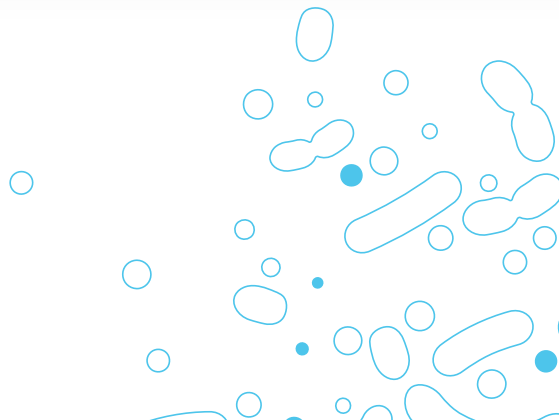


**Yakult**

Science for Health

# Darmmicrobiota, mondgezondheid en veroudering

Dr. Olaf Larsen



# Disclaimer

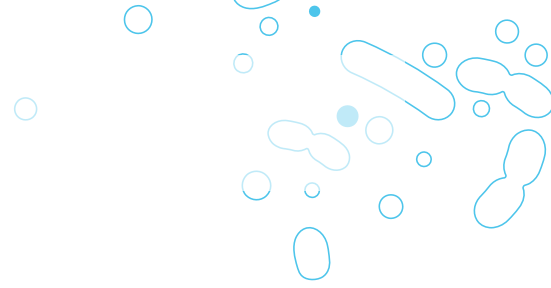
- Deze presentatie is uitsluitend bedoeld voor gezondheidsprofessionals, wetenschappers en journalisten

# Conflicts of interest



- Asst. Professor @ Athena Institute, Vrije Universiteit Amsterdam (0.2 FTE)
- Senior Manager Science @ Yakult Nederland B.V.

# Poll

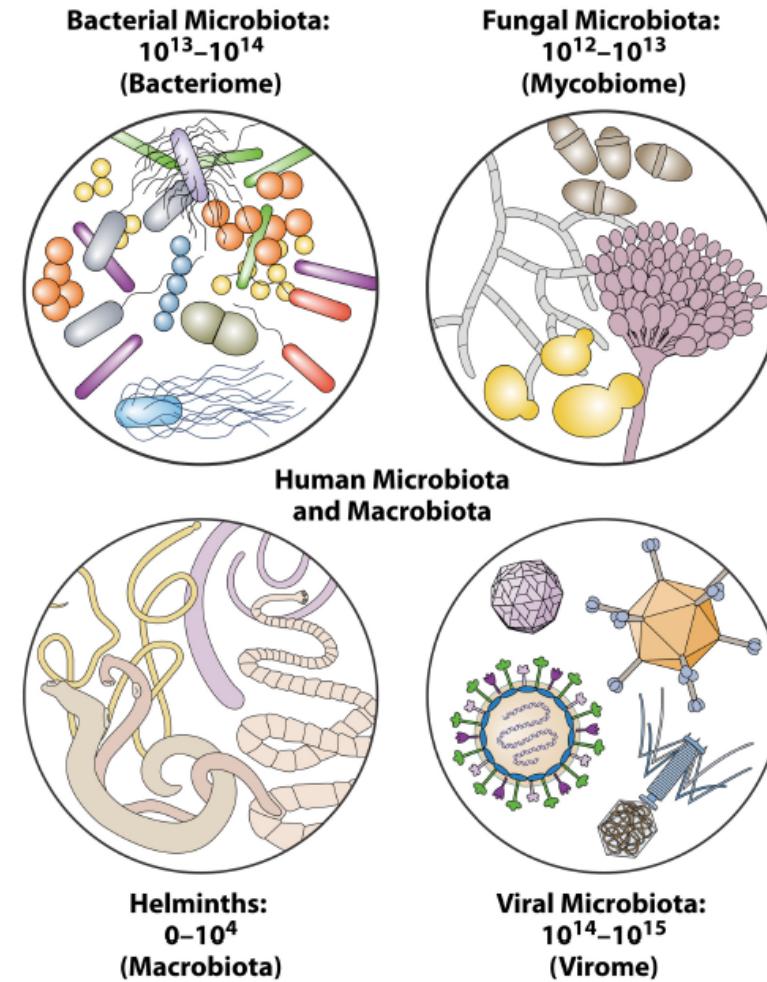
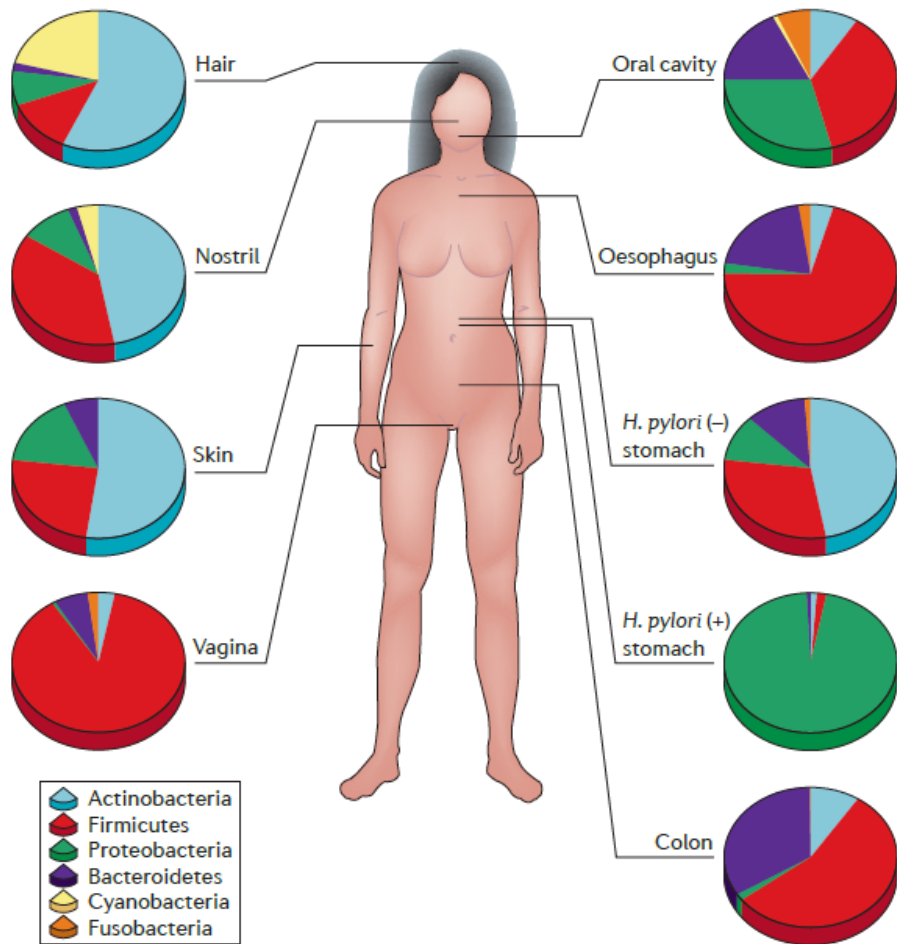


*“In mijn praktijk denk ik bij de diagnose van patiënten ook aan de microbiota”*

- Nooit
- Zelden
- Regelmatig
- Vaak / Altijd



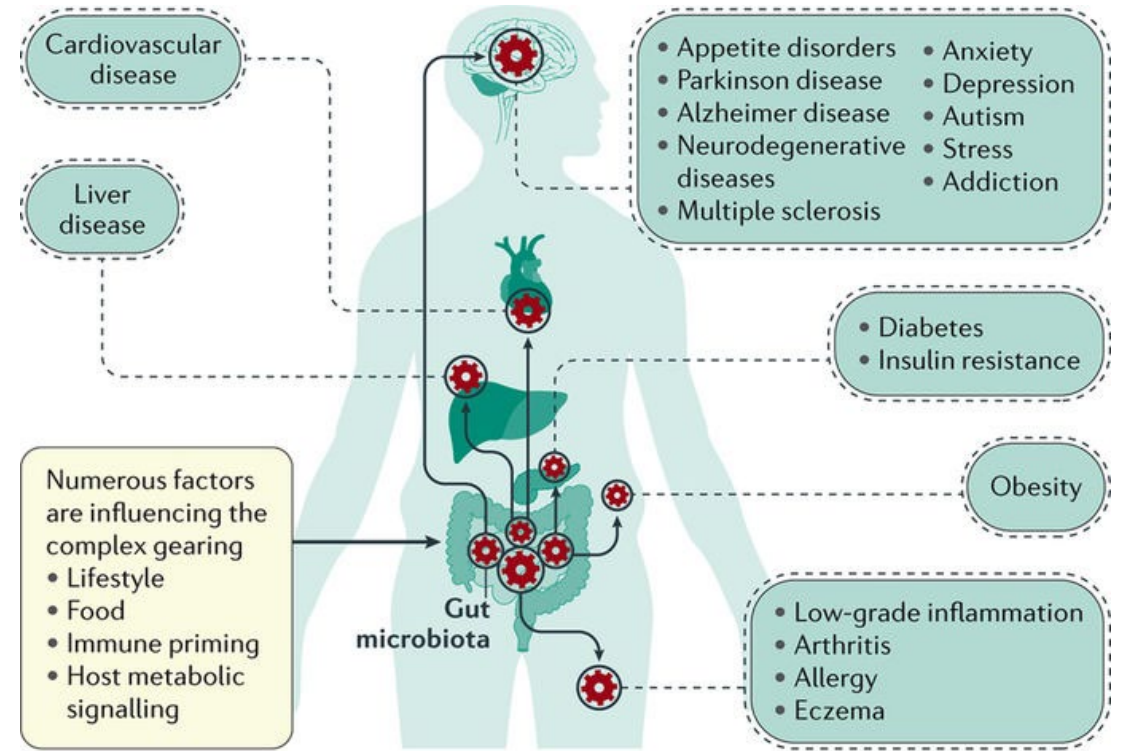
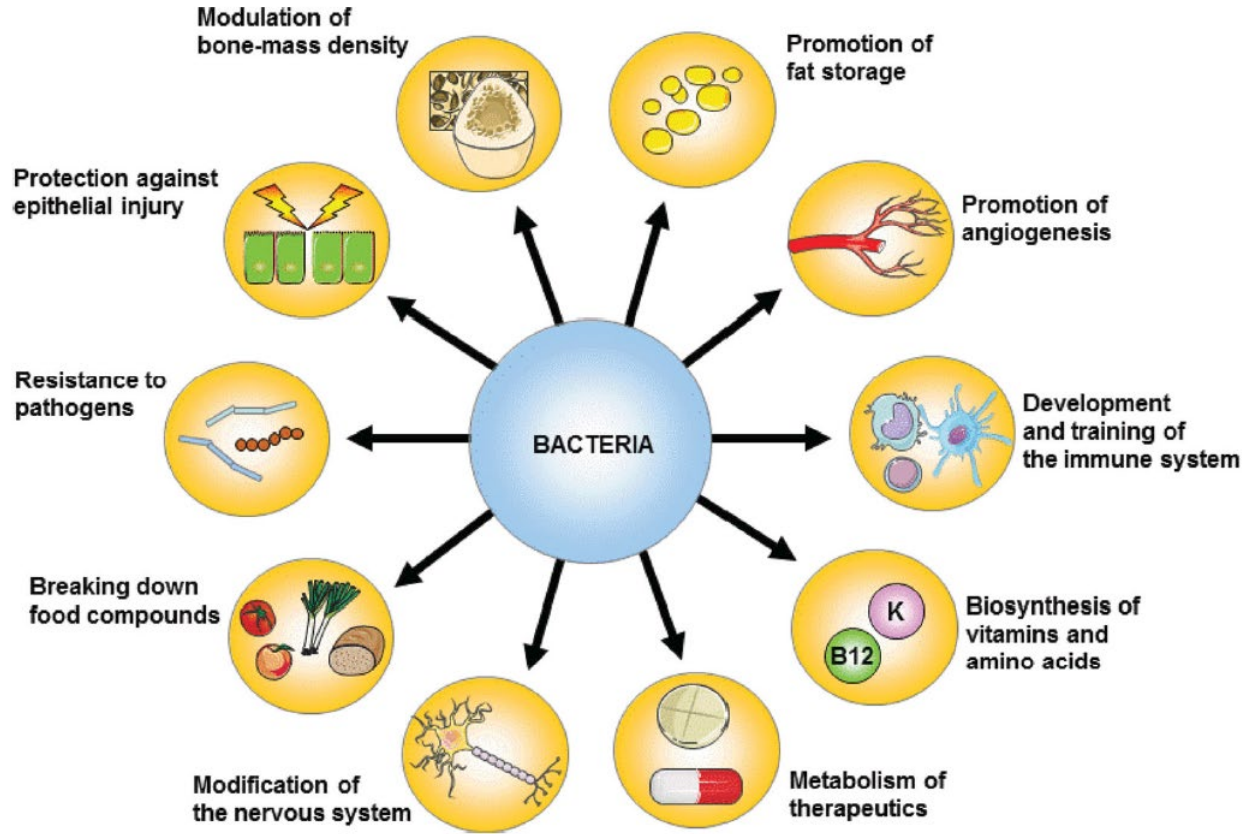
# De microbiota



