

## Supplementary Material

Table S1: Effects on gastrointestinal hormones

Name	Route and Dose of Administration	Duration of Administration	Participants	Observed Effects
Sucrose/glucose/fructose				
Ma et al. 2009, <i>American Journal of Physiology Gastrointestinal and Liver Physiology</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 50 g sucrose in 500 mL saline</li> <li>• 80 mg of sucralose in 500 mL saline, or</li> <li>• 800 mg of sucralose in 500 mL saline, or</li> <li>• 500 mL saline.</li> </ul>	Acute	Healthy participants; BMI mean: $21.6 \pm 1.2$ kg/m <sup>2</sup>	Sucrose: <ul style="list-style-type: none"> <li>• <math>\uparrow</math> GLP-1; <math>\uparrow</math> GIP</li> </ul> Sucralose: <ul style="list-style-type: none"> <li>• No change in GLP-1 and GIP</li> </ul>
Yunker et al. 2021, <i>JAMA Network Open</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 75 g sucrose in 300 mL water, or</li> <li>• 178 - 358 mg sucralose (individually matched) in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.2 - 40.3 kg/m <sup>2</sup>	Sucrose: <ul style="list-style-type: none"> <li>• <math>\uparrow</math> GLP-1</li> <li>• No change in PYY</li> <li>• <math>\downarrow</math> Ghrelin</li> </ul> Sucralose: <ul style="list-style-type: none"> <li>• No change in GLP-1, PYY, and ghrelin</li> </ul>
Tai et al. 2010 <i>Appetite</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 100 g sucrose in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: $22.4 \pm 0.5$ kg/m <sup>2</sup>	Sucrose: <ul style="list-style-type: none"> <li>• <math>\downarrow</math> Ghrelin</li> </ul>

Maersk et al. 2012 <i>European Journal of Clinical Nutrition</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>• 53 g sucrose in 500 mL water (regular cola), or</li> <li>• 23 g carbohydrates in 500 mL isocaloric semi-skimmed milk (carbohydrates 4.7 g/100 mL; protein 3.4 g/100 mL; fat 1.5 g/100 mL), or</li> <li>• Aspartame in 500 mL water (diet cola), or</li> <li>• 500 mL water.</li> </ul>	Acute	Participants with overweight and obesity; BMI range: 28 - 36 kg/m <sup>2</sup>	<p>Sucrose (regular cola):</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ GIP</li> <li>• ↓ Ghrelin</li> </ul> <p>Semi-skimmed milk:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ GIP</li> <li>• ↓ Ghrelin</li> </ul> <p>Aspartame-sweetened diet cola:</p> <ul style="list-style-type: none"> <li>• No change in GLP-1, GIP, and ghrelin</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in GLP-1: semi-skimmed milk &gt; sucrose</li> <li>• Increase in GIP: semi-skimmed milk &gt; sucrose</li> <li>• Decrease in ghrelin: sucrose &gt; semi-skimmed milk</li> </ul>
Steinert et al. 2011 <i>British Journal of Nutrition</i>	<p>Intragastric administration of:</p> <ul style="list-style-type: none"> <li>• 50 g glucose in 250 mL water, or</li> <li>• 25 g fructose in 250 mL water, or</li> <li>• 62 mg sucralose in 250 mL water, or</li> <li>• 169 mg aspartame in 250 mL water, or</li> <li>• 220 mg acesulfame K in 250 mL water, or</li> <li>• 250 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 20.5 - 24.7 kg/m <sup>2</sup>	<p>Glucose:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ PYY</li> <li>• ↓ Ghrelin</li> </ul> <p>Fructose:</p> <ul style="list-style-type: none"> <li>• No change in GLP-1, PYY, and ghrelin</li> </ul> <p>Sucralose:</p> <ul style="list-style-type: none"> <li>• No change in GLP-1, PYY, and ghrelin</li> </ul> <p>Aspartame:</p> <ul style="list-style-type: none"> <li>• No change in GLP-1, PYY, and ghrelin</li> </ul> <p>Acesulfame K:</p> <ul style="list-style-type: none"> <li>• No change in GLP-1, PYY, and ghrelin</li> </ul>

Meyer-Gerspach et al. 2018 <i>American Journal of Clinical Nutrition</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 50 g glucose in 250 mL water, or</li> <li>• 25 g fructose in 250 mL water, or</li> <li>• 220 mg acesulfame K in 250 mL water, or</li> <li>• 250 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19 - 25 kg/m <sup>2</sup>	Glucose: <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ CCK</li> <li>• ↓ Ghrelin</li> </ul> Fructose: <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ CCK</li> <li>• ↓ Ghrelin</li> </ul> Acesulfame K: <ul style="list-style-type: none"> <li>• No change in GLP-1, CCK, and ghrelin</li> </ul>
Wölnerhanssen et al. 2015 <i>PLoS ONE</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 75 g glucose in 300 mL water, or</li> <li>• 25 g fructose in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 21.0 - 24.0 kg/m <sup>2</sup>	Glucose: <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ GIP</li> </ul> Fructose: <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ GIP</li> </ul>
Kong et al. 1999 <i>Peptides</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 75 g glucose in 300 mL water, or</li> <li>• 75 g fructose in 300 mL water, or</li> <li>• 75 g glucose in 300 mL water followed by 75 g fructose in 300 mL 1h later.</li> </ul>	Acute	Healthy participants; BMI mean: 24.3 ± 2.9 kg/m <sup>2</sup>	Glucose: <ul style="list-style-type: none"> <li>• ↑ GLP-1</li> </ul> Fructose: <ul style="list-style-type: none"> <li>• ↑ GLP-1</li> </ul> Glucose followed by fructose: <ul style="list-style-type: none"> <li>• No further increase in GLP-1 after fructose</li> </ul>

Yau et al. 2017 <i>Nutrients</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>• 36 g sucrose in 600 mL water , or</li> <li>• 39.6 g glucose in 600 mL water, or</li> <li>• 36 g fructose in 600 mL water, or</li> <li>• 19.8 g glucose &amp; 18 g fructose in 600 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: 25.5 ± 3.8 kg/m <sup>2</sup>	<p>Sucrose:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ GIP</li> <li>• ↓ Ghrelin</li> </ul> <p>Glucose:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ GIP</li> <li>• ↓ Ghrelin</li> </ul> <p>Fructose:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1</li> <li>• No change in GIP</li> <li>• ↓ Ghrelin</li> </ul> <p>Glucose &amp; fructose:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ GIP</li> <li>• ↓ Ghrelin</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in GLP-1: sucrose = glucose = fructose = glucose &amp; fructose</li> <li>• Increase in GIP: glucose &gt; glucose &amp; fructose &gt; sucrose</li> <li>• Decrease in ghrelin: sucrose = glucose = fructose = glucose &amp; fructose</li> </ul>
Yunker et al. 2021 <i>The Journal of Clinical Endocrinology &amp; Metabolism</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>• 75 g sucrose in 300 mL water, or</li> <li>• 75 g glucose in 300 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: 27.0 ± 5.0 kg/m <sup>2</sup>	<p>Sucrose:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ PYY</li> <li>• ↓ Ghrelin</li> </ul> <p>Glucose:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ PYY</li> <li>• ↓ Ghrelin</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in GLP-1: sucrose &lt; glucose</li> <li>• Increase in PYY: sucrose &lt; glucose</li> <li>• Decrease in ghrelin: sucrose = glucose</li> </ul>
Matikainen et al. 2017 <i>Nutrition, Metabolism &amp; Cardiovascular Diseases</i>	<p>Daily oral administration (3x/day) of:</p> <ul style="list-style-type: none"> <li>• 25 g fructose in 330 mL water (total: 75 g/day)</li> </ul> <p>OGTT and mixed meal test at baseline and after 12 weeks</p>	Chronic (12 weeks)	Participants with overweight and obesity; BMI range: 26.5-38.2 kg/m <sup>2</sup>	<p>Fructose:</p> <ul style="list-style-type: none"> <li>• No change in fasting GLP-1, GIP, and PYY</li> <li>• No change in GLP-1 and GIP during OGTT and mixed meal test</li> <li>• No change in PYY during mixed meal</li> </ul>

Sucralose				
Ma et al. 2009, <i>American Journal of Physiology Gastrointestinal and Liver Physiology</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>80 mg sucralose in 500 mL saline, or</li> <li>800 mg sucralose in 500 mL saline, or</li> <li>50 g sucrose in 500 mL saline, or</li> <li>500 mL saline.</li> </ul>	Acute	Healthy participants; BMI mean: 21.6 ± 1.2 kg/m <sup>2</sup>	Sucralose: <ul style="list-style-type: none"> <li>No change in GLP-1 and GIP</li> </ul> Sucrose: <ul style="list-style-type: none"> <li>↑ GLP-1; ↑ GIP</li> </ul>
Yunker et al. 2021, <i>JAMA Network Open</i>	Oral administration of: <ul style="list-style-type: none"> <li>178 - 358 mg sucralose (individually matched) in 300 mL water, or</li> <li>75 g sucrose in 300 mL water, or</li> <li>300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.2 - 40.3 kg/m <sup>2</sup>	Sucralose: <ul style="list-style-type: none"> <li>No change in GLP-1, PYY, and ghrelin</li> </ul> Sucrose: <ul style="list-style-type: none"> <li>↑ GLP-1</li> <li>No change in PYY</li> <li>↓ Ghrelin</li> </ul>
Steinert et al. 2011 <i>British Journal of Nutrition</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>62 mg sucralose in 250 mL water, or</li> <li>50 g glucose in 250 mL water, or</li> <li>25 g fructose in 250 mL water, or</li> <li>169 mg aspartame in 250 mL water, or</li> <li>220 mg acesulfame K in 250 mL water, or</li> <li>250 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: 23.0 ± 0.5 kg/m <sup>2</sup>	Sucralose: <ul style="list-style-type: none"> <li>No change in GLP-1, PYY, and ghrelin</li> </ul> Glucose: <ul style="list-style-type: none"> <li>↑ GLP-1; ↑ PYY</li> <li>↓ Ghrelin</li> </ul> Fructose: <ul style="list-style-type: none"> <li>No change in GLP-1, PYY, and ghrelin</li> </ul> Aspartame: <ul style="list-style-type: none"> <li>No change in GLP-1, PYY, and ghrelin</li> </ul> Acesulfame K: <ul style="list-style-type: none"> <li>No change in GLP-1, PYY, and ghrelin</li> </ul>
Sylvetsky et al. 2016 <i>Nutrition &amp; Metabolism</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>68 mg sucralose in 355 mL water, or</li> <li>170 mg sucralose in 355 mL water, or</li> <li>250 mg sucralose in 355 mL water, or</li> <li>355 mL water</li> </ul> followed by an OGTT.	Acute	Healthy participants; BMI mean: 25.8 ± 4.2 kg/m <sup>2</sup>	Sucralose: <ul style="list-style-type: none"> <li>No change in GLP-1, and GIP after preload</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>Increase in GLP-1 and GIP during OGTT: sucralose (all concentrations) = water</li> </ul>

Wu et al. 2013 <i>Diabetes Care</i>	<p>Oral administration of preloads with:</p> <ul style="list-style-type: none"> <li>• 52 mg sucralose in 240 mL water, or</li> <li>• 200 mg acesulfame K in 240 mL water, or</li> <li>• 46 mg sucralose &amp; 26 mg acesulfame K in 240 mL water, or</li> <li>• 240 mL water</li> </ul> <p>followed by an OGTT.</p>	Acute	Healthy participants; BMI mean: $25.5 \pm 1.0$ kg/m <sup>2</sup>	<p>Sucralose:</p> <ul style="list-style-type: none"> <li>• No change in GLP-1 after preload</li> </ul> <p>Acesulfame K:</p> <ul style="list-style-type: none"> <li>• No change in GLP-1 after preload</li> </ul> <p>Sucralose &amp; acesulfame K:</p> <ul style="list-style-type: none"> <li>• No change in GLP-1 after preload</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in GLP-1 during OGTT: sucralose = acesulfame K = sucralose &amp; acesulfame K</li> </ul>
Wu et al. 2012 <i>American Journal of Clinical Nutrition</i>	<p>Oral administration of preloads with:</p> <ul style="list-style-type: none"> <li>• 60 mg sucralose in 400 mL water, or</li> <li>• 40 g glucose in 400 mL water, or</li> <li>• 40 g 3-O-methyl-glucose in 400 mL water, or</li> <li>• 40 g tagatose &amp; isomalt in 400 mL water</li> </ul> <p>followed by a labeled mashed potato meal containing <sup>13</sup>C octanoic acid.</p>	Acute	Healthy participants; BMI mean: $25.5 \pm 1.5$ kg/m <sup>2</sup>	<p>Sucralose:</p> <ul style="list-style-type: none"> <li>• No change in GLP-1 and GIP after preload</li> </ul> <p>Glucose:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ GIP after preload</li> </ul> <p>3-O-methyl-glucose:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ GIP after preload</li> </ul> <p>Tagatose &amp; isomalt:</p> <ul style="list-style-type: none"> <li>• No change in GLP-1 and GIP after preload</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in GLP-1 after preload: glucose &lt; 3-OMG</li> <li>• Increase in GIP after preload: glucose &gt; 3-OMG</li> <li>• Increase in GLP-1 during test meal: sucralose &lt; glucose or 3-OMG or tagatose &amp; isomalt</li> <li>• Increase in GIP during test meal: sucralose or tagatose &amp; isomalt &lt; glucose or 3-OMG</li> </ul>
Ma et al. 2010 <i>British Journal of Nutrition</i>	<p>Intraduodenal administration of:</p> <ul style="list-style-type: none"> <li>• 960 mg sucralose in 600 mL saline, or</li> <li>• 600 mL saline.</li> </ul>	Acute	Healthy participants; BMI mean: $23.4 \pm 0.8$ kg/m <sup>2</sup>	<p>Sucralose:</p> <ul style="list-style-type: none"> <li>• No change in GLP-1</li> </ul>

