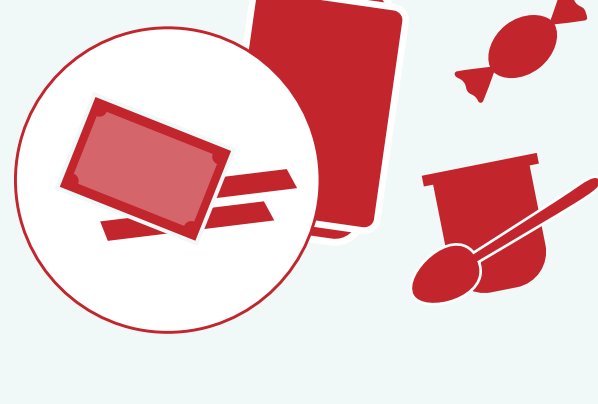


# Experts' Opinion

## What are low calorie sweeteners?

low calorie  
sweeteners?

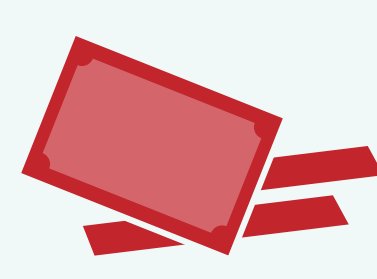


Low calorie sweeteners are intensely sweet compounds that contain virtually no calories, and which can be used to replace sugar in food and drinks.

## Benefits of low calorie sweeteners as a tool in everyday lifestyle choices<sup>1</sup>.

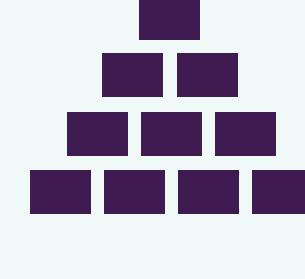
<sup>1</sup> Gibson S et al. (2014) Consensus statement on the benefits of low-calorie sweeteners. Nutrition Bulletin, December 2014

