

Understanding oats and their nutritional benefits

Welcome!



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Housekeeping

- The webinar is being recorded and will be available on www.foodafactoflife.org.uk.
- If you have any questions, please type them in the chat box and they will be answered at the end.
- At the end of the webinar, please complete a short online evaluation (1min). Once submitted you will be given a link to a downloadable certificate. Please download the certificate, add your name and print it for your records.



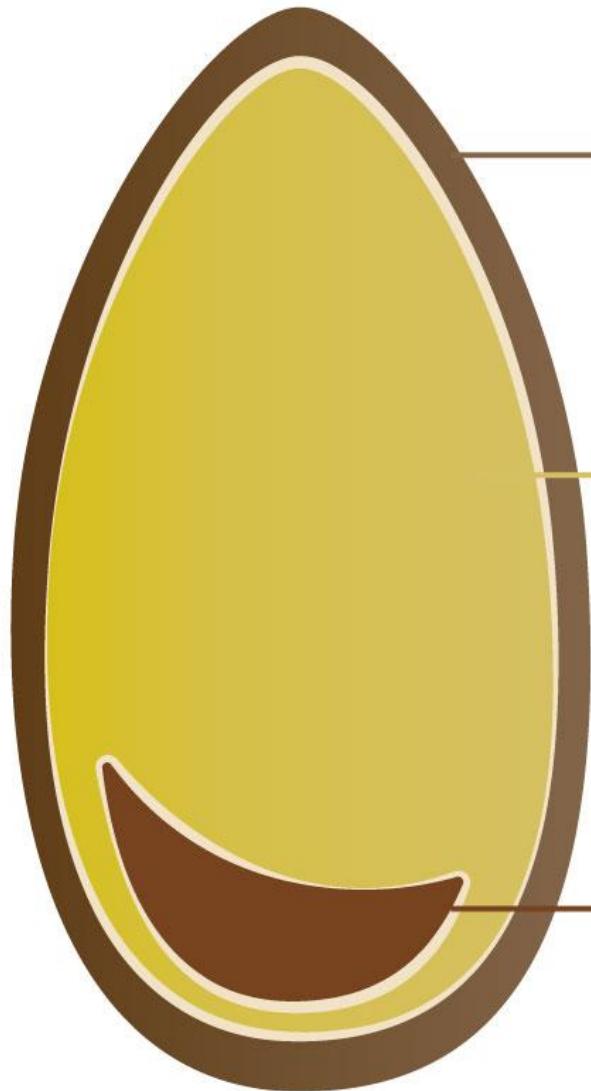
Understanding oats and their nutritional benefits – online evaluation



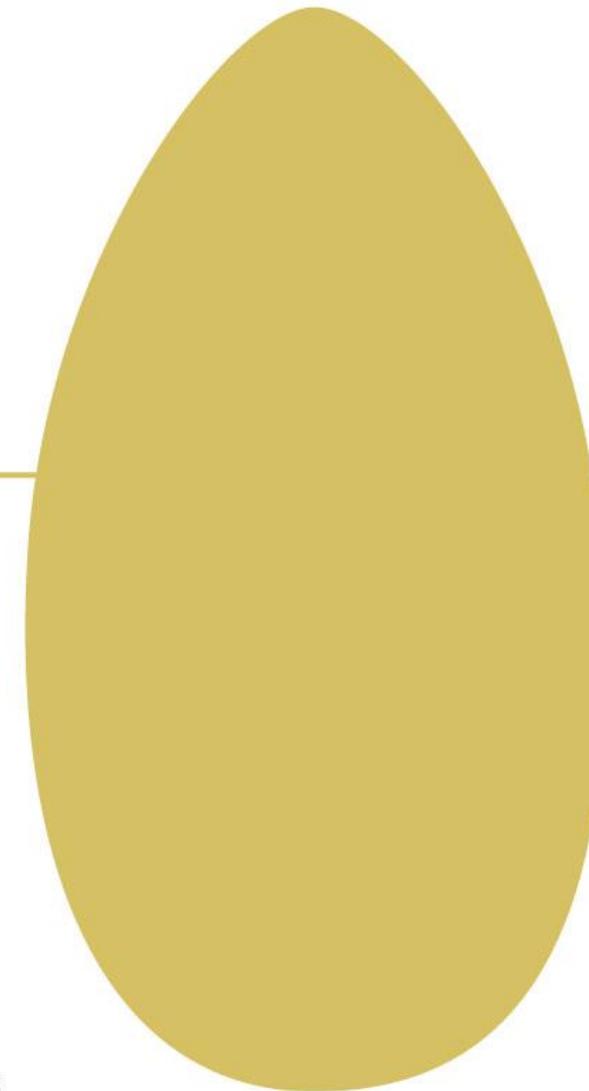
Understanding oats and their nutritional benefits

04/06/2025

Whole Grain



Refined Grain



Bran

Fiber-filled outer layer with
B vitamins and minerals

Endosperm

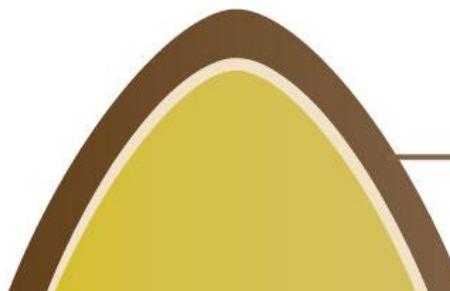
Starchy carbohydrate middle
layer with some proteins
and vitamins

