



## Lactose, an important nutrient: Advocating a revised policy approach for dairy and its intrinsic sugar

### Key messages:

- Lactose is a carbohydrate and the natural, intrinsic sugar in milk and milk products.
- There is no evidence linking naturally occurring sugars (such as lactose from dairy products) with chronic disease risk (6).
- Naturally occurring sugars in foods are contained within complex structures of other beneficial nutrients. For dairy products, the collective beneficial health effects of this package appear to be stronger than that of the sum of its individual nutrients (2).
- Unlike free or added sugars, intrinsic lactose in dairy is not targeted in sugar reduction policy recommendations from health authorities such as WHO (9).
- Milk and dairy foods contribute to healthy diets. Their consumption is recommended in most dietary guidelines worldwide (1) and is associated with health benefits including reduced risk of NCDs (3).
- Naturally occurring lactose in dairy should not be penalized in public health policies.
- National authorities are encouraged to take this into consideration when designing and promoting domestic nutrition policies, including reduction in consumption of sugar.

### Nutritious dairy, lactose, its intrinsic sugar, health and nutrition

Milk and milk products play an important role in the diet, and their consumption is recommended in food-based dietary guidelines around the world (1). A growing body of scientific evidence has linked dairy consumption as a component of an overall healthy eating pattern to several health benefits including healthy weight management, improved dental health and reduced risk of developing several non-communicable diseases (NCDs) (2) (3). Milk, cheese, and yoghurt are composed of complex structures and are an important source of several key nutrients, such as high-quality protein, calcium, vitamin B12 and iodine (4). As part of their nutrient-dense package, dairy foods also contain intrinsic lactose, a sugar naturally present in milk.

Lactose is the principal carbohydrate naturally present in all mammalian milk. It is a disaccharide made up of glucose and galactose monomers. Cow milk contains approximately 5 g of lactose/100 g (4). It provides energy, participates in cerebral development of the child (due to the presence of galactose) (5) and assists in the absorption of different nutrients (such as protein, calcium) (6). In addition, lactose has a low glycemic index (7), is less cariogenic compared to other sugars (8) and recent studies show that lactose could also have a prebiotic effect in the digestive tract (9, 10).

<sup>1</sup> Except for sea lions



## Excessive intake of free sugars is linked to non-communicable diseases, naturally occurring lactose in dairy is not

Many countries have implemented public health measures aimed at lowering populations' sugar intakes to reduce obesity and overweight and reduce risk of NCDs. Public health experts generally agree that consuming excess free sugars may have a negative impact on weight and dental health. However, there is no evidence linking naturally occurring sugars (such as lactose from dairy products) with NCD risk (6). One reason for this is likely due to naturally occurring sugars being contained within complex structures (food matrix) of other beneficial nutrients that together have positive health effects.

According to the World Health Organization (WHO), the term “free sugars” refers to all monosaccharides and disaccharides added to foods by the manufacturer, cook or consumer, plus the sugars that are naturally present in honey, syrups and fruit juices (11).

This definition does not include naturally occurring sugars such as lactose in dairy and fructose in fruit. Naturally occurring sugars were intentionally excluded from the WHO recommendations due to no reported evidence of adverse effects.

### Public health policies should not penalize naturally occurring lactose

The implementation of various dietary strategies or food policies aimed at improving health locally or regionally, often focus on the total sugar content when evaluating the healthiness of foods, without differentiating between free and naturally occurring sugars. It is important that the intent of the policy is considered, and coherence is considered with other policies such as dietary guidelines. If this is not done, it risks unduly penalizing nutrient dense nutritious foods such as dairy which contain intrinsic sugars.

Under certain policy or regulatory proposals, such as front of pack labelling, milk products could be unfairly classified as ‘high in sugar’ owing to their natural lactose content if a total sugar approach is taken. This is unfortunate as lactose, naturally present in milk, is not associated with adverse health outcomes. Focusing on the total sugar content of a food does not always fairly depict its contribution to the diet. This is an important consideration as a single nutrient focus risks misrepresenting the association between some foods and their positive health outcomes which is not consistent with broader health strategies designed to reduce the risk of diet related NCDs. Without considering the intrinsic sugar content of food, certain food sources with a high total sugar content may be regarded as having a negative impact on health, while they may, in fact, have a beneficial role when the whole food is taken into account.

### Position

Foods are a complex matrix of nutrients, which interact in a multitude of ways to influence health outcomes. Nutrition is not only about nutrients but also about having a balanced diet. Therefore, when measures are implemented to fight NCDs, thoughtful consideration should be given to not impede on the promotion of the consumption of nutritious and healthy foods. Dairy products have long been recognized as an important part of a balanced diet and this should be taken into account when defining policy measures intended to lower intakes of nutrients of concern, without discouraging the consumption of nutrient dense core foods such as milk, milk-based products, cheese and yoghurt. It is important to consider dairy products in a unique way, giving credit to the important nutritional properties of their intrinsic lactose content.



## References

- (1) Food Dietary Guidelines. (2020)  
<http://www.fao.org/nutrition/education/food-dietary-guidelines/background/en/>
- (2) Thorning, TK. Milk and dairy products: good or bad for human health? An assessment of the totality of scientific evidence". *Food Nutr Res*, 60:10.3402/fnr. (2016) <https://foodandnutritionresearch.net/index.php/fnr/article/view/954>
- (3) Gil, A. "Introduction and executive summary of the supplement, role of milk and dairy products in health and prevention of noncommunicable chronic diseases: a series of systematic reviews". *Adv Nutr*, 10:S67-S73 (2019)
- (4) FAO. Milk and dairy products in human nutrition. Rome. (2013)  
<http://www.fao.org/3/i3396e/i3396e.pdf>
- (5) IDF Factsheet: Reasons why galactose is good for you (2017) [https://www.fil-idf.org/wp-content/uploads/2017/05/Factsheet-002\\_2017-Reasons-why-galactose-is-good-for-you.pdf](https://www.fil-idf.org/wp-content/uploads/2017/05/Factsheet-002_2017-Reasons-why-galactose-is-good-for-you.pdf)
- (6) Paques, M and Lindner, C. LACTOSE Evolutionary Role, Health Effects, and Applications. Elsevier (2019)
- (7) Foster-Powell K, Holt SH, Brand-Miller JC. "International table of glycemic index and glycemic load values", *Am J Clin Nutr*. 2002;76(1):5-56. (2002)  
<https://academic.oup.com/ajcn/article/76/1/5/4689459>
- (8) Moynihan P, Petersen, PE. "Diet, nutrition and the prevention of dental diseases". *Public Health Nutr*. 2004;7:201–226. (2004)
- (9) Vandenplas, Y. Lactose intolerance. *Asia Pac. J. Clin. Nutr*. 24(1): S9–S13. (2004)
- (10) Valdes, AM. "Role of the gut microbiota in nutrition and health". *BMJ*. 2018;361:Suppl1 (2018)
- (11) WHO/OMS: Guideline: sugars intake for adults and children (2015)  
<https://www.who.int/publications/i/item/9789241549028>