Ford et al. 2011 <i>European Journal of Clinical Nutrition</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>• 4.15 mg sucralose in 50 mL water (i.e. 0.083% sucralose solution), or</li> <li>• 4.15 mg sucralose &amp; 25 g maltodextrin in 50 mL water (i.e. 0.083% sucralose solution &amp; 50% maltodextrin solution), or</li> <li>• 50 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 18.0 - 23.9 kg/m <sup>2</sup>	Sucralose: <ul style="list-style-type: none"> <li>• No change in GLP-1</li> </ul>
Brown et al. 2012 <i>Diabetes Care</i>	<p>Oral administration of preloads with:</p> <ul style="list-style-type: none"> <li>• 45.6 mg sucralose in 240 mL diet soda (mean concentration of sucralose: 190 ± 38 µg/mL), or</li> <li>• 240 mL carbonated water, followed by an OGTT.</li> </ul>	Acute	Healthy participants; BMI range: 19.1 - 35.9 kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in GLP-1 during OGTT: sucralose &gt; water</li> <li>• Increase in GIP and PYY during OGTT: sucralose = water</li> </ul>
Temizkan et al. 2015 <i>European Journal of Clinical Nutrition</i>	<p>Oral administration of preloads with:</p> <ul style="list-style-type: none"> <li>• 24 mg sucralose in 200 mL water, or</li> <li>• 200 mL water, followed by an OGTT.</li> </ul>	Acute	Healthy participants; BMI mean: 30.3 ± 4.5 kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in GLP-1 during OGTT: sucralose &gt; water</li> </ul>
Suez et al. 2022 <i>Cell</i>	<p>Daily oral administration (3x/day) of:</p> <ul style="list-style-type: none"> <li>• 204 mg sucralose (total: 612 mg/day) &amp; 11.796 g glucose as a bulking agent (total: 35.388 g/day), or</li> <li>• 11.796 g glucose alone (total: 35.388 g/day).</li> </ul> <p>OGTT at baseline and after 2 weeks.</p>	Chronic (2 weeks)	Healthy participants; BMI range: 18 - 28 kg/m <sup>2</sup>	<p>Sucralose &amp; glucose:</p> <ul style="list-style-type: none"> <li>• No change in non-fasting GLP-1 at baseline, during treatment, and follow-up</li> </ul> <p>Glucose:</p> <ul style="list-style-type: none"> <li>• No change in non-fasting GLP-1 at baseline, during treatment, and follow-up</li> </ul>
Lertrit et al. 2018 <i>Nutrition</i>	<p>Daily oral administration (1x/day) of:</p> <ul style="list-style-type: none"> <li>• 200 mg sucralose in capsules, or</li> <li>• empty capsules (placebo),</li> </ul> <p>OGTT, or IVGTT at baseline and after 4 weeks.</p>	Chronic (4 weeks)	Healthy participants; BMI range: 18.5 – 27.0 kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in GLP-1 during OGTT: sucralose capsules &gt; empty capsules</li> </ul>
Xylitol				

Meyer-Gerspach et al. 2021 <i>Nutrients</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 7 g xylitol in 300 mL water, or</li> <li>• 17 g xylitol in 300 mL water, or</li> <li>• 35 g xylitol in 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range 19.4 - 23.0 kg/m <sup>2</sup>	Xylitol: <ul style="list-style-type: none"> <li>• Dose-dependent ↑ GLP-1, dose-dependent ↑ PYY</li> <li>• No change in GIP</li> <li>• Dose-dependent ↑ CCK</li> </ul>
Meyer-Gerspach et al. 2022 <i>Nutritional Neuroscience</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 50 g xylitol in 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 20.0 - 38.9 kg/m <sup>2</sup>	Xylitol: <ul style="list-style-type: none"> <li>• ↑ PYY; ↑ CCK</li> </ul>
Wölnerhanssen et al. 2016 <i>American Journal of Physiology Endocrinology and Metabolism</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 50 g xylitol in 300 mL water.</li> </ul>	Acute	Healthy participants and participants with obesity; BMI range 19.9 - 48.2 kg/m <sup>2</sup>	Xylitol: <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ CCK</li> </ul>
<b>Erythritol</b>				
Meyer-Gerspach et al. 2022 <i>Nutritional Neuroscience</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 75 g erythritol in 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 20.0 - 38.9 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>• ↑ PYY; ↑ CCK</li> </ul>
Wölnerhanssen et al. 2016 <i>American Journal of Physiology Endocrinology and Metabolism</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 75 g erythritol in 300 mL water.</li> </ul>	Acute	Healthy participants and participants with obesity; BMI range: 19.9 - 48.2 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ CCK</li> </ul>
Wölnerhanssen et al. 2021 <i>Diabetes, Obesity and Metabolism</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 10 g erythritol in 300 mL water, or</li> <li>• 20 g erythritol in 300 mL water, or</li> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.4 - 24.0 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>• Dose-dependent ↑ GLP-1; dose-dependent ↑ PYY</li> <li>• No change in GIP</li> <li>• Dose-dependent ↑ CCK</li> </ul>



Teyssiere et al. 2022 <i>Nutrients</i>	<p>Oral administration of preloads with:</p> <ul style="list-style-type: none"> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 33.5 g sucrose in 300 mL water, or</li> <li>• 55.8 mg sucralose in 300 mL water, or</li> <li>• 300 mL water,</li> </ul> <p>subsequent <i>ad libitum</i> a test meal.</p>	Acute	Healthy participants; BMI range: 19.6 - 24.8 kg/m <sup>2</sup>	<p>Erythritol:</p> <ul style="list-style-type: none"> <li>• ↑ CCK after preload</li> </ul> <p>Sucrose:</p> <ul style="list-style-type: none"> <li>• ↑ CCK after preload</li> </ul> <p>Sucralose:</p> <ul style="list-style-type: none"> <li>• No change in CCK after preload</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in CCK after preload: erythritol &gt; sucrose</li> <li>• Increase in CCK during test meal: erythritol &gt; sucrose, sucralose</li> </ul>
Teyssiere et al. 2022 <i>The Journal of Nutrition</i>	<p>Intragastric administration of:</p> <ul style="list-style-type: none"> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 25 g D-allulose in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.1 - 24.3 kg/m <sup>2</sup>	<p>Erythritol:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ PYY; ↑ CCK</li> </ul> <p>D-allulose:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ PYY; ↑ CCK</li> </ul>
Overduin et al. 2016 <i>Appetite</i>	<p>Oral administration of breakfasts containing skimmed milk and starch with:</p> <ul style="list-style-type: none"> <li>• 10% sucrose, or</li> <li>• 8% erythritol &amp; 2% sucrose (isovolumic to sucrose breakfast), or</li> <li>• 8% erythritol &amp; 2% sucrose (isocaloric to sucrose breakfast)</li> </ul> <p>subsequent <i>ad libitum</i> buffet meal.</p>	Acute	<ul style="list-style-type: none"> <li>• Healthy participants; BMI mean: 21.8 ± 2.0 kg/m<sup>2</sup></li> <li>• Participants with obesity; BMI mean: 34.2 ± 3.6 kg/m<sup>2</sup></li> </ul>	<p>Erythritol &amp; sucrose breakfast:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ PYY after breakfast preload</li> </ul> <p>Sucrose breakfast:</p> <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ PYY after breakfast preload</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in GLP-1 and PYY after breakfast preload: erythritol &amp; sucrose breakfast = sucrose breakfast</li> </ul>
Teyssiere et al. 2023 <i>Nutrients</i>	<p>Intragastric administration of:</p> <ul style="list-style-type: none"> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 25 g D-allulose in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.1 - 24.3 kg/m <sup>2</sup>	<p>Erythritol:</p> <ul style="list-style-type: none"> <li>• ↓ Ghrelin</li> </ul> <p>D-allulose:</p> <ul style="list-style-type: none"> <li>• No change in ghrelin</li> </ul>
Sorrentino et al. 2020 <i>Cureus</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>• 50.8 g erythritol in 250 mL water, or</li> <li>• 185 mg aspartame in 250 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: 21.7 ± 1.9 kg/m <sup>2</sup>	<p>Erythritol:</p> <ul style="list-style-type: none"> <li>• ↓ Ghrelin</li> </ul> <p>Aspartame:</p> <ul style="list-style-type: none"> <li>• No change in ghrelin</li> </ul>
D-allulose				

Teyssaire et al. 2022 <i>The Journal of Nutrition</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 25 g D-allulose in 300 mL water, or</li> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.1 - 24.3 kg/m <sup>2</sup>	D-allulose: <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ PYY; ↑ CCK</li> </ul> Erythritol: <ul style="list-style-type: none"> <li>• ↑ GLP-1; ↑ PYY; ↑ CCK</li> </ul>
Teyssaire et al. 2023 <i>Nutrients</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 25 g D-allulose in 300 mL water, or</li> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.1 - 24.3 kg/m <sup>2</sup>	D-allulose: <ul style="list-style-type: none"> <li>• No change in ghrelin</li> </ul> Erythritol: <ul style="list-style-type: none"> <li>• ↓ Ghrelin</li> </ul>

Table S2: Effects on gastric emptying rates

Name	Route and Dose of Administration	Duration of Administration	Participants	Observed Effects
Sucrose/glucose/fructose				
Ma et al. 2009, <i>American Journal of Physiology Gastrointestinal and Liver Physiology</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>50 g sucrose in 500 mL saline, or</li> <li>80 mg of sucralose in 500 mL saline, or</li> <li>800 mg of sucralose in 500 mL saline, or</li> <li>500 mL saline.</li> </ul>	Acute	Healthy participants; BMI mean: $21.6 \pm 1.2$ kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>Retardation of gastric emptying sucrose &gt; sucralose = saline</li> </ul>
Tai et al. 2010 <i>Appetite</i>	Oral administration of: <ul style="list-style-type: none"> <li>100 g sucrose in 300 mL water, or</li> <li>300 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: $22.4 \pm 0.5$ kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>Retardation of gastric emptying: sucrose &gt; water</li> </ul>
Lavin et al. 2002 <i>International Journal of Obesity</i>	Oral administration of: <ul style="list-style-type: none"> <li>125 g sucrose in 450 mL water &amp; 50 mL lemon juice, or</li> <li>525 mL water &amp; 50 mL lemon juice.</li> </ul>	Acute	Healthy participants; BMI range 20.1 - 24.7 kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>Retardation of gastric emptying: sucrose &amp; lemon juice &gt; water &amp; lemon juice</li> </ul>
Brener et al. 1983 <i>Gastroenterology</i>	Oral administration of: <ul style="list-style-type: none"> <li>20 g glucose in 400 mL water, or</li> <li>50 g glucose in 400 mL water, or</li> <li>100 g glucose in 400 mL water, or</li> <li>400 mL saline.</li> </ul>	Acute	Healthy participants; Normal weight	Comparison between treatments: <ul style="list-style-type: none"> <li>Retardation of gastric emptying: glucose (dose-dependent) &gt; saline</li> </ul>
Guss et al. 1994 <i>American Journal of Physiology</i>	Oral administration of solutions containing 15 mL lemon juice and 147 mg aspartame with: <ul style="list-style-type: none"> <li>50 g glucose in 500 mL water (i.e. 10% glucose solution), or</li> <li>50 g fructose in 500 mL water (i.e. 10% fructose solution), or</li> <li>500 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: $19.9 \pm 0.6$ kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>Retardation of gastric emptying: glucose &gt; fructose &gt; water</li> </ul>
Shi et al. 2017 <i>Medicine &amp; Science in Sports &amp; Exercise</i>	Oral administration of 7 mL/kg body weight (corresponding to 490 mL for a body weight of 70kg) of: <ul style="list-style-type: none"> <li>9.8 g sucrose or glucose in 490 mL water (i.e. 2% sucrose or glucose solution), or</li> </ul>	Acute	Healthy participants; Body weight mean: $69.2 \pm 10.6$ kg	Comparison between treatments: <ul style="list-style-type: none"> <li>Retardation of gastric emptying: glucose &gt; sucrose &gt; water</li> </ul>

	<ul style="list-style-type: none"> <li>• 19.6 g sucrose or glucose in 490 mL water (i.e. 4% sucrose or glucose solution), or</li> <li>• 29.4 g sucrose or glucose in 490 mL water (i.e. 6% sucrose or glucose solution), or</li> <li>• 39.4 g sucrose or glucose in 490 mL water (i.e. 8% sucrose or glucose solution), or</li> <li>• 490 mL water.</li> </ul>			
Horowitz et al. 1996 <i>Diabetologia</i>	<p>Acute oral administration of glucose or fructose solution with and without prior glucose supplementation (4-7 days with 440 g/day of glucose):</p> <ul style="list-style-type: none"> <li>• 75 g glucose in 350 mL water (without prior glucose supplementation), or</li> <li>• 75 g glucose in 350 mL water (with prior glucose supplementation), or</li> <li>• 75 g fructose in 350 mL water (without prior glucose supplementation), or</li> <li>• 75 g fructose in 350 mL water (with prior glucose supplementation).</li> </ul>	Acute/Chronic	Healthy participants; Body weight range: 50 - 91 kg	<p>Comparison between chronic treatments (with vs. without prior glucose supplementation):</p> <ul style="list-style-type: none"> <li>• Acceleration of gastric emptying of both fructose or glucose solutions: with prior glucose supplementation &gt; without prior glucose supplementation</li> </ul>
Yau et al. 2014 <i>Nutrition</i> Yau et al. 2017 <i>Nutrients</i>	<p>Acute oral administration of fructose or glucose solution with and without prior fructose supplementation (3 days with 120 g/day of fructose):</p> <ul style="list-style-type: none"> <li>• 39.6 g glucose in 600 mL water (without prior fructose supplementation), or</li> <li>• 39.6 g glucose in 600 mL water (with prior fructose supplementation), or</li> <li>• 36 g fructose in 600 mL water (without prior fructose supplementation), or</li> <li>• 36 g fructose in 600 mL water (with prior fructose supplementation).</li> </ul>	Acute/Chronic	Healthy participants; BMI mean: 25.3 ± 3.1 kg/m <sup>2</sup>	<p>Comparison between chronic treatments (with vs. without prior fructose supplementation):</p> <ul style="list-style-type: none"> <li>• Acceleration of gastric emptying of glucose solution: with prior fructose supplementation = without prior fructose supplementation</li> <li>• Acceleration of gastric emptying of fructose solution: with prior fructose supplementation &gt; without prior fructose supplementation</li> </ul>
Sucralose				

