

The Human Microbiome



Co-funded by the
European Union



Context

- The human microbiota is a vast collection of symbiotic microbial cells, comprising between 10 to 100 trillion that resided within every individual. This community of bacteria, viruses and fungi that inhabits the human body plays a crucial role in human physiology and disease.
- The understanding of the link between the human microbiome and disease is rapidly expanding and this is a valuable area for the improvement of human health.
- The daily choices people make regarding their diet, exercise routine and hygiene can have a profound impact on their microbiota, making it crucial to understand this relationship.
- To promote healthier behaviour, it's vital to have a deeper understanding of these microorganisms and their impact in human health.
- This knowledge can empower individuals to make more informed and sustainable decisions regarding their lifestyle, which can ultimately improve their overall well-being.

Solution

- To overcome the general lack of knowledge related to the microbiome and help with the understanding of the symbiotic relation between microbes and the human body, EIT Food has developed this short online course to enable anyone that is interested in the subject to understand and discuss how the microbiome affects our daily lives.
- The course title is “The Human Microbiome”. It is composed of 12 hours of learning broken down in 3 modules.
- On this course, learners will look at:
 - the links between the human microbiome and diseases
 - the role of food in the modulation of the microbiome
 - the changes that human microbiome has throughout human life
 - the complexity of the human microbiome communities



Ambition

- Our mission is to help everyone understand what the microbiome is and how it works for empowering individuals with the necessary knowledge to improve their health and make wiser decisions concerning their habits in daily life.
- We aim to provide a comprehensive understanding of the latest research and insights into the link between health and microbiome for any individual that could be interested.



High level contributors

- This course has been designed for *anyone with an interest in the subject and may be of particular interest to psychologists or people working in health and well-being*, and has been created by University of Torino, EIT Food and the European Institute of Innovation and Technology and produced with content provided by the following institutions:



UNIVERSITÀ
DI TORINO



University of
Reading



CSIC

CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

microbion



Co-funded by the
European Union

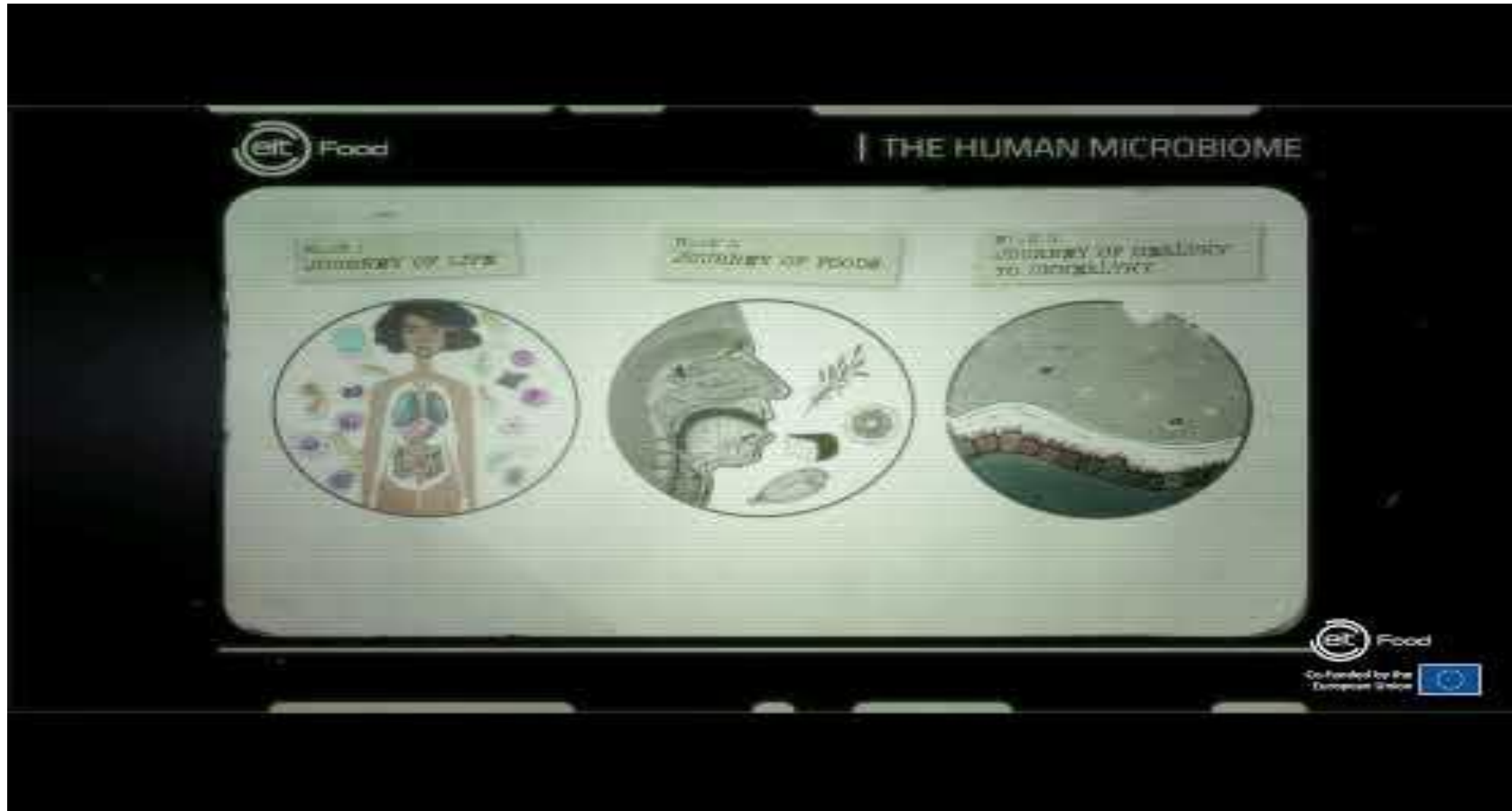


A modern approach to learning

- Fully online, short learning opportunity
- Course available 24/7 to fit with busy lifestyle
- Content accessible on any connected device
- Short lesson in a variety of formats: video, text, quizzes, etc
- Conversational learning: Learners are encourage to reflect and join discussions
- Additional content added to each steps to further explore the topic



Trailer video



Course Syllabus

Week 1: The Journey of Life

Welcome to the course
The composition of human microbiota
The functions of the gut microbiota
Physiological changes during the life-span
How to determine our gut microbiota

Week 2: The Journey of Food

The link between food and microbiome
Foods as vectors of microorganisms
Food meets your gut microbiota
Influence of different bioactive food components on gut microbiome
Probiotics, prebiotics, postbiotics

Week 3: The Journey of Healthy to Unhealthy

The link between health and microbiome
Microbiota and human host partnership: when things go wrong (dysbiosis, leaky gut, etc.)
Gut microbiota and immune health (infections, allergy, inflammatory bowel disease)
Gut microbiota and metabolic health: gut-liver-adipose tissue axes
Gut microbiota and mental health: gut-brain axis
Innovative approaches to modify the gut microbiota

Welcome to the course

A warm welcome to the course by the Lead Educator



1.1 From the Lead Educator [ARTICLE](#)

1.2 Who will be sharing their expertise [ARTICLE](#)

The composition of human microbiota

The human microbiota consists of a wide variety of bacteria, viruses, fungi, and other single-celled animals that live in the body. A brief presentation of the course, topics, experts. Sit back, relax and enjoy!



