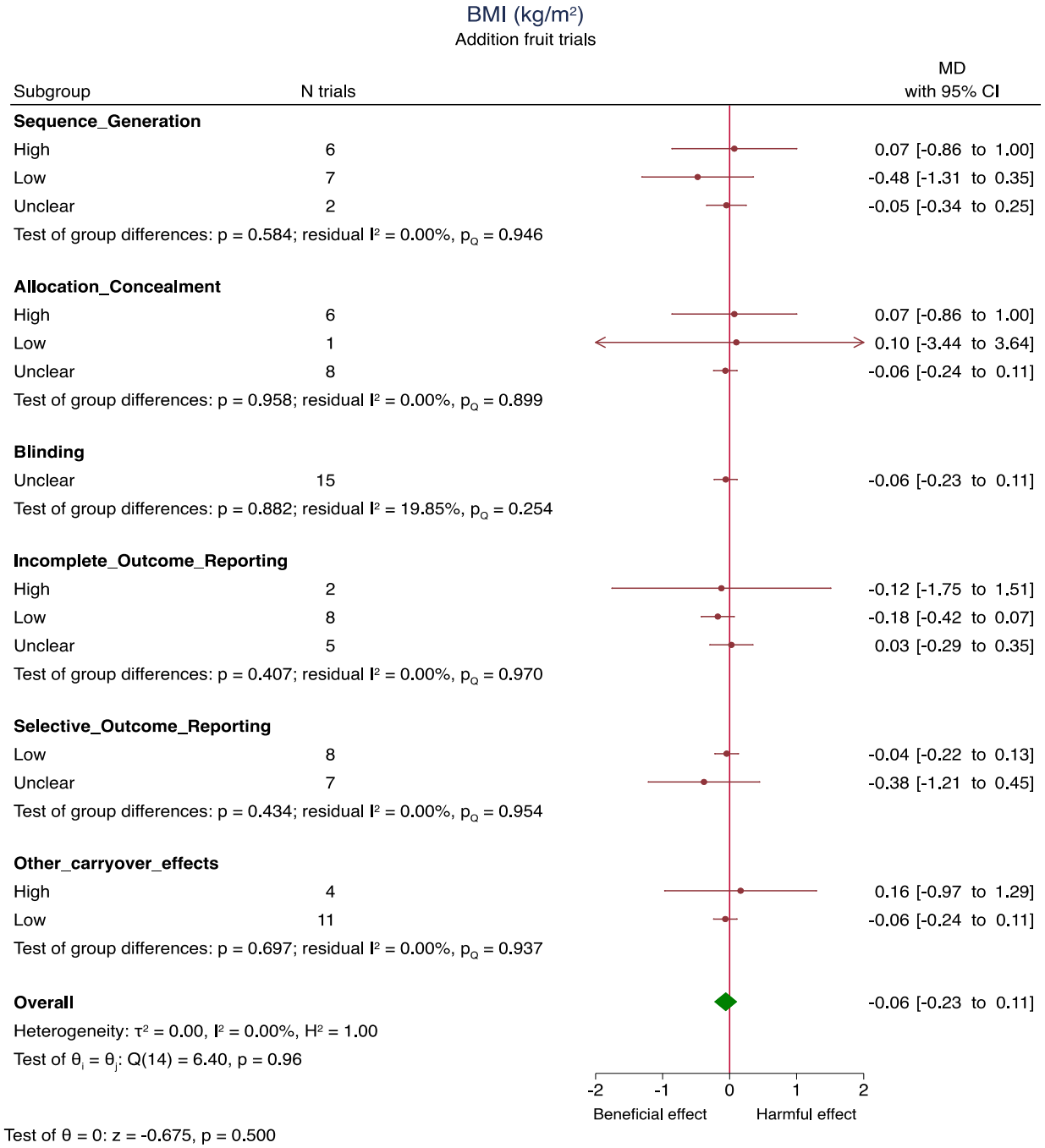
Supplementary Figure 198 (3 of 3): Subgroup analyses for the effect of fruit on BMI (kg/m^2) in addition trials



Test of θ = 0: z = -1.839, p = 0.066

The green diamond represents the pooled estimate for the overall primary analysis of food sources of fructose-containing sugars. Within subgroup mean differences are the pooled effect estimates represented by a red circle. 95% confidence intervals are represented by the line through the circle. Data are expressed as mean differences with 95% confidence intervals using the generic inverse-variance method and random effects DerSimonian-Laird model. Inter-study heterogeneity was assessed using the Cochrane Q statistic and quantified using the I^2 statistic, with significance set at $p<0.100$ and $I^2 \geq 50\%$ considered to be evidence of substantial heterogeneity. $p<0.050$ indicates that the effect size differed between levels of the subgroup.
BMI=body mass index; CI=confidence interval; %E=percentage of total energy intake; MD=mean difference.

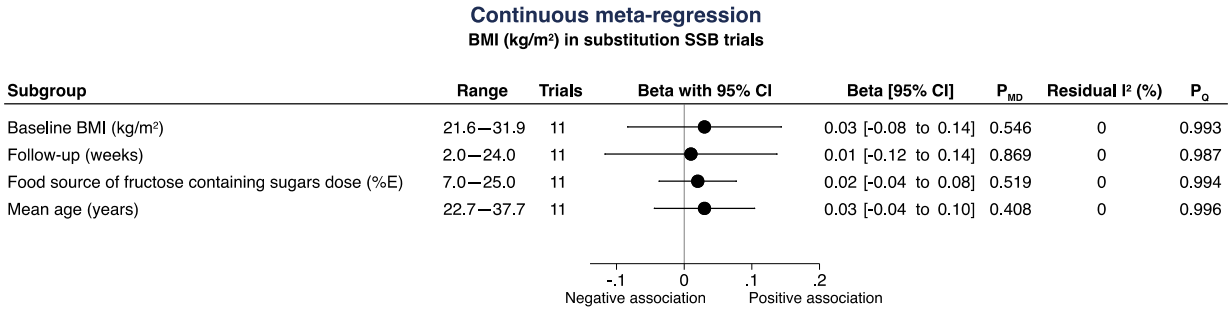
Supplementary Figure 199: Risk of Bias (using The Cochrane Collaboration Tool) subgroup analysis for the effect of fruit on BMI (kg/m^2) in addition trials



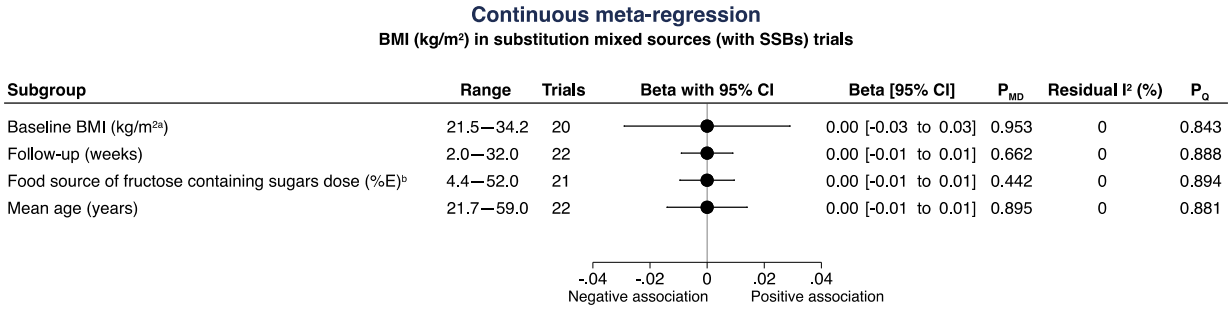
The green diamond represents the pooled estimate for the overall primary analysis of food sources of fructose-containing sugars. Within subgroup mean differences are the pooled effect estimates represented by a red circle. 95% confidence intervals are represented by the line through the circle. Data are expressed as mean differences with 95% confidence intervals using the generic inverse-variance method and random effects DerSimonian-Laird model. Inter-study heterogeneity was assessed using the Cochrane Q statistic and quantified using the I^2 statistic, with significance set at $p<0.100$ and $I^2 \geq 50\%$ considered to be evidence of substantial heterogeneity. $p<0.050$ indicates that the effect size differed between levels of the subgroup.
BMI=body mass index; CI=confidence interval; MD=mean difference.

Supplementary Figure 200: Continuous meta-regression analysis for the effect of important food sources of fructose-containing sugars and BMI (kg/m^2) in substitution trials by food source

A



B



Data is presented as between group mean difference (95% confidence intervals) for a 1-unit change in the predictor variable. ß–coefficients were estimated using continuous meta-regression analysis. A positive ß-coefficient implies an increase in BMI (kg/m2) with the food source of fructose-containing sugars intervention as the subgroup variable increases, and a negative ß-coefficient implies a decrease in BMI. Residual I^2 reports inter-study heterogeneity not explained by the subgroup and was estimated using the Cochrane Q statistic.

[a]N=2 trials missing data for baseline BMI

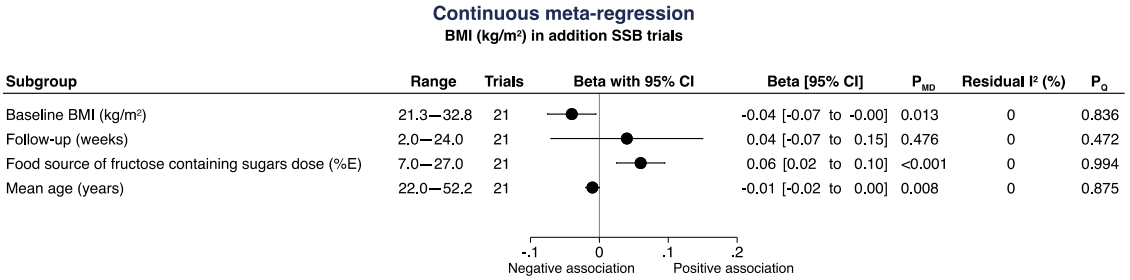
[b]N=1 trials missing data for food source of fructose containing sugars dose

Panel A: SSBs; B: mixed sources (with SSBs).

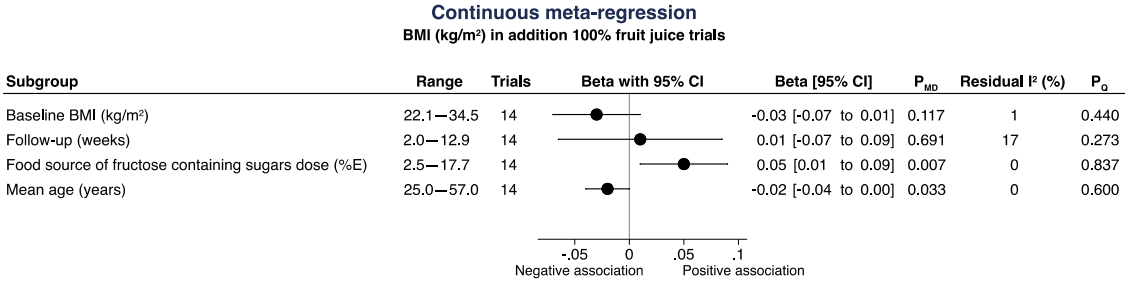
CI=confidence interval; %E=percentage of total energy intake; MD=mean difference; SSBs=sugar-sweetened beverages.

Supplementary Figure 201: Continuous meta-regression analysis for the effect of important food sources of fructose-containing sugars and BMI (kg/m^2) in addition trials by food source

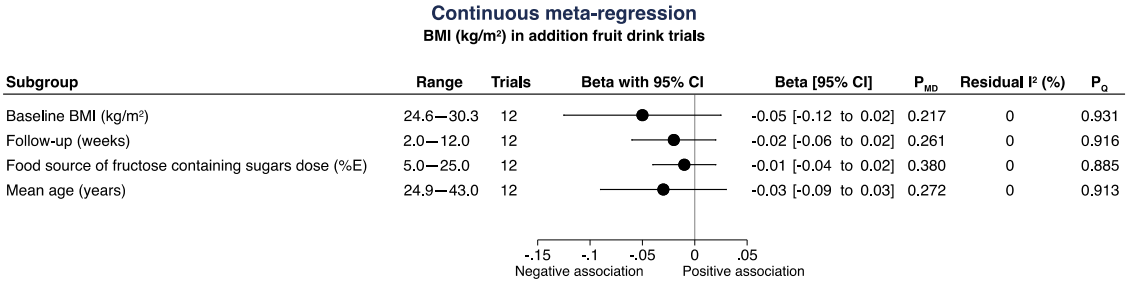
A



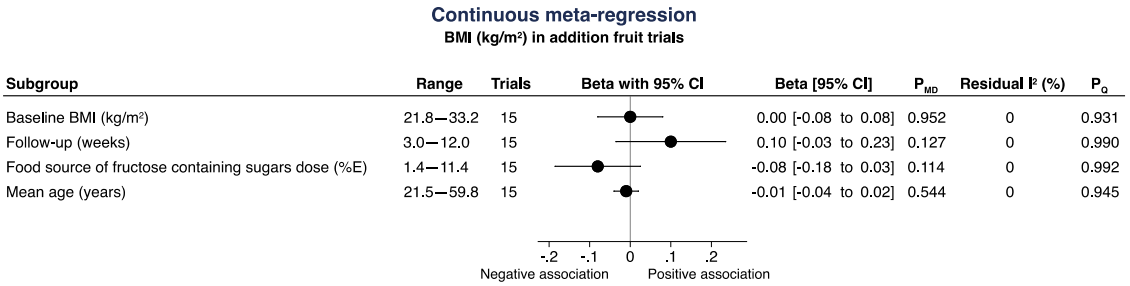
B



C

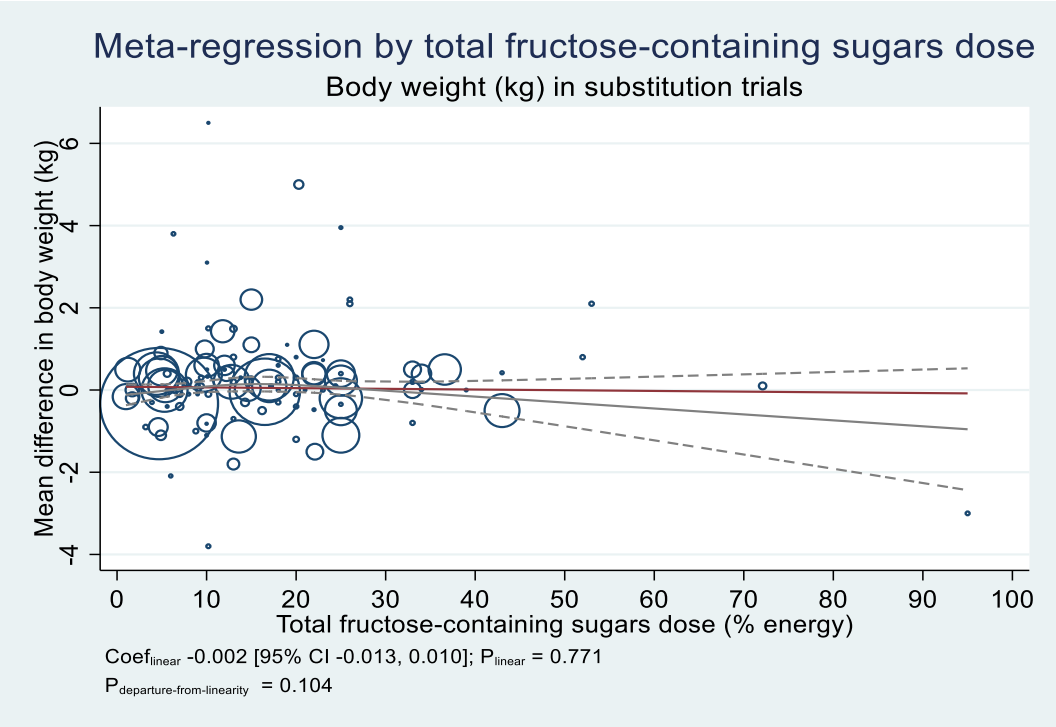


D



Data is presented as between group mean difference (95% confidence intervals) for a 1-unit change in the predictor variable. ß–coefficients were estimated using continuous meta-regression analysis. A positive ß-coefficient implies an increase in BMI (kg/m2) with the food source of fructose-containing sugars intervention as the subgroup variable increases, and a negative ß-coefficient implies a decrease in uric acid. Residual I^2 reports inter-study heterogeneity not explained by the subgroup and was estimated using the Cochrane Q statistic.
Panel A: SSBs; B: 100% fruit juice; C: fruit drink; D: fruit.
BMI=body mass index; CI=confidence interval; %E=percentage of total energy intake; MD=mean difference; SSB=sugars-sweetened beverage.

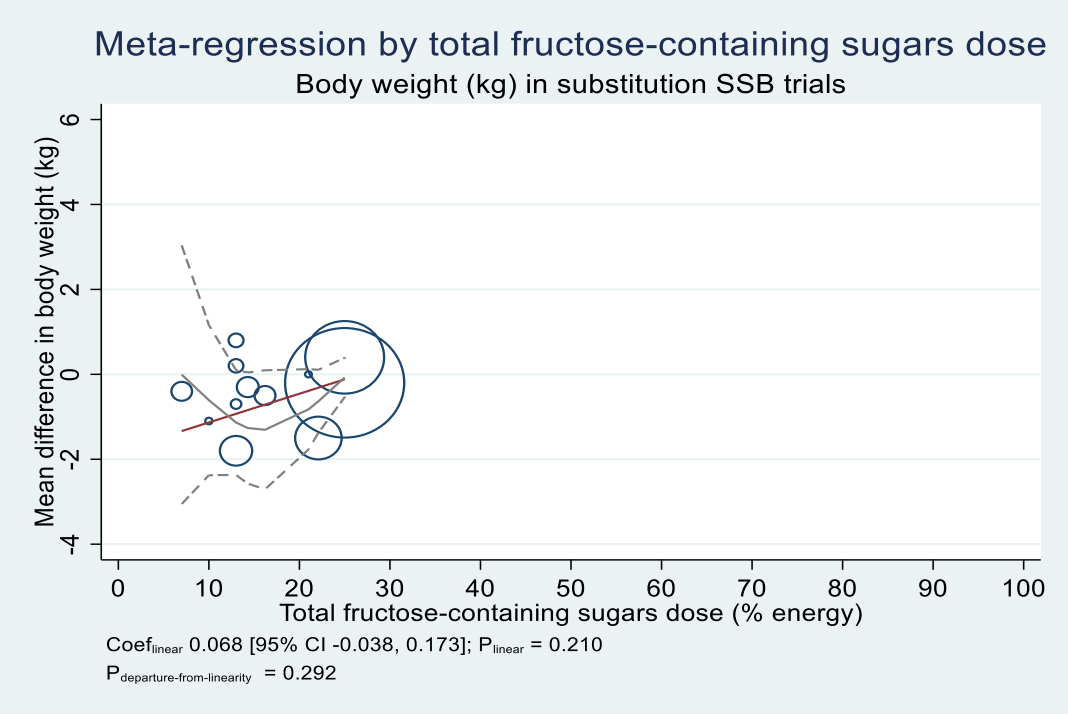
Supplementary Figure 202: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose on body weight (kg) in substitution trials



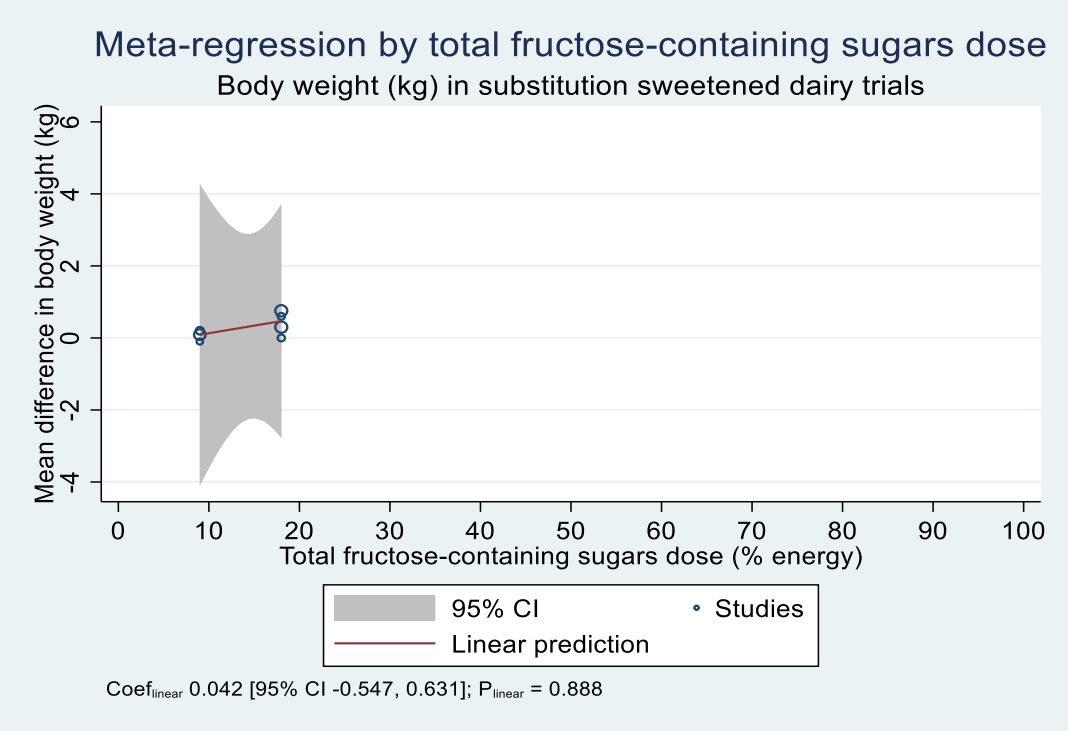
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
CI=confidence interval; Coef=coefficient.

Supplementary Figure 203: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars on body weight (kg) in substitution trials by food source

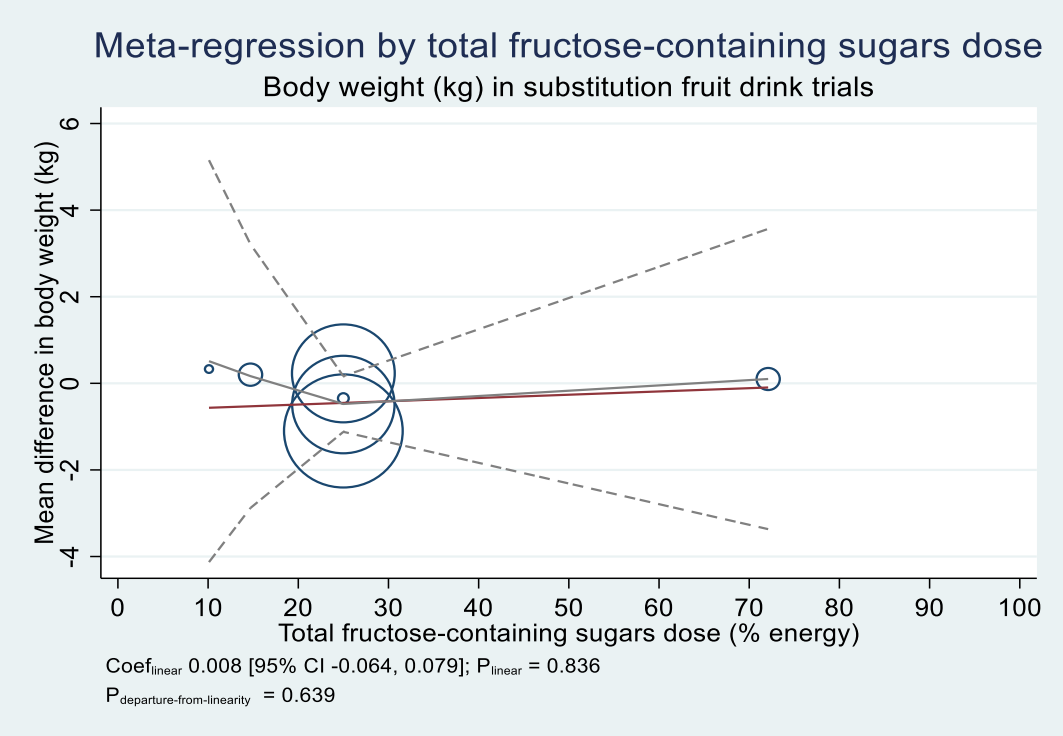
A



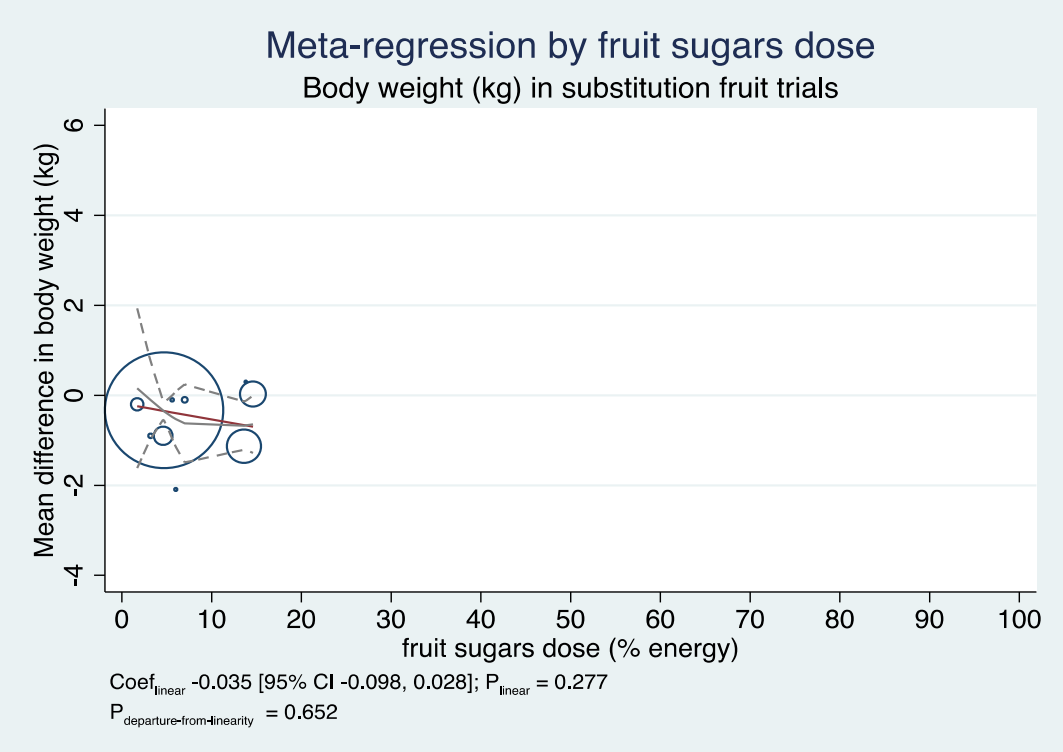
B



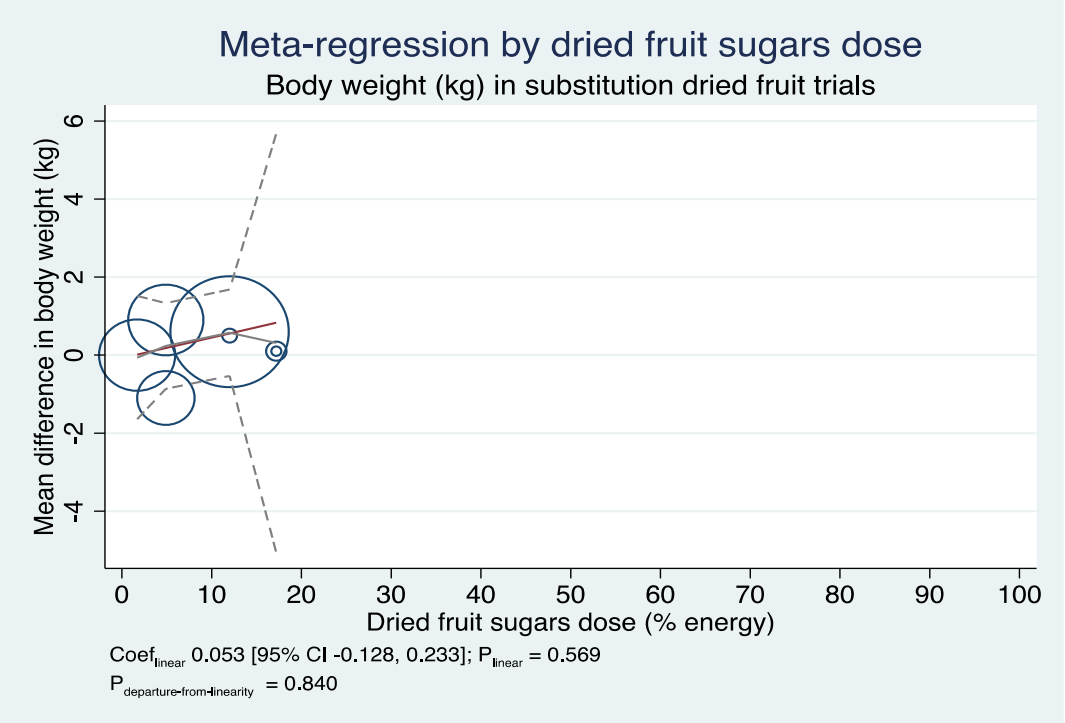
C


Meta-regression by total fructose-containing sugars dose
Body weight (kg) in substitution fruit drink trials
Mean difference in body weight (kg)
-4
-2
0
2
4
6
0
10
20
30
40
50
60
70
80
90
100
Total fructose-containing sugars dose (% energy)
Coef linear 0.008 [95% CI -0.064, 0.079]; P linear = 0.836
P departure-from-linearity = 0.639

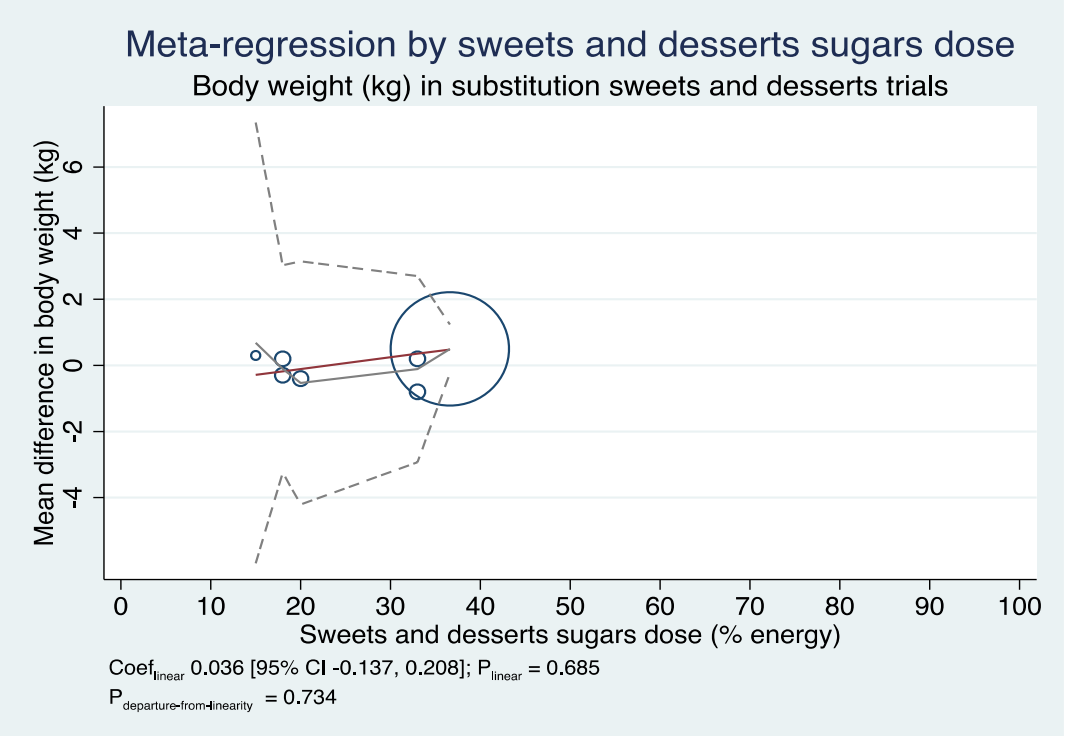
D


Meta-regression by fruit sugars dose
Body weight (kg) in substitution fruit trials
Mean difference in body weight (kg)
-4
-2
0
2
4
6
0
10
20
30
40
50
60
70
80
90
100
fruit sugars dose (% energy)
Coef linear -0.035 [95% CI -0.098, 0.028]; P linear = 0.277
P departure-from-linearity = 0.652

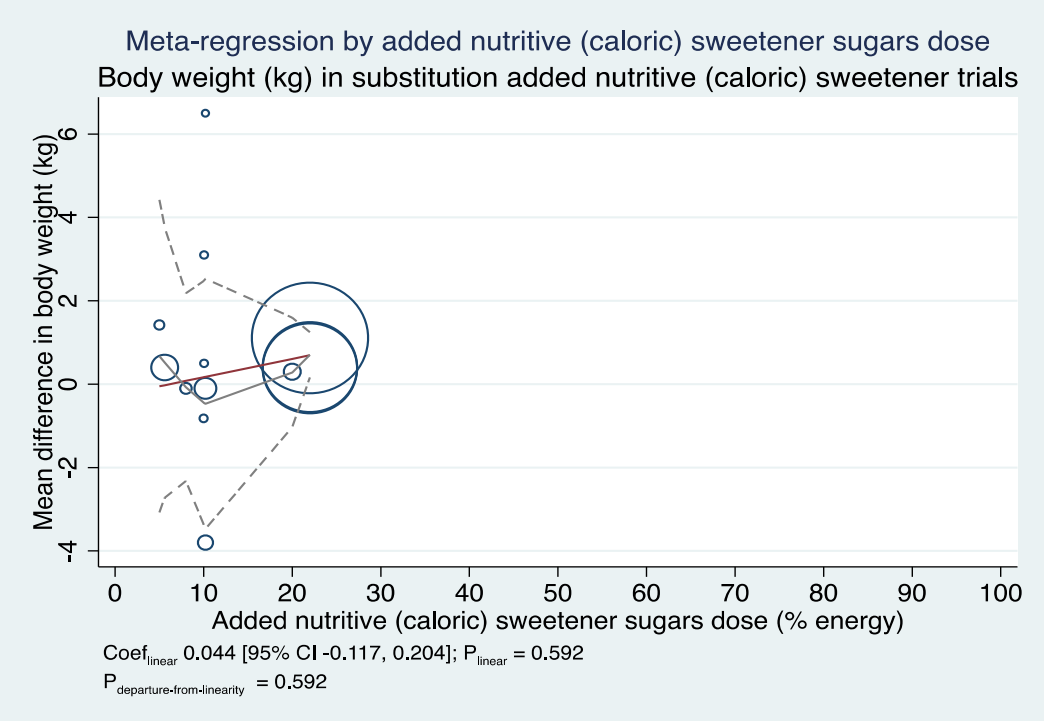
E


Meta-regression by dried fruit sugars dose
Body weight (kg) in substitution dried fruit trials
Mean difference in body weight (kg)
-4
-2
0
2
4
6
0
10
20
30
40
50
60
70
80
90
100
Dried fruit sugars dose (% energy)
Coef linear 0.053 [95% CI -0.128, 0.233]; P linear = 0.569
P departure-from-linearity = 0.840

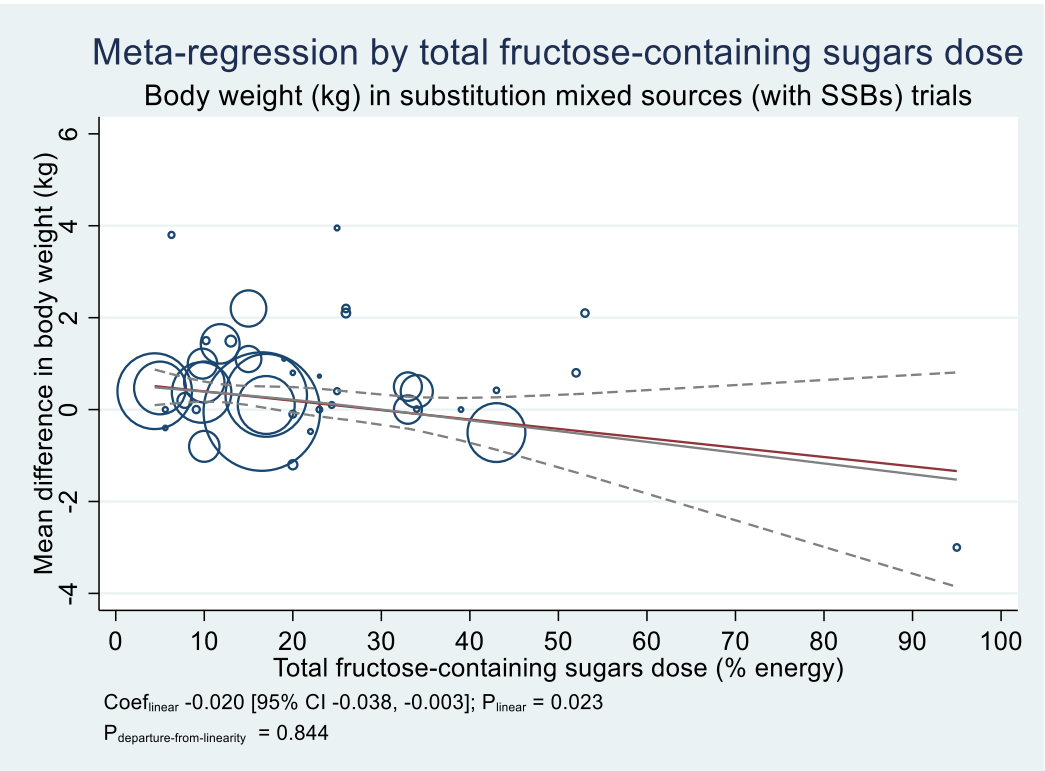
F


Meta-regression by sweets and desserts sugars dose
Body weight (kg) in substitution sweets and desserts trials
Mean difference in body weight (kg)
-4
-2
0
2
4
6
0
10
20
30
40
50
60
70
80
90
100
Sweets and desserts sugars dose (% energy)
Coef linear 0.036 [95% CI -0.137, 0.208]; P linear = 0.685
P departure-from-linearity = 0.734

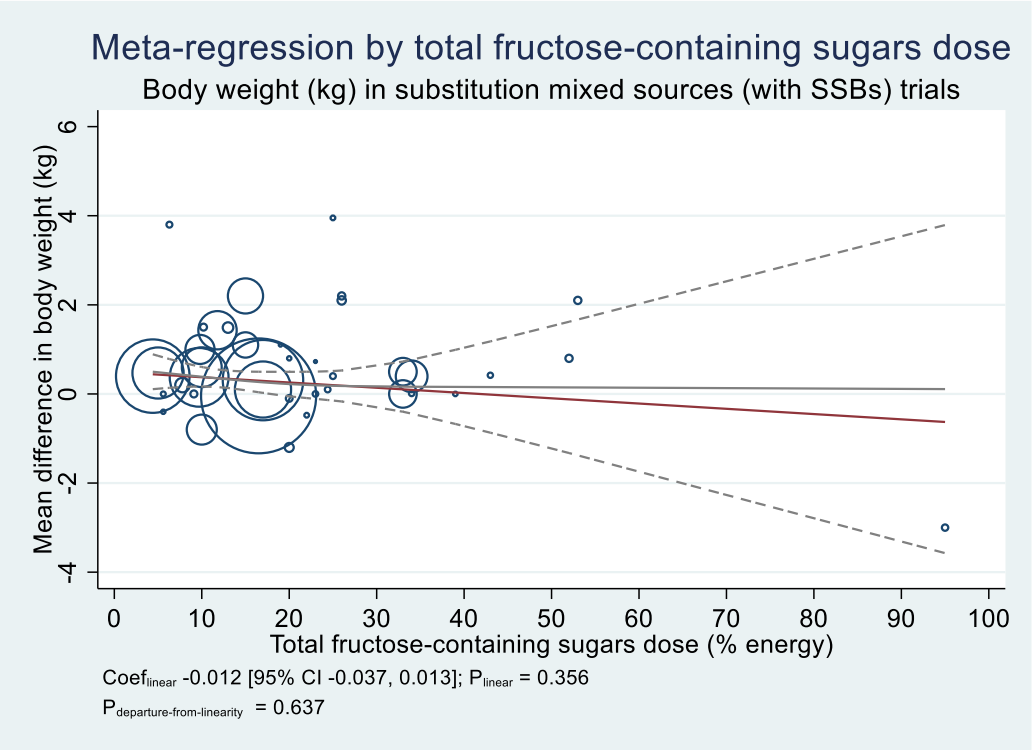
G


Meta-regression by added nutritive (caloric) sweetener sugars dose
Body weight (kg) in substitution added nutritive (caloric) sweetener trials
Mean difference in body weight (kg)
-4
-2
0
2
4
6
0
10
20
30
40
50
60
70
80
90
100
Added nutritive (caloric) sweetener sugars dose (% energy)
Coef$_{linear}$ 0.044 [95% CI -0.117, 0.204]; P$_{linear}$ = 0.592
P$_{departure\text{-}from\text{-}linearity}$ = 0.592

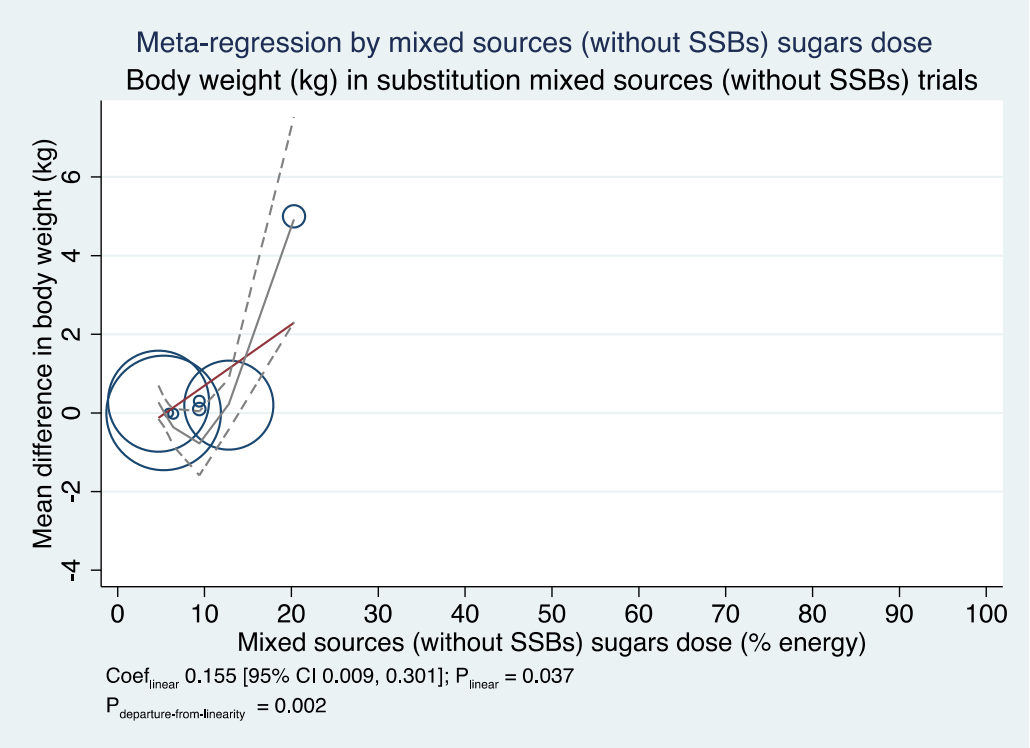
H


Meta-regression by total fructose-containing sugars dose
Body weight (kg) in substitution mixed sources (with SSBs) trials
Mean difference in body weight (kg)
-4
-2
0
2
4
6
0
10
20
30
40
50
60
70
80
90
100
Total fructose-containing sugars dose (% energy)
Coef$_{linear}$ -0.020 [95% CI -0.038, -0.003]; P$_{linear}$ = 0.023
P$_{departure\text{-}from\text{-}linearity}$ = 0.844

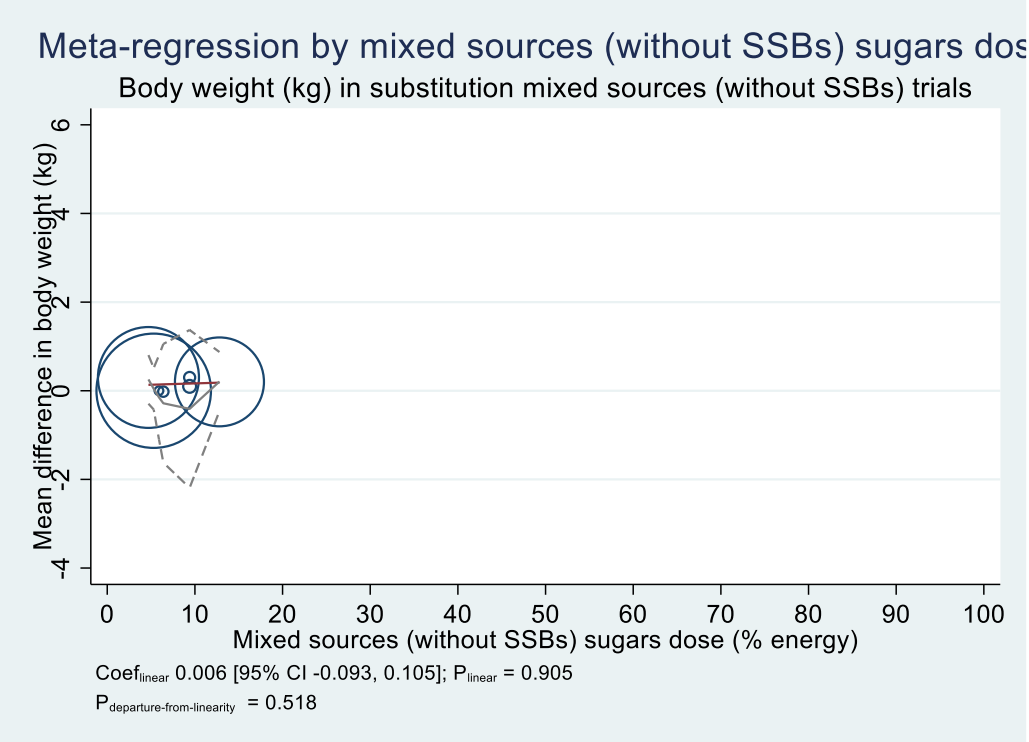
I


Meta-regression by total fructose-containing sugars dose
Body weight (kg) in substitution mixed sources (with SSBs) trials
Mean difference in body weight (kg)
-4
-2
0
2
4
6
0
10
20
30
40
50
60
70
80
90
100
Total fructose-containing sugars dose (% energy)
Coef linear -0.012 [95% CI -0.037, 0.013]; P linear = 0.356
P departure-from-linearity = 0.637

J


Meta-regression by mixed sources (without SSBs) sugars dose
Body weight (kg) in substitution mixed sources (without SSBs) trials
Mean difference in body weight (kg)
-4
-2
0
2
4
6
0
10
20
30
40
50
60
70
80
90
100
Mixed sources (without SSBs) sugars dose (% energy)
Coef linear 0.155 [95% CI 0.009, 0.301]; P linear = 0.037
P departure-from-linearity = 0.002

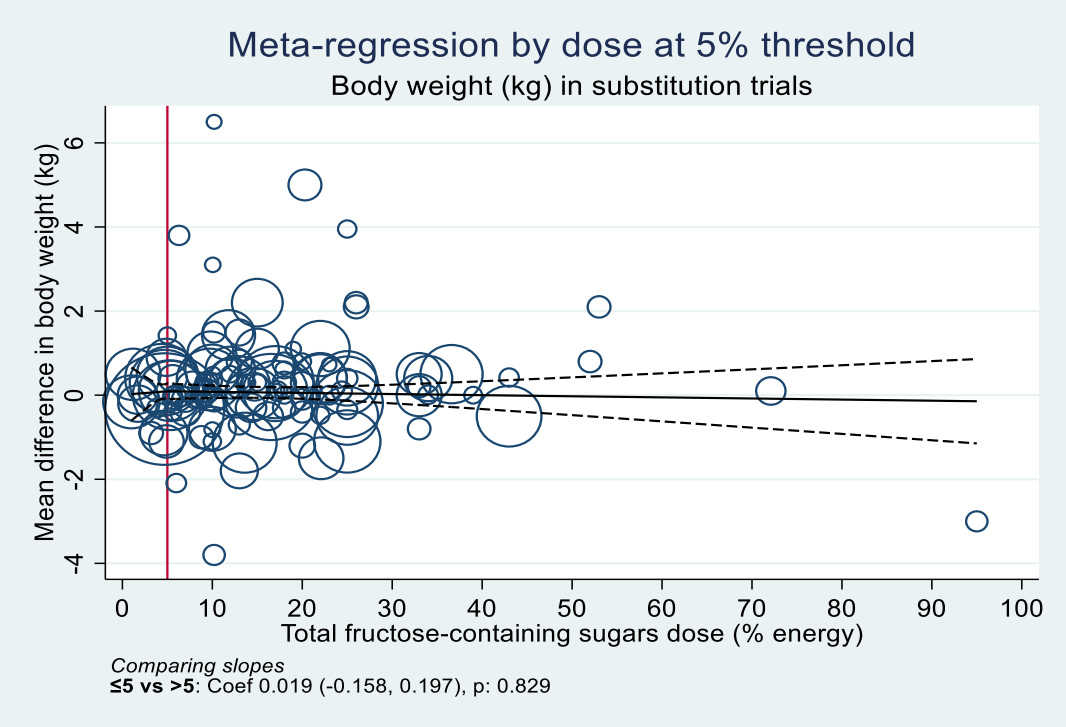
K



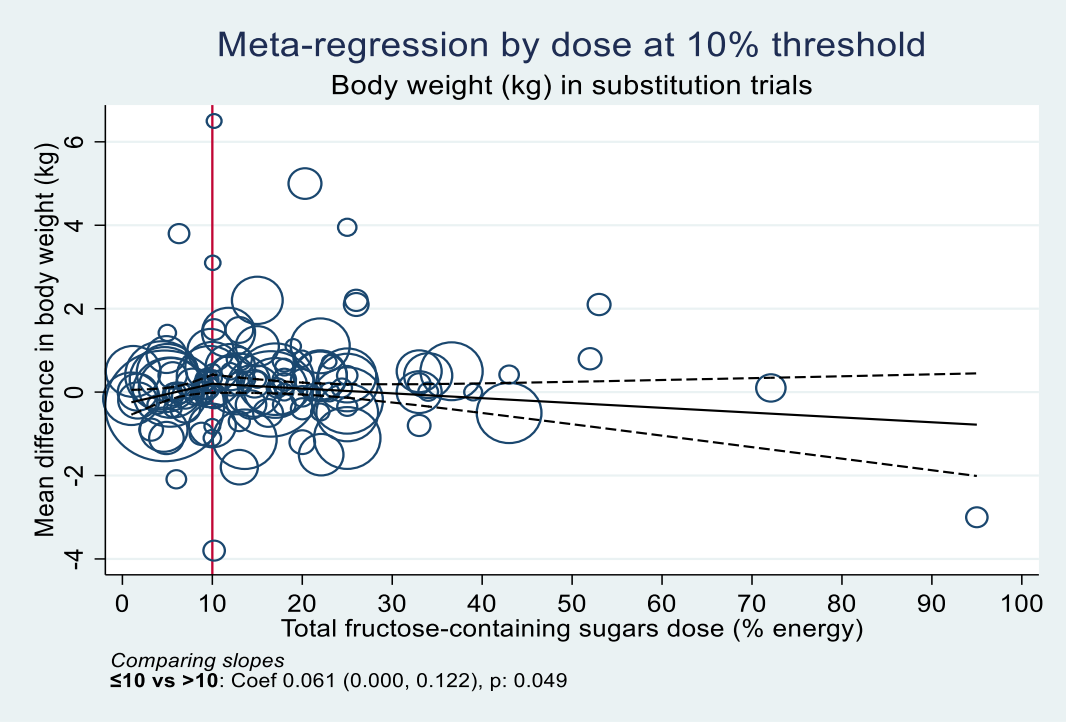
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
Panel A: SSBs; B: sweetened dairy (note: non-linear could not be performed due to too few doses); C: fruit drink; D: fruit; E: dried fruit; F: sweets and desserts; G: added nutritive (caloric) sweetener; H: mixed sources (with SSBs); I: mixed sources (with SSBs) with the outlier, Kuo et al. 1965, removed; J: mixed sources (without SSBs); K: mixed sources (without SSBs) with outlier, Goss et al. 2020, removed.
CI=confidence interval; Coef=coefficient; SSB=sugars-sweetened beverage.

