The goodness of dairy
The role of dairy in a healthy nutrition
About this publication

Milk is part of a healthy and varied diet around the world and is a natural source of essential nutrients like protein, calcium, potassium, phosphorus, iodine, vitamin B2 (riboflavin) and vitamin B12. Milk is the basis of all dairy products. The information in this publication will help you find out more about dairy, nutrition and health.

This publication has been developed by the FrieslandCampina Institute for nutrition and health professionals and is based on scientific agreement and official dietary guidelines.

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Crop farmers and cattle farmers first began to keep cows about 10,000 years ago. They discovered that cows can convert grass, which is indigestible for humans, into the valuable food product milk. This was the perfect solution for people in areas where no other crops could grow.
The development of dairy farming

Originally, people were hunters and gathered their food however this changed with the rise of agriculture around 10,000 years ago. This transition from a nomadic society to an agricultural society spread from the Middle East through Greece and the Balkans to Central Europe. Through the centuries, our ancestors discovered that products such as apples, eggs, grains and cabbage are edible and nutritious and taste good too. They also discovered that milk from camels, horses, goats, sheep and cows is a valuable source of nutrients for people. Initially, milk was given to children, but it appeared to be a good source of nutrients for adults as well. As a result an increasing number of adults developed the ability to digest lactose in milk. This offered an evolutionary benefit the genetic adaptation to digest lactose has grown through centuries to over one third of the world population. This is especially true in Central and Northern Europe, where dairy farming experienced a substantial growth and over 90% of the population can digest lactose. (Dunne et al, 2012; Itan et al, 2009).

People have also made and eaten yoghurt and cheese for many centuries. Yoghurt is assumed to originate from Central Asia. Milk was kept in leather bags or wooden barrels and with the presence of bacteria and a high temperature, the milk started to ferment, resulting in yoghurt. Sometimes the milk was kept in calves’ stomachs and the presence of rennet (a complex of digestive enzymes) acted as coagulant to give milk a more solid, cheese-like structure. Making yoghurt and cheese from milk also had the advantage of keeping the milk for a longer time. (Dunne et al., 2012; Salque et al, 2013)

FIGURE 1 The rise of the dairy farming
Dairy: milk, yoghurt and cheese

Various dairy products can be made from milk, such as yoghurt and cheese and each has its own characteristic taste and unique properties. Globally, different types of dairy products are consumed and reflect the particular gastronomic culture. The production process is basically the same.

**Yoghurt**

Yoghurt is made by adding a mixture of lactic acid bacteria to the milk known as the ‘yoghurt cultures’. The lactic acid bacteria used are Lactobacillus bulgaricus and Streptococcus thermophilus. In some countries it is allowed to add other milk acid bacteria to the yoghurt cultures. By adding the yoghurt culture the milk starts to ferment and during the fermentation process a proportion of the lactose naturally present in milk is converted to lactic acid. The characteristics of the yoghurt depends on the composition of the milk, the yoghurt culture type and the temperature and duration of the fermentation process. Fermented milk products will keep for a longer time than non-fermented dairy products as the acid in fermented dairy products inhibits the growth of bacteria that can cause decomposition.

**FIGURE 2 Production process yoghurt**

[Diagram showing the production process of yoghurt with labels for milk, fermentation, yoghurt cultures added, standardisation, homogenisation, pasteurisation, and packaging.]
Dutch-type cheese
For many centuries, the traditional cheese-making process has been passed on from generation to generation. Dutch-type cheese is made from pasteurised fresh milk. A starter culture and coagulant are added to the milk. This causes the proteins to coagulate which results in a solid substance (the curd) and a remaining liquid (the whey). The curd is then pressed to squeeze out even more liquid and finally the cheese is soaked in a brine bath. This gives the cheese its taste and improves the shape and texture. It also lengthens the shelf life of the cheese. The cheese is then left to mature for a period ranging from four weeks to over a year. This maturing period will determine the taste of the cheese. Due to its preparation process and the maturing period, Dutch-type cheese contains hardly any lactose.

Cheese or quark?
Quark is actually a type of fresh cheese. However, there are two important differences in the production process which makes it distinctive from cheese. In the case of quark the liquid leaks out whereas with cheese the liquid is pressed out. Following this process, quark is ready for use whereas Dutch-type cheese still needs to mature for at least four weeks.