1.3 Journey of life [VIDEO \(01:46\)](#)

1.4 Microbiota vs Microbiome [ARTICLE](#)

1.5 Composition of gut microbiome [ARTICLE](#)

1.6 Microbiota [ARTICLE](#)

1.7 Virome [ARTICLE](#)

1.8 Mycobiome [ARTICLE](#)

1.9 What is the main factor influencing our microbiota? [EXERCISE](#)

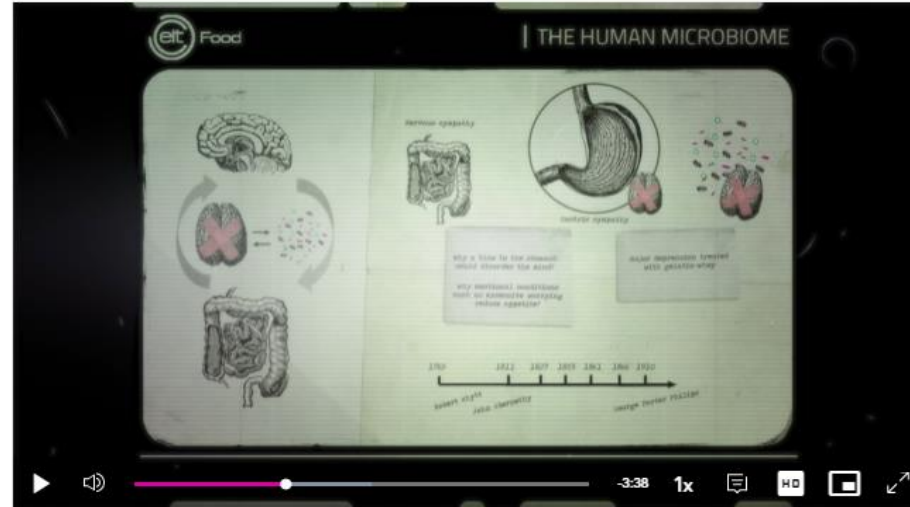
Microbes in fermented foods

1 comment

Do you know that fermented foods are manufactured by exploiting the metabolic activities of microorganisms?

As a matter of fact, they are able to transform raw materials (e.g. milk) into final products (e.g. cheese) that have completely different tastes, smells and consistency. Fermented foods are an excellent example of how man has been able to exploit microorganisms to prolong the shelf-life of certain very perishable raw materials (e.g. fresh meat) through their fermentation (e.g. fermented sausage). As you have learnt, fermentation is a very ancient process, and its combination with certain technological procedures, like drying and salting, allowed for the production of safer and more stable foods.

Fermentation can be defined as the microbial transformation of sugars to organic acids, mainly lactic acid, or ethanol. In the first

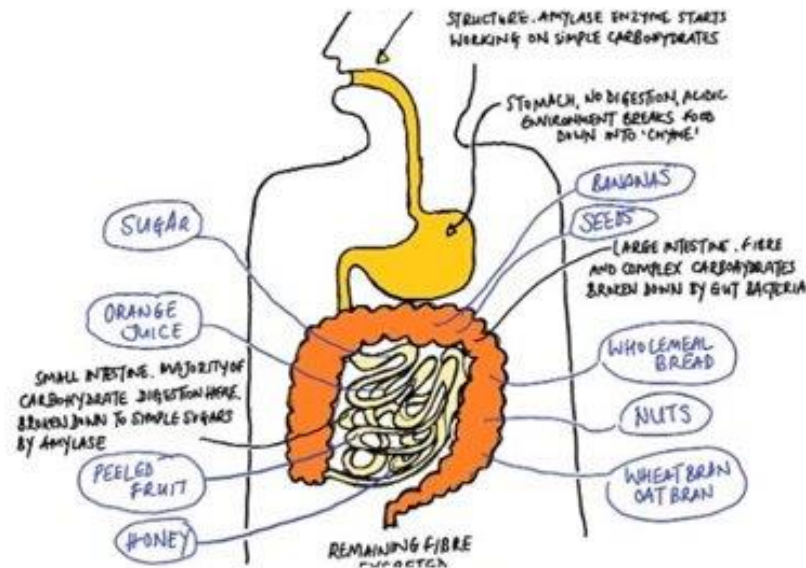
[View transcript](#)Download video: [standard](#) or [HD](#)

The gut-brain axis

[1 comment](#)

The benefits of gut microbiota do not stop in the intestine.

There is a large body of evidence that underlines how metabolites



Example of foods and where they are digested in the human body

© QIB

Diet, carbohydrates and fibre: An introduction

0 comments

Macronutrients, such as fat, protein and carbohydrates, are the key components in our diet, essential for energy and healthy



THE HUMAN MICROBIOME

SHORT ONLINE
COURSE



Co-funded by the
European Union

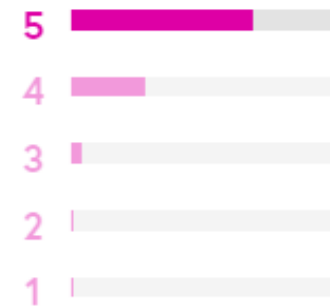


- Course available on demand
- Link:
<https://www.futurelearn.com/courses/the-human-microbiome>



Learner reviews

Powered by 





Bonnie M. Verified learner

22/02/23



Fantastic

The course laid out the material from the basics to the most recent research findings. I found it fascinating, engaging and full of information that I can use as I consider how to best provide for my health. Now, I would like to learn more about how the human microbiome interacts with other organs and the brain.