Supplementary Figure 204: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of important food sources of fructose-containing sugars and body weight (kg) in substitution trials

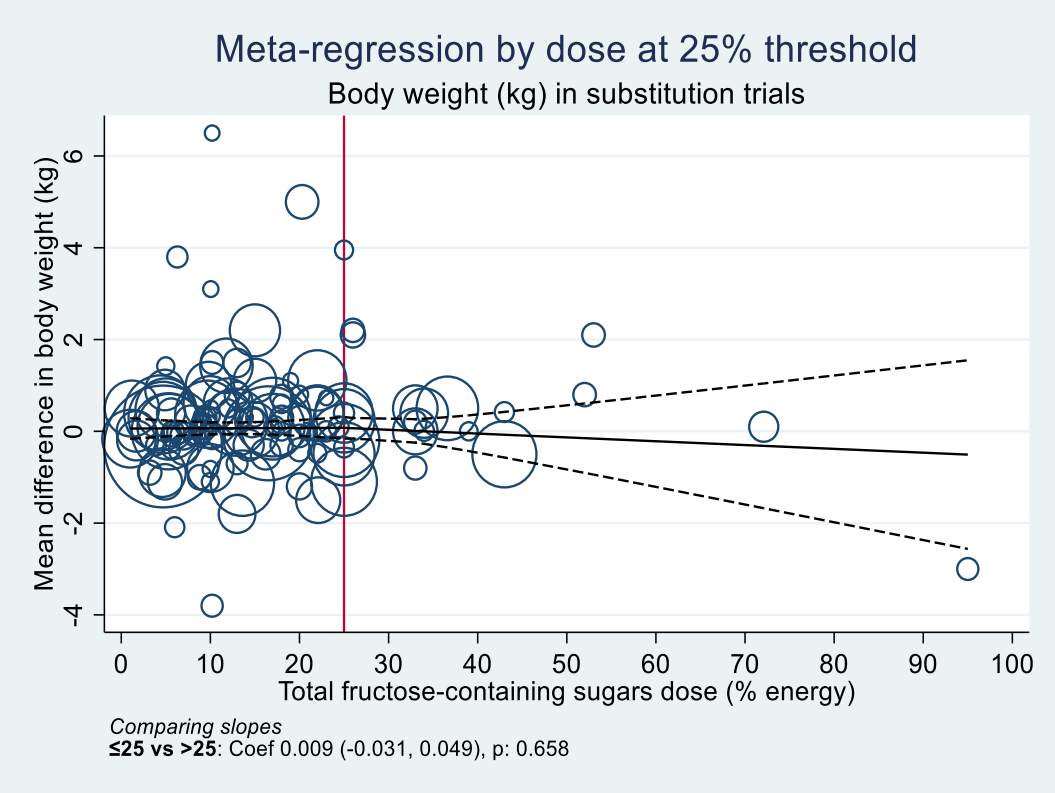
A



B

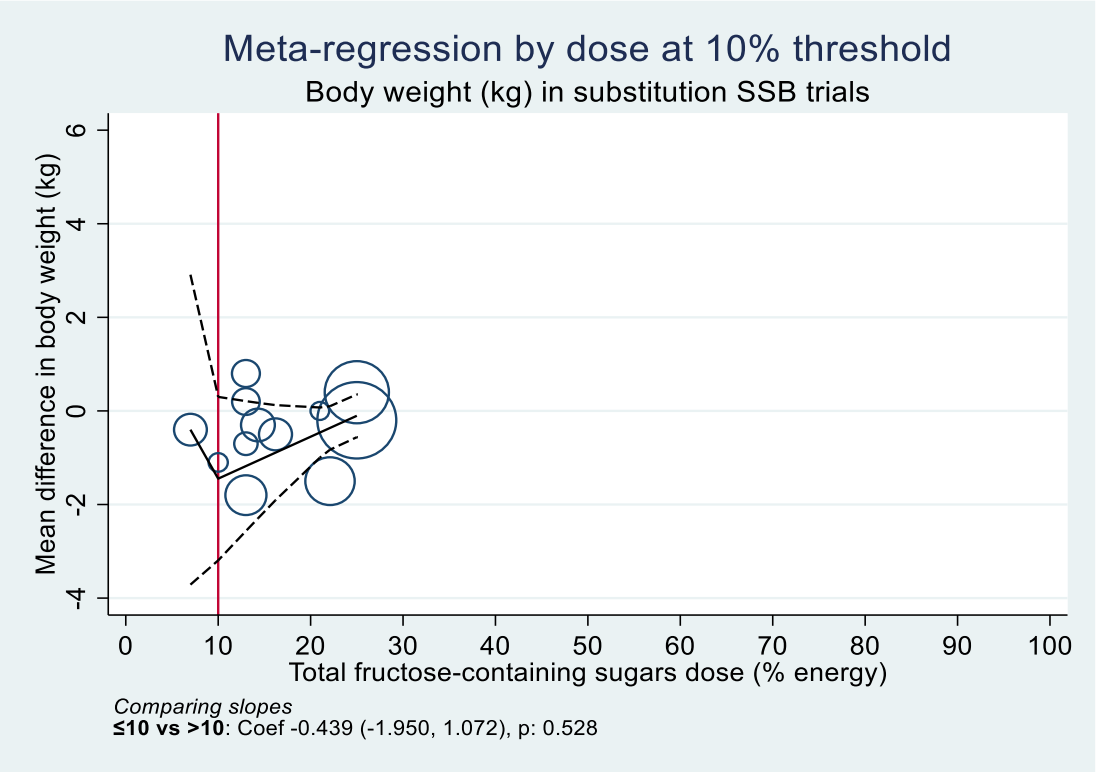


C



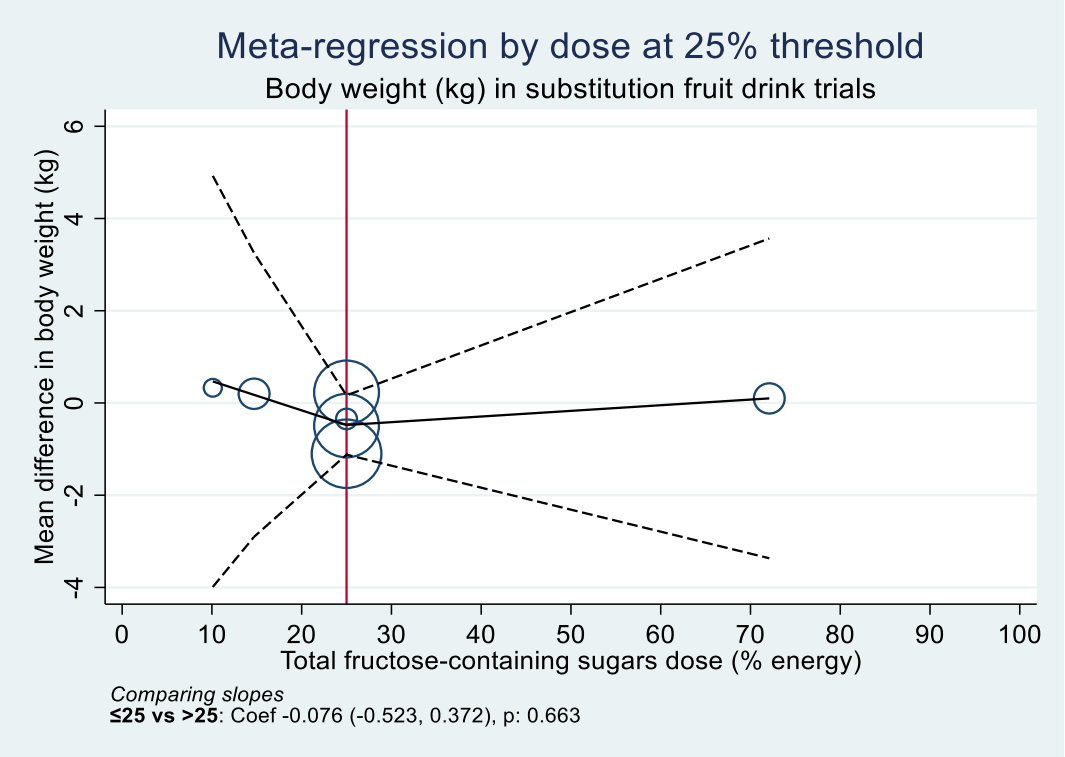
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25% threshold.
Coef=coefficient.

Supplementary Figure 205: Non-linear dose response analysis using public thresholds of 10% of energy for the effect of SSBs and body weight (kg) in substitution trials



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Note there were no trials with dose <5% or >25%.
Coef=coefficient; SSBs=sugar-sweetened beverages.

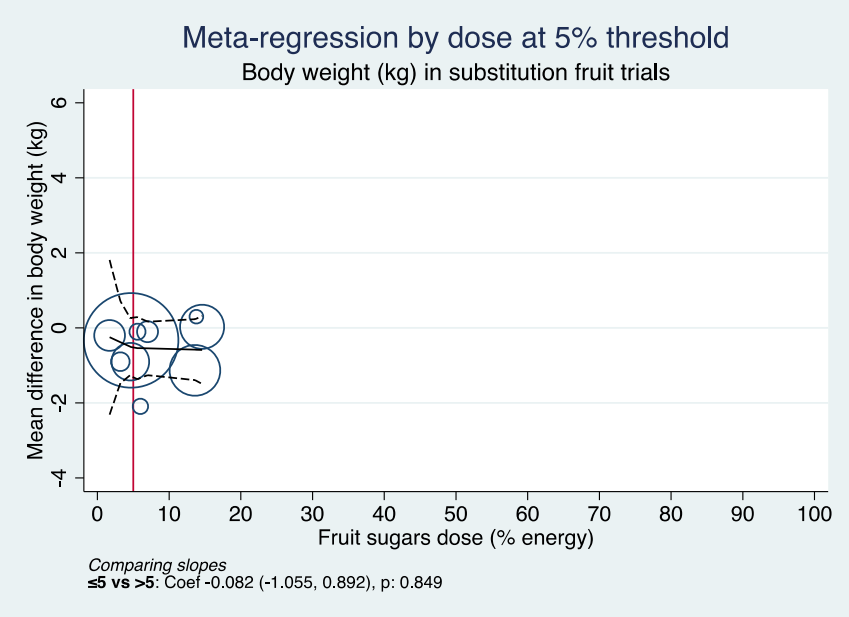
Supplementary Figure 206: Non-linear dose response analysis using public threshold of 25% of energy for the effect of fruit drinks and body weight (kg) in substitution trials



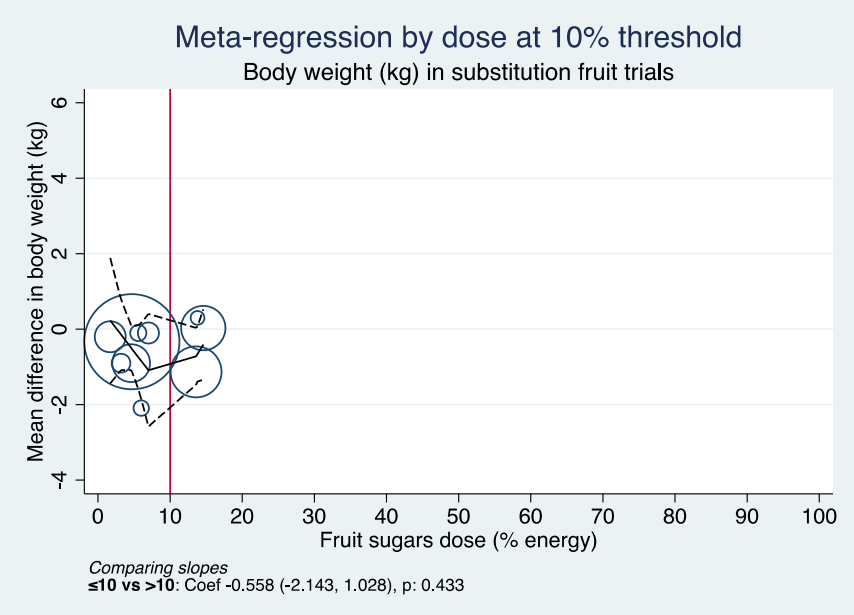
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Note there were no trials with dose <5% or <10%.
Coef=coefficient.

Supplementary Figure 207: Non-linear dose response analysis using public thresholds of 5% and 10% of energy for the effect of fruit and body weight (kg) in substitution trials

A



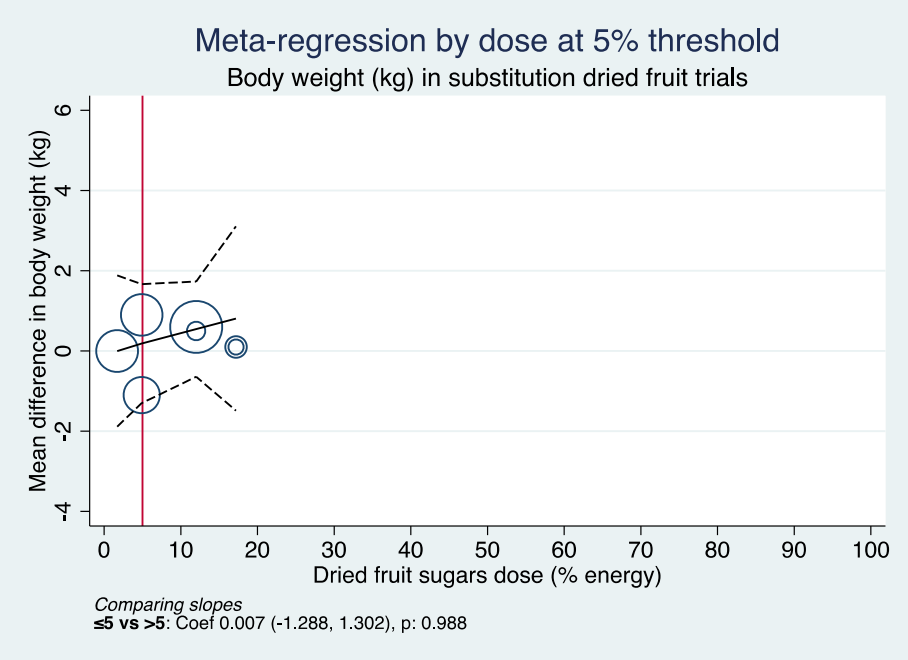
B



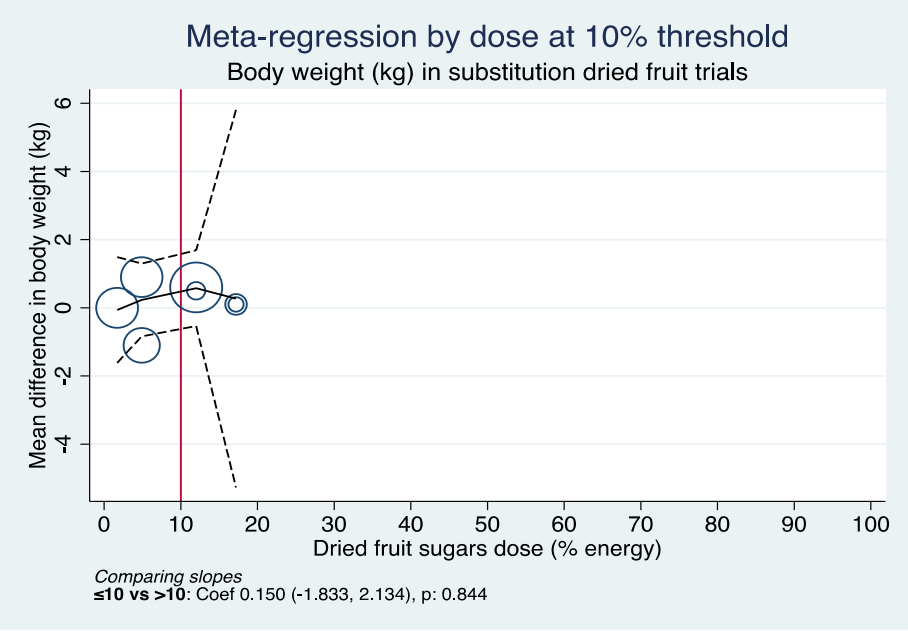
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold.
Note there were no trials with dose >25%.
Coef=coefficient.

Supplementary Figure 208: Non-linear dose response analysis using public thresholds of 5% and 10% of energy for the effect of dried fruit and body weight (kg) in substitution trials

A

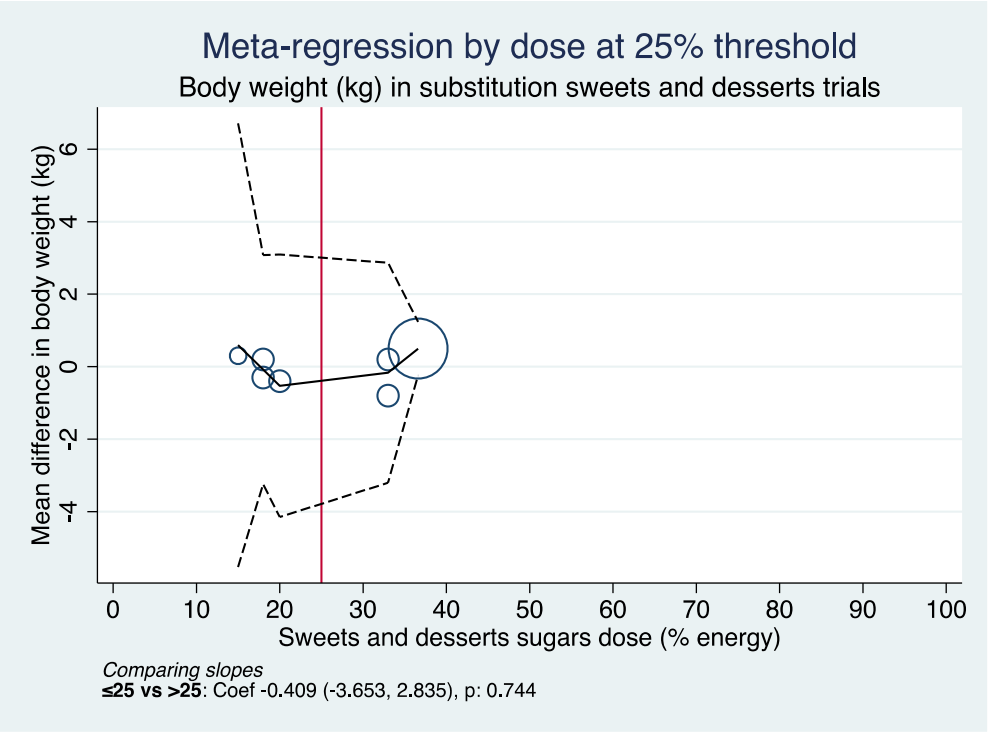


B



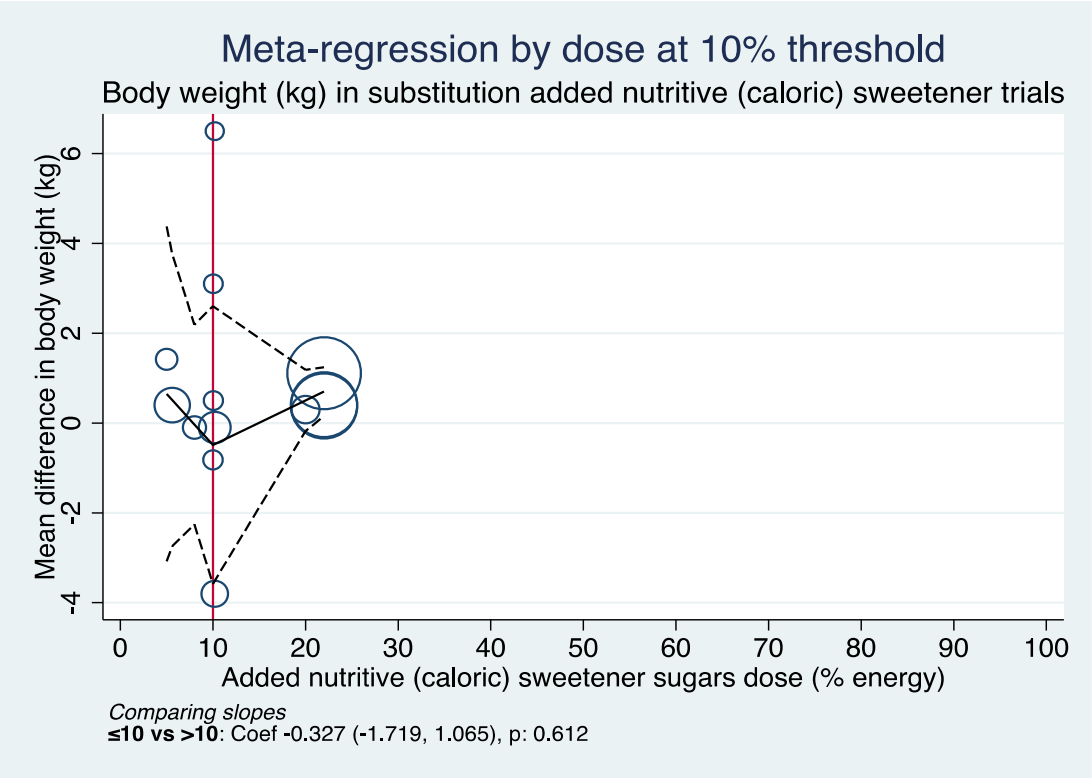
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold.
Note there were no trials with dose >25%.
Coef=coefficient.

Supplementary Figure 209: Non-linear dose response analysis using public thresholds of 25% of energy for the effect of sweets and desserts and body weight (kg) in substitution trials



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Note there were no trials with dose <5% or <10%.
Coef=coefficient.

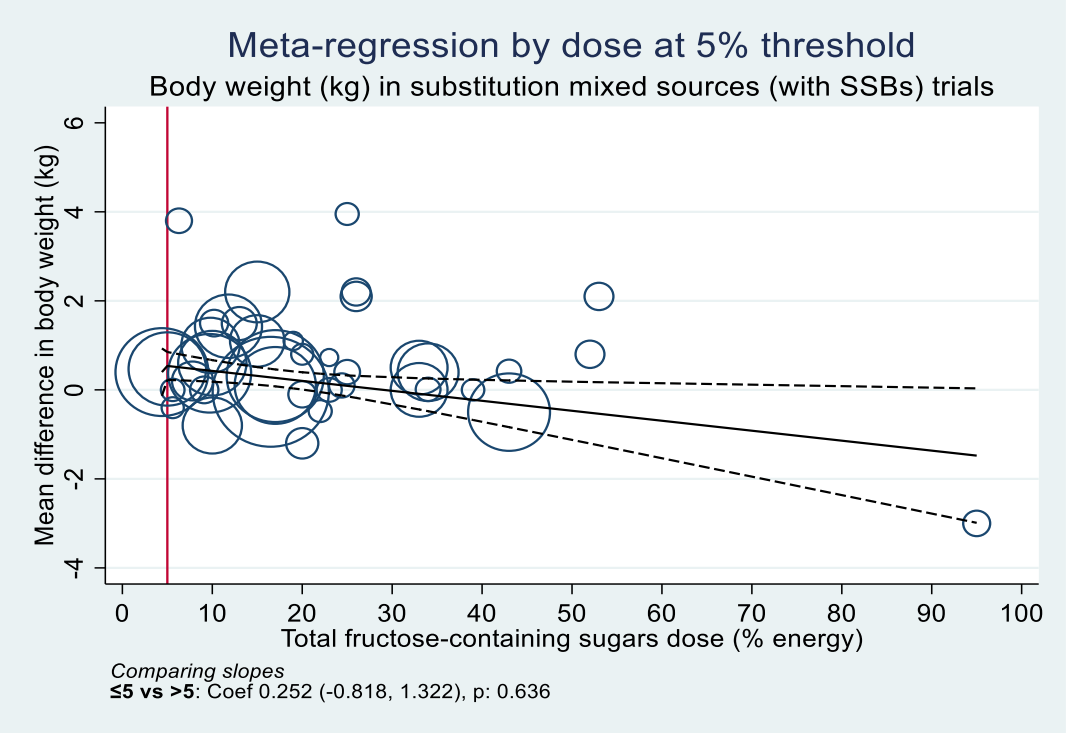
Supplementary Figure 210: Non-linear dose response analysis using public thresholds of 10% of energy for the effect of sweets and desserts and body weight (kg) in substitution trials



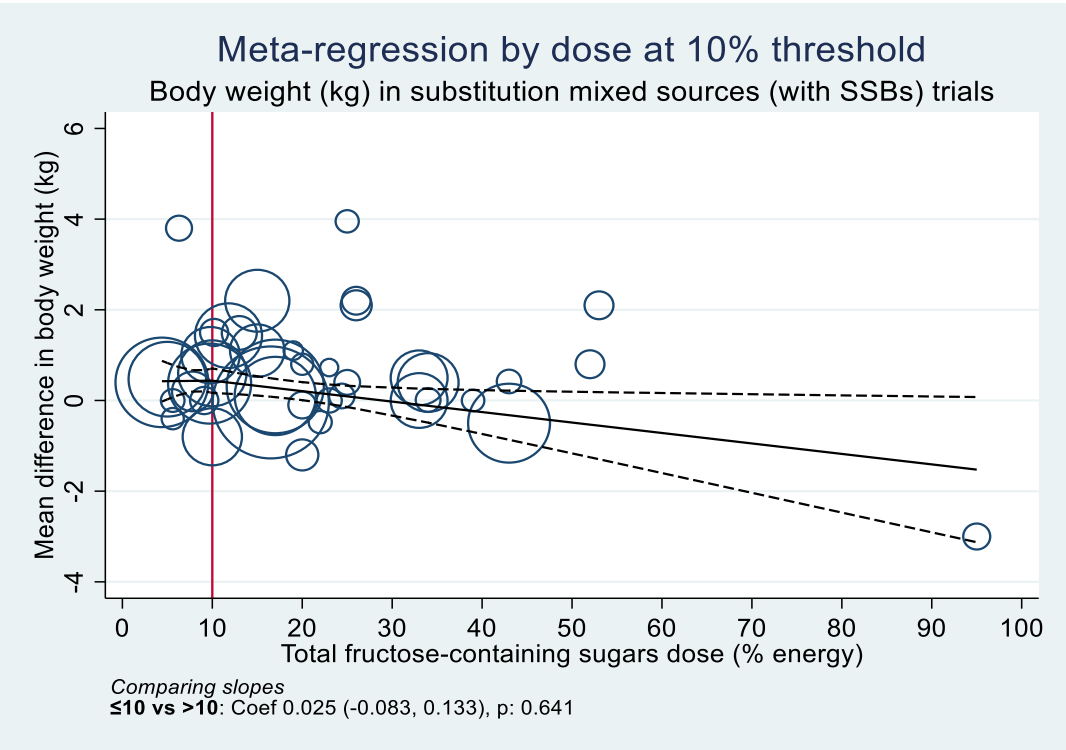
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Note there were no trials with dose <5% or >25%.
Coef=coefficient.

Supplementary Figure 211: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of mixed sources (with SSBs) and body weight (kg) in substitution trials

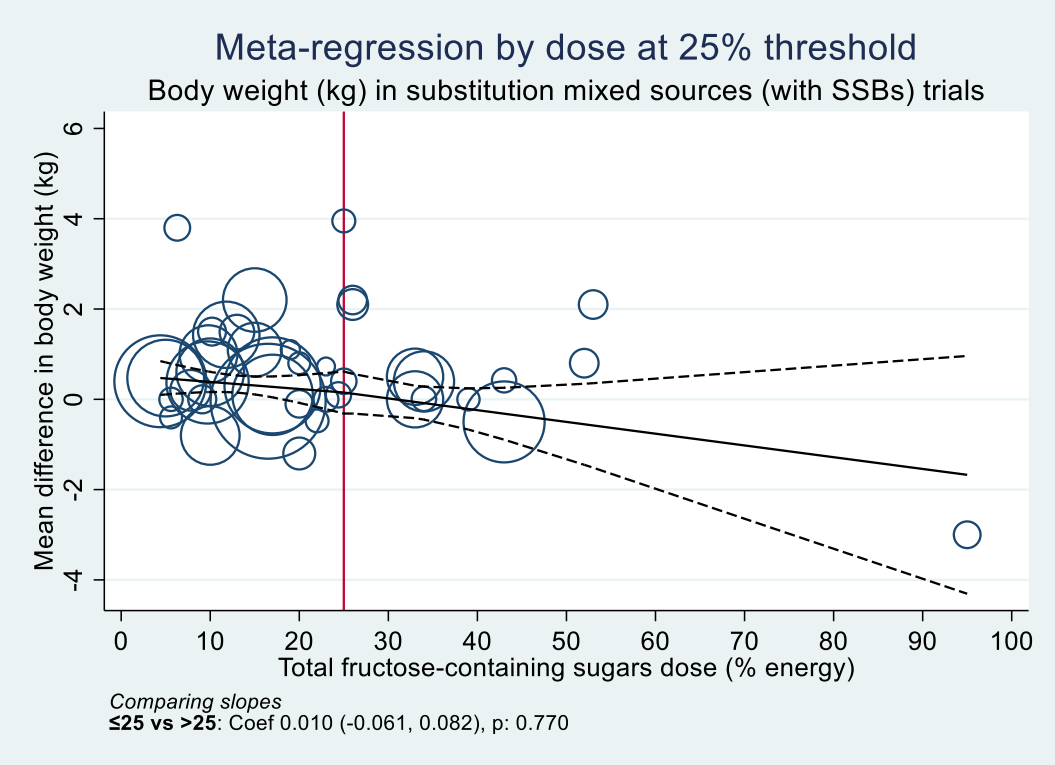
A



B



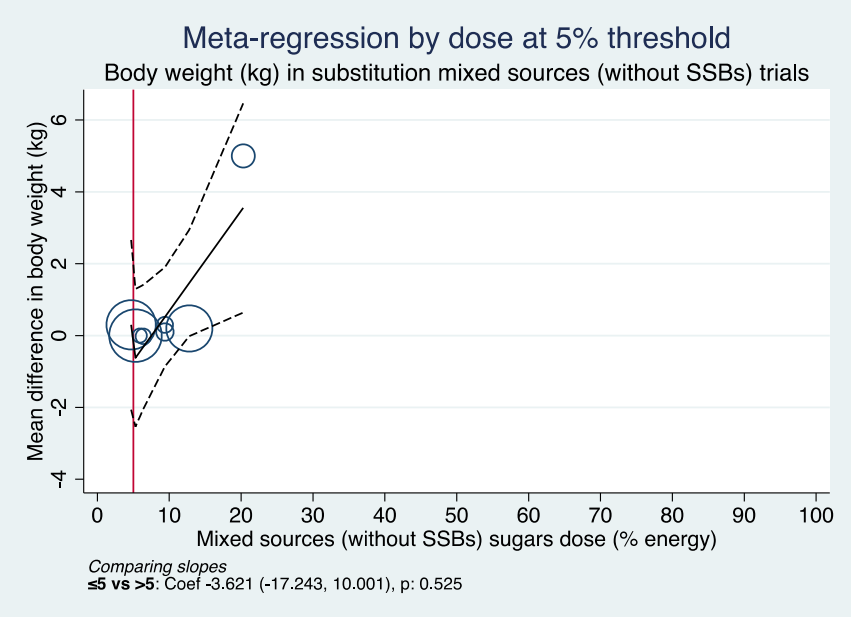
C



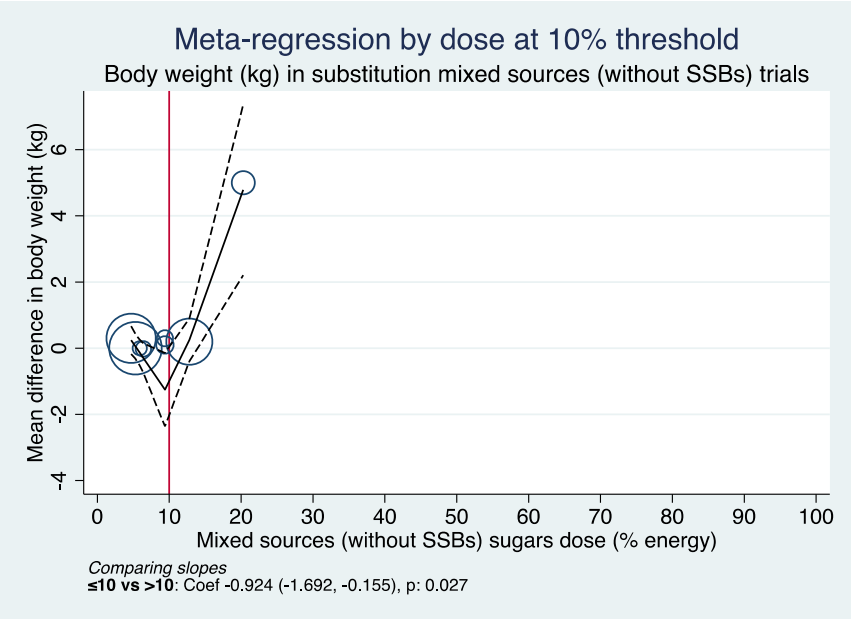
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25% threshold.
Coef=coefficient; SSB=sugars-sweetened beverage.

Supplementary Figure 212: Non-linear dose response analysis using public thresholds of 5% and 10% of energy for the effect of mixed sources (without SSBs) and body weight (kg) in substitution trials

A

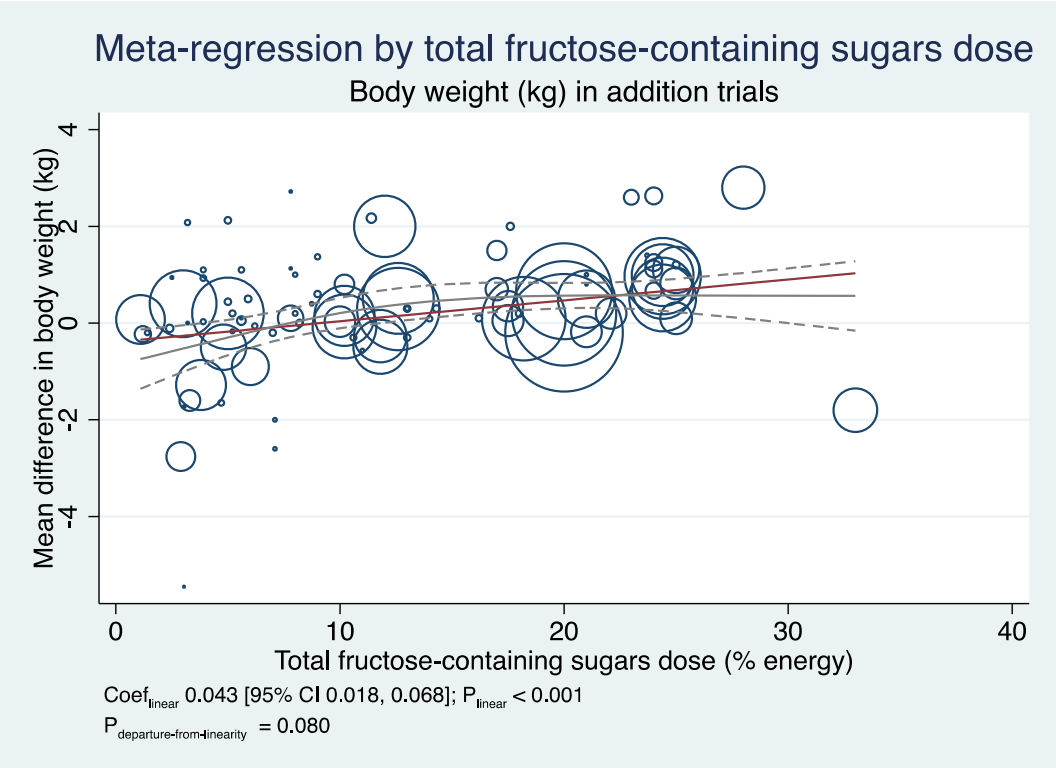


B



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold.
Note there were no trials with dose >25%.
Coef=coefficient; SSB=sugars-sweetened beverage.

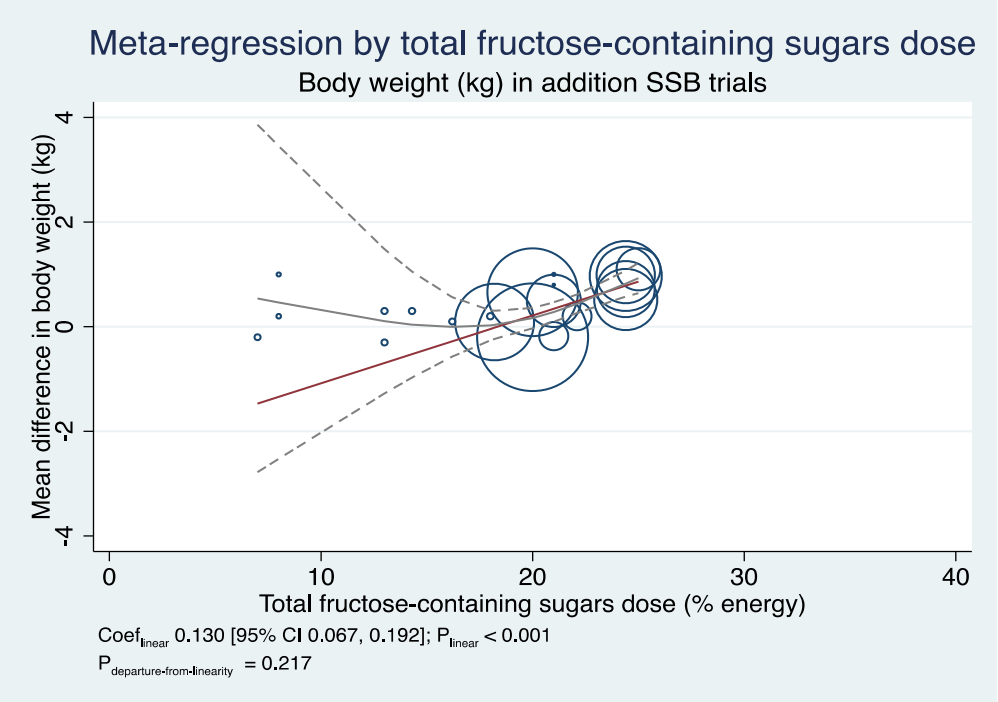
Supplementary Figure 213: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose and body weight (kg) in addition trials



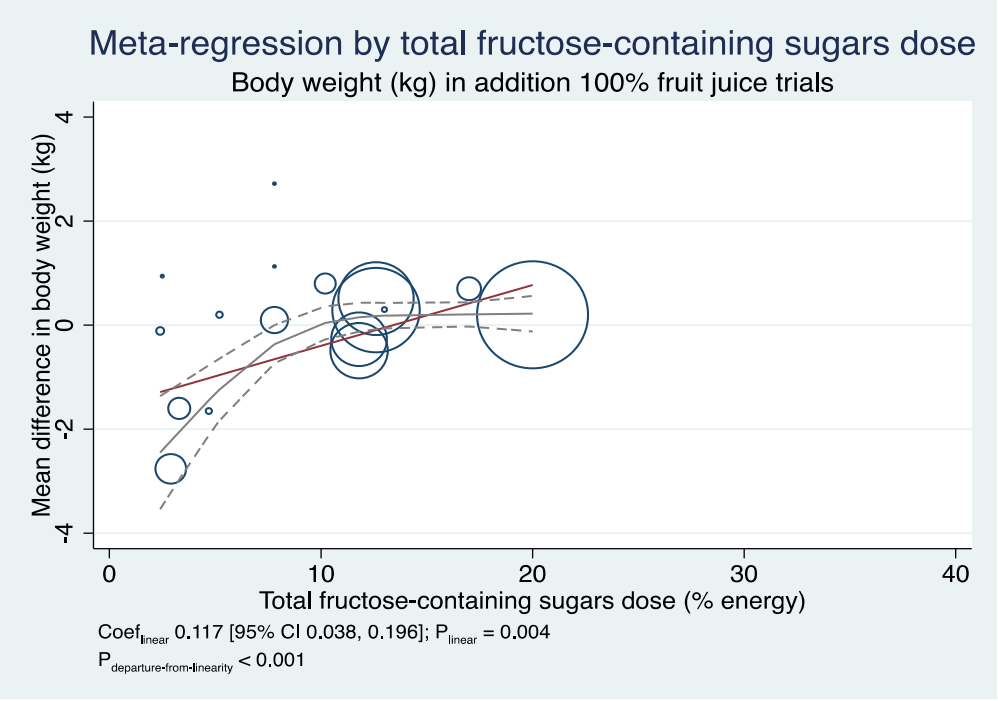
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals. CI=confidence interval; Coef=coefficient.

Supplementary Figure 214: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose on body weight (kg) in addition trials by food source

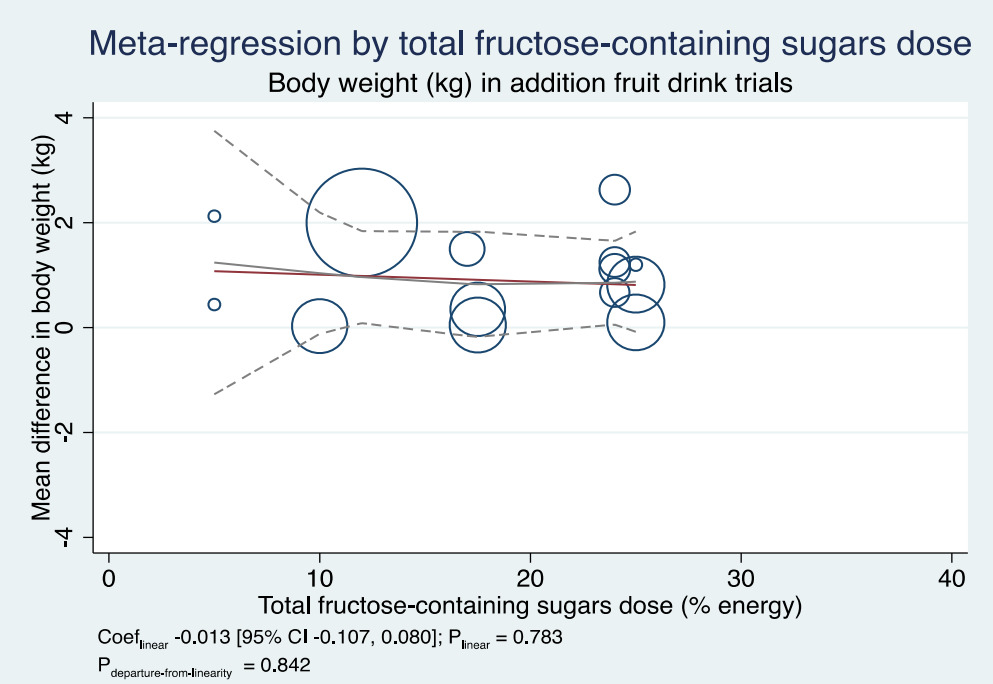
A



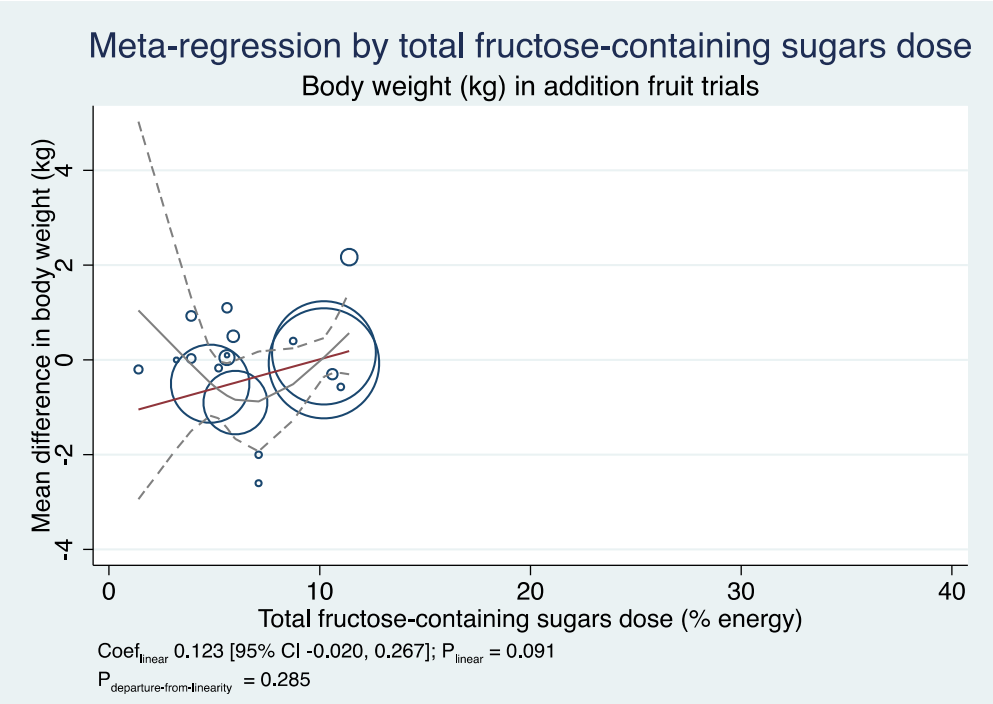
B



C



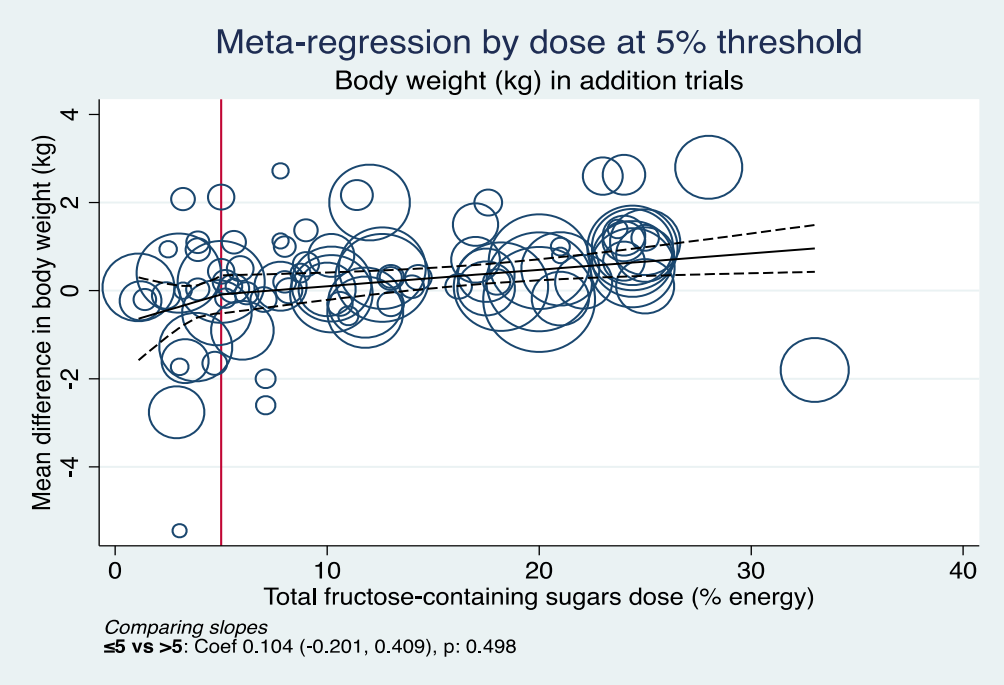
D



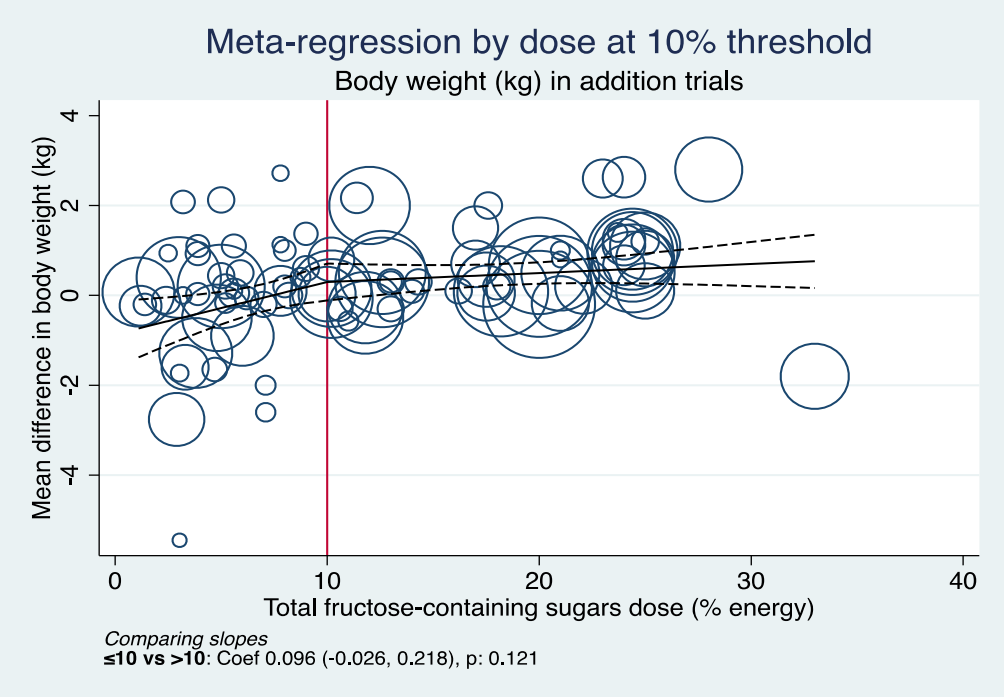
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
Panel A: SSBs; B: 100% fruit juice; C: fruit drink; D: fruit.
CI=confidence interval; Coef=coefficient; SSB=sugars-sweetened beverage.