Germ

Nutrient-packed core with
B vitamins, vitamin E,
phytochemicals and healthy fats



Whole Grain



Refined Grain



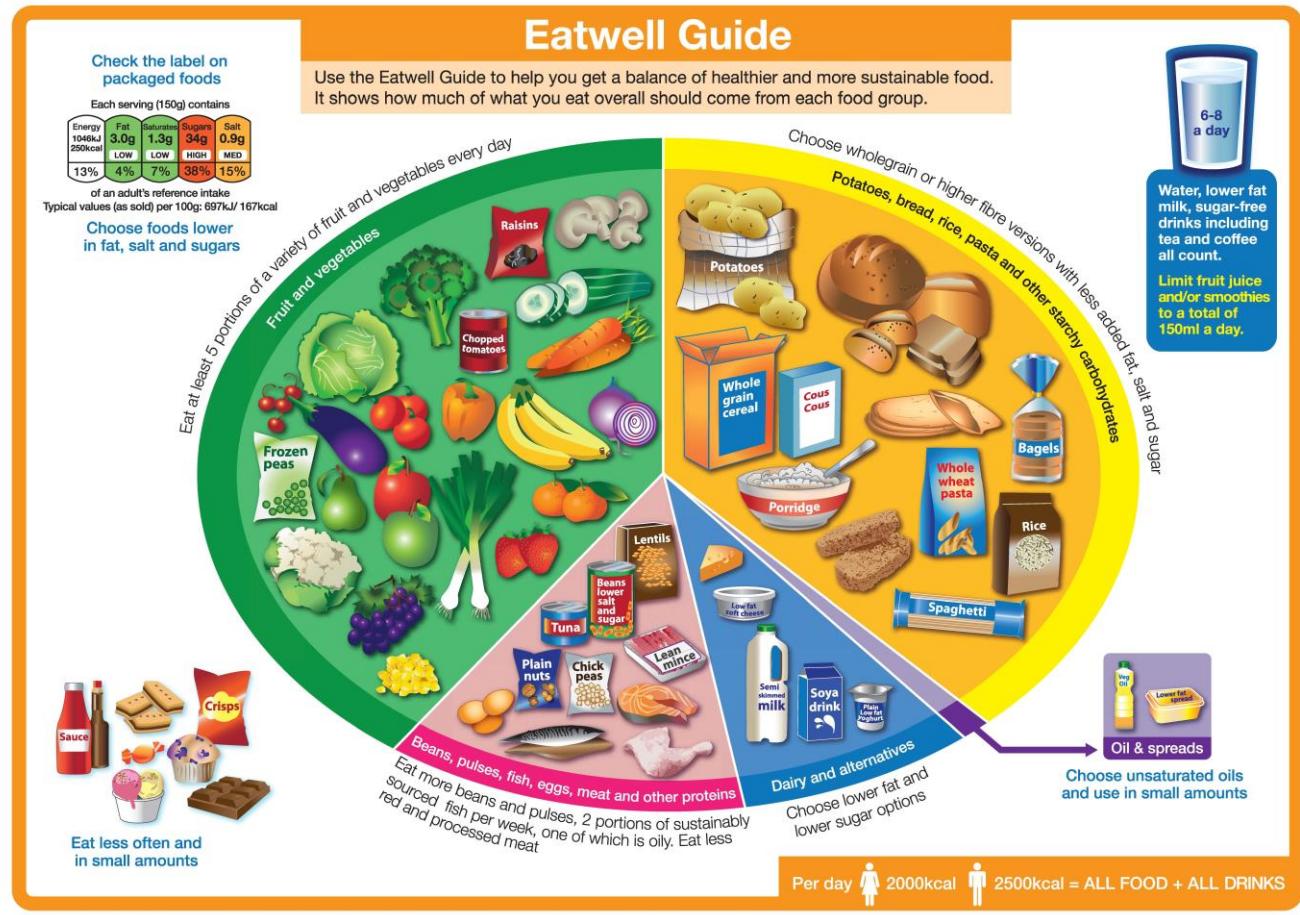
‘the intact, ground, cracked or flaked or otherwise processed kernel after the removal of inedible parts such as the hull and husk; all anatomical components, including the endosperm, germ, and bran must be present in the same relative proportions as in the intact kernel’



Nutrient-packed core with
B vitamins, vitamin E,
phytochemicals and healthy fats



Wholegrains



WHEAT BERRIES

OATMEAL

QUINOA

BROWN RICE



BUCKWHEAT



KANIWA



FREEKEH

WILD RICE



AMARANTH



TRITICALE



SORGHUM



BULGUR



BLACK RICE



SPELT



Dietary Recommendations



- 95% adults don't eat enough
- 1/3 don't eat wholegrains
- 19.7g fibre per day



Oats



Overview of Oats



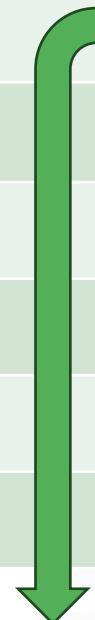
Nutritional Profile of Oats

Macronutrients	
Energy	392 kcal
Fat	8.1g
of which saturated	1.3g
Carbohydrates	64g
of which sugars	0.5g
Fibre	7.8g
Protein	12g
Salt	0g



Nutritional Profile of Oats

Minerals		Vitamins	
Potassium	370mg (18.5%)	Vitamin E	0.59mg (5%)
Calcium	50mg (6%)	Vitamin B1	1.05mg (95%)
Phosphorus	390mg (56%)	Vitamin B3	3.5mg (22%)
Magnesium	110mg (30%)	Vitamin B5	0.75mg (12.5%)
Iron	3.6mg (26%)	Vitamin B6	0.34mg (24%)
Zinc	2.3mg (23%)	Biotin (B7)	19µg (38%)
Manganese	3.7mg (185%)	Folate (B9)	32µg (16%)



Normal energy-yielding metabolism, function of the nervous system, psychological function and function of the heart



Beta-Glucans



4-6g/100g



2-20g/100g



0.5-2g/100g



Beta-glucans from oats and barley

Consumption of beta-glucans from oats or barley as part of a meal contributes to the reduction of the blood glucose rise after that meal

Authorised

Health relationship: reduction of post-prandial glycaemic responses

Oat beta-glucan

Oat beta-glucan has been shown to lower/reduce blood cholesterol. High cholesterol is a risk factor in the development of coronary heart disease