Nicola J. Verified learner

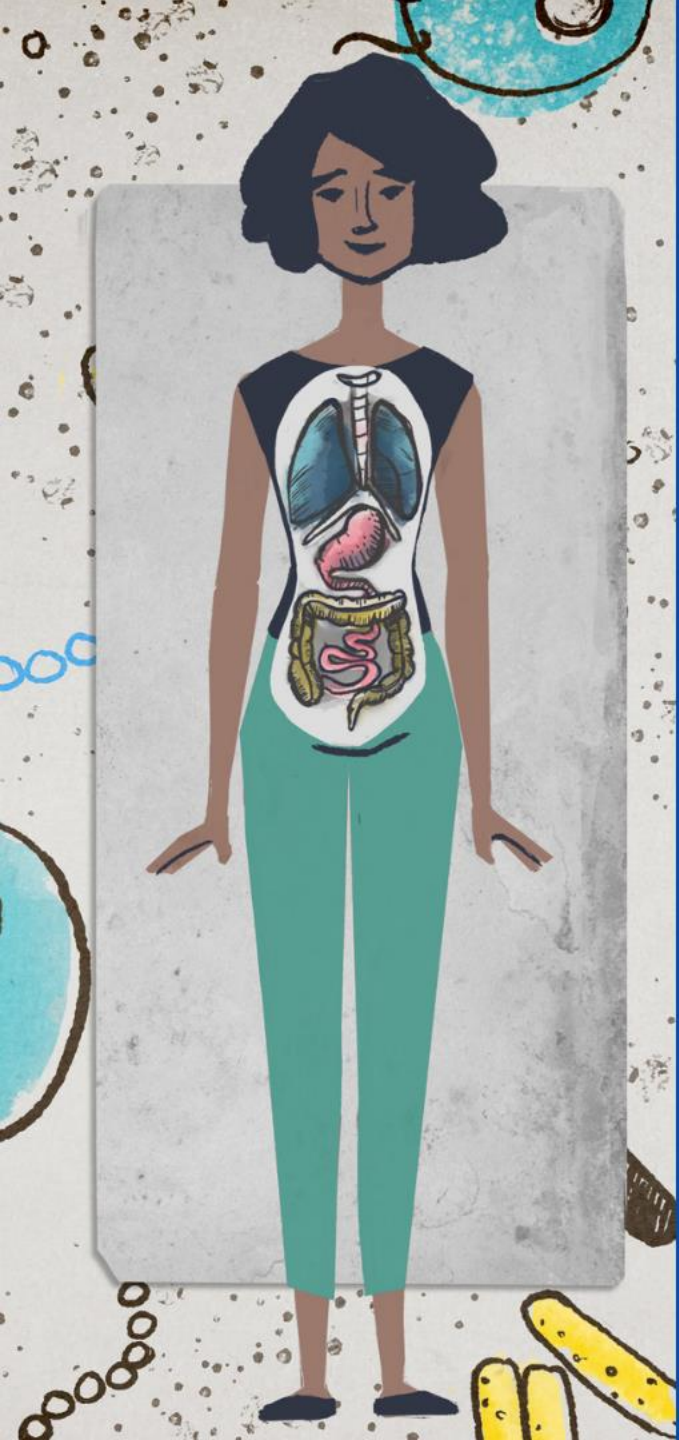
27/01/22



INFORMATIVE COURSE

With increasing emphasis on a healthy gut microbiome for health, wellness and good mental health I found this course a must to improve my own health, and the health of others. Informative and easy to follow.





EL MICROBIOMA HUMANO

CURSO CORTO ONLINE



Co-funded by the European Union



- Version in Spanish available on demand as well
- Link: <https://www.futurelearn.com/courses/the-human-microbiome-spanish>





Thank you!



Co-funded by the
European Union

Follow us on:

