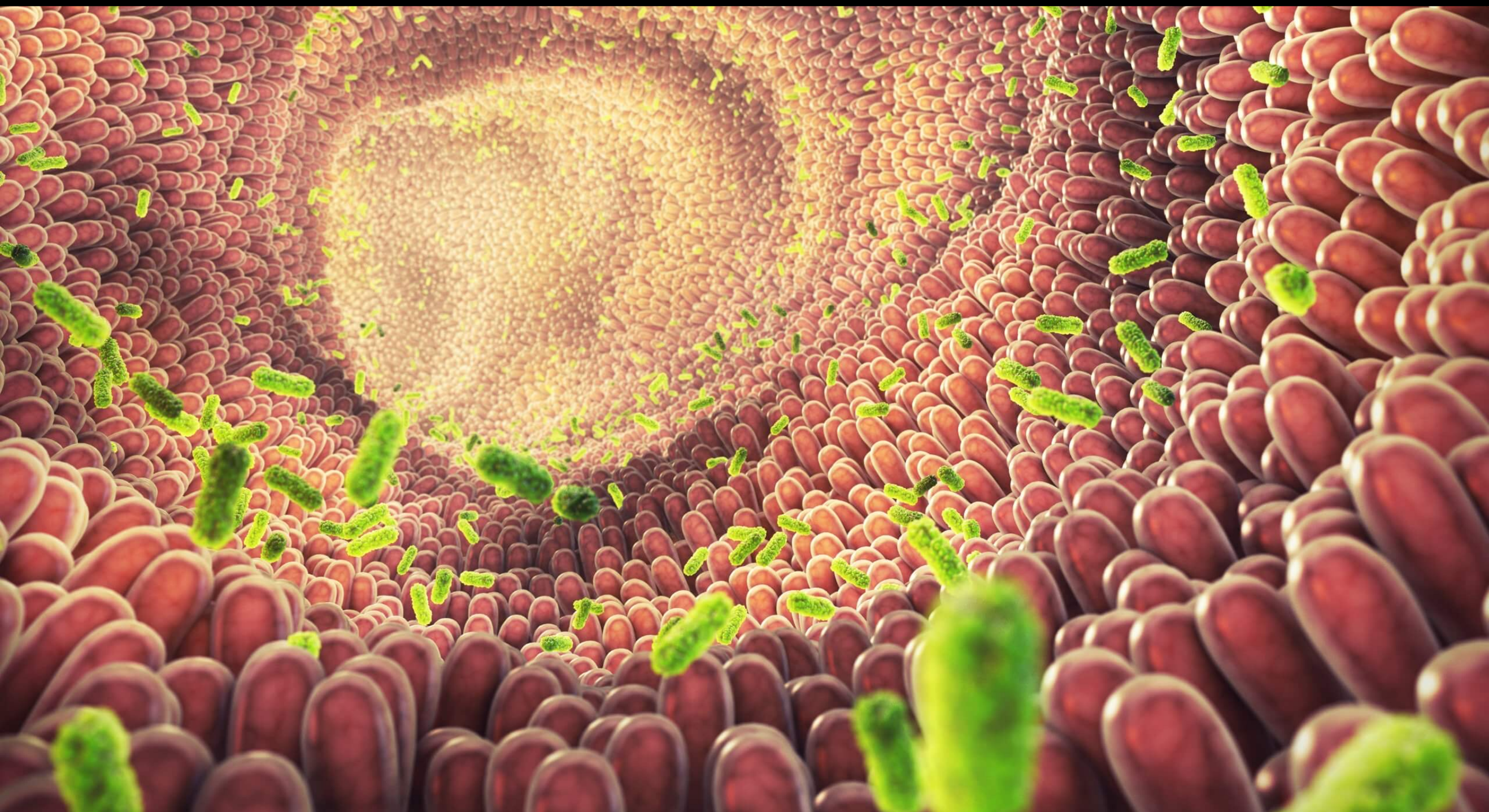
MANFRED ESSIG 2025

# UNSER DARM



**„Der Darm ist das Tor zum Leben“**

asiatisches Sprichwort

**„Der Tod sitzt im Darm“**

Hippokrates

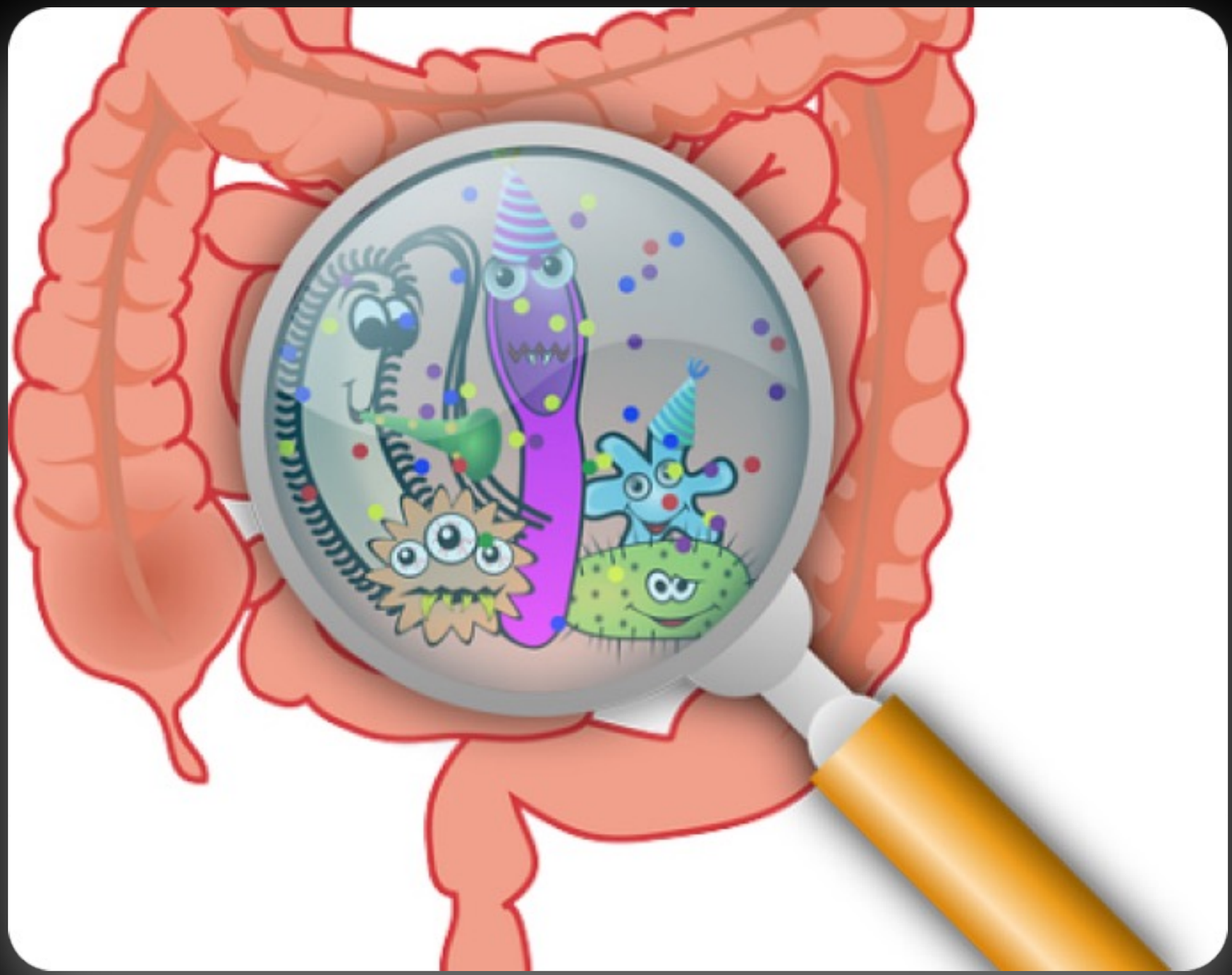
# Darm gut, alles gut

## Pharma

«ein kranker Darm ist die Wurzel allen Übels,
weil dieses Zentrum den gesamten Körper bis
in die kleinste Zelle versorgt!»

**Google KI**

# „Neues Organ“: Das Mircobiom



# WIE KOMMTS...

# Grundgedanken

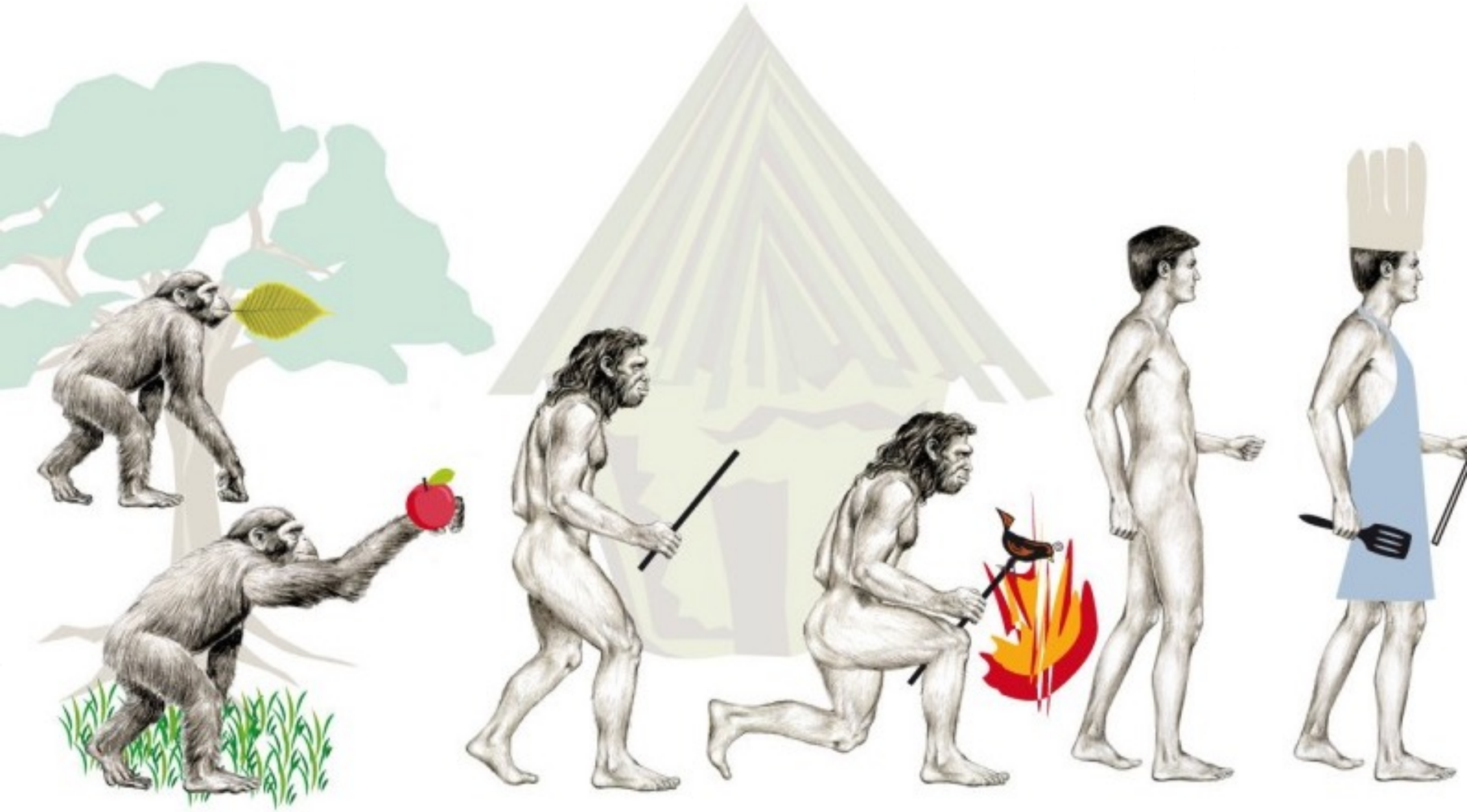
DIE EVOLUTION DES
MAGEN- DARMTRAKTES UND DIE
ENTWICKLUNG DES NAHRUNGSANGEBOTES
SIND UNTERSCHIEDLICH !!!

MIKROBIOM NEUES „ORGAN“

HANDEL UND PRODUKTION:
STRESS ODER CHANCE

Claus Leitzmann: *Welternährung zu Beginn des 21. Jahrhunderts: Die globale Ernährungssituation.* In: *Biologie in unserer Zeit.* 31, Nr. 6, 2001, S. 408–416, doi:10.1002/1521-415X(200111)31:6<408::AID-BIUZ408>3.0.CO;2-H.
Gerhard Neumann , Alois Wierlacher, Rainer Wild (Hrsg.): *Essen und Lebensqualität: Natur- und kulturwissenschaftliche Perspektiven.* Campus, Frankfurt am Main/ New York 2001.
Tobias Lechler: *Die Ernährung als Einflussfaktor auf die Evolution des Menschen (PDF; 5,3 MB).* Dissertation an der Universität Hannover. 2001.