Supplementary Figure 215: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of important food sources of fructose-containing sugars and body weight (kg) in addition trials

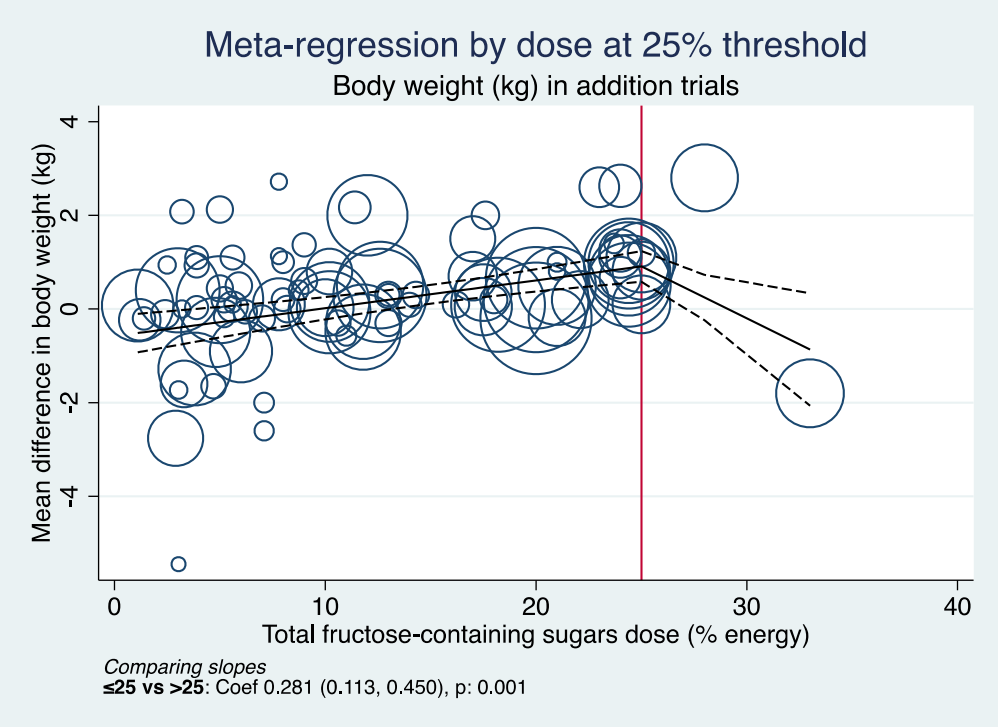
A



B

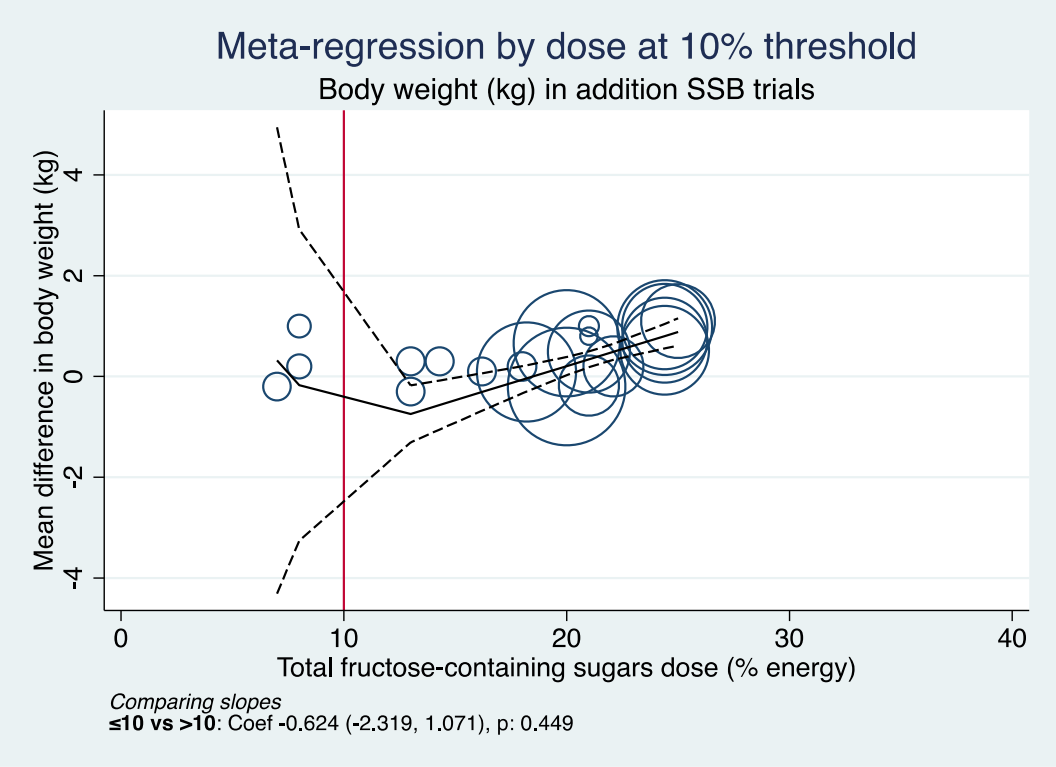


C



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25% threshold.
Coef=coefficient.

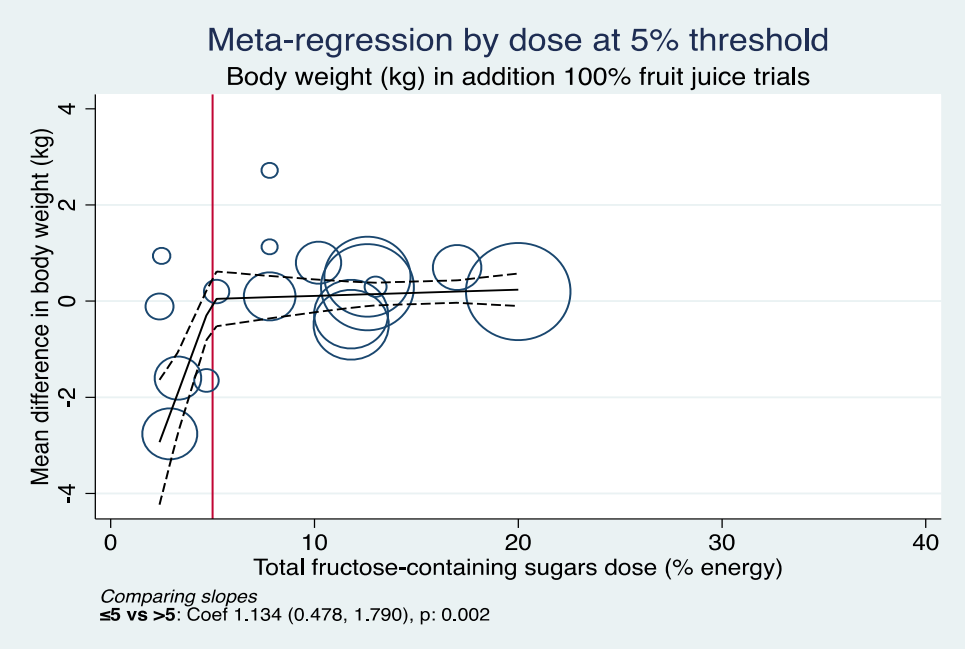
Supplementary Figure 216: Non-linear dose response analysis using the public threshold of 10% of energy for the effect of SSBs and body weight (kg) in addition trials



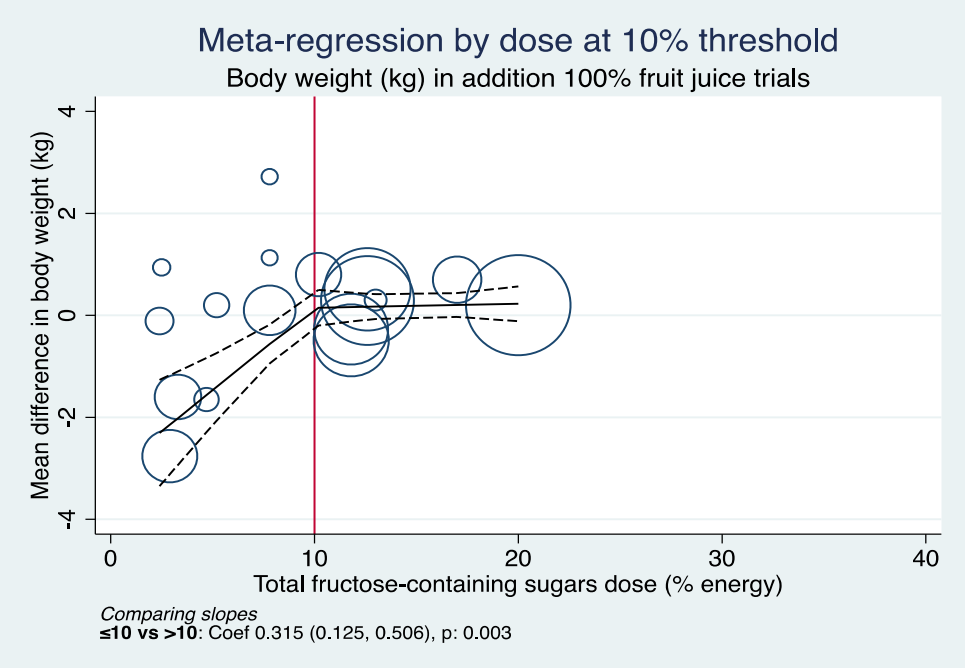
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Coef=coefficient; SSB=sugars-sweetened beverage.

Supplementary Figure 217: Non-linear dose response analysis using public thresholds of 5% and 10% of energy for the effect of 100% fruit juice and body weight (kg) in addition trials

A

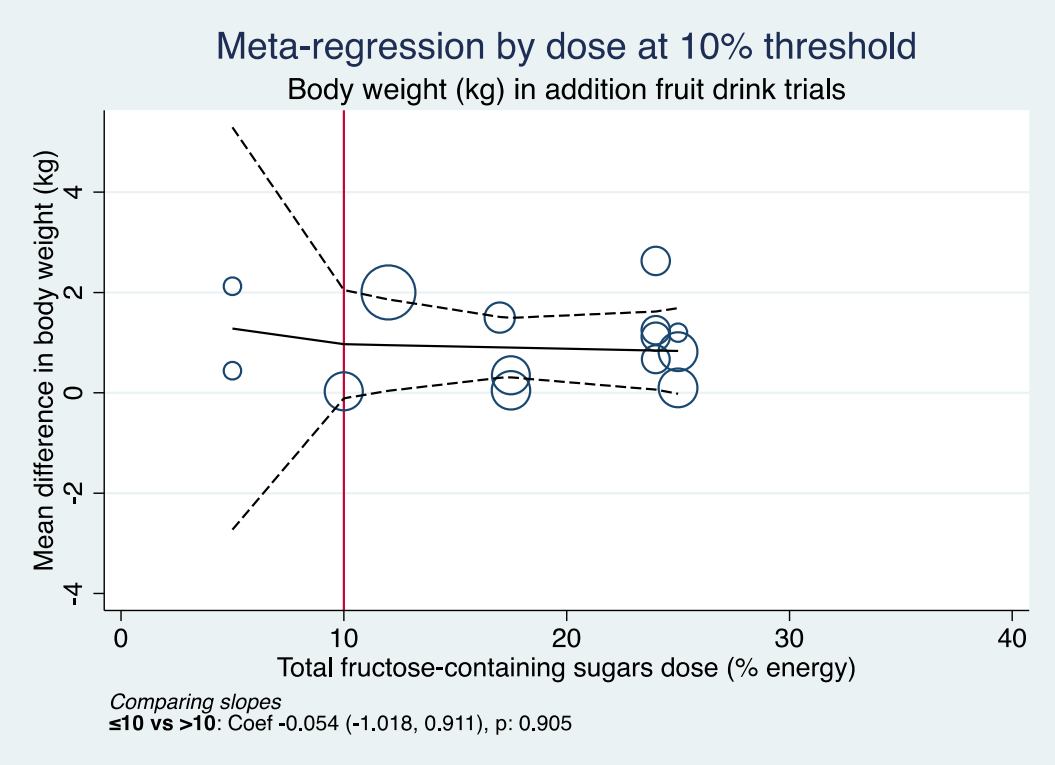


B



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold.
Coef=coefficient.

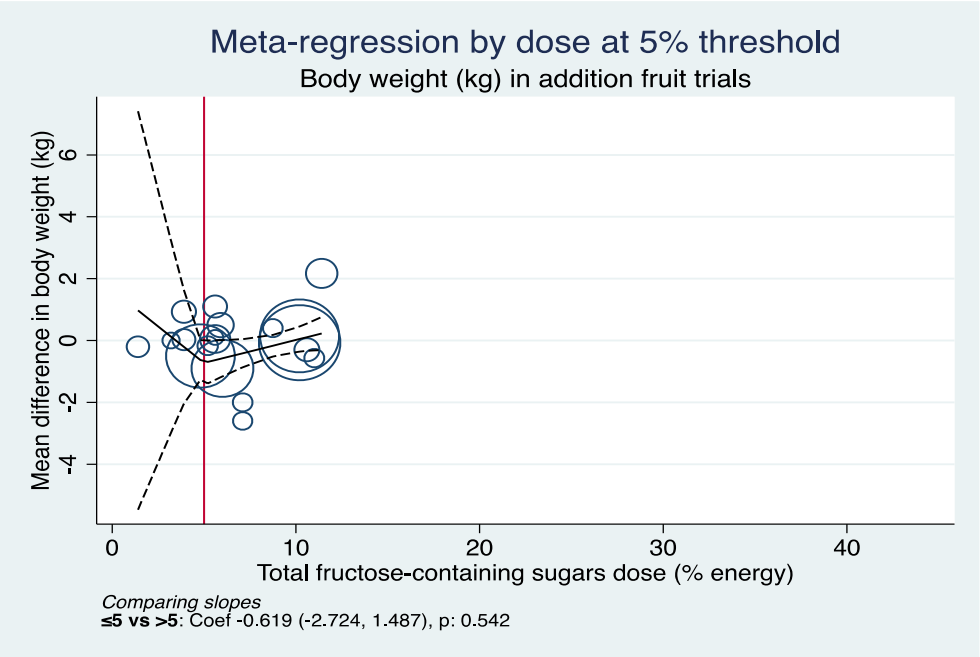
Supplementary Figure 218: Non-linear dose response analysis using the public threshold of 10% of energy for the effect of fruit drink and body weight (kg) in addition trials



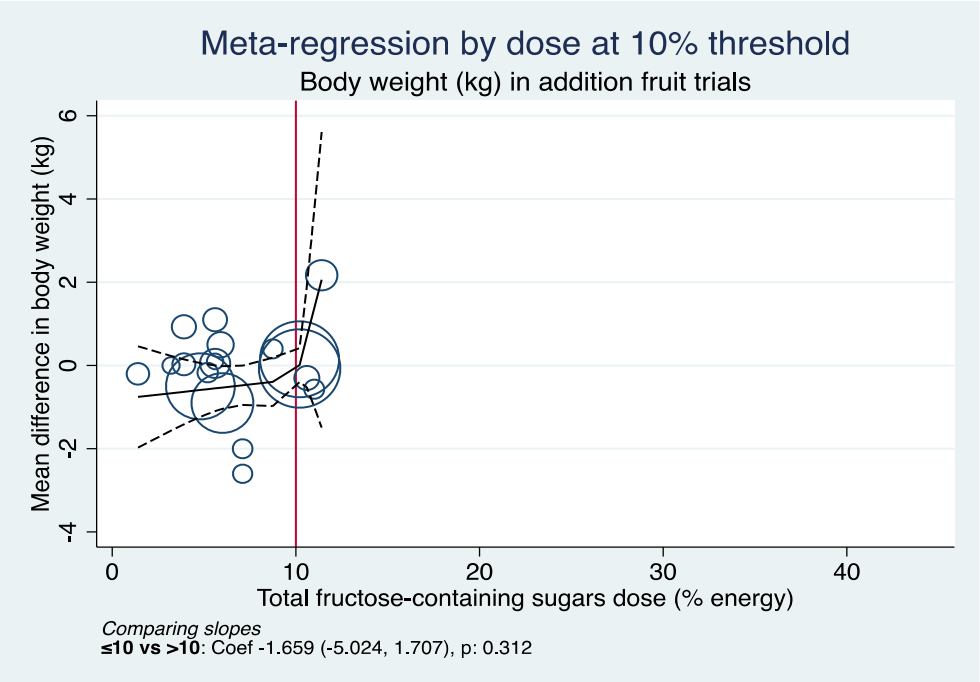
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Coef=coefficient.

Supplementary Figure 219: Non-linear dose response analysis using public thresholds of 5% and 10% of energy for the effect of fruit and body weight (kg) in addition trials

A



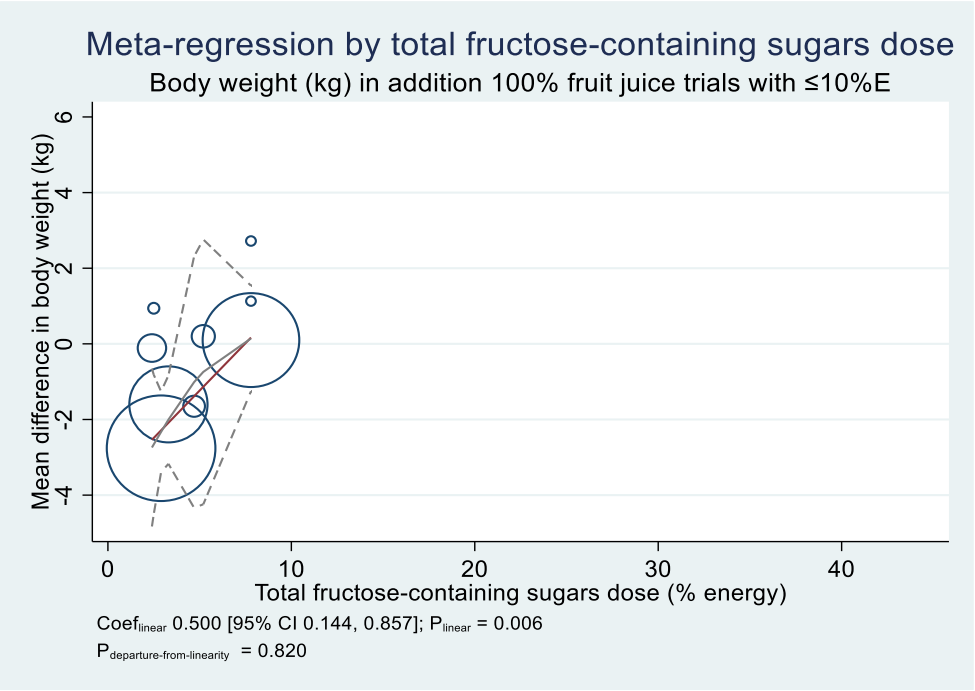
B



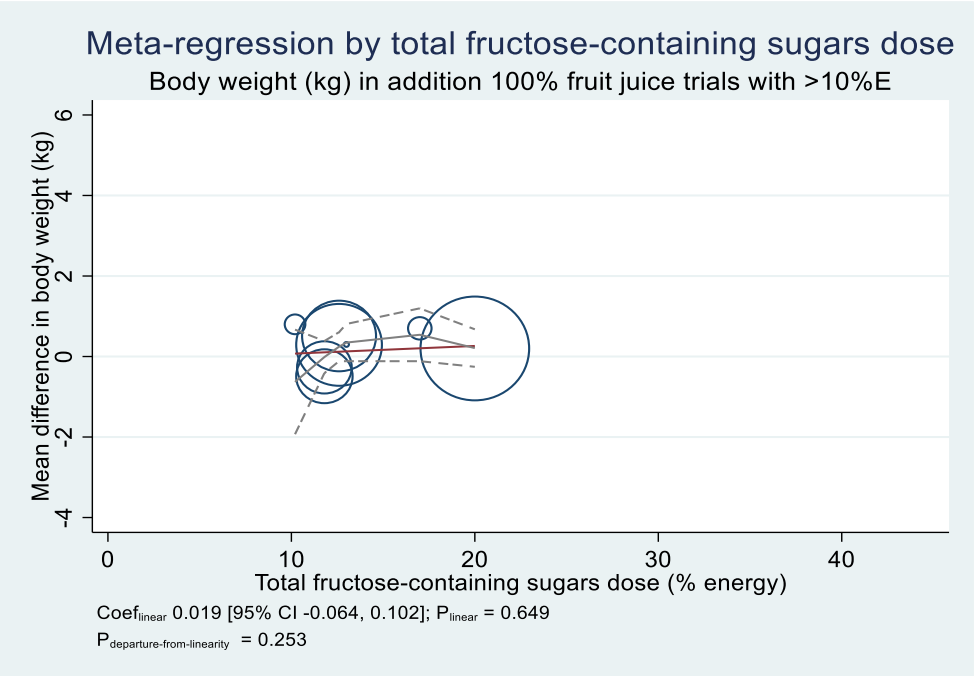
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold.
Coef=coefficient.

Supplementary Figure 220: Linear and non-linear meta-regression analyses for the effect of 100% fruit juice on body weight (kg) in addition trials with ≤10%E or >10%E

A

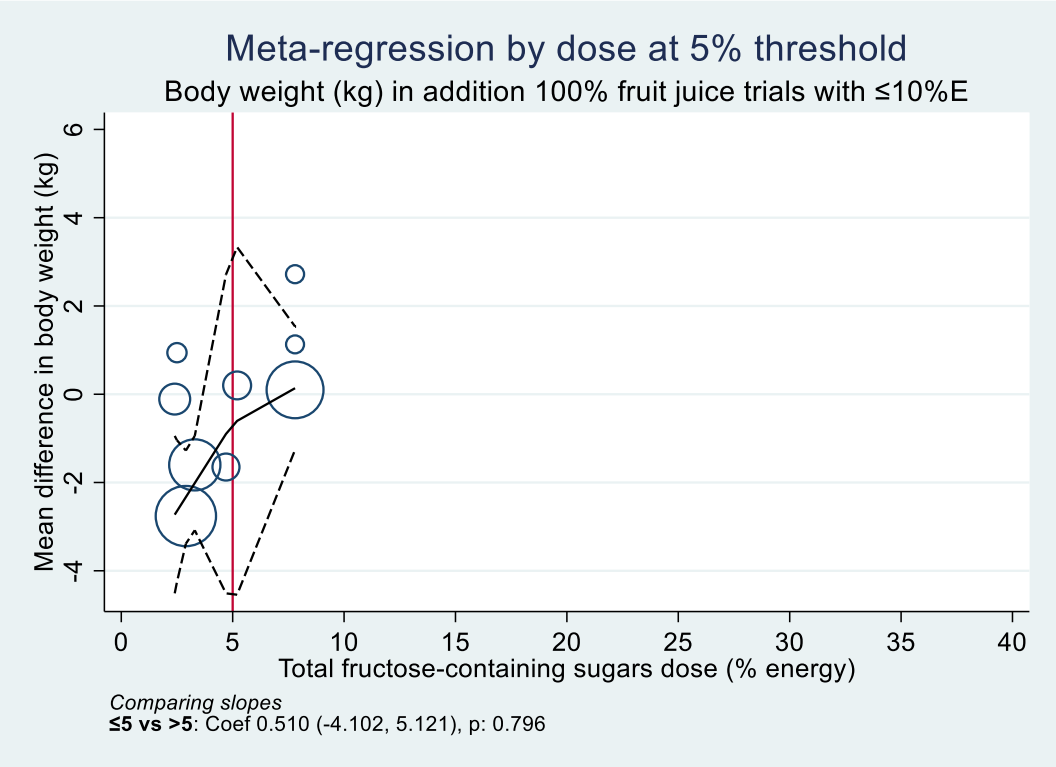


B



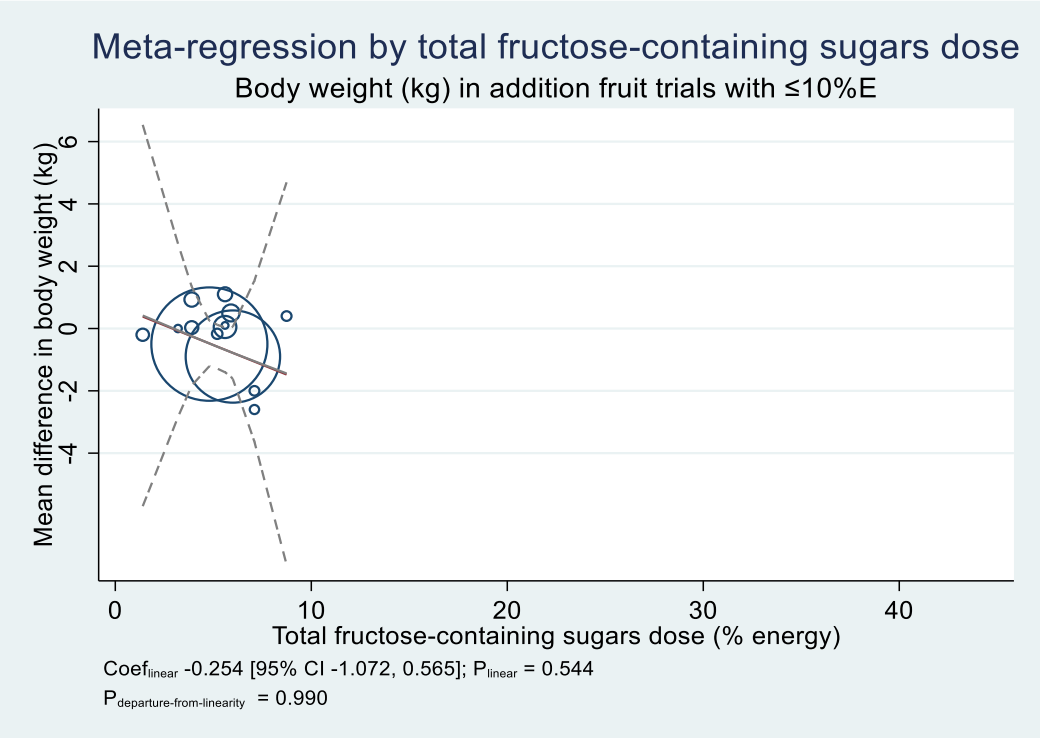
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
Panel A: ≤10%E; B: >10% E.
Coef=coefficient; CI=confidence interval; %E=percentage of total energy intake; SSB=sugars-sweetened beverage.

Supplementary Figure 221: Non-linear dose response analysis using public thresholds of 5% of energy for the effect of 100% fruit juice and body weight (kg) in addition trials



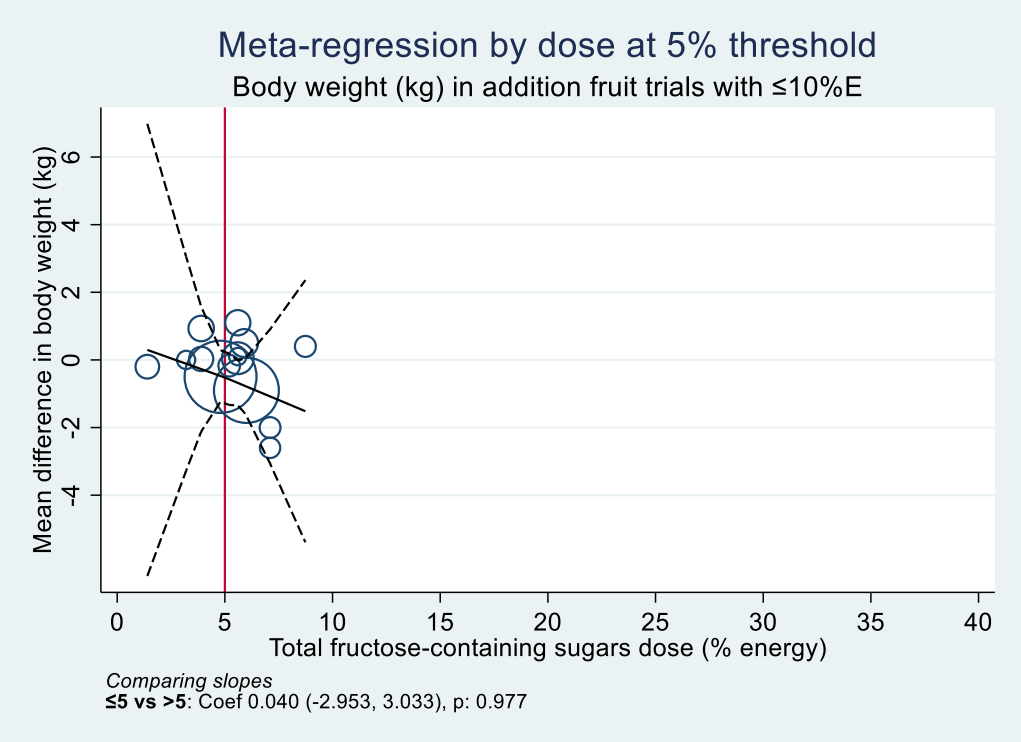
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Coef=coefficient; %E=percentage of total energy intake.

Supplementary Figure 222: Linear and non-linear meta-regression analyses for the effect of fruit on body weight (kg) in addition trials with ≤10%E*



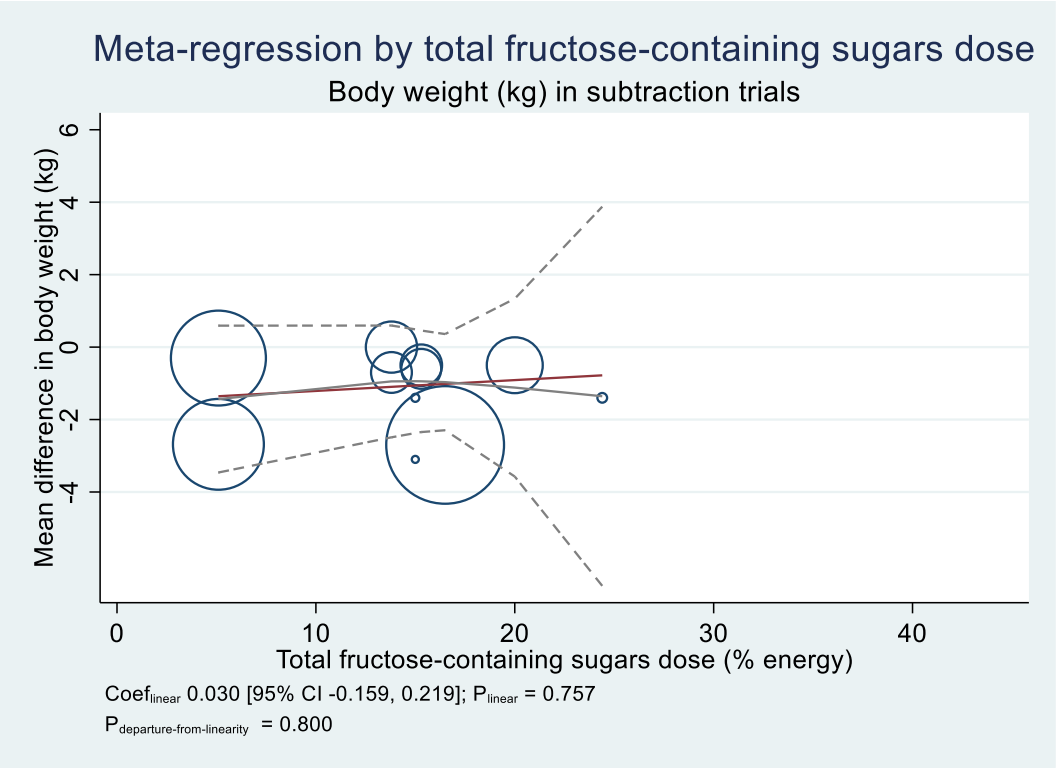
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
*Note dose response analyses for trials with >10%E were not performed as there were <6 trials.
Coef=coefficient; CI=confidence interval; %E=percentage of total energy intake.

Supplementary Figure 223: Non-linear dose response analysis using public thresholds of 5% of energy for the effect of fruit on body weight (kg) in addition trials with ≤10%E



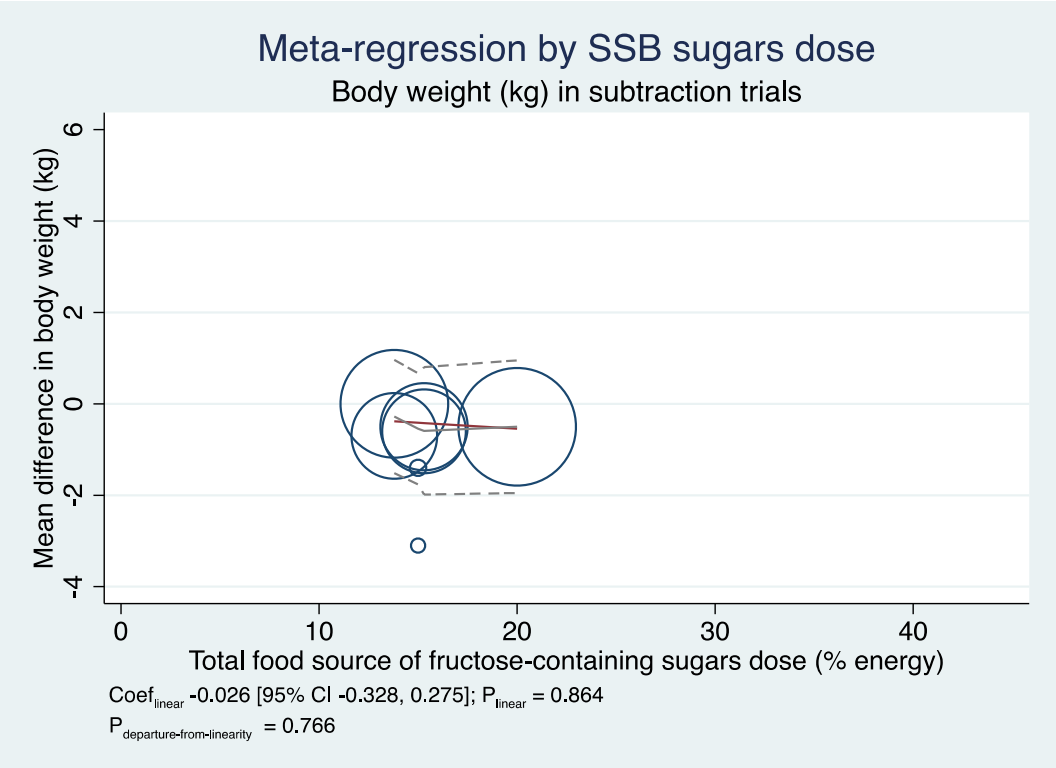
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Coef=coefficient; %E=percentage of total energy intake.

Supplementary Figure 224: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose and body weight (kg) in subtraction trials



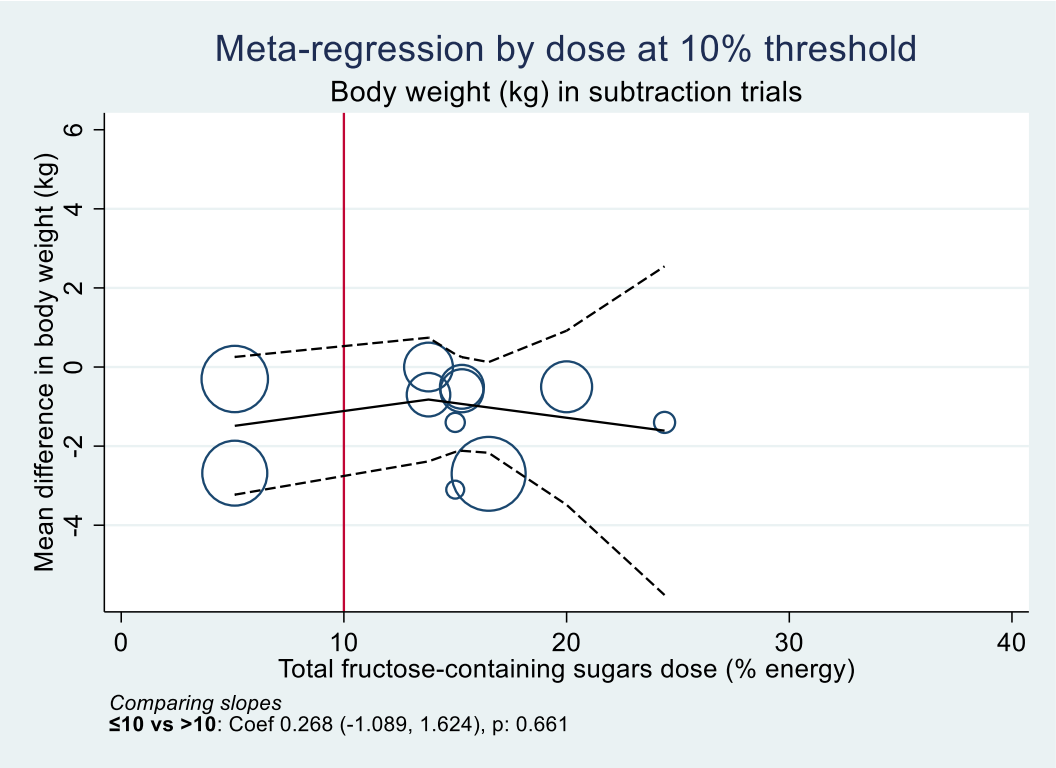
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
CI=confidence interval; Coef=coefficient

Supplementary Figure 225: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars and body weight (kg) in subtraction trials*



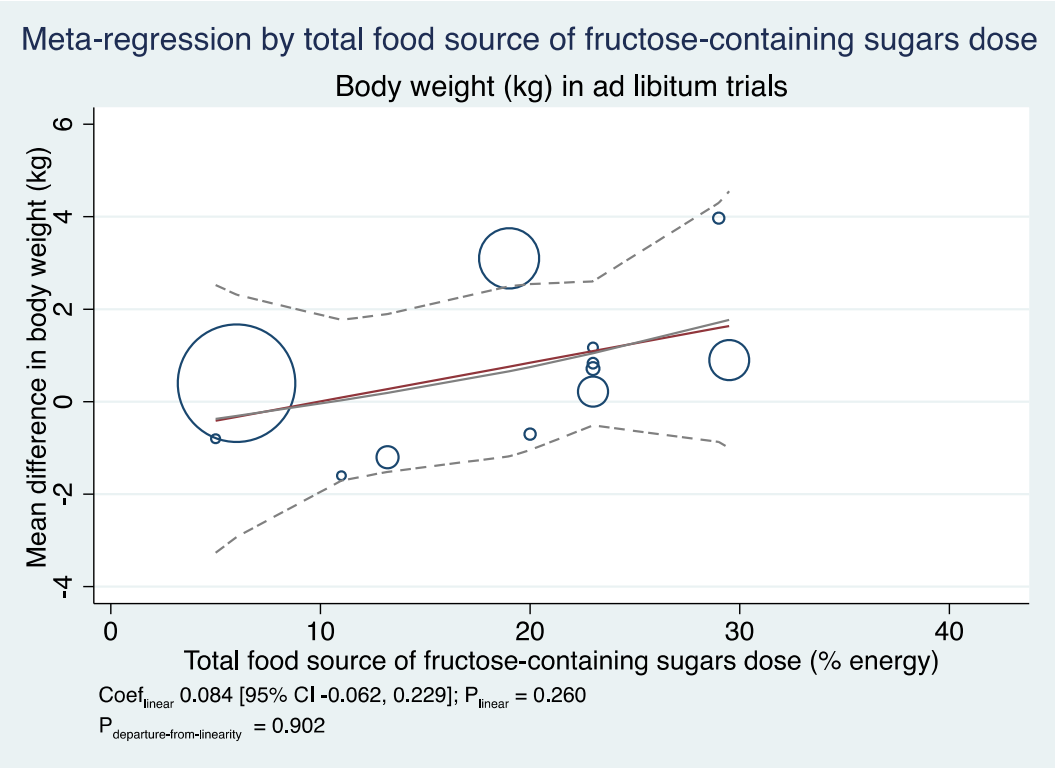
*Note: there were 2 trials with missing dose information for mixed sources (with SSBs), therefore with only 4 trials available, dose response analyses were not conducted.
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
CI=confidence interval; Coef=coefficient; SSB=sugars-sweetened beverage.

Supplementary Figure 226: Non-linear dose response analysis using public thresholds of 10% of energy for the effect of important food sources of fructose-containing sugars and body weight (kg) in subtraction trials



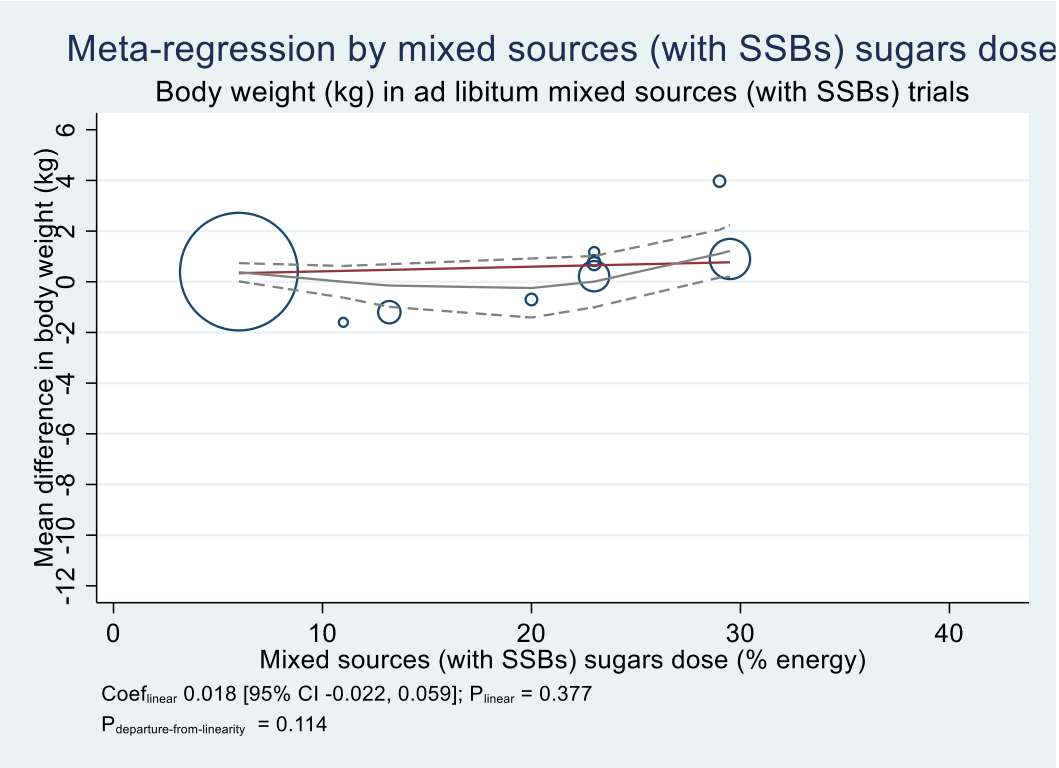
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Coef=coefficient.

Supplementary Figure 227: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose and body weight (kg) in *ad libitum* trials



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals. CI=confidence interval; Coef=coefficient.

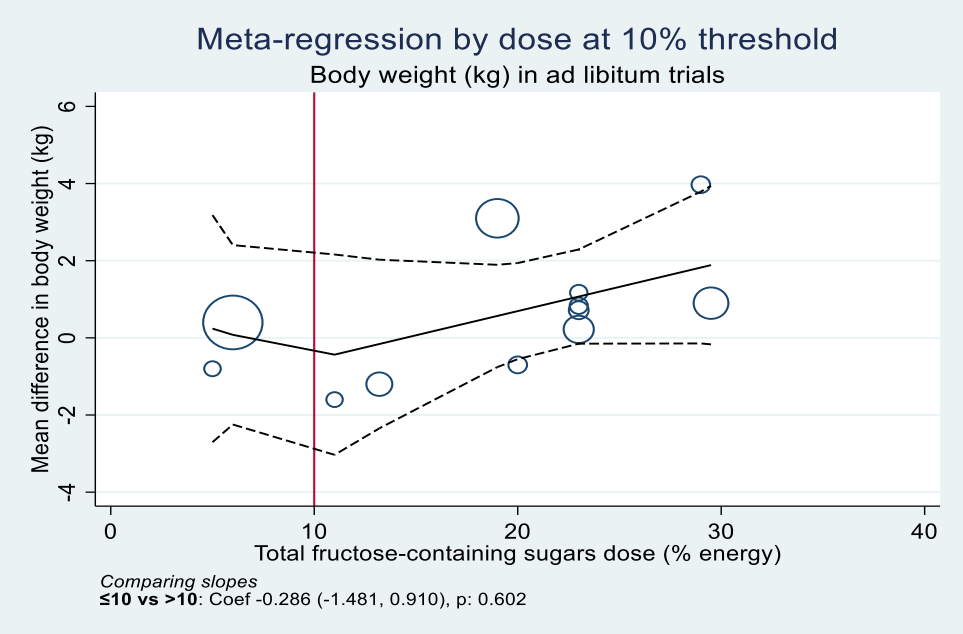
Supplementary Figure 228: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars and body weight (kg) in ad libitum trials



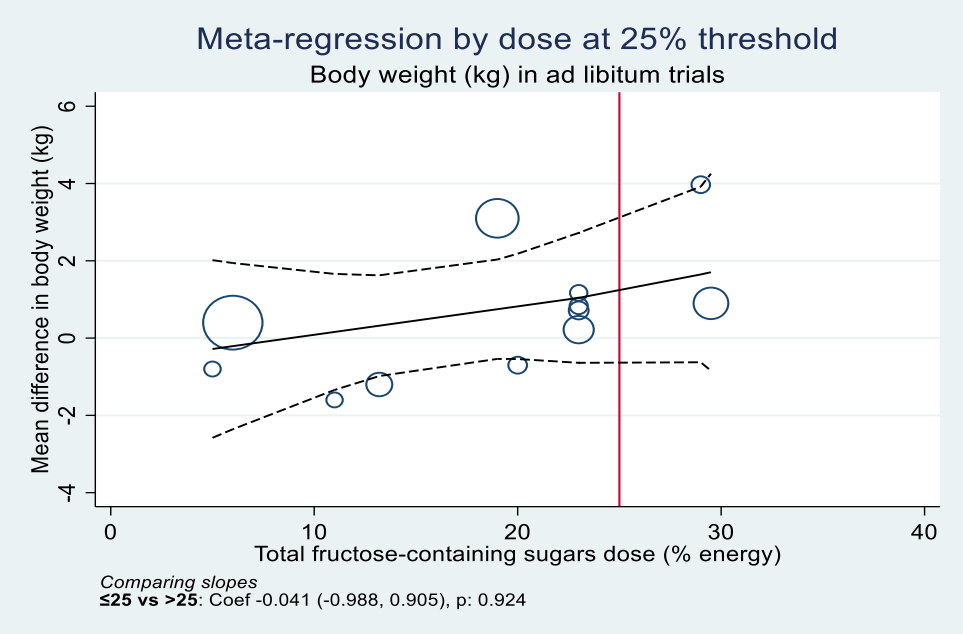
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals. CI=confidence interval; Coef=coefficient; SSBs=sugar-sweetened beverages.

Supplementary Figure 229: Non-linear dose response analysis using public thresholds of 10% and 25% of energy for the effect of important food sources of fructose-containing sugars and body weight (kg) in *ad libitum* trials*

A

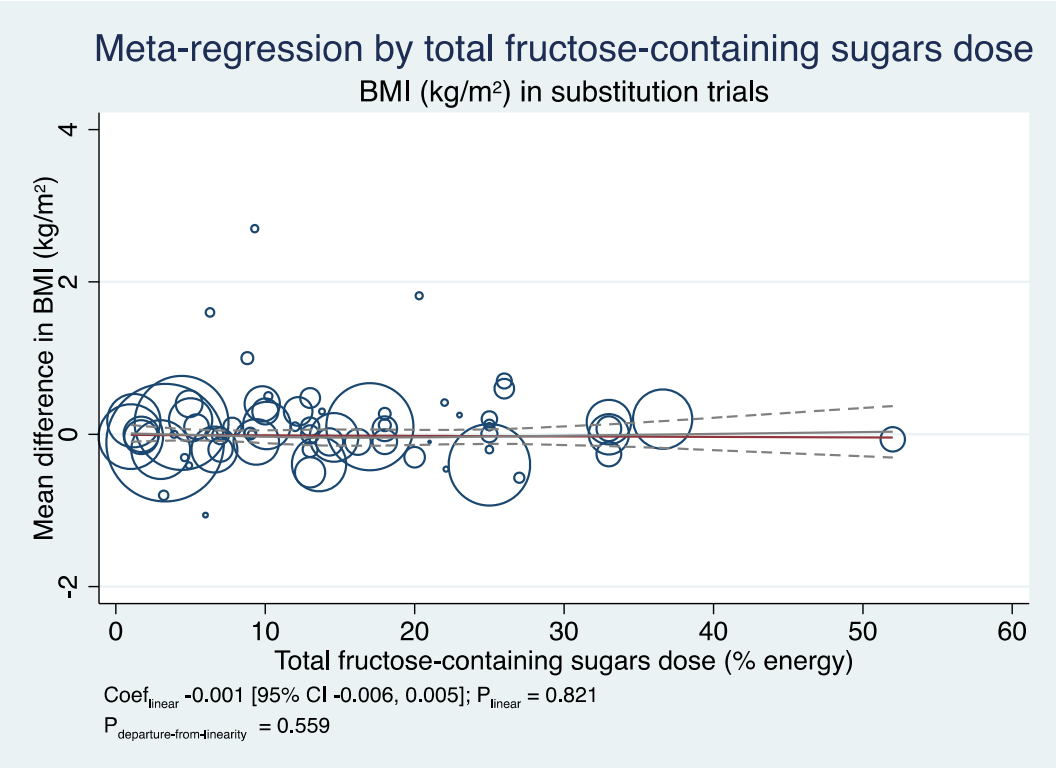


B



*No trials had a dose <5% this threshold of 5% could not be conducted
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 10% threshold; B: 25% threshold
Coef=coefficient.

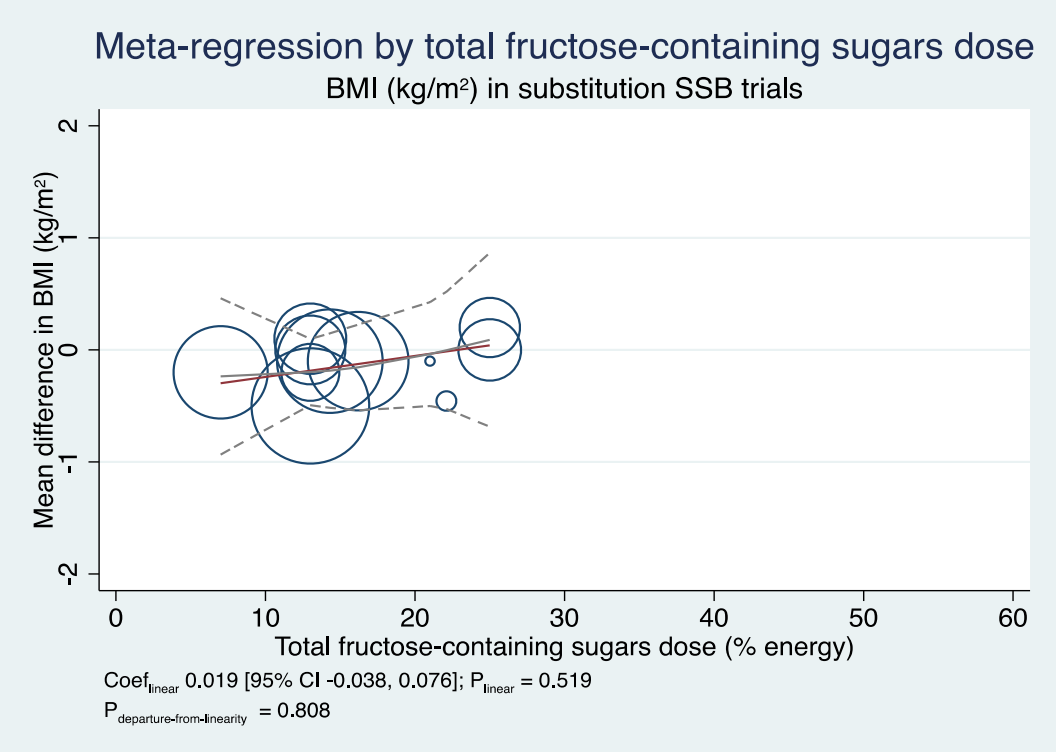
Supplementary Figure 230: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose and BMI (kg/m^2) in substitution trials



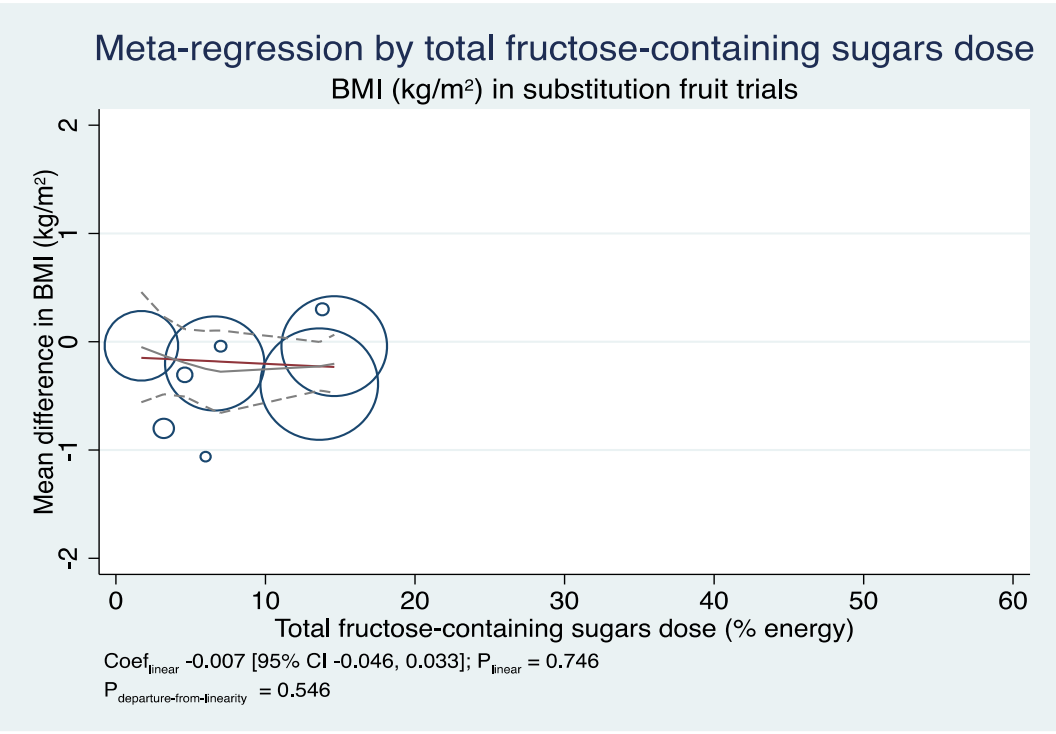
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
BMI=body mass index; CI=confidence interval; Coef=coefficient.