Sylvetsky et al. 2016 <i>Nutrition &amp; Metabolism</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>• 68 g sucralose in 355 mL water, or</li> <li>• 170 g sucralose in 355 mL water, or</li> <li>• 250 g sucralose in 355 mL water, or</li> <li>• 355 mL water, followed by OGTT.</li> </ul>	Acute	Healthy participants; BMI mean: $25.8 \pm 4.2$ kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>• Retardation of gastric emptying during OGTT: sucralose = water</li> </ul>
Ma et al. 2009, <i>American Journal of Physiology Gastrointestinal and Liver Physiology</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 80 mg sucralose in 500 mL saline, or</li> <li>• 800 mg sucralose in 500 mL saline, or</li> <li>• 50 g sucrose in 500 mL saline, or</li> <li>• 500 mL saline</li> </ul>	Acute	Healthy participants; BMI mean: $21.6 \pm 1.2$ kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>• Retardation of gastric emptying: sucralose = saline &lt; sucrose</li> </ul>
Wu et al. 2012 <i>American Journal of Clinical Nutrition</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>• 60 mg sucralose in 400 mL water, or</li> <li>• 40 g glucose in 400 mL water, or</li> <li>• 40 g 3-O-methyl-glucose in 400 mL water, or</li> <li>• 40 g tagatose &amp; isomalt in 400 mL water, followed by a labeled mashed potato meal containing <sup>13</sup>C octanoic acid.</li> </ul>	Acute	Healthy participants; BMI mean: $25.5 \pm 1.5$ kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>• Retardation of gastric emptying of mashed potato meal: sucralose = glucose; sucralose &lt; 3-O-methyl-glucose, or tagatose &amp; isomalt; glucose = 3-O-methyl-glucose = tagatose &amp; isomalt</li> </ul>
<b>Xylitol</b>				
Meyer-Gerspach et al. 2021 <i>Nutrients</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 7 g xylitol in 300 mL water, or</li> <li>• 17 g xylitol in 300 mL water, or</li> <li>• 35 g xylitol in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range 19.4 - 23.0 kg/m <sup>2</sup>	Comparison of treatments: <ul style="list-style-type: none"> <li>• Retardation of gastric emptying: xylitol (dose-dependent) &gt; water</li> </ul>
Wölnerhanssen et al. 2016 <i>American Journal of Physiology Endocrinology and Metabolism</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 50 g xylitol in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants and participants with obesity; BMI range 19.9 - 48.2 kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>• Retardation of gastric emptying: xylitol &gt; water</li> </ul>

Shafer et al. 1987 <i>American Journal of Clinical Nutrition</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 25 g xylitol in 50 mL water, or</li> <li>• 25 g glucose in 50 mL water, or</li> <li>• 50 mL water</li> </ul> together with radio-labeled scrambled eggs.	Acute	Healthy participants	Comparison between treatments: <ul style="list-style-type: none"> <li>• Retardation of gastric emptying: xylitol &gt; glucose &gt; water</li> </ul>
<b>Erythritol</b>				
Wölnerhanssen et al. 2016 <i>American Journal of Physiology Endocrinology and Metabolism</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 75 g erythritol in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants and participants with obesity; BMI range 19.9 - 48.2 kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>• Retardation of gastric emptying: erythritol &gt; water</li> </ul>
Wölnerhanssen et al. 2021 <i>Diabetes, Obesity and Metabolism</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 10 g erythritol in 300 mL water, or</li> <li>• 20 g erythritol in 300 mL water, or</li> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.4 - 24.0 kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>• Retardation of gastric emptying: erythritol (dose-dependent) &gt; water</li> </ul>
Teyssie et al. 2022 <i>The Journal of Nutrition</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 25 g D-allulose in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.1 - 24.3 kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>• Retardation of gastric emptying: erythritol &gt; D-allulose = water</li> </ul>
<b>D-allulose</b>				
Teyssie et al. 2022 <i>The Journal of Nutrition</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 25 g D-allulose in 300 mL water, or</li> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.1 - 24.3 kg/m <sup>2</sup>	Comparison between treatments: D-allulose: <ul style="list-style-type: none"> <li>• Retardation of gastric emptying: D-allulose = water &lt; erythritol</li> </ul>

Table S3: Effects on energy intake

Name	Route and Dose of Administration	Duration of Administration	Participants	Observed Effects
Sucrose/glucose/fructose				
Farhat et al. 2019 <i>Nutrients</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>60 g sucrose in 300 mL water, or</li> <li>300 mL water,</li> </ul> subsequent <i>ad libitum</i> test meal.	Acute	Healthy participants; BMI mean: $23.4 \pm 3.4$ kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>Subsequent energy intake: sucrose = water preloads</li> </ul>
Rolls et al. 1990 <i>Physiology &amp; Behavior</i>	Oral administration of: <ul style="list-style-type: none"> <li>20 g sucrose in 236.59 mL lemonade, or</li> <li>40 g sucrose in 473.18 mL lemonade, or</li> <li>0.11 mg aspartame in 236.59 mL lemonade, or</li> <li>220 mg aspartame in 473.18 mL lemonade, or</li> <li>236.59 mL water, or</li> <li>473.18 mL water</li> </ul> simultaneous <i>ad libitum</i> test meal.	Acute	Healthy participants	Comparison between treatments: <ul style="list-style-type: none"> <li>Food intake (only test meal): sucrose = aspartame = water</li> <li>Total energy intake (drinks &amp; test meal): sucrose &gt; aspartame or water</li> </ul>
Melanson et al. 2007 <i>Nutrition</i>	Oral administration of: <ul style="list-style-type: none"> <li>134 g sucrose in a beverage (corresponding to 30% of total daily energy intake (over 24 h)), or</li> <li>192 g of HFCS in a beverage (corresponding to 30% of total daily energy intake (over 24 h))</li> </ul> assessment of total daily energy intake (over 24 h) on the day after ingestion.	Acute	Healthy participants; BMI mean: $22.4 \pm 1.7$ kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>Total energy intake: sucrose = HFCS</li> </ul>
Tey et al. 2017 <i>International Journal of Obesity</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>65 g sucrose in 500 mL water, or</li> <li>440 mg aspartame in 500 mL water, or</li> <li>0.63 g monk fruit in 500 mL water, or</li> <li>0.33 g stevia in 500 mL water,</li> </ul> subsequent <i>ad libitum</i> test meal.	Acute	Healthy participants; BMI mean: $21.7 \pm 1.9$ kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>Subsequent energy intake: sucrose &lt; aspartame, monk fruit, or stevia preloads</li> <li>Total energy intake: sucrose = aspartame = monk fruit = stevia preloads</li> </ul>

Crézé et al. 2018 <i>Nutrients</i>	<p>Oral administration of a first preload together with a standardized meal at 0 min and a second preload at 210 min followed by a buffet meal:</p> <p>Preloads at 0 min:</p> <ul style="list-style-type: none"> <li>• 37.1 g sucrose in 350 mL water, or</li> <li>• 137.2 mg cyclamate, 63.35 mg acesulfame K, &amp; 40.6 mg aspartame in 350 mL water (LCS), or</li> <li>• 350 mL water</li> </ul> <p>together with a standardized meal.</p> <p>Preloads at 210 min:</p> <ul style="list-style-type: none"> <li>• 21.2 g sucrose in 350 mL water, or</li> <li>• 78.4 mg cyclamate, 36.2 mg acesulfame K, &amp; 23.2 mg aspartame in 350 mL water (LCS), or</li> <li>• 350 mL water.</li> </ul> <p>subsequent <i>ad libitum</i> buffet meal.</p>	Acute	Healthy participants; BMI mean: $21.4 \pm 0.4$ kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Total energy intake: sucrose &lt; LCS or water preloads</li> </ul>
Yunker et al. 2021, <i>JAMA Network Open</i>	<p>Oral administration of preloads with:</p> <ul style="list-style-type: none"> <li>• 75 g sucrose in 300 mL water, or</li> <li>• 178 - 358 mg sucralose (individually matched) in 300 mL water, or</li> <li>• 300 mL water,</li> </ul> <p>subsequent <i>ad libitum</i> test meal.</p>	Acute	Healthy participants; BMI range: 19.2 - 40.3 kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Total energy intake: sucrose &lt; sucralose preloads</li> </ul>
Guss et al. 1994 <i>American Journal of Physiology</i>	<p>Oral administration of preloads containing 15 mL lemon juice and 147 mg aspartame together with:</p> <ul style="list-style-type: none"> <li>• 5 g glucose in 500 mL water (i.e. 1% glucose solution), or</li> <li>• 5 g fructose in 500 mL water (i.e. 1% fructose solution), or</li> <li>• 50 g glucose in 500 mL water (i.e. 10% glucose solution), or</li> </ul>	Acute	Healthy participants; BMI mean: $21.4 \pm 1.0$ kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Subsequent energy intake group 1 (testmeal at 30 min): 1% glucose or fructose solutions (mean of 75.8 g) &gt; water preloads; 10% glucose or fructose solutions (mean of 52.2 g, not significant) &lt; water preloads; glucose = fructose preloads</li> <li>• Subsequent energy intake group 2 (testmeal at 135 min): glucose = fructose preloads</li> </ul>



	<ul style="list-style-type: none"> <li>• 50 g fructose in 500 mL water (i.e. 10% fructose solution), or</li> <li>• 500 mL water</li> </ul> <p>subsequent <i>ad libitum</i> test meal at 30 min (group 1), and 135 min (group 2) after the preloads.</p>			<ul style="list-style-type: none"> <li>• Total energy intake: 10% fructose or 1% glucose solution &lt; water preloads</li> </ul>
Maersk et al. 2012 <i>American Journal of Clinical Nutrition</i>	<p>Daily oral daily administration of:</p> <ul style="list-style-type: none"> <li>• 106 g sucrose in 1000 mL water (regular cola), or</li> <li>• 47 g carbohydrates in 1000 mL isocaloric semi-skimmed milk (carbohydrates 4.7 g/100 mL; protein 3.4 g/100 mL; fat 1.5 g/100 mL), or</li> <li>• aspartame-sweetened diet cola (1000 mL), or</li> <li>• 1000 mL water</li> </ul>	Chronic (6 months)	Participants with overweight and obesity; BMI range: 26 - 40 kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Total energy intake: sucrose = semi-skimmed milk = aspartame-sweetened diet cola = water</li> </ul>
Kuzma et al. 2015 <i>American Journal of Clinical Nutrition (Study A)</i>	<p>Daily oral administration (4x/day) of:</p> <ul style="list-style-type: none"> <li>• glucose (corresponding to 25% of daily energy requirement), or</li> <li>• fructose (corresponding to 25% of daily energy requirement), or</li> <li>• aspartame</li> </ul>	Chronic (8 days)	Healthy participants; BMI mean: 22.7 ± 1.3 kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Total Energy intake: glucose = fructose &gt; aspartame</li> </ul>
Kuzma et al. 2015 <i>American Journal of Clinical Nutrition (Study B)</i>	<p>Daily oral administration (4x/day) of:</p> <ul style="list-style-type: none"> <li>• glucose (corresponding to 25% of daily energy requirement), or</li> <li>• fructose (corresponding to 25% of daily energy requirement), or</li> <li>• HFCS (55% fructose, 41% glucose, and 4% higher saccharides)</li> </ul>	Chronic (8 days)	Healthy participants and participants with overweight and obesity; BMI mean: 27.4 ± 4.8 kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Total energy intake: glucose = fructose = HFCS</li> </ul>
Sigala et al. 2020 <i>Nutrients</i>	<p>Daily oral administration (3x/day) of:</p> <ul style="list-style-type: none"> <li>• glucose (corresponding to 25% of daily energy requirement), or</li> <li>• fructose (corresponding to 25% of daily energy requirement), or</li> <li>• sucrose (corresponding to 25% of daily energy requirement), or</li> </ul>	Chronic (2 weeks)	Healthy participants; BMI mean: 25.8 ± 3.5 kg/m <sup>2</sup> (glucose), 25.4 ± 3.7 kg/m <sup>2</sup> (fructose), 25.3 ± 3.4 kg/m <sup>2</sup> (sucrose), 24.9 ± 3.9 kg/m <sup>2</sup> (HFCS), 24.8 ± 3.3 kg/m <sup>2</sup> (aspartame)	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Total energy intake: glucose = fructose = sucrose = HFCS &gt; aspartame</li> </ul>

- HFCS (providing 25% of daily energy requirement), or
  - aspartame
- ad libitum* test meals (breakfast, lunch, dinner)  
at week 0 and week 2