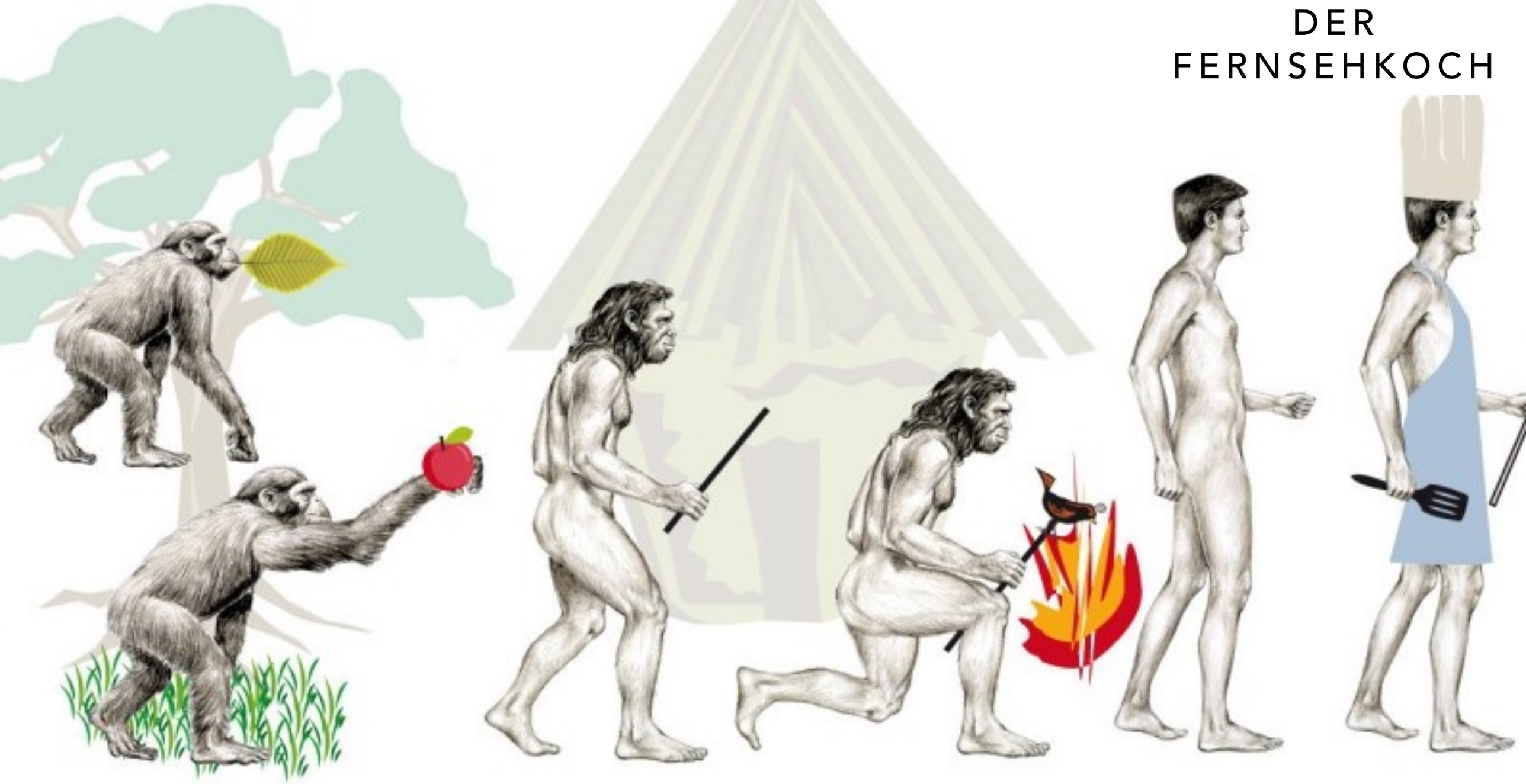
# Am Anfang war der Rohköstler



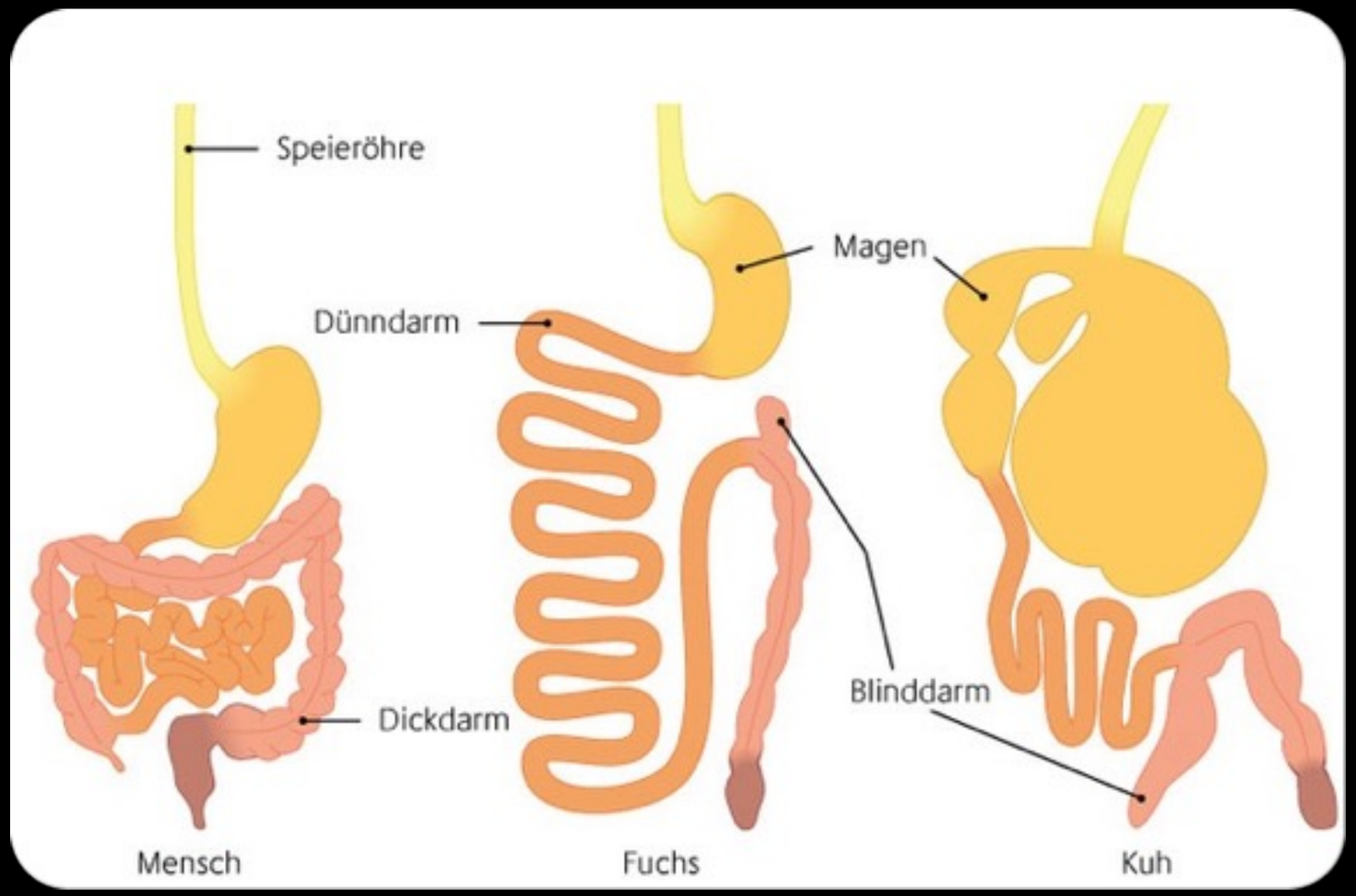
Urmensch-Illustrationen: Johann Brandstetter

# Am Anfang war der Rohköstler

DER
FERNSEHKOCH



Urmensch-Illustrationen: Johann Brandstetter,




Mund

Magen

Dünndarm

Colon

$10^{6-8}$

$10^{14}$

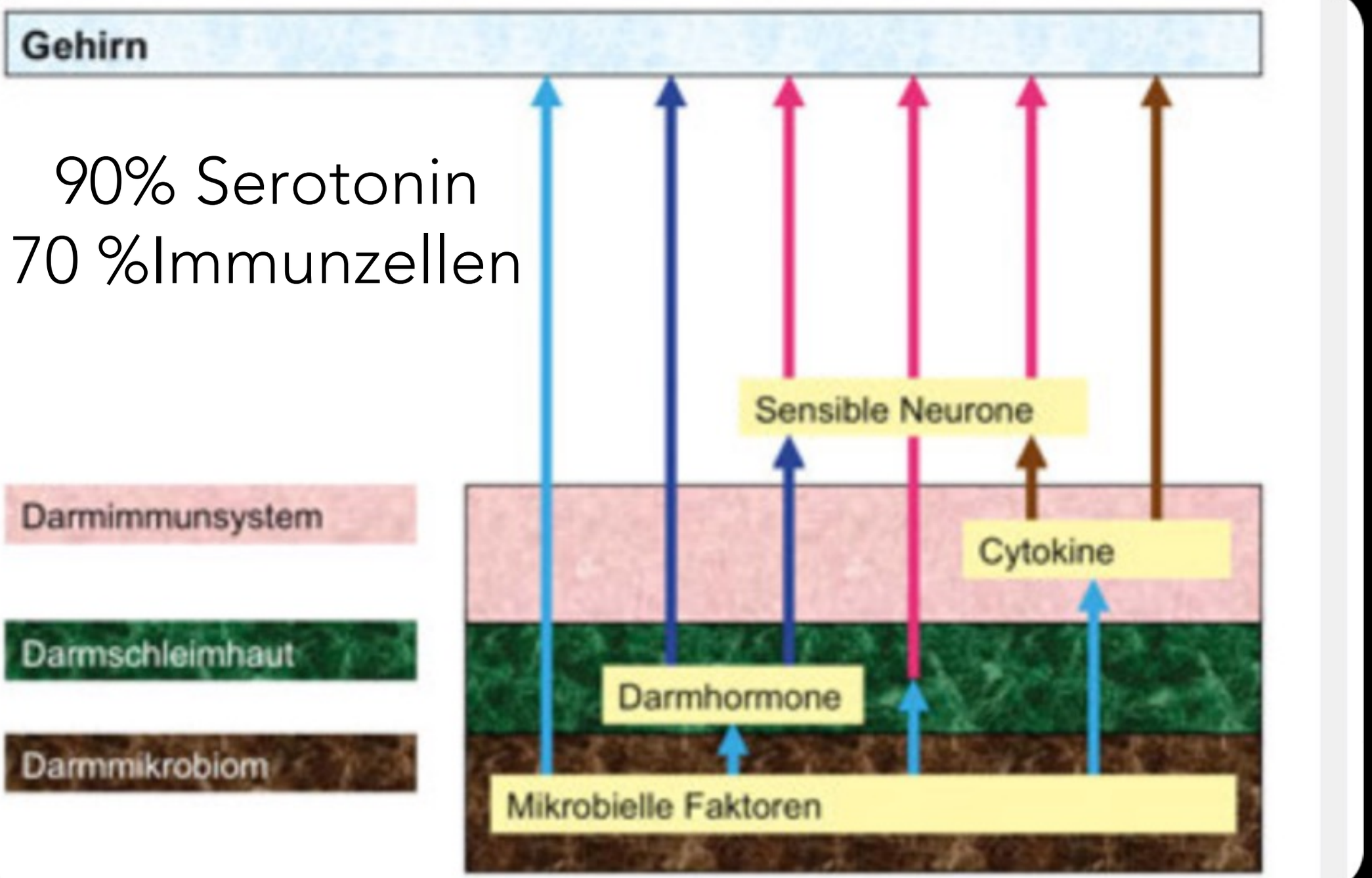
# Warum überhaupt haben wir eine bakterielle Kolonisation?

- "Flora" synthetisiert Vitamine über Eigenbedarf (Vitamin K, Vitamin B12, andere B-vitamine).

- Microbiota verhindert Kolonisation durch Kompetition um Bindungsstellen und Substrat (wohl der wichtigste benefizielle Effekt ➔ *Salmonellen* Studien)

- Produktion von verschiedenen Substanzen, z.B. Peroxide oder spezifische Bacteriozine, die andere Bakterien hemmen oder sogar abtöten.

