

# 10

**NUTRITIONAL  
FACTS ABOUT  
PALM OIL**



A close-up photograph of a white bowl filled with cereal, featuring large, golden-brown flakes, fresh raspberries, and blueberries. A silver spoon is lifting a portion of the cereal and a blueberry. In the background, a glass of orange juice is visible. The entire image is overlaid with a semi-transparent tan rectangle containing the text.

# 1

**Fits in a  
healthy diet**



## **Healthy diet and lifestyle**

Healthy eating involves focusing on the total diet and the overall food pattern. All foods can fit within a healthy diet when consumed in moderation. Simply put, a healthy diet and lifestyle is based on three elements: variation in foods and meals, a balanced energy intake and enough physical activity to prevent weight gain. A healthy diet includes lots of fruits and vegetables, a balanced carbohydrate, fat and protein intake, and avoiding a high intake of salt, refined carbohydrates, saturated fats and trans fats. A switch to a more plant based diet will also contribute to a more sustainable and healthy planet.

## **Role among the fats we consume**

Palm oil has a role to play among the fats we consume because of its specific composition, and particularly to meet technological requirements of some of the foods we consume. It has contributed to the almost total disappearance of industrial trans fats, specifically in the Western European food market and is an excellent alternative to animal fats.

A photograph of a palm oil tree with a large white number 2 overlaid on a semi-transparent green rectangle. The background shows the trunk and fronds of the tree, with a cluster of dark red palm fruits visible on the left side.

# 2

**Edible oil from  
the fruits of  
the palm oil  
tree**



### **Edible oil**

Palm fruit oil, generally known as palm oil, is one of the edible oils cited by the Codex Alimentarius Commission of the joint FAO/WHO Food Standards Programme.<sup>1</sup>

### **Palm fruits**

The oil is pressed from the orange pulp of palm fruits. Palm fruits are about the size of small plums and grow in bunches on the tropical palm oil tree. Each bunch contains a thousand or more palm fruits that are harvested throughout the year.

### **Indonesia and Malaysia**

Originally found in West Africa, the oil palm tree is now mostly cultivated in Indonesia and Malaysia, the world's largest palm oil-producing nations. In more recent years oil palms are also cultivated in South America and in particular in Colombia.

A close-up photograph of a stack of several chocolate chip cookies. The cookies are golden-brown with visible chocolate chips. They are resting on a light-colored, textured cloth. The background is dark and out of focus. A semi-transparent olive-green rectangle is overlaid on the center of the image, containing the number '3' and the text 'Used in a wide range of foods' in white.

**3**

**Used in a wide  
range of foods**





## **Refined palm oil**

In Europe, palm oil is used in its refined (or refined, bleached, deodorised) form. Refined palm oil is odourless and pale yellow, making it a valuable ingredient providing texture and taste in a wide range of foods, such as margarine, confectionery, chocolate, ice cream and bakery products.

## **Palm oil fractions**

Fractionating refined palm oil involves separating the oil into fractions with different melting properties: a liquid (olein) and a solid (stearin) fraction. Palm olein is sold as cooking oil or used in food manufacturing such as instant noodles and fried food products.

Palm stearin is used to make the hard components ('hard stock') of margarines and shortenings\*. Palm olein can be further fractionated to produce super olein, hard stearin and palm mid fraction. Super olein is a more liquid fraction and withstands a lower temperature than palm olein before it solidifies.

The palm-mid fraction is a key component of cocoa butter alternatives.

\* a type of (semi-) solid fat that is used in cooking and baking

A female runner is captured from behind, running on a track during sunset. She is wearing a light green tank top, black shorts, and colorful running shoes. Her hair is tied back and blowing in the wind. A large, semi-transparent olive-green rectangle is overlaid on the right side of the image, containing the number '4' and the text 'Concentrated source of energy for the body'.

# 4

**Concentrated  
source of  
energy for the  
body**





### **Various functions of fat**

Like all fats and oils, palm oil is a concentrated source of energy for our body. One gram of fat provides 9 kcal, while carbohydrates and proteins provide 4 kcal per gram. Fat is the main storage form of excess energy in the body. Fats also cushion organs during movement, insulate the body and help to maintain a normal body temperature. Fats are structural components of cell membranes and hormones. Some types of vitamins (A, D, E and K) rely on fat for absorption and storage.

### **Recommended fat intake**

The World Health Organization recommends that in a healthy diet between 15 and 35% of the daily calories should be obtained from fat.<sup>2</sup> This percentage varies according to the health situation of people as well as to the sort of diet (especially which staple foods are consumed). Of the total fat intake a maximum of 10% saturated fatty acids is recommended.

A glass flask containing a yellow liquid, likely oil, is centered in the image. The flask is partially filled, and the liquid has a slightly viscous appearance. The background is a blurred wooden surface with some dark, possibly metallic, objects scattered around. A large, white, bold number '5' is superimposed on the upper part of the flask. Below the number, the text 'Balanced composition of saturated and unsaturated fatty acids' is written in a white, sans-serif font, also superimposed on the flask and background.