Authorised

Health relationship: -/-

Beta-glucans

Beta-glucans contribute to the maintenance of normal blood cholesterol levels

Authorised

Health relationship: maintenance of normal blood cholesterol concentrations

Oat grain fibre

Oat grain fibre contributes to an increase in faecal bulk

Authorised

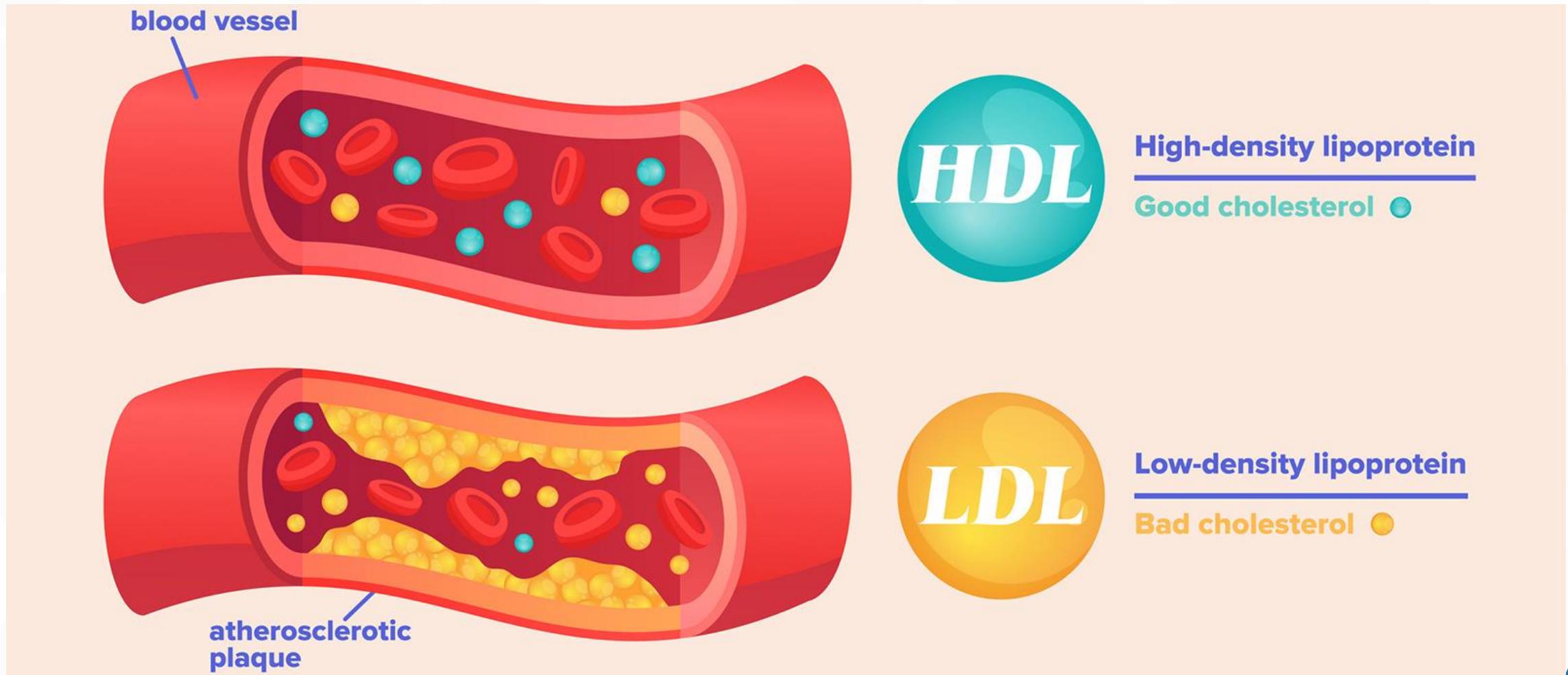
Health relationship: increase in faecal bulk



Health Benefits of Oats



Cholesterol Reduction



Cholesterol Reduction

Cholesterol-lowering effects of oat β -glucan

Rgia A Othman, Mohammed H Moghadasian, Peter Jh Jones 

Nutrition Reviews, Volume 69, Issue 6, 1 June 2011, Pages 299–309,

<https://doi.org/10.1111/j.1753-4887.2011.00401.x>

Published: 01 June 2011

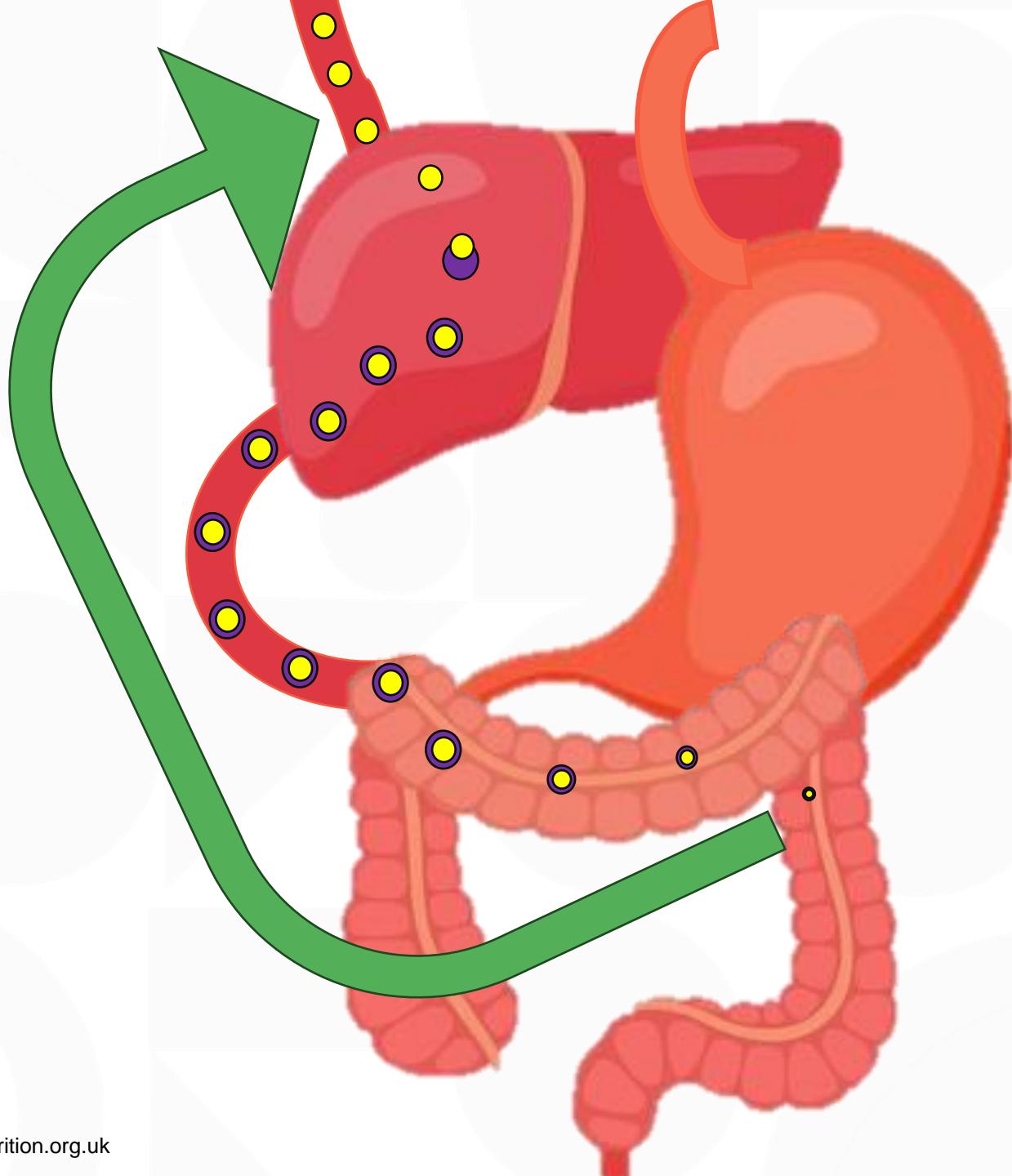
The effect of oat β -glucan on LDL-cholesterol, non-HDL-cholesterol and apoB for CVD risk reduction: a systematic review and meta-analysis of randomised-controlled trials

Published online by Cambridge University Press: 11 October 2016

Hoang V. T. Ho, John L. Sievenpiper, Andreea Zurbau, Sonia Blanco Mejia, Elena Jovanovski, Fei Au-Yeung, Alexandra L. Jenkins and Vladimir Vuksan