90% Serotonin
70 %Immunzellen



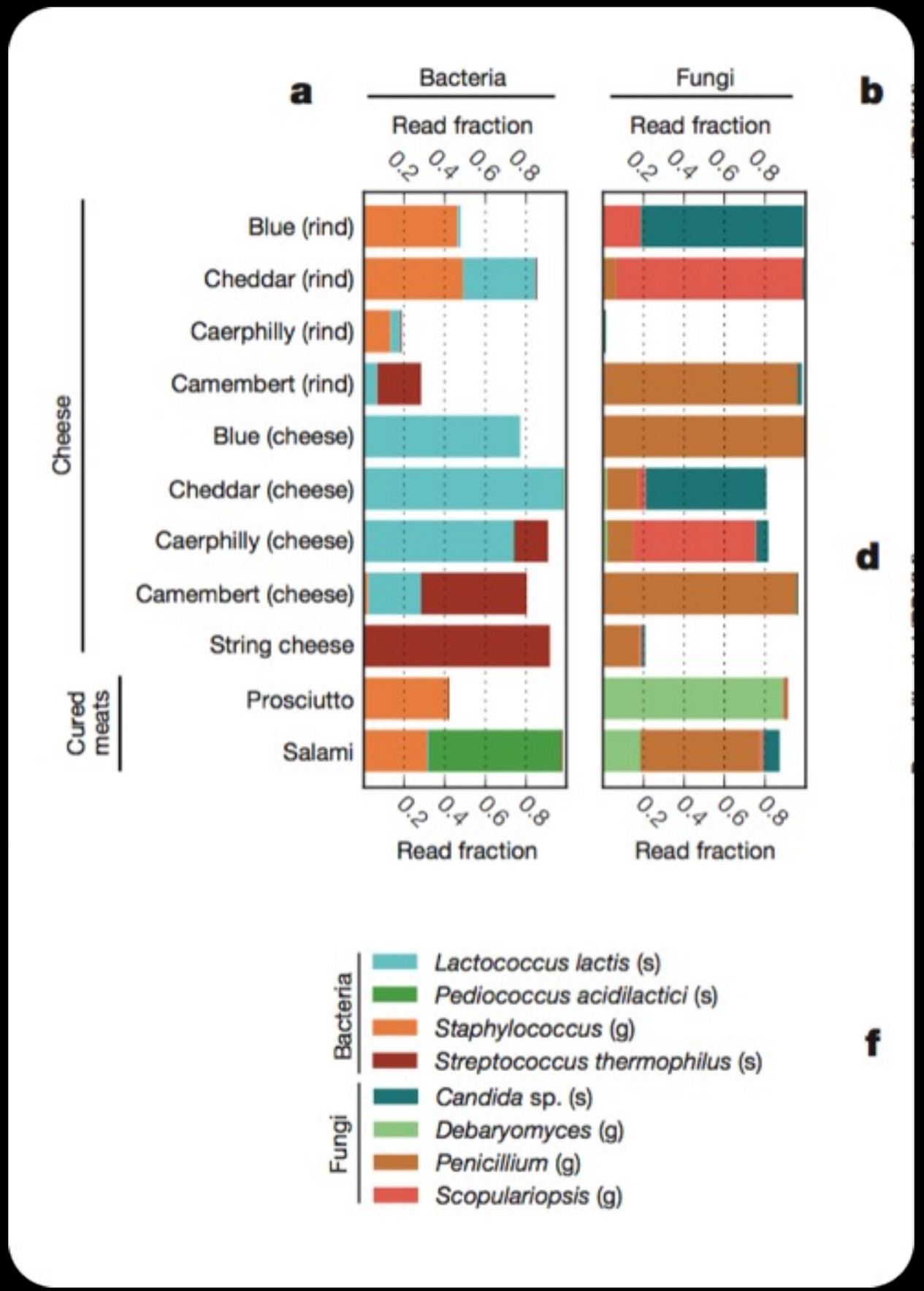
# ALLES HÄNGT ZUSAMMEN

LETTER

doi:10.1038/nature12820

# Diet rapidly and reproducibly alters the human gut microbiome

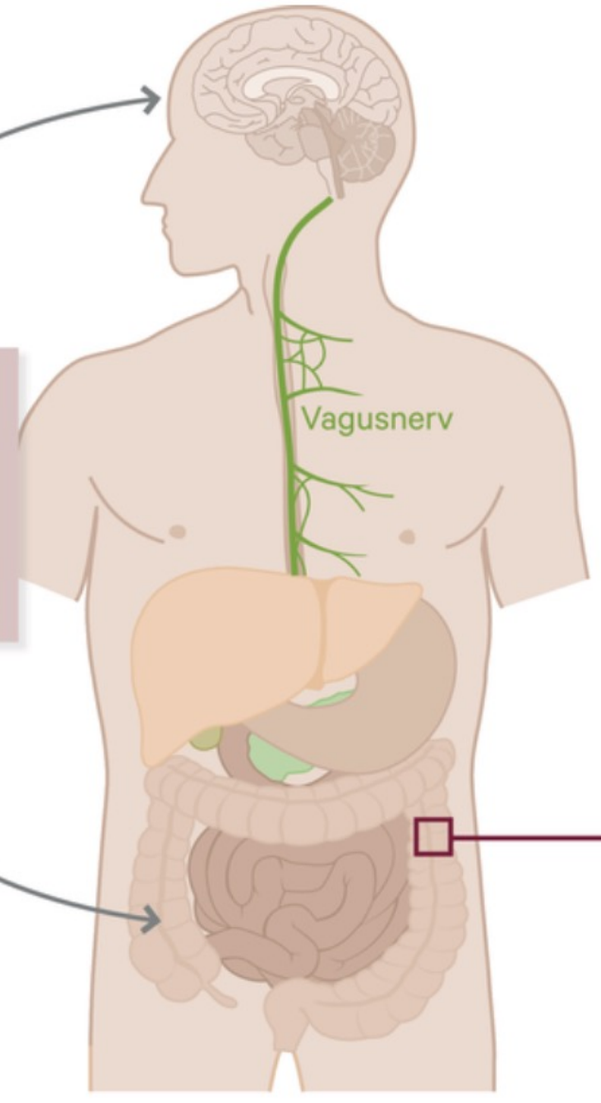
Lawrence A. David[1,2]†, Corinne F. Maurice[1], Rachel N. Carmody[1], David B. Gootenberg[1], Julie E. Button[1], Benjamin E. Wolfe[1], Alisha V. Ling[3], A. Sloan Devlin[4], Yug Varma[4], Michael A. Fischbach[4], Sudha B. Biddinger[3], Rachel J. Dutton[1] & Peter J. Turnbaugh[1]


a
Bacteria
Fungi
b
Read fraction
0.2
0.4
0.6
0.8
Cheese
Blue (rind)
Cheddar (rind)
Caerphilly (rind)
Camembert (rind)
Blue (cheese)
Cheddar (cheese)
Caerphilly (cheese)
Camembert (cheese)
String cheese
Cured meats
Prosciutto
Salami
d
f
Bacteria
Lactococcus lactis (s)
Pediococcus acidilactici (s)
Staphylococcus (g)
Streptococcus thermophilus (s)
Fungi
Candida sp. (s)
Debaryomyces (g)
Penicillium (g)
Scopulariopsis (g)

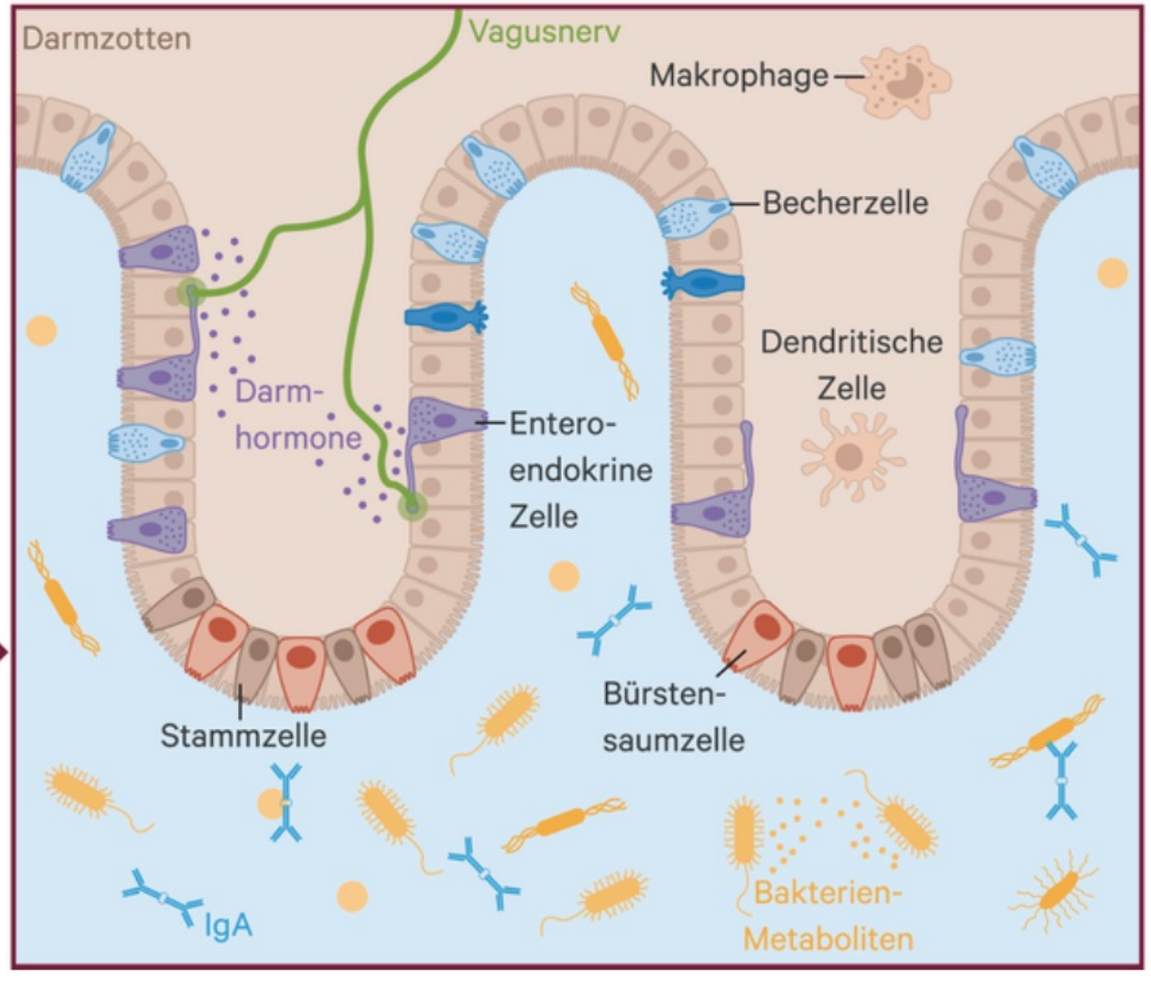
Funktion/Kognition
Emotionen/Stimmung
Verhalten

**Einflüsse**
- Ernährung
- Medikamente
- Erkrankungen
- Stress
- Genetische Faktoren

Funktion und
Zusammensetzung
des Mikrobioms




**Einfluss des Mikrobioms/Metaboliten**
- Kurzkettige Fettsäuren
- Neurotransmitter
- Zytokine
- Hormone
- Vitamine
- Alpha-Synuclein (?)

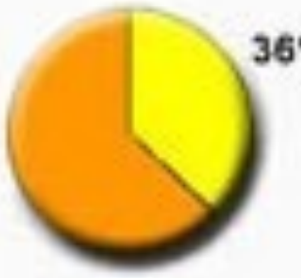


**Tab. 1.** Arzneistoffe mit direkter Wirkung auf das Mikrobiom

| Arzneistoffklasse | Arzneistoffe | Betroffene Bakterienstämme | Literatur |
|---|---|---|---|
| Klassische Antipsychotika | Chlorprothixen, Flupentixol, Levomepromazin, Perazin, Promethazin, Zuclopenthixol | Acinetobacter baumannii, Escherichia coli, Klebsiella pneumoniae, Pseudomonas aeruginosa, Staphylococcus aureus | [24] |
| Atypische Antipsychotika | Aripiprazol, Asenapin, Clozapin, Lurasidon, Olanzapin, Paliperidon, Quetiapin, Risperidon, Ziprasidon | Akkermansia, Lachnospiraceae, Sutterella | [10] |
| Trizyklische Antidepressiva | Amitriptylin, Clomipramin, Doxepin, Nortriptylin, Opipramol, Trimipramin | Alle: Clostridium leptum<br>Amitriptylin: Bacillus spp., Salmonella typhimurium, Staphylococcus spp., Vibrio cholerae | [8, 38] |
| Selektive Serotonin-Wiederaufnahmehemmer | Escitalopram, Fluoxetin, Paroxetin, Sertralin | Alle: Brucellae, Escherichia coli, Eubacterium ramulus, Streptococcus salivarius<br>Escitalopram: Adlercreutzia, Alphaproteobacteria, Coriobacteriaceae, Ruminococcus flavefaciens<br>Fluoxetin: Lactobacillus rhamnosus, Prevotella, Succinivibrio<br>Sertralin: Pseudomonas | [8, 9, 19, 38] |

Schutz vor Magen-Darminfektionen

# Cook it, peel it or leave it


**!** Die häufigsten Reiseerkrankungen sind Magen-Darminfektionen

**REISEAPOTHEKE**

Durchfallmittel und Elektrolyte nicht vergessen!