Geidl et al. 2021 <i>Journal of Hepatology</i>	<p>Daily oral administration (3x/day) of:</p> <ul style="list-style-type: none"> <li>• 26.6 g sucrose in 200 mL water (total: 79.8 g/day)</li> <li>• 26.6 g glucose in 200 mL water (total: 79.8 g/day)</li> <li>• 26.6 g fructose in 200 mL water (total: 79.8 g/day)</li> <li>• No beverage</li> </ul> <p>OGTT at baseline and after 7 weeks.</p>	Chronic (7weeks)	Healthy participants; BMI mean: 21.8 ± 1.6 kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Total energy intake: sucrose = glucose = fructose</li> </ul>
Reid et al. 2007 <i>British Journal of Nutrition</i>	<p>Daily oral administration (4x/day) of:</p> <ul style="list-style-type: none"> <li>• 21 g sucrose in 250 mL water (Irn-Bru)</li> <li>• 1.78 aspartame in 250 mL water (diet Irn-Bru)</li> </ul>	Chronic (4 weeks)	Healthy participants; BMI mean: 22.5 ± 2.8 kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Total energy intake: sucrose = aspartame</li> </ul>
Sucralose				
Ford et al. 2011 <i>European Journal of Clinical Nutrition</i>	<p>Oral administration of preloads with:</p> <ul style="list-style-type: none"> <li>• 4.15 mg sucralose in 50 mL water (i.e. 0.083% sucralose solution), or</li> <li>• 4.15 mg sucralose &amp; 25 g maltodextrin in 50 mL water (i.e. 0.083% sucralose solution &amp; 50% maltodextrin solution), or</li> <li>• 50 mL water</li> </ul> <p>subsequent <i>ad libitum</i> test meal.</p>	Acute	Healthy participants; BMI range: 18.8 - 23.9 kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Subsequent energy intake: sucralose = water preloads</li> </ul>
Gadah et al. 2016 <i>Appetite</i>	<p>The study tested the difference between a crossover and parallel-group study design on energy intake.</p> <p>Oral administration of preloads with:</p> <ul style="list-style-type: none"> <li>• 0.7 g sucralose in 250 mL water &amp; 50 mL blackcurrant squash juice, 0.36 g</li> </ul>	Acute	Healthy participants; BMI mean: 22.9 ± 3.2 kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Subsequent energy intake: sucralose &gt; sucrose preloads (crossover design); sucralose &gt; sucrose preloads (parallel design)</li> </ul>

	thickening agent → 300 mL serving volume, or <ul style="list-style-type: none"> <li>41.3 g sucrose in 211 mL water &amp; 89 mL blackcurrant squash juice → 300 mL serving volume, or</li> <li>300 mL water, subsequent <i>ad libitum</i> test meal.</li> </ul>			<ul style="list-style-type: none"> <li>Total energy intake: sucralose preloads (crossover design) &lt; sucrose; sucralose preloads (parallel-design) ≤ sucrose</li> </ul>
Akhavan et al. 2011 <i>International Journal of Obesity</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>130 mg sucralose in 300 mL water, or</li> <li>75 g sucrose in 300 mL water &amp; lemon concentrate, or</li> <li>37.5 g glucose &amp; 37.5 g fructose in 300 mL water (i.e. 50% glucose &amp; 50% fructose solutions),</li> </ul> subsequent <i>ad libitum</i> test meal.	Acute	Healthy participants BMI mean: 22.1 ± 0.5 kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>Subsequent energy intake: sucralose = glucose &amp; fructose = sucrose preloads</li> <li>Total energy intake: sucralose &lt; sucrose or glucose &amp; fructose preloads</li> </ul>
Chern and Tan 2019 <i>Nutrients</i>	Oral administration of solid preloads (jelly) with: <ul style="list-style-type: none"> <li>120 mg of sucralose, or</li> <li>50 g of sucrose, or</li> <li>120 mg of sucralose &amp; maltodextrin matched in carbohydrate content with 50 g sucrose,</li> </ul> subsequent <i>ad libitum</i> test meal.	Acute	Healthy participants and participants with overweight; BMI mean: 25.0 ± 4.7 kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>Total energy intake: sucralose &gt; sucrose or sucralose &amp; maltodextrin preloads</li> </ul>
Yunker et al. 2021, <i>JAMA Network Open</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>178 - 358 mg sucralose (individually matched) in 300 mL water, or</li> <li>75 g sucrose in 300 mL water, or</li> <li>300 mL water,</li> </ul> subsequent <i>ad libitum</i> test meal.	Acute	Healthy participants; BMI range: 19.2 - 40.3 kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>Total energy intake: sucralose &gt; sucrose preloads</li> </ul>
Higgins and Mattes 2019 <i>American Journal of Clinical Nutrition</i>	Daily oral administration of: <ul style="list-style-type: none"> <li>160 mg of sucralose, or</li> <li>730 mg of saccharin, or</li> <li>580 mg of aspartame, or</li> <li>660 mg of rebaudioside A, or</li> </ul>	Chronic (12 weeks)	Participants with overweight and obesity; BMI range: 25 - 40 kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>Total energy intake: sucrose &gt; aspartame or sucralose or saccharin or rebaudioside A</li> </ul>

- 100, 120, or 140 g of sucrose,
- In 1.25, 1.5, or 1.75 L water/day (volume depending on body weight)

Xylitol				
Shafer et al. 1987 <i>American Journal of Clinical Nutrition</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>• 25 g of xylitol in 50 mL water, or</li> <li>• 50 mL water,</li> </ul> subsequent <i>ad libitum</i> test meal.	Acute	Healthy participants	Comparison between treatments: <ul style="list-style-type: none"> <li>• Subsequent energy intake: xylitol &lt; water preloads</li> </ul>
Flad et al. <i>unpublished</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>• 33.5 g xylitol in 300 mL water, or</li> <li>• 33.5 g sucrose in 300 mL water, or</li> <li>• 167.5 mg acesulfame K in 300 mL water, or</li> <li>• 300 mL water,</li> </ul> subsequent <i>ad libitum</i> test meal.	Acute	Healthy participants; BMI range 19.9 - 24.7 kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>• Total energy intake: xylitol or acesulfame K &lt; sucrose preloads</li> </ul>
Erythritol				
Overduin et al. 2016 <i>Appetite</i>	Oral administration of breakfasts containing skimmed milk and starch with: <ul style="list-style-type: none"> <li>• 10% sucrose, or</li> <li>• 8% erythritol &amp; 2% sucrose (isovolumic to sucrose breakfast), or</li> <li>• 8% erythritol &amp; 2% sucrose (isocaloric to sucrose breakfast)</li> </ul> subsequent <i>ad libitum</i> buffet meal.	Acute	<ul style="list-style-type: none"> <li>• Healthy participants; BMI mean: 21.8 ± 2.0 kg/m<sup>2</sup></li> <li>• Participants with obesity; BMI mean: 34.2 ± 3.6 kg/m<sup>2</sup></li> </ul>	Comparison between treatments: <ul style="list-style-type: none"> <li>• Subsequent energy intake: erythritol &amp; sucrose = sucrose</li> </ul>
Teyssiere et al 2022 <i>Nutrients</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>• 50 g of erythritol in 300 mL water, or</li> <li>• 33.5 g of sucrose in 300 mL water, or</li> <li>• 55.8 mg of sucralose in 300 mL water, or</li> <li>• 300 mL water,</li> </ul> subsequent <i>ad libitum</i> test meal.	Acute	Healthy participants; BMI range 19.6 - 24.8 kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>• Subsequent energy intake: erythritol &lt; sucrose, sucralose, or water preloads</li> <li>• Total energy intake: erythritol &lt; sucrose, sucralose, or water preloads</li> </ul>
D-allulose				
No human studies available.				

Table S4: Effects on glycemic control

Name	Route and Dose of Administration	Duration of Administration	Participants	Observed Effects
Sucrose/glucose/fructose				
Tai et al. 2010 <i>Appetite</i>	Oral administration of: <ul style="list-style-type: none"> <li>100 g sucrose in 300 mL water, or</li> <li>300 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: $22.4 \pm 0.5$ kg/m <sup>2</sup>	Sucrose: <ul style="list-style-type: none"> <li>↑ Blood glucose; ↑ Insulin</li> </ul>
Yunker et al. 2021, <i>JAMA Network Open</i>	Oral administration of: <ul style="list-style-type: none"> <li>75 g sucrose in 300 mL water, or</li> <li>178 - 358 mg sucralose (individually matched) in 300 mL water, or</li> <li>300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.2 - 40.3 kg/m <sup>2</sup>	Sucrose: <ul style="list-style-type: none"> <li>↑ Blood glucose; ↑ Insulin</li> </ul> Sucralose: <ul style="list-style-type: none"> <li>No change in blood glucose and insulin</li> </ul>
Ma et al. 2009, <i>American Journal of Physiology Gastrointestinal and Liver Physiology</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>50 g sucrose in 500 mL saline</li> <li>80 mg sucralose in 500 mL saline, or</li> <li>800 mg sucralose in 500 mL saline, or</li> <li>500 mL saline.</li> </ul>	Acute	Healthy participants; BMI mean: $21.6 \pm 1.2$ kg/m <sup>2</sup>	Sucrose: <ul style="list-style-type: none"> <li>↑ Blood glucose; ↑ Insulin</li> </ul> Sucralose: <ul style="list-style-type: none"> <li>No change in blood glucose and insulin</li> </ul>
Tey et al. 2017 <i>International Journal of Obesity</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>65 g sucrose in 500 mL water, or</li> <li>440 mg aspartame in 500 mL water, or</li> <li>0.63 g monk fruit in 500 mL water, or</li> <li>0.33 g stevia in 500 mL water, subsequent <i>ad libitum</i> test meal.</li> </ul>	Acute	Healthy participants; BMI mean: $21.7 \pm 1.9$ kg/m <sup>2</sup>	Sucrose: <ul style="list-style-type: none"> <li>↑ Blood glucose; ↑ Insulin after preload</li> </ul> Aspartame: <ul style="list-style-type: none"> <li>No change in blood glucose and insulin after preload</li> </ul> Monk fruit: <ul style="list-style-type: none"> <li>No change in blood glucose and insulin after preload</li> </ul> Stevia: <ul style="list-style-type: none"> <li>No change in blood glucose and insulin after preload</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>Increase in blood glucose and insulin overall (i.e. preload &amp; test meal, 3h-AUC): sucrose = aspartame = monk fruit = stevia</li> </ul>
Meyer-Gerspach et al. 2018	Intragastric administration of: <ul style="list-style-type: none"> <li>50 g glucose in 250 mL water, or</li> <li>25 g fructose in 250 mL water, or</li> </ul>	Acute	Healthy participants; BMI range: 19 - 25 kg/m <sup>2</sup>	Glucose: <ul style="list-style-type: none"> <li>↑ Blood glucose</li> </ul> Fructose:

American Journal of Clinical Nutrition	<ul style="list-style-type: none"> <li>• 220 mg acesulfame K in 250 mL water, or</li> <li>• 250 mL water.</li> </ul>			<ul style="list-style-type: none"> <li>• ↑ Blood glucose</li> </ul> <p>Acesulfame K:</p> <ul style="list-style-type: none"> <li>• No change in blood glucose</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in blood glucose: glucose &gt; fructose</li> </ul>
Yau et al. 2017 <i>Nutrients</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>• 36 g sucrose in 600 mL water, or</li> <li>• 39.6 g glucose in 600 mL water, or</li> <li>• 36 g fructose in 600 mL water, or</li> <li>• 19.8 g glucose &amp; 18 g fructose in 600 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: 25.5 ± 3.8 kg/m <sup>2</sup>	<p>Sucrose:</p> <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> <p>Glucose:</p> <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> <p>Fructose:</p> <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> <p>Glucose &amp; Fructose:</p> <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in blood glucose: sucrose, glucose, or glucose &amp; fructose &gt; fructose</li> <li>• Increase in blood insulin: glucose &gt; sucrose, or glucose &amp; fructose &gt; fructose</li> </ul>
Kawakami et al. 2023 <i>Journal of Clinical Biochemistry and Nutrition</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>• 50 g sucrose, or</li> <li>• 25 g fructose, or</li> <li>• 50 g isomaltulose</li> </ul> <p>All drinks made up in water to a final volume of 250 mL.</p>	Acute	Healthy participants; BMI mean: 21.9 ± 3.0 kg/m <sup>2</sup>	<p>Sucrose:</p> <ul style="list-style-type: none"> <li>• ↑ Blood glucose</li> </ul> <p>Fructose:</p> <ul style="list-style-type: none"> <li>• ↑ Blood glucose</li> </ul> <p>Isomaltulose:</p> <ul style="list-style-type: none"> <li>• ↑ Blood glucose</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in blood glucose: sucrose, or isomaltulose &gt; fructose</li> </ul>
Jameel et al. 2014 <i>Lipids in Health and Disease</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>• 50 g sucrose in 300 mL water, or</li> <li>• 50 g glucose in 300 mL water, or</li> <li>• 50 g fructose in 300 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: 24.2 ± 0.7 kg/m <sup>2</sup>	<p>Sucrose:</p> <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> <p>Glucose:</p> <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> <p>Fructose:</p> <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul>

				Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in blood glucose and insulin: sucrose, or glucose &gt; fructose</li> </ul>
	•			•
Wölnerhanssen et al. 2015 <i>PLoS ONE</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 75 g glucose in 300 mL water, or</li> <li>• 25 g fructose in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 21.0 - 24.0 kg/m <sup>2</sup>	Glucose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Fructose: <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin</li> </ul>
Kong et al. 1999 <i>Peptides</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 75 g glucose in 300 mL water, or</li> <li>• 75 g fructose in 300 mL water, or</li> <li>• 75 g glucose followed by 75 g fructose 1h later.</li> </ul>	Acute	Healthy participants; BMI mean: 24.3 ± 2.9 kg/m <sup>2</sup>	Glucose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Fructose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul>
				Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in blood glucose and insulin: glucose &gt; fructose</li> </ul>
Eckstein et al. 2021 <i>Nutrients</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 76.3 g glucose in 300 mL water, or</li> <li>• 76.3 g of fructose in 300 mL water, or</li> <li>• 38.2 g of glucose &amp; fructose in 300 mL water, or</li> <li>• 0.2 g sucralose in 300 mL water</li> </ul>	Acute	Healthy participants; BMI mean: 23.7 ± 1.7 kg/m <sup>2</sup>	Glucose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Fructose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Glucose & fructose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Sucralose: <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin</li> </ul>
				Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in blood glucose and insulin: glucose = glucose &amp; fructose &gt; fructose &gt; sucralose</li> </ul>