Show author details 

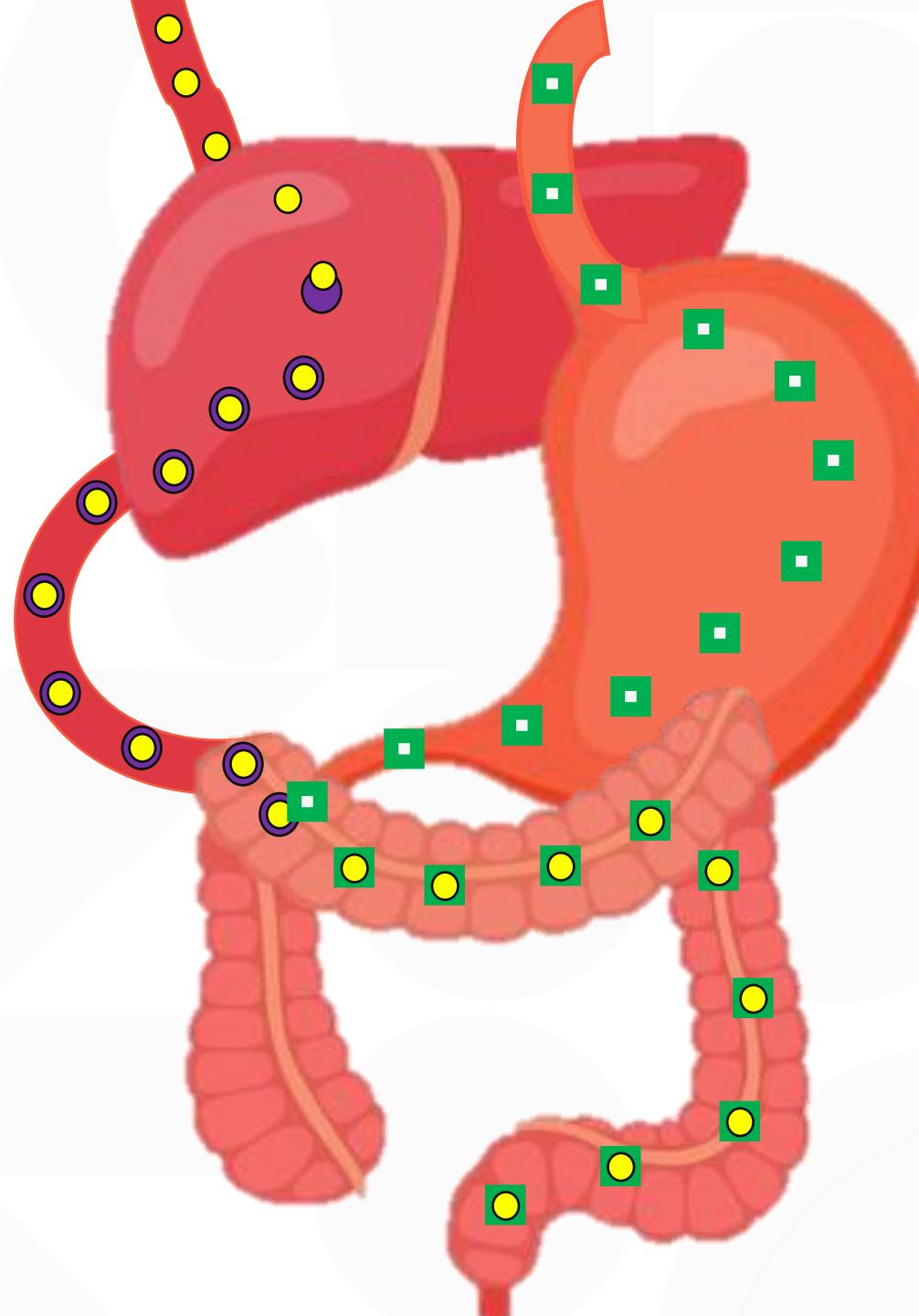




Yellow circle: Cholesterol

Purple circle: Bile acids





- Cholesterol
- Bile acids
- Beta-glucan



Cholesterol Recap

- Forms a gel
- Gel traps bile acids
- Prevents reabsorption
- Excreted in stools
- Less reabsorption of bile acids
- Liver must use blood LDL cholesterol to make bile acids
- Lower LDL cholesterol levels
- Two authorised health claims



Cholesterol Recap

- Forms of cholesterol

Oat beta-glucan

Oat beta-glucan has been shown to lower/reduce blood cholesterol. High cholesterol is a risk factor in the development of coronary heart disease