Akute Anpassung- chronische Anpassung

J Clin Invest. 2015 Mar 2;125(3):926-38. doi: 10.1172/JCI76304. Epub 2015 Feb 17.

# Gut/brain axis and the microbiota.

Mayer EA, Tillisch K, Gupta A.

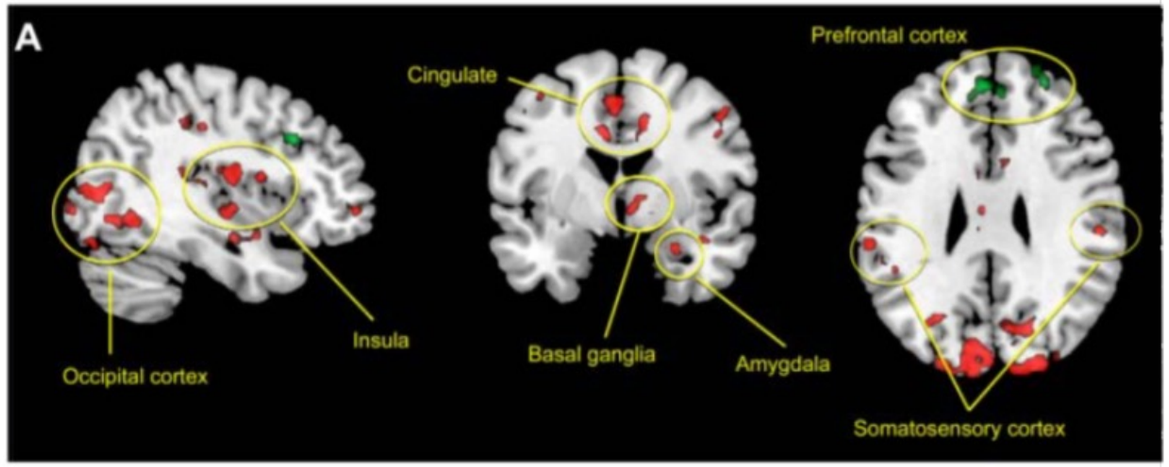
## Abstract

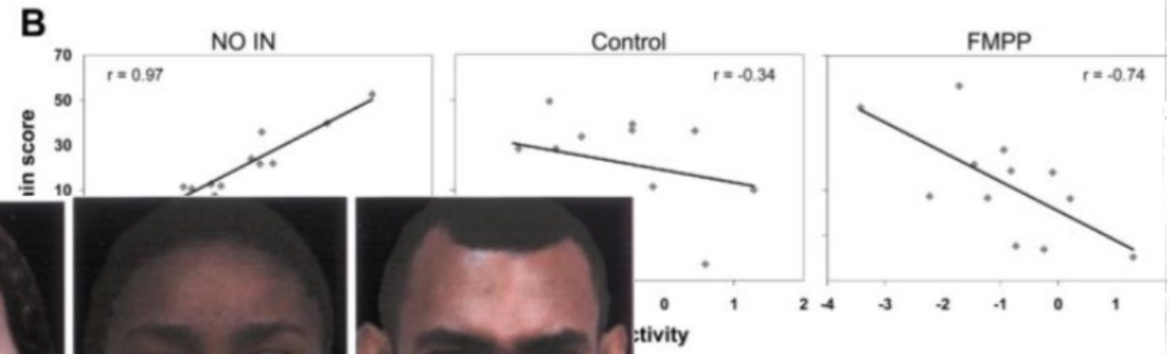
Tremendous progress has been made in characterizing the bidirectional interactions between the central nervous system, the enteric nervous system, and the gastrointestinal tract. A series of provocative preclinical studies have suggested a prominent role for the gut microbiota in these gut brain interactions. Based on studies using rodents raised in a germ-free environment, the gut microbiota appears to influence the development of emotional behavior, stress- and pain-modulation systems, and brain neurotransmitter systems. Additionally, microbiota perturbations by probiotics and antibiotics exert modulatory effects on some of these measures in adult animals. Current evidence suggests that [illegible] mechanisms, [illegible] endocrine and neurocrine pathways, may be involved in gut microbiota-to-brain signaling and that the brain can in turn alter microbial composition and behavior via the autonomic nervous system. Limited information is available on how these findings may translate to healthy humans or to disease states involving the brain or the gut/brain axis. Future research needs to focus on confirming that the rodent findings are translatable to human physiology and to diseases such as irritable bowel syndrome, autism, anxiety, depression, and Parkinson's disease.

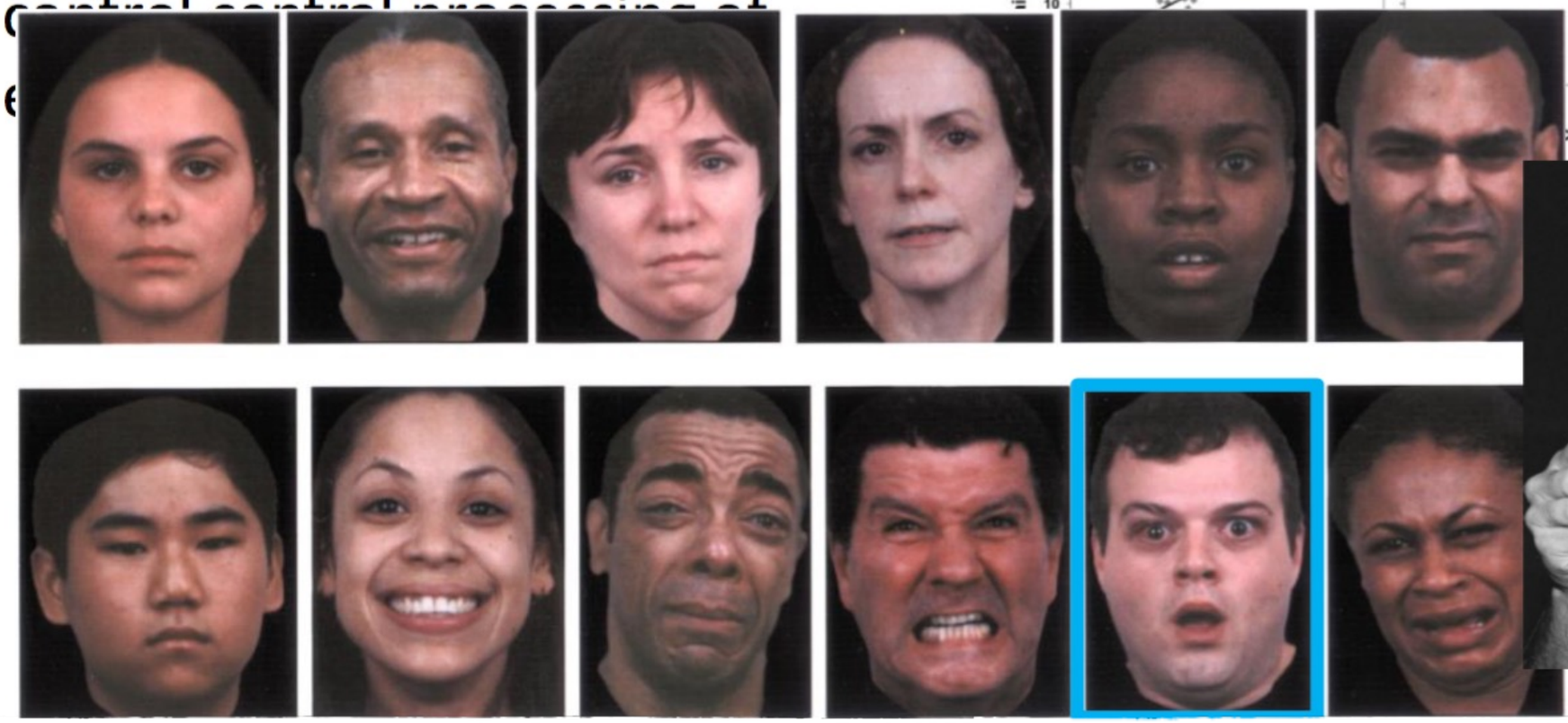
# Intestinal Microbiota - Impact

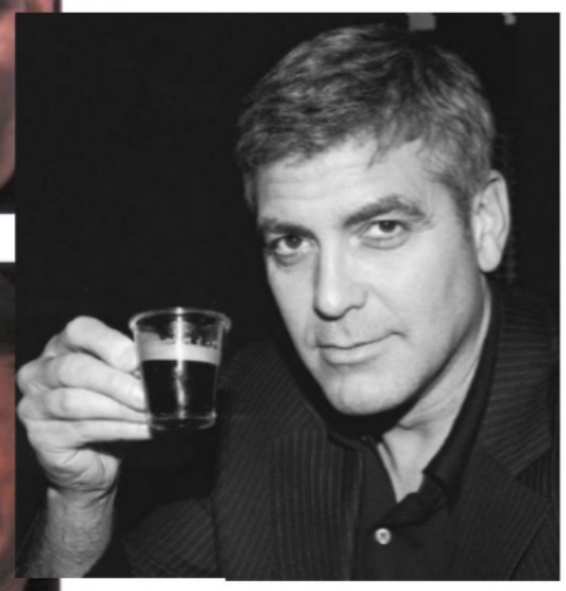
## Beeinflussung des Verhalten auch beim Menschen?

- fermented milk product with probiotic (FMPP) for 4 weeks
- “four-week intake of an FMPP by healthy women affected activity of brain regions that central central processing of e





## Background unserer Studie I

- Durchschnittliche Gewichtszunahme nach Rauchstopp: 7-8kg[1]
  - Wird einfach nur mehr gefuttert…?
  - Multiple Risk Factor Intervention Trial: quitters nahmen Gewicht zu, obwohl sie weniger Kalorieren einnahmen, generell eher gesündere Diät als Teilnehmer mit Rückfall oder weiter rauchende[2]
- Unerschiedlicher Effekt Rauchen auf CD vs. UC

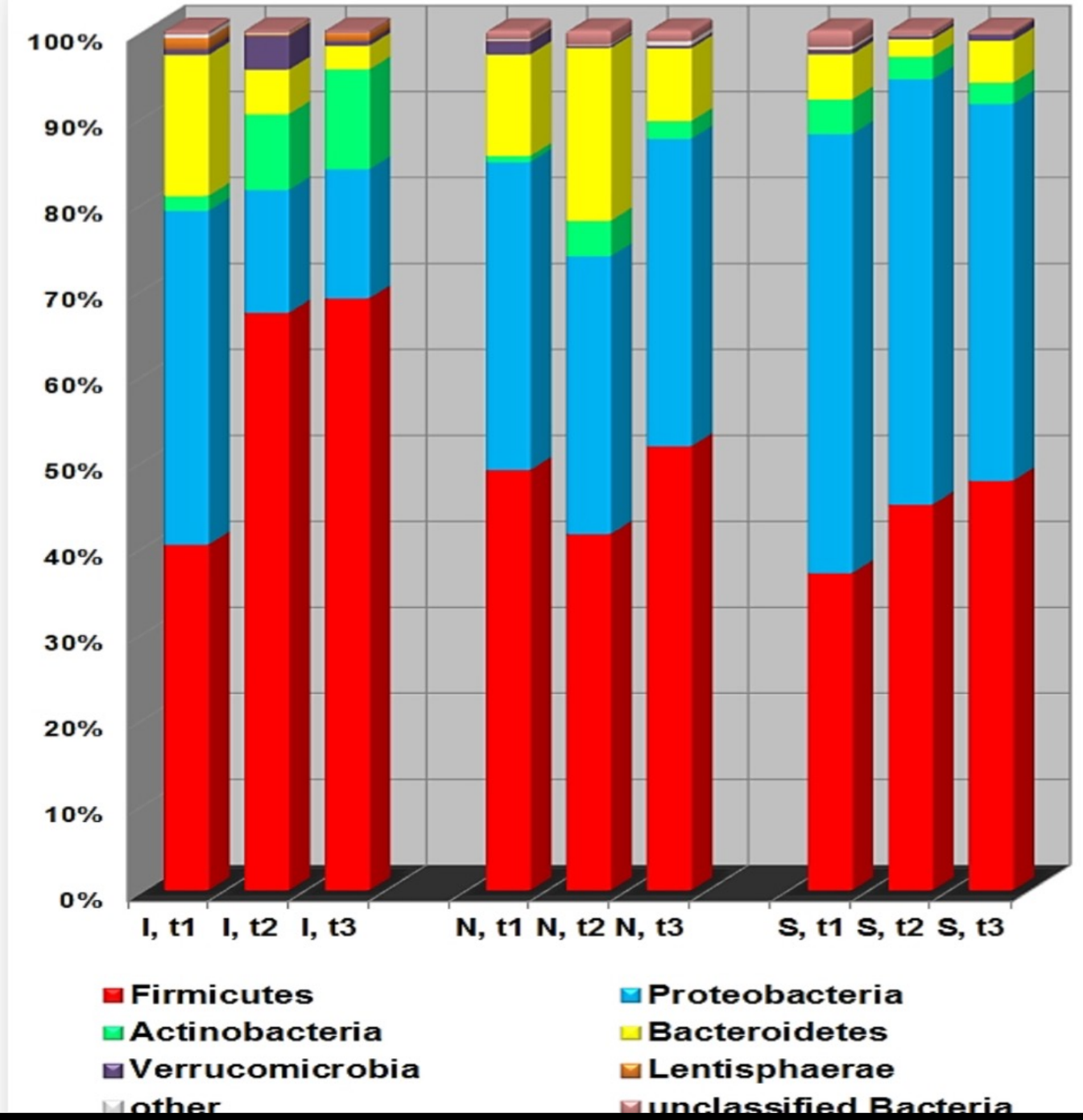
**Beeinflusst der Raucherstatus die intestinale Mikrobiota???**