Yunker et al. 2021 <i>The Journal of Clinical Endocrinology &amp; Metabolism</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>• 75 g sucrose in 300 mL water, or</li> <li>• 75 g glucose in 300 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: 27.0 ± 5.0 kg/m <sup>2</sup>	<p>Sucrose:</p> <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> <p>Glucose:</p> <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in blood glucose and insulin: glucose &gt; sucrose</li> </ul>
Sigala et al. 2021 <i>The Journal of Clinical Endocrinology &amp; Metabolism</i>	<p>Daily oral administration (3x/day) of<sup>1</sup>:</p> <ul style="list-style-type: none"> <li>• 147 g sucrose in 980 mL water (corresponding to 25% of daily energy requirement), or</li> <li>• 150 g HFCS in 1000 mL water (corresponding to 25% of daily energy requirement), or</li> <li>• 375 mg aspartame in ca. 1059 mL water, OGTT at baseline and after 2 weeks.<sup>1</sup></li> </ul>	Chronic (2 weeks)	Healthy participants; BMI range: 18 - 35 kg/m <sup>2</sup>	<p>Sucrose:</p> <ul style="list-style-type: none"> <li>• ↓ Matsuda Index</li> <li>• No change in fasting blood glucose, fasting insulin, HOMA-IR, and blood glucose during OGTT</li> <li>• ↑ Insulin during OGTT</li> </ul> <p>HFCS:</p> <ul style="list-style-type: none"> <li>• ↓ Matsuda Index</li> <li>• No change in fasting blood glucose, fasting insulin, and HOMA-IR</li> <li>• ↑ Blood glucose; ↑ Insulin during OGTT</li> </ul> <p>Aspartame:</p> <ul style="list-style-type: none"> <li>• No change in Matsuda Index, fasting blood glucose, fasting insulin, HOMA-IR, and blood glucose and insulin during OGTT</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in insulin during OGTT: sucrose = HFCS</li> </ul>
Stanhope et al. 2009 <i>The Journal of Clinical Investigation</i>	<p>Daily oral administration of:</p> <ul style="list-style-type: none"> <li>• Glucose in water (corresponding to 25% of daily energy requirement), or</li> <li>• Fructose in water (corresponding to 25% of daily energy requirement)</li> </ul>	Chronic (10 weeks)	Participants with overweight and obesity; BMI range: 25 - 35 kg/m <sup>2</sup>	<p>Glucose:</p> <ul style="list-style-type: none"> <li>• ↓ Fasting blood glucose</li> <li>• ↑ Fasting blood insulin</li> <li>• ↑ Blood glucose, insulin, and insulin sensitivity index during OGTT</li> </ul>

<sup>1</sup> Data provided by the corresponding author directly, not reported as such in the original publication.



	OGTT at baseline and after 10 weeks.			Fructose: <ul style="list-style-type: none"> <li>• ↑ Fasting blood glucose and insulin</li> <li>• ↑ Blood glucose and insulin during OGTT</li> <li>• ↓ Insulin sensitivity index during OGTT</li> </ul>
Maersk et al. 2012 <i>American Journal of Clinical Nutrition</i>	Daily oral administration of: <ul style="list-style-type: none"> <li>• 106 g sucrose in 1000 mL water (regular cola), or</li> <li>• 47 g carbohydrates in 1000 mL isocaloric semi-skimmed milk (carbohydrates 4.7 g/100 mL; protein 3.4 g/100 mL; fat 1.5 g/100 mL), or</li> <li>• Aspartame 1000 mL water (diet cola), or</li> <li>• 1000 mL water</li> </ul> OGTT at baseline and after 3 and 6 months.	Chronic (6 months)	Participants with overweight and obesity; BMI range: 26 - 40 kg/m <sup>2</sup>	Sucrose: <ul style="list-style-type: none"> <li>• No change in fasting blood glucose, insulin, and HOMA-IR</li> </ul> Semi-skimmed milk: <ul style="list-style-type: none"> <li>• No change in fasting blood glucose, insulin, and HOMA-IR</li> </ul> Aspartame diet cola: <ul style="list-style-type: none"> <li>• No change in fasting blood glucose, insulin, and HOMA-IR</li> </ul>
Geidl et al. 2021 <i>Journal of Hepatology</i>	Daily oral administration (3x/day) of: <ul style="list-style-type: none"> <li>• 26.6 g sucrose in 200 mL water (total: 79.8 g/day)</li> <li>• 26.6 g glucose in 200 mL water (total: 79.8 g/day)</li> <li>• 26.6 g fructose in 200 mL water (total: 79.8 g/day)</li> <li>• No beverage</li> </ul> OGTT at baseline and after 7 weeks	Chronic (7 weeks)	Healthy participants; BMI mean: 21.8 ± 1.6 kg/m <sup>2</sup>	Sucrose: <ul style="list-style-type: none"> <li>• No change in fasting blood glucose, fasting insulin, fasting HOMA-IR, and glucose or insulin during OGTT</li> </ul> Glucose: <ul style="list-style-type: none"> <li>• No change in fasting blood glucose, fasting insulin, fasting HOMA-IR, and glucose or insulin during OGTT</li> </ul> Fructose: <ul style="list-style-type: none"> <li>• No change in fasting blood glucose, fasting insulin, fasting HOMA-IR, and glucose or insulin during OGTT</li> </ul>
Matikainen et al. 2017 <i>Nutrition, Metabolism &amp; Cardiovascular Diseases</i>	Daily oral administration (3x/day) of: <ul style="list-style-type: none"> <li>• 25 g fructose in 330 mL water (total: 75 g /day)</li> </ul> Mixed meal test and OGTT at baseline and after 12 weeks.	Chronic (12 weeks)	Participants with overweight and obesity; BMI range: 26.5-38.2 kg/m <sup>2</sup>	Fructose: <ul style="list-style-type: none"> <li>• No change in fasting blood glucose, fasting insulin, fasting HOMA-IR, and Matsuda index during OGTT</li> </ul>
Sucralose				

Ma et al. 2009, <i>American Journal of Physiology Gastrointestinal and Liver Physiology</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 80 mg sucralose in 500 mL saline, or</li> <li>• 800 mg sucralose in 500 mL saline, or</li> <li>• 50 g sucrose in 500 mL saline, or</li> <li>• 500 mL saline.</li> </ul>	Acute	Healthy participants; BMI mean: $21.6 \pm 1.2$ kg/m <sup>2</sup>	Sucralose: <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin</li> </ul> Sucrose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul>
Yunker et al. 2021, <i>JAMA Network Open</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 178 - 358 mg sucralose (individually matched) in 300 mL water, or</li> <li>• 75 g sucrose in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.2 - 40.3 kg/m <sup>2</sup>	Sucralose: <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin</li> </ul> Sucrose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul>
Steinert et al. 2011 <i>British Journal of Nutrition</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 62 mg sucralose in 250 mL water, or</li> <li>• 250 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: $23.0 \pm 0.5$ kg/m <sup>2</sup>	Sucralose: <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin</li> </ul>
Sylvetsky et al. 2016 <i>Nutrition &amp; Metabolism</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>• 68 mg sucralose in 355 mL water, or</li> <li>• 170 mg sucralose in 355 mL water, or</li> <li>• 250 mg sucralose in 355 mL water, or</li> <li>• 355 mL water,</li> </ul> followed by an OGTT.	Acute	Healthy participants; BMI mean: $25.8 \pm 4.2$ kg/m <sup>2</sup>	Sucralose: <ul style="list-style-type: none"> <li>• No change in blood glucose, insulin, and c-peptide after preload</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in blood glucose, insulin, and C-peptide during OGTT: sucralose (all concentrations) = water</li> </ul>
Wu et al. 2013 <i>Diabetes Care</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>• 52 mg sucralose in 240 mL water, or</li> <li>• 200 mg acesulfame K in 240 mL water, or</li> <li>• 46 mg sucralose &amp; 26 mg acesulfame K in 240 mL water, or</li> <li>• 240 mL water,</li> </ul> followed by an OGTT.	Acute	Healthy participants; BMI mean: $25.5 \pm 1.0$ kg/m <sup>2</sup>	Sucralose: <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin after preload</li> </ul> Acesulfame K: <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin after preload</li> </ul> Sucralose & acesulfame K: <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin after preload</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in blood glucose and insulin during OGTT: sucralose = acesulfame K = sucralose &amp; acesulfame K</li> </ul>

Wu et al. 2012 <i>American Journal of Clinical Nutrition</i>	<p>Oral administration of preloads with:</p> <ul style="list-style-type: none"> <li>• 60 mg sucralose in 400 mL water, or</li> <li>• 40 g glucose in 400 mL water, or</li> <li>• 40 g 3-OMG in 400 mL water, or</li> <li>• 40 g tagatose &amp; isomalt in 400 mL water,</li> </ul> <p>followed by a labeled mashed potato meal containing <math>^{13}\text{C}</math> octanoic acid.</p>	Acute	Healthy participants; BMI mean: $25.5 \pm 1.5 \text{ kg/m}^2$	<p>Sucralose:</p> <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin after preload</li> </ul> <p>Glucose:</p> <ul style="list-style-type: none"> <li>• <math>\uparrow</math> Blood glucose; <math>\uparrow</math> Insulin after preload</li> </ul> <p>3-O-methyl-glucose:</p> <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin after preload</li> </ul> <p>Tagatose &amp; isomalt:</p> <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin after preload</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in blood glucose during test meal (30 min): glucose &gt; tagatose &amp; isomalt, or sucralose &gt; 3-OMG</li> <li>• Increase in blood insulin during test meal (240 min): glucose &gt; 3-OMG, or sucralose, or tagatose &amp; isomalt</li> </ul>
Ma et al. 2010 <i>British Journal of Nutrition</i>	<p>Intraduodenal administration of:</p> <ul style="list-style-type: none"> <li>• 960 mg sucralose in 600 mL saline, or</li> <li>• 600 mL saline.</li> </ul>	Acute	Healthy participants BMI mean: $23.4 \pm 0.8 \text{ kg/m}^2$	<p>Sucralose</p> <ul style="list-style-type: none"> <li>• No change in blood glucose</li> </ul>
Ford et al. 2011 <i>European Journal of Clinical Nutrition</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>• 4.15 mg sucralose in 50 mL water (i.e. 0.083% sucralose solution), or</li> <li>• 4.15 mg sucralose &amp; 25 g maltodextrin in 50 mL water (i.e. 0.083% sucralose solution &amp; 50% maltodextrin solution), or</li> <li>• 50 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 18.8 - 23.9 $\text{kg/m}^2$	<p>Sucralose:</p> <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin</li> </ul> <p>Sucralose &amp; maltodextrin:</p> <ul style="list-style-type: none"> <li>• <math>\uparrow</math> Blood glucose; <math>\uparrow</math> Insulin</li> </ul>
Brown et al. 2012 <i>Diabetes Care</i>	<p>Oral administration of preloads with:</p> <ul style="list-style-type: none"> <li>• 45.6 mg sucralose in 240 mL diet soda (mean concentration of sucralose: <math>190 \pm 38 \text{ }\mu\text{g/mL}</math>), or</li> <li>• 240 mL carbonated water,</li> </ul> <p>followed by an OGTT.</p>	Acute	Healthy participants; BMI range: 19.1 - 35.9 $\text{kg/m}^2$	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Increase in blood glucose and C-peptide during OGTT: sucralose = water</li> </ul>

Brown et al. 2009 <i>Diabetes Care</i>	<p>Oral administration of preloads with:</p> <ul style="list-style-type: none"> <li>45.6 mg sucralose in 240 mL diet soda (mean concentration of sucralose: <math>190 \pm 38 \mu\text{g/mL}</math>), or</li> <li>240 mL carbonated water, followed by an OGTT.</li> </ul>	Acute	Healthy participants; BMI mean: $25.6 \pm 4.6 \text{ kg/m}^2$	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>Increase in blood glucose, insulin, and C-peptides during OGTT: sucralose = water</li> </ul>
Brown et al. 2011 <i>Nutrition Research</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>6000 mg sucralose in 355 mL water, or</li> <li>50 g sucrose in 355 mL water, or</li> <li>50 g sucrose &amp; 6 g sucralose in 355 mL water, or</li> <li>355 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: $22.1 \pm 1.7 \text{ kg/m}^2$	<p>Sucralose:</p> <ul style="list-style-type: none"> <li>No change in blood glucose and insulin</li> </ul> <p>Sucrose:</p> <ul style="list-style-type: none"> <li>↑ Blood glucose; ↑ Insulin</li> </ul> <p>Sucrose &amp; sucralose:</p> <ul style="list-style-type: none"> <li>No change in blood glucose</li> <li>↑ Insulin</li> </ul> <p>Comparison between treatments: Increase in insulin: sucrose = sucrose &amp; sucralose</p>
Baird et al. 2000 <i>Food and Chemical Toxicology (study 2)</i>	<p>Daily oral administration (2x/d) of:</p> <ul style="list-style-type: none"> <li>62.5 mg sucralose in water (total: 125 mg/day) during weeks 1–3,</li> <li>125 mg sucralose in water (total: 250 mg/day) during weeks 4–7,</li> <li>250 mg sucralose in water (total: 500 mg/day) during weeks 8–12.</li> </ul>	Chronic (12 weeks)	Healthy participants; Body weight mean: 71.5 kg	<p>Sucralose:</p> <ul style="list-style-type: none"> <li>No change in fasting blood glucose and insulin</li> </ul>
Baird et al. 2000 <i>Food and Chemical Toxicology (study 1)</i>	<p>Daily oral administration of ascending doses sucralose in 100mL water:</p> <ul style="list-style-type: none"> <li>0 mg/kg on day 1, 1 mg/kg (ca. 70 mg) on day 3, 2.5 mg/kg (ca. 175 mg) on day 5, 5 mg/kg (ca. 385 mg) on day 7, and 10 mg/kg (ca. 700 mg) on day 9.</li> <li>No doses on day 0, 2, 4, 6, and 8.</li> <li>2 mg/kg (ca. 140 mg) on day 11, 12, and 13.</li> <li>5 mg/kg (ca. 350 mg) on day 14, 15, 16, and 17.</li> </ul>	Chronic (17 days)	Healthy participants; Body weight mean: 70 kg	<p>Sucralose:</p> <ul style="list-style-type: none"> <li>No change in fasting blood glucose and insulin</li> </ul>