Salt reduction
Salt is an important flavour enhancer in cheese. It also plays a role in retaining the shape and texture and also lengthens the shelf life. The challenge is to make cheese with less salt whilst maintaining good taste and texture. FrieslandCampina has been working on gradually reducing the salt content of Dutch-type cheese for many years already. The salt content of the Dutch-type cheese and foil cheese has been reduced by 24% since 2006.

The fat content in cheese is expressed as percentage of the dry matter which are all the ingredients of cheese, without the water. In the case of full-fat cheese about 48% of the dry matter of this cheese is fat. Because cheese also contains water, the overall fat percentage of the cheese is lower. The fat percentage of reduced-fat cheese is lower, because these cheeses are made from semi-skimmed milk.
Milk is globally found in many dietary guidelines because of the contribution it makes to the intake of nutrients, such as protein, calcium and vitamins (riboflavin) and B12. Different dairy products are recommended in accordance with the particular culture and eating habits. In many countries adults are advised to consume two to three portions of dairy each day.
The goodness of dairy

**The Netherlands**
- 2-3 servings milk, yoghurt or quark
- 40 gram cheese

**Belgium**
- 2-3 servings milk or yoghurt
- 20 gram cheese

**The United Kingdom**
- 2-3 servings milk, yoghurt or cheese

**Greece**
- 2 servings milk, yoghurt or cheese

**Germany**
- 200-250 gram milk or yoghurt
- 50-60 gram cheese

**Singapore**
- 3 servings milk
- 40 gram cheese

**Thailand**
- 1-2 servings milk or yoghurt

**Malaysia**
- 1-3 servings milk, yoghurt or cheese

**Indonesia**
- 2-3 servings of milk or yoghurt

**China**
- 2 servings milk or yoghurt

**Saudi Arabia**
- 2-3 servings milk, fermented dairy or cheese

**Nigeria**
- 2-3 servings milk, yoghurt or cheese

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The serving size differs between countries. For example, in the Netherlands a serving of milk or yogurt is usually 150 ml. In the United States a serving of milk or yoghurt is ‘a cup’, which is equivalent to 240 ml.
Nutrients in dairy

Milk naturally contains essential nutrients, such as protein, calcium, potassium, phosphorus, iodine and vitamins B2 (riboflavin) and B12. Yoghurt and cheese are made from milk and therefore contain many of the nutrients from milk.
Variation

The nutritional composition of milk to some extent, varies globally and depends on the season and the feed used for the cows. The following tables show the average nutritional values of milk, yoghurt and cheese. As cheese is actually concentrated milk, 100 grams of cheese contains more nutrients and is a natural source of protein, calcium, phosphorus, zinc, selenium, vitamin A, vitamin B2, vitamin B12 and vitamin K.

The nutritional value of semi-skimmed milk

<table>
<thead>
<tr>
<th></th>
<th>Milk (semi-skimmed) 100 ml</th>
<th>Milk (semi-skimmed) Glass 200 ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>190 kJ 45 kcal</td>
<td>380 kJ 90 kcal (5% RI***)</td>
</tr>
<tr>
<td>Fat</td>
<td>1.5 g</td>
<td>3.0 g (4%)</td>
</tr>
<tr>
<td>of which saturated</td>
<td>1.0 g</td>
<td>2.0 g (10%)</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td>4.7 g</td>
<td>9.4 g (4%)</td>
</tr>
<tr>
<td>of which sugars</td>
<td>4.7 g</td>
<td>9.4 g (11%)</td>
</tr>
<tr>
<td>Protein</td>
<td>3.5 g</td>
<td>7.0 g (14%)</td>
</tr>
<tr>
<td>Salt</td>
<td>0.13 g</td>
<td>0.26 g (4%)</td>
</tr>
<tr>
<td>Vitamins and minerals (%DRI*)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium</td>
<td>120 mg (15%)</td>
<td>240 mg (30%)</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>95 mg (14%)</td>
<td>190 mg (28%)</td>
</tr>
<tr>
<td>Potassium</td>
<td>160 mg (8%)</td>
<td>320 mg (16%)</td>
</tr>
<tr>
<td>Iodine</td>
<td>15 mcg (10%)</td>
<td>30 mcg (20%)</td>
</tr>
<tr>
<td>Vitamin B12 (riboflavin)</td>
<td>0.19 mg (14%)</td>
<td>0.38 mg (28%)</td>
</tr>
<tr>
<td>Vitamin B12</td>
<td>0.4 mcg (16%)</td>
<td>0.8 mcg (32%)</td>
</tr>
</tbody>
</table>