Supplementary Figure 231: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars on BMI (kg/m^2) in substitution trials by food source

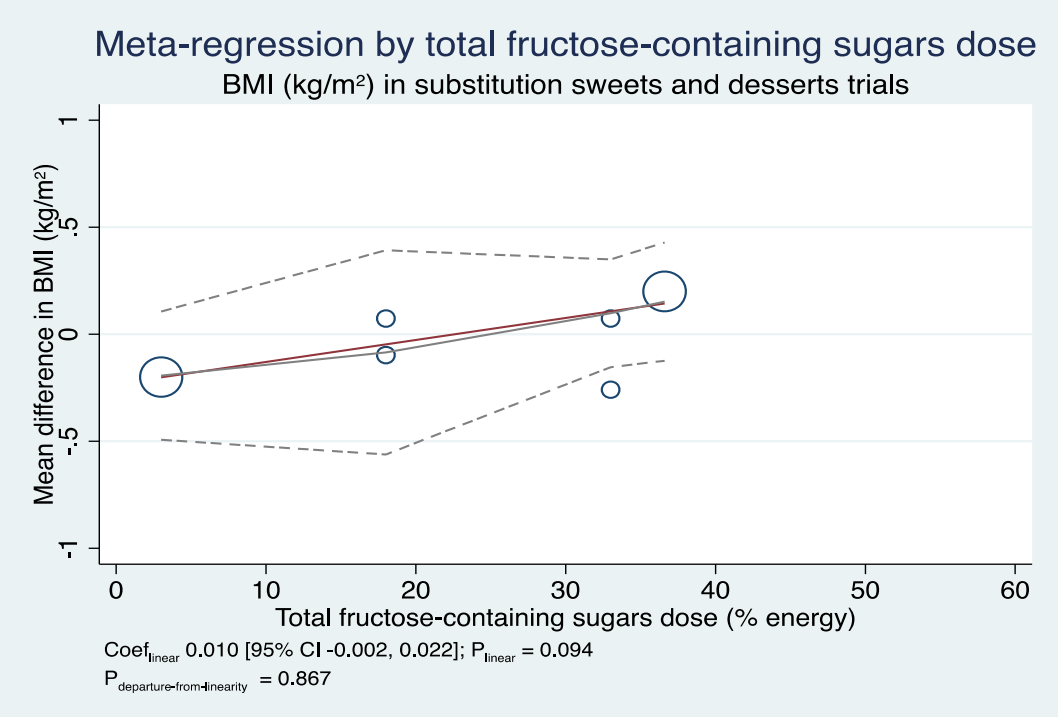
A



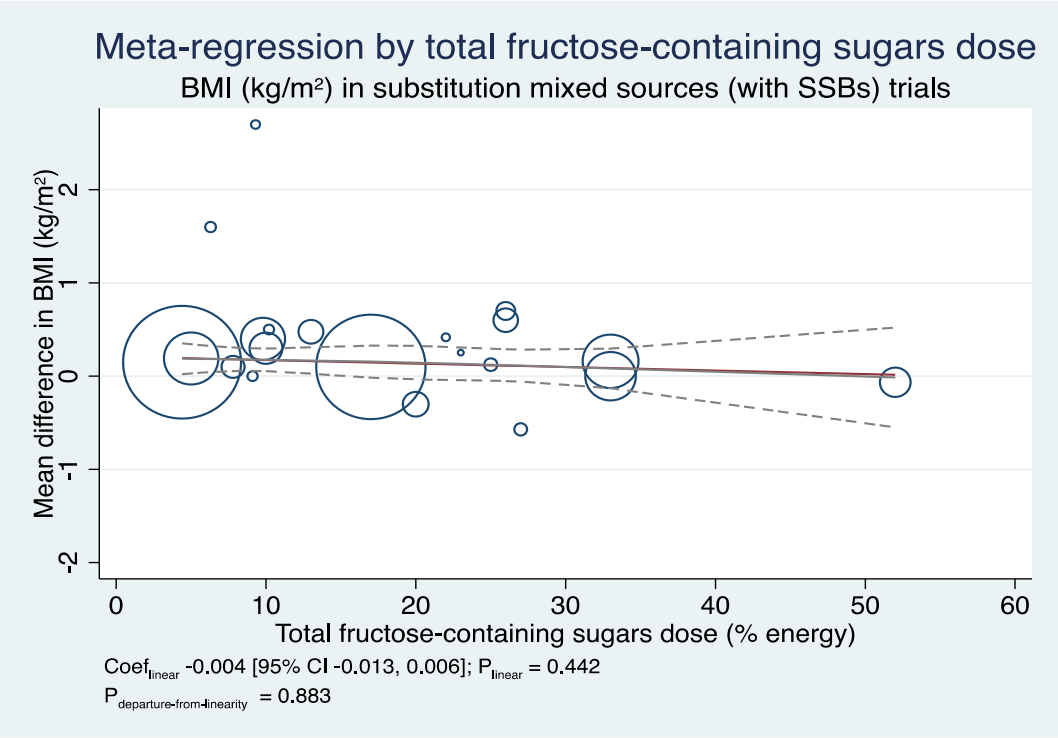
B



C



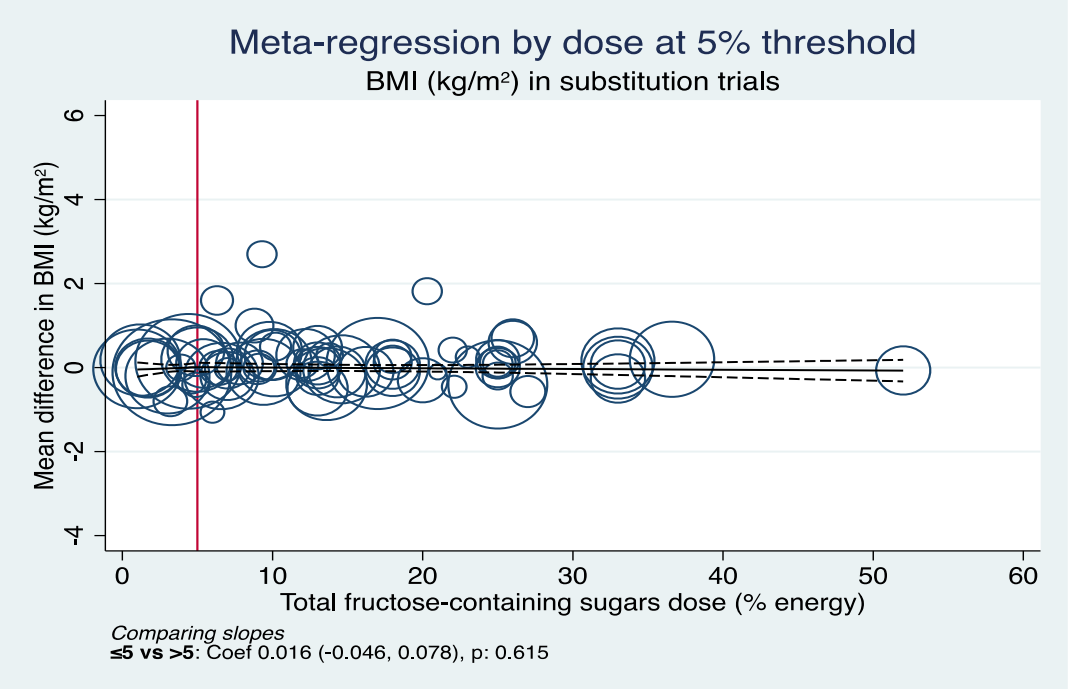
D



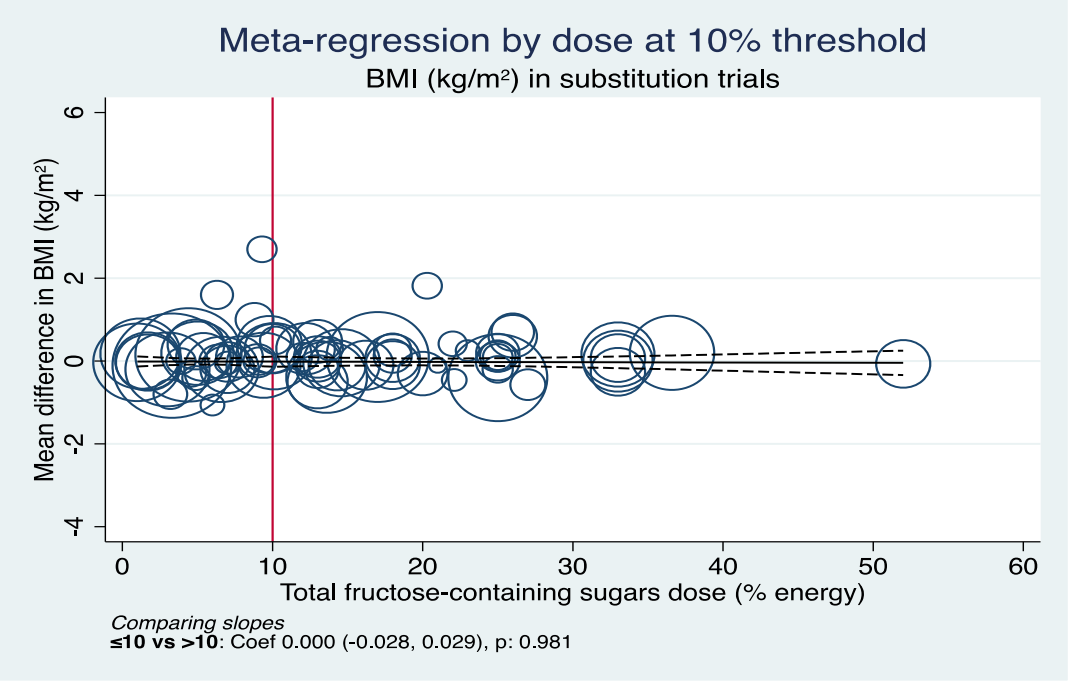
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
Panel A: SSBs; B: fruit; C: sweets and desserts; D: mixed sources (with SSBs).
BMI=body mass index; coef=coefficient; SSB=sugars-sweetened beverage.

Supplementary Figure 232: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of important food sources of fructose-containing sugars and BMI (kg/m^2) in substitution trials

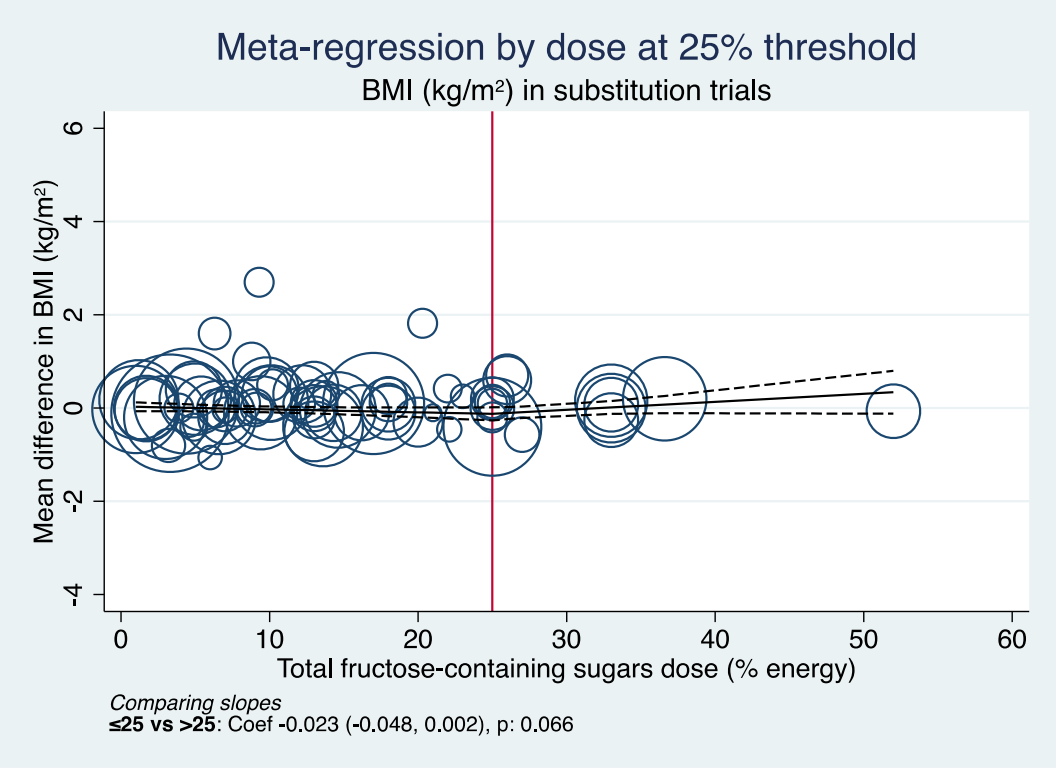
A



B

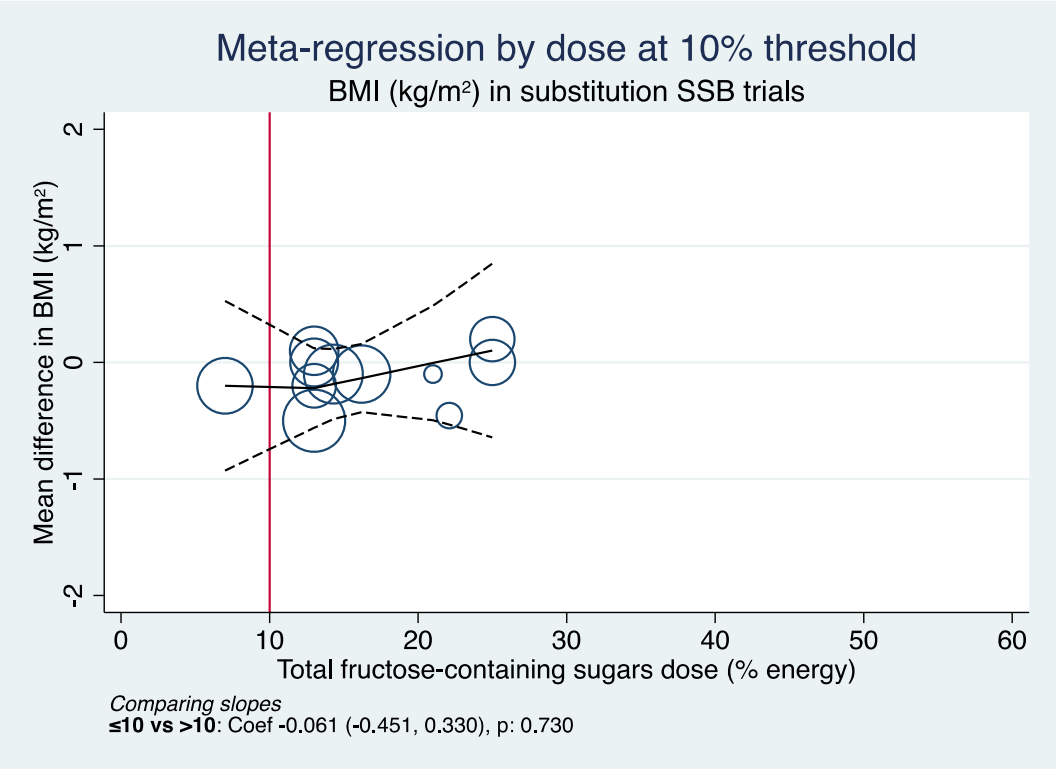


C



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25% threshold.
BMI=body mass index; Coef=coefficient.

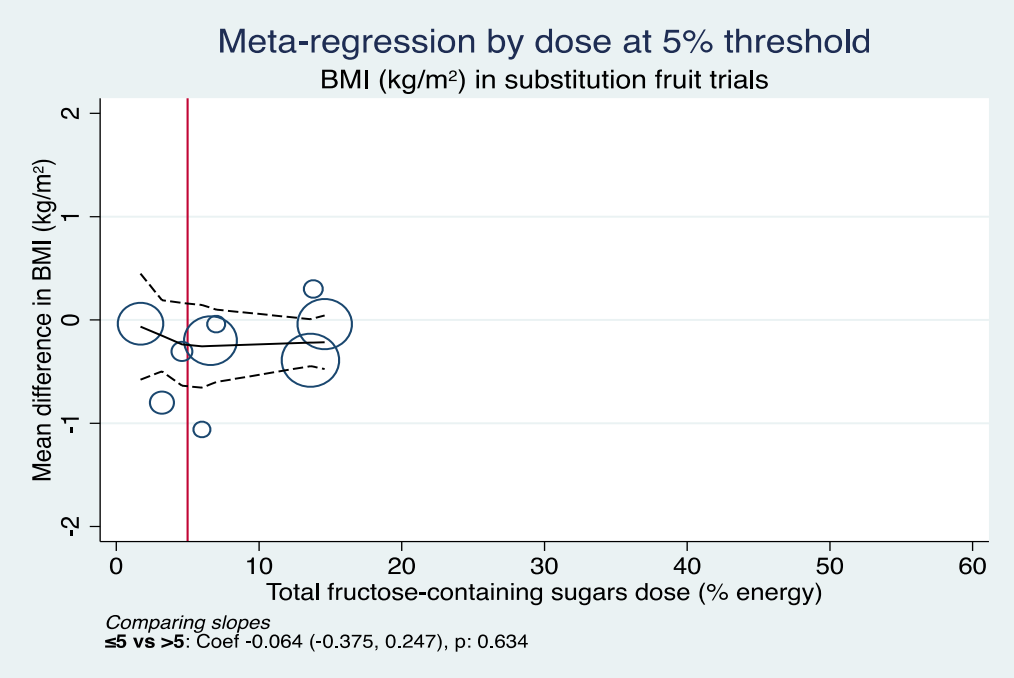
Supplementary Figure 233: Non-linear dose response analysis using public thresholds of 10% of energy for the effect of SSBs and BMI (kg/m^2) in substitution trials



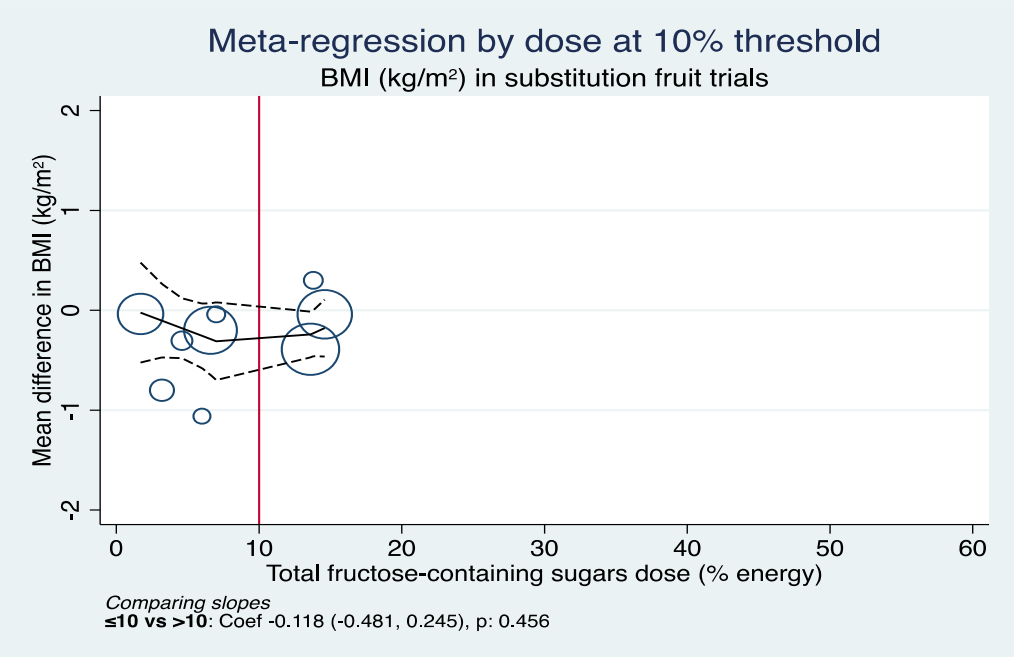
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
BMI=body mass index; Coef=coefficient; SSBs=sugar-sweetened beverages.

Supplementary Figure 234: Non-linear dose response analysis using public thresholds of 5% and 10% of energy for the effect of fruit and BMI (kg/m^2) in substitution trials

A



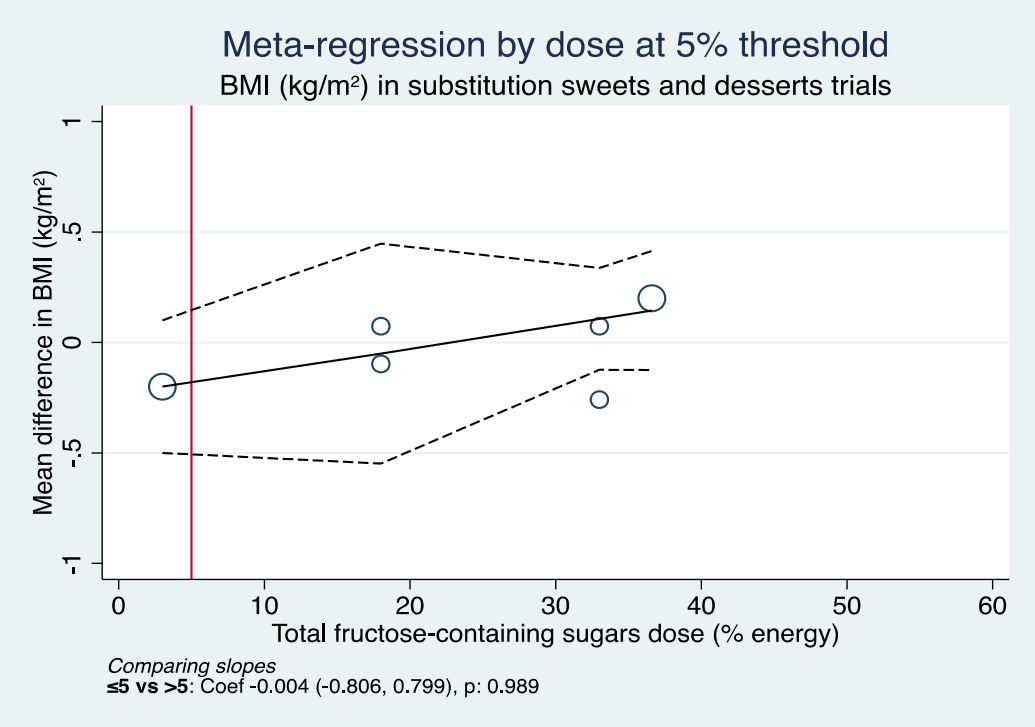
B



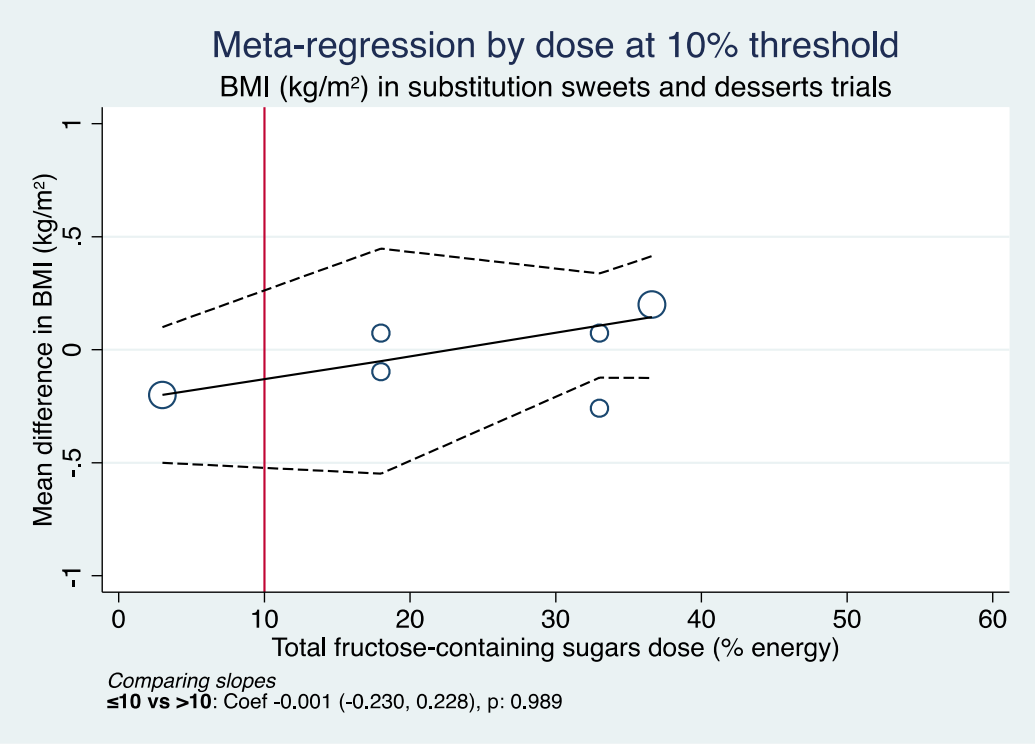
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold.
BMI=body mass index; Coef=coefficient.

Supplementary Figure 235: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of sweets and desserts and BMI (kg/m^2) in substitution trials

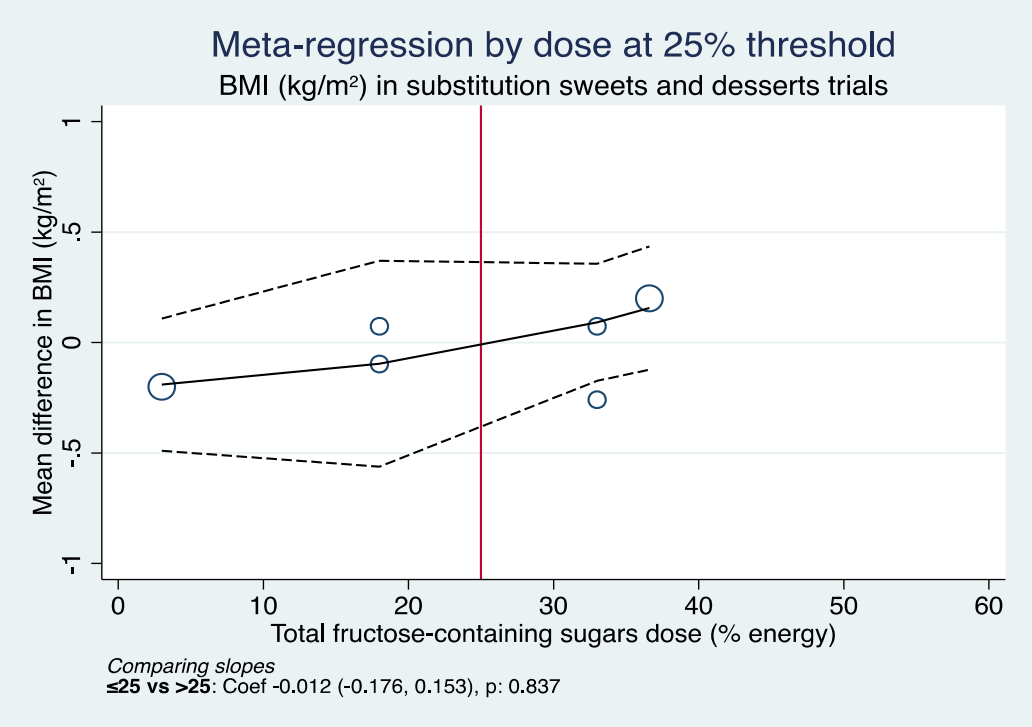
A



B



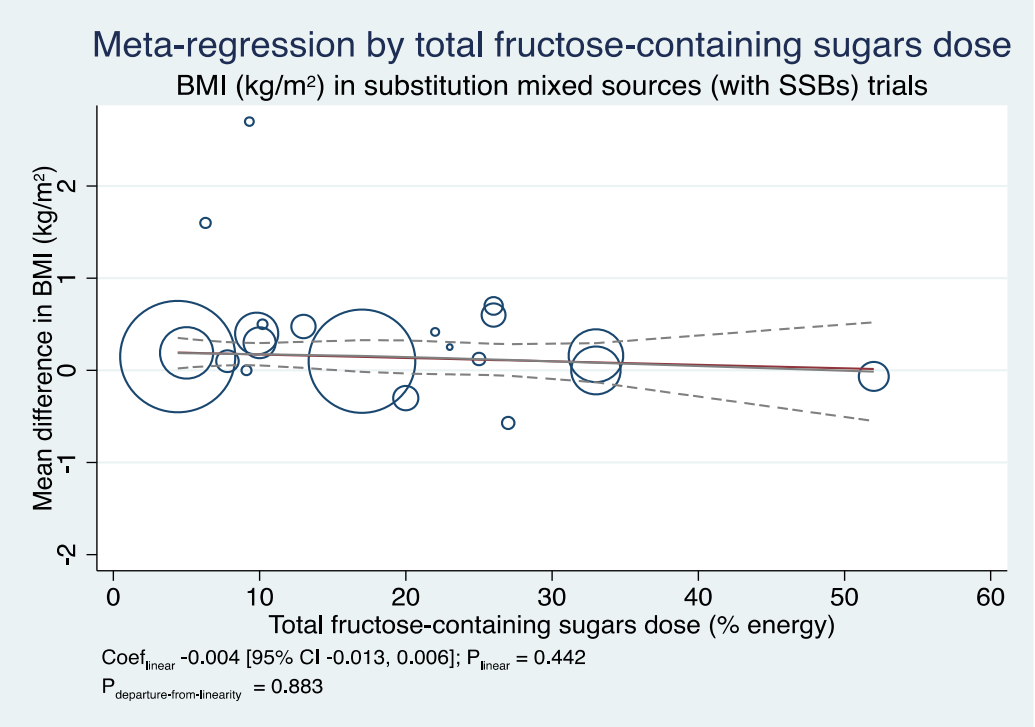
C



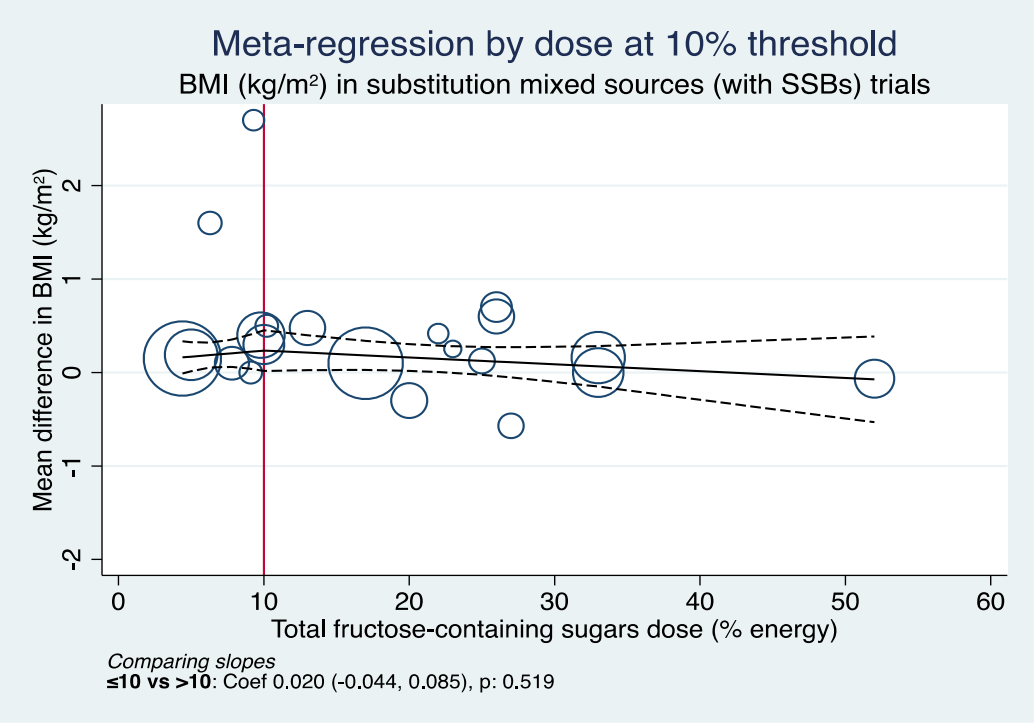
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25% threshold.
BMI=body mass index; Coef=coefficient.

Supplementary Figure 236: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of mixed sources (with SSBs) and BMI (kg/m^2) in substitution trials

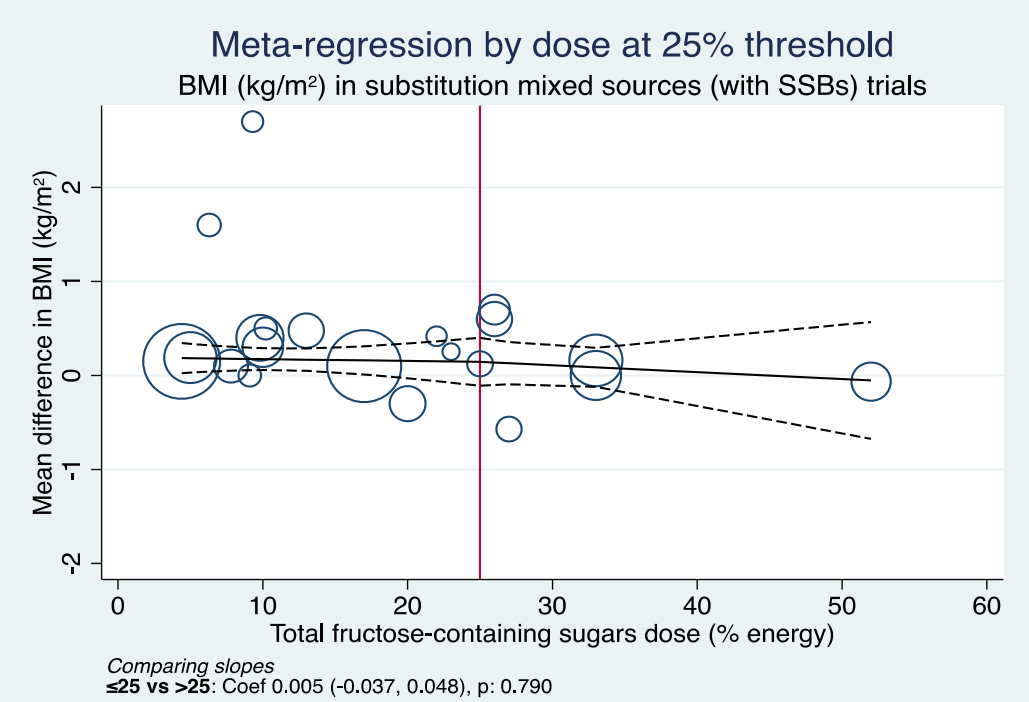
A



B

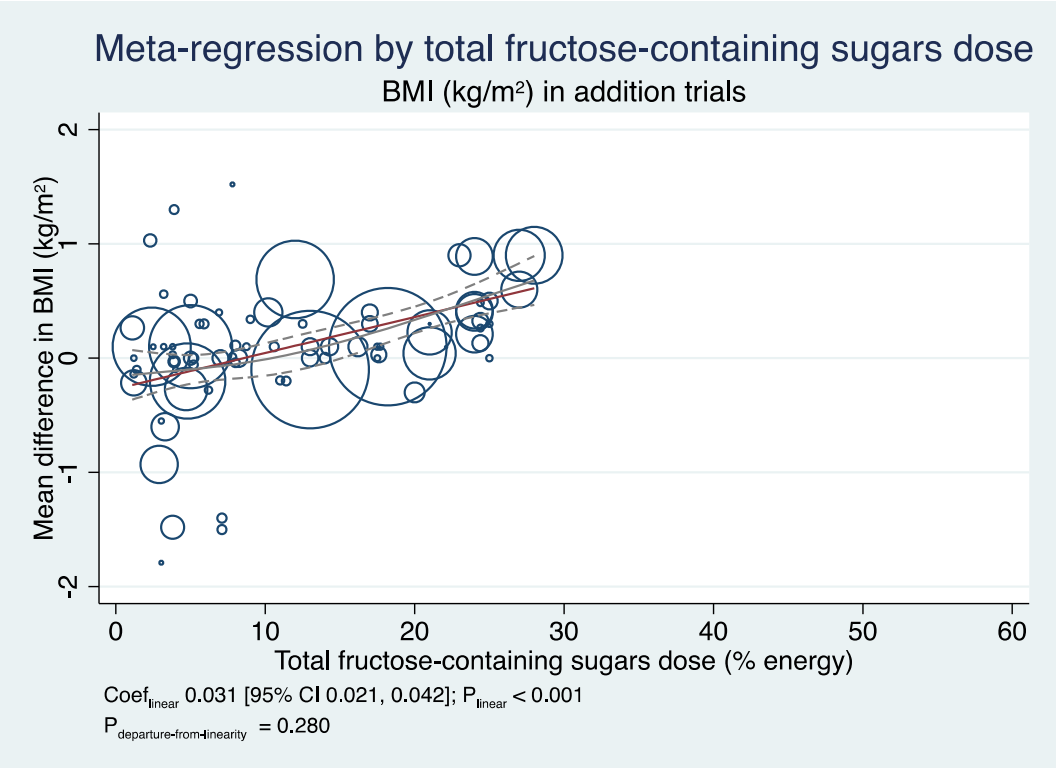


C



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25% threshold.
BMI=body mass index; Coef=coefficient; SSBs=sugar-sweetened beverages.

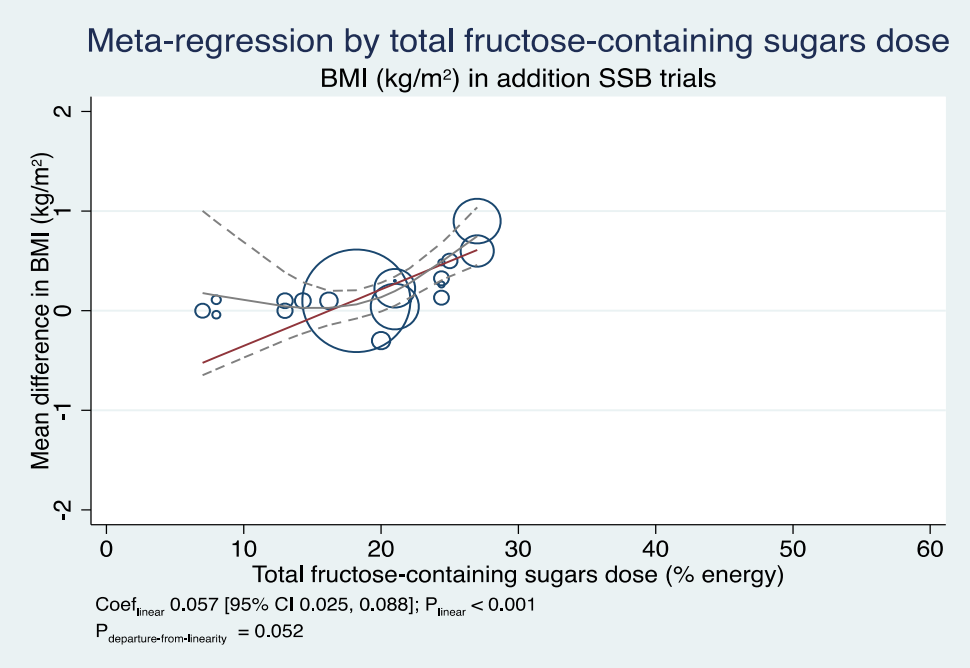
Supplementary Figure 237: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose and BMI (kg/m^2) in addition trials



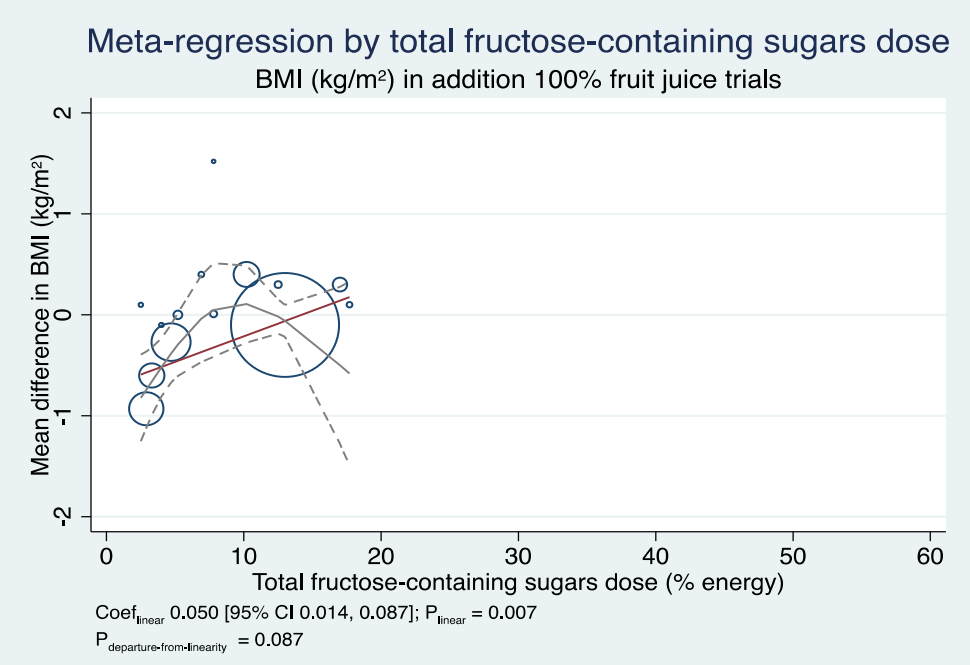
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
BMI=body mass index; Coef=coefficient; CI=confidence interval.

Supplementary Figure 238: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars and BMI (kg/m^2) in addition trials

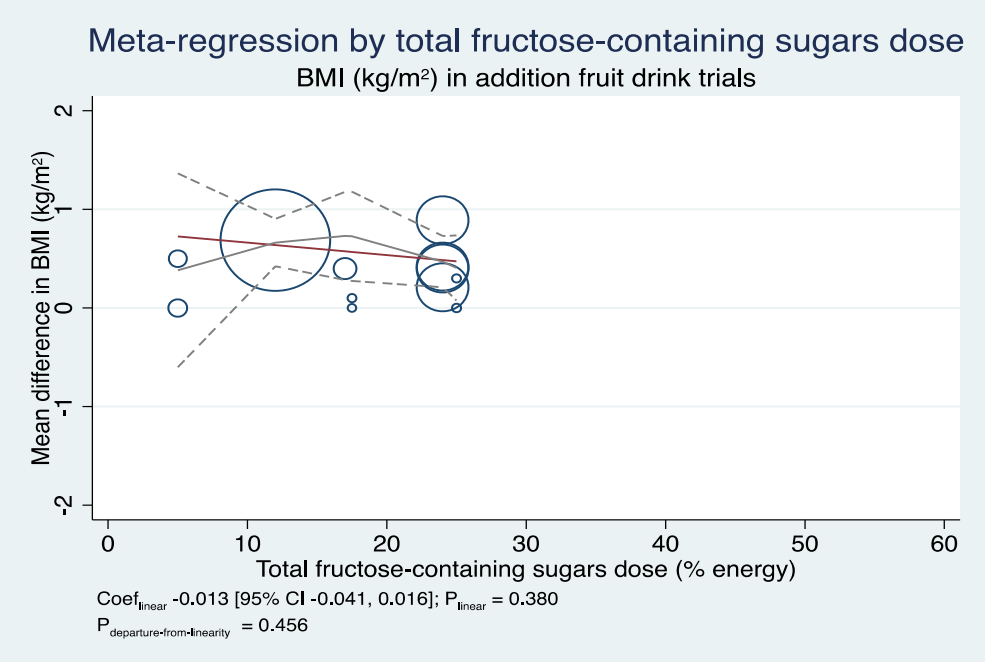
A



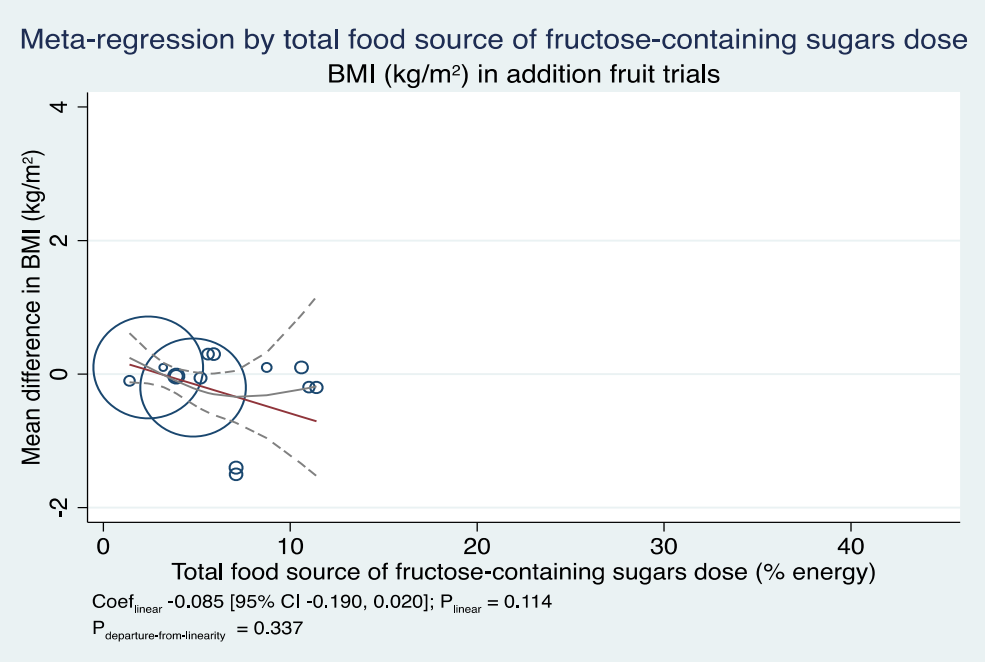
B



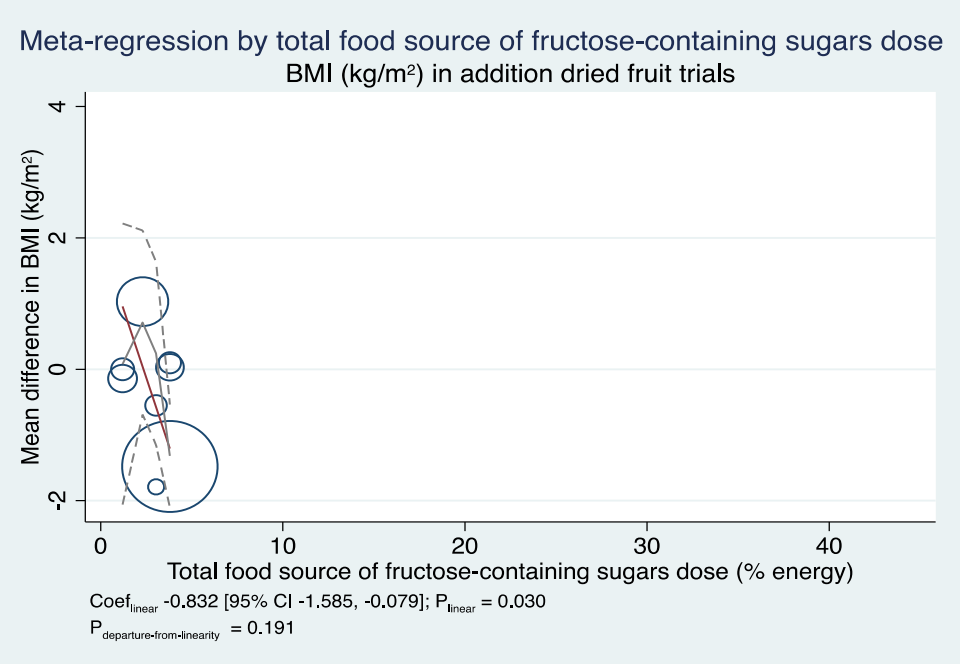
C


Meta-regression by total fructose-containing sugars dose
BMI (kg/m²) in addition fruit drink trials
Mean difference in BMI (kg/m²)
-2
-1
0
1
2
0
10
20
30
40
50
60
Total fructose-containing sugars dose (% energy)
Coef linear -0.013 [95% CI -0.041, 0.016]; P linear = 0.380
P departure-from-linearity = 0.456

D


Meta-regression by total food source of fructose-containing sugars dose
BMI (kg/m²) in addition fruit trials
Mean difference in BMI (kg/m²)
-2
0
2
4
0
10
20
30
40
Total food source of fructose-containing sugars dose (% energy)
Coef linear -0.085 [95% CI -0.190, 0.020]; P linear = 0.114
P departure-from-linearity = 0.337

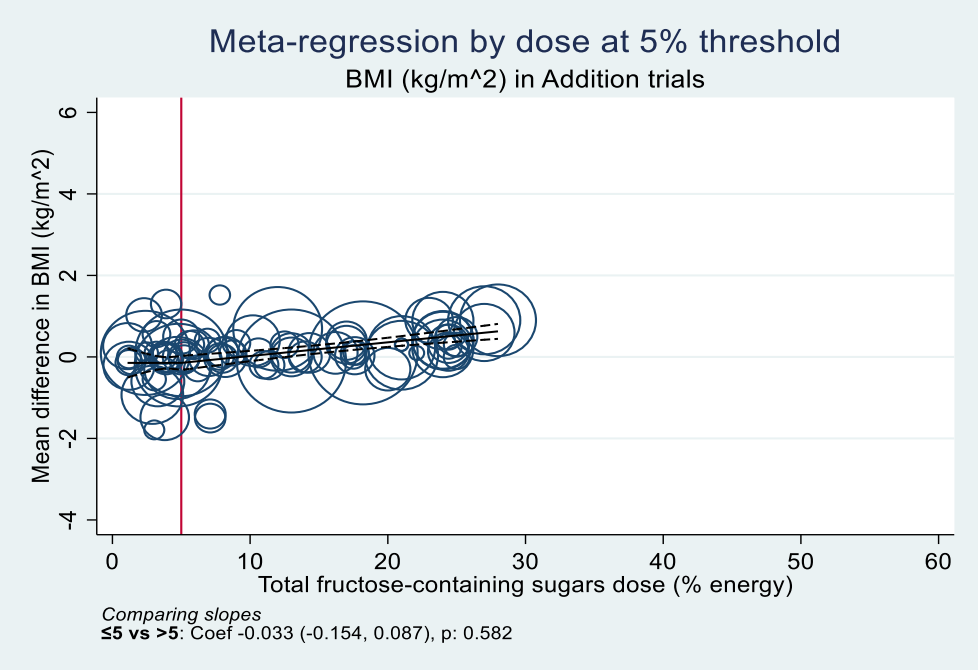
E



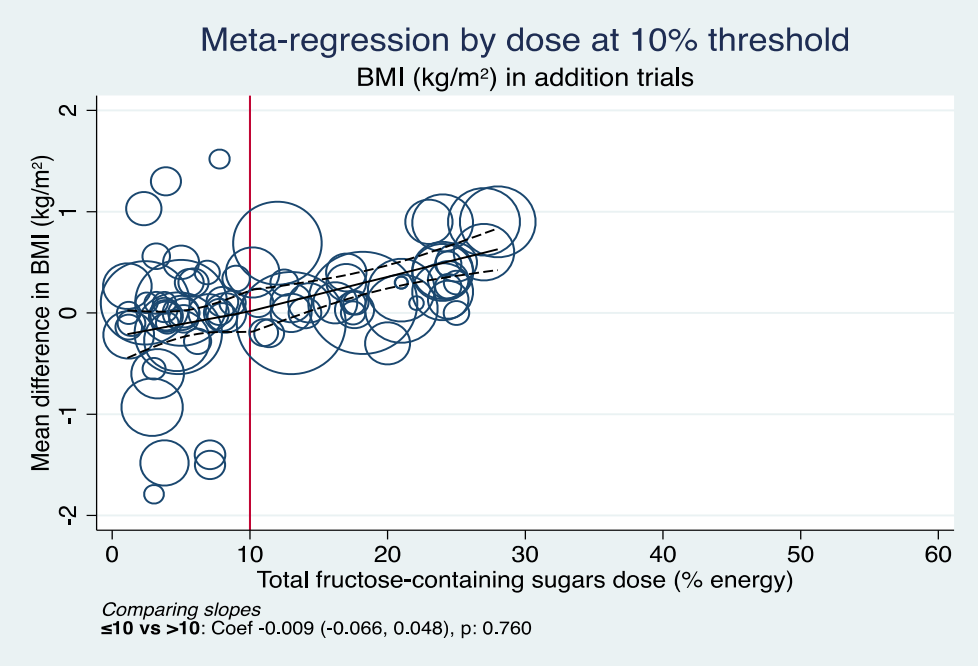
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
Panel A: SSBs; B: 100% fruit juice; C: fruit drink; D: fruit; E: dried fruit.
BMI=body mass index; coef=coefficient; SSB=sugars-sweetened beverage.