Grotz et al. 2017 <i>Regulatory Toxicology and Pharmacology</i>	Daily oral administration (3x/day) of: <ul style="list-style-type: none"> <li>333.3 mg sucralose (total: 1 g/day) in capsules, or</li> <li>cellulose in capsules (placebo).</li> </ul>	Chronic (12 weeks)	Healthy participants, BMI range: 19.4 - 27.0 kg/m <sup>2</sup>	Sucralose: <ul style="list-style-type: none"> <li>No change in fasting blood glucose, insulin, and HbA1C</li> </ul>
Temizkan et al. 2015 <i>European Journal of Clinical Nutrition</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>24 mg sucralose in 200 mL water, or</li> <li>200 mL water, followed by an OGTT.</li> </ul>	Acute	Healthy participants; BMI mean: 30.3 ± 4.5 kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>Increase in blood glucose during OGTT: sucralose &lt; water</li> <li>Increase in insulin and C-peptide during OGTT: sucralose = water</li> </ul>
Lertrit et al. 2018 <i>Nutrition</i>	Daily oral administration (1x/day) of: <ul style="list-style-type: none"> <li>200 mg sucralose in capsules, or</li> <li>empty capsules (placebo),</li> </ul> OGTT, or IVGTT at baseline and after 4 weeks.	Chronic (4 weeks)	Healthy participants; BMI range: 18.5 - 27.0 kg/m <sup>2</sup>	Sucralose: <ul style="list-style-type: none"> <li>↓ Matsuda index</li> <li>↑ HOMA-IR</li> </ul> Placebo: <ul style="list-style-type: none"> <li>No change in Matsuda index and HOMA-IR</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>Increase in blood glucose during OGTT and IVGTT: sucralose = placebo</li> <li>Increase in insulin during IVGTT (0-10 min): sucralose &lt; placebo</li> </ul>
Dalenberg et al. 2020 <i>Cell Metabolism</i>	Daily oral administration of: <ul style="list-style-type: none"> <li>60 mg sucralose in 355 mL beverage, or</li> <li>30.38 g sucrose in 355 mL beverage, or</li> <li>60 mg sucralose &amp; 31.83 g maltodextrin in 355 mL beverage.</li> </ul> OGTT at baseline and after 2 weeks.	Chronic (10 days)	Healthy participants; BMI mean: 23.7 ± 3.1 kg/m <sup>2</sup>	Sucralose: <ul style="list-style-type: none"> <li>No change in insulin sensitivity</li> </ul> Sucrose: <ul style="list-style-type: none"> <li>No change in insulin sensitivity</li> </ul> Sucralose & maltodextrin: <ul style="list-style-type: none"> <li>↓ Insulin sensitivity</li> </ul>
Suez et al. 2022 <i>Cell</i>	Daily oral administration (3x/day) of: <ul style="list-style-type: none"> <li>204 mg sucralose (total: 612 mg/day) &amp; 11.796 g glucose as a bulking agent (total: 35.388 g/day), or</li> <li>11.796 g glucose alone (total: 35.388 g/day).</li> </ul> OGTT at baseline and after 2 weeks.	Chronic (2 weeks)	Healthy participants; BMI range: 18 - 28 kg/m <sup>2</sup>	Sucralose & glucose: <ul style="list-style-type: none"> <li>↑ Blood glucose during OGTT</li> </ul> Glucose: <ul style="list-style-type: none"> <li>↑ Blood glucose during OGTT</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>Increase in blood glucose during OGTT: sucralose &amp; glucose &gt; glucose</li> </ul>
Xylitol				

Meyer-Gerspach et al. 2021 <i>Nutrients</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 7 g xylitol in 300 mL water, or</li> <li>• 17 g xylitol in 300 mL water, or</li> <li>• 35 g xylitol in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range 19.4 - 23.0 kg/m <sup>2</sup>	Xylitol: <ul style="list-style-type: none"> <li>• Dose-dependent ↑ Blood glucose; ↑ Insulin</li> </ul>
Wölnerhanssen et al. 2016 <i>American Journal of Physiology Endocrinology and Metabolism</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 50 g xylitol in 300 mL water, or</li> <li>• 75 g glucose in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants and participants with obesity; BMI range 19.9 - 48.2 kg/m <sup>2</sup>	Xylitol: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Glucose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in blood glucose and insulin: glucose &gt; xylitol</li> </ul>
Meyer-Gerspach et al. 2022 <i>Nutritional Neuroscience</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 50 g xylitol in 300 mL water, or</li> <li>• 75 g glucose in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 20.0 - 38.9 kg/m <sup>2</sup>	Xylitol: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Glucose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in blood glucose and insulin: glucose &gt; xylitol</li> </ul>
Müller-Hess et al. 1975 <i>Transfusion Medicine and Hemotherapy</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 30 g xylitol in 300mL water, or</li> <li>• 50 g xylitol in 300 mL water, or</li> <li>• 50 g glucose in 300 mL water.</li> </ul>	Acute	Healthy participants	Xylitol: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Glucose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in blood glucose and insulin: glucose &gt; xylitol</li> </ul>
Natah et al. 1997 <i>American Journal of Clinical Nutrition</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 25 g xylitol in 250 mL water, or</li> <li>• 25 g glucose in 250 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: 22.1 ± 0.5 kg/m <sup>2</sup>	Xylitol: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Glucose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in blood glucose and insulin: glucose &gt; xylitol</li> </ul>

Bordier et al. 2023 <i>BMJ Nutrition, Prevention &amp; Health</i>	Daily oral administration (3x/d) of: <ul style="list-style-type: none"> <li>8 g xylitol in water (total: 24 g/day), or</li> <li>no substance (control).</li> </ul> OGTT at baseline and after 5 weeks.	Chronic (5 weeks)	Participants with obesity; Xylitol group: BMI mean: 34.8 ± 2.8 kg/m <sup>2</sup> Control group: BMI mean: 34.9 ± 3.7 kg/m <sup>2</sup>	Xylitol: <ul style="list-style-type: none"> <li>↑ Blood glucose and insulin during OGTT</li> <li>No change in HOMA Index</li> </ul> No substance (control): <ul style="list-style-type: none"> <li>↑ Blood glucose and insulin during OGTT</li> <li>No change in HOMA Index</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>Increase in blood glucose and insulin during OGTT: xylitol = no substance</li> </ul>
Erythritol				
Meyer-Gerspach et al. 2022 <i>Nutritional Neuroscience</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>75 g erythritol in 300 mL water, or</li> <li>75 g glucose in 300 mL water, or</li> <li>300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 20.0 - 38.9 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>No change in blood glucose and insulin</li> </ul> Glucose: <ul style="list-style-type: none"> <li>↑ Blood glucose; ↑ Insulin</li> </ul>
Wölnerhanssen et al. 2016 <i>American Journal of Physiology Endocrinology and Metabolism</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>75 g erythritol in 300 mL water, or</li> <li>75 g glucose in 300 mL water, or</li> <li>300 mL water.</li> </ul>	Acute	Healthy participants and participants with obesity; BMI range 19.9 - 48.2 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>No change in blood glucose and insulin</li> </ul> Glucose: <ul style="list-style-type: none"> <li>↑ Blood glucose; ↑ Insulin</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>Increase in blood glucose: glucose &gt; erythritol</li> </ul>
Wölnerhanssen et al. 2021 <i>Diabetes, Obesity and Metabolism</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>10 g erythritol in 300 mL water, or</li> <li>20 g erythritol in 300 mL water, or</li> <li>50 g erythritol in 300 mL water, or</li> <li>300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.4 - 24.0 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>No change in blood glucose and insulin</li> </ul>
Teyssiere et al. 2022 <i>Nutrients</i>	Oral administration of preloads with: <ul style="list-style-type: none"> <li>50 g erythritol in 300 mL water, or</li> <li>33.5 g sucrose in 300 mL water, or</li> <li>55.8 mg sucralose in 300 mL water, or</li> <li>300 mL water,</li> </ul> subsequent <i>ad libitum</i> test meal.	Acute	Healthy participants; BMI range 19.6 - 24.8 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>No change in blood glucose and insulin after preload</li> </ul> Sucrose: <ul style="list-style-type: none"> <li>↑ Blood glucose; ↑ Insulin after preload</li> </ul> Sucralose: <ul style="list-style-type: none"> <li>No change in blood glucose and insulin after preloads</li> </ul>

				Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in glucose and insulin during test meal: sucrose &gt; erythritol, or sucralose</li> </ul>
Teyssiere et al. 2023 <i>Nutrients</i>	Intra gastric administration of: <ul style="list-style-type: none"> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 25 g D-allulose in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.1 - 24.3 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin</li> </ul> D-allulose: <ul style="list-style-type: none"> <li>• ↓ Blood glucose</li> <li>• No change in blood insulin</li> </ul>
Bornet et al. 1996 <i>Regulatory Toxicology and Pharmacology</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 56 - 78 g erythritol in 250 mL water (corresponding to 1g/kg body weight).</li> </ul>	Acute	Healthy participants; BMI range 19.0 - 24.0 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin</li> </ul>
Bornet et al. 1996 <i>Regulatory Toxicology and Pharmacology</i>	Oral administration of a snack containing: <ul style="list-style-type: none"> <li>• 28 g erythritol (corresponding to 0.4 g/kg body weight of erythritol), or</li> <li>• 56 g erythritol (corresponding to 0.8 g/kg body weight of erythritol), or</li> <li>• 28 g sucrose (corresponding to 0.8 g/kg body weight of sucrose).</li> </ul>	Acute	Healthy participants; Group 0.4 g/kg BW: BMI mean: 22.5 ± 2.6 kg/m <sup>2</sup> ; Group 0.8 g/kg BW: BMI mean: 22.0 ± 1.9 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>• No change in blood glucose and insulin</li> </ul> Sucrose: <ul style="list-style-type: none"> <li>• ↑ Insulin</li> </ul>
Bordier et al. 2023 <i>BMJ Nutrition, Prevention &amp; Health</i>	Daily oral administration (3x/day) of: <ul style="list-style-type: none"> <li>• 12 g erythritol in water (total: 36 g/day), or</li> <li>• no substance (control),</li> </ul> OGTT at baseline and after 4 weeks.	Chronic (5 weeks)	Participants with obesity; Erythritol group: BMI mean: 33.9 ± 3.7 kg/m <sup>2</sup> , Control group: BMI mean: 34.9 ± 3.7 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>• ↑ Blood glucose and insulin during OGTT</li> <li>• No change in HOMA Index</li> </ul> No substance (control): <ul style="list-style-type: none"> <li>• ↑ Blood glucose and insulin during OGTT</li> <li>• No change in HOMA Index</li> </ul>
D-allulose				Comparison between treatments: Increase in blood glucose and insulin during OGTT: erythritol = no substance
Braunstein et al. 2018 <i>Nutrients</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 5 or 10 g D-allulose &amp; 75 g glucose in 500 mL water, or</li> </ul>	Acute	Healthy participants; BMI range: 18.5 - 30.0 kg/m <sup>2</sup>	D-allulose & glucose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul> Fructose & glucose: <ul style="list-style-type: none"> <li>• ↑ Blood glucose; ↑ Insulin</li> </ul>