### Benefits



low calorie sweeteners

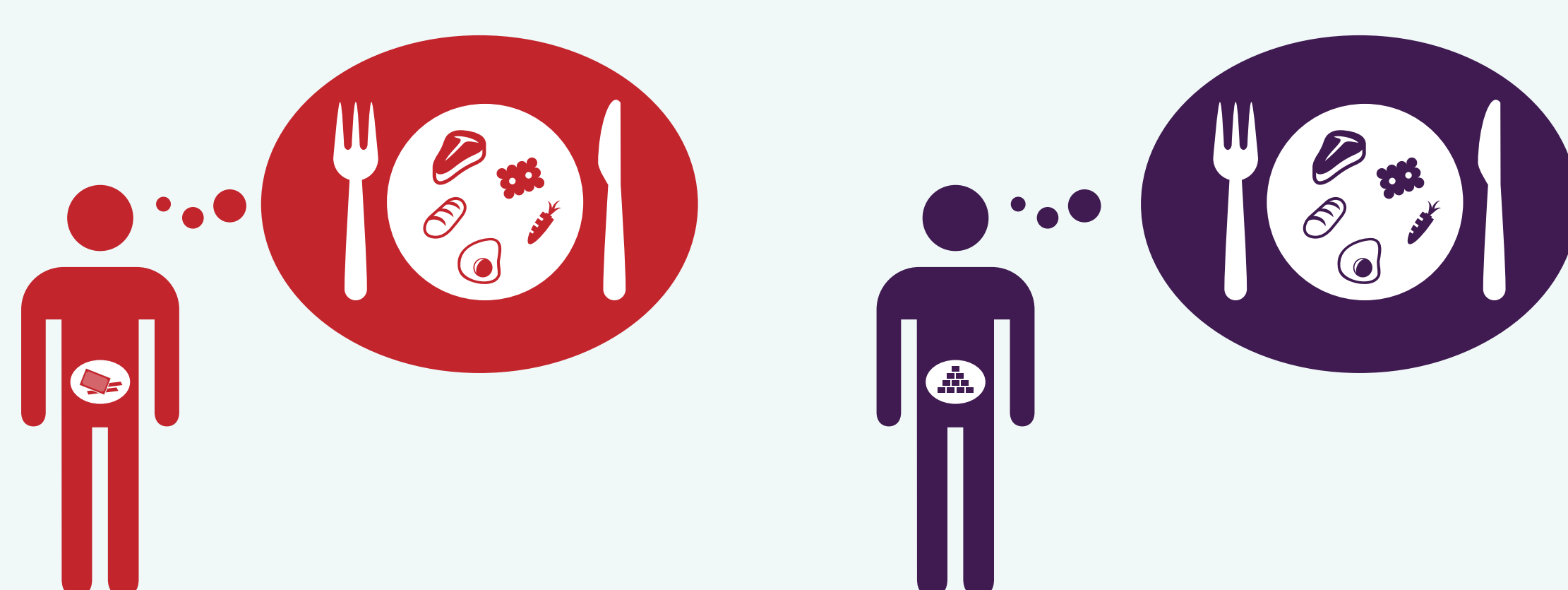
versus



sugar

#### Benefit #1

**low calorie sweeteners do not increase appetite and have no discernible effect on satiety**



Recent studies suggest that low calorie sweeteners neither promote nor suppress appetite<sup>2</sup>. Adults given foods sweetened with low calorie sweeteners (290 kcal) or sucrose (490 kcal) before lunch and dinner reported similar hunger and satiety ratings and ate similar amounts at the next meal<sup>3</sup>.

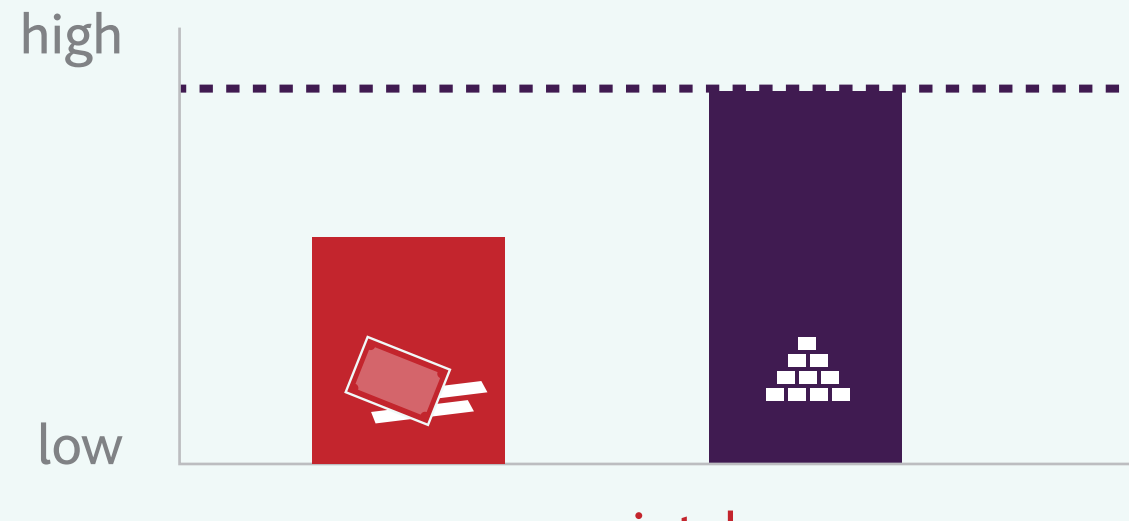
<sup>2</sup> Bellisle & Drewnowski 2007

Renwick & Molinary 2010

<sup>3</sup> Anton et al. 2010

#### Benefit #2

**low calorie sweeteners help to reduce energy intake when used in place of higher energy ingredients**



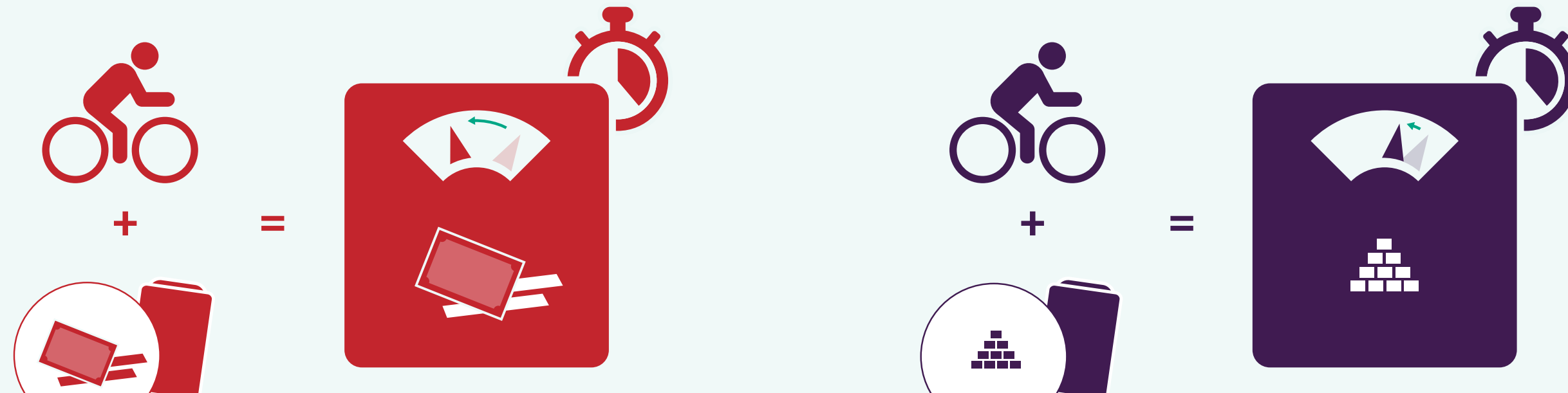
Studies suggest that food and beverages sweetened with low calorie sweeteners may help reduce energy intake if used in place of more energy-dense food and drinks<sup>4</sup>. From these studies it appears that low calorie sweeteners, especially in beverages, can be a useful aid to maintain reduced energy intake<sup>5</sup>.