Supplementary Figure 239: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of important food sources of fructose-containing sugars and BMI (kg/m^2) in addition trials

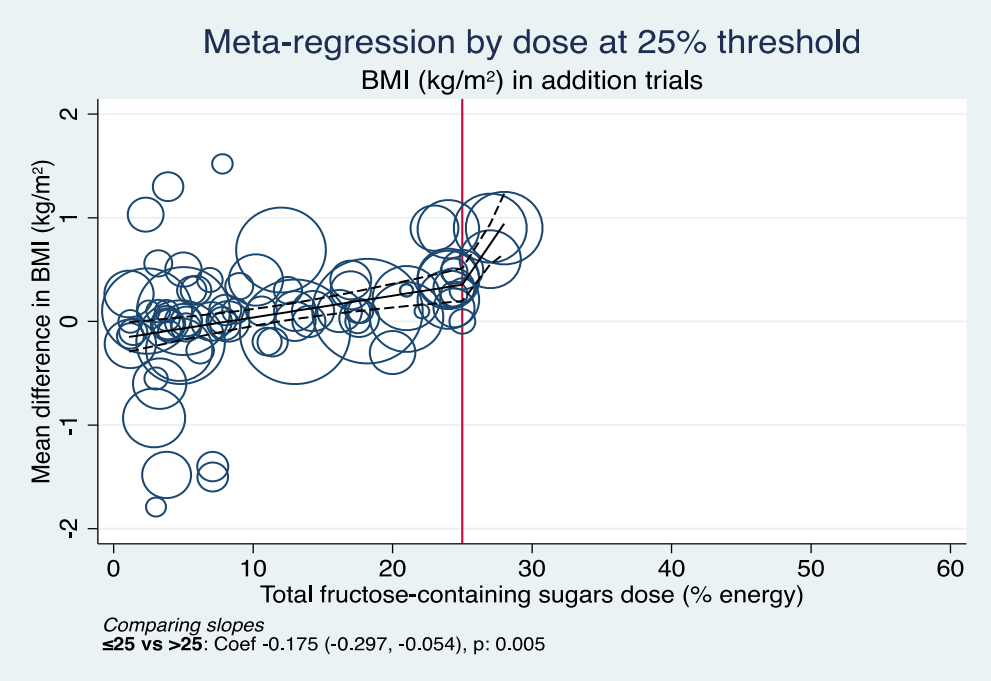
A



B



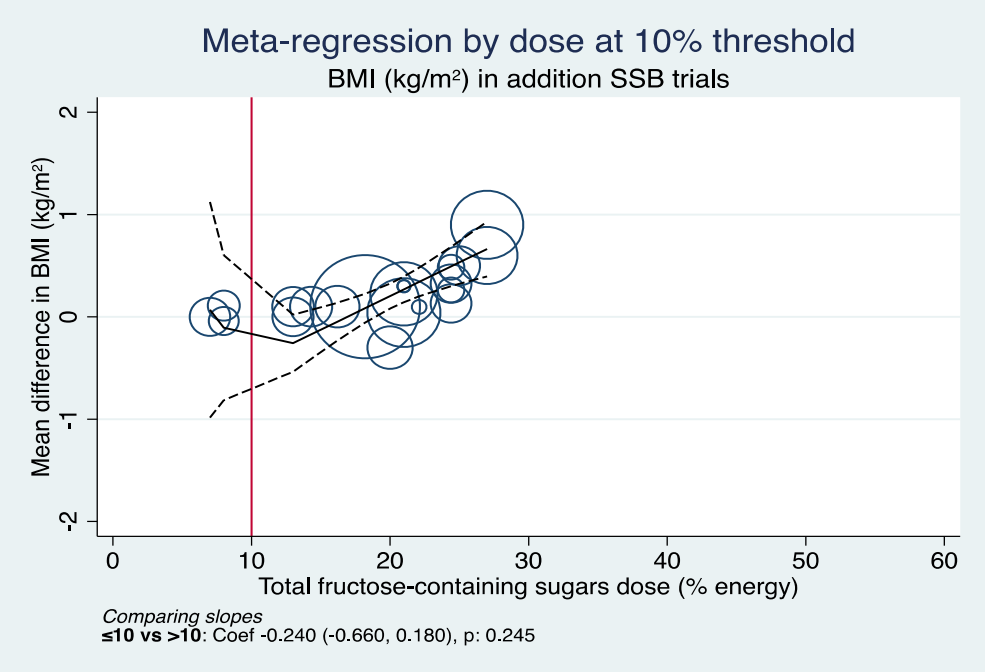
C



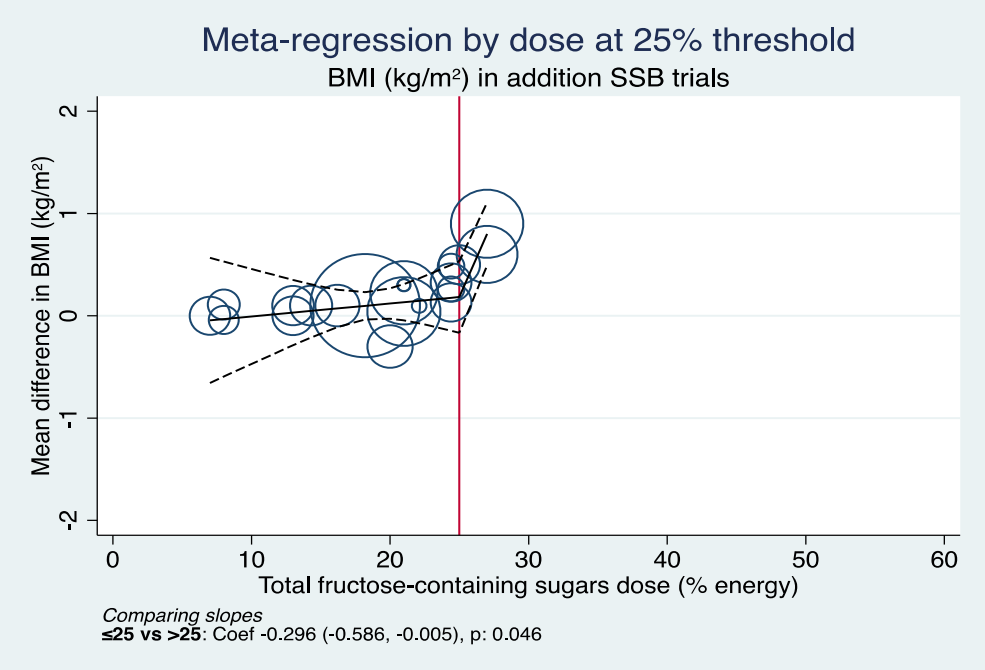
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25% threshold.
BMI=body mass index; Coef=coefficient.

Supplementary Figure 240: Non-linear dose response analysis using public thresholds of 10% and 25% of energy for the effect of SSBs and BMI (kg/m^2) in addition trials

A



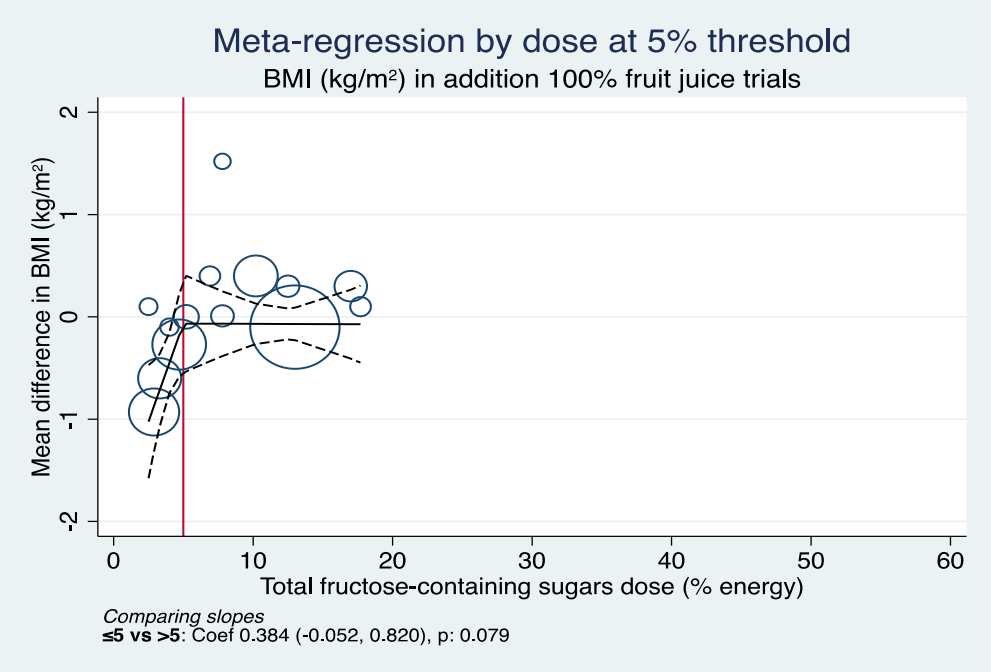
B



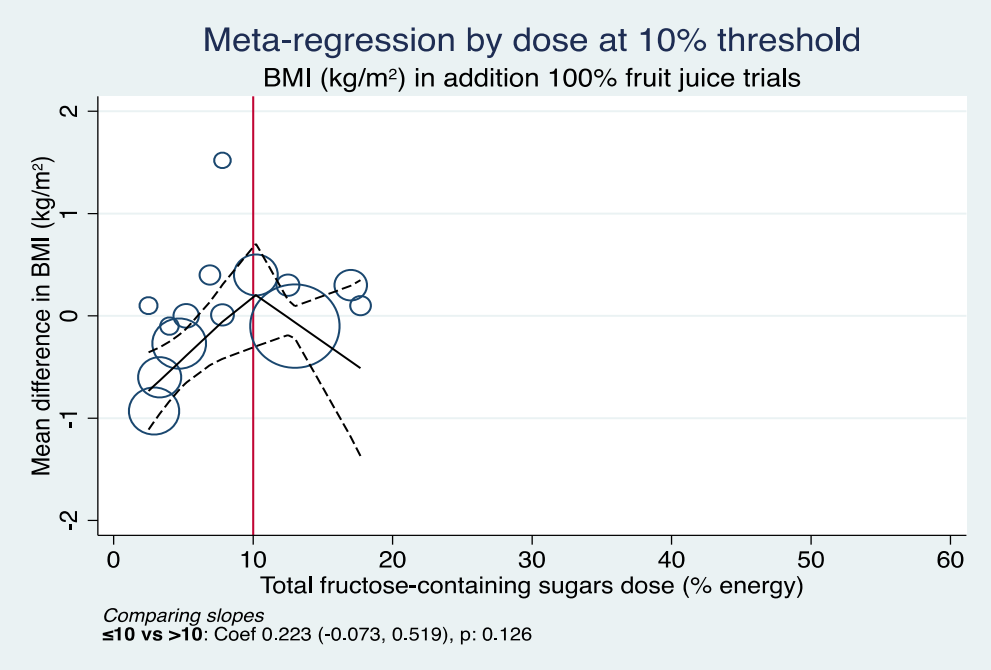
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 10% threshold; B: 25% threshold.
BMI=body mass index; Coef=coefficient; SSB=sugars-sweetened beverage.

Supplementary Figure 241: Non-linear dose response analysis using public thresholds of 5% and 10% of energy for the effect of 100% fruit juice and BMI (kg/m^2) in addition trials

A

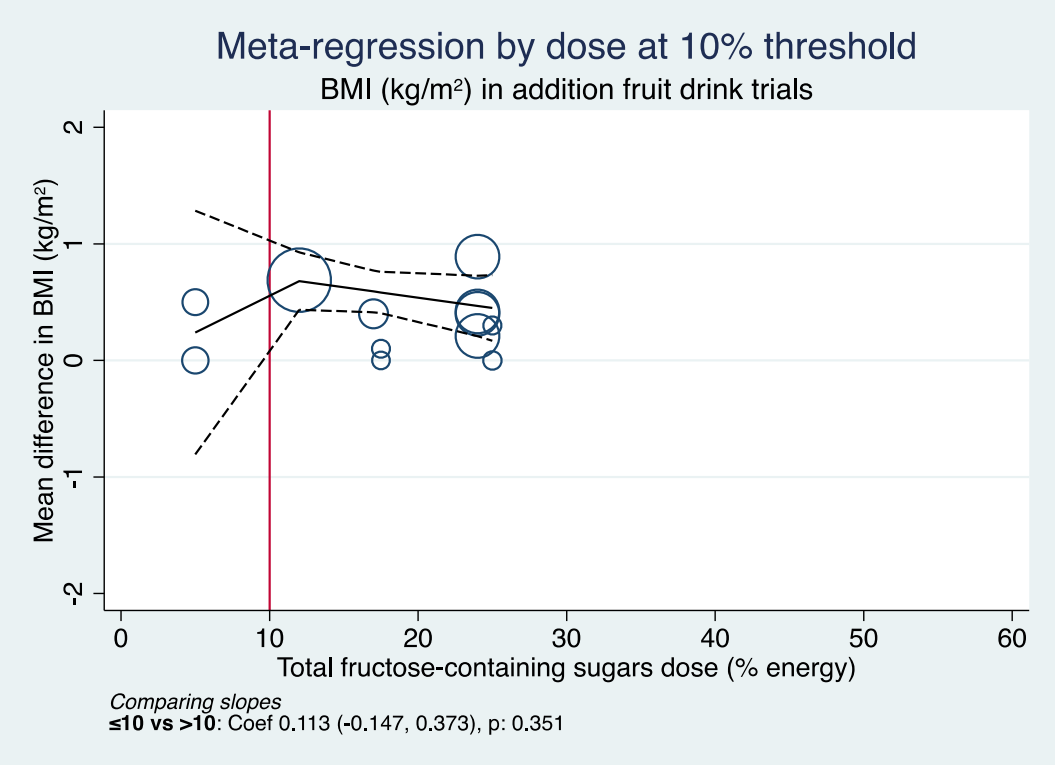


B



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold.
BMI=body mass index; Coef=coefficient.

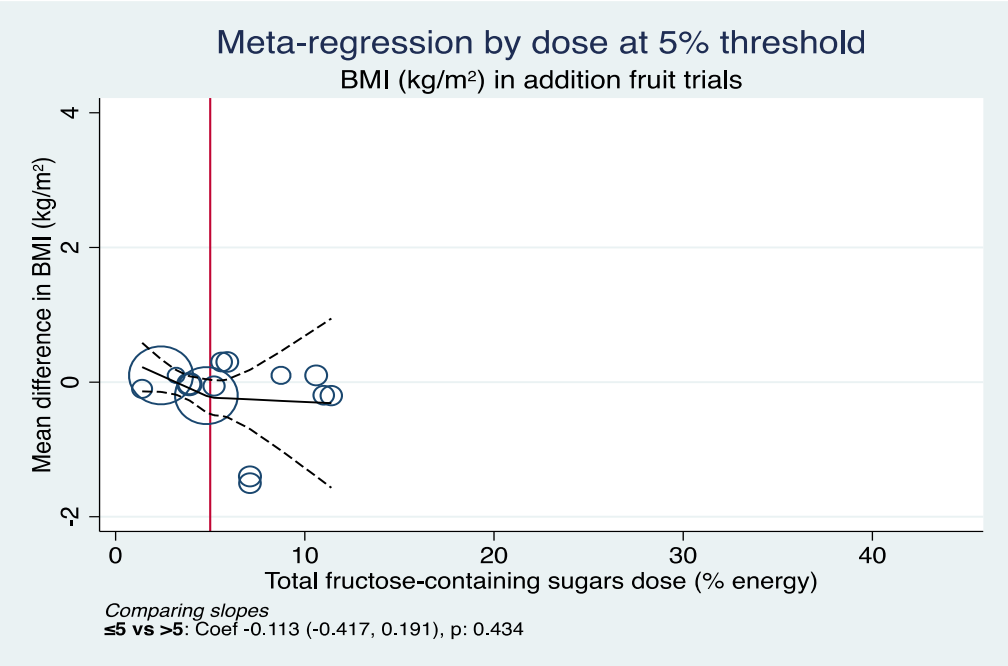
Supplementary Figure 242: Non-linear dose response analysis using public threshold of 10% of energy for the effect of fruit drink and BMI (kg/m^2) in addition trials



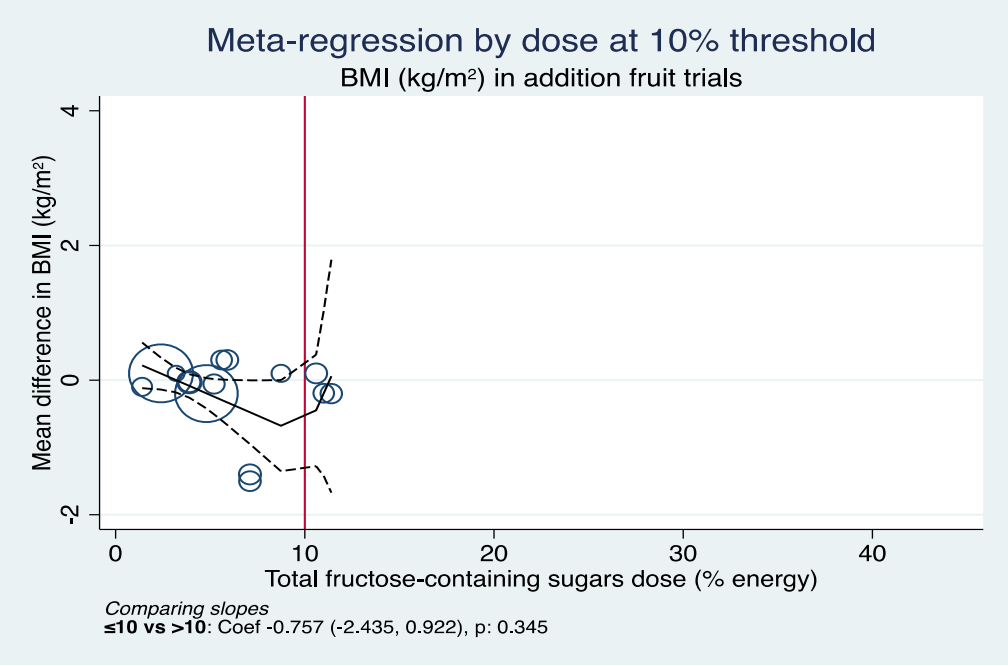
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
BMI=body mass index; Coef=coefficient.

Supplementary Figure 243: Non-linear dose response analysis using public thresholds of 5% and 10% of energy for the effect of fruit and BMI (kg/m^2) in addition trials

A



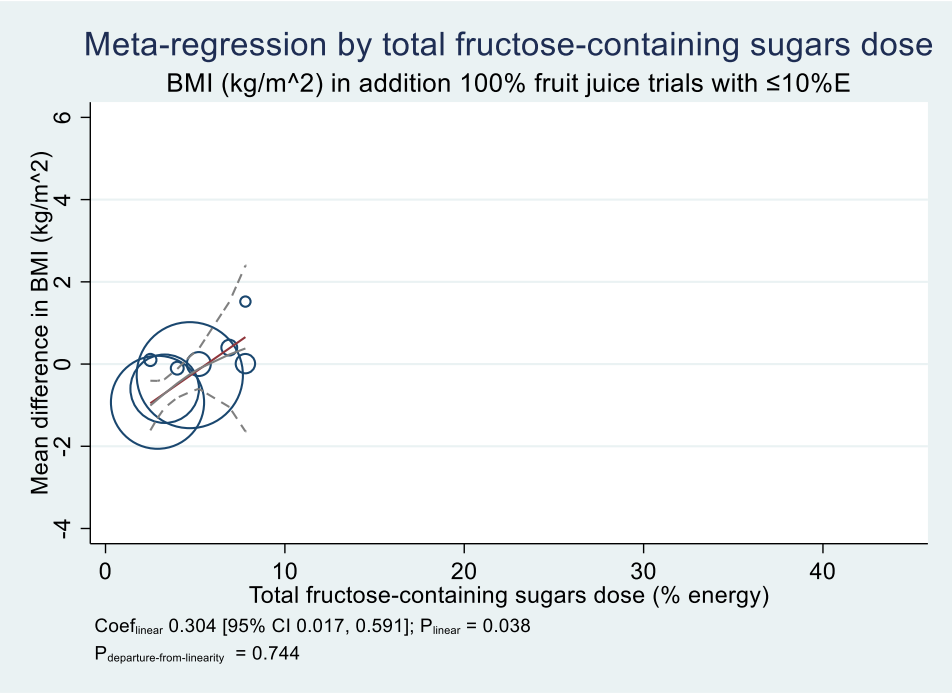
B



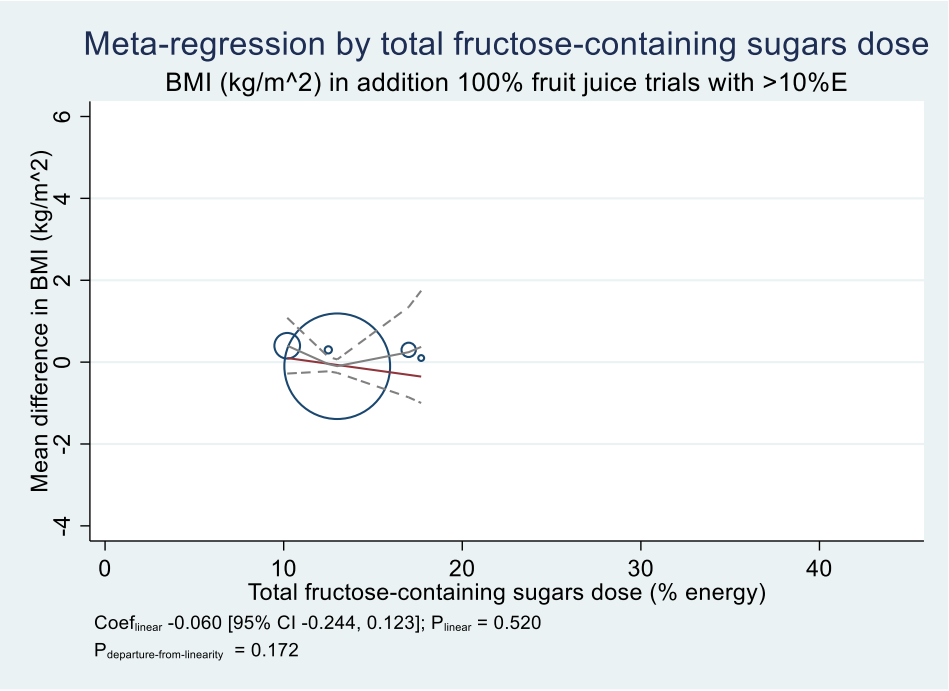
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold.
BMI=body mass index; Coef=coefficient; SSB=sugars-sweetened beverage.

Supplementary Figure 244: Linear and non-linear meta-regression analyses for the effect of 100% fruit juice on BMI (kg/m^2) in addition trials with ≤10%E or >10%E

A

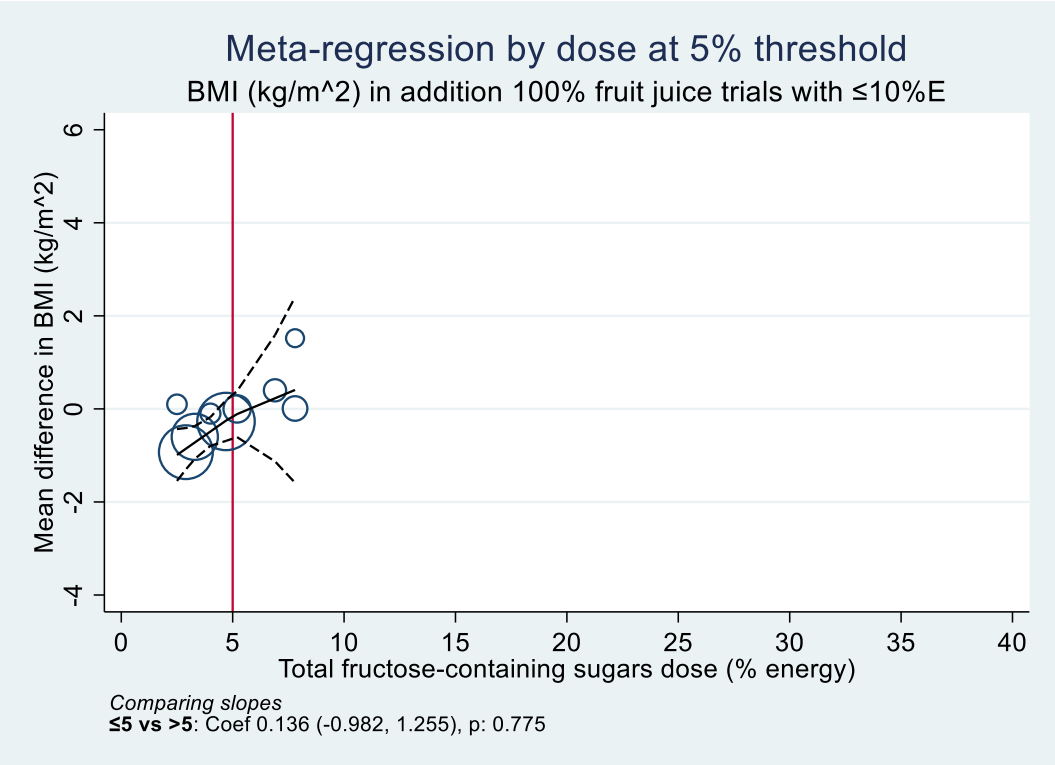


B



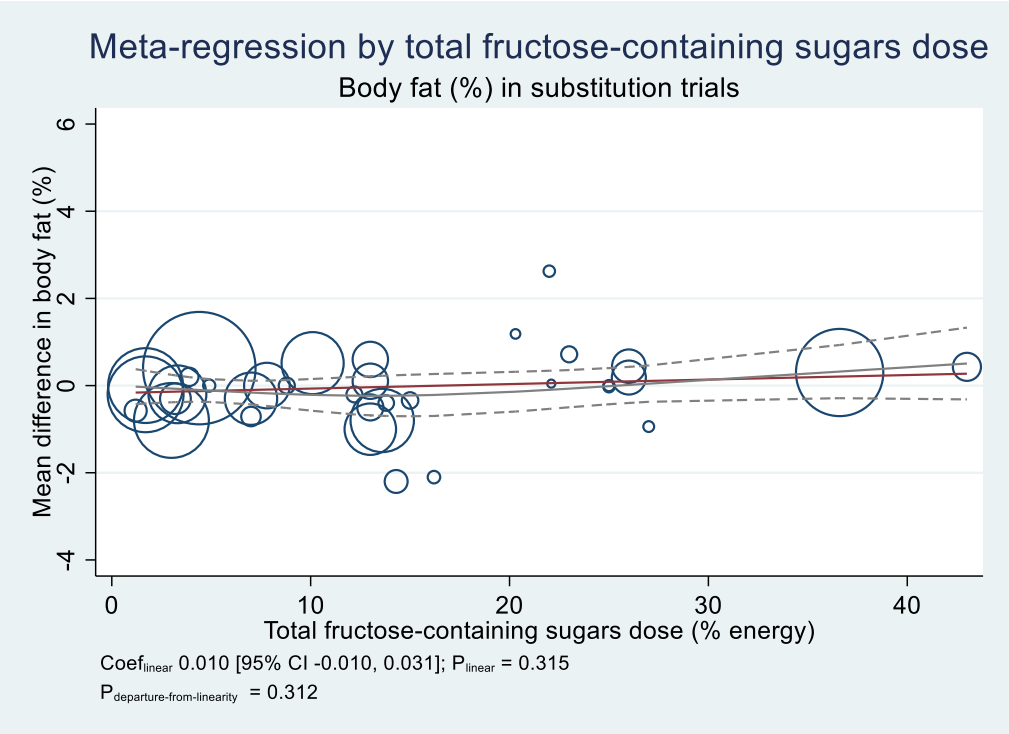
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
Panel A: addition trials of 100% fruit juice with ≤10%E; B: addition trials of 100% fruit juice with >10%
BMI=body mass index; Coef=coefficient; CI=confidence interval.

Supplementary Figure 245: Non-linear dose response analysis using public thresholds of 5% of energy for the effect of 100% fruit juice and BMI (kg/m^2) in addition trials with ≤10%E



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
BMI=body mass index; Coef=coefficient.

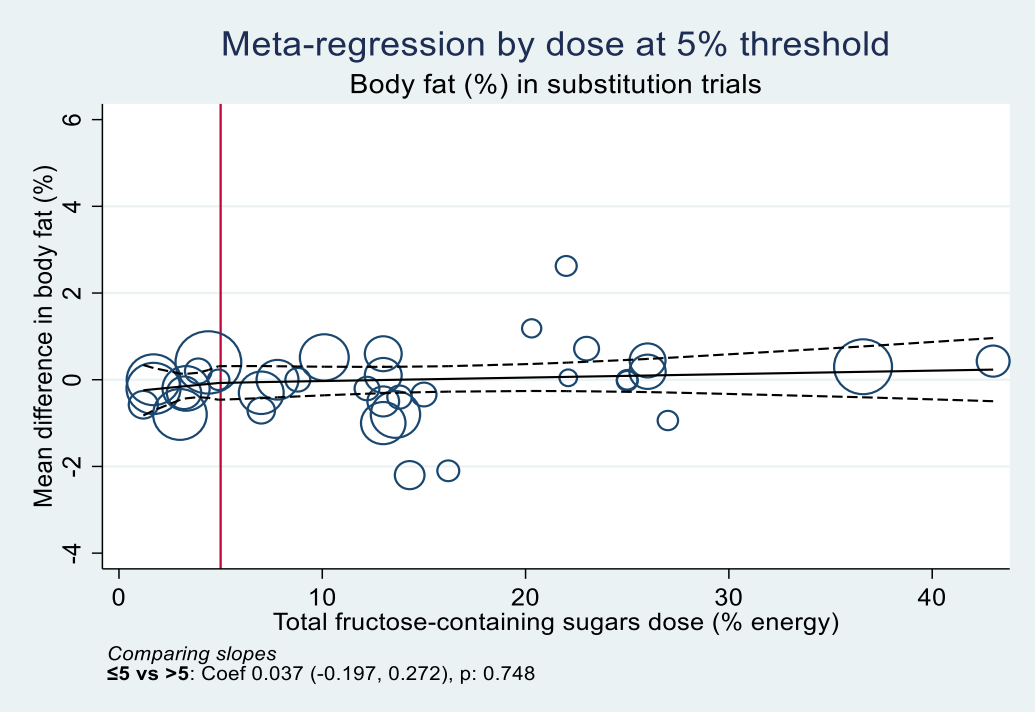
Supplementary Figure 246: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose and body fat (%) in substitution trials



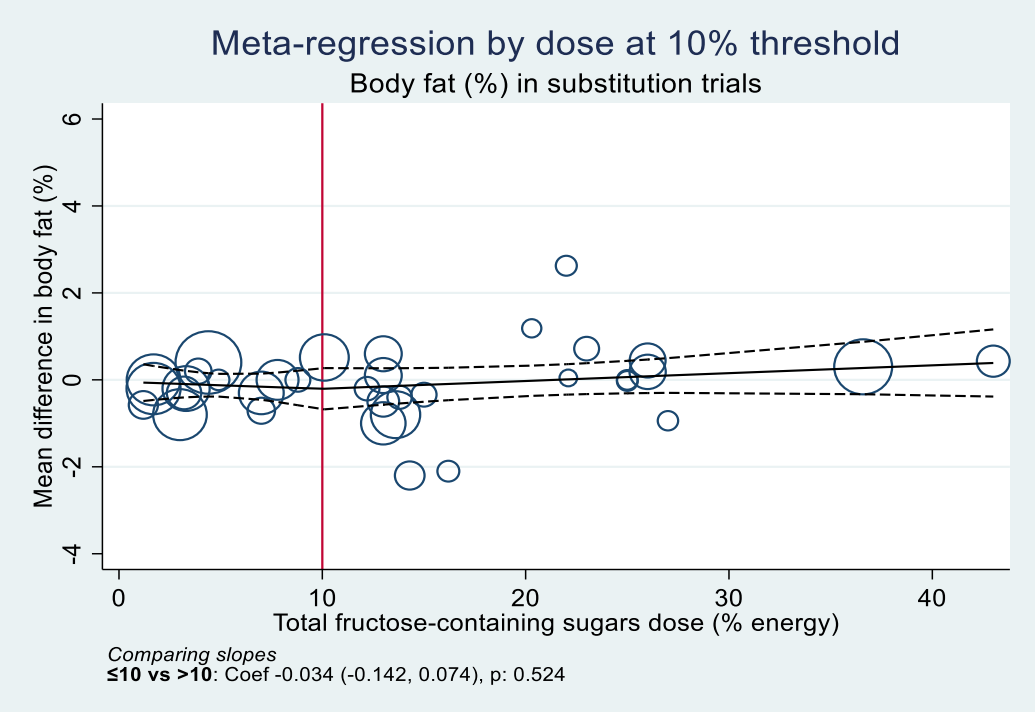
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
CI=confidence interval; Coef=coefficient.

Supplementary Figure 247: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of important food sources of fructose-containing sugars and body fat (%) in substitution trials

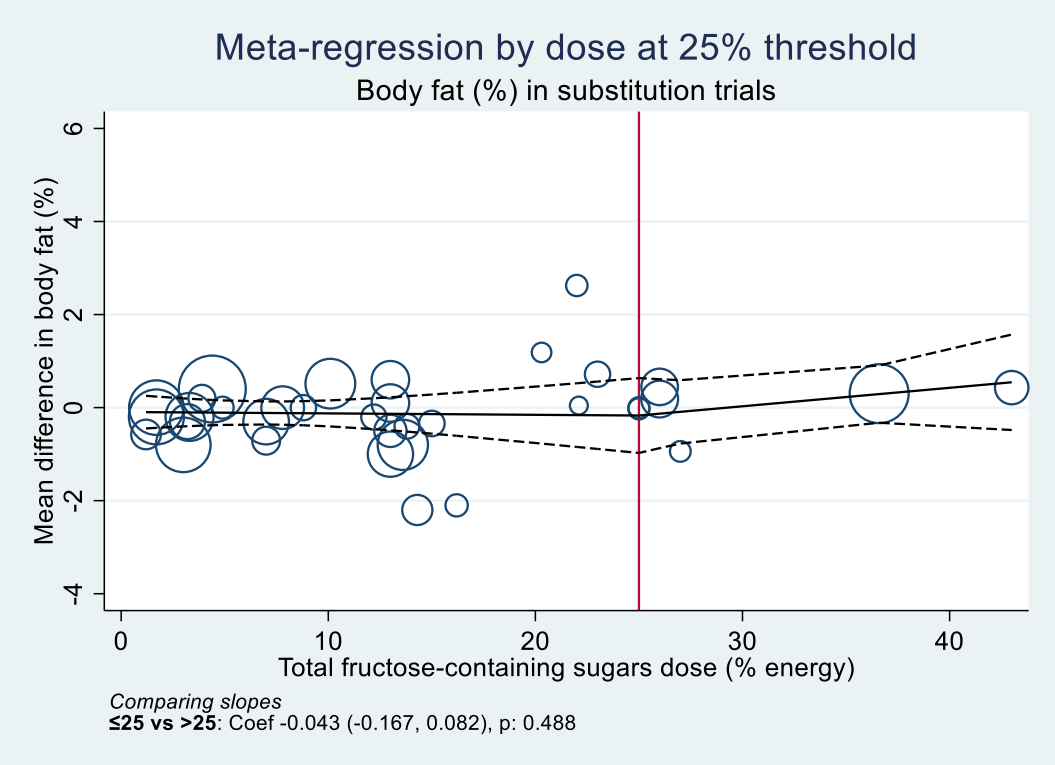
A



B

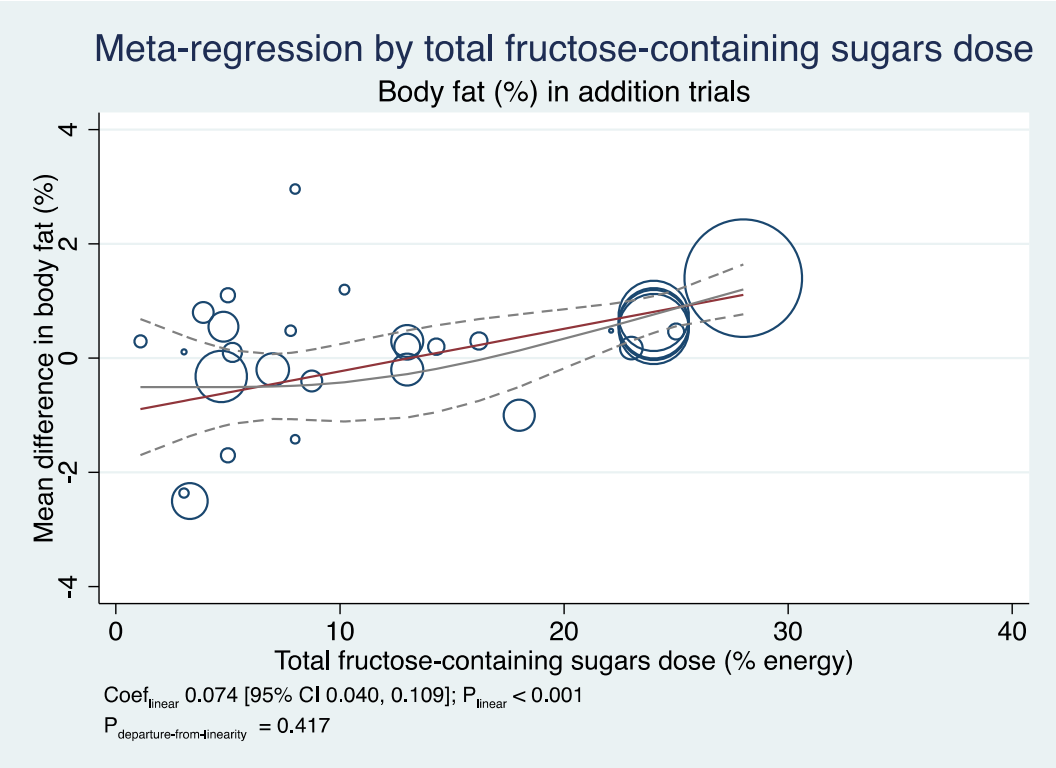


C



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25% threshold.
Coef=coefficient.

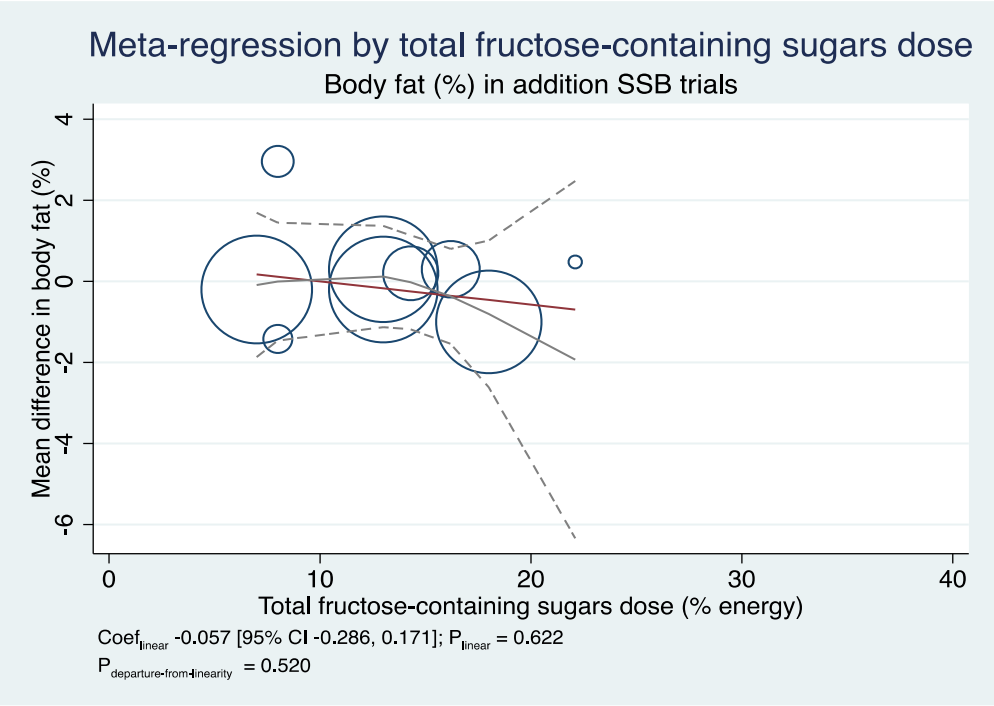
Supplementary Figure 248: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose and body fat (%) in addition trials



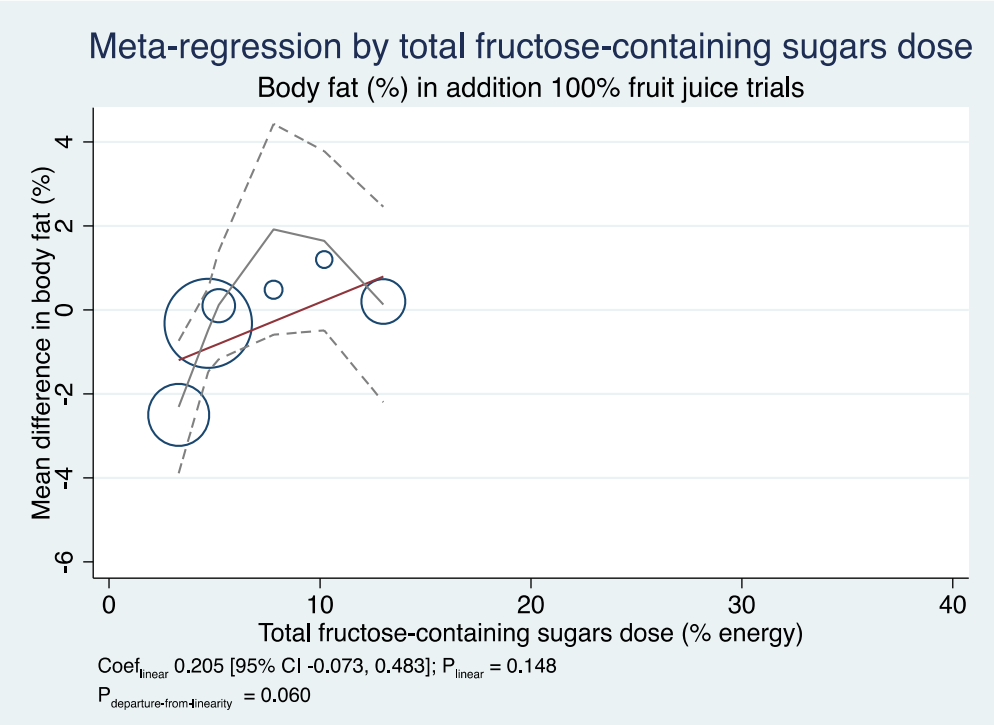
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals. Coef=coefficient; CI=confidence interval.

Supplementary Figure 249: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars and body fat (%) in addition trials

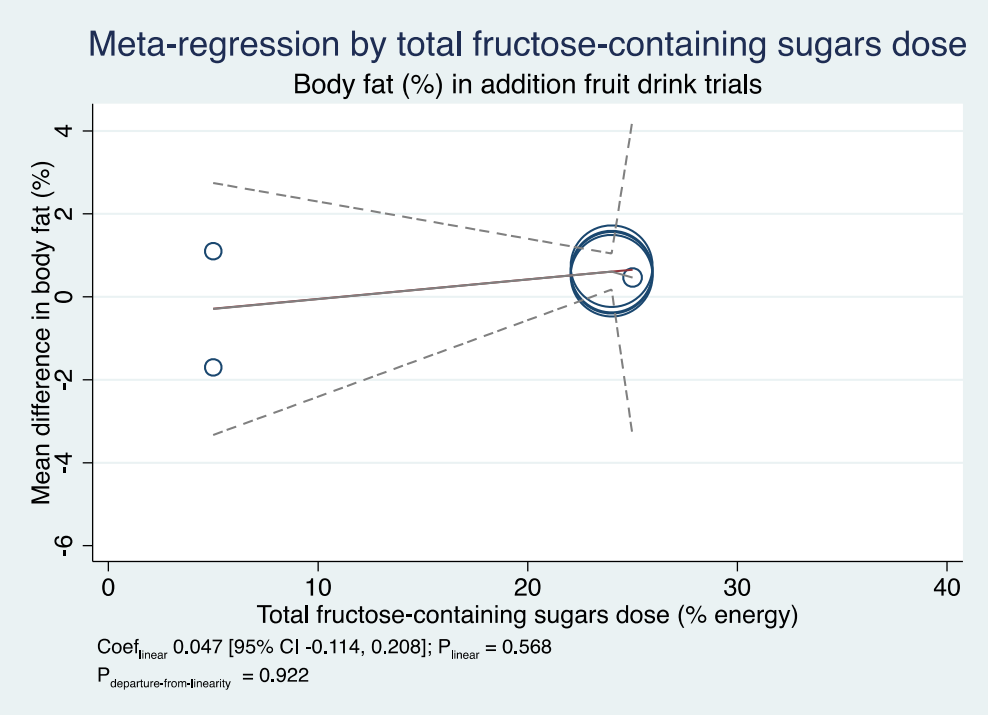
A



B



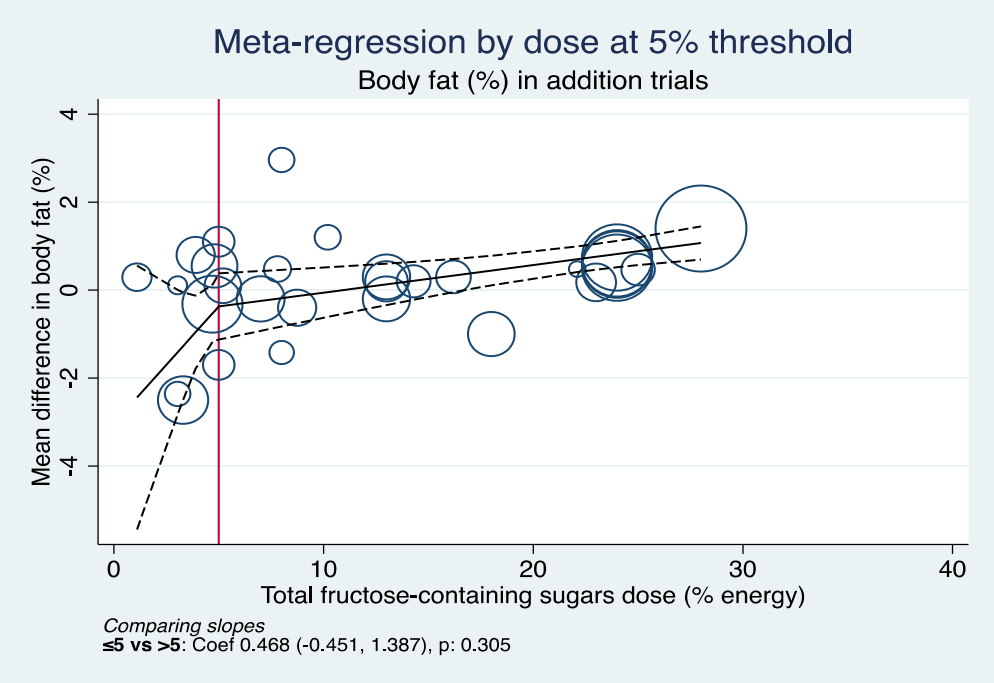
C



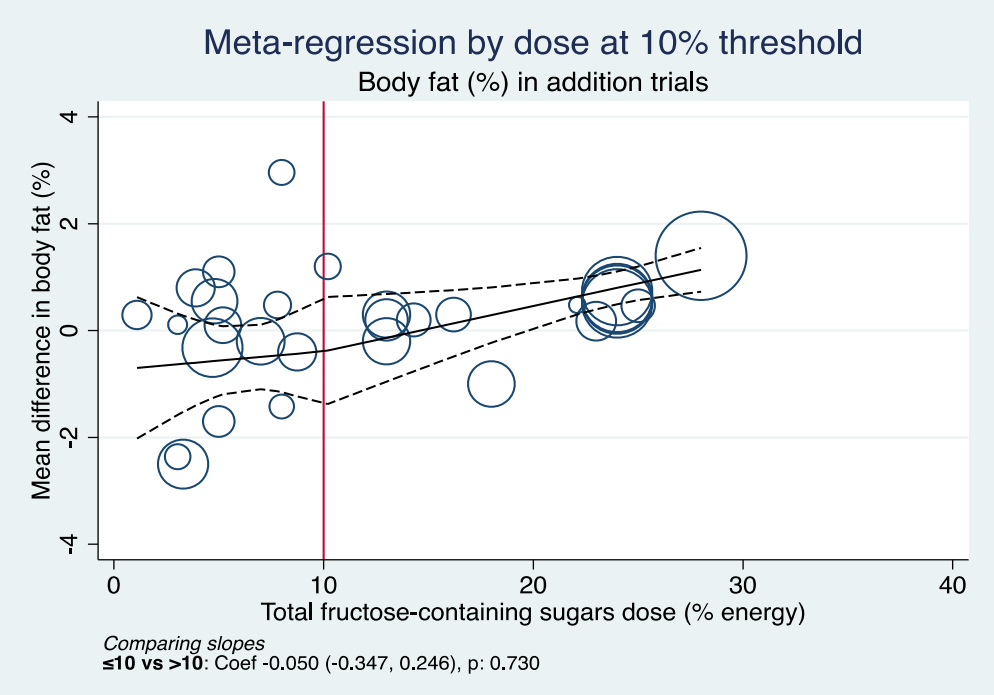
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
Panel A: SSBs; Panel B: 100% fruit juice; C: fruit drink.
Coef=coefficient; CI=confidence interval; SSB=sugar sweetened beverage.