The nutritional value of semi-skimmed yoghurt

<table>
<thead>
<tr>
<th></th>
<th>Yoghurt (semi-skimmed) 100 ml</th>
<th>Yoghurt (semi-skimmed) Portion 150 ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>212 kJ 50 kcal</td>
<td>318 kJ 75 kcal (4% RI***)</td>
</tr>
<tr>
<td>Fat</td>
<td>1.5 g</td>
<td>2.3 g (3%)</td>
</tr>
<tr>
<td>of which saturated</td>
<td>1.0 g</td>
<td>1.5 g (7.5%)</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td>4.3 g</td>
<td>6.5 g (2.5%)</td>
</tr>
<tr>
<td>of which sugars</td>
<td>4.3 g</td>
<td>6.5 g (7%)</td>
</tr>
<tr>
<td>Protein</td>
<td>4.2 g</td>
<td>6.3 g (13%)</td>
</tr>
<tr>
<td>Salt</td>
<td>0.13 g</td>
<td>0.20 g (3%)</td>
</tr>
<tr>
<td>Vitamins and minerals (%DRI*)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium</td>
<td>140 mg (18%)</td>
<td>210 mg (26%)</td>
</tr>
<tr>
<td>Vitamin B12</td>
<td>0.39 mcg (16%)</td>
<td>0.6 mcg (24%)</td>
</tr>
</tbody>
</table>


The nutritional value of Dutch-type cheese

<table>
<thead>
<tr>
<th></th>
<th>Cheese (Goudse full-fat) 100 g</th>
<th>Cheese (Goudse full-fat) Portion 20 g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>1530 kJ 370 kcal</td>
<td>306 kJ 74 kcal (4% RI***)</td>
</tr>
<tr>
<td>Fat</td>
<td>30.5 g</td>
<td>6.1 g (9%)</td>
</tr>
<tr>
<td>of which saturated</td>
<td>20.0 g</td>
<td>4.0 g (20%)</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td>0 g</td>
<td>0 g</td>
</tr>
<tr>
<td>of which sugars</td>
<td>0 g</td>
<td>0 g</td>
</tr>
<tr>
<td>Protein</td>
<td>23 g</td>
<td>4.6 g (9%)</td>
</tr>
<tr>
<td>Salt</td>
<td>1.8 g</td>
<td>0.36 g (6%)</td>
</tr>
<tr>
<td>Vitamins and minerals (%DRI*)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium</td>
<td>815 mg (102%)</td>
<td>163 mg (20%)</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>515 mg (74%)</td>
<td>103 mg (15%)</td>
</tr>
<tr>
<td>Selenium</td>
<td>25 mcg (45%)</td>
<td>5 mcg (9%)</td>
</tr>
<tr>
<td>Zinc</td>
<td>4.0 mg (40%)</td>
<td>0.8 mg (8%)</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>345 mcg (43%)</td>
<td>69 mcg (9%)</td>
</tr>
<tr>
<td>Vitamin B2 (riboflavin)</td>
<td>0.25 mg (18%)</td>
<td>0.05 mg (4%)</td>
</tr>
<tr>
<td>Vitamin B12</td>
<td>1.8 mcg (72%)</td>
<td>0.4 mcg (14%)</td>
</tr>
<tr>
<td>Vitamin K</td>
<td>68 mcg (90%)</td>
<td>14 mcg (18%)</td>
</tr>
</tbody>
</table>


Iodine

Milk is particularly well-known for its calcium content however less well-known is that milk is also a source of iodine. This is a mineral that is involved in the production of thyroid hormones and the normal functioning of the thyroid gland. The consumption of two to three portions of milk makes a significant contribution to the daily requirement for iodine.