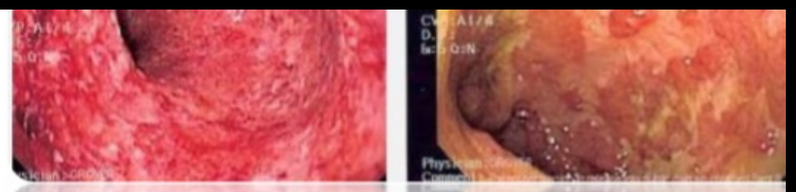
1. O'Hara P., Am. J. Epidemiol., 1998 2. Stamler J., Am. J. Clin. Nutr. 1997

# Intestinale Mikrobiota während kontrolliertem Rauchstopp

## Shift der Phyla: Pyrosequencing

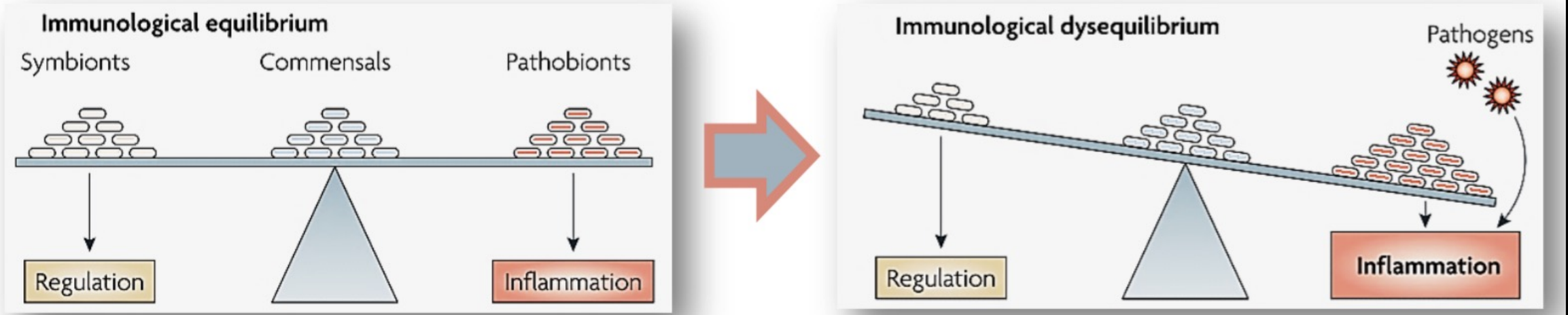
- die 4 grossen Phyla: 97.3% aller Sequenzen
- **Intervention Group** - nach Rauchstopp:
  - **Zunahme** *Firmicuten* und *Actinobacterien*
  - **Abnahme** der *Proteobacterien* und *Bacteroidetes*
- stabile Mikrobiota in beiden Kontroll-Gruppen





## Dysbiose, Reduzierte mikrobielle Diversität bei IBD

- Keine Colitis in germ-free mouse models[1]
- **Dysbiose bei IBD**:
  - Verschiedene Alterationen  auf Ebene Phyla, Groups Und Species[2]




- Verminderte **Microbielle Diversität**[3,4]
- Zunahme von Epithel-adhärenten Bakterien[5,6]
- Zuname von Intrazellulären Bakterien[5,6]
- Erhöhte temporale Instabilität[3]

*1. Sellon, R.K., Infect. Immun., 1998*  *2. Frank D.N., PNAS, 2007*

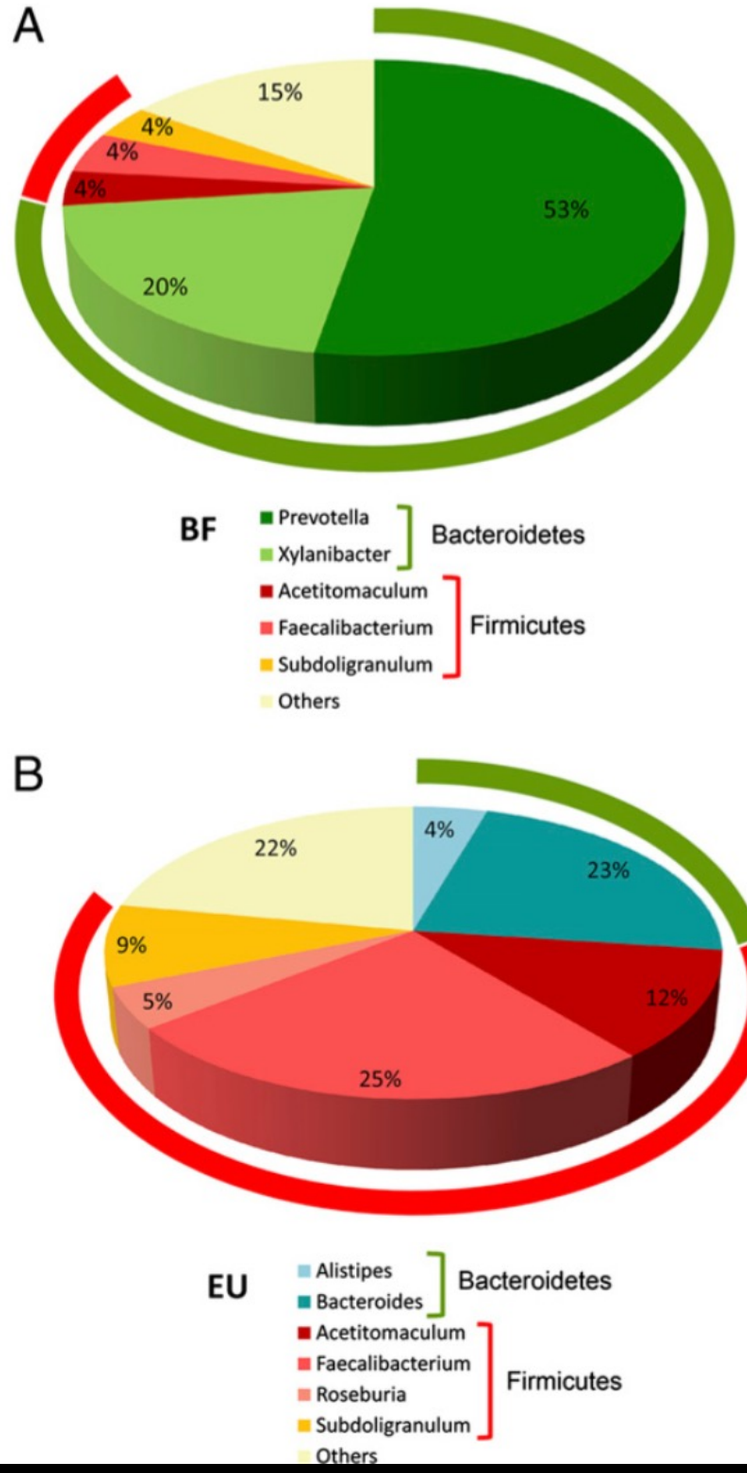
# Impact of diet in shaping gut microbiota revealed by a comparative study in children from Europe and rural Africa

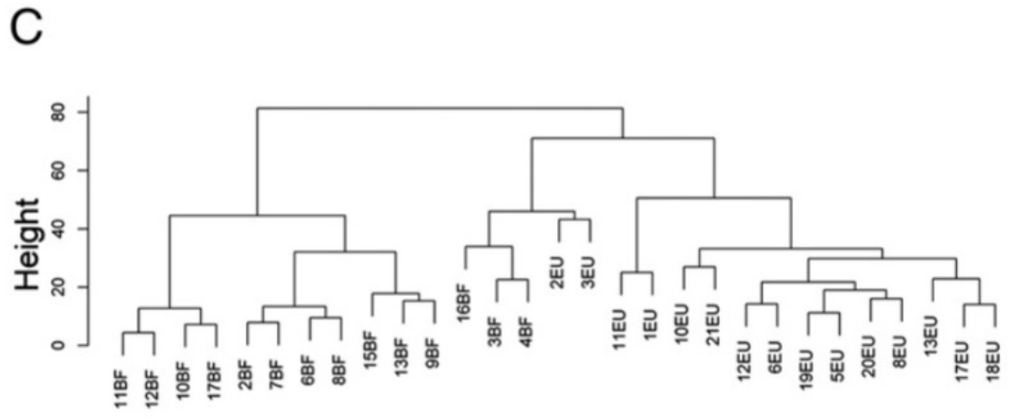
Carlotta De Filippo[a], Duccio Cavalieri[a], Monica Di Paola[b], Matteo Ramazzotti[c], Jean Baptiste Poullet[d], Sebastien Massart[d], Silvia Collini[b], Giuseppe Pieraccini[e], and Paolo Lionetti[b,1]

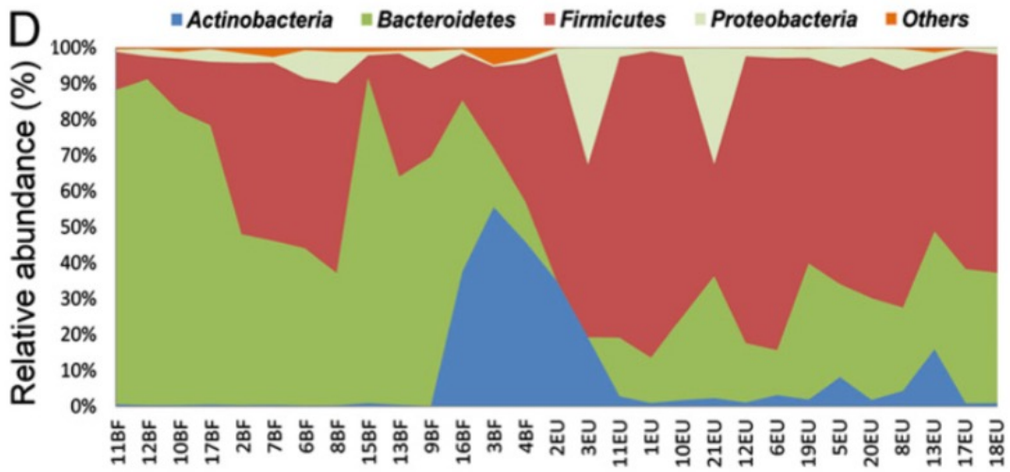

**Fig. 1.** Life in a rural village of Burkina Faso. (*A*) Village of Boulpon. (*B*) Traditional Mossi dwelling. (*C*) Map of Burkina Faso (modified from the United States ClA's World Factbook, 34). (*D*) Millet and sorghum (basic components of Mossi diet) grain and flour in typical bowls. (*E*) Millet and sorghum is ground into flour on a grinding stone to produce a thick porridge called Tô.