Supplementary Figure 250: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of important food sources of fructose-containing sugars and body fat (%) in addition trials

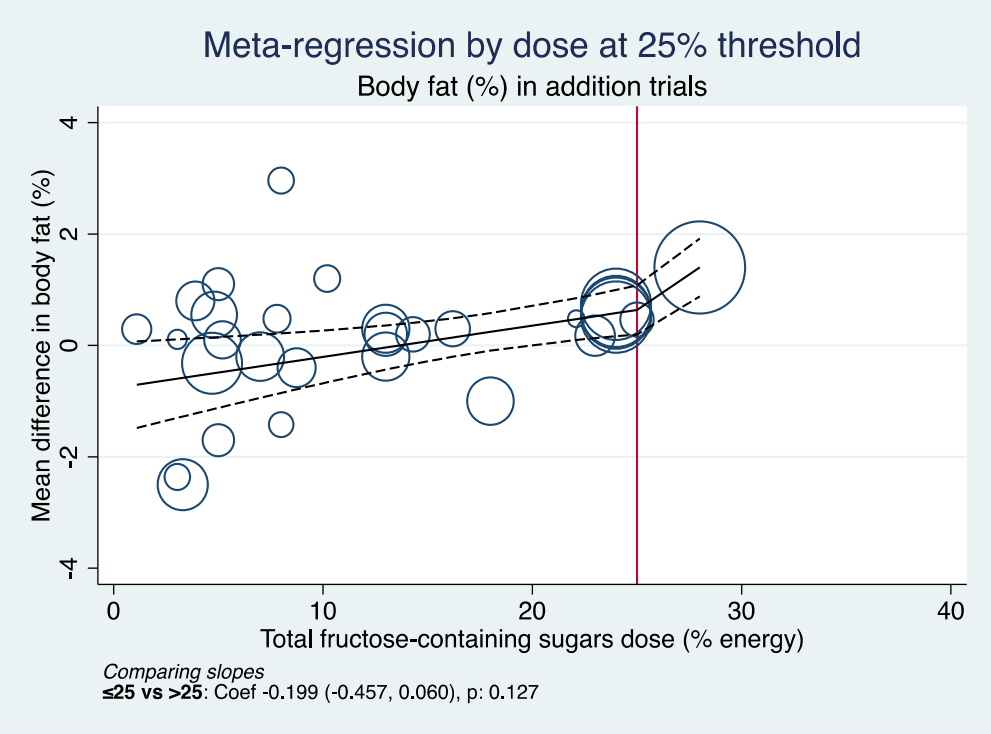
A



B

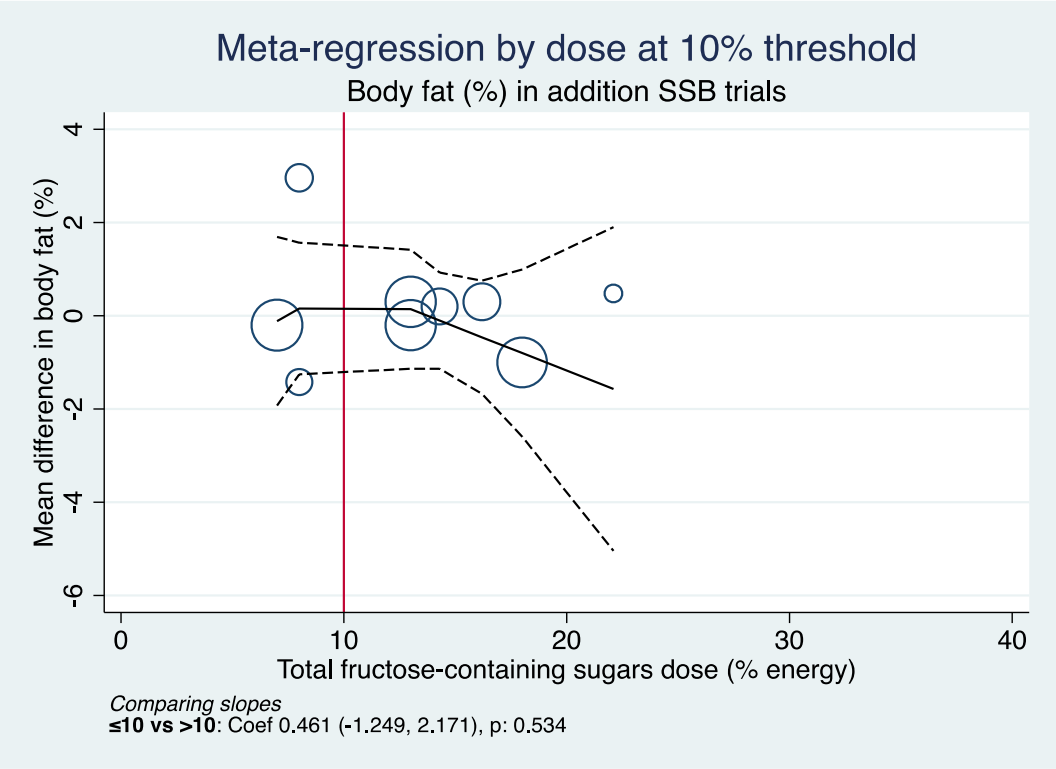


C



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25%.
Coef=coefficient.

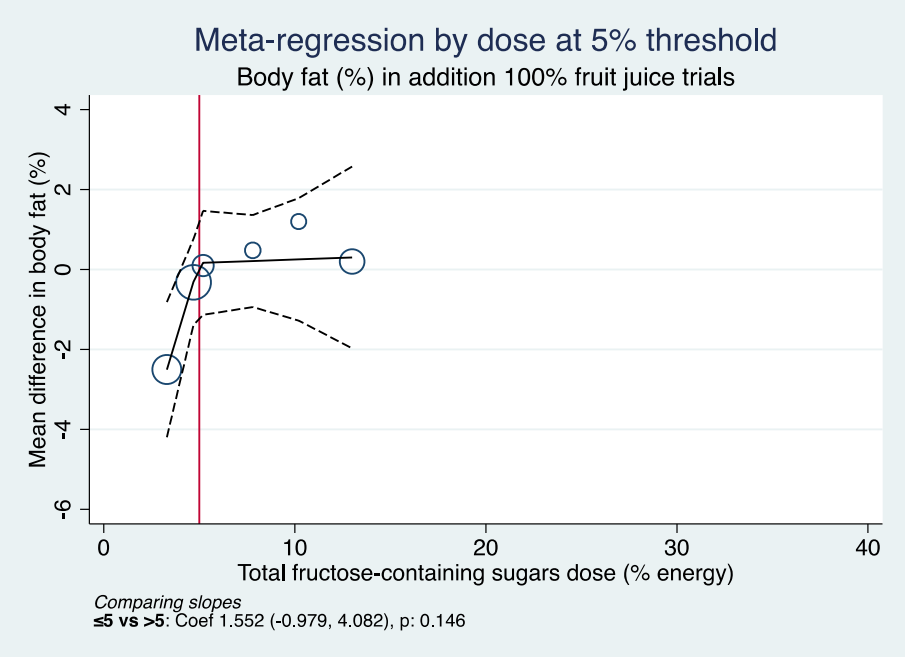
Supplementary Figure 251: Non-linear dose response analysis using the public thresholds of 10% energy for the effect of SSBs and body fat (%) in addition trials



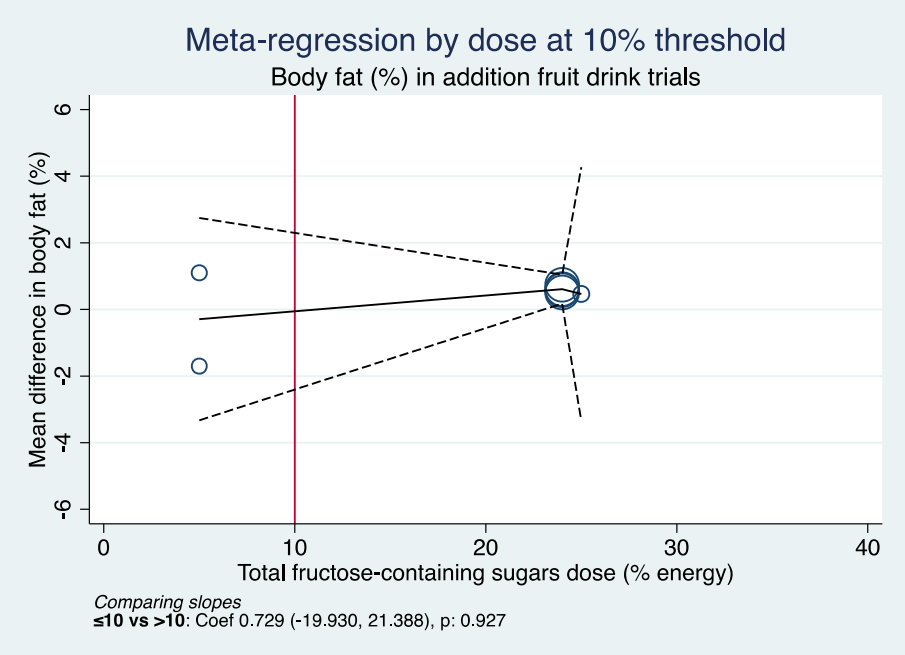
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Coef=coefficient; SSBs=sugar-sweetened beverages.

Supplementary Figure 252: Non-linear dose response analysis using public thresholds of 5 and 10% energy for the effect of 100% fruit juice and body fat (%) in addition trials

A

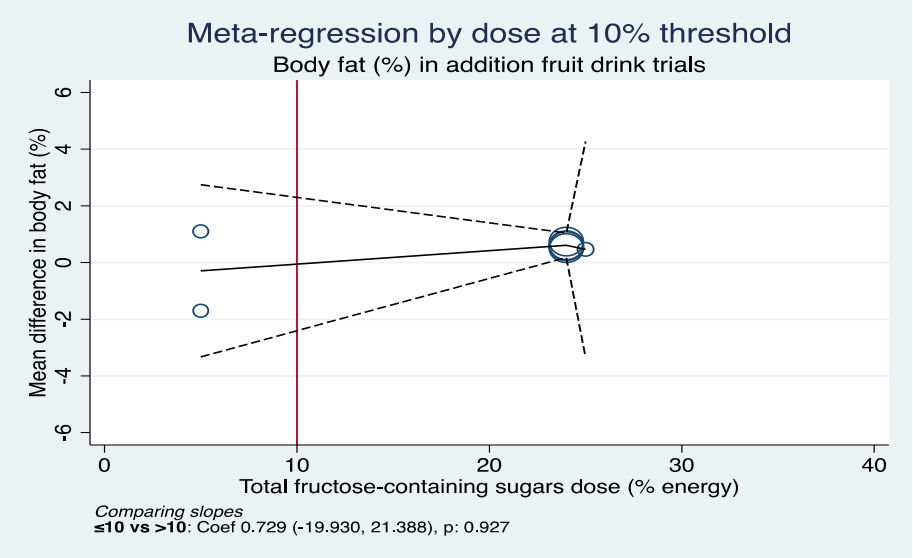


B



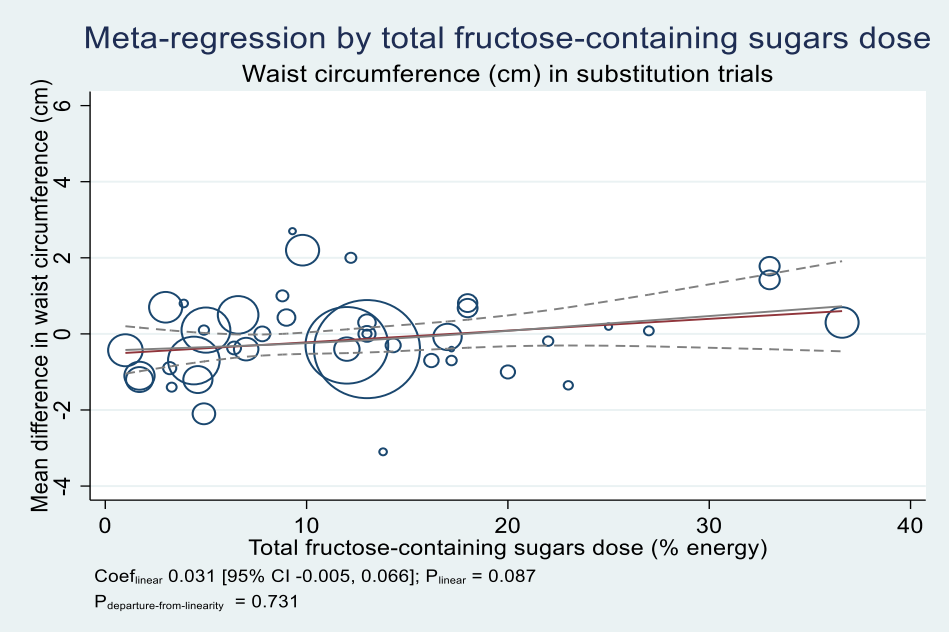
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold.
Coef=coefficient.

Supplementary Figure 253: Non-linear dose response analysis using the public thresholds of 10% energy for the effect of fruit drink and body fat (%) in addition trials



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Coef=coefficient.

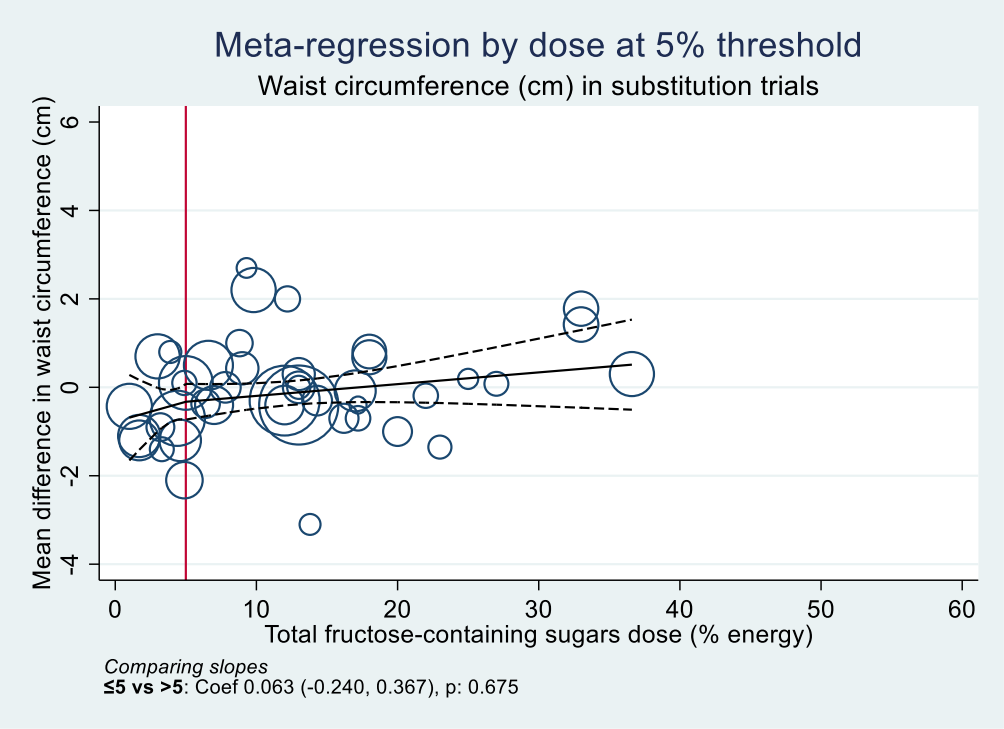
Supplementary Figure 254: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose and waist circumference (cm) in substitution trials



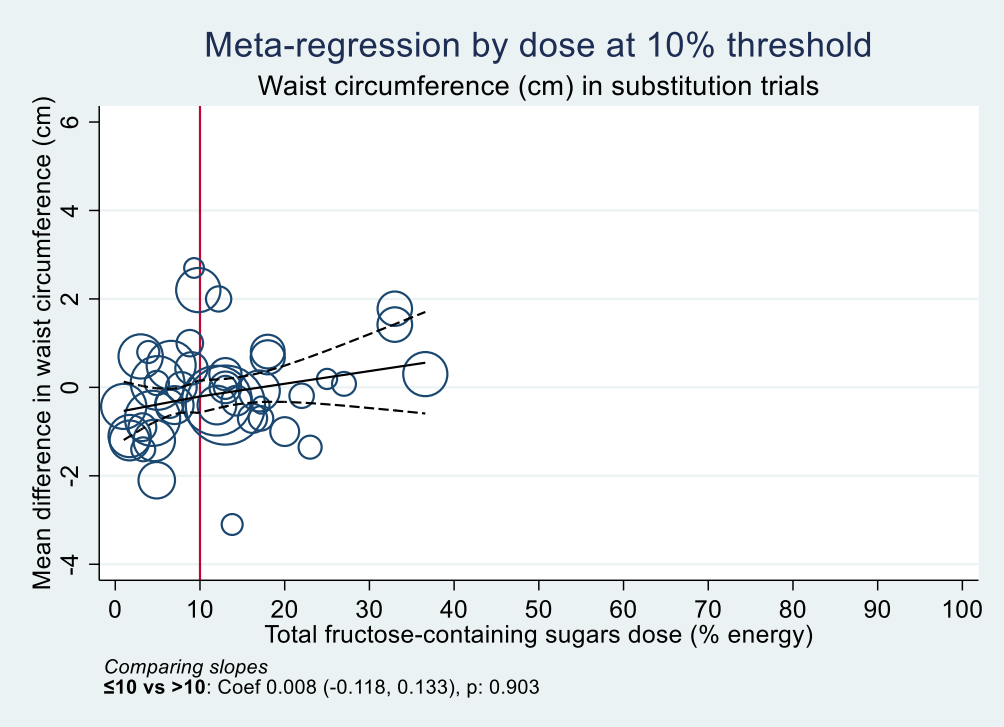
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
Coef=coefficient; CI=confidence interval.

Supplementary Figure 255: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of important food sources of fructose-containing sugars and waist circumference (cm) in substitution trials

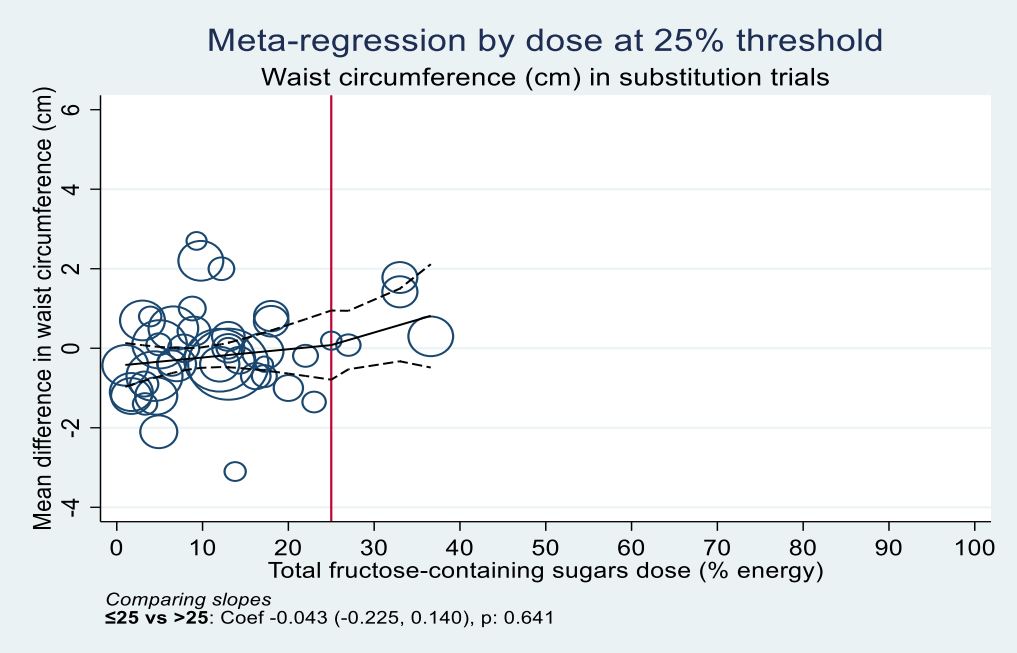
A



B

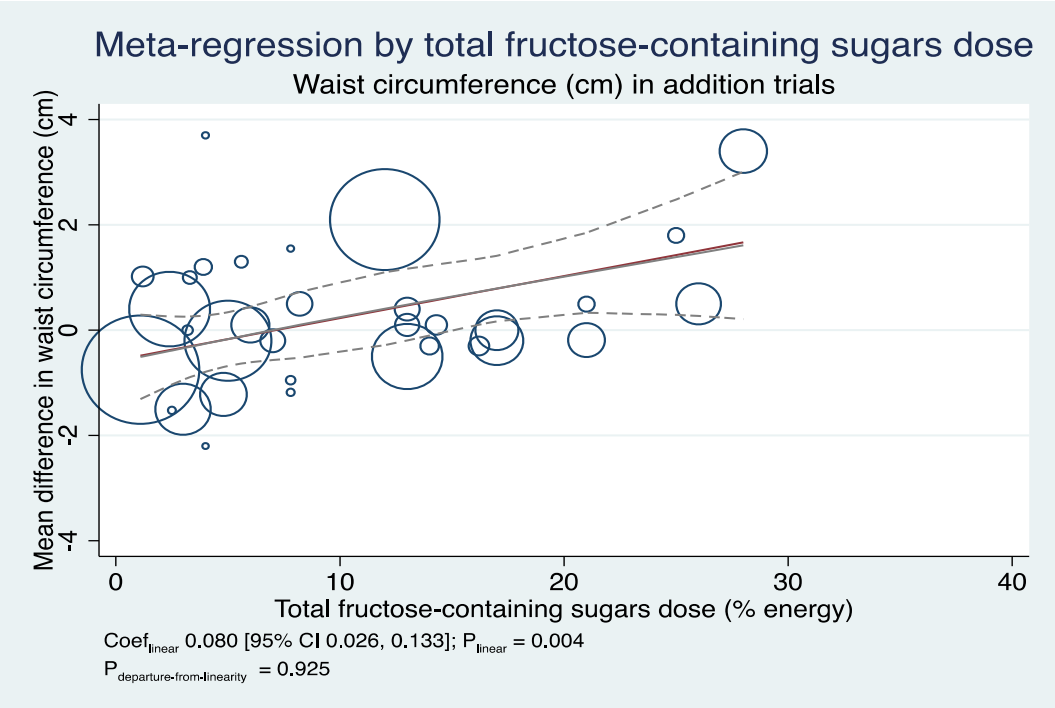


C



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25% threshold.
Coef=coefficient.

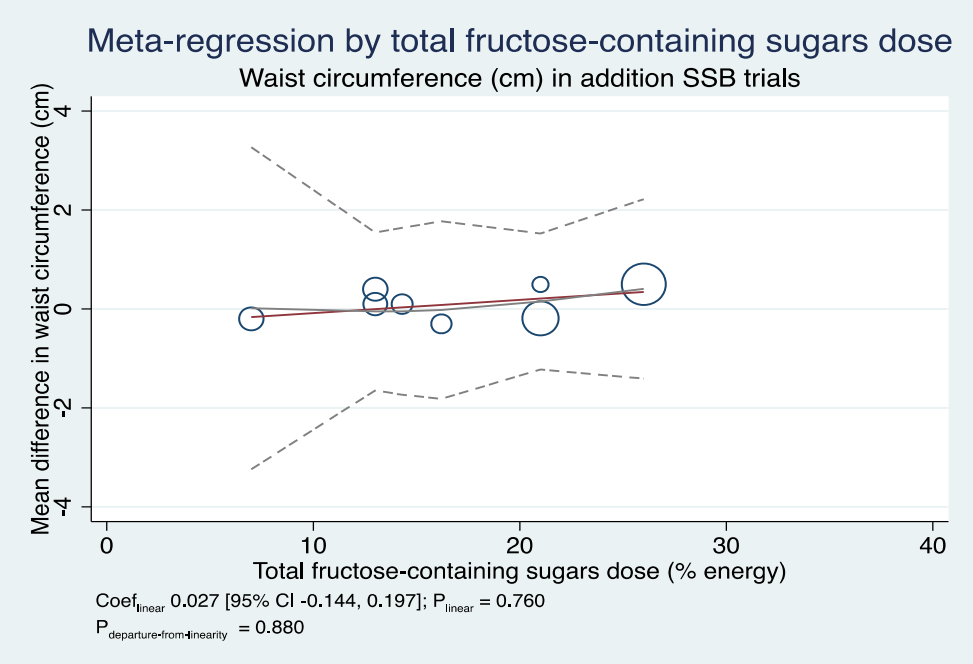
Supplementary Figure 256: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose and waist circumference in addition trials



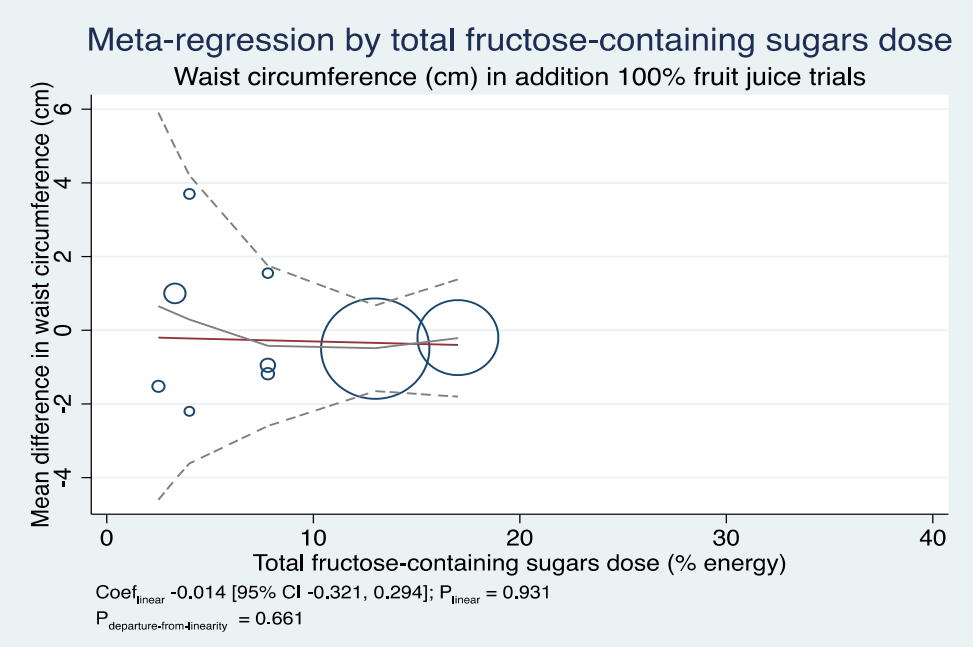
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals. CI=confidence interval; Coef=coefficient.

Supplementary Figure 257: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars and waist circumference in addition trials

A



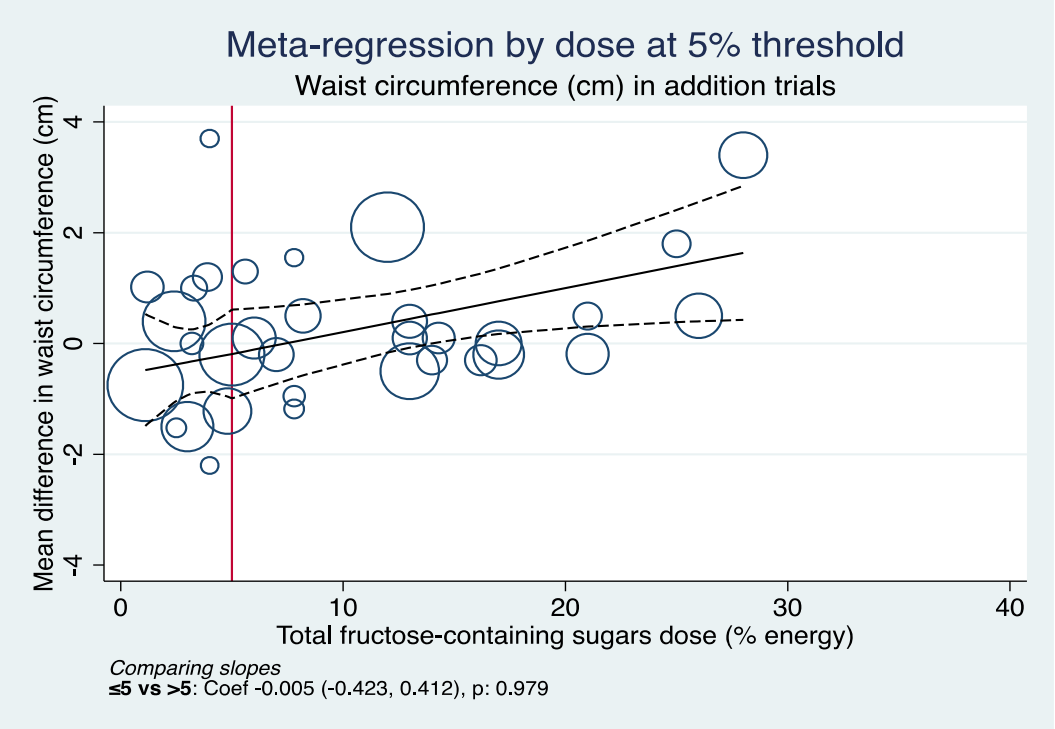
B



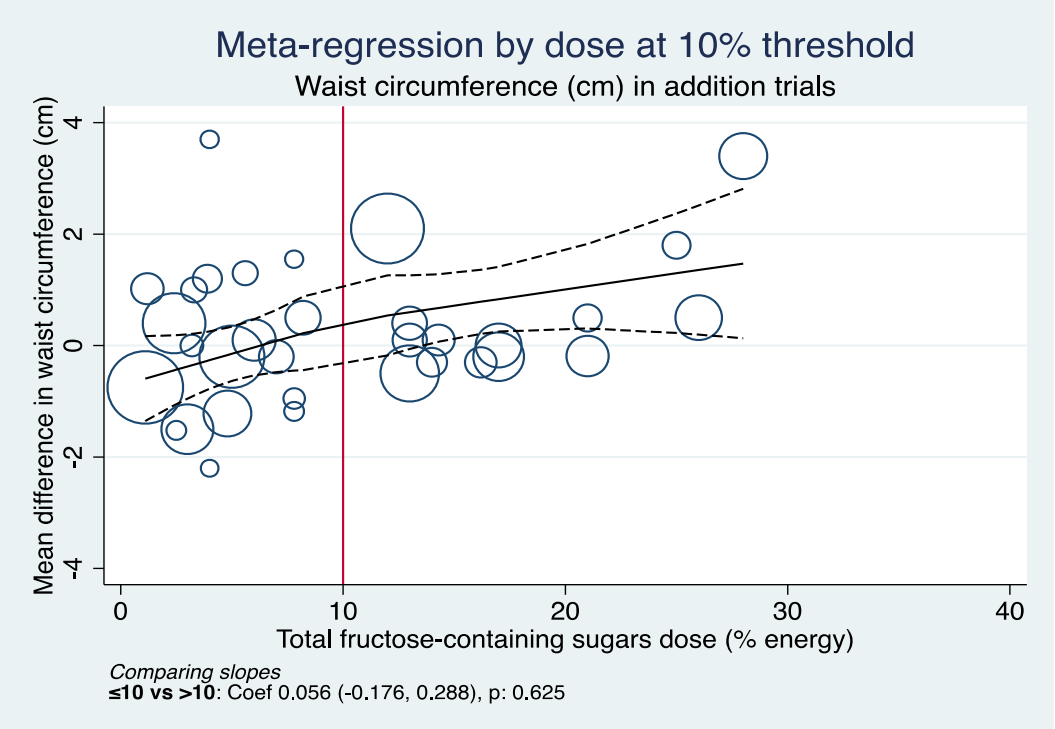
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
Panel A: SSBs; B: 100% fruit juice.
CI=confidence interval; Coef=coefficient; SSB=sugar-sweetened beverage.

Supplementary Figure 258: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of important food sources of fructose-containing sugars and waist circumference in addition trials

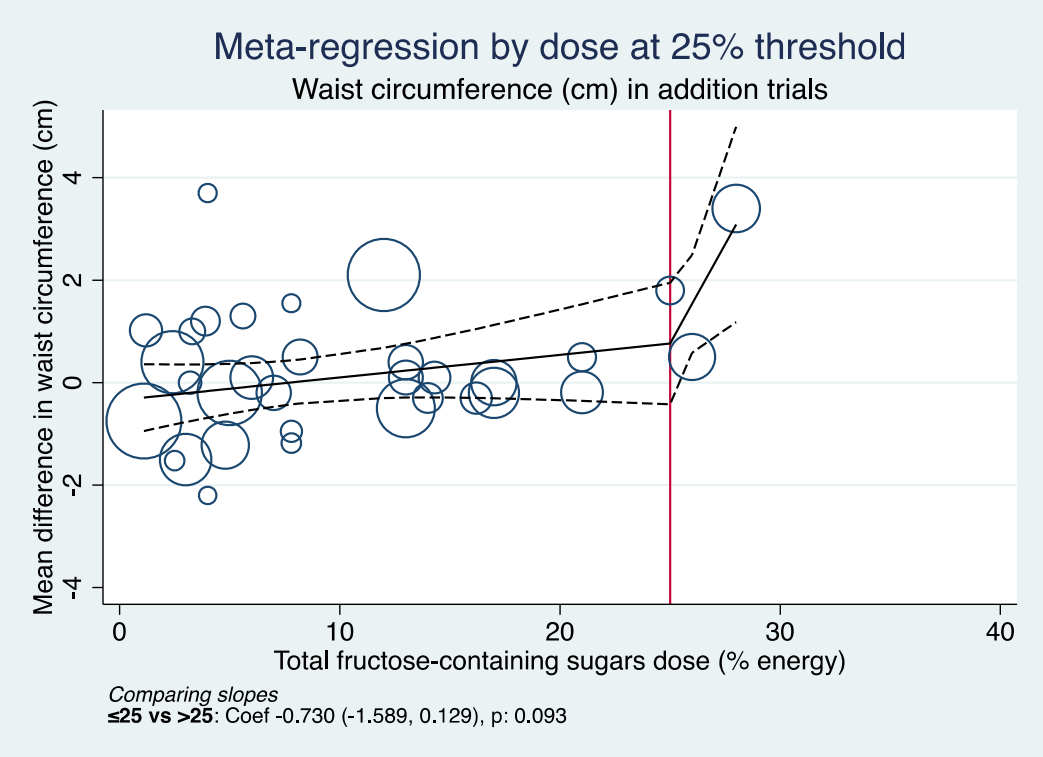
A



B



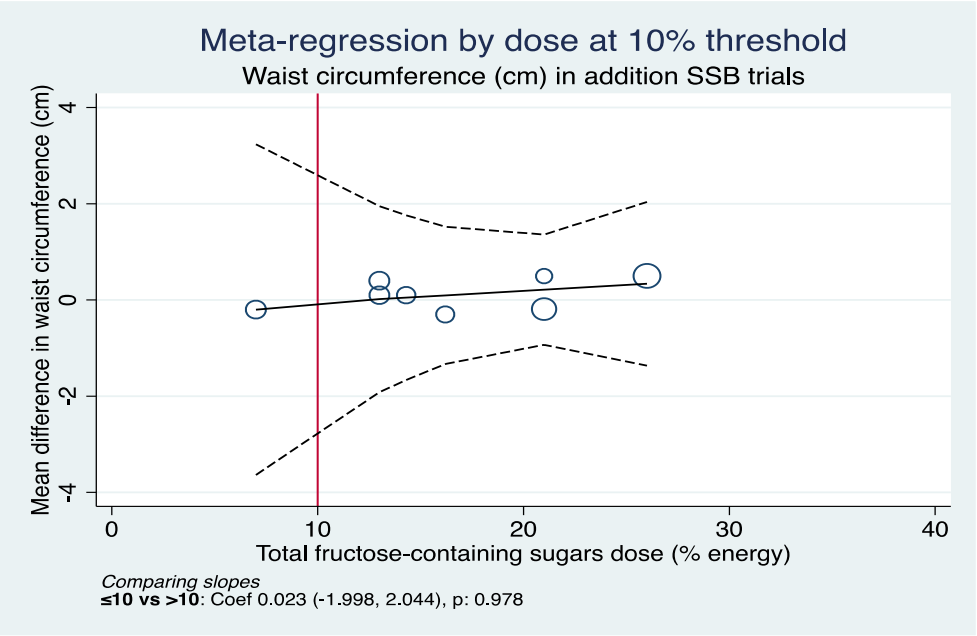
C



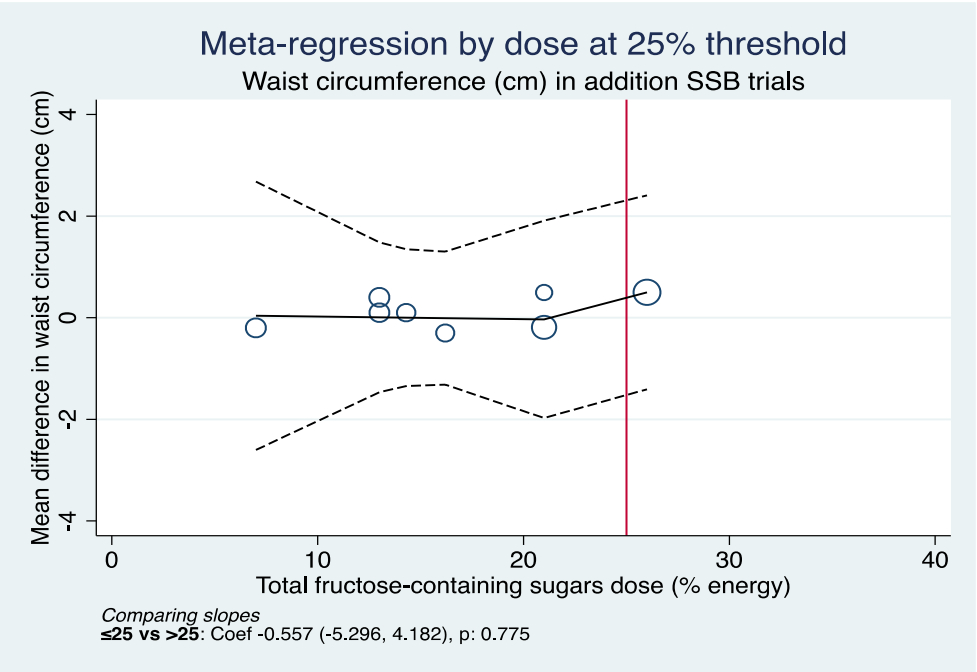
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25% threshold.
Coef=coefficient.

Supplementary Figure 259: Non-linear dose response analysis using public thresholds of 10% and 25% of energy for the effect of SSBs and waist circumference in addition trials

A



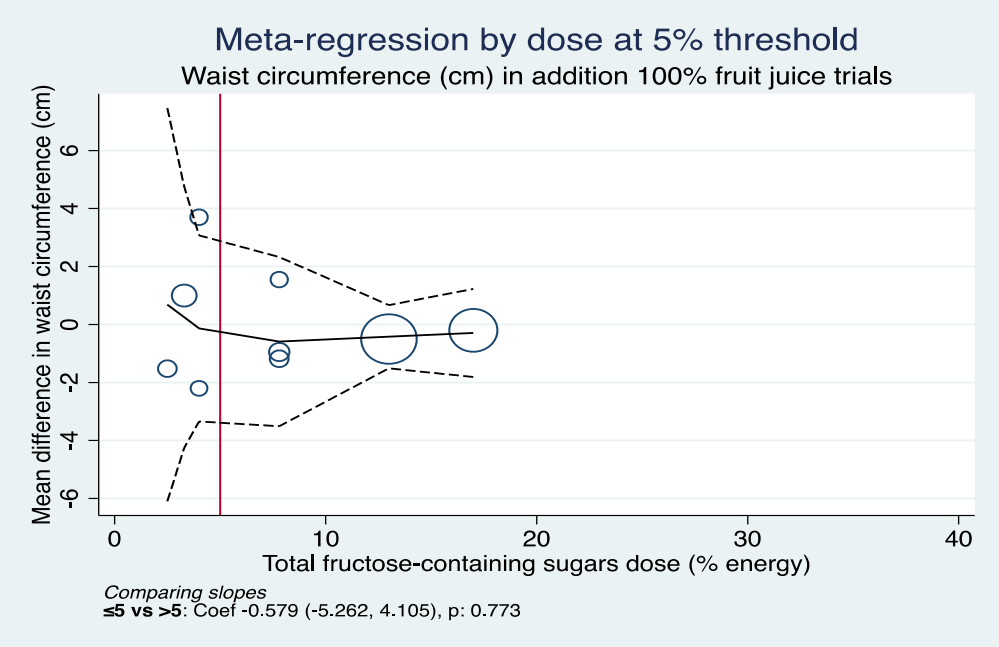
B



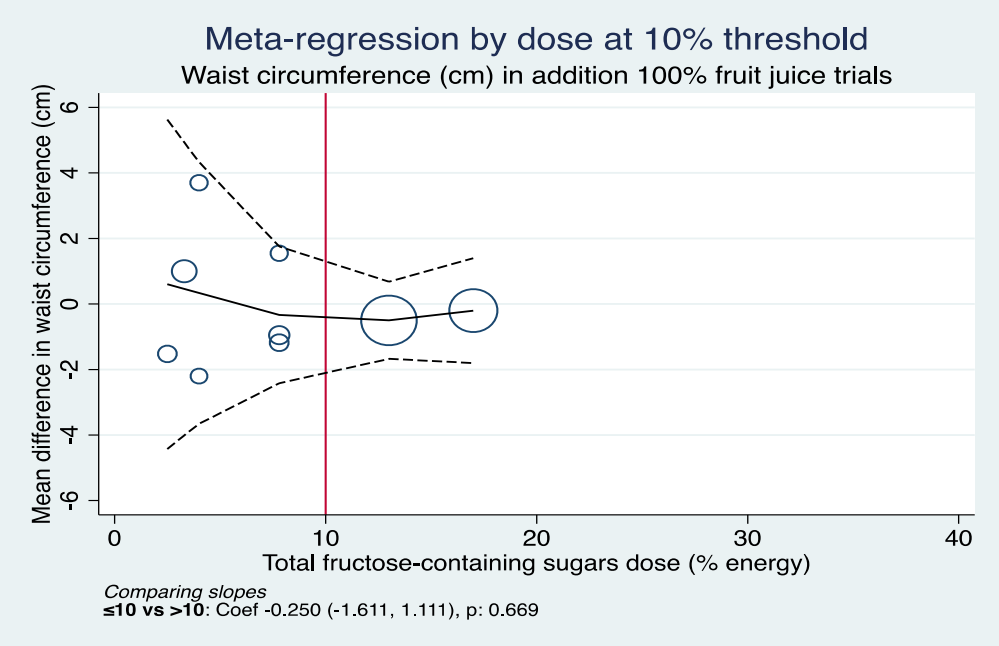
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 10% threshold; B: 25% threshold.
Coef=coefficient; SSB=sugars-sweetened beverage.

Supplementary Figure 260: Non-linear dose response analysis using public thresholds of 5% and 10% of energy for the effect of 100% fruit juice and waist circumference in addition trials

A

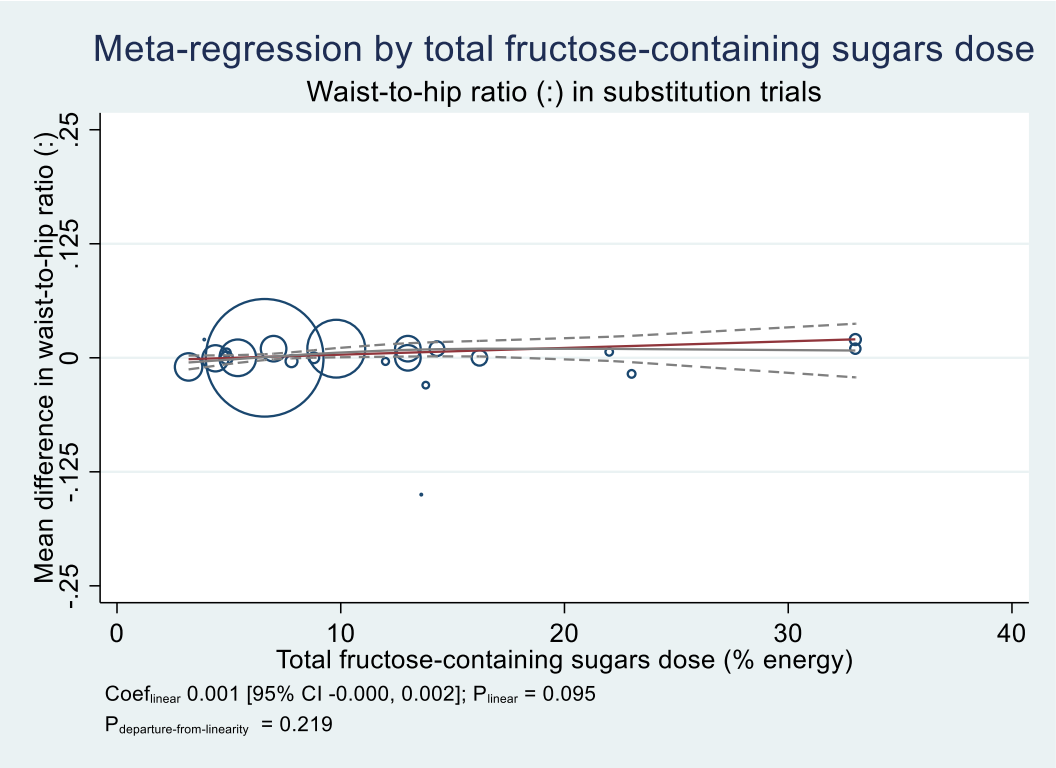


B



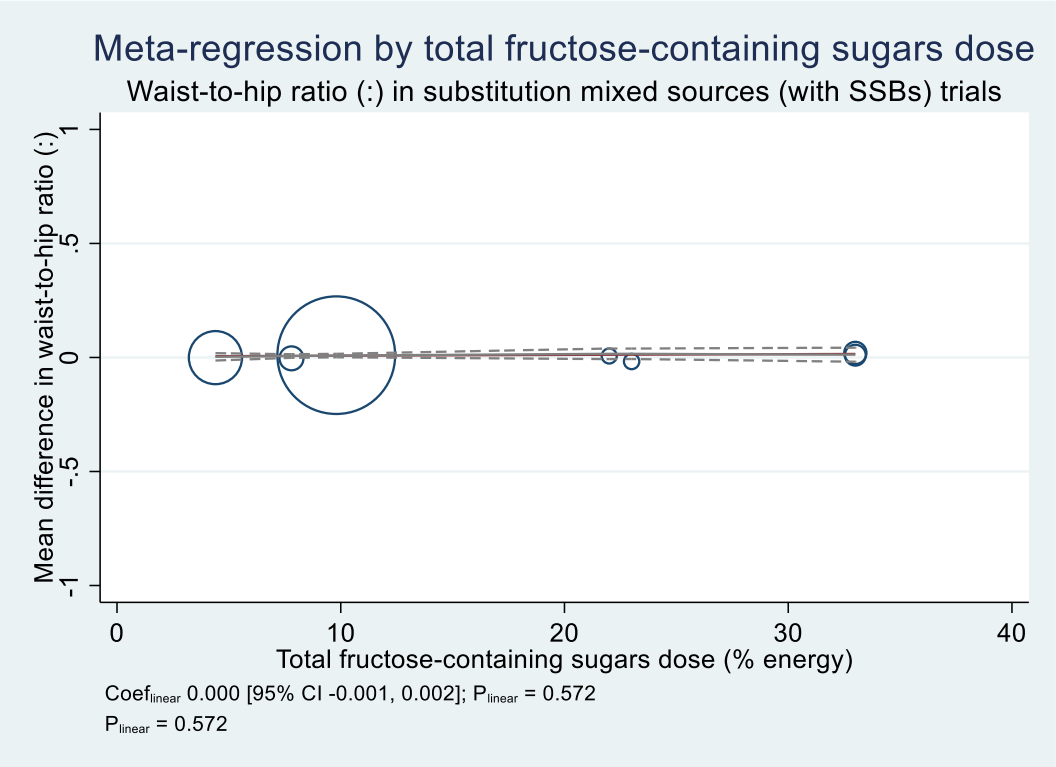
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold.
Coef=coefficient.

Supplementary Figure 261: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose and waist-to-hip ratio in substitution trials



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals. CI=confidence interval; Coef=coefficient.

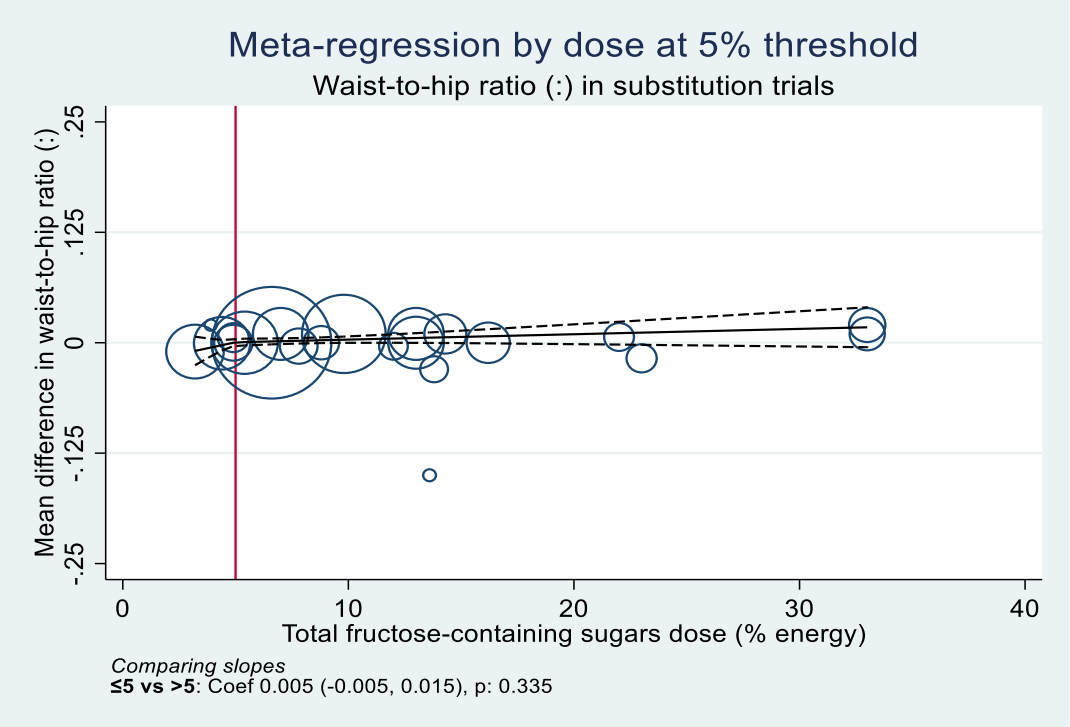
Supplementary Figure 262: Linear and non-linear meta-regression analyses for the effect of mixed sources (with SSBs) and waist-to-hip ratio in substitution trials



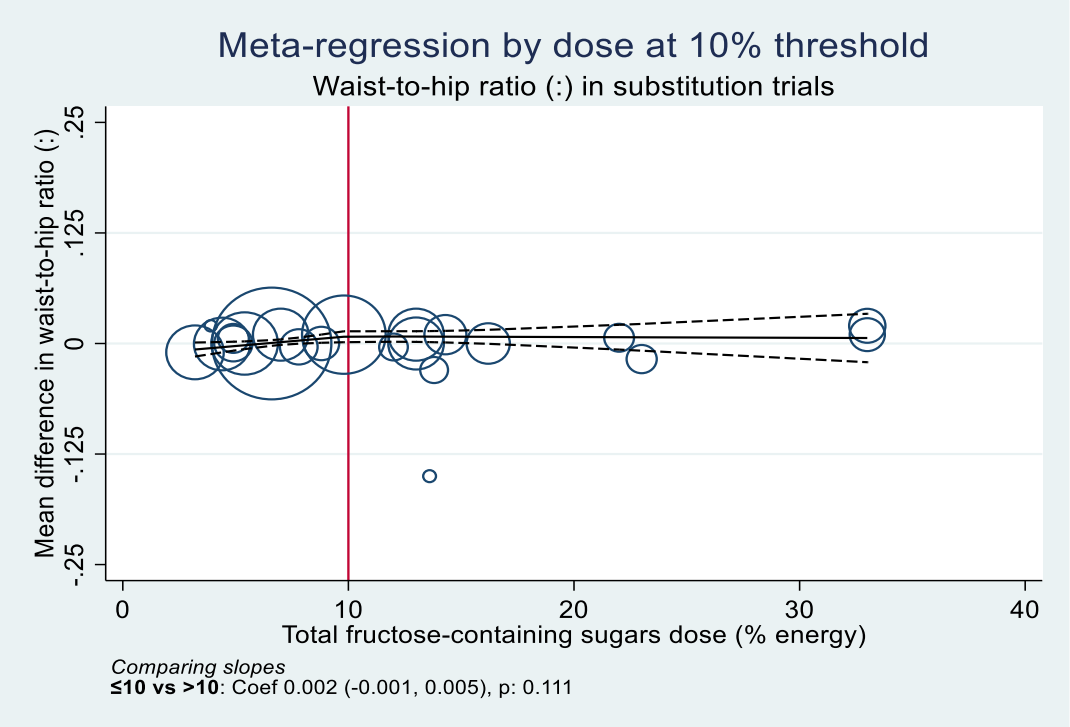
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
CI=confidence interval; Coef=coefficient; SSB=sugars-sweetened beverage.