<sup>4</sup> Mattes & Popkin 2009

<sup>5</sup> Raben & Richelsen 2012

#### Benefit #3

**low calorie sweeteners can enhance weight loss under real-life conditions when used as part of a behavioural weight loss programme**



Clinical studies have concluded that reducing or replacing SSB (sugar-sweetened beverages) with low- or no-calorie alternatives has beneficial effects on bodyweight<sup>6</sup>. Recent reviews have concluded that using low calorie sweeteners to replace sugars results in (modest) weight loss<sup>7</sup> and a recently published randomized controlled trial from the United States has indicated that low calorie sweeteners-containing beverages produce greater weight loss over 3 months compared with water<sup>8</sup>.

<sup>6</sup> Dennis et al. 2009

<sup>7</sup> Te Morenga et al. 2013

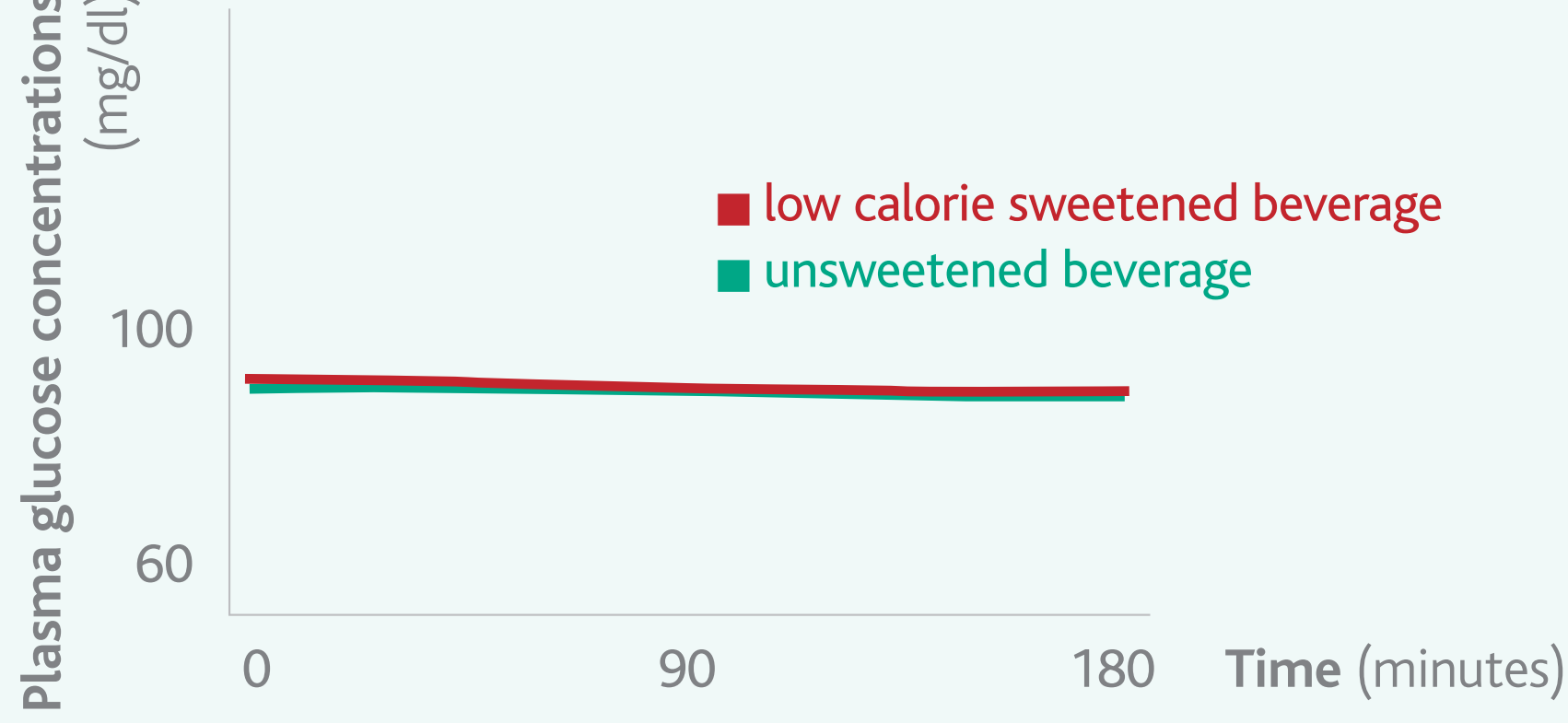
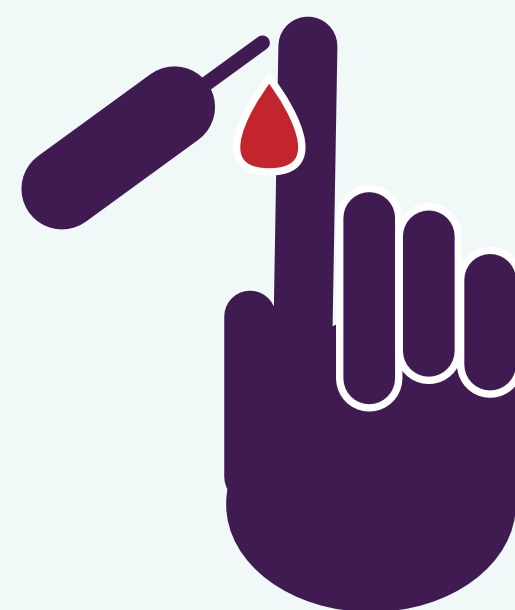
Malik et al. 2013