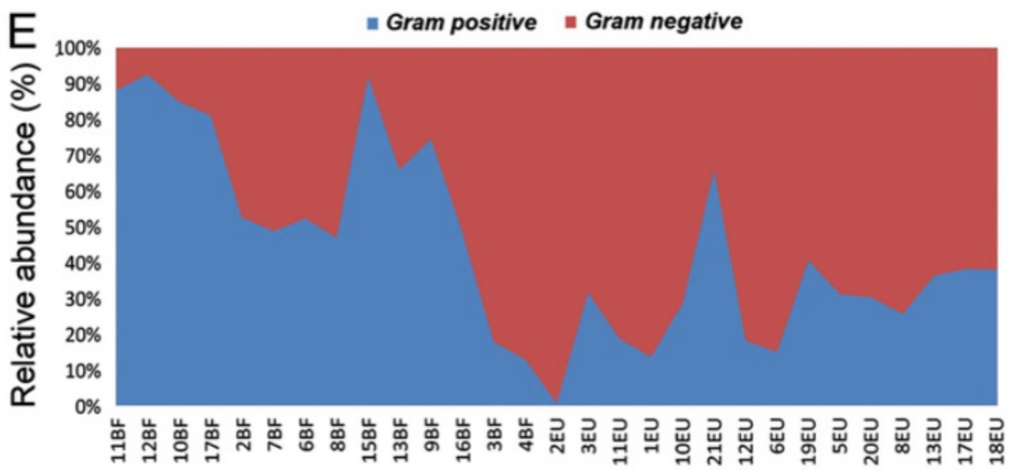
# Impact of diet in shaping gut microbiota revealed by a comparative study in children from Europe and rural Africa

Carlotta De Filippo[a], Duccio Cavalieri[a], Monica Di Paola[b], Matteo Ramazzotti[c], Jean Baptiste Poullet[d], Sebastien Massart[d], Silvia Collini[b], Giuseppe Pieraccini[e], and Paolo Lionetti[b,1]



# Disentangling type 2 diabetes and metformin treatment signatures in the human gut microbiota

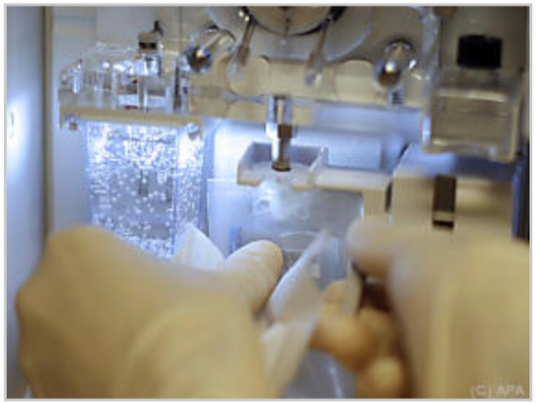
**Kristoffer Forslund, Falk Hildebrand, Trine Nielsen, Gwen Falony, Emmanuelle Le Chatelier, Shinichi Sunagawa, Edi Prifti, Sara Vieira-Silva, Valborg Gudmundsdottir, Helle Krogh Pedersen, Manimozhiyan Arumugam, Karsten Kristiansen, Anita Yvonne Voigt, Henrik Vestergaard, Rajna Hercog, Paul Igor Costea, Jens Roat Kultima, Junhua Li, Torben Jørgensen, Florence Levenez, Joël Dore, MetaHIT consortium, H. Bjørn Nielsen, Søren Brunak, Jeroen Raes** + ***et al.***

**Affiliations** | **Contributions** | **Corresponding authors**

*Nature* **528**, 262–266 (10 December 2015) | doi:10.1038/nature15766

Received 04 March 2015 | Accepted 05 October 2015 | Published online 02 December 2015

# Diabetes-Medikament ändert Mikroben-Population des Darms



Über die Wirkungsweise von Metformin berichten Wissenschaftler des Europäischen Laboratoriums für Molekularbiologie (EMBL) in Heidelberg und des MetaHIT-Konsortiums in "Nature". Das am häufigsten verschriebene Medikament zur Behandlung von Diabetes Typ 2 hat einen größeren Einfluss auf die Zusammensetzung der Mikroben im Darm als die Krankheit selbst, berichtet Forschungsleiter Peer Bork.

Konkret wurden die Stuhlproben von mehr als 700 Personen verglichen. Unter ihnen befanden sich Patienten mit Diabetes Typ 2 und gesunde Probanden. Dabei fand das Team heraus, dass anhand der Zusammensetzung der Mikroben im Stuhl nicht bestimmt werden konnte, ob die Person an Diabetes erkrankt war - es sei denn, sie verwendete Metformi

Es zeigte sich, dass Patienten, die das Medikament einnahm, wesentlich mehr E.coli und weniger I. bartletti Bakterien als Gesunde und andere Patienten aufwiesen, die kein Metformin nahmen. Diese Veränderung in der Zusammensetzung festgestellt haben, könnten einige der Nebenwirkungen von Metformin erklärt," so Erstautor Kristoffer Forslund. Daher wäre es durchaus denkbar, dass Patienten, die Metformin verabreicht bekommen, eines Tages ein Joghurt oder ein Nahrungsergänzungsmittel erhalten, um ihre Darmflora im Gleichgewicht zu halten.

Quellen

Nature (abstract)

Erklärung der Nebenwirkungen

In Brief | Published: 09 January 2019

INFECTION

# Probiotics fail to improve preschool gastroenteritis

Iain Dickson

*Nature Reviews Gastroenterology & Hepatology* **16**, 76 (2019) | Download Citation

J Clin Biochem Nutr. 2018 Jul; 63(1): 33–35.
Published online 2018 Jun 20. doi: 10.3164/jcbn.18-57
PMCID: PMC6064808
PMID: 30087541

# A next-generation beneficial microbe: *Akkermansia muciniphila*

Yuji Naito,[1,2,*] Kazuhiko Uchiyama,[1] and Tomohisa Takagi[1]



## Abstract

Go to:

There have been many reports on the roles of intestinal flora and intestinal environment in health promotion and disease prevention. Beneficial bacteria such as *Bifidobacterium* and lactic acid-producing bacteria have been shown to improve the intestinal environment, and yield a good effect on metabolism, immunity and nerve response. In this review, in addition to these beneficial bacteria, we introduced *Akkermansia muciniphila* as a next-generation beneficial microbe. Several reports indicate that *Akkermansia muciniphila* affects glucose metabolism, lipid metabolism, and intestinal immunity, and that certain food ingredients such as polyphenols may increase the abundance of *Akkermansia muciniphila* in the gut.

# AUSLAGERN

Kochen / Braten

Homo sapiens

Rohkost

Nahrung und Haltbarkeit ausgelagert

Urmensch 2 Mill

Homo high tech

# AUSLAGERN

Microbiom

Hirnmasse

Nahrung und Haltbarkeit
ausgelagert

Rohkost

Kochen / Braten

Urmensch 2 Mill

Homo

Homo high tech

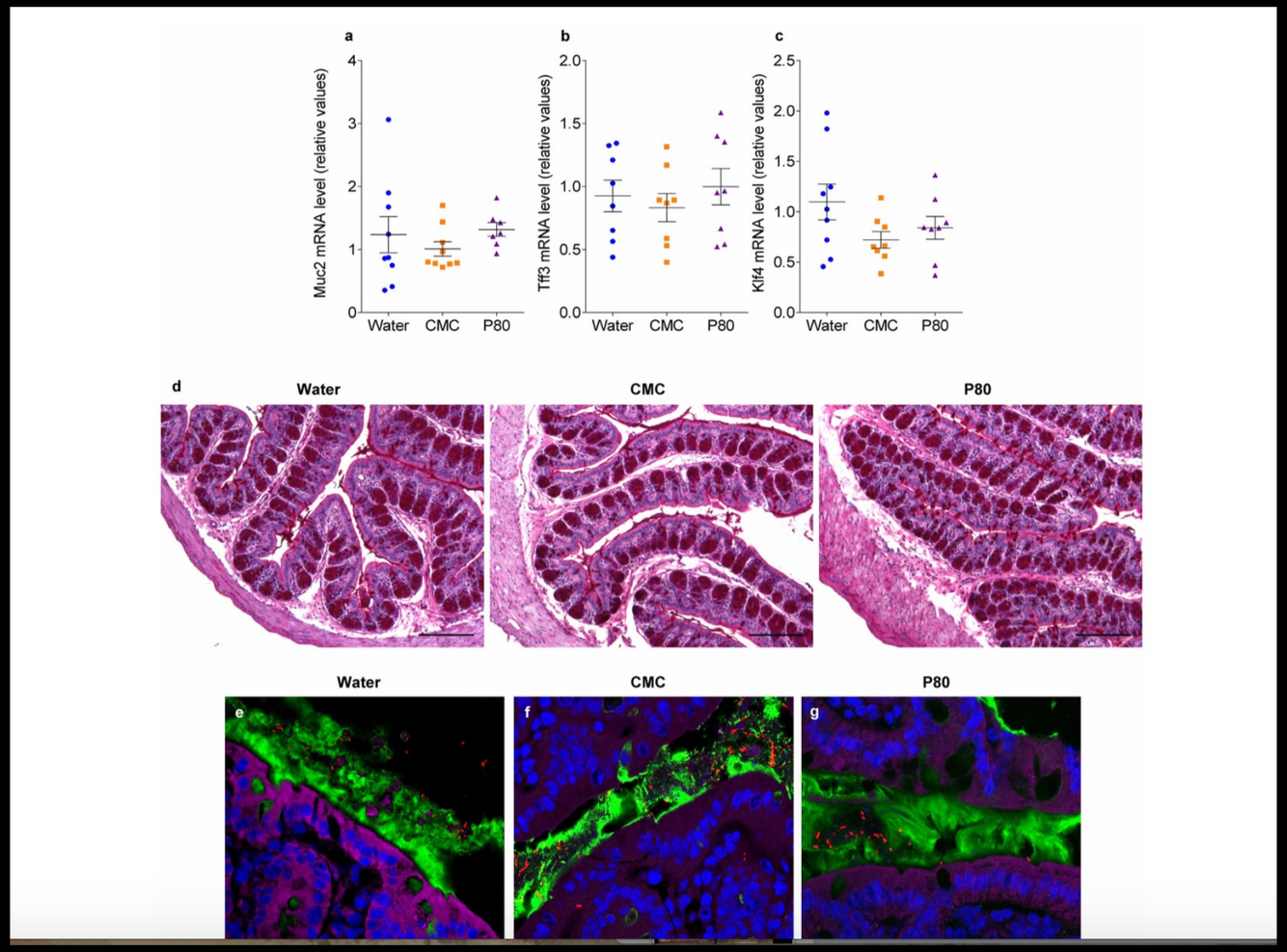
„Nature“ Artikel
Emulgatoren
rats and cheese-cake

# MAUSEFUTTER UND EMULGATOREN

Dietary emulsifiers impact the mouse gut microbiota promoting colitis and metabolic syndrome
Benoit Chassaing[1], Omry Koren[2], Julia K. Goodrich[3], Angela C. Poole[3], Shanthi Srinivasan[4], Ruth E. Ley[3] & Andrew T. Gewirtz[1]

Carboxymethylcellulose Sojalezithin 1%

nature, 3`2015




# Doppelt so hohe Inzidienz für entzündliche Veränderungen im MDT

These results support the emerging concept that perturbed host–microbiota interactions resulting in low-grade inflammation can promote adiposity and its associated metabolic effects. Moreover, they suggest that the broad use of emulsifying agents might be contributing to an increased societal incidence of obesity/metabolic syndrome and other chronic inflammatory diseases.

# Cheesecake-eating rats and the question of food addiction

David H Epstein & & Yavin Shaham

Affiliations | Corresponding author

*Nature Neuroscience* **13**, 529–531 (2010) | doi:10.1038/nn0510-529



Rats given extended access to high-fat high-sugar food show behavioral and physiological changes that are similar to those caused by drugs of abuse. However, parallels between drug and food "addiction" should be drawn with caution.

*NATURE NEUROSCIENCE* | NEWS AND VIEWS

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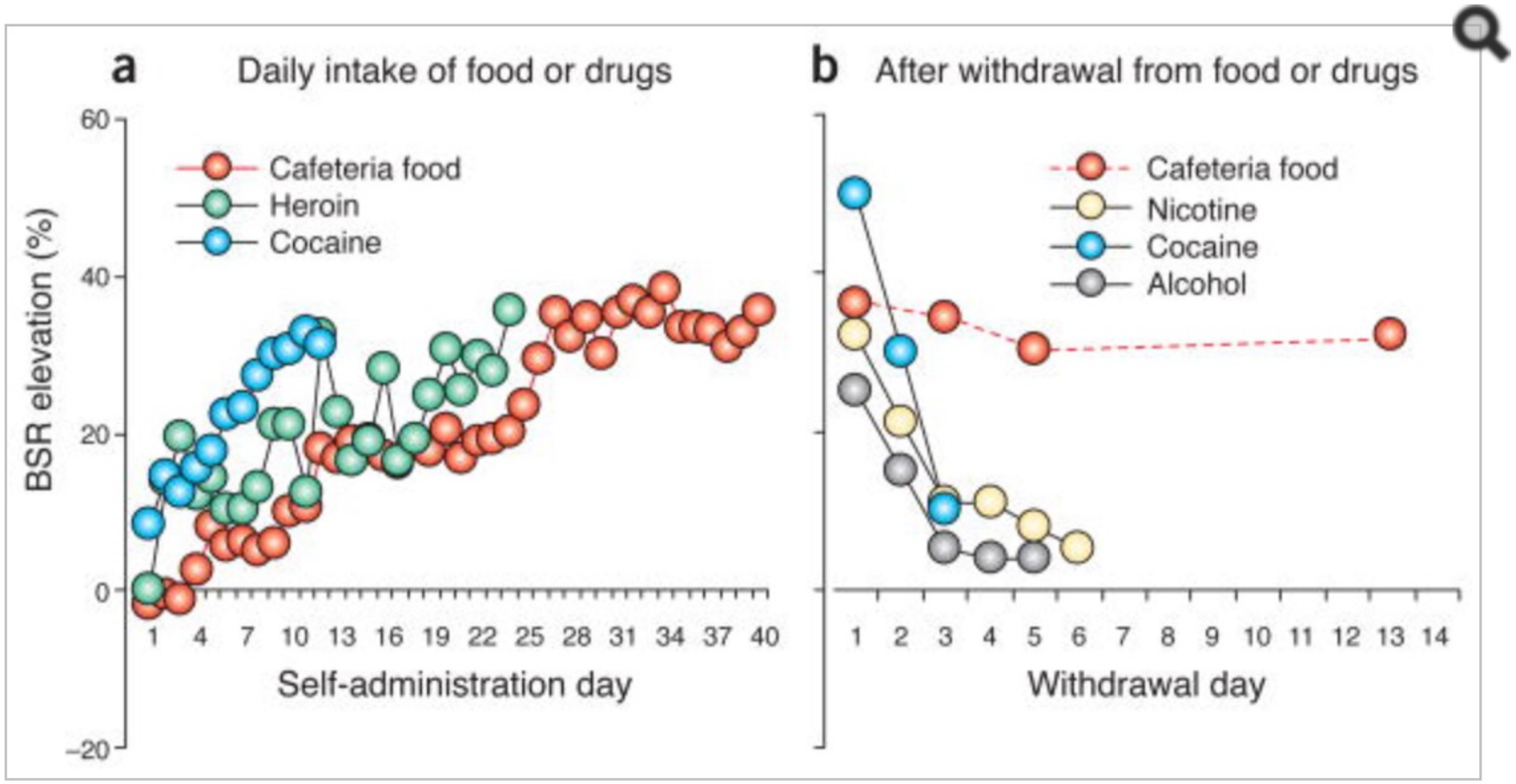
Rats given extended access to high-fat high-sugar food show behavioral and physiological changes that are similar to those caused by drugs of abuse. However, parallels between drug and food "addiction" should be drawn with caution.