Cho & Blaser, (2012). Nature Rev Genetics, 13(4), 260-270

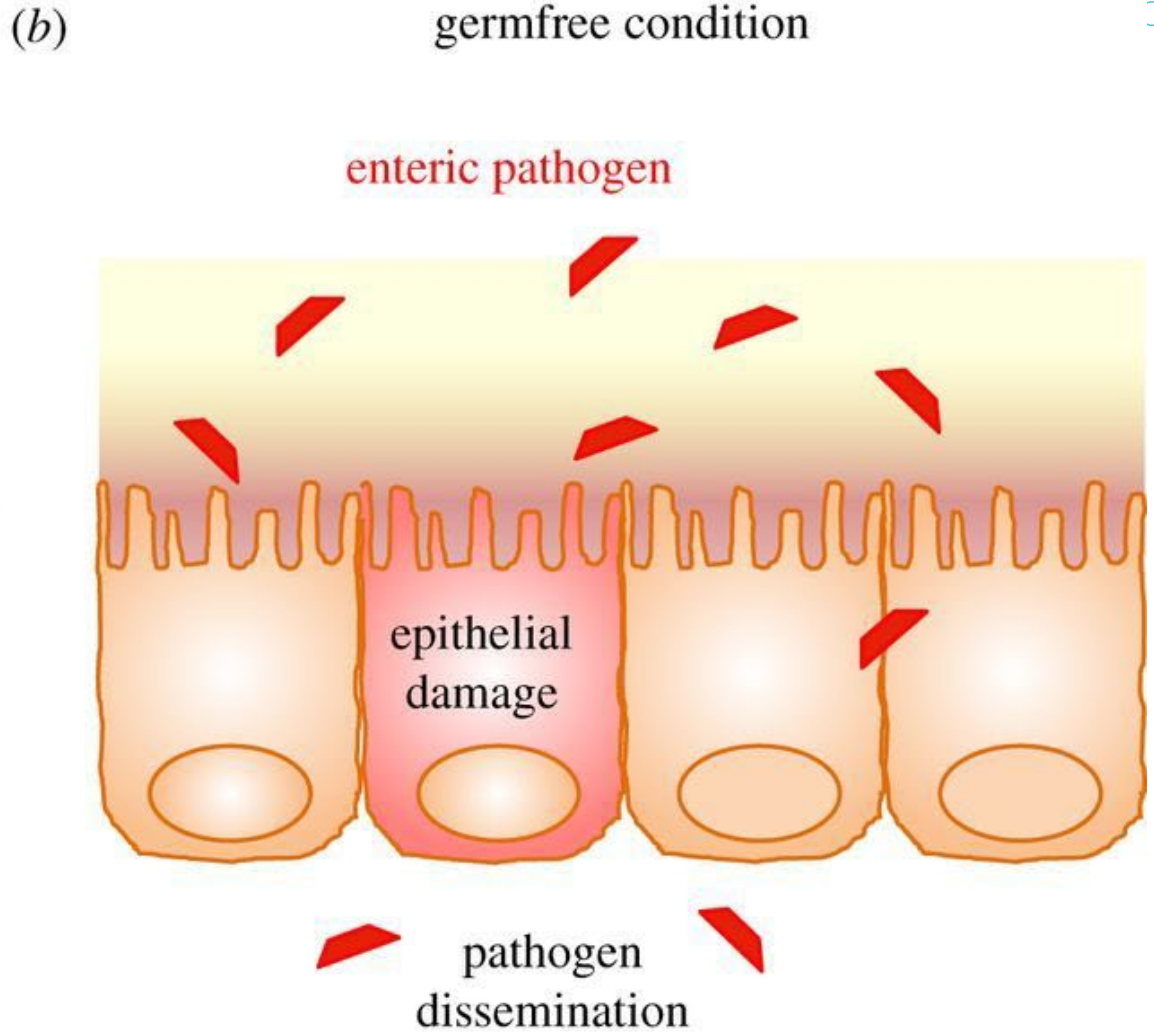
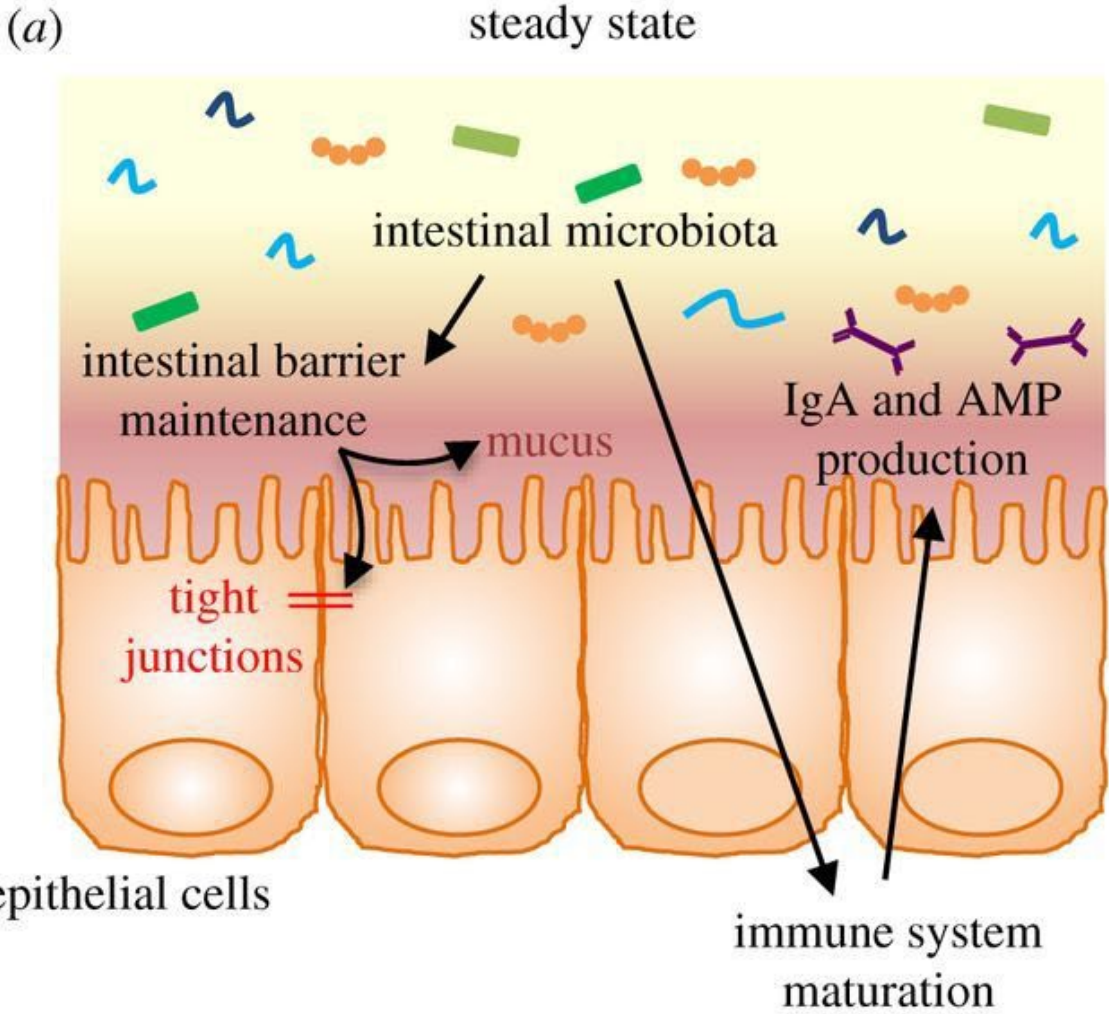
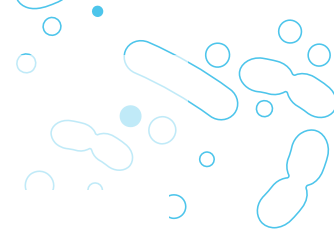
Rowan-Nash, et al. (2019). Microbiology and Molecular Biology Reviews, 83(1)

# De rol van de darmmicrobiota: correlatie of causaliteit?



Nature Reviews | Gastroenterology & Hepatology

# De darmmicrobiota: functies

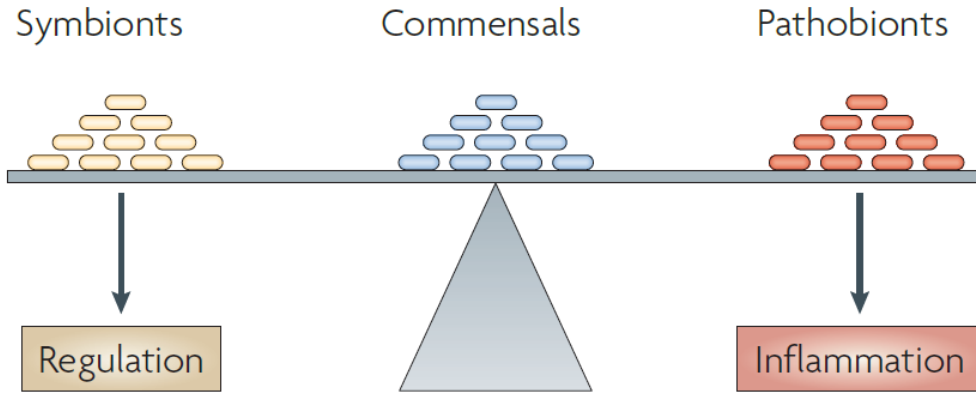


Rolhion, Nathalie, and Benoit Chassaing. "When pathogenic bacteria meet the intestinal microbiota." *Philosophical Transactions of the Royal Society B: Biological Sciences* 371.1707 (2016): 20150504.

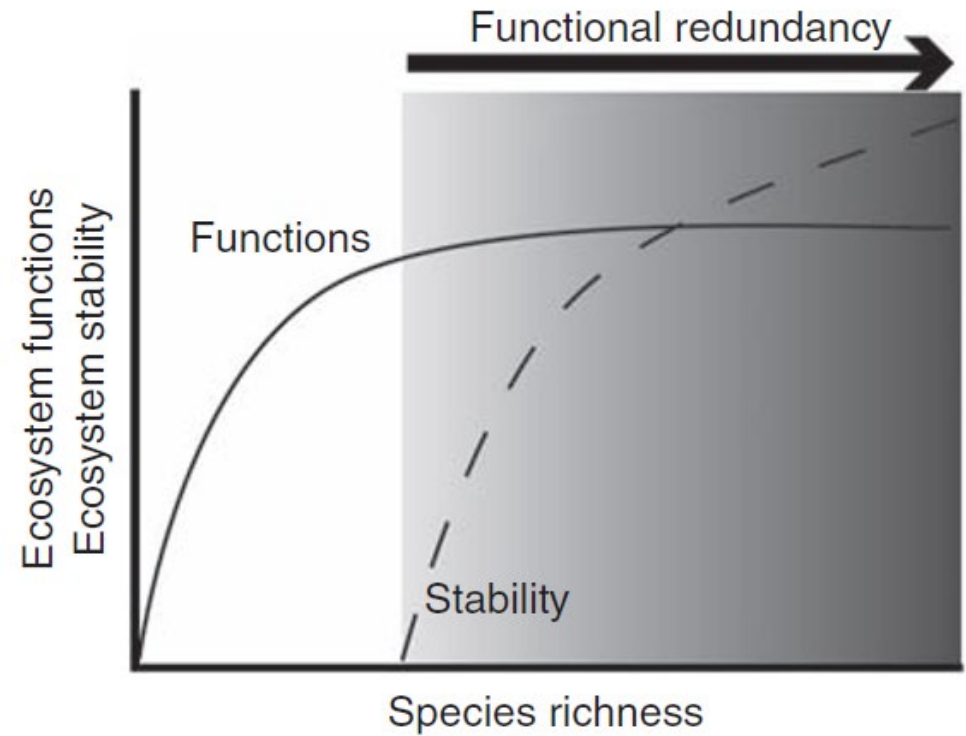
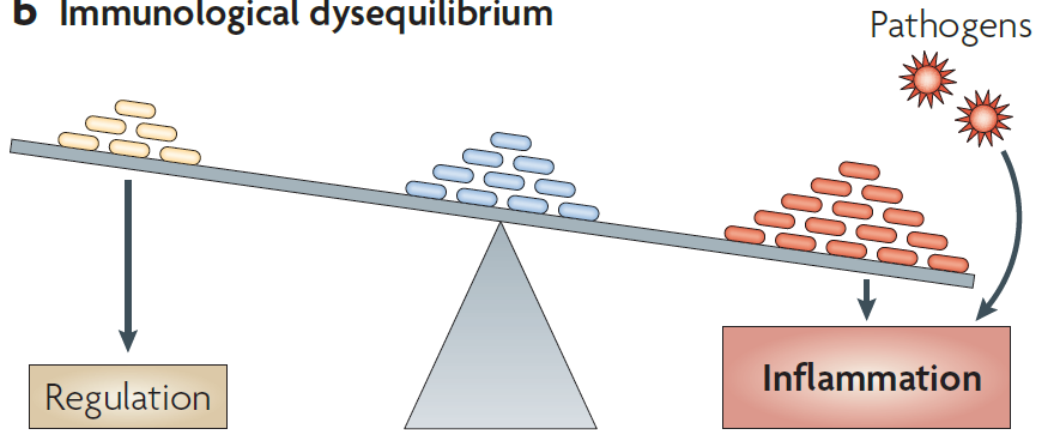


