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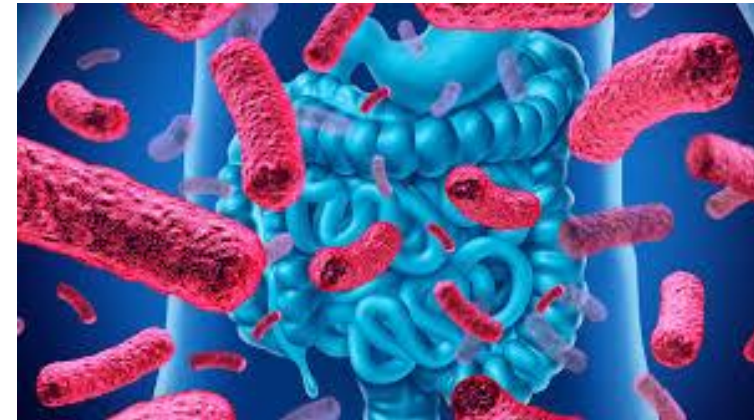
## The Microbiome and Obesity Management

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4 September 2024



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# Gut microbiota and obesity

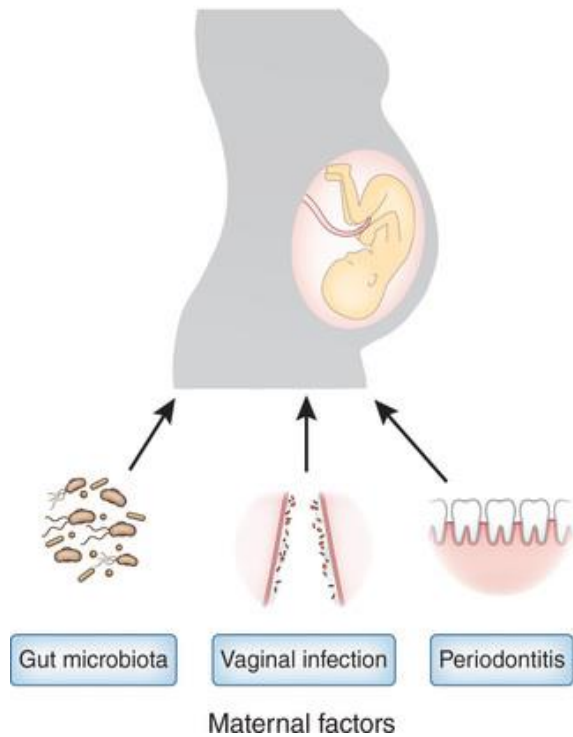
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- Gut microbiota is composed of bacteria, viruses, archaea, and fungi
- Can be considered an organ that resides in the lumen of the gut
- Contains 150-fold more genetic information than the human genome