Resultate:
massive Gewichtszunahme in der Kombination Trägheit !!!

# WAS MACHEN WIR

# Wie leben wir  ???

**Figure 1**




Prolonged access to cafeteria food causes persistent elevations in threshold for BSR: comparison with drugs of abuse. (**a**) BSR threshold during daily intake of cafeteria food or drugs. (**b**) BSR threshold after loss of access to cafeteria food or drugs. Data were redrawn from Johnson and Kenny[2] and refs. [3–7]. In these studies, rats performed an operant response to obtain rewarding electrical brain stimulation into the median forebrain bundle at the level of the lateral hypothalamus. BSR threshold is defined as the minimum intensity of electrical stimulation that maintains operant responding. Increased BSR threshold is hypothesized to reflect decreased sensitivity of the brain reward system.


85 %

Pflegen sie ihr Microbiom !!!

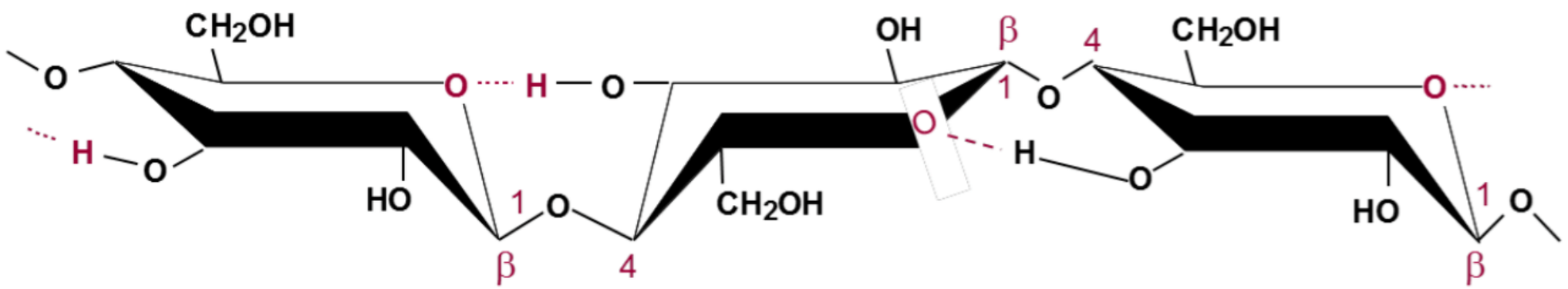
UND WIE.....

# Polysaccharide (Ballaststoffe) sind die wichtigsten Substrate der Darmbakterien

- Die meisten mit der Nahrung aufgenommenen Polysaccharide sind **pflanzlichen Ursprungs**.

- Polysaccharide von Pflanzenzellwänden sind die sogenannte Ballaststoffe. Größtenteils werden sie nicht ausgeschieden sondern durch die intestinale Mikrobiota verwertet.

- Im Gegensatz zur Pansenmikrobiota der Wiederkäuer, die **Cellulose** [β (1 → 4) Glucan] in großem Umfang verwertet, werden im menschlichen Darm hauptsächlich **Hemicellulosen** verwertet.




**Cellulose**
(β-1,4-linkages)

# Wie sieht ein gutes Probiotikum aus

- 1. Viele Bakterienstämme (ideal >20)
- 2. Hohe Keimzahl (ideal >20 Milliarde/kbE)
- 3.Kombination von Vitaminen z.B. B7
- 4. Verpackung im Glas
- 5.Arzneimittelstnadard (GMP)
- 6. Bei Krankheiten oder Mangel

# Natürliche Probiotika

- Joghurt
- Kefir
- Käse (Gruyere, Mozarrela….)
- Sauerkraut
- Saure Gurken
- Apfelessig
- Kombucha, Kimchi


& Gemüse
Wurst
Bio
Bio

# WO SIND PRÄBIOTIKA DRIN
# FERMENTIERBARE BALLASTSTOFFE
# (INULIN, GUAR, HAFERFASER- LÖSLICH -UNLÖSLICH)

Avocadoanteile
Auberginen
Chicorée
Zichorienwurzel
Topinambur
Artischocken
Pastinaken
Löwenzahnwurzel
Porree
Zwiebeln
Schwarzwurzeln. U.v.a.

# WO SIND PRÄBIOTIKA DRIN

© imago/We

Für 2016 haben die Vereinten Nationen das Internationale Jahr der Hülsenfrüchte ausgerufen. Also: Greifen Sie wieder verstärkt zu gesunden Eiweissbomben wie Bohnen, Kichererbsen oder Linsen!


BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 20 1958

# CORONARY HEART DISEASE AND PHYSICAL ACTIVITY OF WORK

## EVIDENCE OF A NATIONAL NECROPSY SURVEY*

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AND

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It is a principle of epidemiological research of this type to seek evidence from as many, as various, and as independent sources as possible.[40] The present report deals with the frequency, in relation to occupation, of ischaemic myocardial fibrosis in men dying from causes other than coronary heart disease itself. These myocardial scars are often evidence of early coronary heart disease and of less severe, or at any rate non-lethal, ischaemia. Thus the present study provides a picture of coronary heart disease in one of its simpler forms, and this may help in elucidating social connexions. At the same time another test of the hypothesis is made, using quite different data from the previous inquiries and upon quite another aspect of the condition. The inquiry it was hoped would provide some information on the pathological mechanisms of any differences with physical activity of work that were found; and in particular we sought to learn something about the relationships of occupation to coronary artery disease. In brief, Can the hearts of men be seen to vary with the kind of work they have done? At what phases in the complex of coronary–myocardial disease as a whole can this particular "cause"—physical activity/inactivity—be seen to operate? More generally the inquiry was intended to provide a statistical account of the coronary arteries of the middle-aged British male population, 1954–6.[42]

### Method

Through the universities and regional hospital boards we appealed personally to all pathologists in the National Health Service who might regularly be in charge of post-mortem examinations to co-operate in the inquiry, and the pathologists of 206 hospitals or hospital groups—between 85% and 90% of the "possibles"—very kindly agreed. We cannot be more precise about this fraction, because it is not known whether some of those who did not reply at all to our letters were in fact regularly responsible for appreciable numbers of necropsies.

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The pathological data on each record relating to disease in the coronary arteries and fibrosis of the myocardium were graded, agreed, and coded by at least two and often three physicians in the unit. It took many months to define appropriate scales; but finally scales emerged that made pathological sense, were simple in use, having no more than five points, and the gradings on which proved highly reproducible by ourselves and by others.

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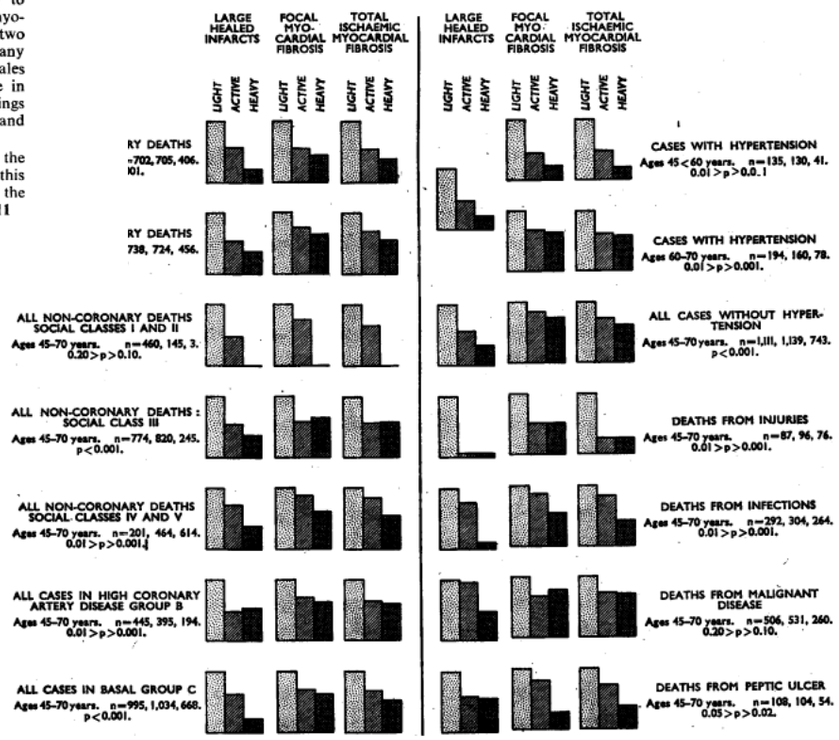


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n gives the numbers of cases in light, active, and heavy occupations in that order. The test of significance applies to the total of ischaemic myocardial fibrosis. In deaths from injuries active and heavy occupations have been amalgamated.

**Results:** In models adjusted for a range of covariates including socioeconomic status, smoking, and obesity, high resting heart rate was associated with a modestly elevated rate of mortality from all causes (hazard ratio; 95% confidence interval: tertile 3 vs. tertile 1: 1.17; 0.99, 1.37 p[trend]: 0.07) and respiratory disease (1.69; 1.04, 2.76 p[trend]: 0.03). Of the two markers of physical activity, walking pace was inversely related to mortality ascribed to all causes (slow vs. high walking pace 1.71; 1.53, 1.91 p[trend]: <0.001]), coronary heart disease (2.03; 1.68, 2.47 p[trend]: <0.001), and total cancers (1.25; 0.98, 1.59 p[trend]: 0.04). The corresponding associations for leisure time


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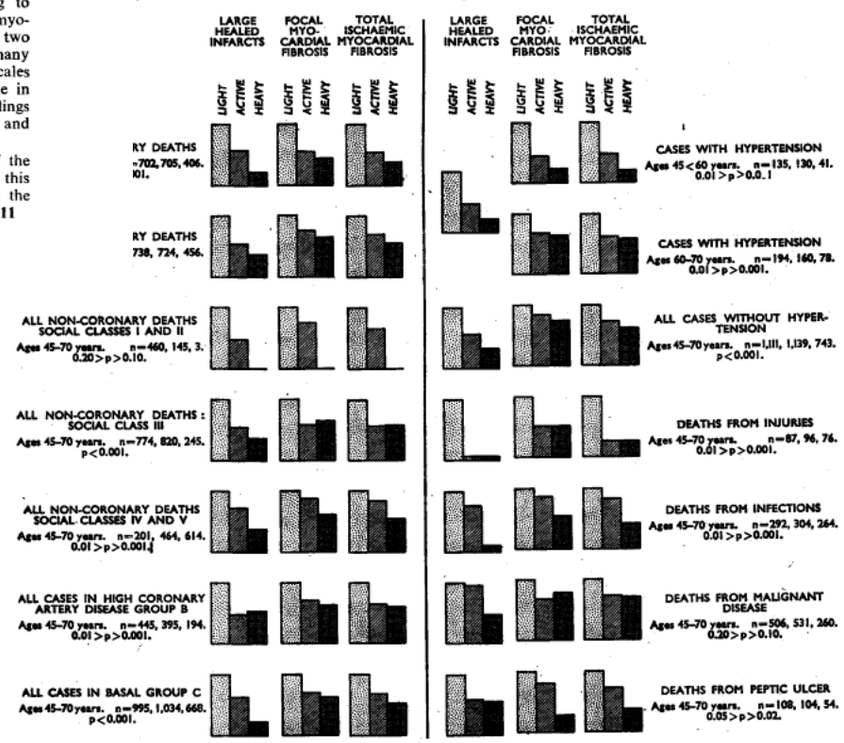