# Dysbiose & diversiteit

## a Immunological equilibrium



## b Immunological dysequilibrium

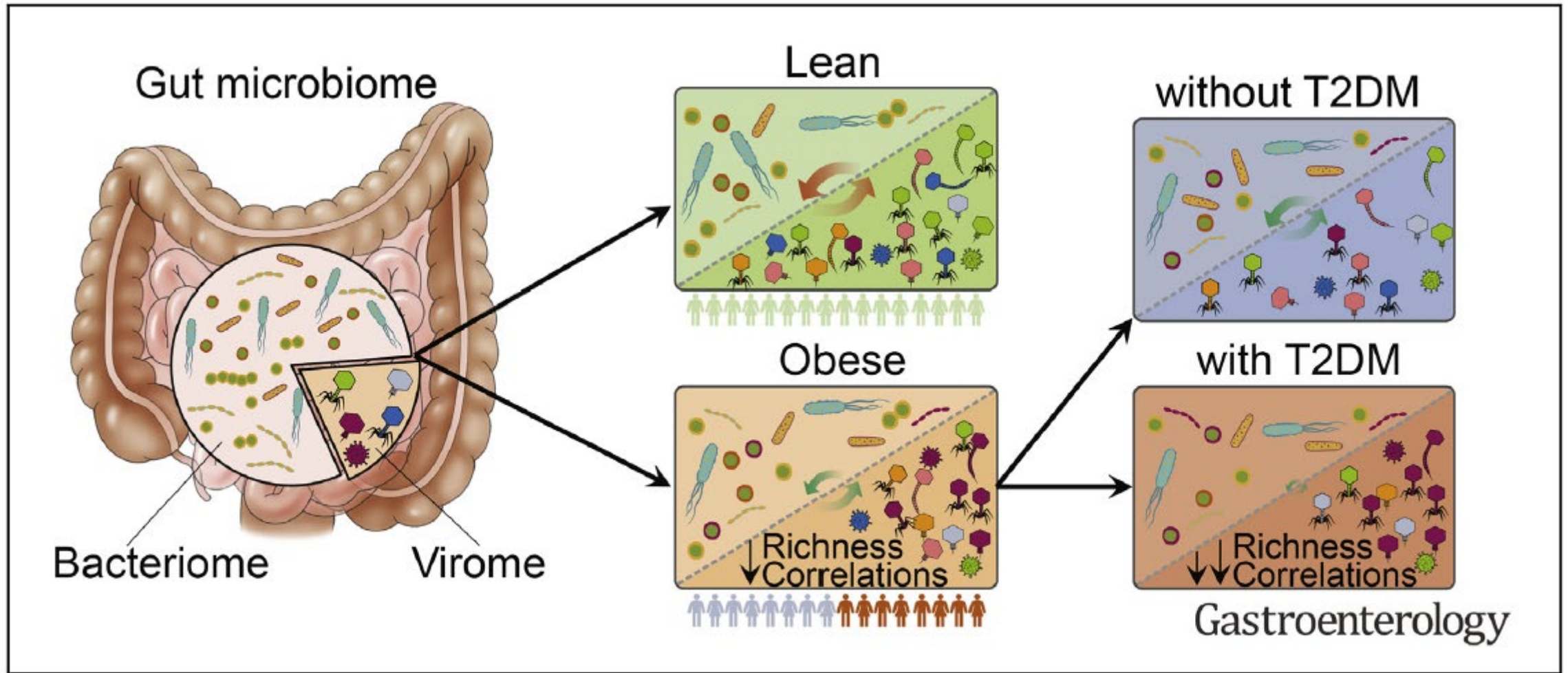


Round & Mazmanian, Nature Rev. Immunology, 2009

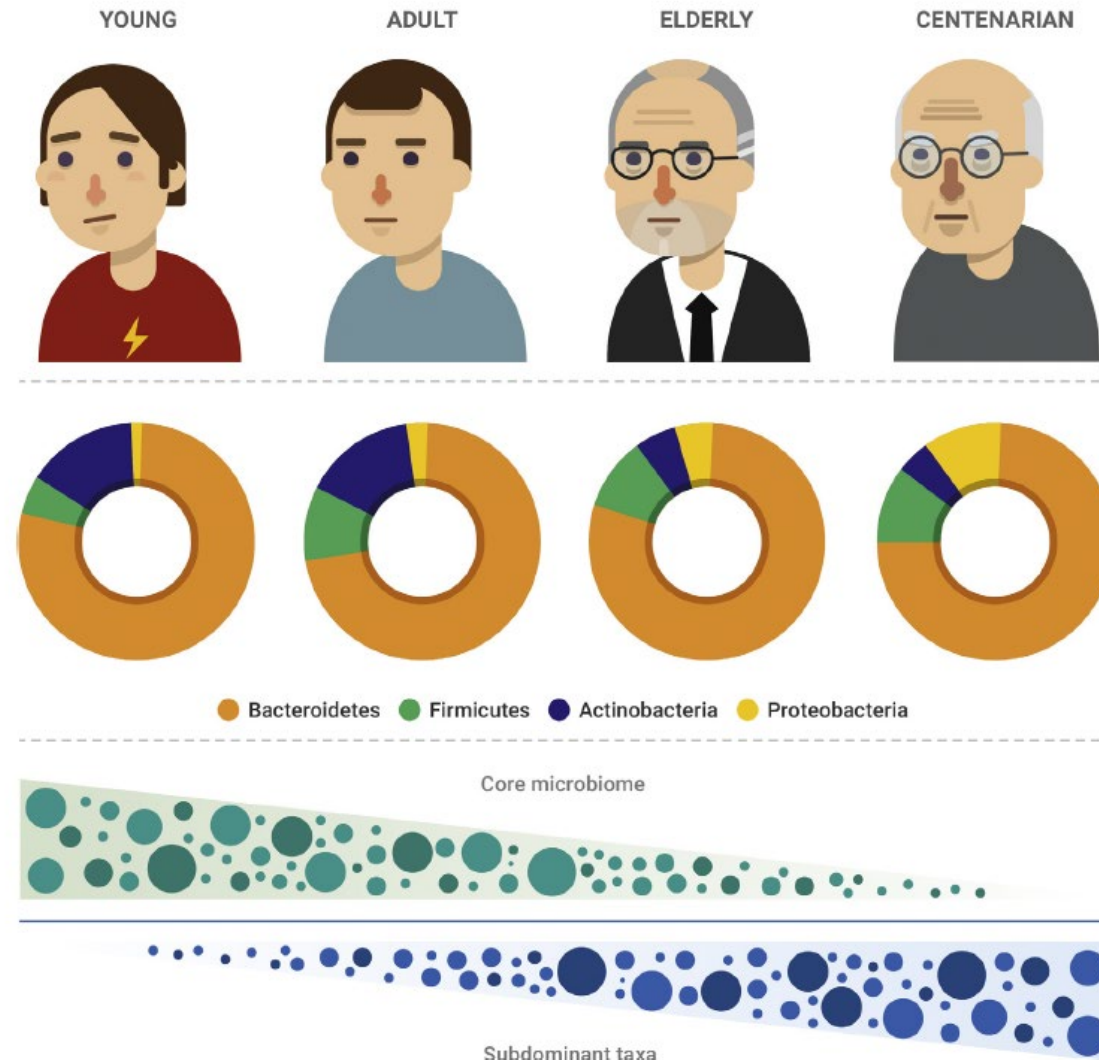
Konopka, Allan. *The ISME journal* 3.11 (2009): 1223-1230.



# Dysbiosis & obesity

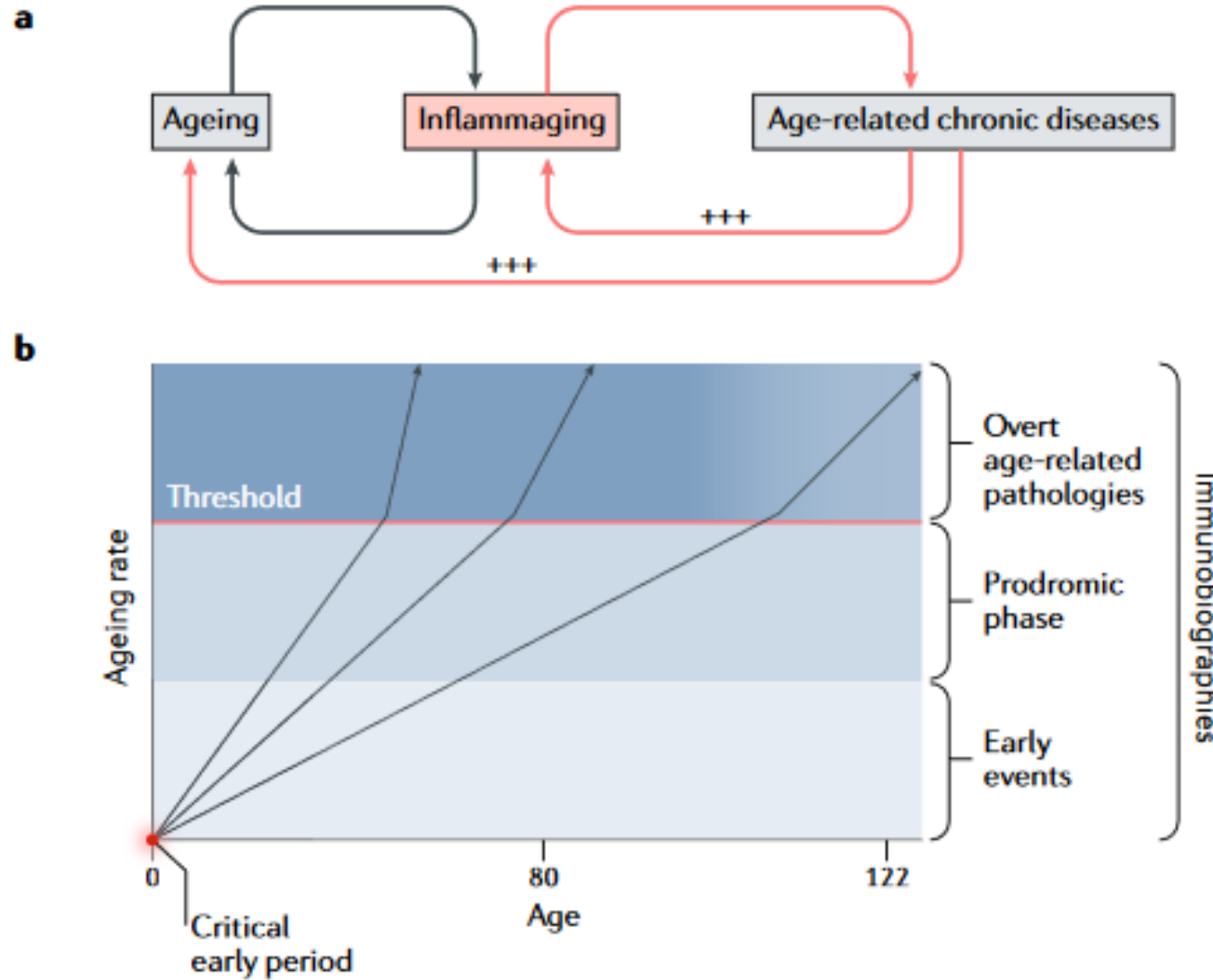


# Veroudering: de “natuurlijke” dysbiose



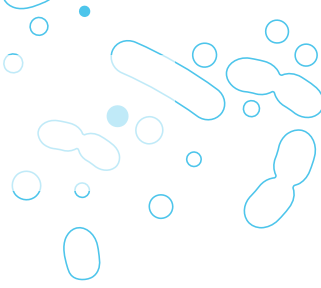
Vaiserman et al. , and Francesco Marotta. Ageing research reviews 35 (2017): 36-45.