Authorised

Health relationship: -/-

Beta-glucans

Beta-glucans contribute to the maintenance of normal blood cholesterol levels

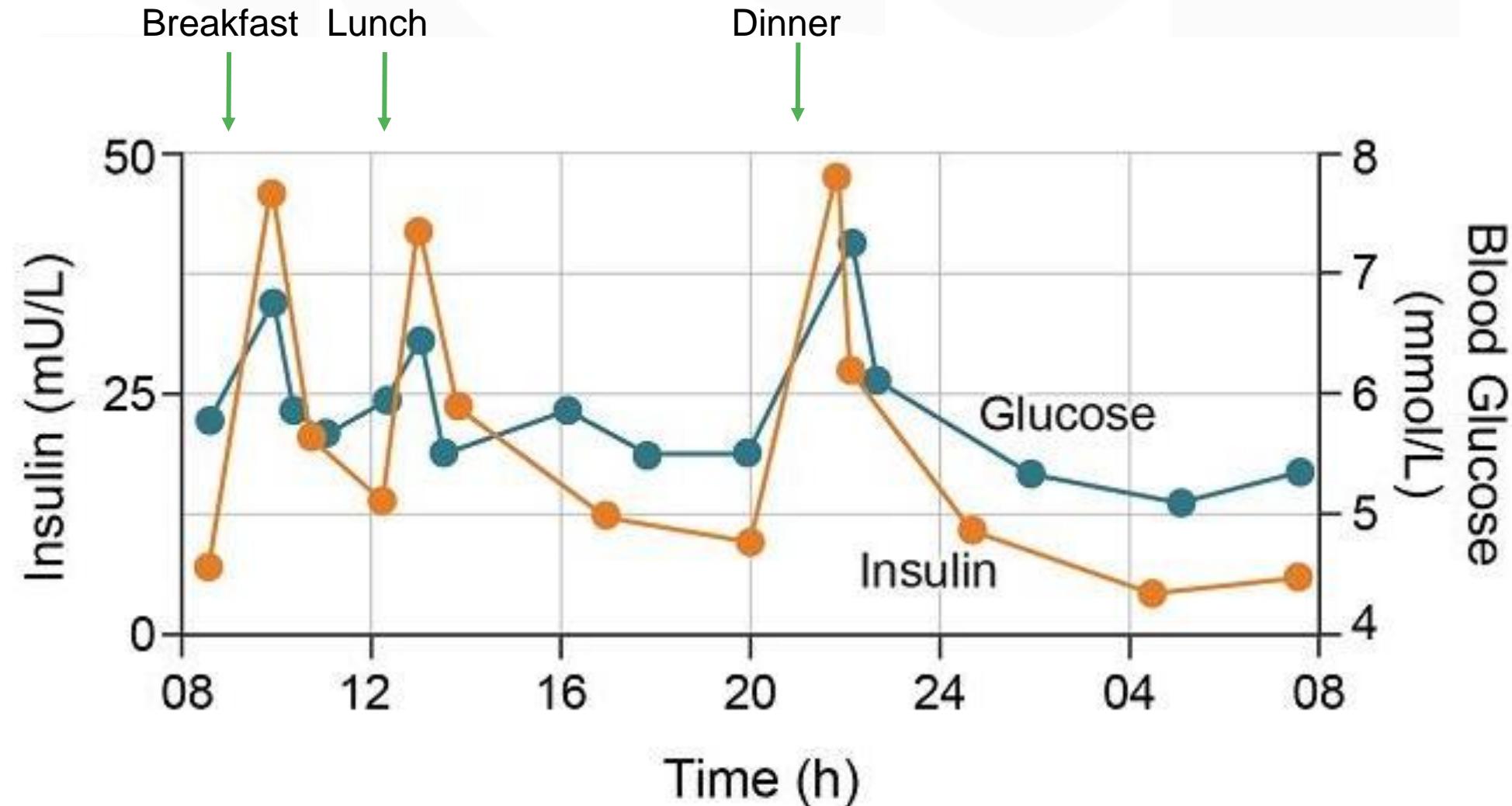
Authorised

Health relationship: maintenance of normal blood cholesterol concentrations

- Two authorised health claims



Blood Sugar Control & Diabetes Management



Blood Sugar Control & Diabetes Management

- Viscosity of beta-glucans slow and delays gastric emptying
- Impacts glucose absorption in small intestines
- Can help control blood glucose levels and improve insulin response



Blood Sugar Control & Diabetes Management

- Viscosity of beta-glucans slow and delays gastric emptying
- Impacts glucose absorption in small intestines
- Can help control blood glucose levels and improve insulin response

Beta-glucans from oats and barley

Consumption of beta-glucans from oats or barley as part of a meal contributes to the reduction of the blood glucose rise after that meal

Authorised

Health relationship: reduction of post-prandial glycaemic responses



Blood Sugar Recap

- Beta-glucans can improve post-prandial (after eating) blood glucose and insulin responses
- Long-term consumption supports better glycaemic controls, improved insulin sensitivity and lowers type 2 diabetes risk
- 3-4g beta-glucans per day

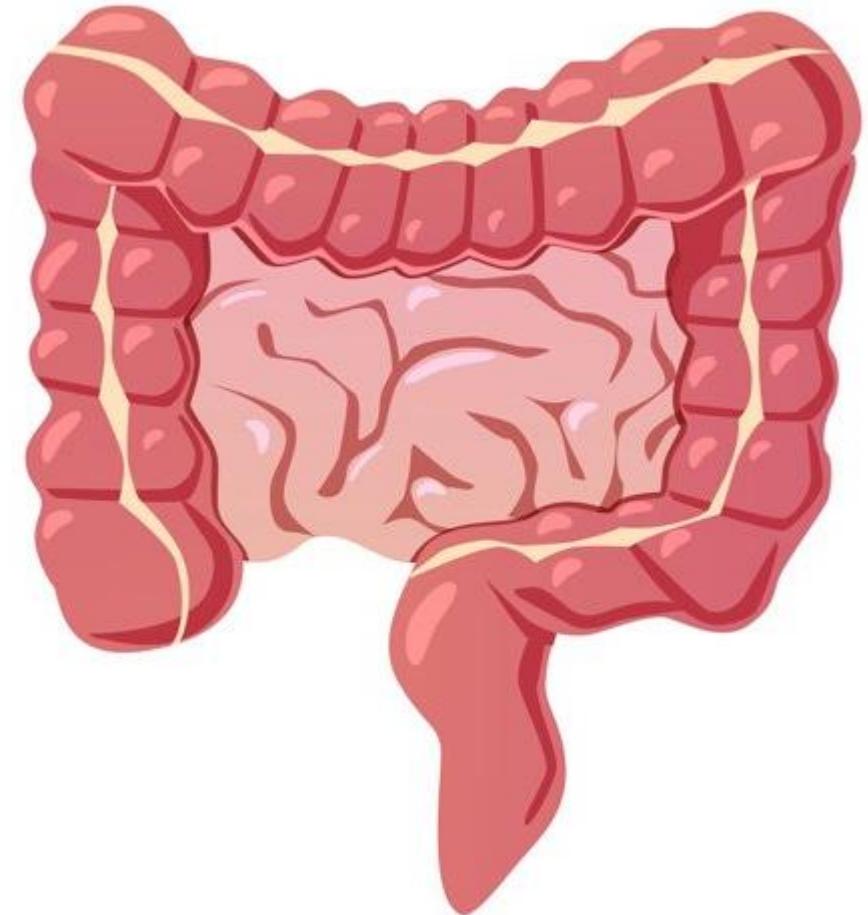
Some considerations

- Level of oat processing
- Watch out for added sugars
- 3-4g beta-glucans per day