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Vitamin D

Vitamin D is present in oily fish and in smaller amounts in meat, eggs and full-fat dairy, such as Dutch-type full-fat cheese and butter. In some countries milk is fortified with extra vitamin D in order to increase the intake of this vitamin. Vitamin D contributes to several functions in the body including the maintenance of normal muscle function and the maintenance of normal bones and teeth.
Protein
Together with physical activity protein in food contributes to the maintenance of bone mass and growth and maintenance of muscles (EFSA 2009 and 2010). Milk, yoghurt and cheese are naturally rich in protein. 80% of the milk protein is casein and 20% whey protein (Schaafsma and Steijns, 2000). Casein is also called the ‘slow protein’ and whey the ‘fast protein’. This is because whey generally provides an amino acid peak in the first two hours after consumption, whereas the amino acids in casein appear over a period of approximately 6 hours and therefore have a lower peak value. As milk protein contains all essential amino acids, the protein is of a high quality for the body (FAO, 2013).

The protein quality of a product can be determined on the basis of three characteristics:
1. the quantity of protein in a food;
2. the quantity of essential amino acids in the protein;
3. the digestibility of the amino acids in the protein in the intestine and, consequently, the availability for absorption by the body (Tomé, 2012).

Essential amino acids
Protein consists of amino acids of which 9 are essential. The body needs these essential amino acids daily in order to function well as the body cannot synthesize them itself. Therefore it is important to take in these amino acids through food. Foods which have high-quality proteins provide more essential amino acids (FAO/WHO/UNU, 2007).

Protein quality
Protein quality is determined by the Protein Digestibility-Corrected Amino Acid Score (PDCAAS). However, this method was found to have a number of limitations. As a result of new scientific insights in this area, the FAO recommended the development of a new method for determining protein quality. This is the Digestible Indispensable Amino Acids Score, also called DIAAS. By using the DIAAS method it will be possible in the future to determine more accurately which amino acids and the amounts from various protein sources that can be absorbed by the body. However at this point, the DIAAS score is known for only a small number of products and a more complete list needs to be compiled for various food products before this method can be broadly applied. (FAO, 2013).

Overview of essential amino acids in mg/g protein of various protein sources

<table>
<thead>
<tr>
<th>Essential amino acid</th>
<th>Adult**</th>
<th>Milk</th>
<th>Whey</th>
<th>Grains **</th>
<th>Eggs</th>
<th>Beef</th>
<th>Soy</th>
<th>Grains</th>
<th>Rice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lysine</td>
<td>48</td>
<td>83</td>
<td>107</td>
<td>82</td>
<td>72</td>
<td>89</td>
<td>60</td>
<td>23</td>
<td>34</td>
</tr>
<tr>
<td>Histidine</td>
<td>16</td>
<td>28</td>
<td>22</td>
<td>29</td>
<td>23</td>
<td>44</td>
<td>25</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Isoleucine</td>
<td>30</td>
<td>64</td>
<td>57</td>
<td>62</td>
<td>69</td>
<td>50</td>
<td>42</td>
<td>34</td>
<td>40</td>
</tr>
<tr>
<td>Leucine</td>
<td>61</td>
<td>93</td>
<td>129</td>
<td>97</td>
<td>82</td>
<td>79</td>
<td>77</td>
<td>69</td>
<td>77</td>
</tr>
<tr>
<td>Valine</td>
<td>40</td>
<td>68</td>
<td>53</td>
<td>73</td>
<td>74</td>
<td>53</td>
<td>47</td>
<td>38</td>
<td>54</td>
</tr>
<tr>
<td>Methionin, incl. cysteine</td>
<td>23</td>
<td>32</td>
<td>52</td>
<td>33</td>
<td>51</td>
<td>36</td>
<td>24</td>
<td>36</td>
<td>42</td>
</tr>
<tr>
<td>Phenyalananine, incl. tyrosine</td>
<td>41</td>
<td>105</td>
<td>76</td>
<td>116</td>
<td>104</td>
<td>91</td>
<td>88</td>
<td>77</td>
<td>94</td>
</tr>
<tr>
<td>Threonine</td>
<td>25</td>
<td>51</td>
<td>54</td>
<td>45</td>
<td>50</td>
<td>47</td>
<td>40</td>
<td>28</td>
<td>34</td>
</tr>
<tr>
<td>Tryptophan</td>
<td>7</td>
<td>14</td>
<td>21</td>
<td>12</td>
<td>16</td>
<td>14</td>
<td>12</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Total of essential amino acids</td>
<td>291</td>
<td>538</td>
<td>571</td>
<td>549</td>
<td>541</td>
<td>503</td>
<td>423</td>
<td>336</td>
<td>407</td>
</tr>
</tbody>
</table>