# Inflammaging & ziekte





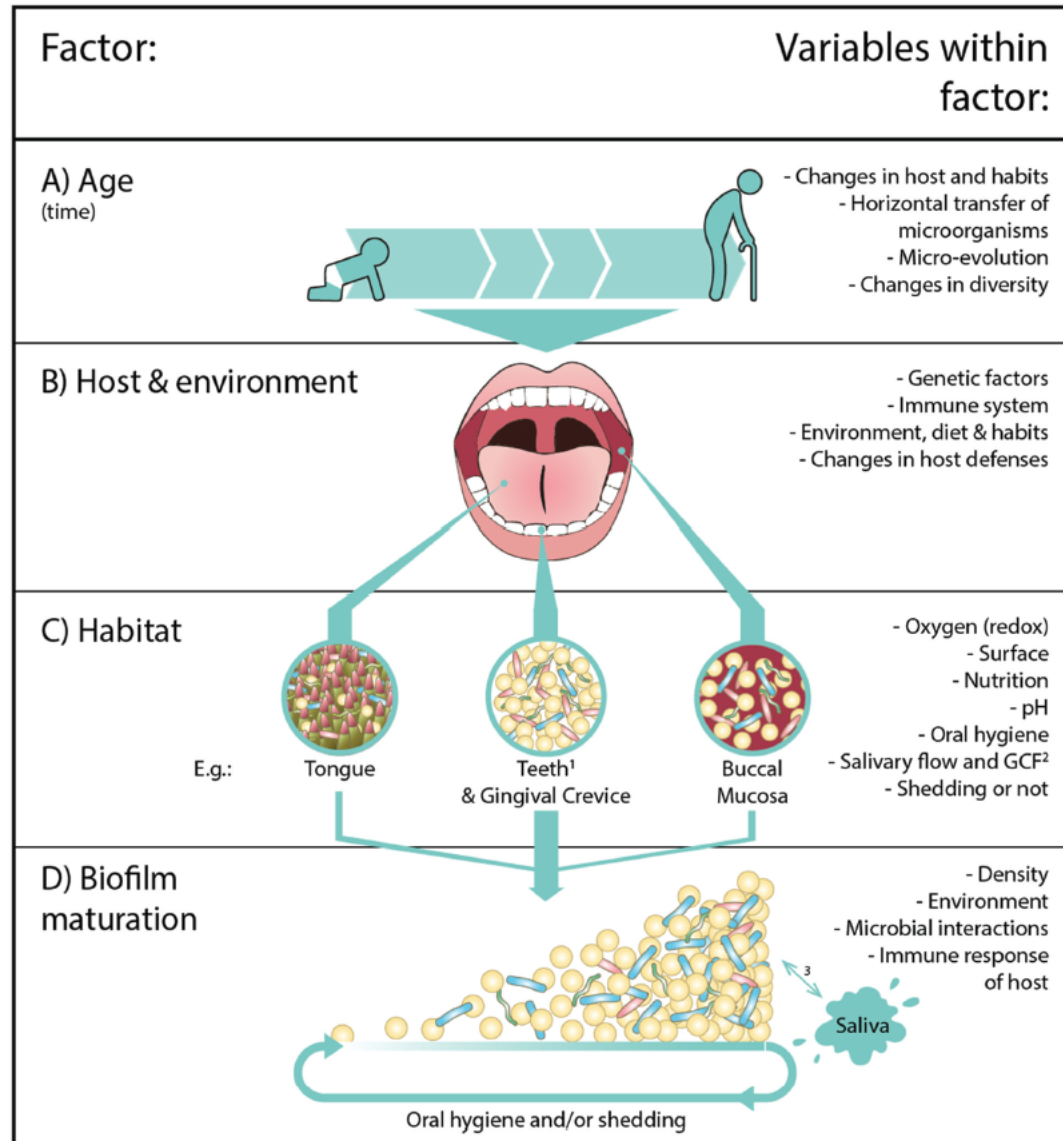
# Poll



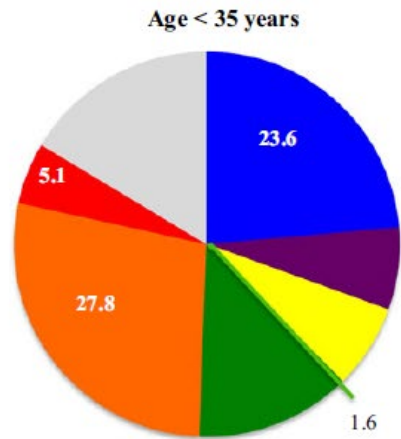
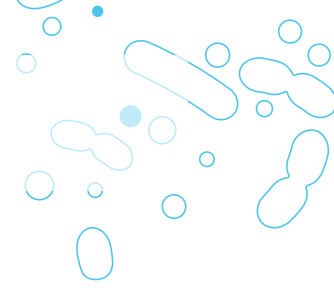
*“Een gezonde darmmicrobiota wordt gekarakteriseerd door”*

- Meer lactobacillen dan bifidobacteriën
- Meer firmicutes dan bacteroideten
- Een hoge diversiteit

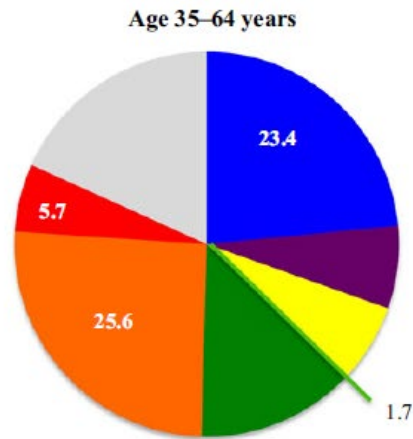
# De orale microbiota



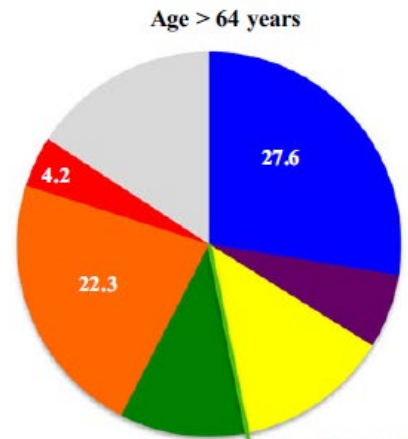
# De orale microbiota: veroudering en parodontitis



$n = 119$   
 $3.25 \times 10^5$



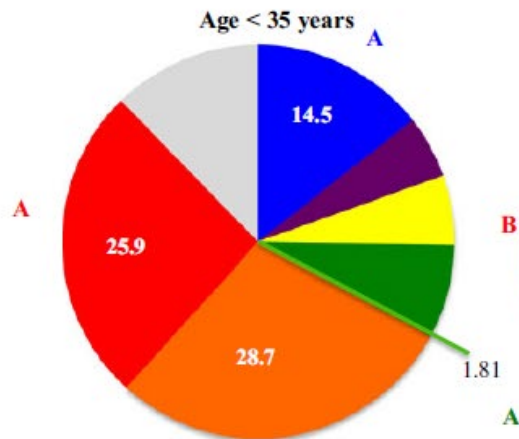
$n = 112$   
 $3.93 \times 10^5$



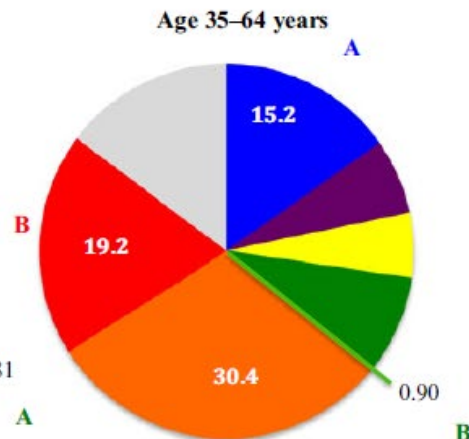
$n = 15$   
 $4.33 \times 10^5$

*A.actinomycetemcomitans*

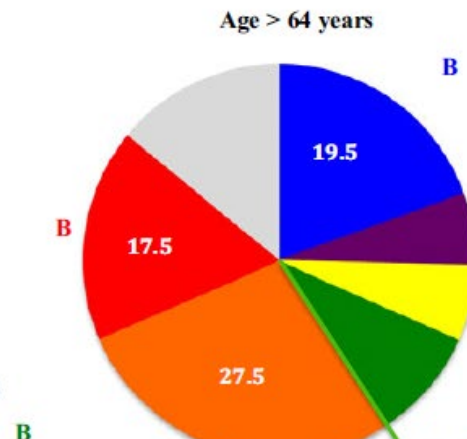
gezond



$n = 152$   
 $23.1 \times 10^6$



$n = 833$   
 $23.9 \times 10^6$



$n = 99$   
 $27.5 \times 10^6$

*A.actinomycetemcomitans*

parodontitis



# De orale microbiota: link met systemische aandoeningen



# Systemische aandoeningen: coronaire hartaandoeningen

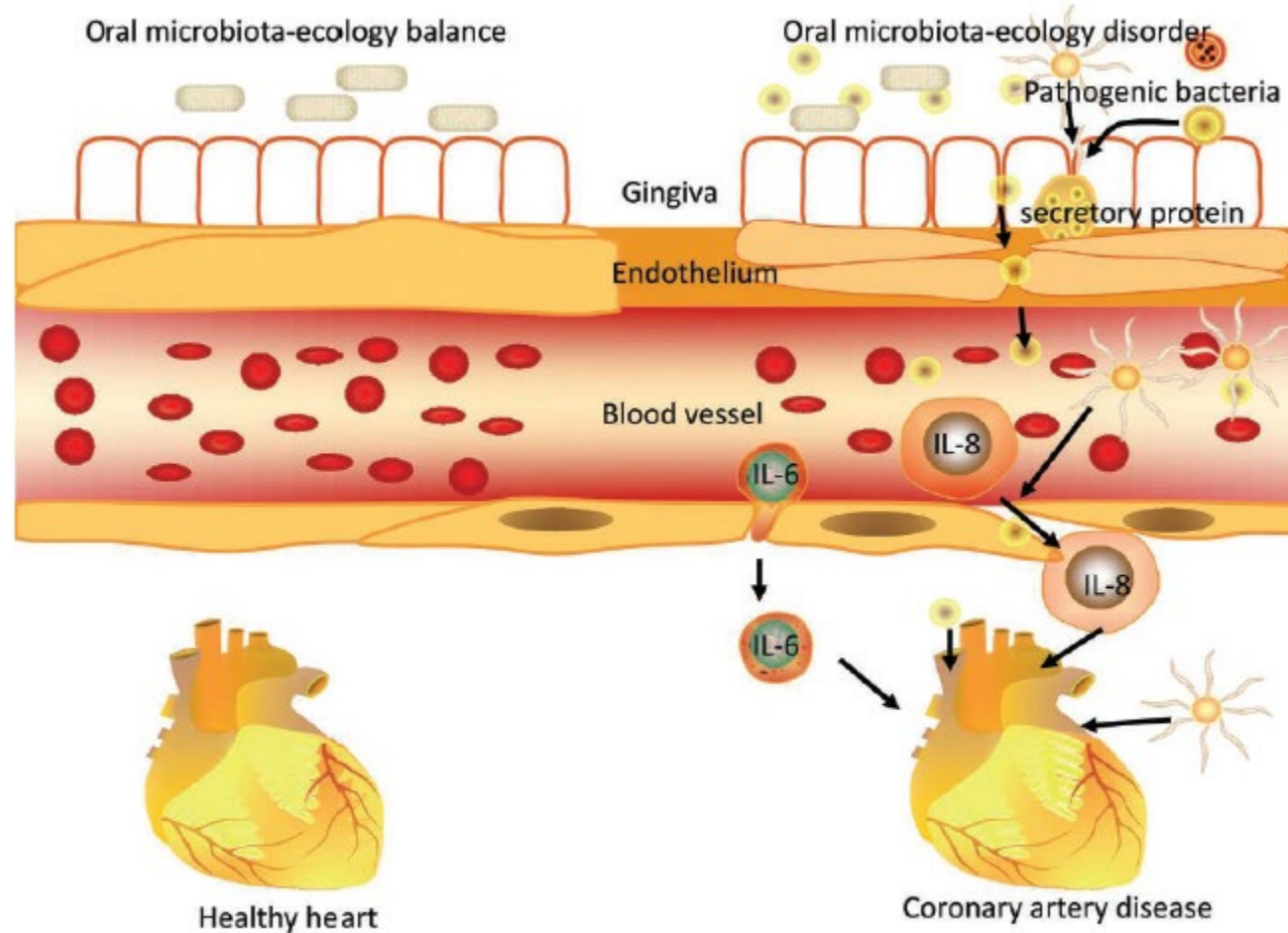
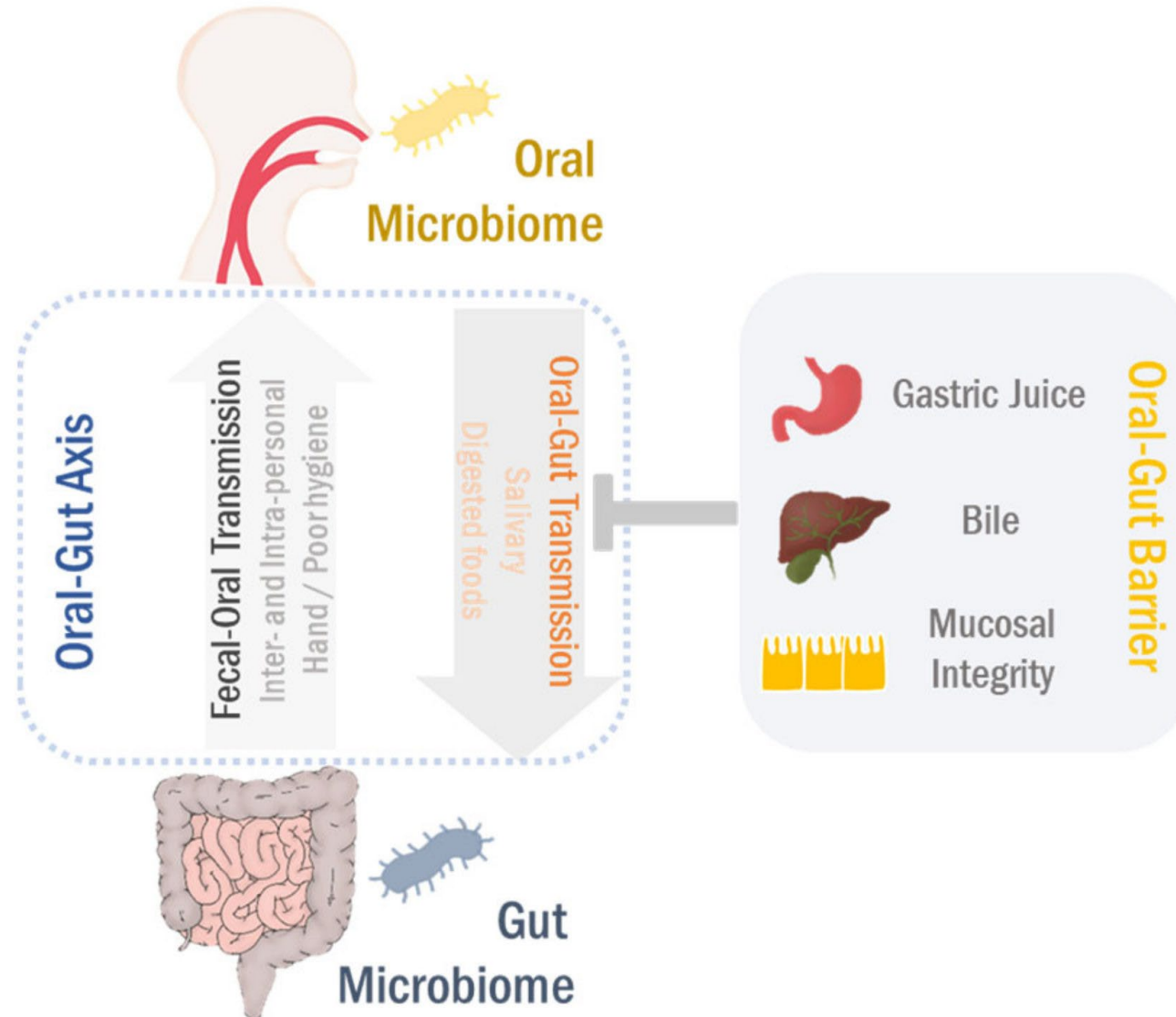


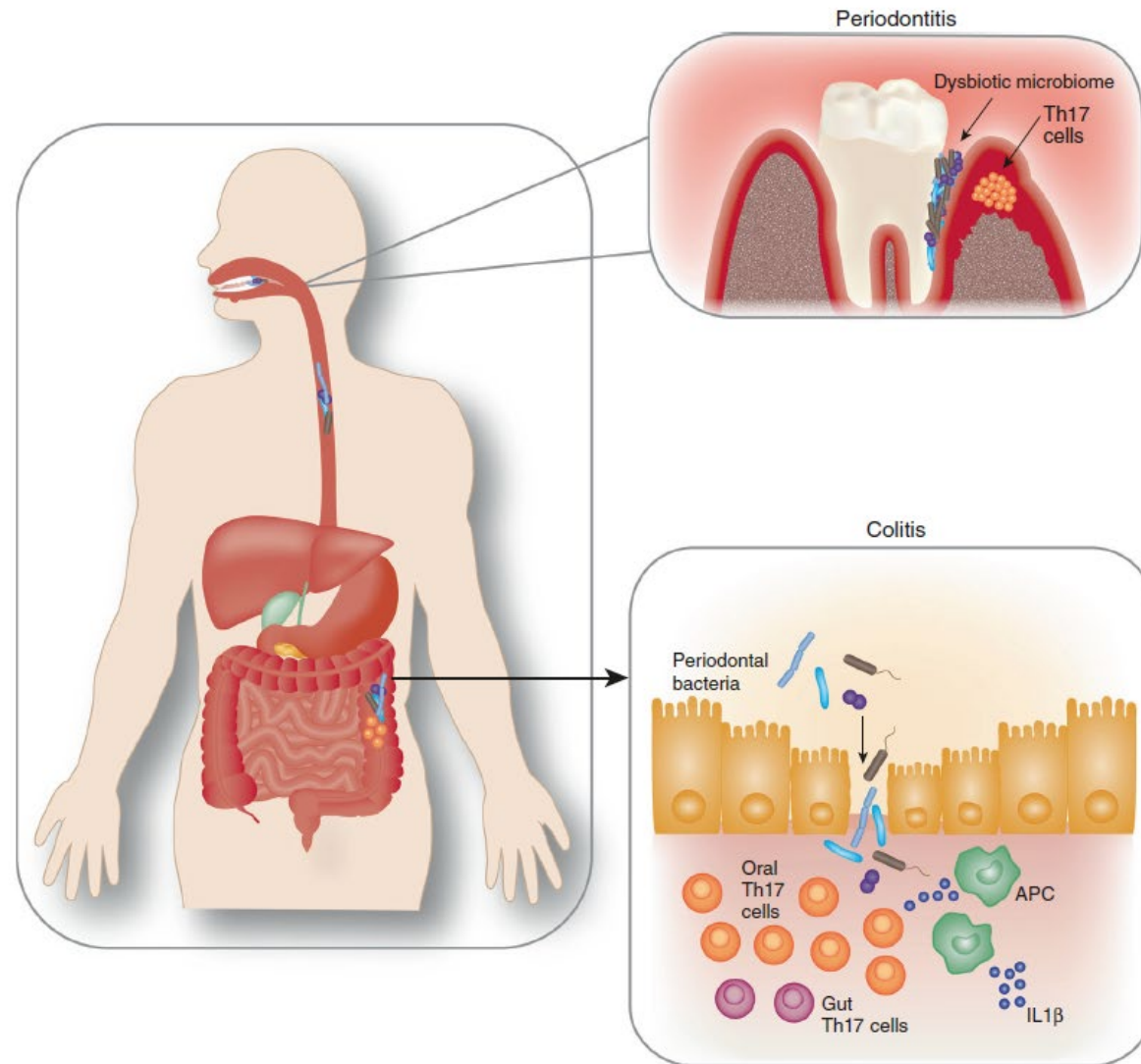
Fig. 2 An association between oral bacteria and coronary artery disease

# De orale-darm-microbiota as

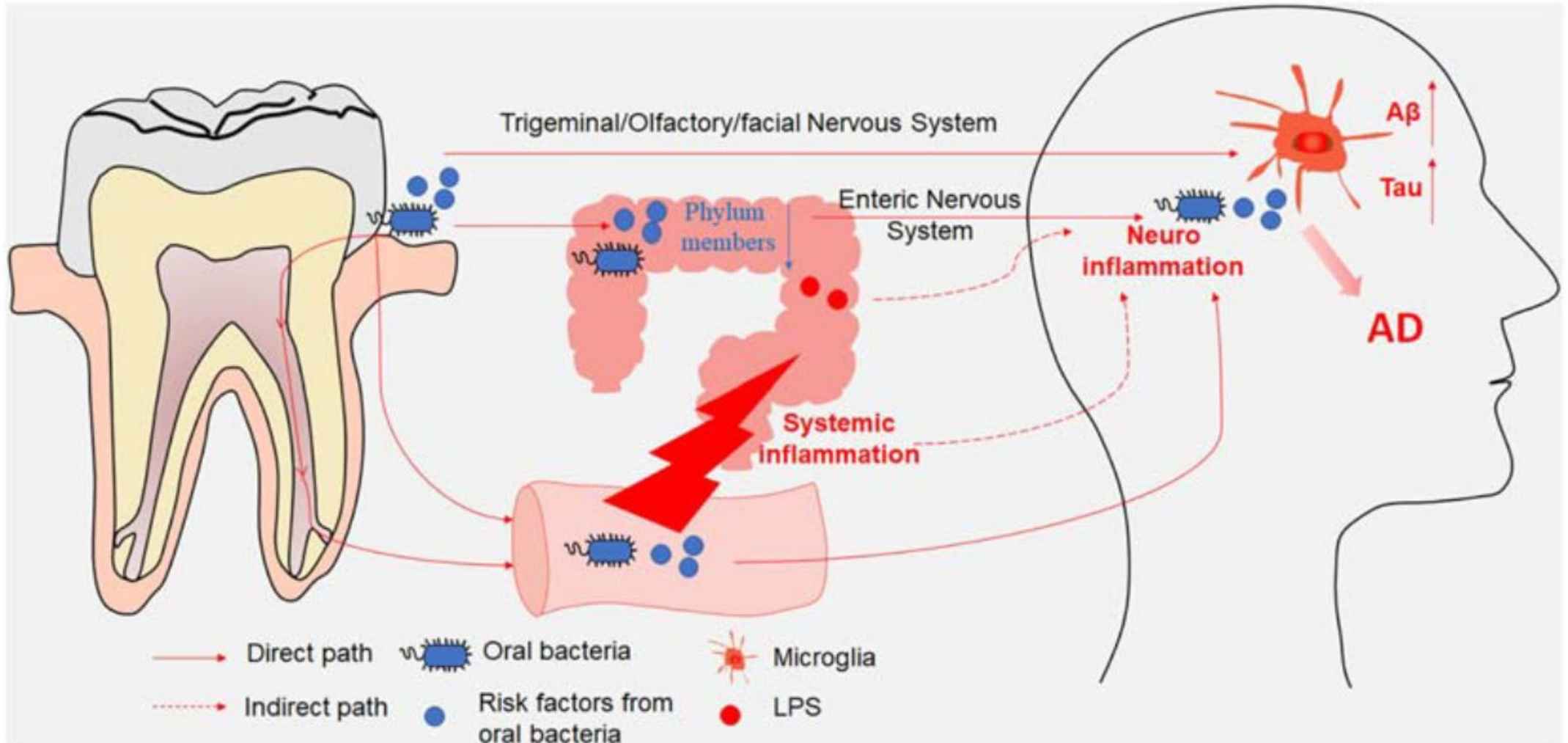




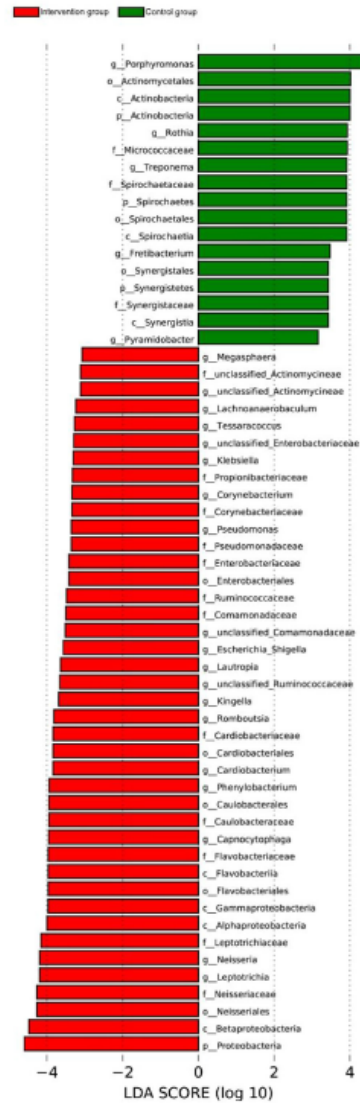
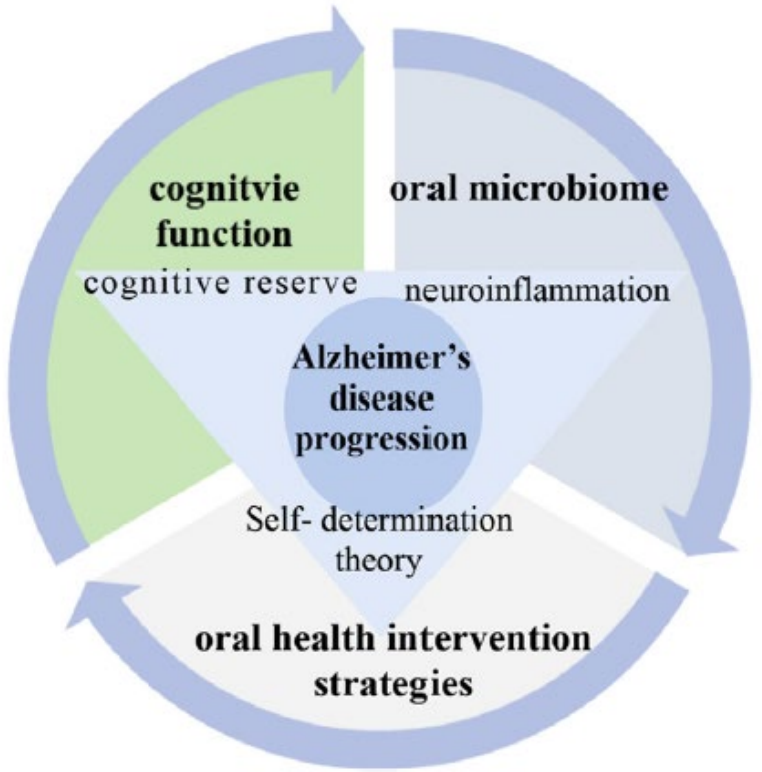
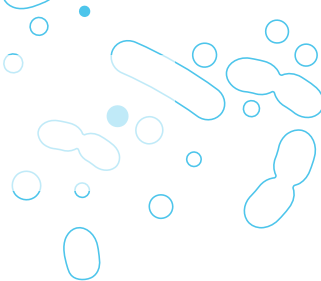
# De orale microbiota en colitis



# De orale-darm-microbiota brein as: rol in Alzheimer?



# Management orale gezondheid: effect op Alzheimer?



## MINI MENTAL STATUS EXAMINATION

**Mental Status Exam**

**OBSERVATIONS**

Appearance  Normal  Disheveled  Inappropriate  Bizarre  Other

Speech  Normal  Tangential  Pressured  Impoverished  Other

Contact  Normal  Inattentive  Avoidant  Other

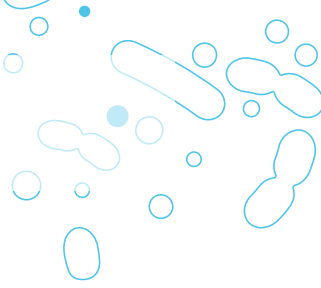
Motor Activity  Normal  Restless  Tics  Slowed  Other

Affect  Full  Flat  Labile  Other

Chen, Lili, et al. Geriatric Nursing 48 (2022): 99-106.