	<ul style="list-style-type: none"> <li>5 or 10 g fructose &amp; 75 g glucose in 500 mL water, or</li> <li>75 g glucose in 500 mL water.</li> </ul>			<p>Glucose:</p> <ul style="list-style-type: none"> <li>↑ Blood glucose; ↑ Insulin</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>Increase in blood glucose and insulin: D-allulose &amp; glucose = fructose &amp; glucose = glucose</li> </ul>
Iida et al. 2008 <i>Journal of Nutritional Science and Vitaminology</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>7.5 g D-allulose in 100 mL water, or</li> <li>75 g maltodextrin in 300 mL water. or</li> <li>75 g maltodextrin &amp; 2.5 g D-allulose in 300 mL water, or</li> <li>75 g maltodextrin &amp; 5 g D-allulose in 300 mL water, or</li> <li>75 g maltodextrin &amp; 7.5 g D-allulose in 300 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: 20.7 ± 1.8 kg/m <sup>2</sup>	<p>D-allulose:</p> <ul style="list-style-type: none"> <li>No change in blood glucose and insulin</li> </ul> <p>Maltodextrin:</p> <ul style="list-style-type: none"> <li>↑ Blood glucose; ↑ Insulin</li> </ul> <p>D-allulose &amp; maltodextrin:</p> <ul style="list-style-type: none"> <li>↑ Blood glucose; ↑ Insulin</li> </ul> <p>Comparison between treatments :</p> <ul style="list-style-type: none"> <li>Increase in blood glucose and insulin: D-allulose (≥ 5 g) &amp; maltodextrin &lt; maltodextrin</li> </ul>
Hayashi et al. 2010 <i>Bioscience, Biotechnology, and Biochemistry</i>	<p>Daily oral administration (3x/day) of:</p> <ul style="list-style-type: none"> <li>5 g D-allulose in 200 mL tea consumed with meals (total: 15 g/day), or</li> <li>5 g glucose in 200 mL tea consumed with meals (total: 15 g/day).</li> </ul>	Chronic (12 weeks)	<p>Healthy participants;</p> <p>D-allulose group: BMI mean: 21.3 ± 2.2 kg/m<sup>2</sup>;</p> <p>Glucose group: BMI mean: 21.5 ± 3.0 kg/m<sup>2</sup></p>	<p>D-allulose:</p> <ul style="list-style-type: none"> <li>No change in blood glucose and insulin during meal</li> </ul> <p>Glucose:</p> <ul style="list-style-type: none"> <li>No change in blood glucose and insulin during meal</li> </ul>
Teyssie et al. 2023 <i>Nutrients</i>	<p>Intragastric administration of:</p> <ul style="list-style-type: none"> <li>25 g D-allulose in 300 mL water, or</li> <li>50 g erythritol in 300 mL water, or</li> <li>300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.1 - 24.3 kg/m <sup>2</sup>	<p>D-allulose:</p> <ul style="list-style-type: none"> <li>↓ Blood glucose</li> <li>No change in blood insulin</li> </ul> <p>Erythritol:</p> <ul style="list-style-type: none"> <li>No change in blood glucose and insulin</li> </ul>
Kimura et al. 2017 <i>Nutrition</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>5 g D-allulose in 150 mL water, or</li> <li>10 mg aspartame in 150 mL water . followed by a test meal.</li> </ul>	Acute	Healthy participants; BMI mean: 20.9 ± 0.7 kg/m <sup>2</sup>	<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>Increase in blood glucose during test meal: D-allulose &lt; aspartame</li> <li>Increase in insulin during test meal: D-allulose = aspartame</li> </ul>
Franchi et al. 2021 <i>BMJ Open Diabetes Research &amp; Care</i>	<p>Oral administration of:</p> <ul style="list-style-type: none"> <li>2.5 g D-allulose &amp; 50 g sucrose in 300 mL water, or</li> </ul>	Acute	Healthy participants; BMI mean: 28.0 ± 4.0 kg/m <sup>2</sup>	<p>D-allulose &amp; sucrose:</p> <ul style="list-style-type: none"> <li>↑ Blood glucose; ↑ Insulin</li> </ul> <p>Sucrose:</p> <ul style="list-style-type: none"> <li>↑ Blood glucose; ↑ Insulin</li> </ul>

- 5 g D-allulose & 50 g sucrose in 300 mL water, or
- 7.5 g D-allulose & 50 g sucrose in 300 mL water, or
- 10 g D-allulose & 50 g sucrose in 300 mL water, or
- 50 g sucrose in 300 mL water.

Comparison between treatments:

- Increase in blood glucose and insulin: D-allulose & sucrose < sucrose

Table S5: Effects on blood lipids

Name	Route and Dose of Administration	Duration of Administration	Participants	Observed Effects
<b>Sucrose/glucose/fructose</b>				
Jameel et al. 2014 <i>Lipids in Health and Disease</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 50 g sucrose in 300 mL water, or</li> <li>• 50 g glucose in 300 mL water, or</li> <li>• 50 g fructose in 300 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: $24.2 \pm 0.7$ kg/m <sup>2</sup>	Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in total cholesterol, LDL, and HDL: fructose &gt; sucrose or glucose</li> <li>• Increase in TG: sucrose = glucose = fructose</li> </ul>
Yau et al. 2017 <i>Nutrients</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 39.6 g of glucose in 600 mL water</li> <li>• 36 g of fructose in 600 mL water, or</li> <li>• with and without prior fructose supplementation (3 days with 120 g/d of fructose).</li> </ul>	Acute	Healthy participants; BMI mean: $25.5 \pm 3.8$ kg/m <sup>2</sup>	Glucose: <ul style="list-style-type: none"> <li>• No change in TG</li> </ul> Fructose: <ul style="list-style-type: none"> <li>• No change in TG</li> </ul>
Chong et al. 2007 <i>American Journal of Clinical Nutrition</i>	Oral administration of test meals with: <ul style="list-style-type: none"> <li>• 52.5 g glucose (corresponding to 0.75 g/kg body weight glucose, or</li> <li>• 52.5 g fructose (corresponding to 0.75 g/kg body weight fructose).</li> </ul>	Acute	Healthy participants; BMI range: 22 - 31 kg/m <sup>2</sup>	Glucose: <ul style="list-style-type: none"> <li>• ↑ TG</li> </ul> Fructose: <ul style="list-style-type: none"> <li>• ↑ TG</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in TG: fructose &gt; glucose</li> </ul>
Bantle et al. 2000 <i>American Journal of Clinical Nutrition</i>	Daily oral administration of: <ul style="list-style-type: none"> <li>• 81 g/d glucose (corresponding to 17% of daily energy requirement), or</li> <li>• 85 g/d fructose (corresponding to 17% of daily energy requirement).</li> </ul>	Chronic (6 weeks)	Healthy participants; BMI mean: between 24.6 and 25.8 depending on age and gender	Comparison between treatments: <ul style="list-style-type: none"> <li>• Fasting total cholesterol, LDL, and HDL: glucose = fructose</li> <li>• Fasting, post prandial, and daylong TG: fructose &gt; glucose (only in men)</li> </ul>
Lê et al. 2006 <i>American Journal of Clinical Nutrition</i>	Daily oral administration of: <ul style="list-style-type: none"> <li>• 103 g/d fructose (corresponding to 1.5 g/kg body weight/d).</li> </ul>	Chronic (4 weeks)	Healthy participants; Mean body weight: $69.3 \pm 2.6$	Fructose: <ul style="list-style-type: none"> <li>• ↑ Fasting TG</li> </ul>
Sigala et al. 2021 <i>The Journal of Clinical Endocrinology &amp; Metabolism</i>	Daily oral administration of: <ul style="list-style-type: none"> <li>• 147 g sucrose in 980 mL water (corresponding to 25% of daily energy requirement), or</li> </ul>	Chronic (2 weeks)	Healthy participants; BMI range: 18 - 35 kg/m <sup>2</sup>	Sucrose: <ul style="list-style-type: none"> <li>• ↑ Fasting LDL; ↑ Fasting TG</li> </ul> HFCS: <ul style="list-style-type: none"> <li>• ↑ Fasting LDL; ↑ Fasting TG</li> </ul> Aspartame: <ul style="list-style-type: none"> <li>• No change in fasting LDL and TG</li> </ul>

	<ul style="list-style-type: none"> <li>150 g HFCS in 1000 mL water (corresponding to 25% of daily energy requirement), or</li> <li>375 mg aspartame in ca. 1059 mL water, OGTT at baseline and after 2 weeks.<sup>2</sup></li> </ul>			<p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>Increase in fasting LDL and TG: sucrose = HFCS</li> </ul>
<p>Stanhope et al. 2009 <i>The Journal of Clinical Investigation</i></p>	<p>Daily oral administration of:</p> <ul style="list-style-type: none"> <li>Glucose in water (corresponding to 25% of daily energy requirement), or</li> <li>Fructose in water (corresponding to 25% of daily energy requirement)</li> </ul> <p>OGTT at baseline and after 10 weeks.</p>	Chronic (10 weeks)	Participants with overweight and obesity; BMI range: 25 - 35 kg/m <sup>2</sup>	<p>Glucose:</p> <ul style="list-style-type: none"> <li>No change in fasting total cholesterol and fasting LDL</li> <li>↓ Fasting HDL; ↑ Fasting LDL</li> <li>↑ Fasting TG; no change in 23h-AUC for TG</li> </ul> <p>Fructose:</p> <ul style="list-style-type: none"> <li>↑ Fasting total cholesterol; ↑ Fasting LDL; ↑ Fasting HDL; ↑ Fasting sLDL</li> <li>No change in fasting TG; ↑ 23h-AUC for TG</li> </ul>
<p>Maersk et al. 2012 <i>American Journal of Clinical Nutrition</i></p>	<p>Daily oral administration of:</p> <ul style="list-style-type: none"> <li>106 g sucrose in 1000 mL water (regular cola), or</li> <li>47 g carbohydrates in 1000 mL isocaloric semi-skimmed milk (carbohydrates 4.7 g/100 mL; protein 3.4 g/100 mL; fat 1.5 g/100 mL), or</li> <li>Aspartame in 1000 mL water (diet cola), or</li> <li>1000 mL water</li> </ul> <p>OGTT at baseline and after 3 and 6 months.</p>	Chronic (6 months)	Participants with overweight and obesity; BMI range: 26 - 40 kg/m <sup>2</sup>	<p>Sucrose:</p> <ul style="list-style-type: none"> <li>↑ Fasting total cholesterol; ↑ Fasting TG</li> <li>No change in fasting HDL</li> </ul> <p>Semi-skimmed milk:</p> <ul style="list-style-type: none"> <li>No change in fasting total cholesterol, HDL and TG</li> </ul> <p>Aspartame diet cola:</p> <ul style="list-style-type: none"> <li>No change in fasting total cholesterol, HDL and TG</li> </ul>
<p>Geidl et al. 2021 <i>Journal of Hepatology</i></p>	<p>Daily oral administration (3x/day) of:</p> <ul style="list-style-type: none"> <li>26.6 g sucrose in 200 mL water (total: 79.8 g/day)</li> <li>26.6 g glucose in 200 mL water (total: 79.8 g/day)</li> <li>26.6 g fructose in 200 mL water (total: 79.8 g/day)</li> <li>No beverage</li> </ul>	Chronic (7weeks)	Healthy participants; BMI mean: 21.8 ± 1.6 kg/m <sup>2</sup>	<p>Sucrose:</p> <ul style="list-style-type: none"> <li>No change in fasting total cholesterol, LDL, HDL, and TG; ↑ Fasting sdLDL</li> </ul> <p>Glucose:</p> <ul style="list-style-type: none"> <li>No change in fasting total cholesterol, LDL, HDL, and TG</li> </ul> <p>Fructose:</p>

<sup>2</sup> Data provided by the corresponding author directly, not reported as such in the original publication

OGTT at baseline and after 7 weeks

- No change in fasting total cholesterol, LDL, HDL, and TG

Matikainen et al. 2017 <i>Nutrition, Metabolism &amp; Cardiovascular Diseases</i>	Daily oral administration (3x/day) of: <ul style="list-style-type: none"> <li>• 25 g fructose in 330 mL water (total: 75 g /day)</li> </ul> Mixed meal test and OGTT at baseline and after 12 weeks.	Chronic (12 weeks)	Participants with overweight and obesity; BMI range: 26.5-38.2 kg/m <sup>2</sup>	Fructose: <ul style="list-style-type: none"> <li>• ↑ Fasting TG and during the mixed meal</li> </ul>
Sucralose				
Baird et al. 2000 <i>Food and Chemical Toxicology (study 1)</i>	Daily oral administration of ascending doses sucralose in 100 mL water: <ul style="list-style-type: none"> <li>• 0 mg/kg on day 1, 1 mg/kg (ca. 70 mg) on day 3, 2.5 mg/kg (ca. 175 mg) on day 5, 5 mg/kg (ca. 385 mg) on day 7, and 10 mg/kg (ca. 700 mg) on day 9.</li> <li>• No doses on day 0, 2, 4, 6, and 8.</li> <li>• 2 mg/kg (ca. 140 mg) on day 11, 12, and 13.</li> <li>• 5 mg/kg (ca. 350 mg) on day 14, 15, 16, and 17..</li> </ul>	Chronic (17 days)	Healthy participants; Body weight mean: 70 kg	Sucralose: <ul style="list-style-type: none"> <li>• No change in fasting total cholesterol and TG</li> </ul>
Xylitol				
Meyer-Gerspach et al. 2021 <i>Nutrients</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 7 g xylitol in 300 mL water, or</li> <li>• 17 g xylitol in 300 mL water, or</li> <li>• 35 g xylitol in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants BMI range: 19.4 - 23.0 kg/m <sup>2</sup>	Xylitol: <ul style="list-style-type: none"> <li>• No change in total cholesterol, LDL, HDL, and TG.</li> </ul>
Bordier et al. 2023 <i>BMJ Nutrition, Prevention &amp; Health</i>	Daily oral administration (3x/d) of: <ul style="list-style-type: none"> <li>• 8 g xylitol in water (total: 24 g/day), or</li> <li>• no substance (control).</li> </ul>	Chronic (5 weeks)	Participants with obesity; Xylitol group: BMI mean: 34.8 ± 2.8 kg/m <sup>2</sup> Control group: BMI mean: 34.9 ± 3.7 kg/m <sup>2</sup>	Xylitol : <ul style="list-style-type: none"> <li>• No change in fasting total cholesterol, HDL, and TG</li> <li>• ↓ Fasting LDL</li> </ul> No substance (control): <ul style="list-style-type: none"> <li>• No change in fasting total cholesterol, HDL, and TG</li> </ul>

- ↓ Fasting LDL

Comparison between treatments :

- Decrease in fasting LDL: xylitol = no substance (control)