# 5

**Balanced  
composition of  
saturated and  
unsaturated  
fatty acids**



### **Unique and balanced fat composition**

Palm oil contains an equal proportion of saturated and unsaturated fatty acids. Of these fatty acids, approximately 40% is monounsaturated oleic acid, 10% is polyunsaturated linoleic acid, 44% is saturated palmitic acid and 5% is saturated stearic acid.

### **Compared to coconut oil, butter and cocoa butter**

The proportion of saturated fats in palm oil is lower than the saturated fat content of other fats of similar application: coconut oil (93% saturates), butter (70% saturates) and cocoa butter (64% saturates).



# 6

**Successful  
alternative to  
replace  
trans fatty  
acids**



### **Less than 2% trans fatty acids**

Trans fatty acids have been proven to have detrimental effects on health. These compounds are formed when a liquid oil is made (more) solid.

### **No partial hydrogenation**

Having a unique and balanced composition of saturated and unsaturated fatty acids, palm oil generally does not require partial hydrogenation ('hardening') in applications where solid fat is desirable, thus avoiding the formation of trans fatty acids. Palm oil has become a favourite ingredient for these applications.

### **Reducing trans fats in foods**

Using palm oil instead of partially hydrogenated vegetable oils reduces the content of trans fats in foods made with these oils. No other vegetable fat with a semi-solid texture at room temperature and providing the same features exists in sufficient quantity. The EU has issued legislation to set a maximum of 2% trans as a legal limit.<sup>3</sup>

A collage of various foods known for their high vitamin E content. The background features a wooden surface with several walnuts, a pile of almonds, a halved avocado showing its green flesh and pit, and a glass bottle of golden olive oil. A semi-transparent vertical band runs down the center of the image, containing the text.

7

**Rich in  
antioxidant  
vitamin E**



### **Rich in vitamin E**

Crude or unrefined palm oil contains 60 to 100 mg vitamin E per 100 gram. An average of 50 to 65% of the vitamin E content remains after refining, which is still higher than in other refined vegetable oils.

### **Tocotrienols**

70% of the vitamin E in palm oil occurs as tocotrienols. In contrast, other vegetable oils such as corn, olive, soybean, and sunflower, are good sources of tocopherols but contain no tocotrienols.

### **Unique biological properties**

Current research suggests unique biological properties of tocotrienols and warrants further investigation.<sup>4,5</sup>



A close-up photograph of a glass bottle pouring a golden-yellow liquid, likely vegetable oil, into a white ceramic bowl. Inside the bowl, there is a whole, dark red tomato and a silver metal spoon. The background is softly blurred, showing more of the bowl and the liquid. A semi-transparent olive-green rectangular box is overlaid on the center of the image, containing the number '8' and the text 'Most widely consumed vegetable oil in the world' in white.

# 8

**Most widely  
consumed  
vegetable oil in  
the world**



## **Rising global consumption**

Global production of palm oil rose from 14.6 million tons in 1995 to over 70 million tons in 2020 with over 2/3 destined to food. Palm oil is currently the most consumed vegetable oil in the world. The main palm oil consuming markets are China, India, Indonesia and the European Union. The big advantage of palm oil is, that it uses less land than any other oil crop.

## **Daily intake in France, Spain en Germany**

Palm oil consumption levels were estimated by CREDOC in France in 2013. On average, the French ( $\geq 3$  years of age) consume 2.8 gram of palm oil per day, which corresponds to approximately 4% of the overall saturated fat intake in adults.<sup>6</sup>

In 2020 a study was done on the intake of palm oil in both Spain and Germany.<sup>7</sup> The mean intake in Spain is estimated to vary between 2.06 and 4.54 g/day and in Germany between 3.06 and 6,22 g/day.



9

**Rich in pro  
vitamin A  
carotenoids  
(crude, unrefined  
palm oil)**



## **Carotenoid pigments**

Carotenoids are natural pigments responsible for the red-orange colour of crude palm oil. 100 Gram of crude palm oil contains 50 to 70 mg carotenoids. These are mainly beta carotene (56%) and alpha carotene (35%) and are the same compounds that give the orange colour to carrots, pumpkin and sweet potatoes.

## **Pro vitamin A**

Carotenoids act as precursors of vitamin A, which plays an important role in good vision, a healthy immune system and cell growth. The pro vitamin A (retinol) equivalent content of crude palm oil has been estimated at 15 times that of carrots.

## **Red palm oil**

Standard oil refining removes all carotenoids, but about 80% of these valuable components are retained in a product called 'red palm oil', resulting from a modified refining procedure. Red palm oil is used for the treatment and prevention of vitamin A deficiency in many countries worldwide.<sup>8</sup>



# 10

**Long history of  
dietary use**



### **Ancient tropical plant**

The oil palm is an ancient tropical plant from the West African tropical rainforest region. The use of palm oil in human nutrition dates back thousands of years. In the late 1800s, archeologists discovered a substance that they concluded was palm oil in a tomb at Abydos dating back to 3000 BCE.

### **Traditional use**

Palm oil is traditionally used as a cooking ingredient in the tropical belt of West Africa, South East Asia and Brazil.



# References



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