# Poll

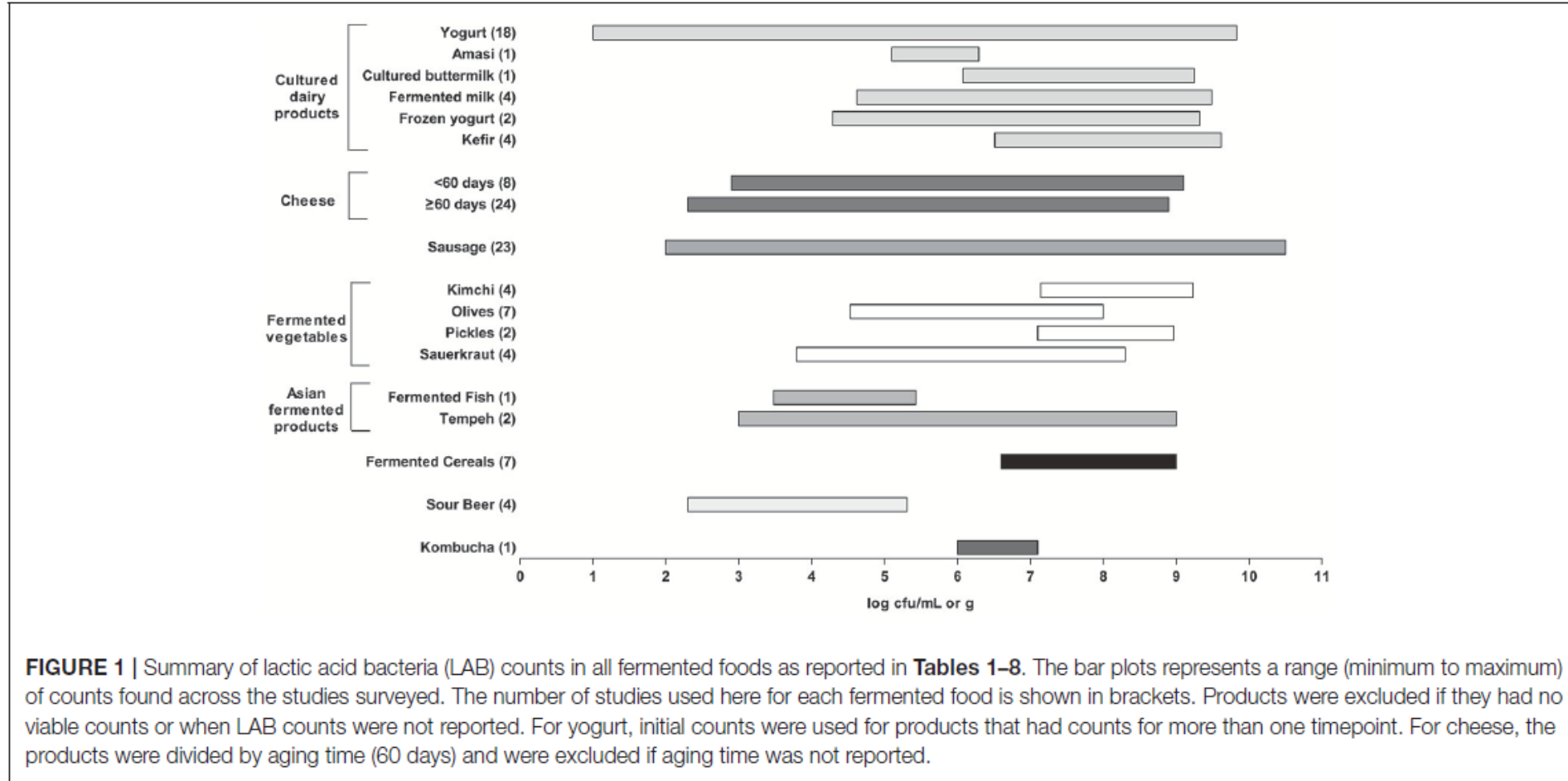
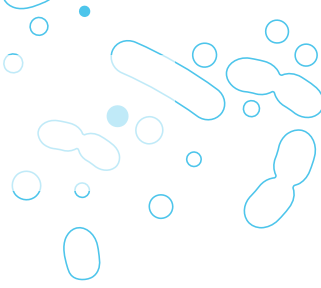


*“De samenstelling van de orale microbiota heeft een link met”*

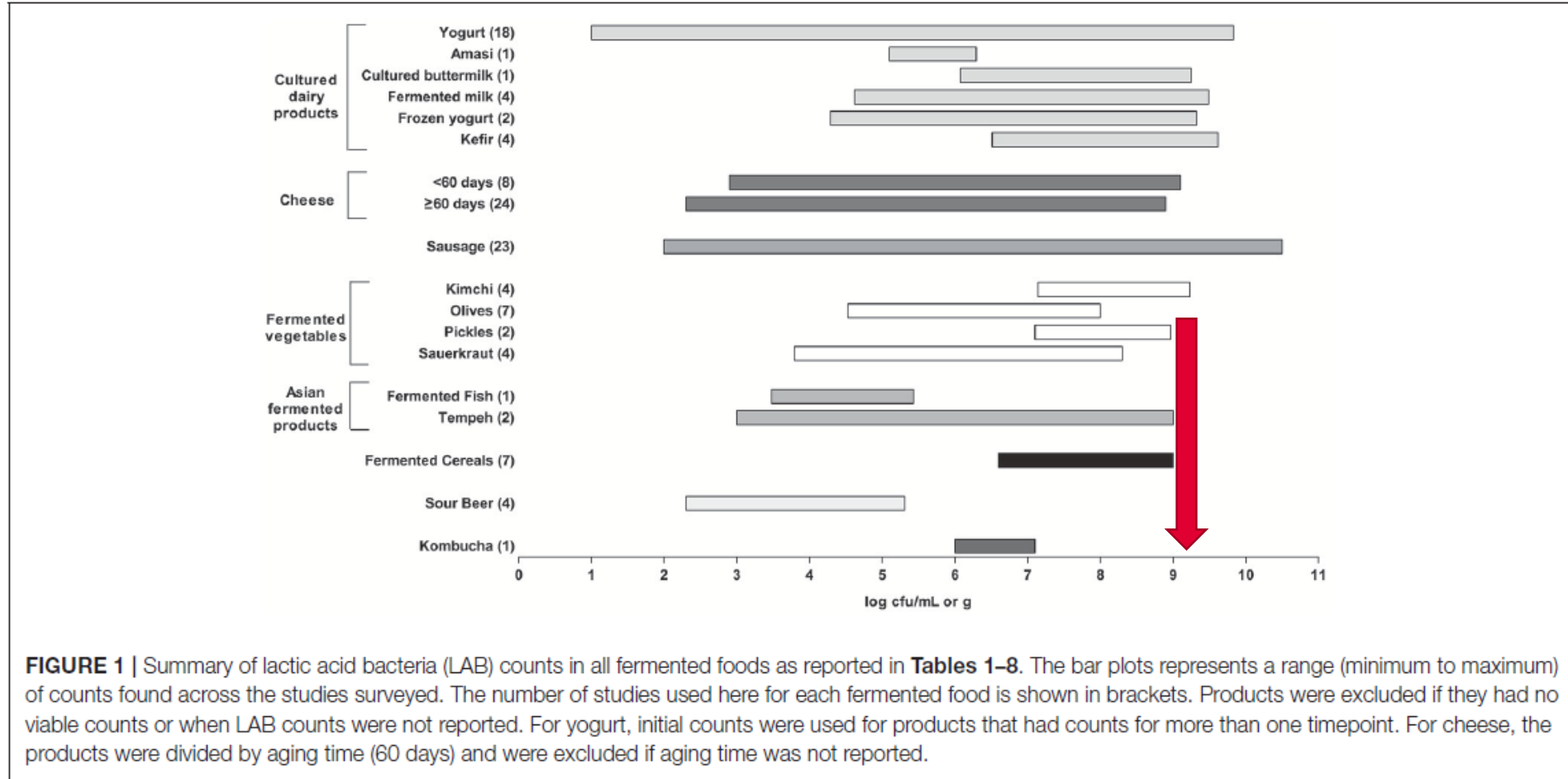
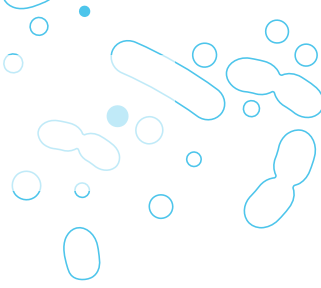
- Aandoeningen in de mond
- Systemische aandoeningen
- Zowel lokale als systemische aandoeningen



# Interventie met levende microorganismen?



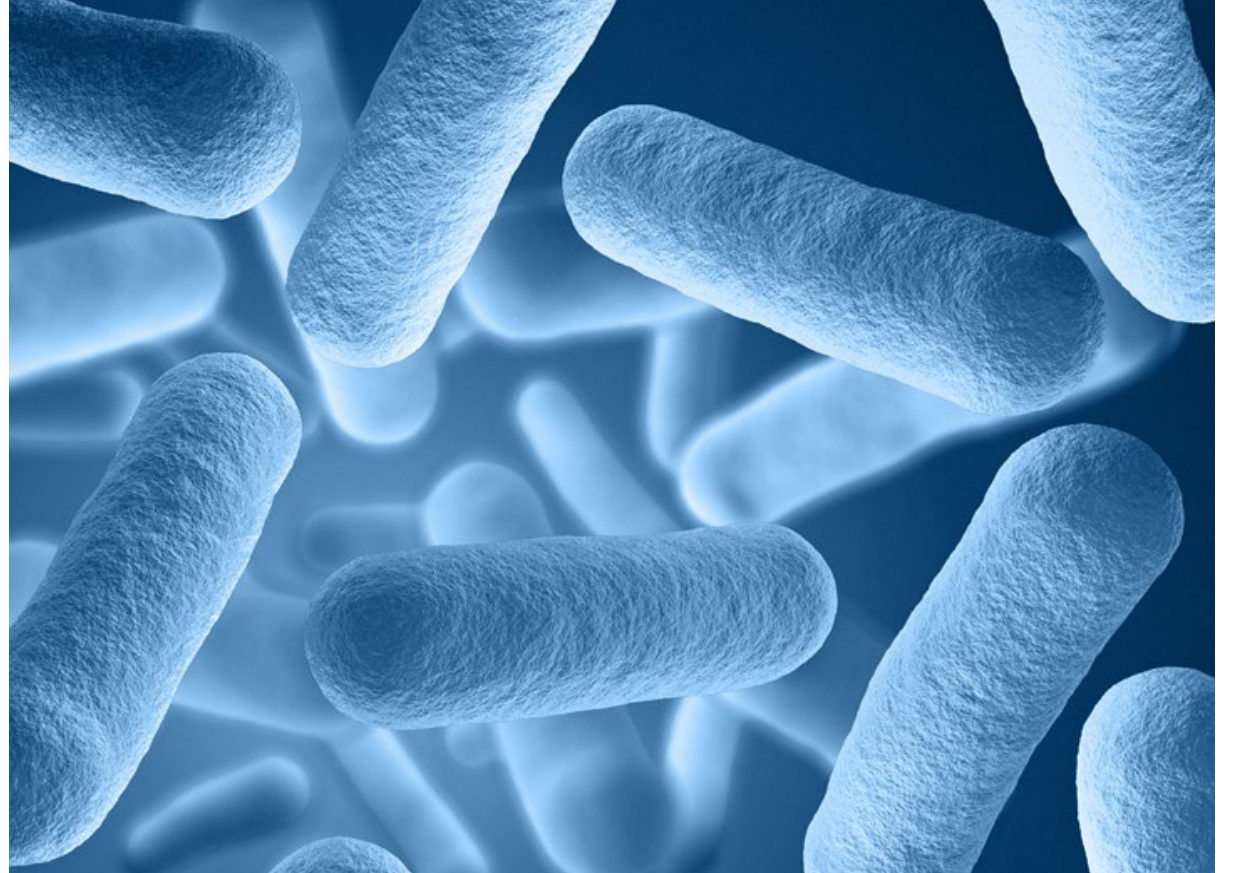
# Interventie met levende microorganismen?