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*Review*

# Mental Stress and Cardiovascular Health—Part I

**Federico Vancheri [1,*], Giovanni Longo [2], Edoardo Vancheri [3] and Michael Y. Henein [4,5,6]**

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2 Cardiovascular and Interventional Department, S. Elia Hospital, 93100 Caltanissetta, Italy; giova.longo@gmail.com
3 Department of Medical, Surgical and Advanced Technologies, Section of Neurosciences, University of Catania, 95125 Catania, Italy; edoardovancheri@hotmail.it
4 Institute of Public Health and Clinical Medicine, Umea University, 90187 Umea, Sweden; michael.henein@umu.se
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6 St George's University London, London SW17 0RE, UK
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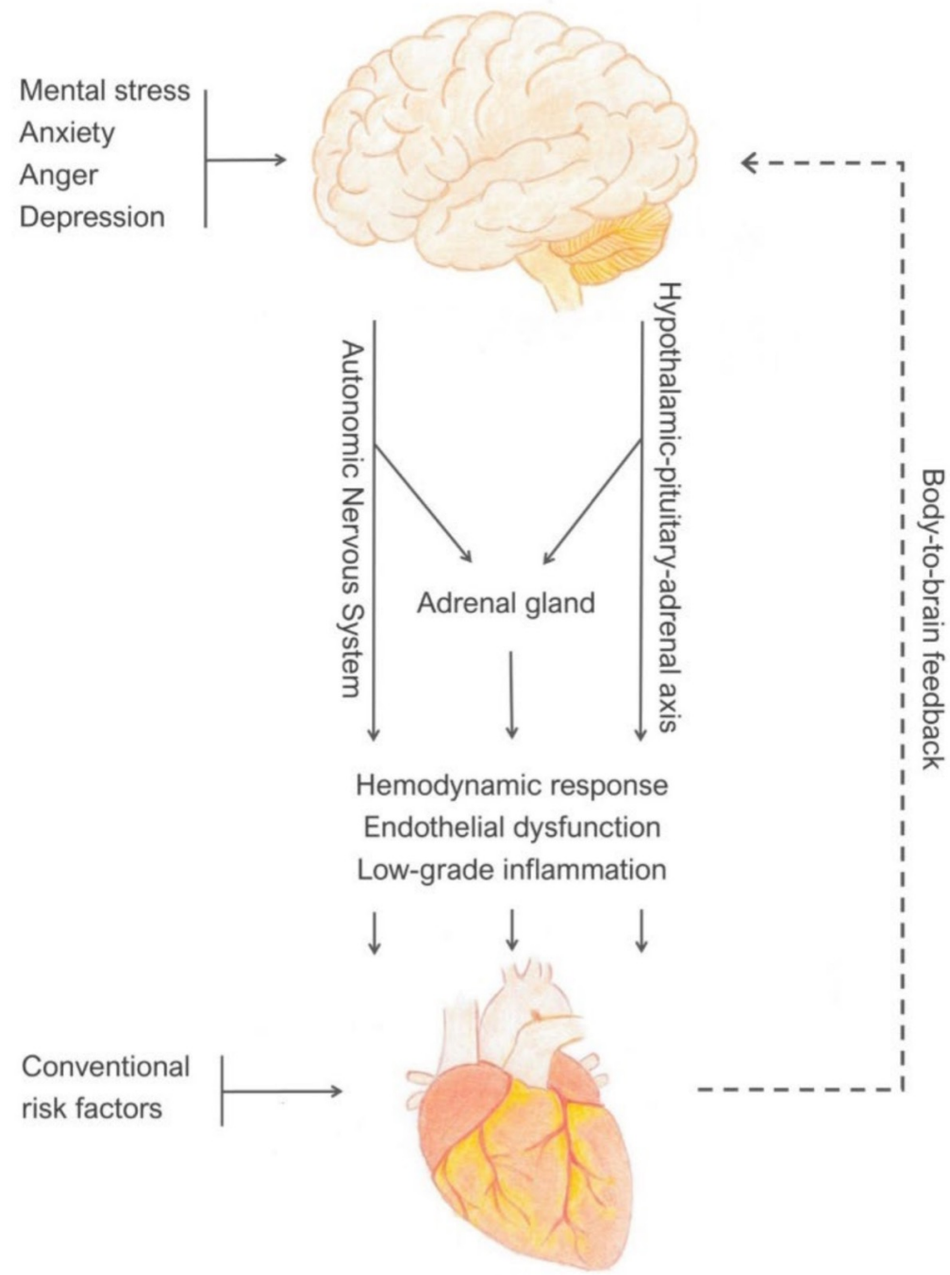



CV Risk like smoking

# WO SIND PROBIOTIKA DRIN

- Lactobacillus
- Typ : Streptococcus thermophilus, Lactobacillus delbrueckii subsp. bulgaricus)

- Oberflächen von Früchten, Beeren ( Waschen ?!?!?!) Kontamination ( PPI )

- Fermentierte Lebensmittel ( Kimchi / Sauerkraut)

Merke:

Essen sie nichts wofür Reklame gemacht wird !

Kochen sie mit bekannten natürlichen Zutaten selbst

Essen sie weniger und vornehmlich pflanzlich
(Kochen, Braten ist Verdauung ausserhalb des Körpers!)

Bewegung und "Denken" ist auch essentiell

Nehmen sie sich Zeit für sich !
Viel Zeit, und beobachten sie, was wie wirkt.

Facts

Diversität des Darmes schützt !!!

Grösstes Immunorgan und intensivster Austausch
mit der Umwelt , Production von Serotonin !!!

Nahrung immens wichtig , Foodmap , Zucker ,
Emulgatoren

In Balance befindliche Beziehung des Immunsystems und
des Microbioms

Microbiom wandelt sich schnell (dramatische Reaktionen
Oder nur wenig Symptome.)

Alternative Facten
Abnehmen durch Transplantation ,
einfache Therapieansätze , komplexes System

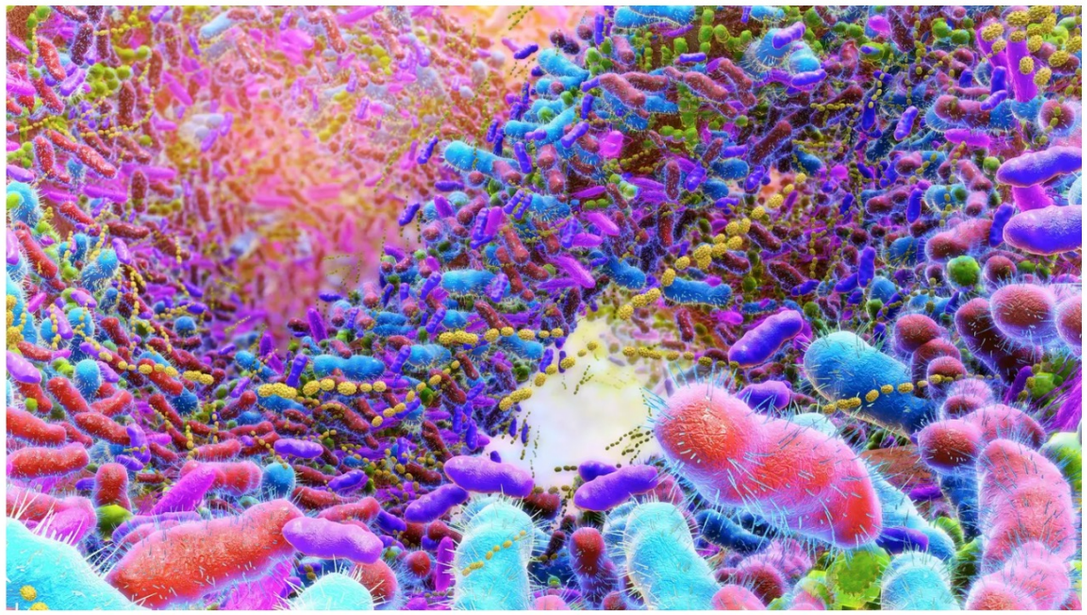
# Das Mikrobiom im Darm ist wichtig für die Gesundheit. Lohnt sich ein Test?

Untersuchungen der Darmflora sind gross in Mode. Doch selbst Fachleute verstehen den Zusammenhang zwischen den Bakterien im Darm und unserer Gesundheit nicht genau.

Martin Lindner

08.01.2025, 05.30 Uhr  3 min





Vielfältige Mitbewohner: Im Dickdarm leben in jedem Gramm Darminhalt etwa 100 Milliarden Mikroorganismen.

Nopparit/Getty

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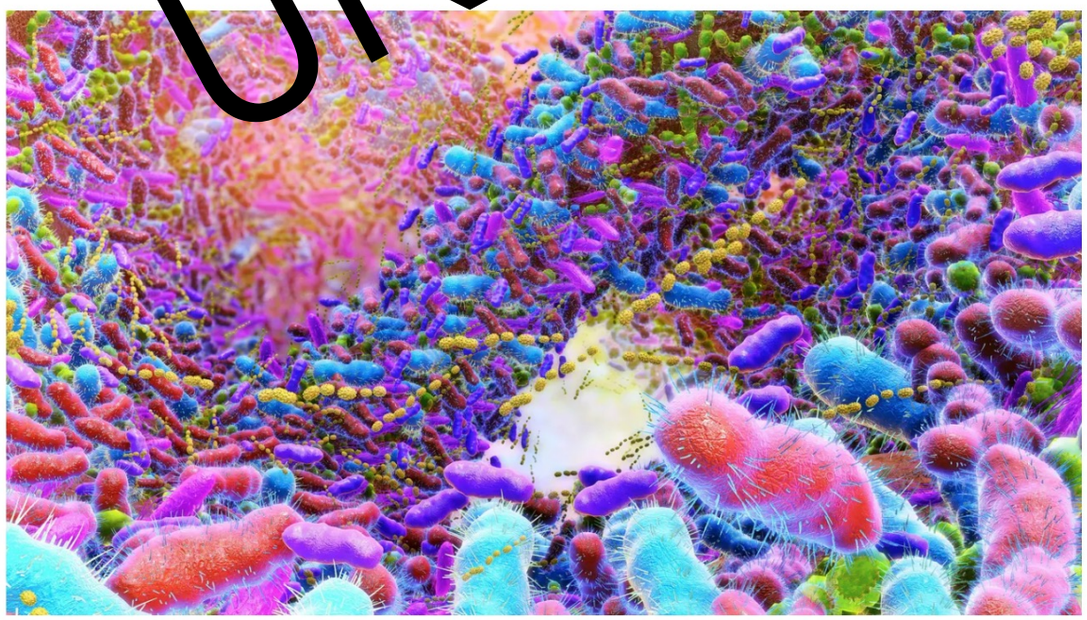

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Review > Probiotics Antimicrob Proteins. 2024 Dec;16(6):2316-2328.
doi: 10.1007/s12602-024-10363-8. Epub 2024 Sep 25.

# Efficacy of Probiotics in Overweight and Obesity Control: An Umbrella Review and Subgroup Meta-Analysis

A Sadeghi [1], R Daroudi [1], M Davari [2], Z Gharib-Naseri [3], J Jafarzadeh [1], M Tajvar [4]

Affiliations + expand

PMID: 39320636 DOI: 10.1007/s12602-024-10363-8

## Abstract

Numerous primary and secondary studies have consistently demonstrated that probiotics, including lactobacillus and Bifidobacterium, possess a potential anti-obesity effect. However, it is worth noting that some studies have yielded contrasting results. Considering this, our study aims to present a comprehensive overview of published systematic reviews and meta-analyses, focusing on the efficacy and safety of probiotics in managing obesity. To achieve this objective, we conducted an umbrella review following the PRISMA protocol and Cochrane guidelines. We searched databases such as Embase, PubMed, Cochrane Library, and Google Scholar for relevant systematic reviews and meta-analyses published in English, without imposing any date restrictions. Our inclusion criteria encompassed studies evaluating the anti-obesity impact of probiotics, with a specific focus on changes in body mass index (BMI), fat mass percentage (FMP), body weight (BW), and body fat mass (BFM). These studies were meticulously reviewed by two independent reviewers. Our analysis included five systematic reviews and 18 meta-analyses that met the predefined inclusion and exclusion criteria. The meta-analyses revealed statistically significant reductions in the following parameters: BMI, a decrease of 0.30 $kg/m^2$ ($p < 0.00001$, 95% CI - 0.36 to - 0.25); BFM, a reduction of 0.86 kg ($p < 0.00001$, 95% CI - 1.02 to - 0.71); BW, a decrease of 0.59 kg ($p < 0.00001$, 95% CI - 0.74 to - 0.44); and FMP, a substantial decline of 78% ($p < 0.00001$, 95% CI - 1.02 to - 0.54). In summary, our umbrella review suggests that existing evidence supports the potential benefits of probiotics in managing obesity and overweight. However, it is essential to acknowledge that the credibility of this evidence is somewhat limited due to the inclusion of studies with poor-quality designs and relatively small participant numbers. To establish the true efficacy of probiotics in obesity management, we recommend conducting robust studies involving larger participant cohorts.

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