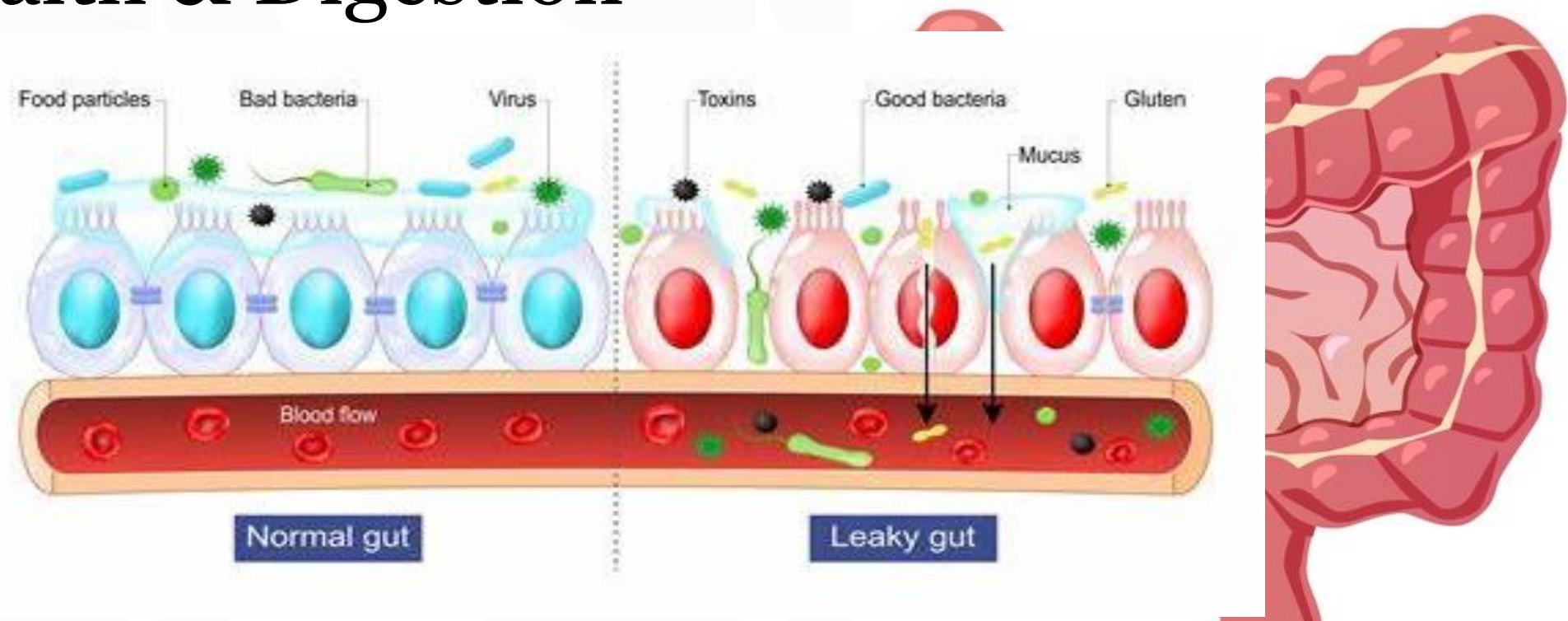
Gut Health & Digestion

- Improved stool consistency and bowel regularity
- Supporting gut transit time
- Modulation of gut microbiota
- Immunomodulatory and anti-inflammatory effects
- Barrier function and mucosal health



Gut Health & Digestion

- Improved structure
- Supporting barrier
- Modulation
- Immunomodulation



Oat grain fibre

Oat grain fibre contributes to an increase in faecal bulk

Authorised

Health relationship: increase in faecal bulk



Oat Misconceptions



“Oats spike
your blood
glucose
levels”



Oatzempic



Summary

- Oats are a good source of dietary fibre
- Beta-glucans are a type of dietary fibre which form a viscous gel
- This can help with
 - Reducing and/or maintaining blood cholesterol
 - Slow gastric emptying to improve glycaemic control
 - Improve satiety
 - Improve digestive health
- 4 associated health claims
 - 2 around cholesterol
 - 1 on blood glucose
 - 1 on faecal bulk



Recipe Ideas



Recipe Idea Links

<https://www.foodafactoflife.org.uk/recipes/healthy-eating-week/awesome-overnight-oats/>

<https://www.foodafactoflife.org.uk/recipes/11-14-l2c/herby-veggie-crumble/>

<https://www.foodafactoflife.org.uk/recipes/11-14-l2c/fruity-flapjacks/>

<https://www.foodafactoflife.org.uk/recipes/cereals/apple-muffins/>

<https://www.foodafactoflife.org.uk/recipes/breakfast/breakfast-energy-bars/>

<https://www.foodafactoflife.org.uk/recipes/breakfast/oatmeal-loaf/>

<https://www.foodafactoflife.org.uk/recipes/breakfast/blueberry-and-oat-muffins/>

<https://www.foodafactoflife.org.uk/recipes/breakfast/pear-and-cinnamon-bircher-muesli/>

<https://www.foodafactoflife.org.uk/recipes/breakfast/chia-breakfast-pots/>

<https://www.foodafactoflife.org.uk/recipes/11-14-l2c/apple-and-sultana-crumble/>

<https://www.foodafactoflife.org.uk/recipes/breakfast/wholemeal-cottage-loaf/>





What will be covered?

- The role of wholegrains in the diet
- Nutrition and health claims related to oats
- How oats can help with cholesterol levels
- Busting nutrition myths around oats
- Oats production, processing and trends
- Links to [Food – a fact of life](#)
- Suggestions for further reading and sources of information



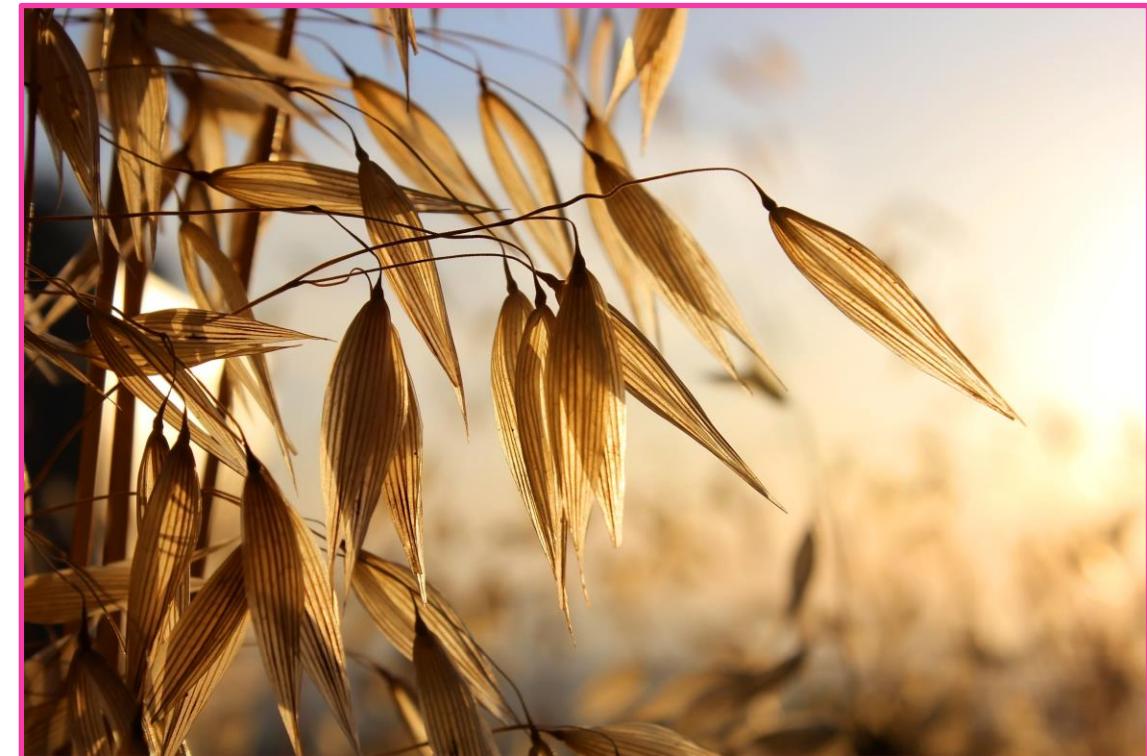
Oats are grown on about **170,000** hectares of land in the UK

Oats are the third main crop grown in the UK and farmers produce on average around **one million tonnes per year**

In the UK, oats are planted in September and harvested the following August

The harvesting process removes the grains from the plant

The infographic is divided into four colored sections: purple (top), orange (middle left), teal (middle right), and orange (bottom). It includes icons of a oat plant, a tractor, a calendar, and a combine harvester.



In the last full crop season (1 July 2023 to 30 June 2024), oat millers in the UK milled

**501,000 tonnes
of oats**



The vast majority
of which, **486,000
tonnes were
grown in the UK**



just under
**215,000
tonnes of oat
flakes & rolled
oats**



plus **79,000
tonnes of oat
flour & other cuts**



Oats: Production

Oats are milled, steamed, heated and cooled in a kiln, which brings out the flavour. The oats are then rolled, cut or ground to produce flakes, oatmeal or flour.

- Rolled oats - known as oat flakes.
- Oatmeal - the tough bran has been removed and light baked, this can be coarse, medium or fine.
- Pinhead oats - known as coarse oatmeal or steel cut oats.
- Oat flour - finer than oatmeal, this is made by grinding and sieving oats.

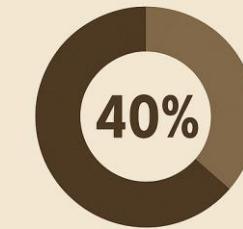


Oats: Trends

According to Kantar's GB Grocery Consumer Panel, 35% of households purchased plant-based milk at least once in 2023, with nearly three quarters making multiple purchases.



IN THE UK, OAT MILK HAS
BECOME THE MOST POPULAR
PLANT-BASED MILK



OF THE MARKET
BY VOLUME

ANNUAL SALES HAVE SURPASSED
£275 MILLION

WITH APPROXIMATELY
500,000 LITRES
SOLD DAILY
TOTALING AROUND
182 MILLION LITRES

Oat drinks: Fortification

- If people drink alternatives to dairy milk, such as oat milk, it is essential to check that it is fortified with nutrients, in particular iodine as this varies between brands.
- Iodine, is a nutrient of concern in the UK, particularly for teenage girls.
- Iodine helps to make thyroid hormones, and it helps the brain to function normally
- Low iodine intakes/status (not causing deficiency disease but below recommendations), is a concern in relation to pregnancy and cognitive development in children, leading to potential impact on cognitive abilities in children.



<https://www.bda.uk.com/resource/iodine-deficiency-in-the-uk-dietetic-implications.html>

Oat trends: TikTok

#Oats: Over 133 million posts

#BakedOatsRecipes: Over 110 million posts

#OvernightOatsRecipe: Over 177 million posts

#OvernightOatRecipes: Over 193 million posts

#OatMeal: Over 133 million posts

#OatmealRecipesOnRestaurants: Over 100 million posts



***Food – a fact of life* resources**

- Oat farming and processing presentation – [11-14 years](#) and [14-16 years](#)
- Farming food for you poster – [cereals](#)
- [Knowledge organisers](#)
- [The grain chain game](#)
- [Recipes](#)

FOOD
a fact of life

Here's the grains

The grain

The plant

Name

Wheat

Oats

Barley

Combine harvester

The cereal farm and farmer

Just over half of land in the UK is used to grow cereals.

Cereals are important crops in the UK. They are used to make many food, such as bread and breakfast cereals, as well as to feed animals and make fuel.

Some farms are specialised and only grow cereals, whereas others grow cereals, which also have cows, pigs and sheep.

Farmers grow strips of wild flowers between cereal fields to encourage bees to eat over the winter.

Farmers often use technology to help them grow their crops, such as sensors to detect when the tilling of fields and use of dryers.

Wheat, oats and grains

Cereals include grains, such as wheat, barley and oats. Wheat is the most commonly grown cereal crop in the UK, with 12.1–13.1 million tonnes grown each year. Around 6.6–8.1 million tonnes of barley and 0.8–1.1 million tonnes of oats are harvested each year.

Planting and growing

Wheat, barley and oats are planted in the winter and spring.

Farmers use a range of farming techniques to grow varieties and rotating crops to reduce disease. This helps to protect the soil.

Harvesting

The main cereal harvest takes place in late summer to early autumn. Farmers then separate the grain from the stalks. This can involve harvesting over 200 tonnes in a day!

After harvest, the grains are stored to keep them safe.

The grain is stored on the farm or transported to a mill in groups of flumes, until it is needed to be milled into flour or by another food manufacturer.

Whole grain flour

Uses

Cereals are used for animal feed, breakfast cereals and biscuits.

Porridge oats

Oaty granola bar

Bailey is used for animal feed, beer and whisky production and can also be used in cooking.

After wheat is milled into flour, 60% goes to bakeries (to make bread, 10% for biscuits, 4% for flour and 26% for flour to make 85% of wheat meal in the UK is re-ingrediented).

Wholemeal bread

Biscuits

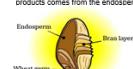
Farming food for you

Cereals

foodafactoflife.org.uk

Produced for you by AHDB

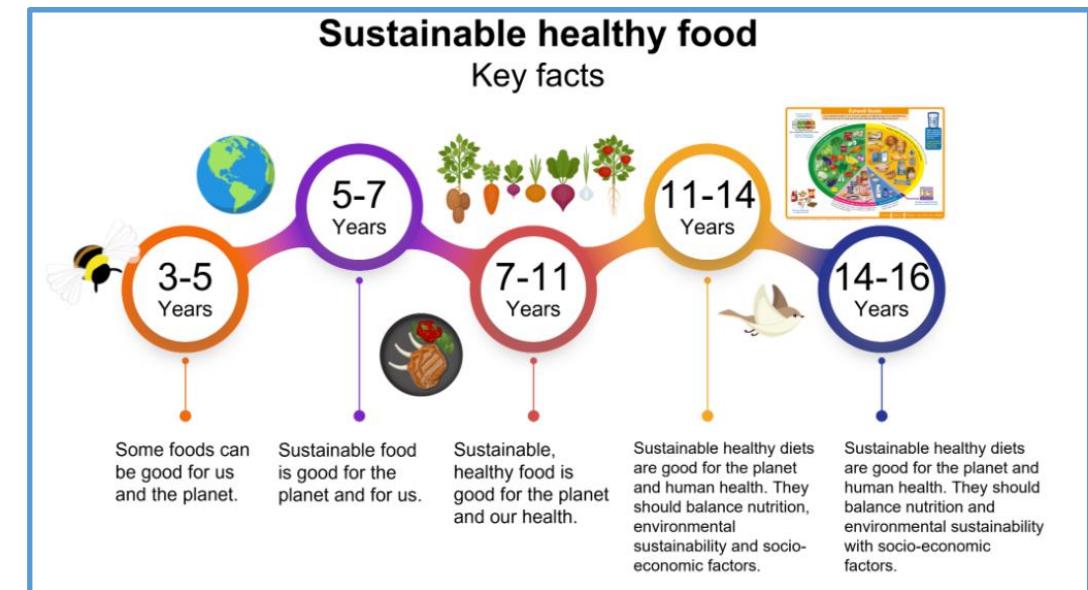
© Agriculture and Horticulture Development Board

Name:	Date:
Food commodities: Cereals and rice	
<ul style="list-style-type: none"> Food is sourced, processed and sold in different ways. Food production and processing ensures that food is safe and safe. 	
What are cereals?	
<ul style="list-style-type: none"> Wheat, barley and oats are all types of cereals. Grains grow at the top of the plant, closely packed together called 'ears'. Wheat grain is 25% bran and 75% grains, is these starch grains that we eat. 	
<ul style="list-style-type: none"> There are two parts to what grains: <ul style="list-style-type: none"> 1. bran layers – the outer outer layer; 2. wheat germ – a new plant now grows from the bran layer. 	
<ul style="list-style-type: none"> 3. endosperm – the starchy store of food for the new plant to grow from. Wheat flour is milled from the endosperm. 	
	