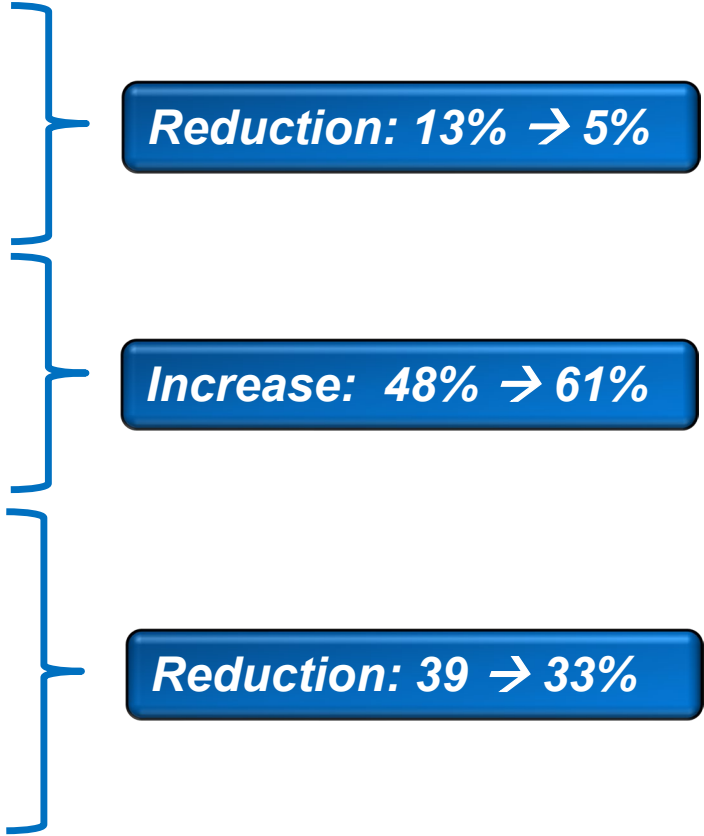
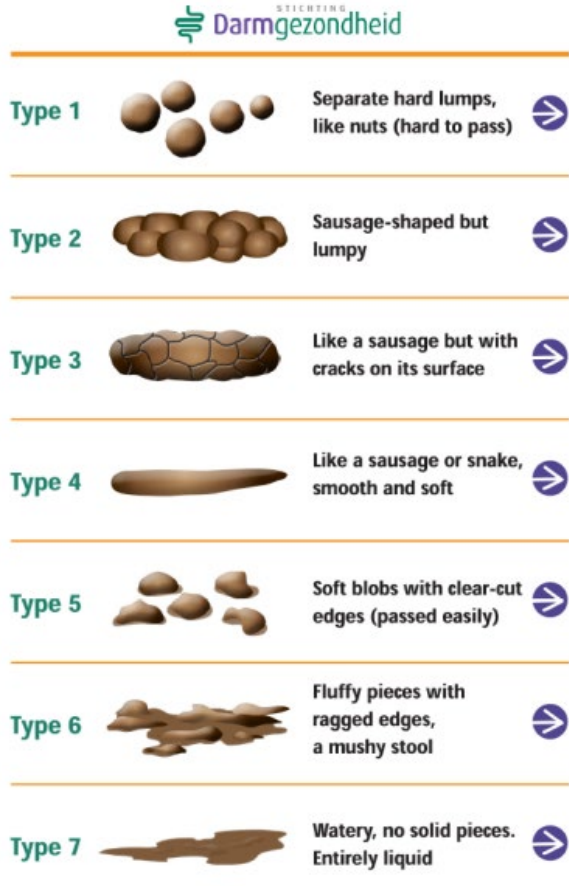
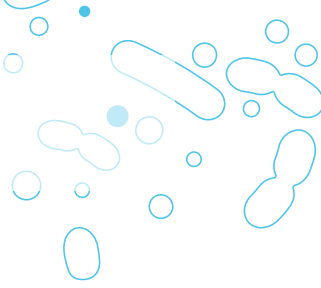
# Interventie met probiotica?

*“Live microorganisms that, when administered in adequate amounts, confer a health benefit on the host”*

WHO/FAO



# Interventie met probiotica in verpleeghuis

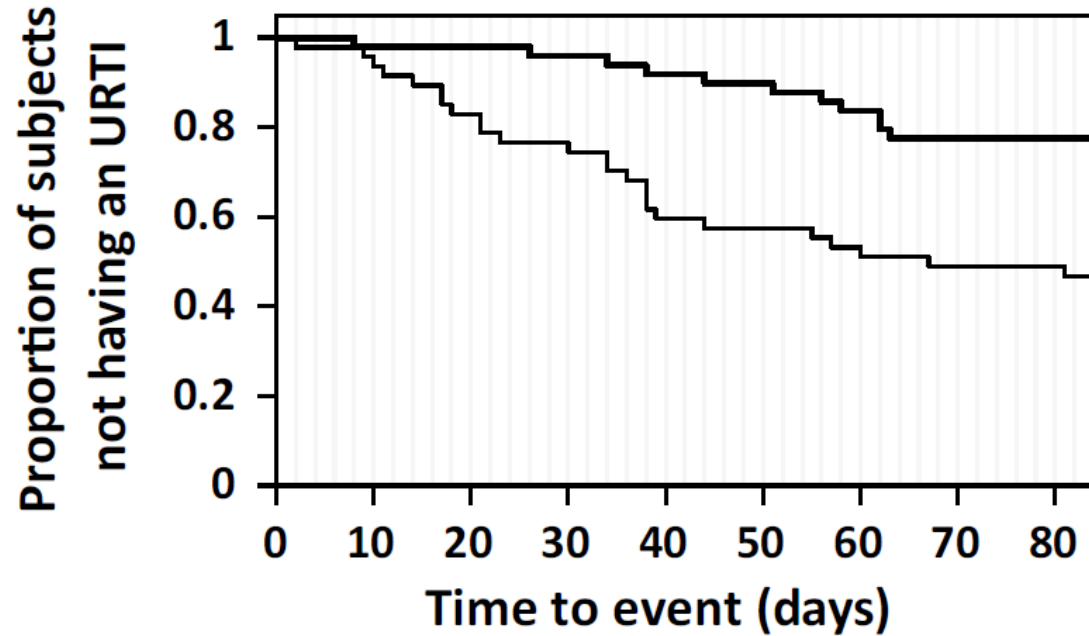


Van den Nieuwboer, M., Klomp-Hogeterp, A., Verdoorn, S., Metsemakers-Brameijer, L., Vriend, T. M., Claassen, E., & Larsen, O. F. A. (2015). Improving the bowel habits of elderly residents in a nursing home using probiotic fermented milk. *Beneficial microbes*, 6(4), 397-403.

Flach, J., M. Koks, M. B. van der Waal, E. Claassen, and O. F. A. Larsen. "Economic potential of probiotic supplementation in institutionalized elderly with chronic constipation." *PharmaNutrition* 6, no. 4 (2018): 198-206.

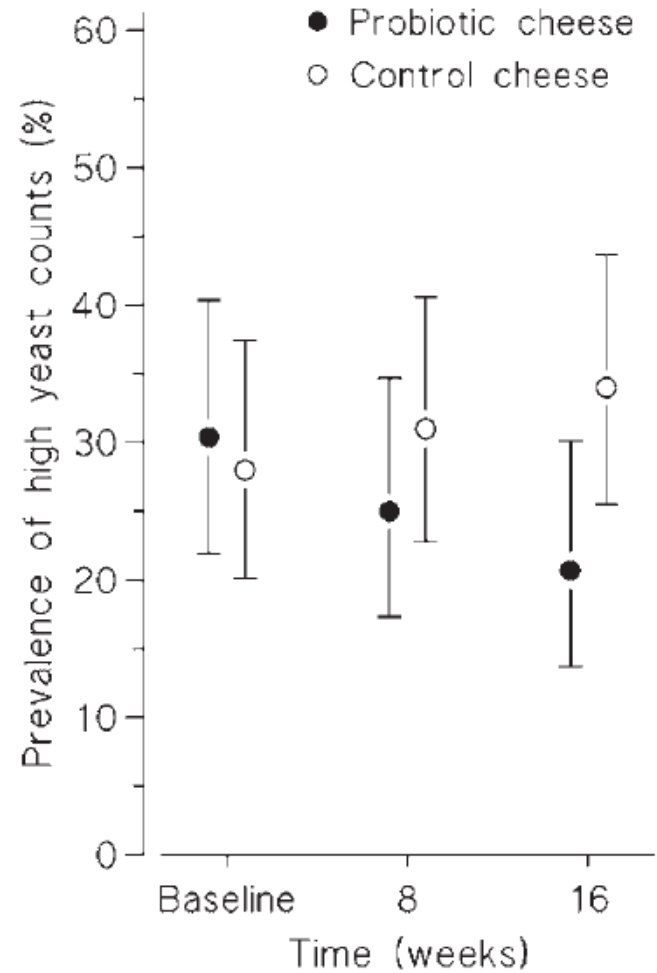


# Probiotica en inflammatie?



**Fig. 2** Kaplan–Meier time-to-event curves for the first URTI. The URTI-free rates were 0.78 (95 % CI 0.66–0.89) and 0.47 (95 % CI 0.33–0.61) in the LcS-FM (*thick line*) and the CM (*thin line*) groups, respectively

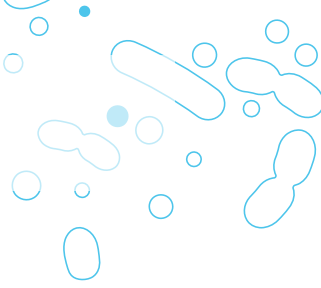
# Probiotica en mondgezondheid?



Hatakka et al. "Probiotics reduce the prevalence of oral Candida in the elderly—a randomized controlled trial." J. dental research 86.2 (2007): 125-130.

[https://en.wikipedia.org/wiki/Oral\\_candidiasis](https://en.wikipedia.org/wiki/Oral_candidiasis)

# Probiotische zuivel en mondgezondheid?



Study or Subgroup	Probiotics		Control		Weight	Risk Difference
	Events	Total	Events	Total		M-H, Fixed, 95% CI
Ahola et al 2002	9	38	11	36	26.3%	-0.07 [-0.27, 0.13]
Hatakka et al. 2007	9	92	0	100	68.1%	0.10 [0.03, 0.16]
Lexner et al 2010	0	12	0	6	5.7%	0.00 [-0.22, 0.22]
<b>Total (95% CI)</b>		<b>142</b>		<b>142</b>	<b>100.0%</b>	<b>0.05 [-0.02, 0.12]</b>
Total events	18		11			
Heterogeneity: Chi <sup>2</sup> = 3.83, df = 2 (P = 0.15); I <sup>2</sup> = 48%						
Test for overall effect: Z = 1.36 (P = 0.17)						

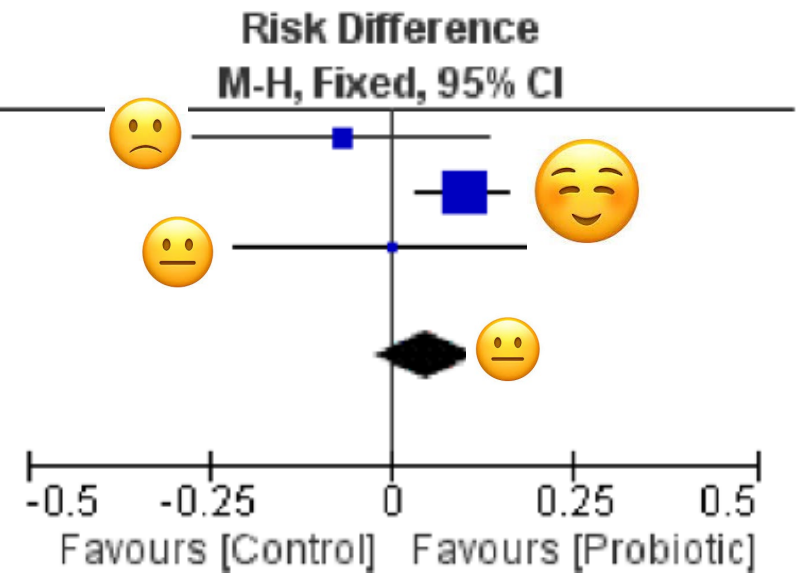
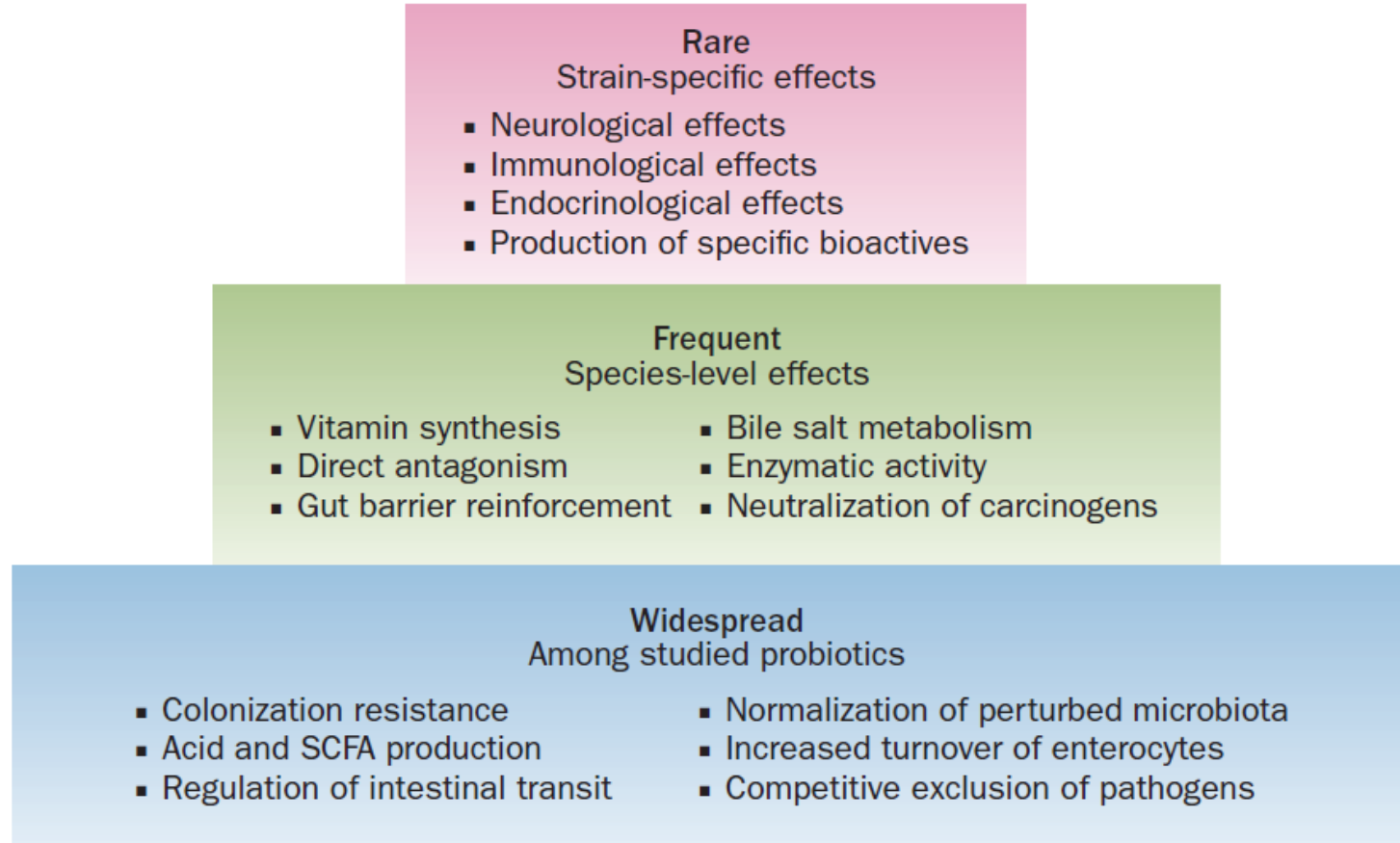