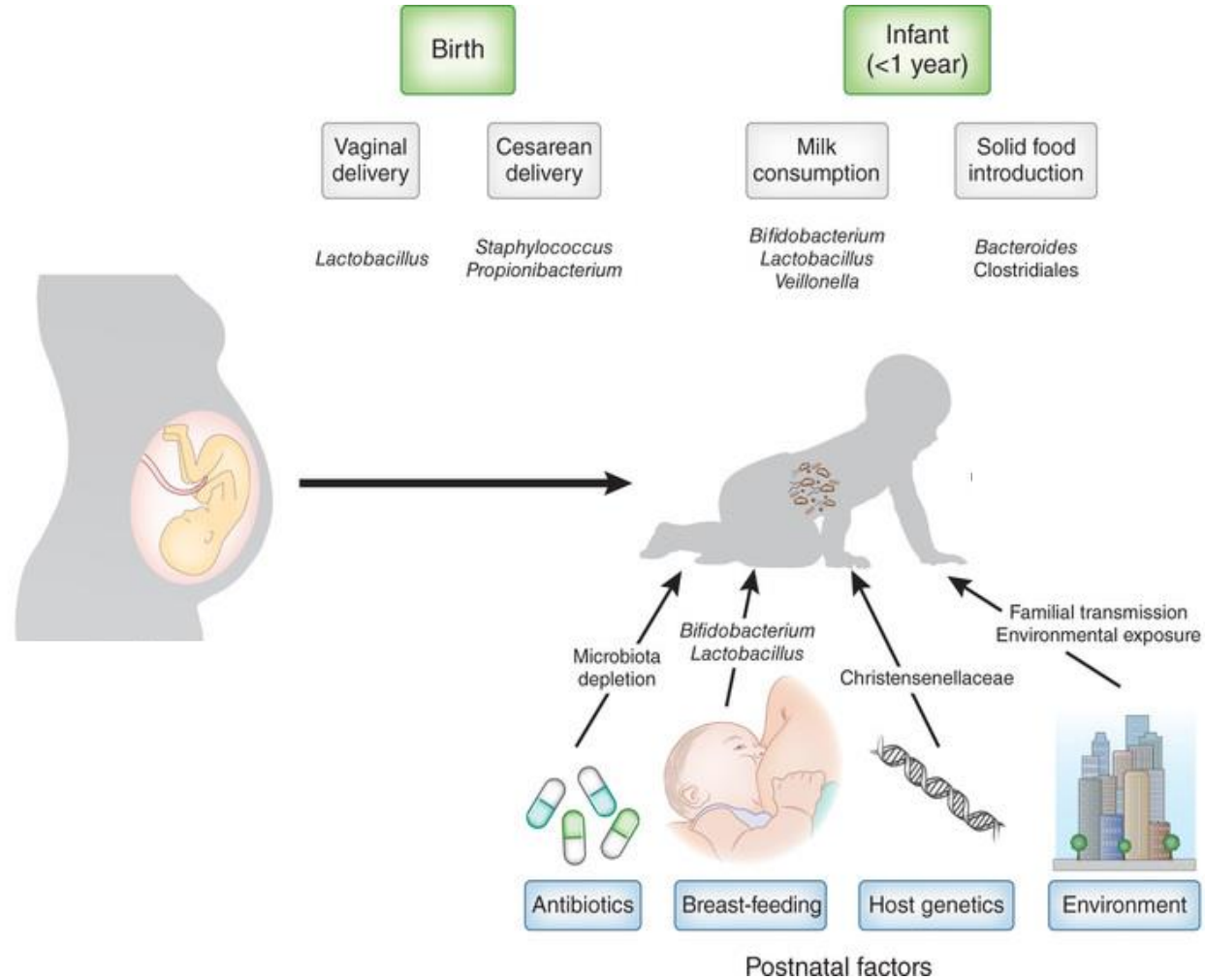


# Gut microbiota and obesity

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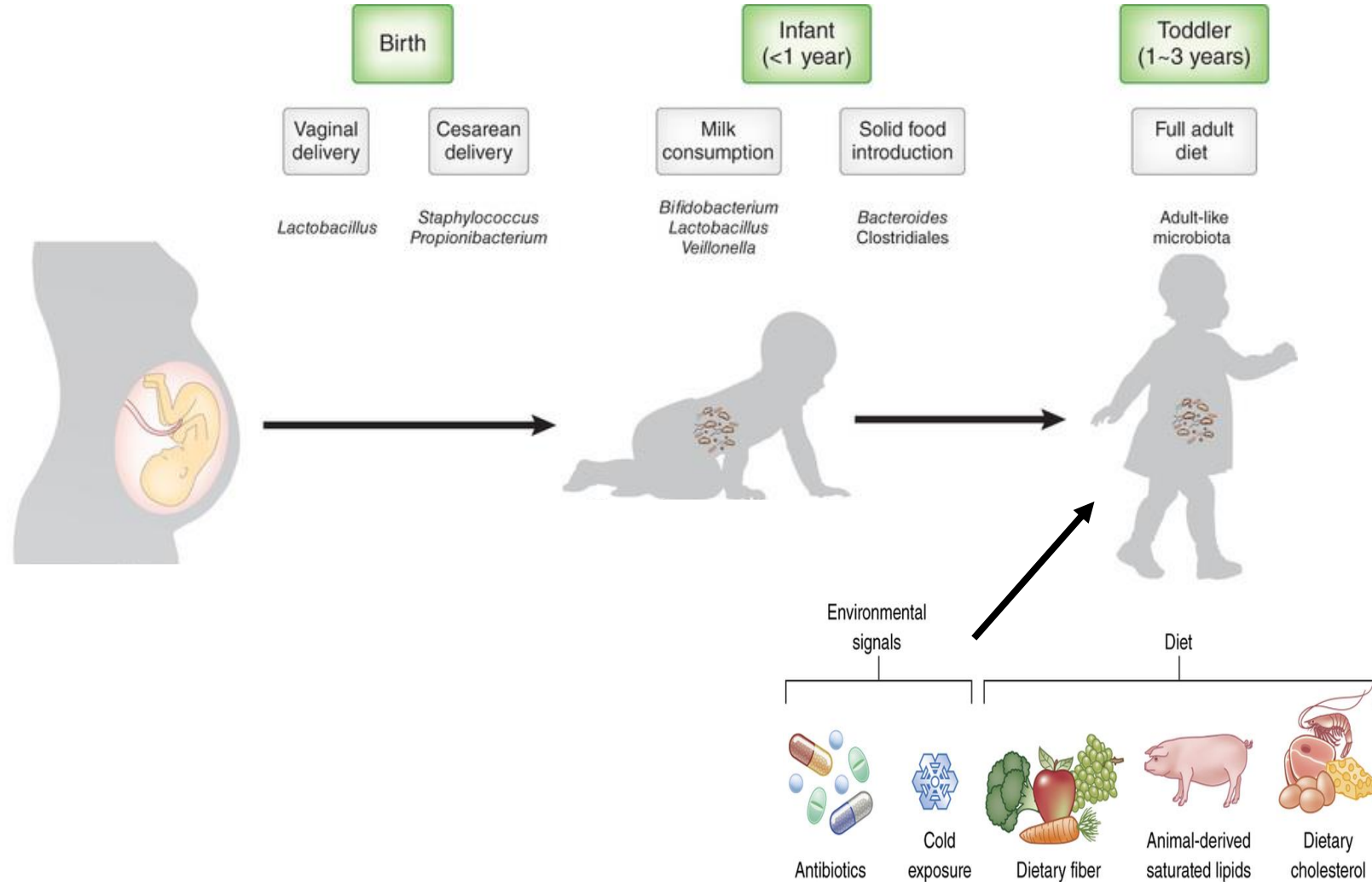
# Gut microbiota and obesity