Supplementary Figure 263: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of important food sources of fructose-containing sugars and waist-to-hip ratio in substitution trials

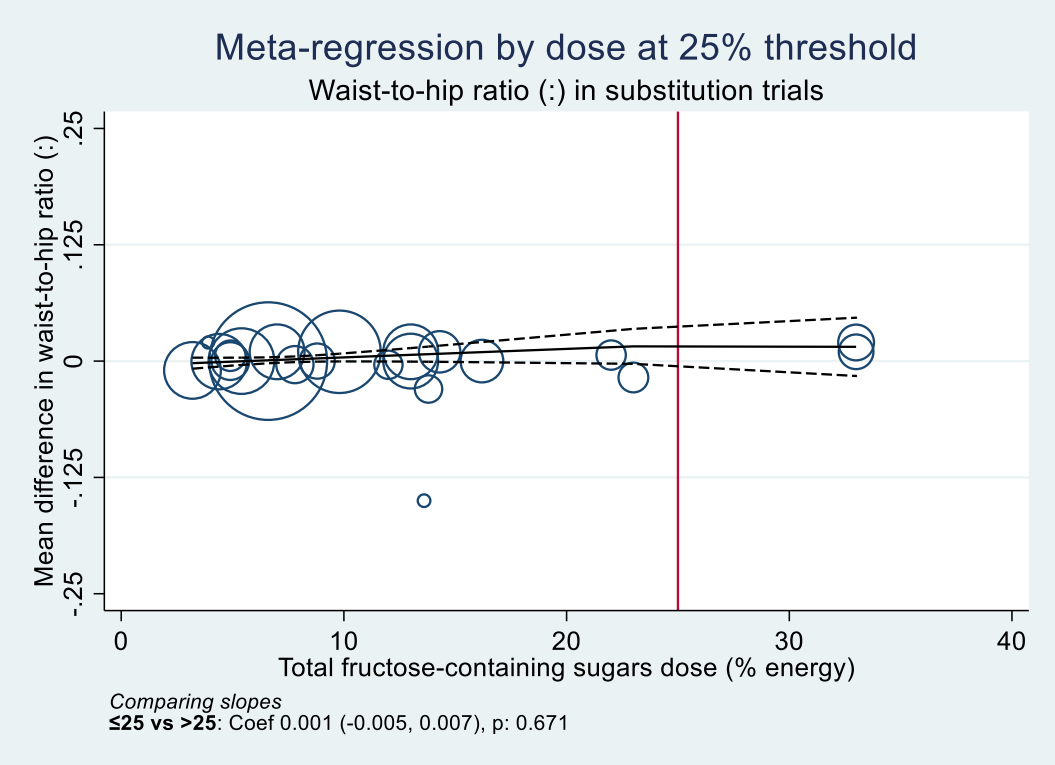
A



B



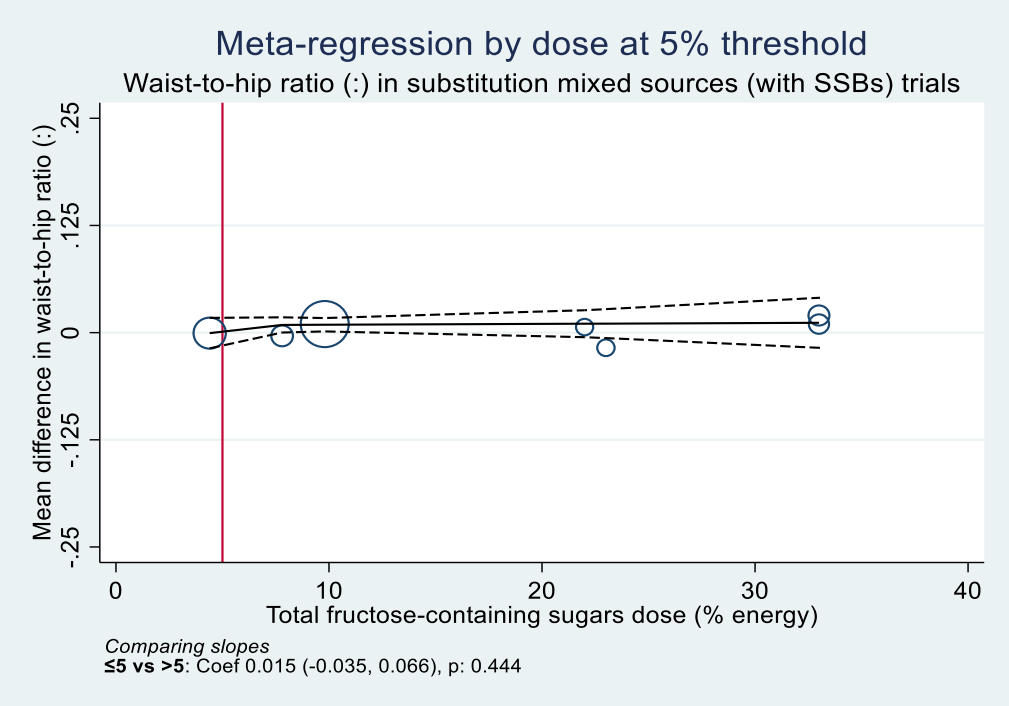
C



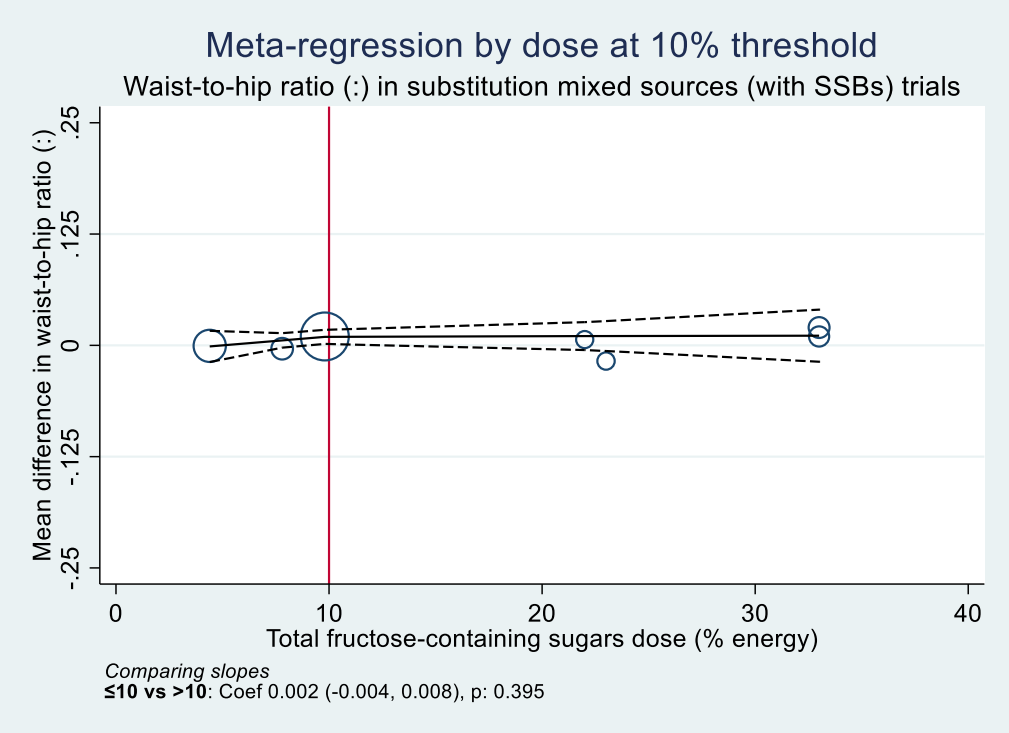
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25% threshold.
Coef=coefficient.

Supplementary Figure 264: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of mixed sources (with SSBs) and waist-to-hip ratio in substitution trials

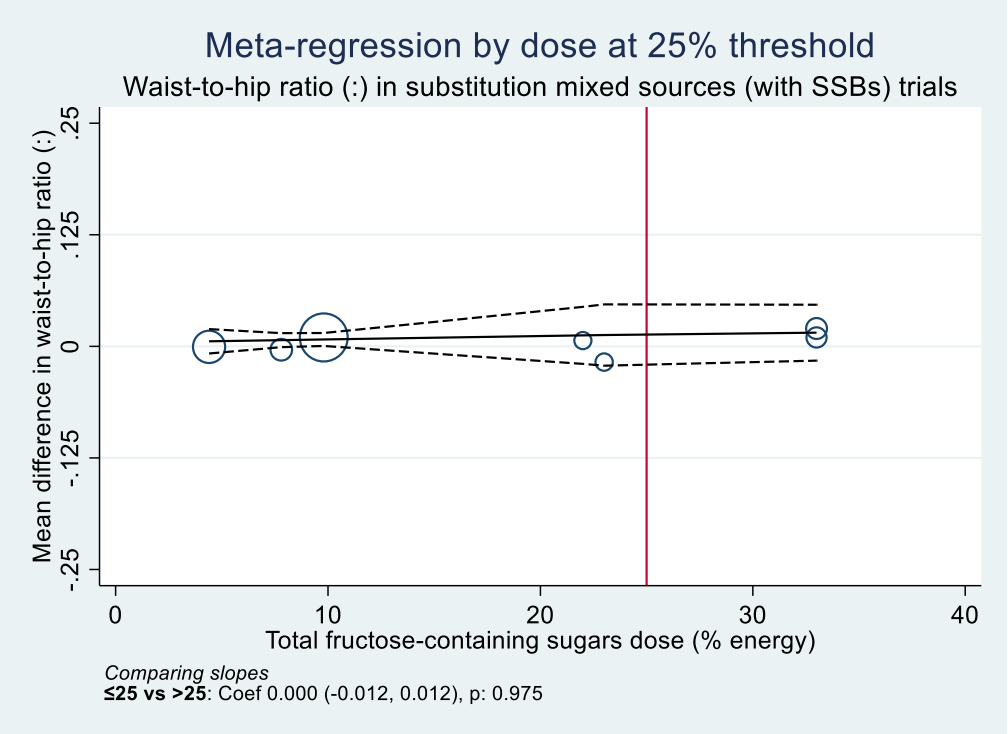
A



B

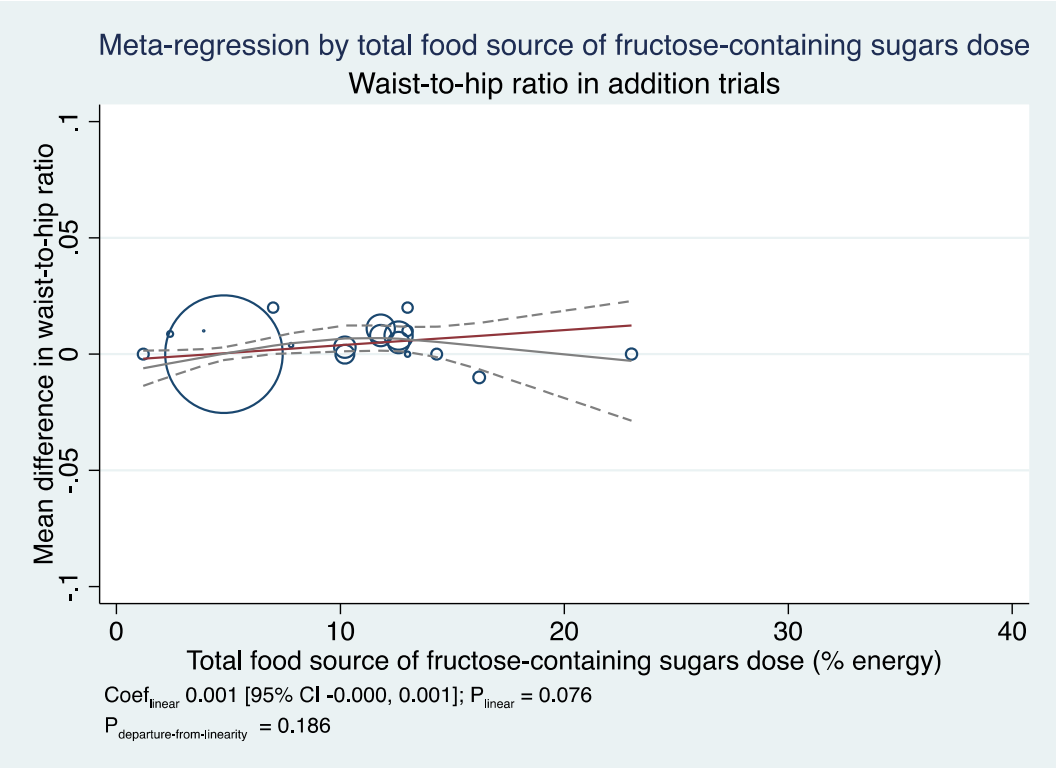


C



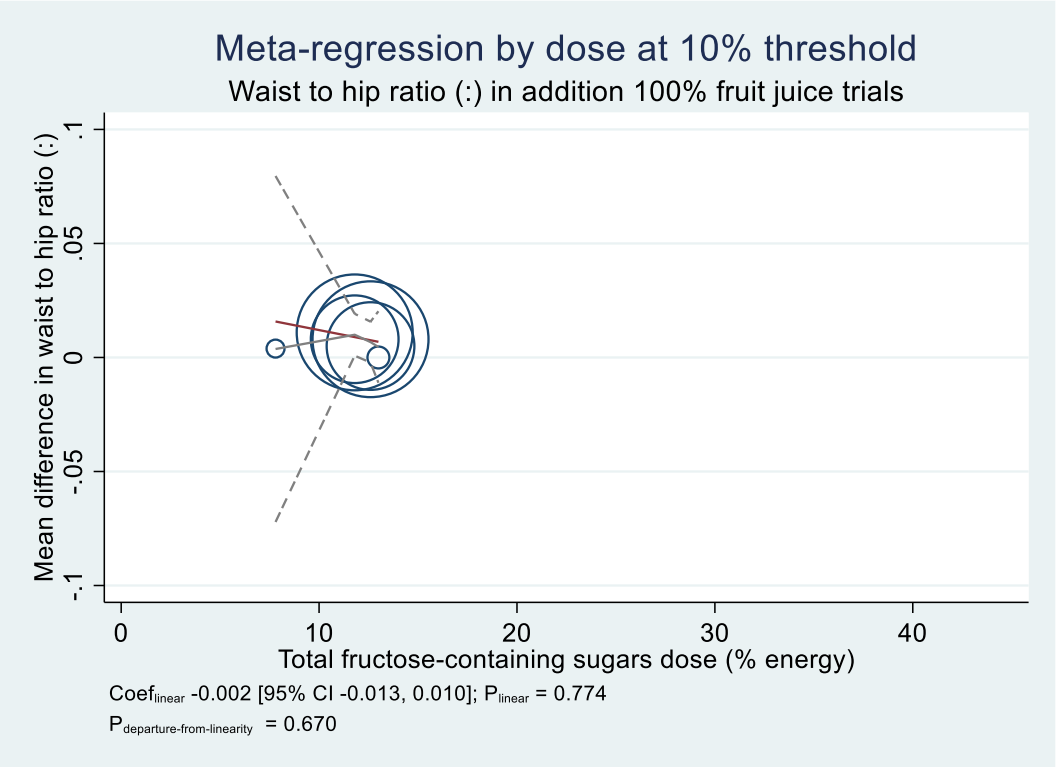
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25% threshold.
Coef=coefficient; SSBs=sugar-sweetened beverages.

Supplementary Figure 265: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose and waist-to-hip ratio in addition trials



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals. Coef=coefficient; CI=confidence interval.

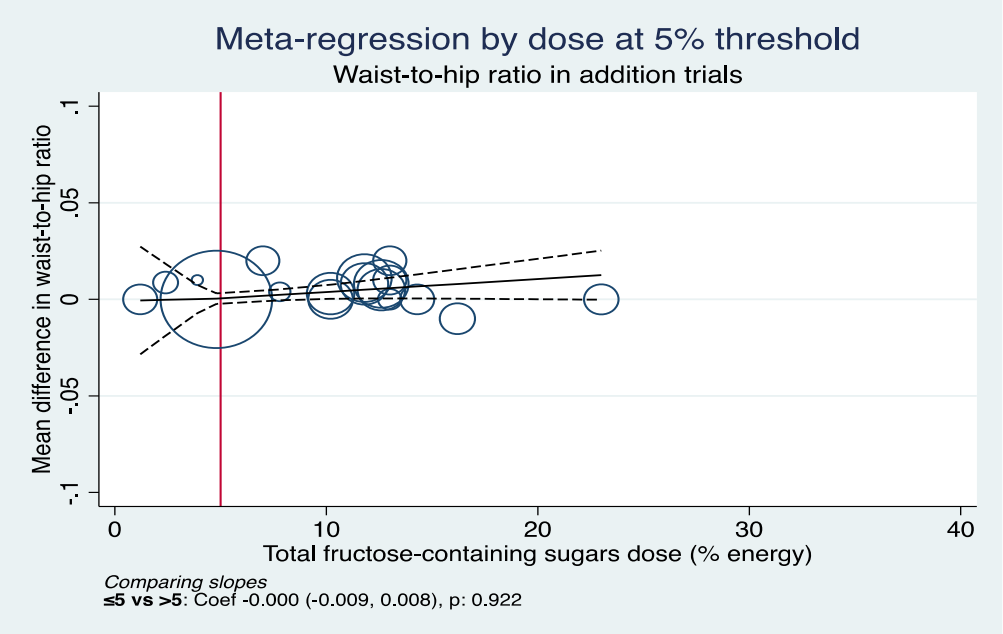
Supplementary Figure 266: Linear and non-linear meta-regression analyses for the effect of 100% fruit juice and waist-to-hip ratio in addition trials



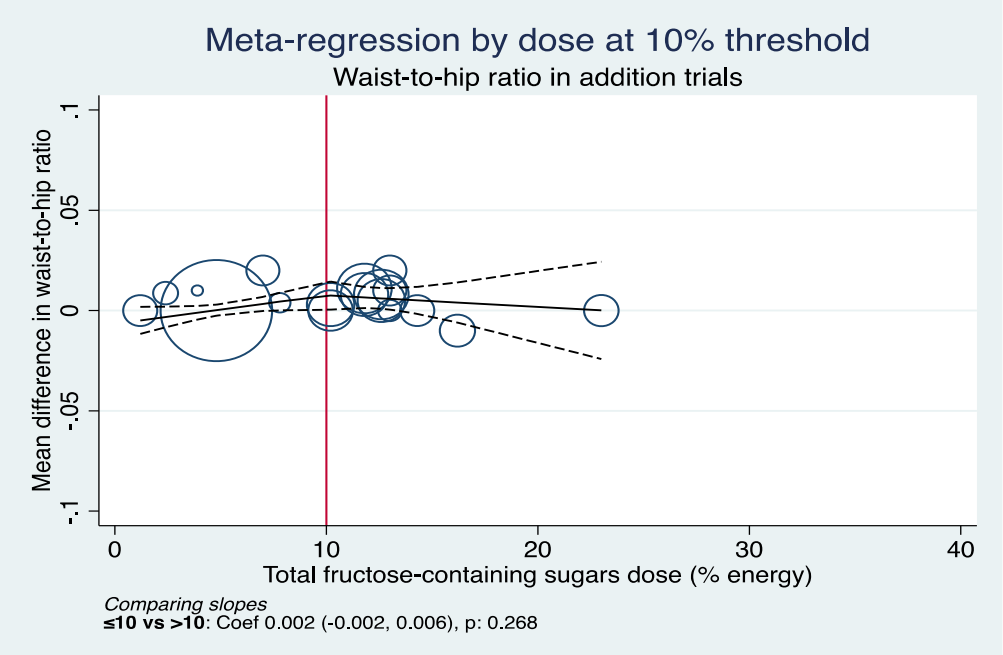
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals. Coef=coefficient; CI=confidence interval.

Supplementary Figure 267: Non-linear dose response analysis using public thresholds of 5% and 10% of energy for the effect of important food sources of fructose-containing sugars and waist-to-hip ratio in addition trials

A

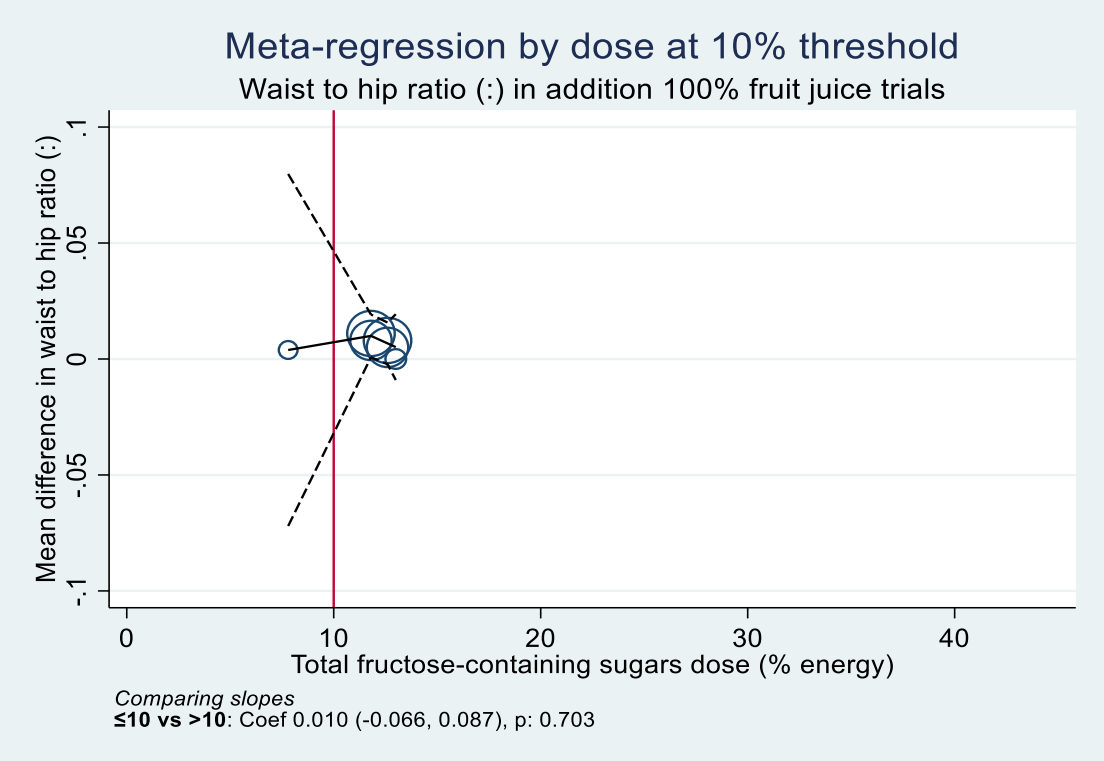


B



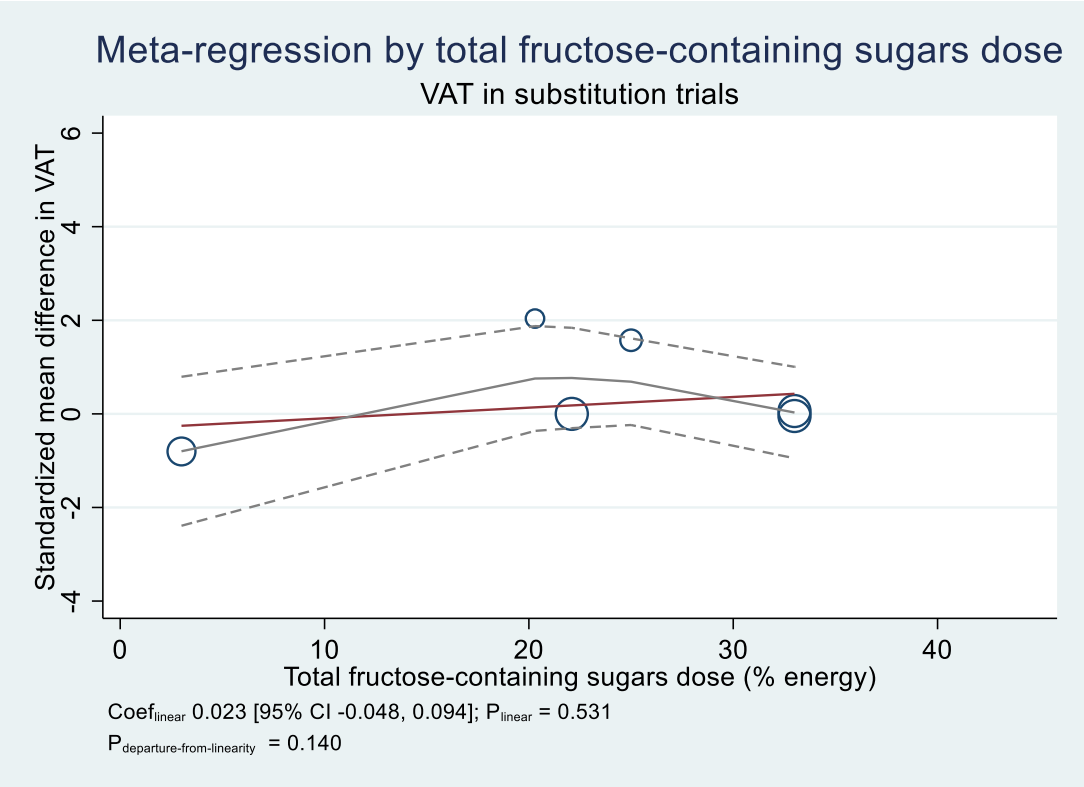
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold.
Coef=coefficient.

Supplementary Figure 268: Non-linear dose response analysis using public threshold of 10% of energy for the effect of 100% fruit juice and waist-to-hip ratio in addition trials



Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Coef=coefficient.

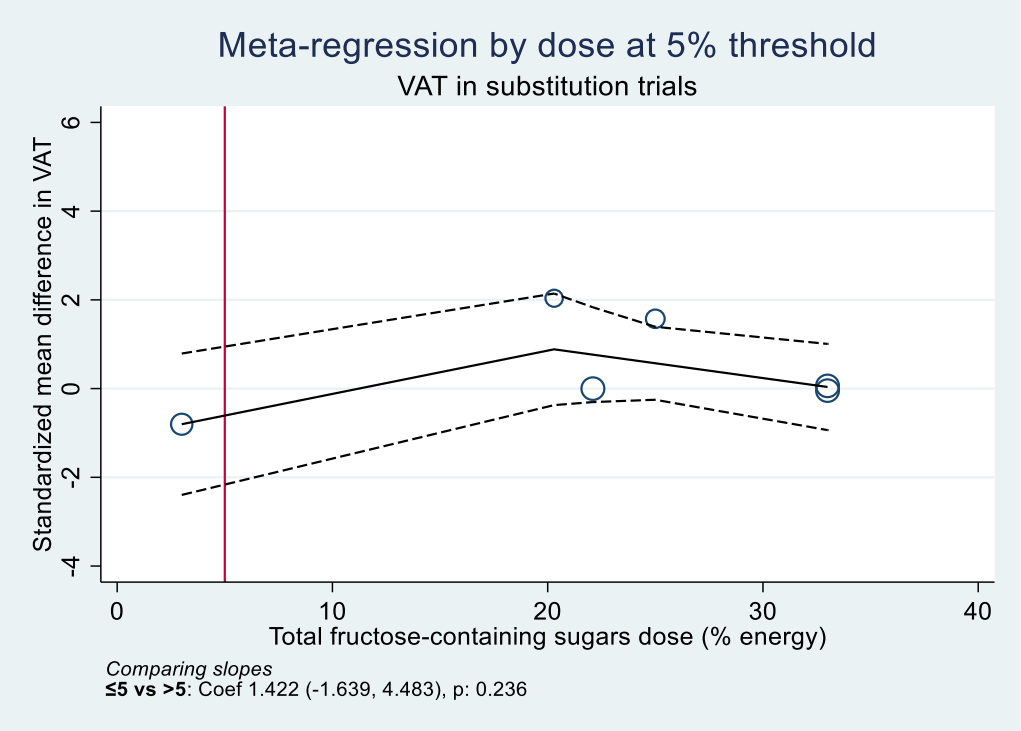
Supplementary Figure 269: Linear and non-linear meta-regression analyses for the effect of important food sources of fructose-containing sugars dose and VAT in substitution trials



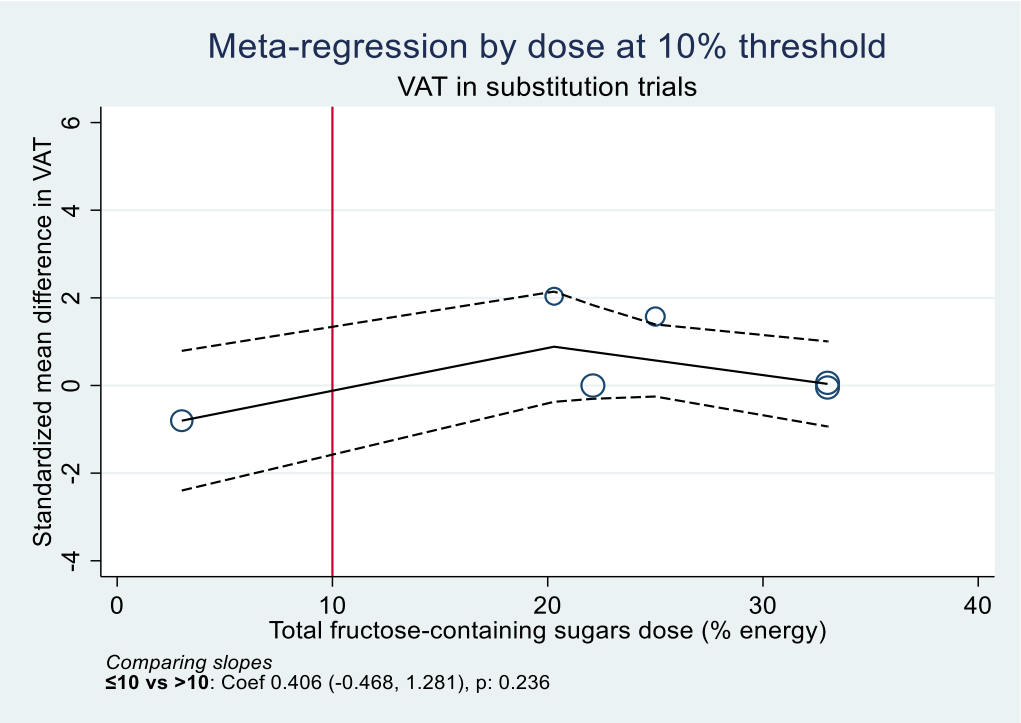
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake) and the dashed lines represent the upper and lower 95% confidence intervals.
CI=confidence interval; Coef=coefficient; %E=percentage of total energy intake.

Supplementary Figure 270: Non-linear dose response analysis using public thresholds of 5%, 10%, and 25% of energy for the effect of important food sources of fructose-containing sugars and VAT in substitution trials

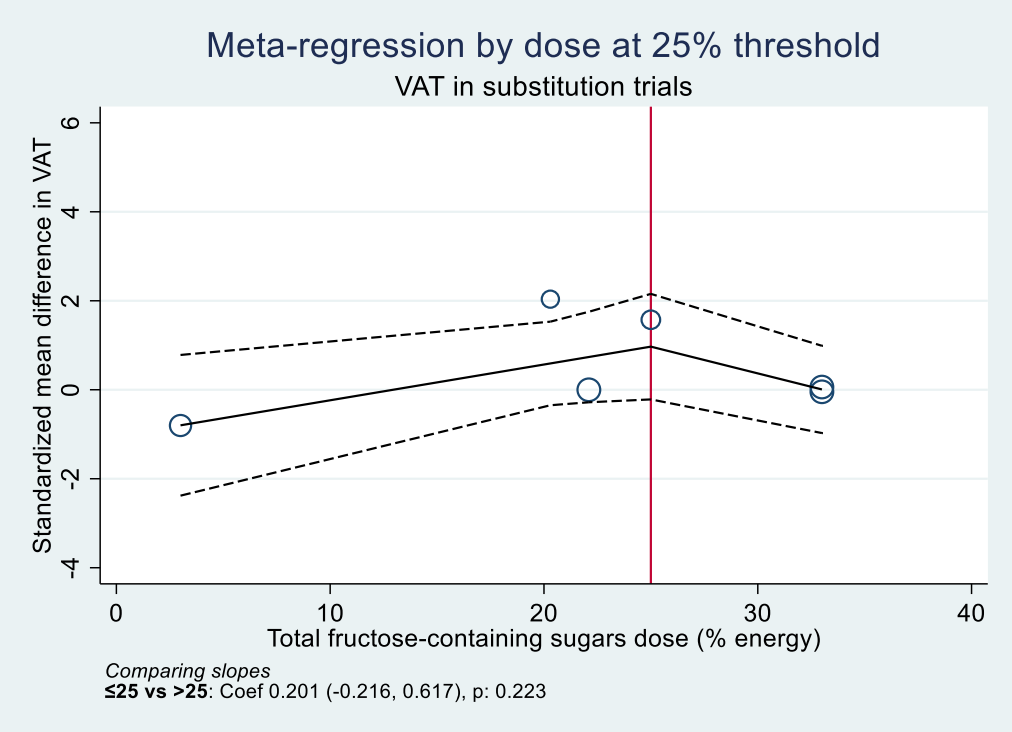
A



B

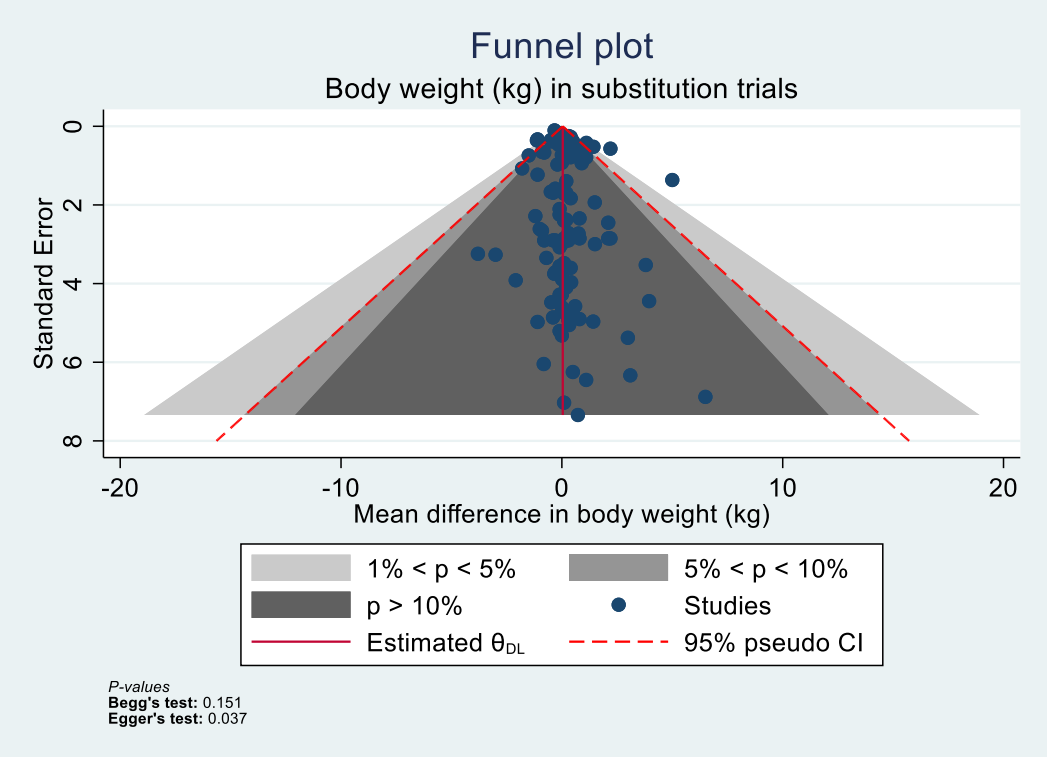


C



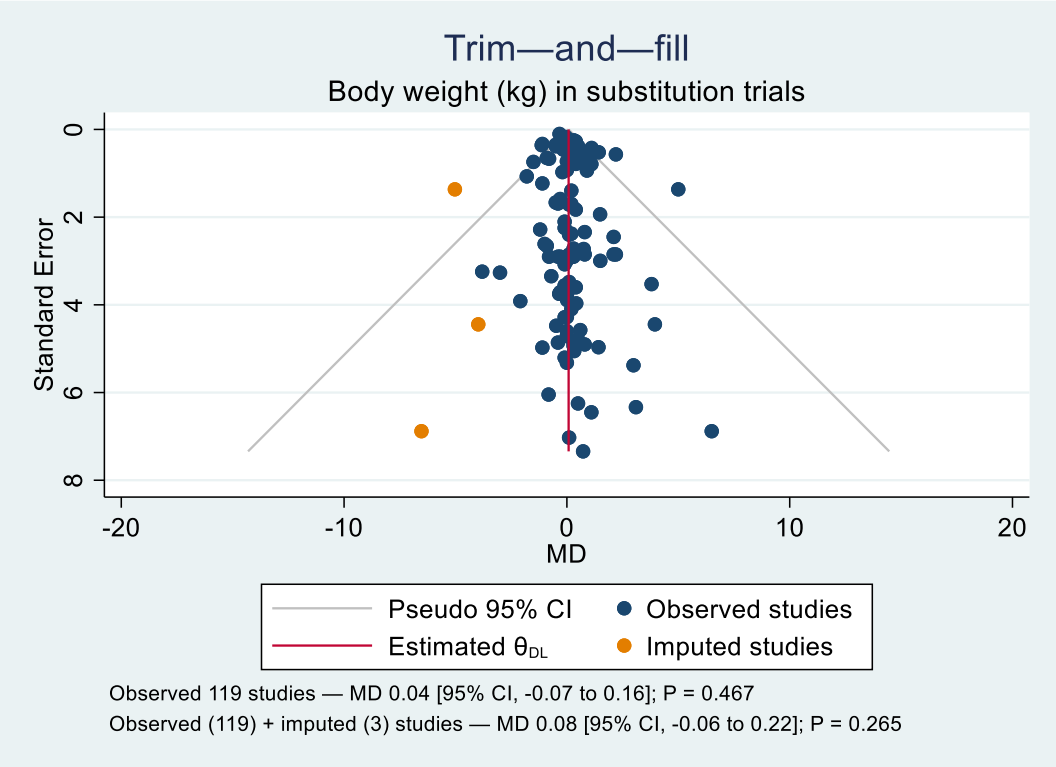
Individual trials are represented by the circles, with their weight in the overall analysis represented by the size of the circles. The horizontal straight line represents the estimate dose response for amount of fructose-containing sugars consumed (% of total energy intake), and the dashed lines represent the upper and lower 95% Confidence Intervals. The vertical straight lines represent the threshold knots.
Panel A: 5% threshold; B: 10% threshold; C: 25% threshold.
Coef=coefficient

Supplementary Figure 271: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and body weight (kg) in substitution trials



Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
CI=confidence interval; DL=DerSimmonian Laird.

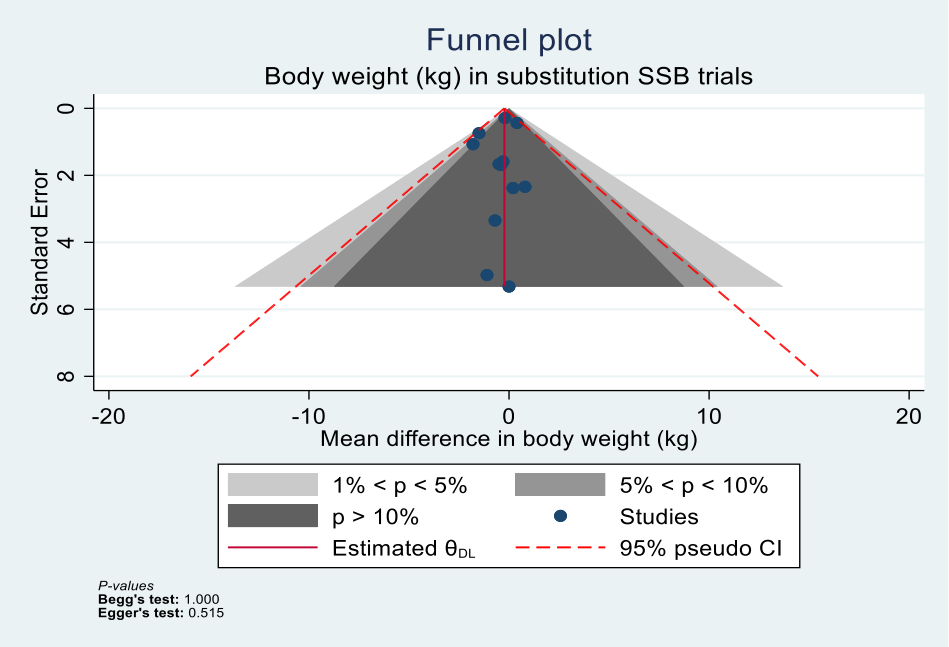
Supplementary Figure 272: Trim and fill funnel plot for the effect of important food sources of fructose-containing sugars and body weight (kg) in substitution trials



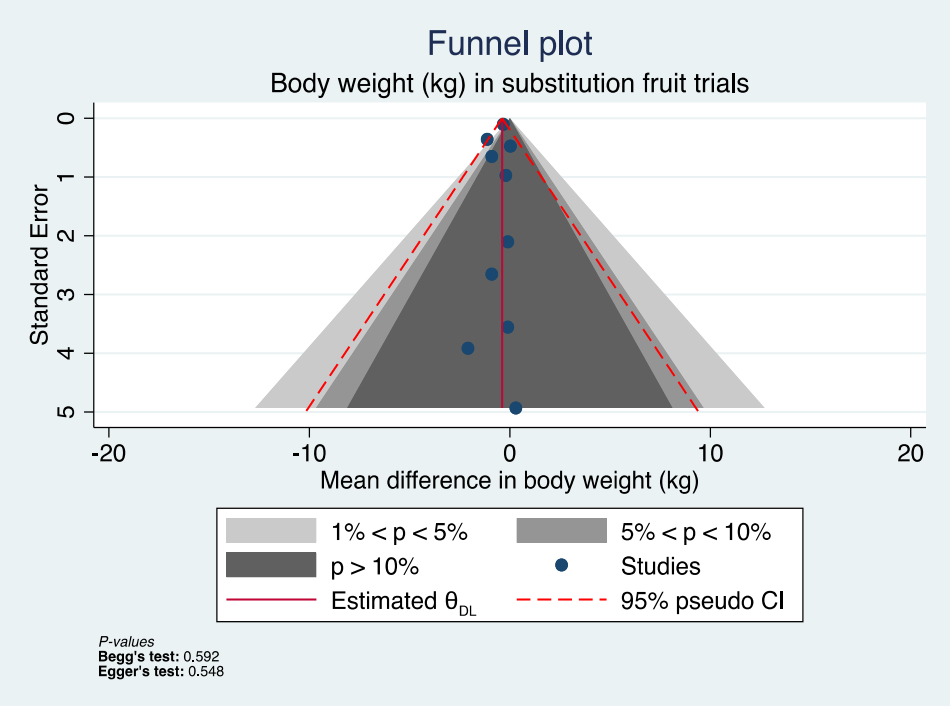
The vertical line represents the pooled effect estimate expressed as standardized mean difference. The diagonal lines represent the pseudo-95% confidence limits, the blue circles represent the effect estimate for each included study, and orange circles represent the effect estimate for each imputed "missed" study. Imputed random standardized mean difference is provided; when the imputed result differs from the primary result in either significance or magnitude (>1 MID =0.5kg for body weight), this is considered evidence of small-study effects.
CI=confidence interval; DL=DerSimmonian Laird; MD=mean difference.

Supplementary Figure 273: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and body weight (kg) in substitution trials by food source

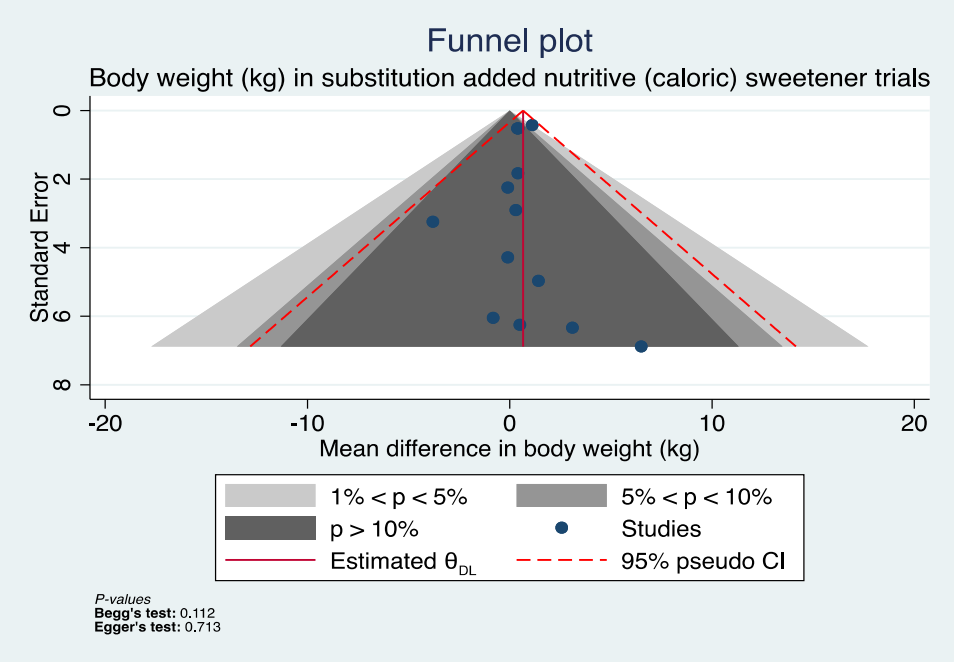
A



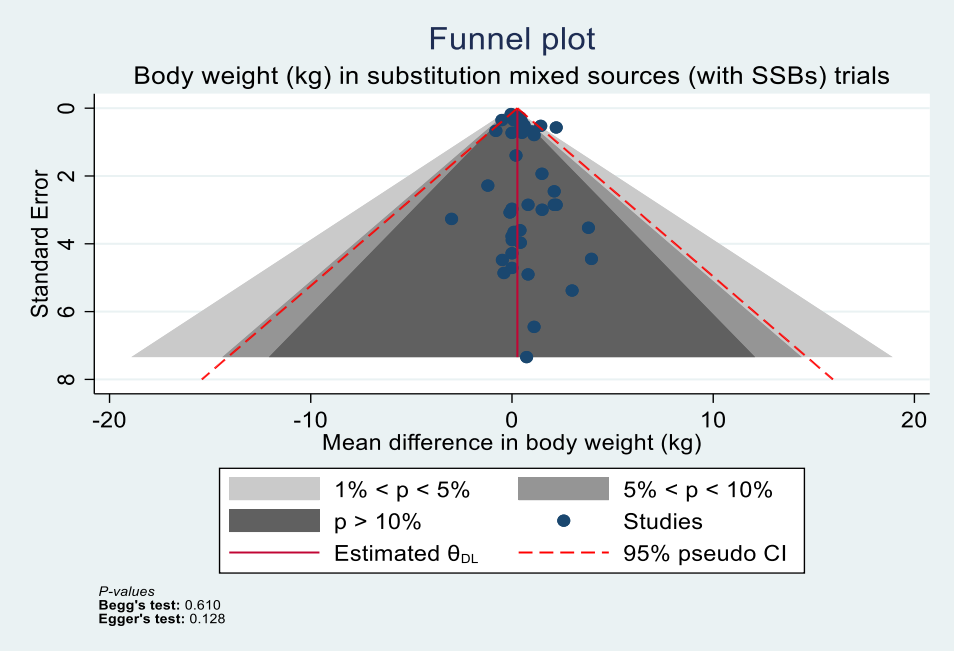
B



C

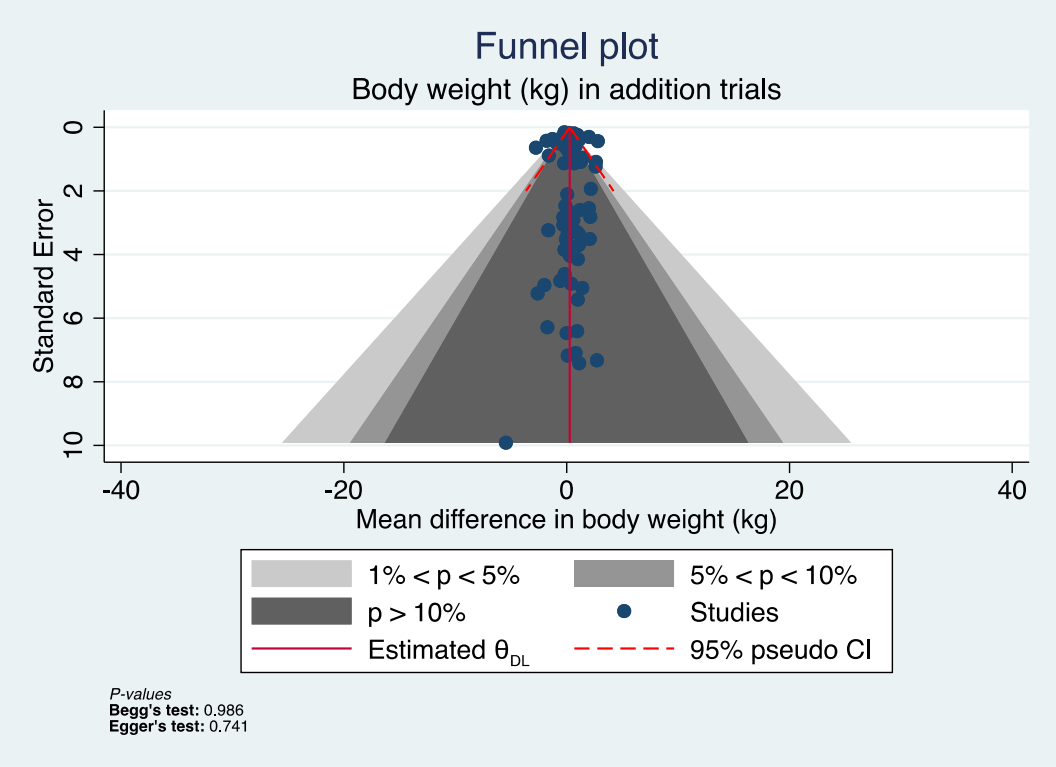


D



Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
Panel A: SSBs; B: fruit; C: added nutritive (caloric) sweetener; D: mixed source (with SSBs).
CI=confidence interval; DL=DerSimmonian Laird; SSB=sugars-sweetened beverage.