Growing wheat, barley and oats	
<ul style="list-style-type: none"> Wheat is grown worldwide, different varieties are grown depending on the climate and geography of the country. 	
<ul style="list-style-type: none"> In the UK 11-16 million tonnes are grown per year and harvested in the autumn and harvested the following summer. 	
<ul style="list-style-type: none"> About half the crop of wheat is made into flour for bread and pasta and some is used for animal feed (e.g. to feed chickens, cattle and pigs). About 5% of the crop is used as seed to plant for the following year. 	
<ul style="list-style-type: none"> Other crops grown in the UK include barley with 6-8 million tonnes harvested and oats about 1 million tonnes. 	
Primary processing	
Milling	
<ul style="list-style-type: none"> The grain from the cereals is used to make flour and milling is the process that turns wheat and oats into flour. The harvested grain is delivered to the mill where it is cleaned and stored. The grain is then passed through rollers and sieves to open and separate the different parts of the grain. Grains like oats are rolled to remove hulls to produce flakes and oatmeal. 	
Malting	
<ul style="list-style-type: none"> To make malt, cleaned barley, water, air and heat are needed. The main stages to malting them are: <ul style="list-style-type: none"> soaking – allowing the grain to take up the water; germination – allowing the grain to grow; killing – drying the grain. 	
Types of flour	
<ul style="list-style-type: none"> White – usually contains 75% of the grain and most of the bran and germ are removed. Brown – usually contains about 85% of the original grain and some of the bran and wheatspouts are removed. Wholemeal – contains all the parts of the original grain. Malted wheatflour – brown or wholemeal flour with malted grains added after milling. Strong flour – brown or brown flour with at least 10% made up of wheatspouts added during milling. Strong – contains a higher gluten content to make a range of breads and cakes. Plain – contains a lower gluten content and used to make biscuits, pastries, sauces, pancakes, batters and Yorkshire puddings. <p>Flour is graded according to the rolling process and mainly used to make cakes and scones.</p>	
Secondary processing	
Flour into bread	
<ul style="list-style-type: none"> The four basic ingredients to make bread are: 	
<ol style="list-style-type: none"> flour; yeast (makes the bread rise); salt (adds taste and aids proving); water. 	
<p>Flour can sometimes be added to make the loaf lighter and extend the shelf life.</p>	
Malted ingredients	
<ul style="list-style-type: none"> Malt is used in a wide variety of food and drinks to add flavour, colour, aroma, and texture. It can help extend the shelf life of foods (from cookies and cakes to drinks and ready meals). 	
What is rice?	
<ul style="list-style-type: none"> Rice is a cereal grain that requires a substantial amount of water when growing. When farming rice, the fields are flooded and drained before harvest. The rice, once harvested, is known as a paddy grain. 	
<ul style="list-style-type: none"> The paddy grains are sent to a mill to be threshed and then separated into rice and chaff. 	
Rice varieties	
<ul style="list-style-type: none"> Rice varieties can be divided into 2 groups: 	
<ul style="list-style-type: none"> long grain – can be broken and can be used as an accompaniment e.g. basmati; 	
<ul style="list-style-type: none"> short grain – contains a higher gluten content to make rice cakes and puddings as it is creamy when cooked e.g. Arborio; 	
<ul style="list-style-type: none"> short grain – used to make sushi and puddings as it tends to be sticky when cooked e.g. bomba. 	
Around the world other flours are used which are called whole grain flours.	
<ul style="list-style-type: none"> Some of the less common types include rye flour, made from rye grain, and buckwheat flour used to make breads and chickpeas. Other grains such as rye, oats and spelt are also used. 	
Tasks	
<ol style="list-style-type: none"> Create a display showing the stages of malting barley. Research five different types of bread from around the world that are baked and eaten for different occasions. 	



Sustainable healthy food resources

- A comprehensive presentation for pupils covering the main factors that make up a sustainable healthy diet.
- A variety of different pupil activities which support different learning styles, encourage independent learning and are suitable for individual, class or group work. These include pick and mix activities, role plays, research tasks and worksheets to check recall and understanding.



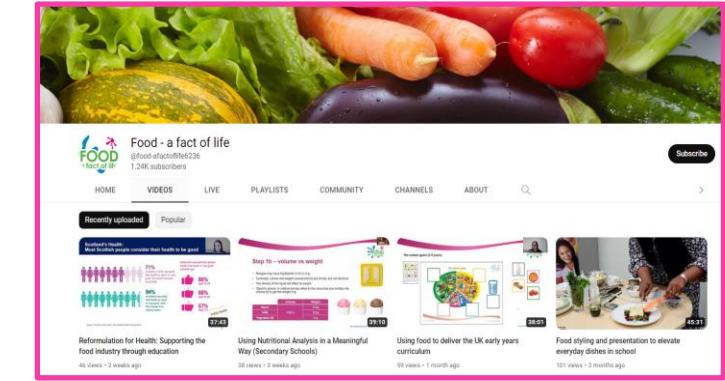


More training...

FREE online modular courses:

- Functional properties of food
- Sensory science
- Food spoilage, hygiene and safety
- Characteristics of teaching food and nutrition education- primary, secondary and pupils with additional needs

More online and in-person training coming soon!



[FFL webinar recordings](#)

To find out more and to book, go to
<https://www.foodafactoflife.org.uk/training/>



Keep up to date with our free resources and training

Education News (monthly email update)

Sign up on the homepage: www.foodafactoflife.org.uk

PPD newsletter (find out about upcoming FFL training)

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Keep in touch:

education@nutrition.org.uk

BNF news <https://www.nutrition.org.uk>

The newsletter features a header with the Food logo and 'Education news'. It includes a 'Last chance to register!' section for a conference on 12 November 2021, a 'New! Six Early Years activity packs' section with an image of children playing, and a 'Building cultural awareness when delivering healthy eating messages - webinar' section with an image of a world map made of food.

The Facebook page has a cover photo of children eating. It shows 1,588 followers and 9,001 posts. Posts include one about the 'Food - a fact of life' newsletter and another about Healthy Eating Week 2022.



Thank you

Please complete the webinar evaluation.



You will receive a link to the certificate once you have submitted the evaluation. Please download the certificate, add your name and print it out for your records.



Understanding oats and their nutritional benefits



For further information, go to:
www.foodafactoflife.org.uk

education@nutrition.org.uk