* Both the sulphurous (methionine and cysteine) and the aromatic (phenylalanine and tyrosine) essential amino acids are strongly interlinked in the metabolism and so they are often totalled to compare proteins. Therefore sometimes 9 to 11 essential amino acids are mentioned.
** The reference pattern should provide adults with the necessary essential amino acids. Source: FAO, 2011.
*** Source: Walstra P et al 2006; Hiprotal Casein Whey 80 (DOMO, FrieslandCampina)

Calcium
Calcium supports a number of functions and mechanisms in the body. The mineral contributes to the maintenance of bones and teeth. 99% of the body’s total calcium content is stored in the bones. When the body needs more calcium than it obtains from food, calcium in the bones can be used to keep the amount of calcium in the blood at an adequate level (Heaney 2009). Calcium contributes also to the normal function of muscles, neurotransmission, coagulation of blood and energy metabolism in the body. Milk is naturally rich in protein and is an important source of dietary calcium. Additionally, calcium from milk is highly bioavailable for the body (Miller et al., 2007). Bioavailability refers to the proportion of the total amount of a nutrient present in food that is actually used by the body for metabolic functions.

Bioavailability of calcium

<table>
<thead>
<tr>
<th>Product</th>
<th>mg Ca/100 g product</th>
<th>absorption efficiency (%)</th>
<th>mg Ca available for the body/100 g</th>
<th>g product needed to meet the available Ca in 200 ml of milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broccoli (boiled)</td>
<td>33</td>
<td>61,3</td>
<td>20,2</td>
<td>387</td>
</tr>
<tr>
<td>Spinach (boiled)</td>
<td>84</td>
<td>51</td>
<td>4,3</td>
<td>1828</td>
</tr>
<tr>
<td>Milk (semi-skimmed)</td>
<td>122</td>
<td>12,2</td>
<td>39,2</td>
<td>200</td>
</tr>
</tbody>
</table>

What is the role of nutrients in the body?

**Phosphorus**
Contributes to the maintenance of bones and teeth. 85% of the total amount of phosphorus in the body is stored in the bones. Phosphorus also supports normal energy metabolism.

**Potassium**
Contributes to the normal functioning of the muscles and the nervous system. Potassium also plays a role in maintaining a normal blood pressure.

**Calcium**
Contributes to the maintenance of bones and teeth, and to the functioning of muscles. Calcium also supports normal neurotransmission, blood clotting and functioning of the digestive enzymes.

**Riboflavin**
Supports the normal functioning of the nervous system and energy metabolism. Riboflavin also contributes to the maintenance of skin, vision and normal metabolism of iron.

**Vitamin B12**
Supports the normal functioning of the nervous system and contributes to energy metabolism. Vitamin B12 also contributes to the normal functioning of the immune system and to the normal formation of red blood cells. Vitamin B12 is only found in animal products such as dairy, meat, fish and eggs. Algae and seaweed contain a substance similar to vitamin B12, but this substance has no vitamin effect.

**Iodine**
Contributes to the production of thyroid hormones and normal thyroid function. Iodine also plays a role in the functioning of the nervous system and energy metabolism.
Nutrition and health

Milk, yoghurt and cheese are globally a part of a varied diet. This is for a good reason, as the nutrients in milk, such as protein, calcium, phosphorus and vitamins B2 and B12 support various functions in the body. In combination with physical activity, a healthy and varied diet contributes to a healthy body.