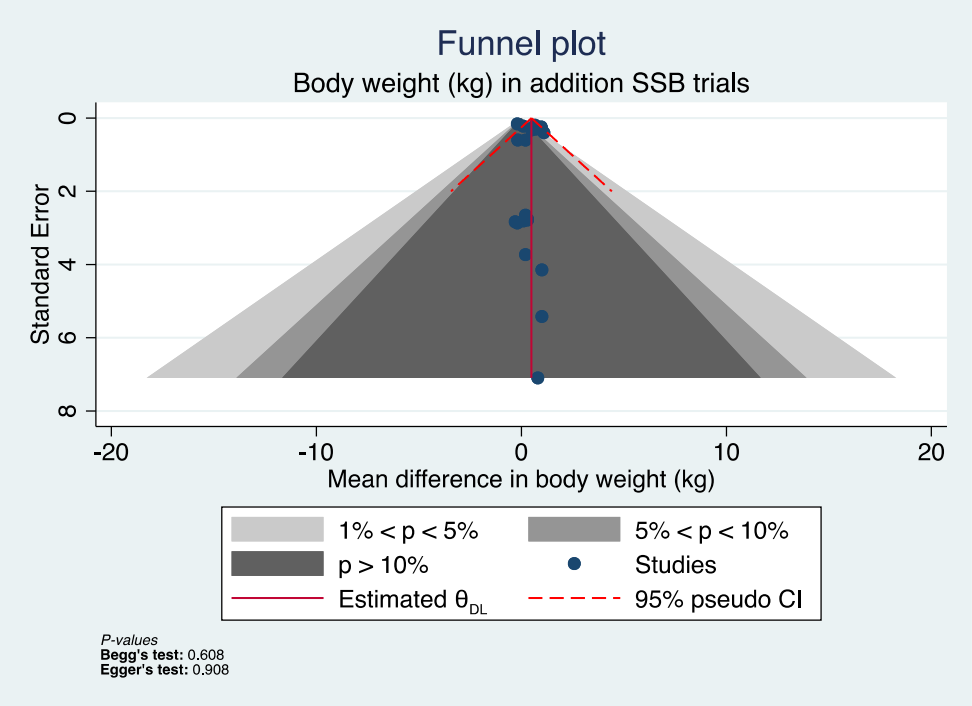
Supplementary Figure 274: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and body weight (kg) in addition trials



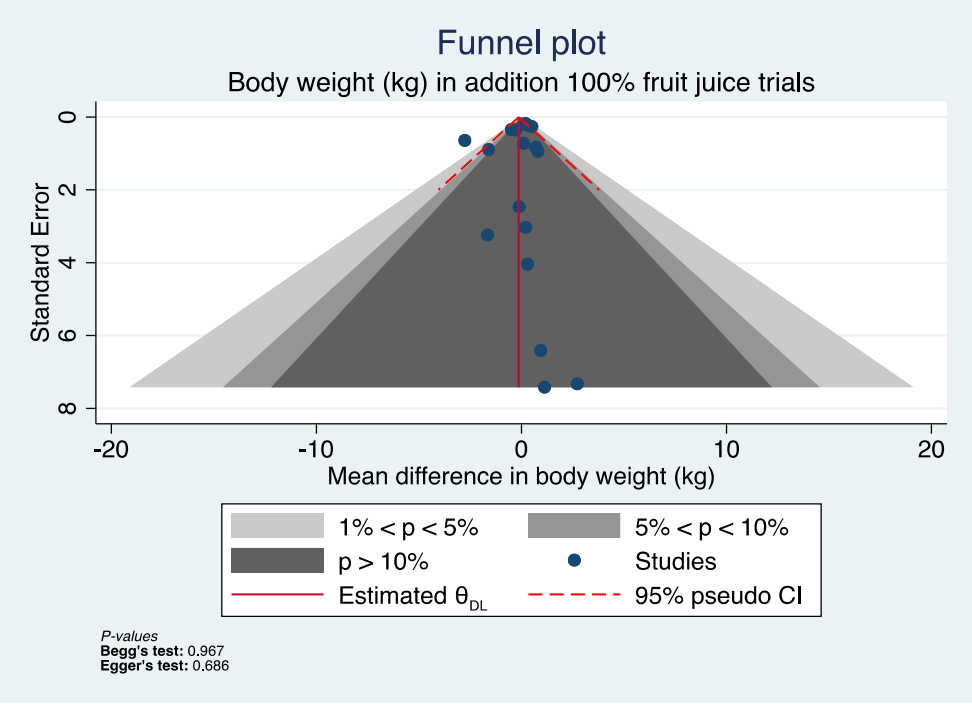
Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
CI=confidence interval; DL=DerSimmonian Laird.

Supplementary Figure 275: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and body weight (kg) in addition trials by food source

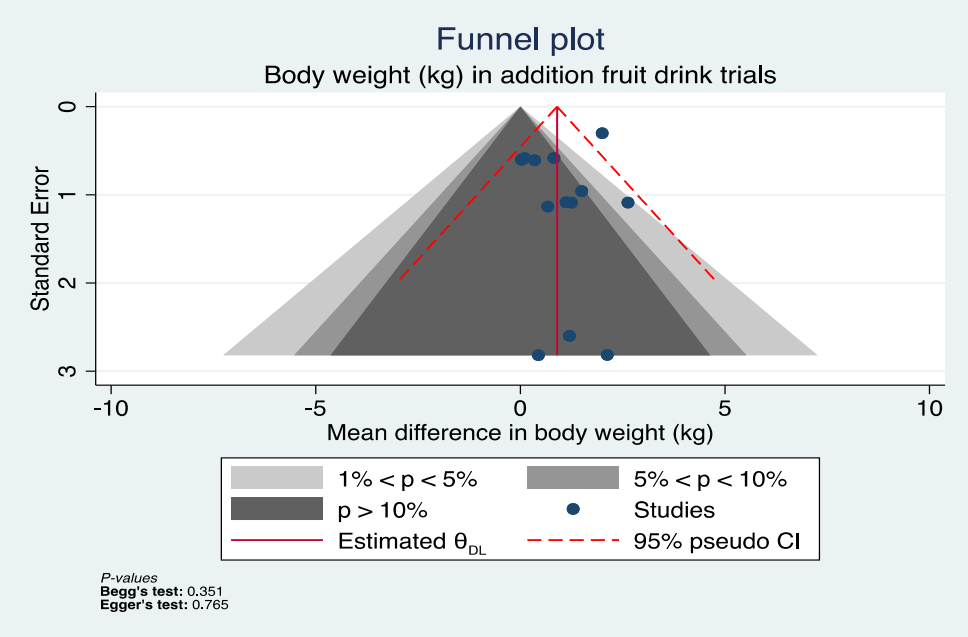
A



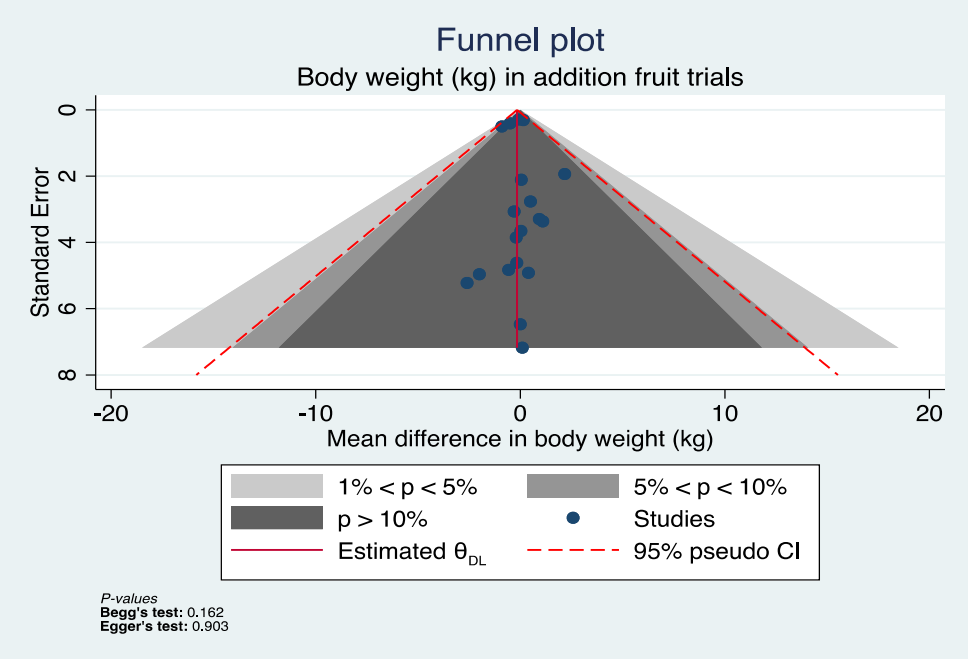
B



C

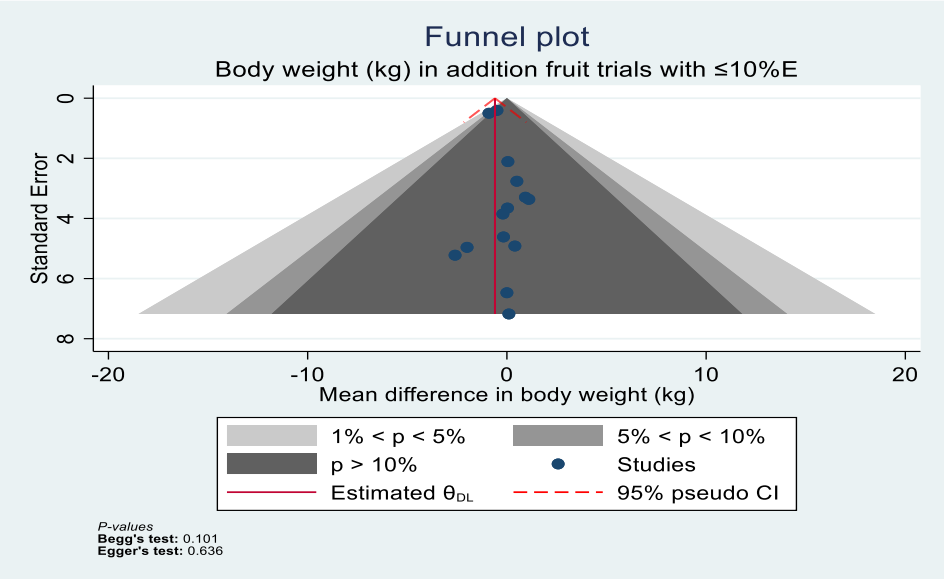


D



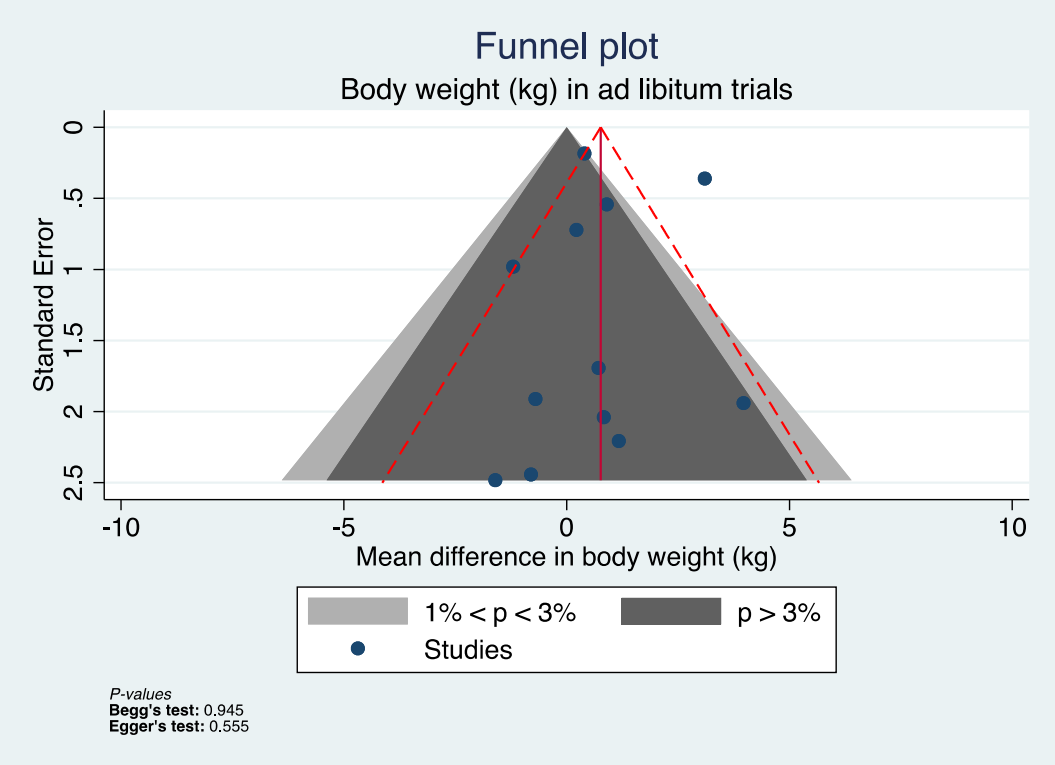
Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
Panel A: SSBs; B: 100% fruit juice; C: fruit drink; D: fruit.
CI=confidence interval; DL=DerSimmonian Laird; SSB=sugars-sweetened beverage.

Supplementary Figure 276: Publication bias funnel plots for the effect of fruit on body weight (kg) in addition trials with ≤10%E



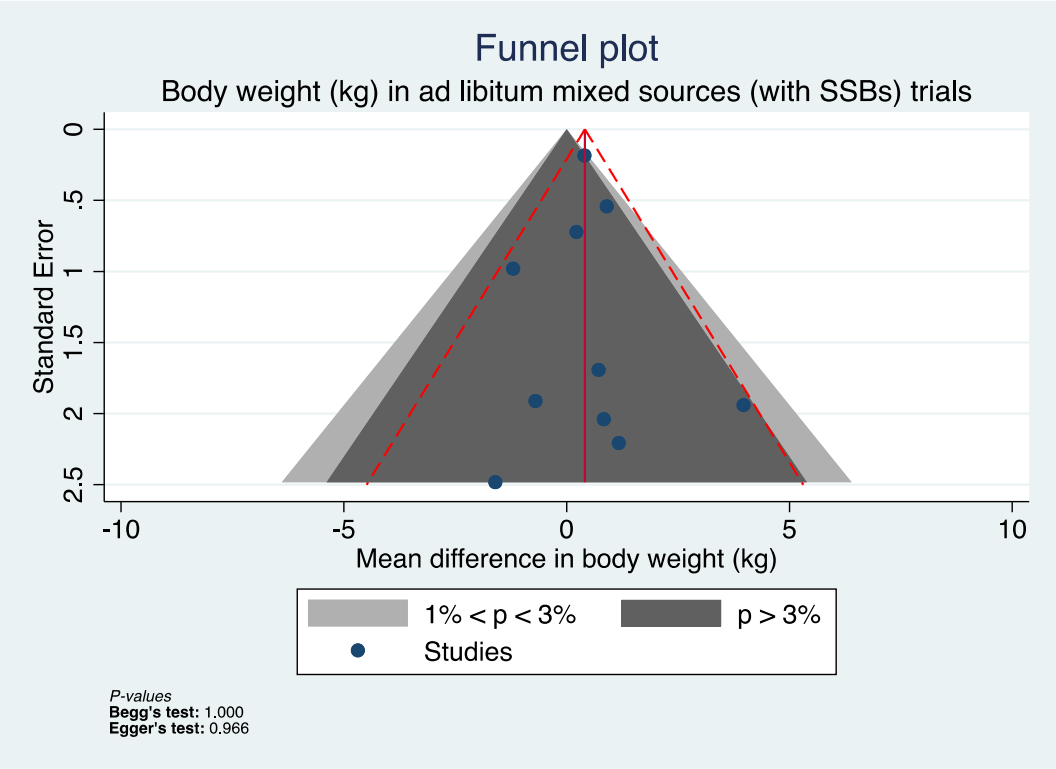
Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
CI=confidence interval; DL=DerSimmonian Laird; %E=percentage of total energy intake.

Supplementary Figure 277: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and body weight (kg) in *ad libitum* trials



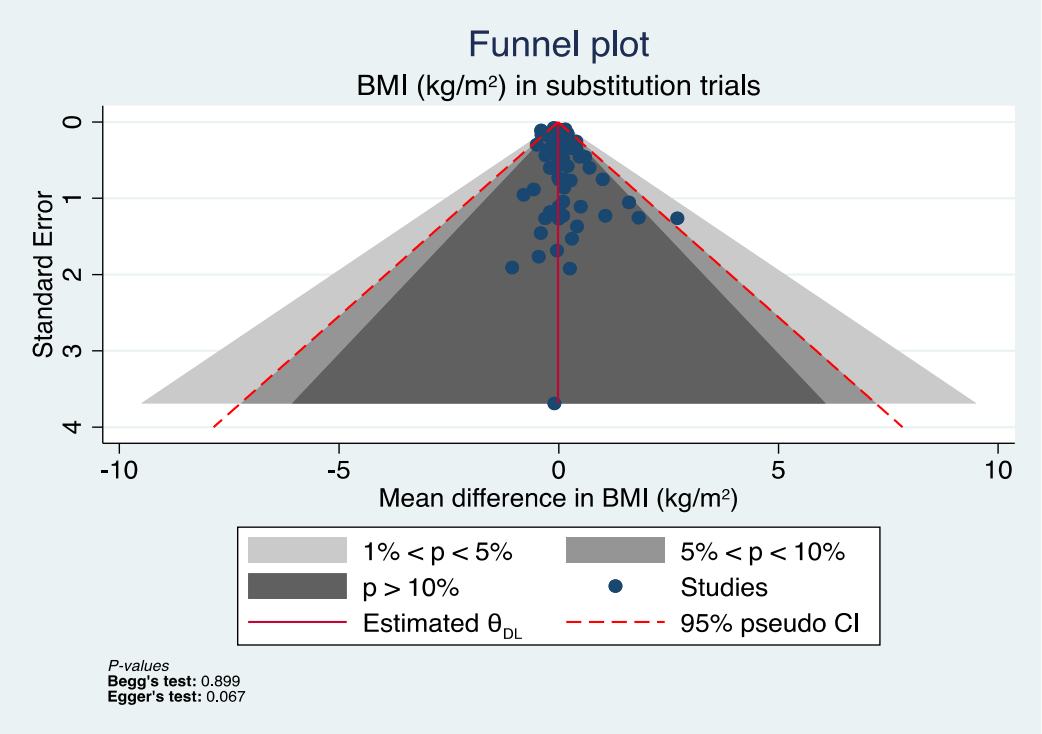
Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
CI=confidence interval; DL=DerSimmonian Laird.

Supplementary Figure 278: Publication bias funnel plots for the effect of mixed sources (with SSBs) and body weight (kg) in *ad libitum* trials



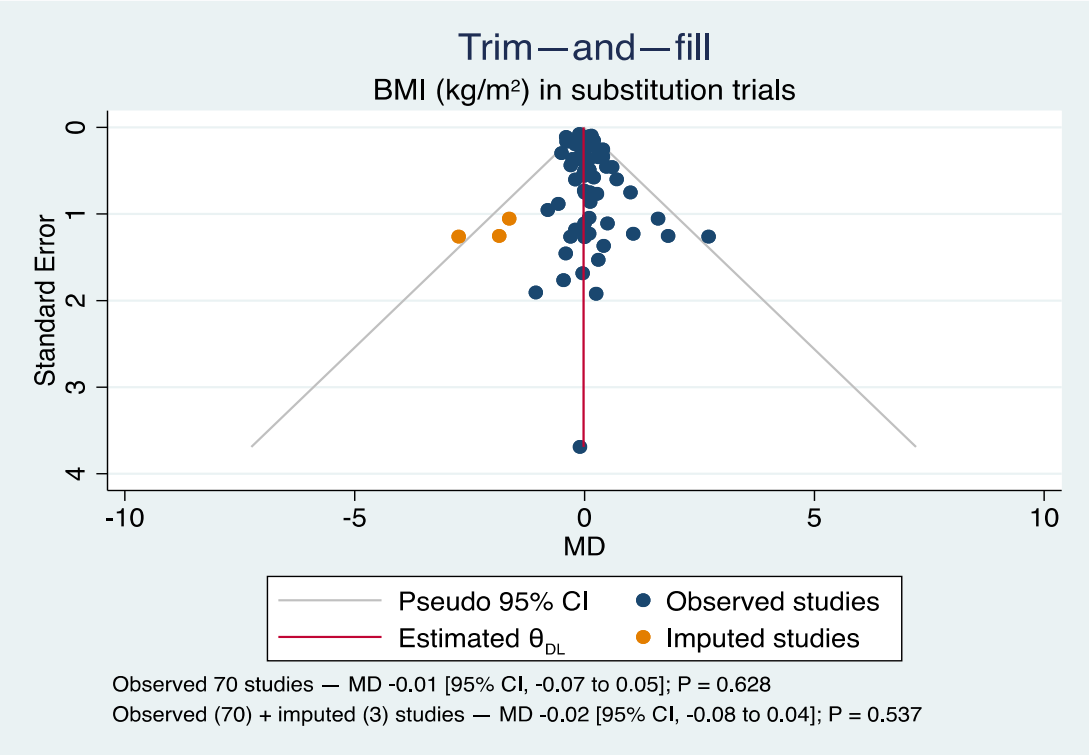
Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
CI=confidence interval; SSB=sugars-sweetened beverage.

Supplementary Figure 279: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and BMI (kg/m^2) in substitution trials



Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
BMI=body mass index; CI=confidence interval; DL=DerSimmonian Laird.

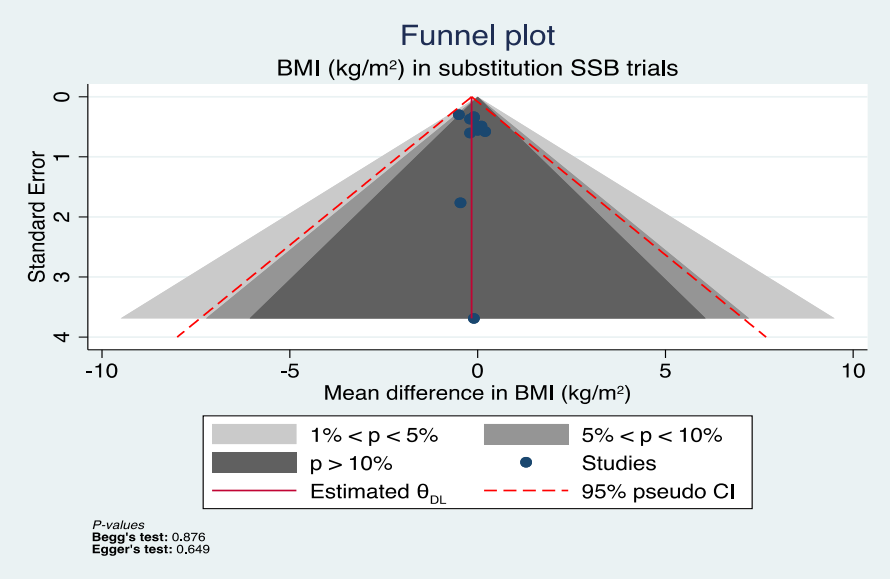
Supplementary Figure 280: Trim and fill plots for the effect of important food sources of fructose-containing sugars and BMI (kg/m^2) in substitution trials



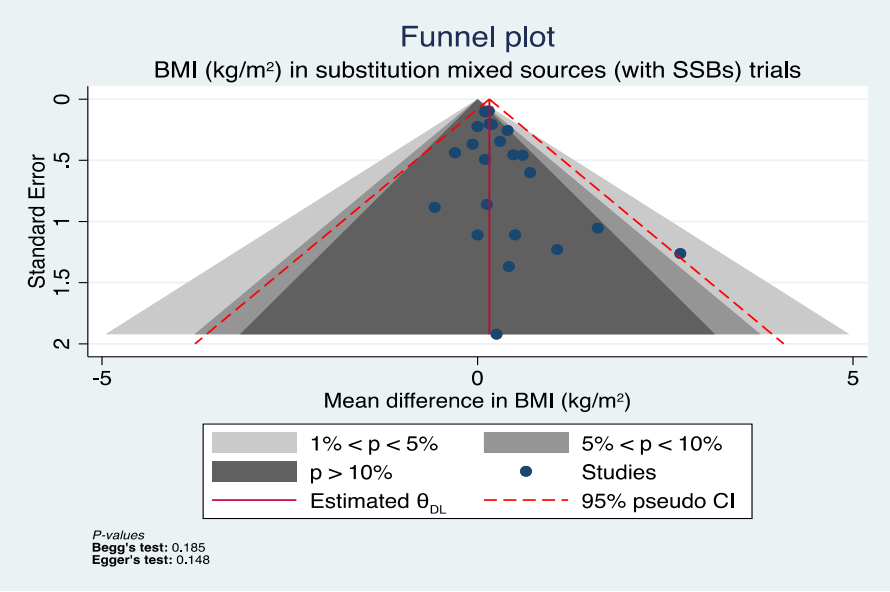
The horizontal line represents the pooled effect estimate expressed as mean difference. The diagonal lines represent the pseudo-95% confidence limits, the circles represent the effect estimate for each included study, and squares represent the effect estimate for each imputed "missed" study. Imputed random mean difference is provided, $p<0.05$ is considered evidence of small-study effects.
BMI=body mass index; CI=confidence interval; MD=mean difference.

Supplementary Figure 281: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and BMI (kg/m^2) in substitution trials by food source

A

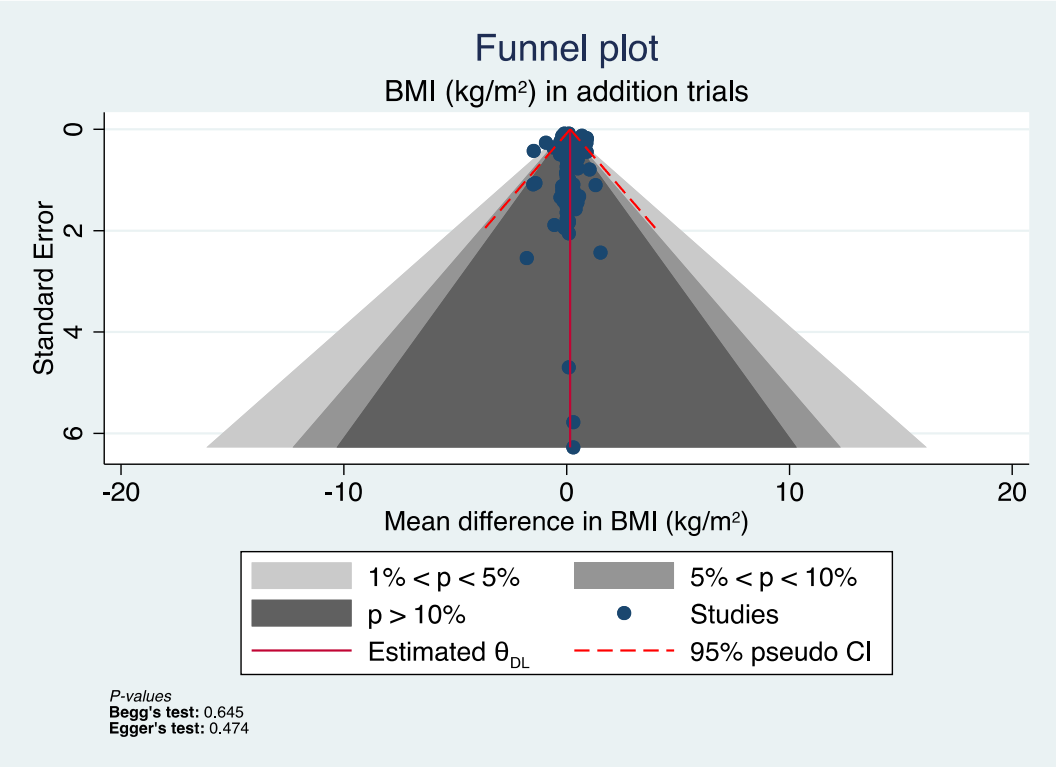


B



Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
Panel A: SSBs; B: mixed sources (with SSBs).
BMI=body mass index; CI=confidence interval; DL=DerSimmonian Laird; SSB=sugars-sweetened beverages.

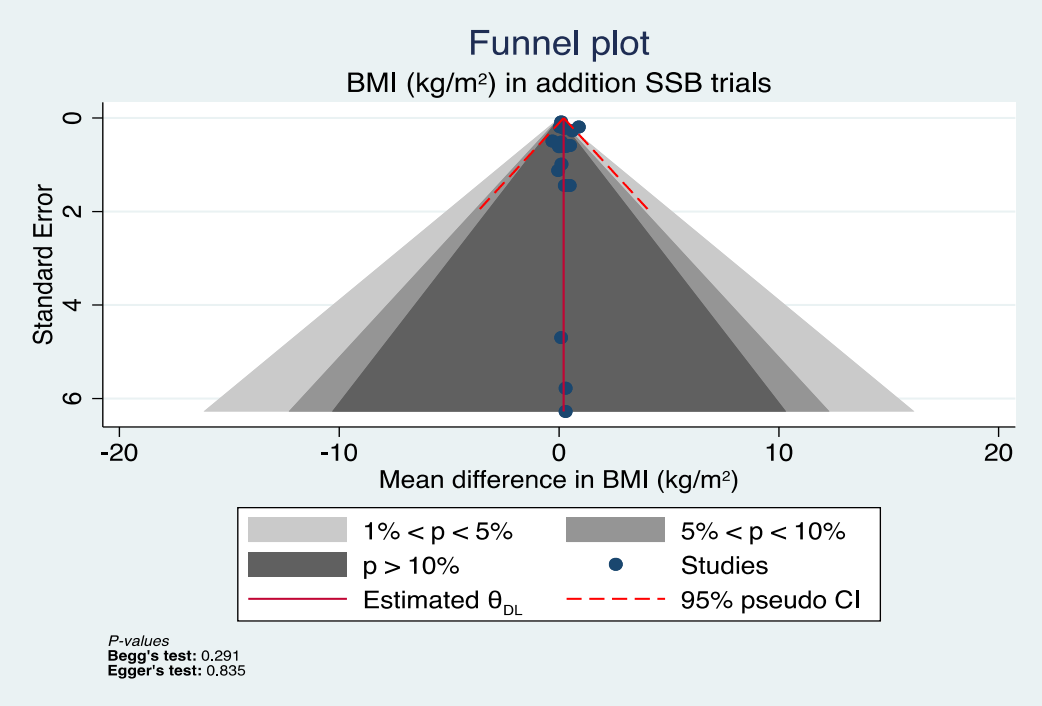
Supplementary Figure 282: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and BMI (kg/m^2) in addition trials



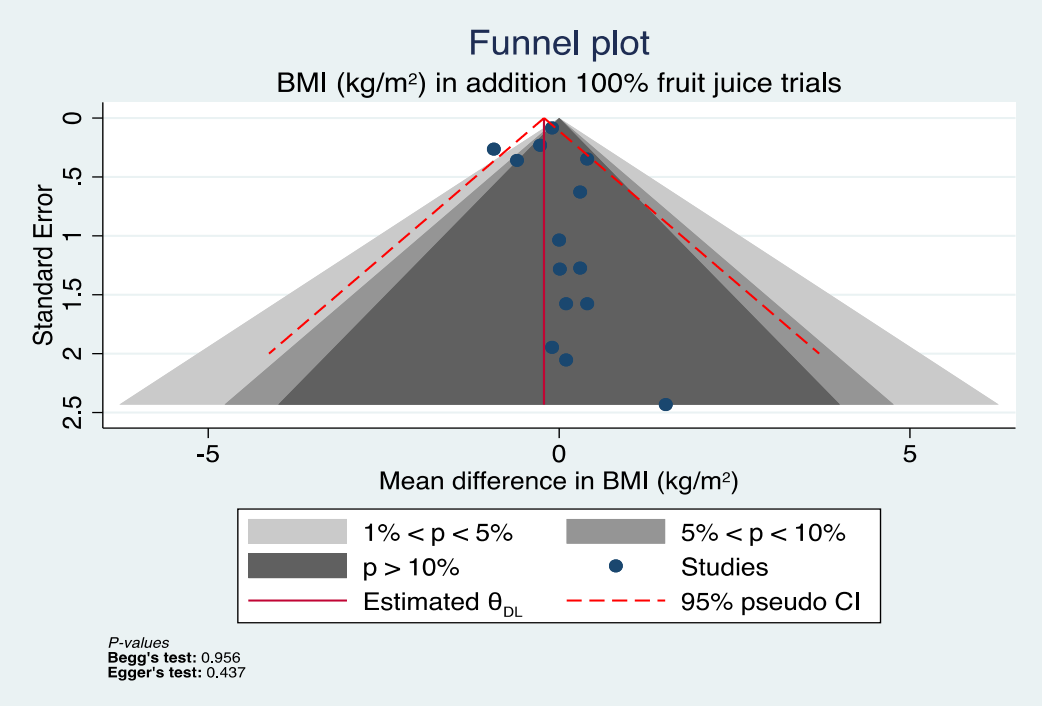
Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
BMI=body mass index; CI=confidence interval; DL=DerSimmonian Laird.

Supplementary Figure 283: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and BMI (kg/m^2) in addition trials by food source

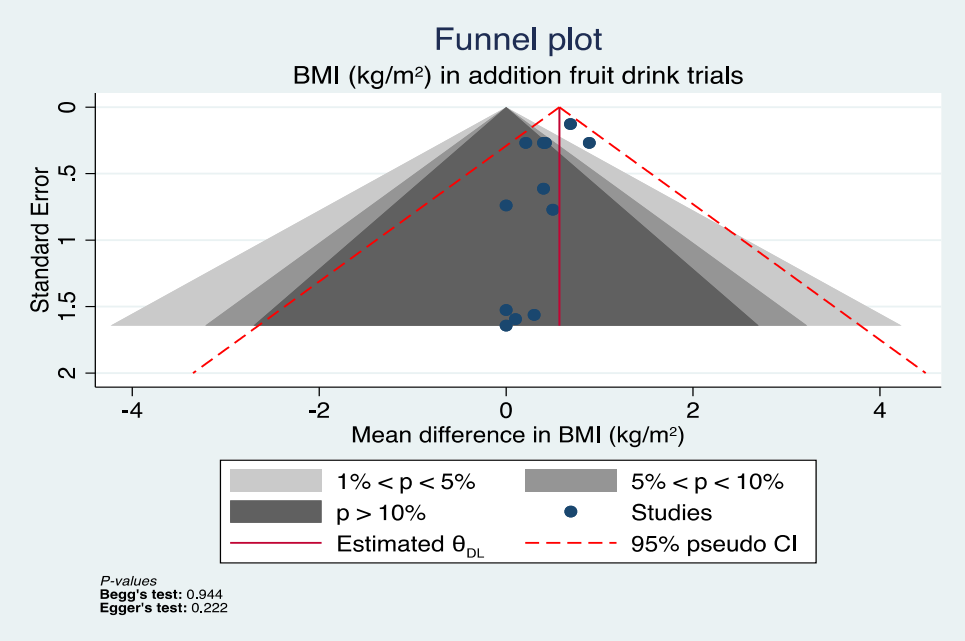
A



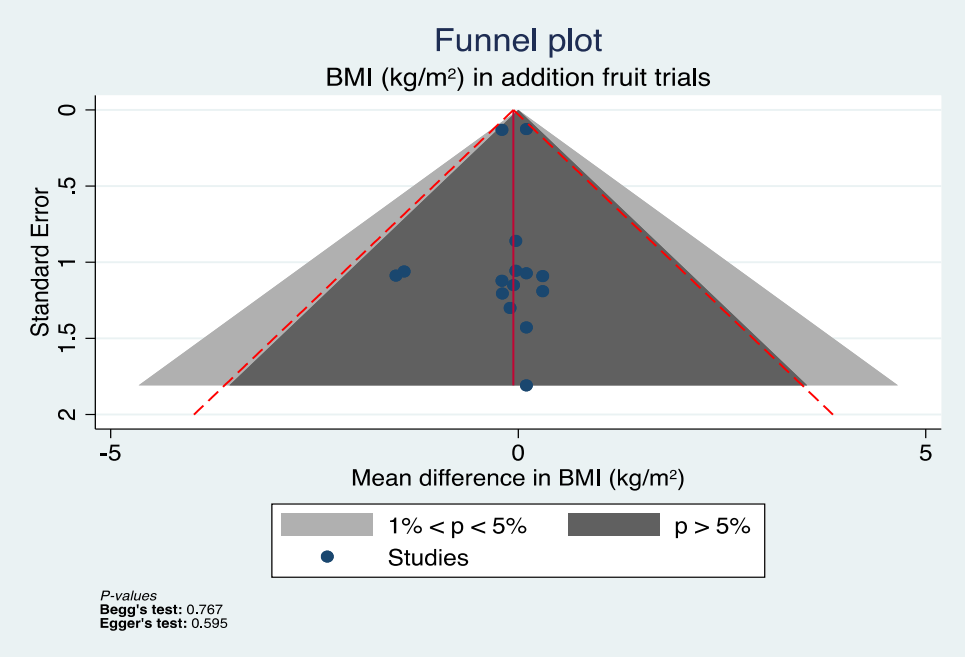
B



C

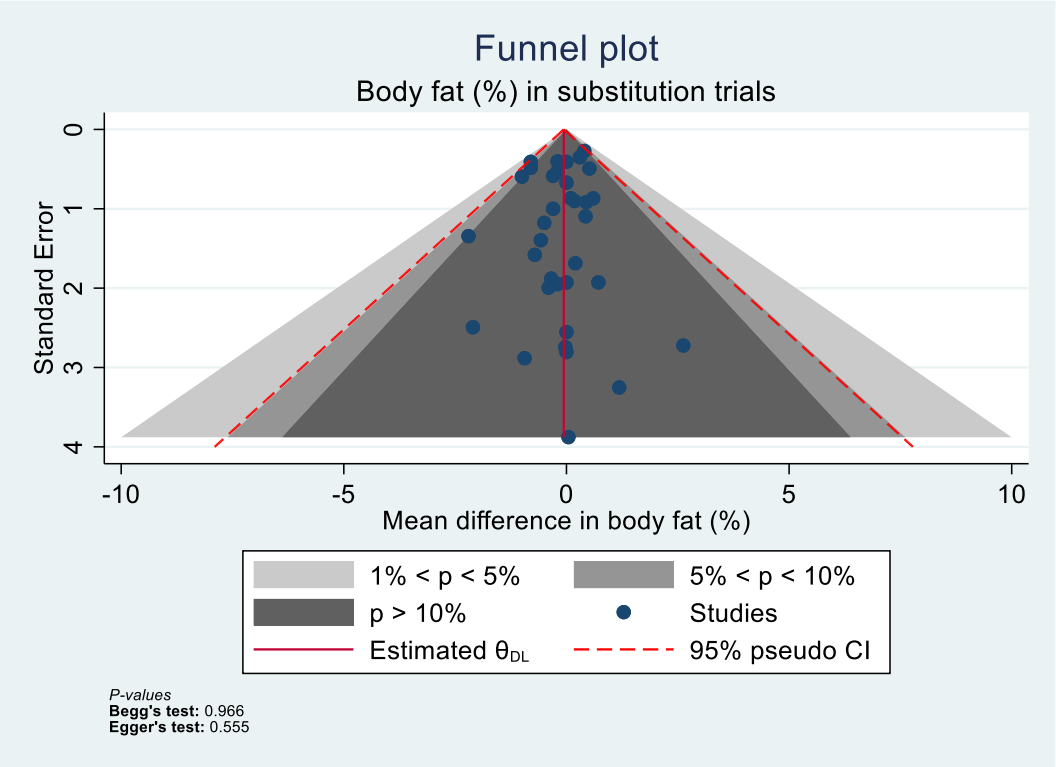


D



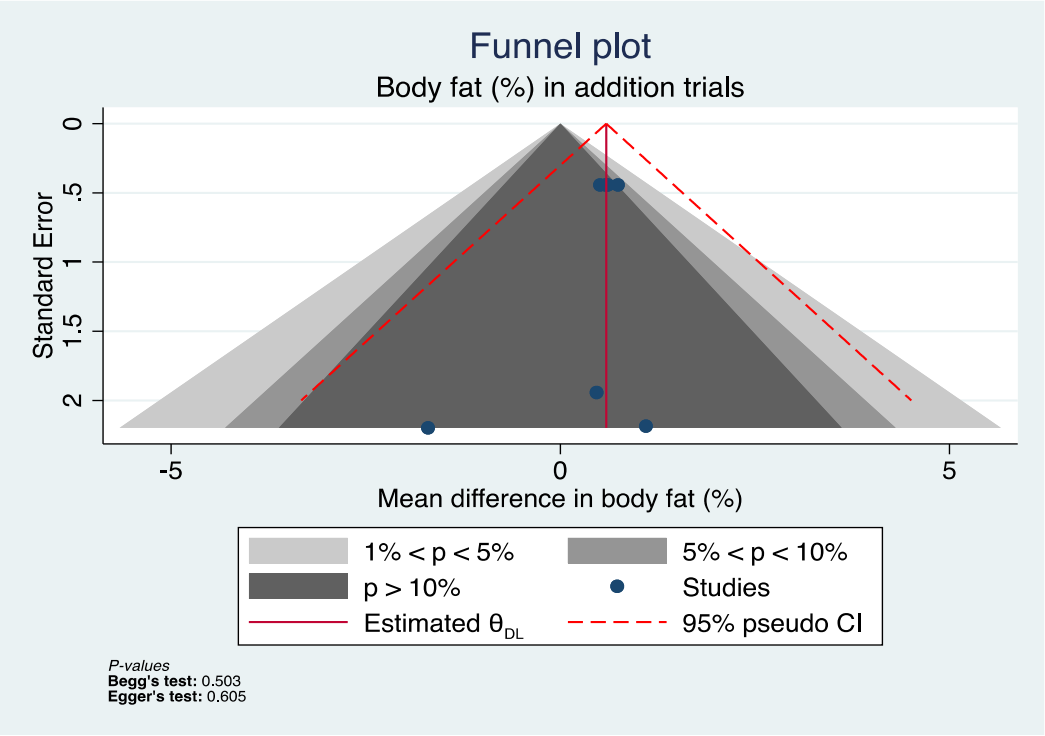
Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
Panel A: SSBs; B: 100% fruit juice; C: fruit drink; D; fruit.
BMI=body mass index; CI=confidence interval; DL=DerSimmonian Laird; SSB=sugars-sweetened beverage.

Supplementary Figure 284: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and body fat (%) in substitution trials



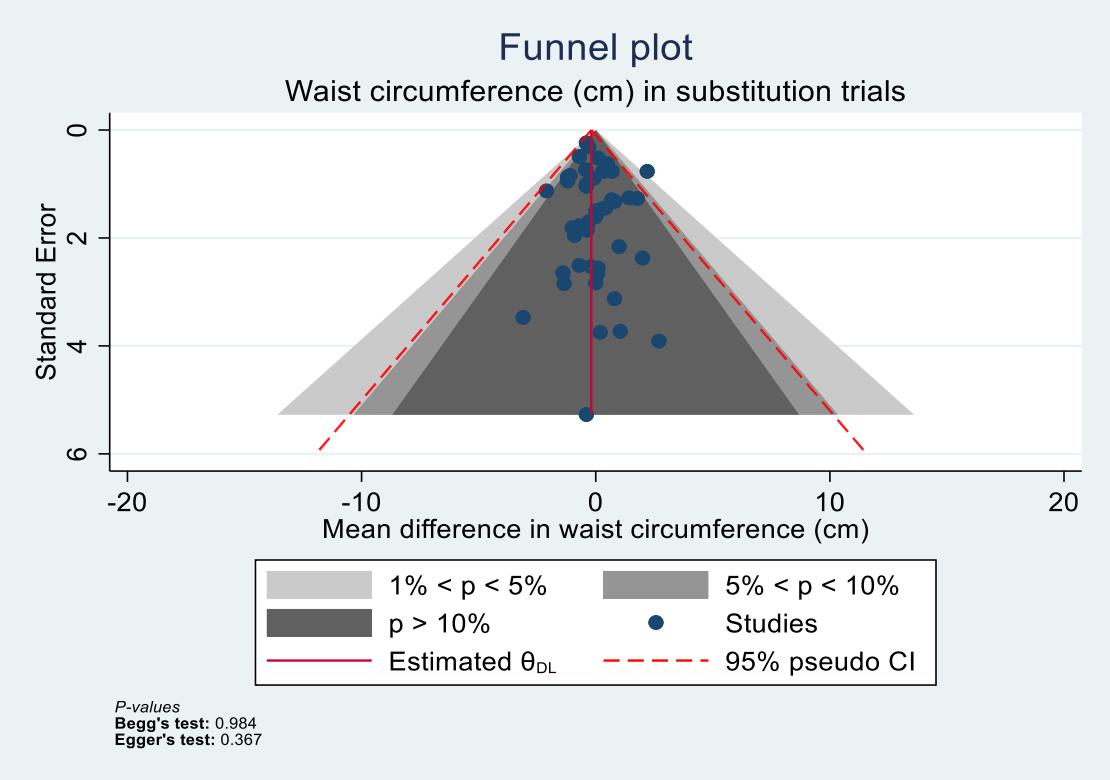
Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
CI=confidence interval; DL=DerSimmonian Laird.

Supplementary Figure 285: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and body fat (%) in addition trials



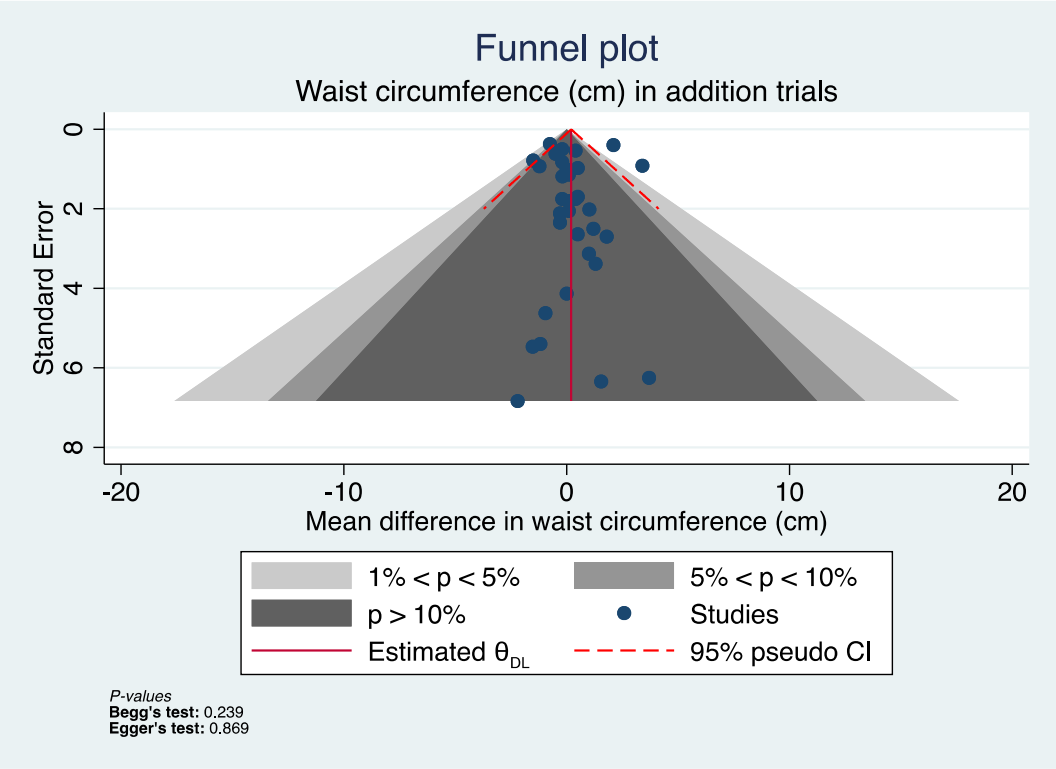
Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
CI=confidence interval; DL=DerSimmonian Laird.

Supplementary Figure 286: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and waist circumference (cm) in substitution trials



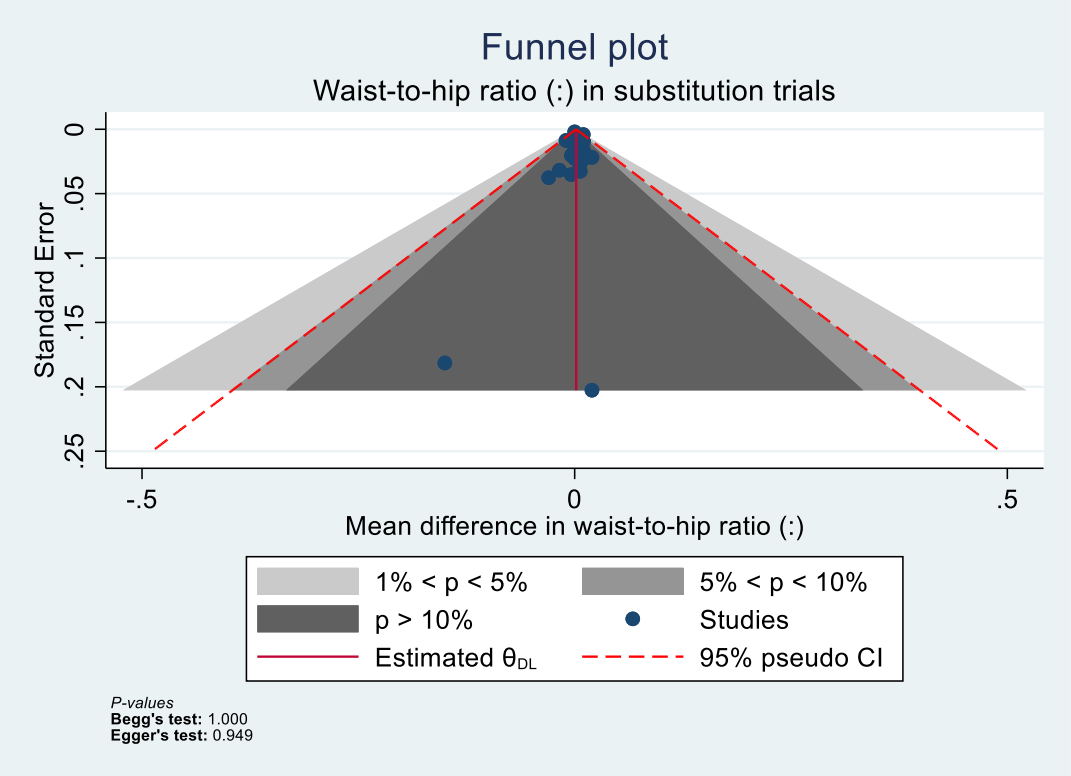
Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
CI=confidence interval; DL=DerSimmonian Laird.

Supplementary Figure 287: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and waist circumference in addition trials



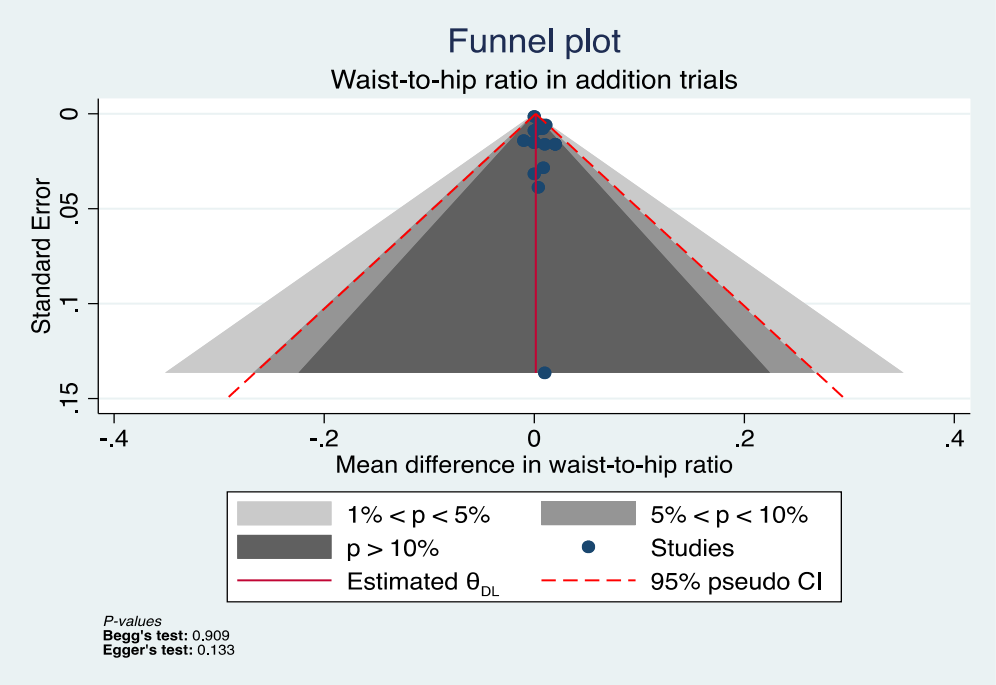
Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
CI=confidence interval; DL=DerSimmonian Laird.

Supplementary Figure 288: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and waist-to-hip ratio in substitution trials



Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
CI=confidence interval; DL=DerSimmonian Laird.

Supplementary Figure 289: Publication bias funnel plots for the effect of important food sources of fructose-containing sugars and waist-to-hip ratio in addition trials



Contour-enhanced funnel plot is a scatterplot of each trial weighted mean difference on the x-axis with the standard error representing precision on the y-axis. The vertical solid red line represents the pooled effect estimate and the dashed red lines represent the pseudo-95% confidence limits. The blue dots represent individual trials. The contour regions define the regions for the test of significance of individual trial effect size for a given p-value range >0.100 (dark grey), 0.500 to <0.100 (medium grey), 0.010 to <0.500 (light grey), <0.0100 (white)]. The contour-enhanced funnel plots may suggest funnel-plot asymmetry is due to publication bias when less precise (smaller) trials are missing in the non-significant regions. Quantitative assessment of publication bias was also performed using Egger's and Begg's tests set at a significance level of p<0.100.
CI=confidence interval; DL=DerSimmonian Laird.