Figure 2. Ulcers on lower lip (circled)

Figure 3. Inflammation of a corner of the mouth (circled)

Figure 4. Inflammation of the tongue (circled)

Food labels in Australia and New Zealand

The Nutrition Information Panel on a food label (Figure 5) can help you choose foods with less saturated fat, salt and added sugars. Ingredients of a food product are listed on the label in order from largest to smallest by weight. This is one way to spot foods that might be high in saturated fat, added salt or added sugars because these ingredients are listed in the top three. Sugar content of more than 15g per 100g is considered high.

Nutrition Information

Servings per package – 16
Serving size – 30g (2/3 cup)

	Per serve	Per 100g
Energy	432kJ	1441kJ
Protein	2.8g	9.3g
Fat		
Total	0.4g	1.2g
Saturated	0.1g	0.3g
Carbohydrate		
Total	18.9g	62.9g
Sugars	3.5g	11.8g
Fibre	6.4g	21.2g
Sodium	65mg	215mg

Ingredients: Cereals (76%) (wheat, oatbran barley), psyllium husk (11%), sugar, rice, malt extract, honey, salt, vitamins.

1. **100g Column and Serving size** If comparing nutrients in similar food products use the per 100g column
2. **Total Fat** Generally choose foods with less than 10g per 100g
   Saturated Fat Aim for the lowest per 100g, less than 3g per 100g is best
3. **Sugars** Sugar content of more than 15g per 100g is considered high
4. **Fibre** Choose breads and cereals with 3g or more per serve
5. **Sodium (Salt)** Foods with less than 400mg per 100g are good, and less than 120mg per 100g is best
6. **Ingredients** Listed from greatest to smallest by weight. Use this to check the first three ingredients for items high in saturated fat, added salt or added sugars

Figure 5. Nutrition Information Panel on a food label

FOR FURTHER ENQUIRIES

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Oral health is related to diet in many ways. Everything you eat and drink can affect the health of your teeth and gums. The most significant effect of nutrition on the mouth is the impact diet has on the development of dental decay and dental erosion. A well-balanced diet with appropriate amounts of ***micronutrients*** and ***macronutrients*** has beneficial effects on both the oral mucosa (the soft tissue lining of the oral cavity, or the "skin" inside the mouth) and dental hard tissues (the enamel, dentine and cementum of the tooth).

- ***Micronutrients*** refer to the vitamins and minerals in your food, such as iron, folate, and vitamins A, C, D and B12
- ***Macronutrients*** refer to fats, carbohydrates and protein in your diet.

Both a shortage and an excess of these types of nutrients can lead to negative or damaging oral health effects such as dental decay, dental erosion, gum disease, oral mucosa diseases (for example mouth ulcers), oral cancer, and various infectious diseases.

Sugar in the diet

Sugar is a naturally contained, or processed carbohydrate your body needs and uses for energy. While naturally occurring sugars are found in unrefined foods, processed sugars are added to a product. There are two types of sugars:

- ***Intrinsic sugars*** are naturally occurring sugars, or sugars contained within unprocessed foods. The most common intrinsic sugars - glucose, fructose, lactose and sucrose - are commonly found in fruits and vegetables, the staples of a healthy diet.
- ***Extrinsic sugars*** are those added to food or have sugar molecules outside the cell structure of the food. Extrinsic sugars can be further classified into:
  - ***Milk sugars:*** Sugars including lactose and galactose that are naturally present in milk and milk products such as cheese and plain yoghurt
  - ***Non-milk sugars (Free sugars):*** Sugars added to foods by the manufacturer, cook or consumer and naturally present sugars in honey, syrups and those used in soft drinks and artificial sweeteners.

Sugar in appropriate amounts is used by the body as a source of fuel and is required to maintain a healthy metabolism. Intrinsic sugars in whole fruits, vegetables and grains as well as milk sugars in appropriate amounts are less likely to cause dental decay and have health benefits. Sugar in large quantities, whether intrinsic or extrinsic, is not useful to the body. Excess amounts of sugars add no nutritional benefit and unnecessarily increase total daily calories consumed. Too many calories can lead to weight gain and obesity. In addition, large amounts of sugar can negatively affect the health of your teeth, resulting in dental decay.