Fig. 6 Association between probiotic dairy products and individuals decrease of yeast count

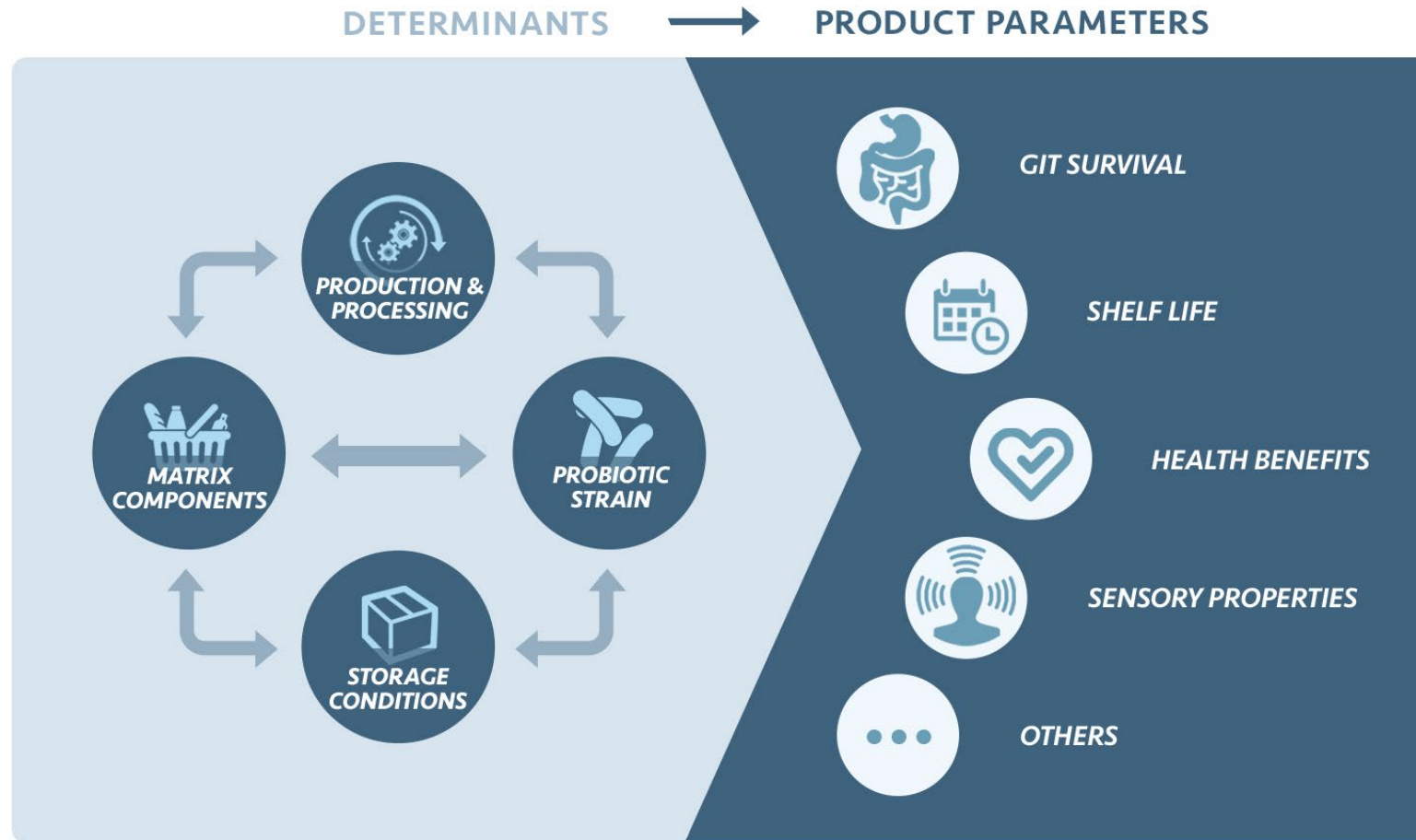
# Probiotica: effect vaak stam-specifiek!



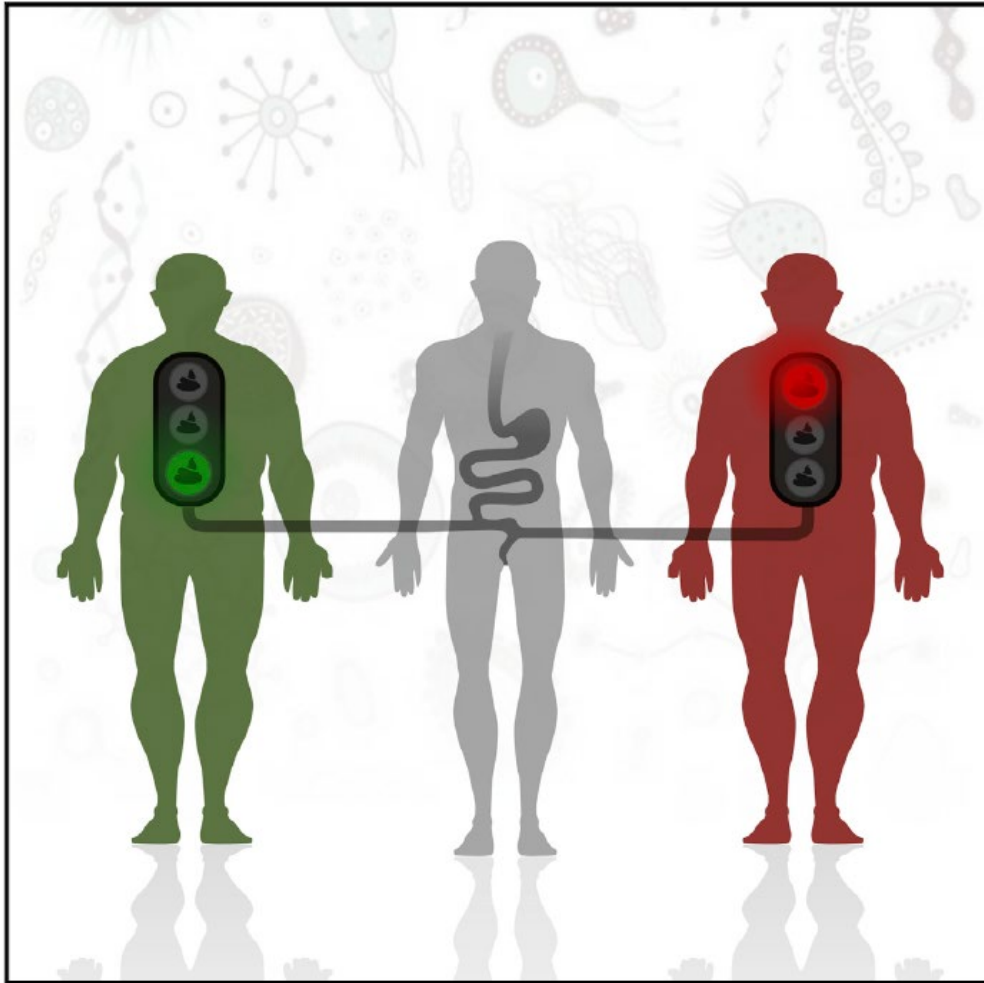
Colin Hill et al. Nat Rev Gastroenterol Hepatol 11.8 (2014): 506-514.



# Probiotica: effect vaak product-specifiek!



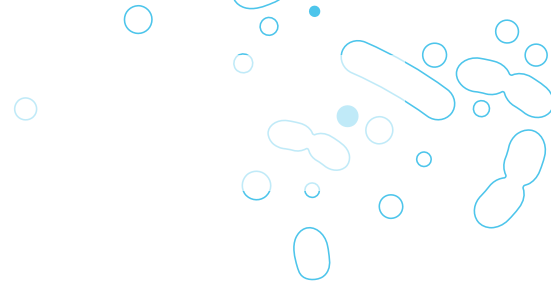
# Probiotica: is er een match?



Kootte et al. (2017). Cell metabolism, 26(4), 611-619.



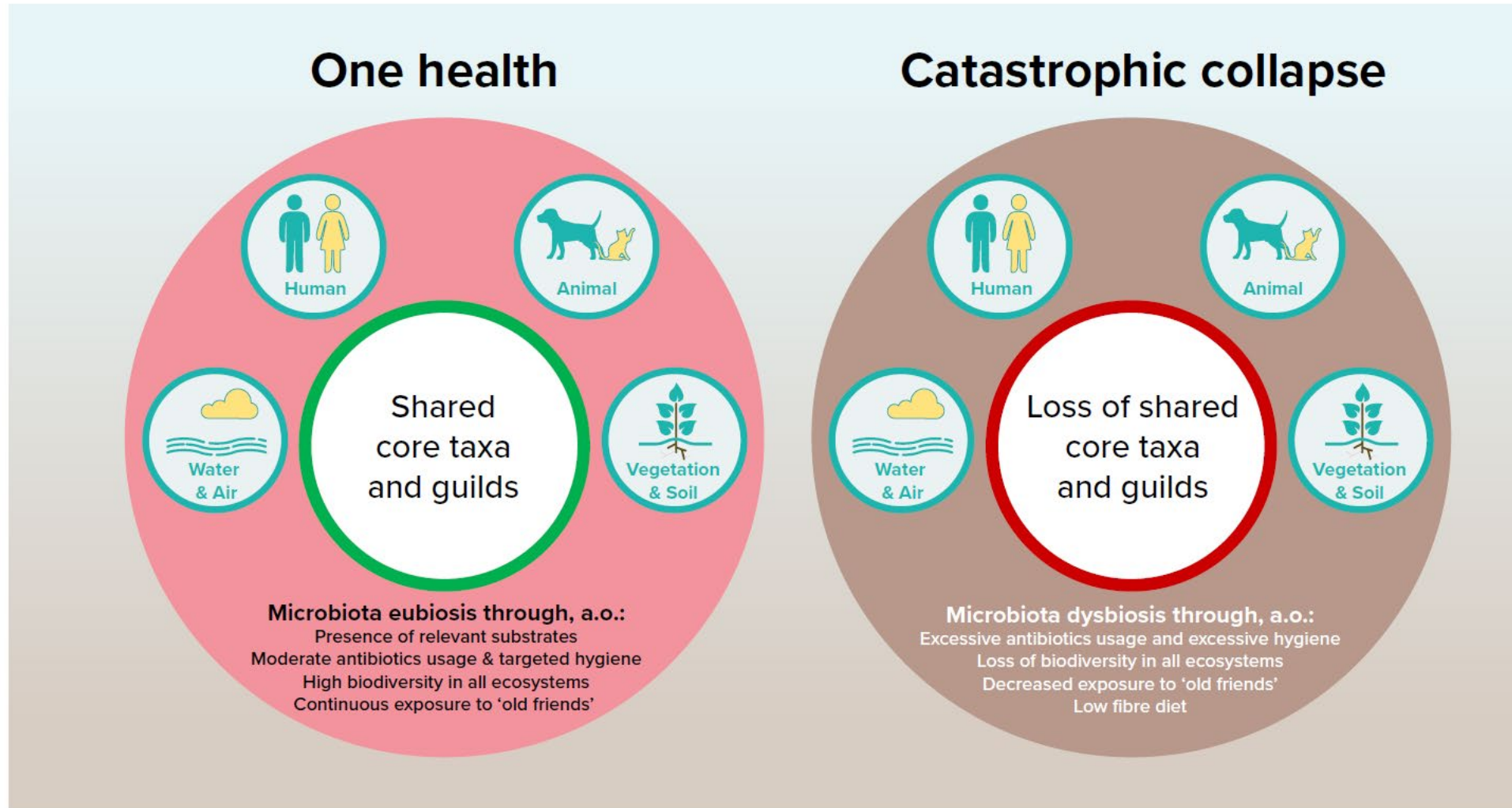
# Poll



*“De werking van probiotica wordt bepaald door”*

- Welke specifieke stam er wordt gebruikt
- De overige product ingrediënten
- De match met de gebruiker
- Alle drie de antwoorden hierboven

# Onze gezondheid: een holistisch perspectief



Larsen, Olaf, and Linda Van de Burgwal. "On the verge of a catastrophic collapse? The need for a multi-ecosystem approach to microbiome studies." *Frontiers in Microbiology*: 3611.



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Science for Health

## Dank voor uw aandacht!

Vragen?

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OLARSEN@YAKULT.NL