Erythritol				
Wölnerhanssen et al. 2021 <i>Diabetes, Obesity and Metabolism</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 10 g erythritol in 300 mL water, or</li> <li>• 20 g erythritol in 300 mL water, or</li> <li>• 50 g erythritol in 300 mL water</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.4 - 24.0 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>• No change in total cholesterol, LDL, HDL, and TG</li> </ul>
Teyssseire et al. 2023 <i>Nutrients</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 25 g D-allulose in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.1 – 24.3 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>• No change in total cholesterol, LDL, HDL, and TG</li> </ul> D-allulose: <ul style="list-style-type: none"> <li>• No change in total cholesterol, LDL, HDL, and TG</li> </ul>
Bordier et al. 2023 <i>BMJ Nutrition, Prevention &amp; Health</i>	Daily oral administration (3x/day) of: <ul style="list-style-type: none"> <li>• 12 g erythritol (total: 36 g/day) in water, or</li> <li>• no substance (control).</li> </ul>	Chronic (5 weeks)	Participants with obesity; Erythritol group: BMI mean: 33.9 ± 3.7 kg/m <sup>2</sup> , Control group: BMI mean: 34.9 ± 3.7 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>• No change in fasting total cholesterol, HDL, and TG</li> <li>• ↓ Fasting LDL</li> </ul> No substance (control): <ul style="list-style-type: none"> <li>• No change in fasting total cholesterol, HDL, and TG</li> <li>• ↓ Fasting LDL</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>• Decrease in fasting LDL: erythritol = no substance (control)</li> </ul>
D-Allulose				
Teyssseire et al. 2023 <i>Nutrients</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 25 g D-allulose in 300 mL water, or</li> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 300 mL water</li> </ul>	Acute	Healthy participants; BMI range: 19.1 - 24.3 kg/m <sup>2</sup>	D-allulose: <ul style="list-style-type: none"> <li>• No change in total cholesterol, LDL, HDL, and TG</li> </ul> Erythritol: <ul style="list-style-type: none"> <li>• No change in total cholesterol, LDL, HDL, and TG</li> </ul>

Kimura et al. 2017 <i>Nutrition</i>	<p>Oral administration of preloads with:</p> <ul style="list-style-type: none"> <li>• 5 g D-allulose in 150 mL water, or</li> <li>• 10 mg aspartame in 150 mL water, followed by a test meal.</li> </ul>	Acute	Healthy participants; BMI mean: $20.9 \pm 0.7 \text{ kg/m}^2$	<p>D-allulose:</p> <ul style="list-style-type: none"> <li>• No change in total cholesterol, and TG during test meal</li> </ul> <p>Aspartame:</p> <ul style="list-style-type: none"> <li>• No change in total cholesterol, and TG during test meal</li> </ul>
Hayashi et al. 2010 <i>Bioscience, Biotechnology, and Biochemistry</i>	<p>Daily oral administration (3x/day) of:</p> <ul style="list-style-type: none"> <li>• 5 g D-allulose in 200 mL tea consumed with meals (total: 15 g/day), or</li> <li>• 5 g glucose in 200 mL tea consumed with meals (total: 15 g/day).</li> </ul>	Chronic (12 weeks)	<p>Healthy participants;</p> <p>D-allulose group: BMI mean: <math>21.3 \pm 2.2 \text{ kg/m}^2</math>;</p> <p>Glucose group: BMI mean: <math>21.5 \pm 3.0 \text{ kg/m}^2</math></p>	<p>D-allulose:</p> <ul style="list-style-type: none"> <li>• No change in fasting total cholesterol, LDL, and TG</li> </ul> <p>Glucose:</p> <ul style="list-style-type: none"> <li>• No change in fasting total cholesterol, LDL, and TG</li> </ul>

Table S6: Effects on uric acid

Name	Route and Dose of Administration	Duration of Administration	Participants	Observed Effects
Glucose/Fructose/Sucrose				
Wolyniec et al. 2022 <i>Frontiers in Physiology</i>	Oral administration of: <ul style="list-style-type: none"> <li>35 g sucrose in 500 mL water, or</li> <li>35 g glucose in 500 mL water, or</li> <li>35 g fructose in 500 mL water, or</li> <li>35 g xylitol in 500 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: $25.7 \pm 2.7$ kg/m <sup>2</sup> (football players)	<p>Sucrose:</p> <ul style="list-style-type: none"> <li>↑ Blood uric acid</li> </ul> <p>Glucose:</p> <ul style="list-style-type: none"> <li>↑ Blood uric acid</li> </ul> <p>Fructose:</p> <ul style="list-style-type: none"> <li>↑ Blood uric acid</li> </ul> <p>Xylitol:</p> <ul style="list-style-type: none"> <li>↑ Blood uric acid</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>Increase in blood uric acid: xylitol &gt; sucrose, glucose, or fructose</li> </ul>
Kawakami et al. 2023 <i>Journal of Clinical Biochemistry and Nutrition</i>	Oral administration of: <ul style="list-style-type: none"> <li>50 g sucrose, or</li> <li>25 g fructose, or</li> <li>50 g isomaltulose,</li> </ul> all drinks made up in water to a final volume of 250 mL.	Acute	Healthy participants; BMI mean: $21.9 \pm 3.0$ kg/m <sup>2</sup>	<p>Sucrose:</p> <ul style="list-style-type: none"> <li>↑ Blood uric acid</li> </ul> <p>Fructose:</p> <ul style="list-style-type: none"> <li>↑ Blood uric acid</li> </ul> <p>Isomaltulose:</p> <ul style="list-style-type: none"> <li>↑ Blood uric acid</li> </ul> <p>Comparison between treatments:</p> <ul style="list-style-type: none"> <li>Increase in blood uric acid: fructose &gt; sucrose or isomaltulose.</li> </ul>
Sigala et al. 2021 <i>The Journal of Clinical Endocrinology &amp; Metabolism</i>	Daily oral administration of: <ul style="list-style-type: none"> <li>147 g sucrose in 980 mL water (corresponding to 25% of daily energy requirement), or</li> <li>150 g HFCS in 1000 mL water (corresponding to 25% of daily energy requirement), or</li> <li>375 mg aspartame in ca. 1059 mL water,</li> </ul>	Chronic (2 weeks)	Healthy participants; BMI range: 18 - 35 kg/m <sup>2</sup>	<p>Sucrose:</p> <ul style="list-style-type: none"> <li>↑ Blood uric acid (AUC over 24h)</li> </ul> <p>HFCS:</p> <ul style="list-style-type: none"> <li>↑ Blood uric acid (AUC over 24h)</li> </ul> <p>Aspartame:</p> <ul style="list-style-type: none"> <li>No change in blood uric acid (AUC over 24h)</li> </ul> <p>Comparison between treatments:</p>



OGTT at baseline and after 2 weeks.<sup>3</sup>

- Increase in blood uric acid: sucrose = HFCS

Bruun et al. 2015 <i>European Journal of Clinical Nutrition</i>	Daily oral administration of: <ul style="list-style-type: none"> <li>• 106 g sucrose in 1000 mL water (regular cola), or</li> <li>• 47 g carbohydrates in 1000 mL isocaloric semi-skimmed milk (carbohydrates 4.7 g/100 mL; protein 3.4 g/100 mL; fat 1.5 g/100 mL), or</li> <li>• Aspartame in 1000 mL water (diet cola), or</li> <li>• 1000 mL water.</li> </ul>	Chronic (6 months)	Participants with overweight and obesity; BMI mean: 32.1 ± 0.5 kg/m <sup>2</sup>	Sucrose: <ul style="list-style-type: none"> <li>• ↑ Fasting blood uric acid</li> </ul> Semi-skimmed milk: <ul style="list-style-type: none"> <li>• No change in fasting blood uric acid</li> </ul> Aspartame diet cola: <ul style="list-style-type: none"> <li>• No change in fasting blood uric acid</li> </ul>
Cox et al. 2012 <i>Nutrition &amp; Metabolism</i>	Daily oral administration of : <ul style="list-style-type: none"> <li>• glucose (corresponding to 25% of daily energy requirement), or</li> <li>• fructose corresponding to 25% of daily energy requirement).</li> </ul>	Chronic (10 weeks)	Participants with overweight and obesity; BMI range: 28.4 - 30.3 kg/m <sup>2</sup>	Glucose: <ul style="list-style-type: none"> <li>• ↑ Fasting blood uric acid</li> </ul> Fructose: <ul style="list-style-type: none"> <li>• ↑ Fasting blood uric acid</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in fasting blood uric acid: fructose &gt; glucose</li> </ul>
Sucralose				
Baird et al. 2000 <i>Food and Chemical Toxicology (study 2)</i>	Daily oral administration (2x/d) of: <ul style="list-style-type: none"> <li>• 62.5 mg sucralose in water (total: 125 mg/day) during weeks 1–3,</li> <li>• 125 mg sucralose in water (total: 250 mg/day) during weeks 4–7,</li> <li>• 250 mg sucralose in water (total: 500 mg/day) during weeks 8–12.</li> </ul>	Chronic (12 weeks)	Healthy participants Body weight mean: 71.5 kg	Sucralose: <ul style="list-style-type: none"> <li>• No change in fasting blood uric acid</li> </ul>
Xylitol				
Meyer-Gerspach et al. 2021 <i>Nutrients</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 7 g xylitol in 300 mL water, or</li> <li>• 17 g xylitol in 300 mL water, or</li> </ul>	Acute	Healthy participants; BMI range 19.4–23.0 kg/m <sup>2</sup>	Xylitol: <ul style="list-style-type: none"> <li>• ↑ Blood uric acid after 35 g xylitol</li> </ul>

<sup>3</sup> Data provided by the corresponding author directly, not reported as such in the original publication

	<ul style="list-style-type: none"> <li>• 35 g xylitol in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>			
Wolyniec et al. 2022 <i>Frontiers in Physiology</i>	Oral administration of: <ul style="list-style-type: none"> <li>• 35 g xylitol in 500 mL water, or</li> <li>• 35 g sucrose in 500 mL water, or</li> <li>• 35 g glucose in 500 mL water, or</li> <li>• 35 g fructose in 500 mL water.</li> </ul>	Acute	Healthy participants; BMI mean: $25.7 \pm 2.7$ kg/m <sup>2</sup> (football players)	Xylitol: <ul style="list-style-type: none"> <li>• ↑ Blood uric acid</li> </ul> Sucrose: <ul style="list-style-type: none"> <li>• ↑ Blood uric acid</li> </ul> Glucose: <ul style="list-style-type: none"> <li>• ↑ Blood uric acid</li> </ul> Fructose: <ul style="list-style-type: none"> <li>• ↑ Blood uric acid</li> </ul> Comparison between treatments: <ul style="list-style-type: none"> <li>• Increase in blood uric acid: xylitol &gt; sucrose, glucose, or fructose</li> </ul>
Bordier et al. 2023 <i>BMJ Nutrition, Prevention &amp; Health</i>	Daily oral administration (3x/d) of: <ul style="list-style-type: none"> <li>• 8 g xylitol in water (total: 24 g/day), or</li> <li>• no substance (control).</li> </ul>	Chronic (5 weeks)	Participants with obesity; Xylitol group: BMI mean: $34.8 \pm 2.8$ kg/m <sup>2</sup> Control group: BMI mean: $34.9 \pm 3.7$ kg/m <sup>2</sup>	Xylitol: <ul style="list-style-type: none"> <li>• No change in fasting blood uric acid</li> </ul>
Erythritol				
Wölnerhanssen et al. 2021 <i>Diabetes, Obesity and Metabolism</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 10 g erythritol in 300 mL water, or</li> <li>• 20 g erythritol in 300 mL water, or</li> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 300 mL water..</li> </ul>	Acute	Healthy participants; BMI range: 19.4 - 24.0 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>• No change in blood uric acid</li> </ul>
Teyssie et al. 2023 <i>Nutrients</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 25 g D-allulose in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.1 - 24.3 kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>• No change in blood uric acid</li> </ul> D-allulose: <ul style="list-style-type: none"> <li>• No change in blood uric acid</li> </ul>
Bordier et al. 2023 <i>BMJ Nutrition, Prevention &amp; Health</i>	Daily oral administration (3x/d) of: <ul style="list-style-type: none"> <li>• 12 g erythritol in water (total: 36 g/day), or</li> <li>• no substance (control).</li> </ul>	Chronic (5 weeks)	Participants with obesity; Erythritol group: BMI mean: $33.9 \pm 3.7$ kg/m <sup>2</sup> , Control group: BMI mean: $34.9 \pm 3.7$ kg/m <sup>2</sup>	Erythritol: <ul style="list-style-type: none"> <li>• No change in fasting blood uric acid</li> </ul>
D-allulose				

Teyssiere et al. 2023 <i>Nutrients</i>	Intragastric administration of: <ul style="list-style-type: none"> <li>• 25 g D-allulose in 300 mL water, or</li> <li>• 50 g erythritol in 300 mL water, or</li> <li>• 300 mL water.</li> </ul>	Acute	Healthy participants; BMI range: 19.1 -2 4.3 kg/m <sup>2</sup>	D-allulose: <ul style="list-style-type: none"> <li>• No change in blood uric acid</li> </ul> Erythritol: <ul style="list-style-type: none"> <li>• No change in blood uric acid</li> </ul>
Hayashi et al. 2010 <i>Bioscience, Biotechnology, and Biochemistry</i>	Daily oral administration (3x/day) of: <ul style="list-style-type: none"> <li>• 5 g D-allulose in 200 mL tea consumed with meals (total: 15 g/day), or</li> <li>• 5 g glucose in 200 mL tea consumed with meals (total: 15 g/day).</li> </ul>	Chronic (12 weeks)	Healthy participants; D-allulose group: BMI mean: 21.3 ± 2.2 kg/m <sup>2</sup> ; Glucose group: BMI mean: 21.5 ± 3.0 kg/m <sup>2</sup>	D-allulose: <ul style="list-style-type: none"> <li>• No change in fasting blood uric acid</li> </ul> Glucose: <ul style="list-style-type: none"> <li>• No change in fasting blood uric acid</li> </ul>