<sup>8</sup> Peters et al. 2014

Ebbeling 2014

#### Benefit #4

**low calorie sweeteners can have a beneficial effect on post-prandial glucose and insulin in healthy individuals and in people with diabetes**



Source: Horvitz et al., Response to single dose of aspartame or saccharin by NIDDM patients, Diabetes Care. 1988 Mar; 11 (3):230-4.

Evidence suggests that low calorie sweeteners can provide sweetness without raising blood sugar or affecting insulin or gut peptide release in any way<sup>9</sup>. Equally, when consumed with glucose, low calorie sweeteners do not appear to modulate the glycaemic response<sup>10</sup>. Maintaining a healthy bodyweight is central to good control of diabetes, so low calorie sweeteners may also benefit people with diabetes by facilitating weight control, if consumed in the context of a calorie-controlled diet and healthy lifestyle.

<sup>9</sup> Grotz et al. 2003

<sup>10</sup> Bryant et al. 2014

Ma et al. 2009, 2010

#### Benefit #5

**low calorie sweeteners have dental benefits when used in food, beverages, toothpaste and medications, provided other constituents are also non-cariogenic and non-erosive**



low calorie sweeteners are non-cariogenic, which means that they are not fermented by oral bacteria and do not cause tooth decay<sup>11</sup>.

<sup>11</sup> Grenby 1991

## Our preference for sweet taste

### Preference for sweetness



innate



universal

Preference for sweetness is innate and universal, and probably represents a biological response to safe sources of energy such as mother's milk and fruit<sup>12</sup>.

### Overweight and obesity



Given current concerns about overweight and obesity, low-calorie sweeteners are increasingly used to replace sugar and supply sweetness without calories, providing a number of benefits to people looking to moderate their energy intake<sup>13</sup>.

<sup>12</sup> (Anderson et al. 2012)

<sup>13</sup> (Ventura & Mennella 2011).

<sup>14</sup> (Keskitalo et al. 2007; Drewnowski et al. 2012).

### Sweetness preference

1



declines with age

age

2



heritable

3



social  
environments  
and cultures<sup>13</sup>

Evidence suggests that sweetness preference declines with age, is partly heritable and varies among social environments and cultures<sup>14</sup>.

**Low calorie sweeteners empower people to make smart choices whilst enjoying sweetness without the calories.**