Dental decay

Dental decay, or tooth decay, is a diet-related disease. Tooth decay is caused by plaque — a sticky layer of germs — in your mouth. The germs in plaque turn the sugar in food and drinks into acid. The acid from plaque attacks your enamel, which is the outer layer of your tooth. Tooth decay symptoms often begin with a white spot appearing on the tooth surface. Left untreated, this can become a hole or cavity. Intake of dietary sugars is the most important risk factor for dental decay. The quantity, as well as frequency of sugar consumption, can increase the risk of tooth decay. Sticky sugary foods (such as lollies and sweet biscuits) can stay on tooth surfaces for a prolonged time and therefore have a higher risk of causing dental decay than non-sticky sugary foods.

You can prevent tooth decay by:

- Eating a healthy, balanced diet
- Drinking plenty of fluoridated tap water instead of sugary drinks
- Brushing your teeth using a fluoride toothpaste
- Limiting foods and drinks containing added sugars such as confectionary, sugar-sweetened beverages including soft drinks and cordials, fruit drinks, vitamin waters, energy and sport drinks.
- Consuming fruit and vegetables, nuts, seeds, whole grain starch rich foods, milk and other dairy products without added sugars.

Dental erosion

Dental erosion is the loss of the surface of your teeth due to acids you eat or drink, or acids coming up from your stomach. Tooth erosion happens when acids wear away the enamel on teeth (Figure 1).

- Excessive soft drink consumption (high levels of phosphoric and citric acids)
- Fruit drinks (acids in fruit drinks)
- Citrus fruits (such as oranges and mandarins)

Figure 1. Tooth erosion (indicated by an arrow)

A diet rich in substances containing citric acid, phosphoric acid, ascorbic acid, malic acid, tartaric acid, and carbonic acid can lead to dental erosion. Many of these dietary acids can be found in soft drinks, fruits, fruit juices, certain herbal teas, vinegar, and dry wine. Saliva can become acidic when you consume acidic food or beverages. To keep your teeth healthy, you must keep acidity in your mouth to a minimum as acidic saliva can cause many dental problems. The acids in your mouth start to demineralise (erode) tooth enamel. If the tooth enamel becomes too thin, the dentine is exposed. This can lead to discomfort when consuming hot, cold, or sugary food and drinks.

You can control dental erosion by:

- ***Avoiding acidic soft drinks.*** But if you can't resist, drink them quickly and follow up with a drink of water. Try not to sip/swish the acidic drinks over an extended period of time. Drinking with a straw causes less damage.
- ***Avoiding excessive consumption of caffeine-containing drinks such as black coffee.*** Adding dairy, not a sugary flavoured creamer, can help counteract the acidity.
- ***Not brushing straight after a meal.*** Avoid brushing your teeth for 30 minutes after eating acidic food/drinking high-acidity beverages such as soft drinks, fruit juices, cider, wine, or beer. High-acidity drinks/foods soften your tooth enamel. Brushing too soon after consuming these drinks/foods can further damage the enamel.
- ***Chewing gum.*** After eating or drinking acidic foods or beverages, chew sugarless gum — preferably one with xylitol. Chewing gum encourages saliva production to help restore pH balance. Xylitol helps prevent bacteria from sticking to tooth enamel; it also encourages saliva production. Chewing a small piece of cheese or drinking water after a meal also helps to maintain pH balance.
- ***Staying hydrated.*** Drink plenty of water.
- ***Avoiding consuming acidic foods and drinks between meals.*** Try to limit these to main meals

Gum disease

Vitamins A and D, polyunsaturated fatty acids including omega-3, slowly digestible starch and, high-fibre containing fruits and vegetables have a protective effect on gum disease. Vitamin C is well-known for its antioxidant properties, which allows this vitamin to play a key role in the maintenance and repair of connective tissues. Therefore, a deficiency in vitamin C has been associated with gum disease. Foods high in vitamin C include blackcurrants, citrus fruits (oranges, limes and lemons), berries, kiwifruit, tomatoes, broccoli, sprouts, and red, yellow and green capsicum.

Oral cancer

You can reduce your risk of oral cancer by eating vegetables and fruits. Eating preserved foods (salted, dried, fermented or pickled) can increase your risk of developing oral cancer. Consumption of slowly digestible starch may protect you from developing oral cancer.

Oral mucosa diseases/conditions

Deficiencies of vitamin B, iron, and folate can increase your risk of developing diseases/conditions of the oral mucosa, such as recurrent oral ulcers (Figure 2), inflammation of the corners of the mouth (angular cheilitis - Figure 3) and inflammation of the tongue (glossitis – Figure 4). Your dental practitioner may refer you for further management of such micronutrient deficiencies.