**Strong bones**

Bones consist of a protein matrix, which is filled with calcium phosphate and other minerals, such as sodium, magnesium, potassium and zinc. Bone tissue is constantly broken down (resorption) and built up (bone formation) for recovery after minor ‘damage’ and in order to adjust to the strength to the load exerted on a bone. Genetics are the most important determinant for strong bones and accounts for 60 to 80% of the variation in peak bone mass, i.e. the maximum bone density. Lifestyle factors such as physical exercise and a varied diet providing calcium, phosphorus, protein and vitamins K and D support the maintenance of strong bones (Golden et al, 2014; International Osteoporosis Foundation, 2013, Rizzoli et al, 2012). Due to the contribution of milk to the intake of protein, calcium and phosphorus, milk contributes to a varied diet with respect to the development and maintenance of strong bones (Dror and Allen, 2015).
Lactose intolerance
Many Europeans and some populations in Africa, the Middle East and South-east Asia can digest lactose throughout life thanks to the presence of the enzyme lactase in the small intestine. Lactase converts lactose into glucose and galactose in the small intestine. A part of the world population no longer produces the enzyme lactase or to a lesser degree after childhood. This results in the lactose remaining in the large intestine partially undigested. Bacteria in the large intestine then ferment the lactose causing flatulence and may also cause gastrointestinal discomfort. Most people with a lactose intolerance can digest about 12 grams of lactose which is equal to a large glass (250 ml) of milk spread over the day. As lactose is partially converted by lactic acid bacteria, fermented dairy products, for instance yoghurt, contain less lactose. Semi-hard cheeses, such as Dutch-type cheese and cheddar, hardly contain any lactose and so these can be eaten by people with a lactose intolerance.

Cow’s milk protein allergy
2-7% of babies and toddlers and 0.1-0.5% of adults are allergic to the protein in cow’s milk. The duration of the allergy to the cow’s milk protein varies, but most children will have outgrown this allergy by the age of two to three years. Although it is often stated that the number of children with cow’s milk protein allergy is increasing, there is no scientific evidence to support this.

Weight
Some people believe that dairy foods like, milk, yoghurt and cheese are fattening. However science does not support this. Research shows that dairy products, like milk, yoghurt and cheese can even play a role in maintaining a healthy weight. Studies involving energy restriction ('weight loss diets') in adults which include dairy in the diet help to improve body composition and the ratio of fat to fat-free mass in the short term. A small change in body composition can be of major importance to health over a period of several years. Studies without energy restriction over longer periods show that consumption of milk and other dairy products in the diet overall had a neutral effect on weight. Consumption of dairy as part of a varied diet also contributes to a healthy body for children and adolescents.
Due to a growing world population and increasing prosperity, the demand for good nutrition that provides an optimal intake of nutrients and has a low impact on the environment is growing. According to the Food and Agriculture Organization (FAO), global food production should increase by 70% between 2009 and 2050 in order to meet the demand for food in 2050. Feeding the growing world population in a responsible way requires sustainable and healthy nutrition (FAO, 2012).
Dairy
Milk globally contributes to a healthy diet. The consumption of milk, yoghurt or cheese provides various nutrients in a convenient way (FAO, 2013). Food production has consequences for the environment. The dairy chain is committed to the use of sustainable energy, such as windmills, solar panels or biomass. The industry is also spearheading the purchase of sustainable agricultural materials and reducing the use of energy in the production of dairy products. Therefore the Food and Agriculture Organization states that dairy will play an important role in the global provision of food in the future (FAO, 2013).

Now and for generations to come
According to the Food and Agriculture Organization, sustainable and healthy nutrition does not only involve a diet with a low environmental impact and adequate provision of nutrients, but it must also fit in with the existing food culture and be readily available, affordable and safe. Research into what a sustainable and healthy diet will look like in the future is actively ongoing (FAO, 2012). Health authorities agree that steps can already be taken to not eat more than necessary, choose food that provides plenty of nutrients, avoid food waste and eat vegetables, nuts and legumes more often and meat less often.

Sustainable diet
Scientific literature refers to a sustainable and healthy food pattern as a ‘sustainable diet’. Scientists are still studying the question of what a sustainable diet may look like. This question is not easy to answer, as measuring the environmental impact of a foodstuff or product group involves more than just the CO2 emission for the production of this foodstuff. The (re)use of natural resources for the production of food, such as water, soil, minerals and biodiversity are also to be taken into account when determining the sustainability level. Of course, optimum efficiency in the use of resources within the production chain and so less waste are important here as well (Johnston et al., 2014).
References


EFSA:
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NEVO-online versie 2016/5.0. RIVM, Bilthoven.


Questions?
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