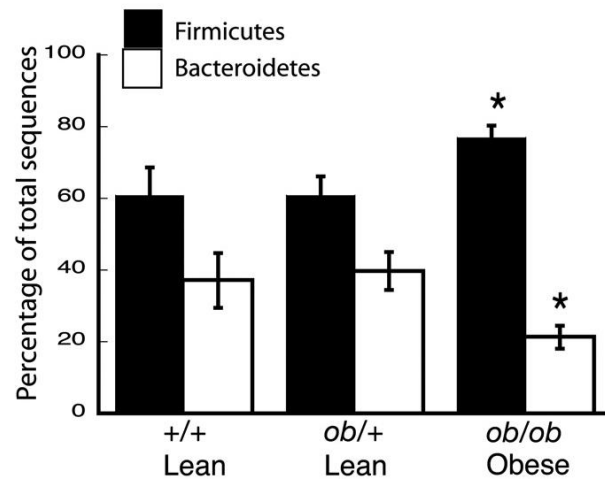
Shoeder and Backhed. (2016) *Nature Medicine*, Tamburini et al. (2016) *Nature Med*

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# Gut microbiota and obesity

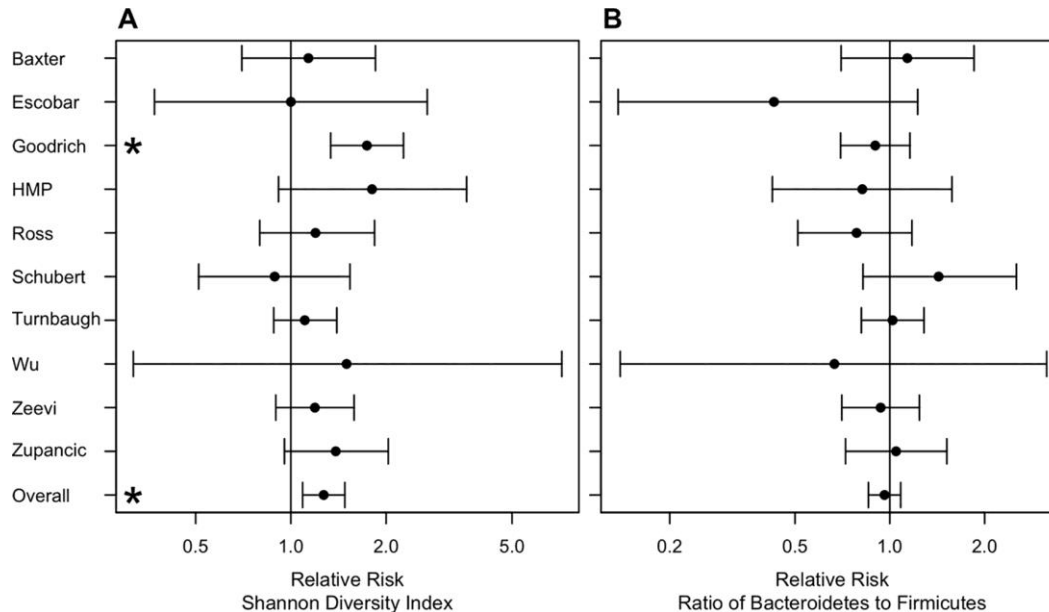


# Gut microbiota and obesity



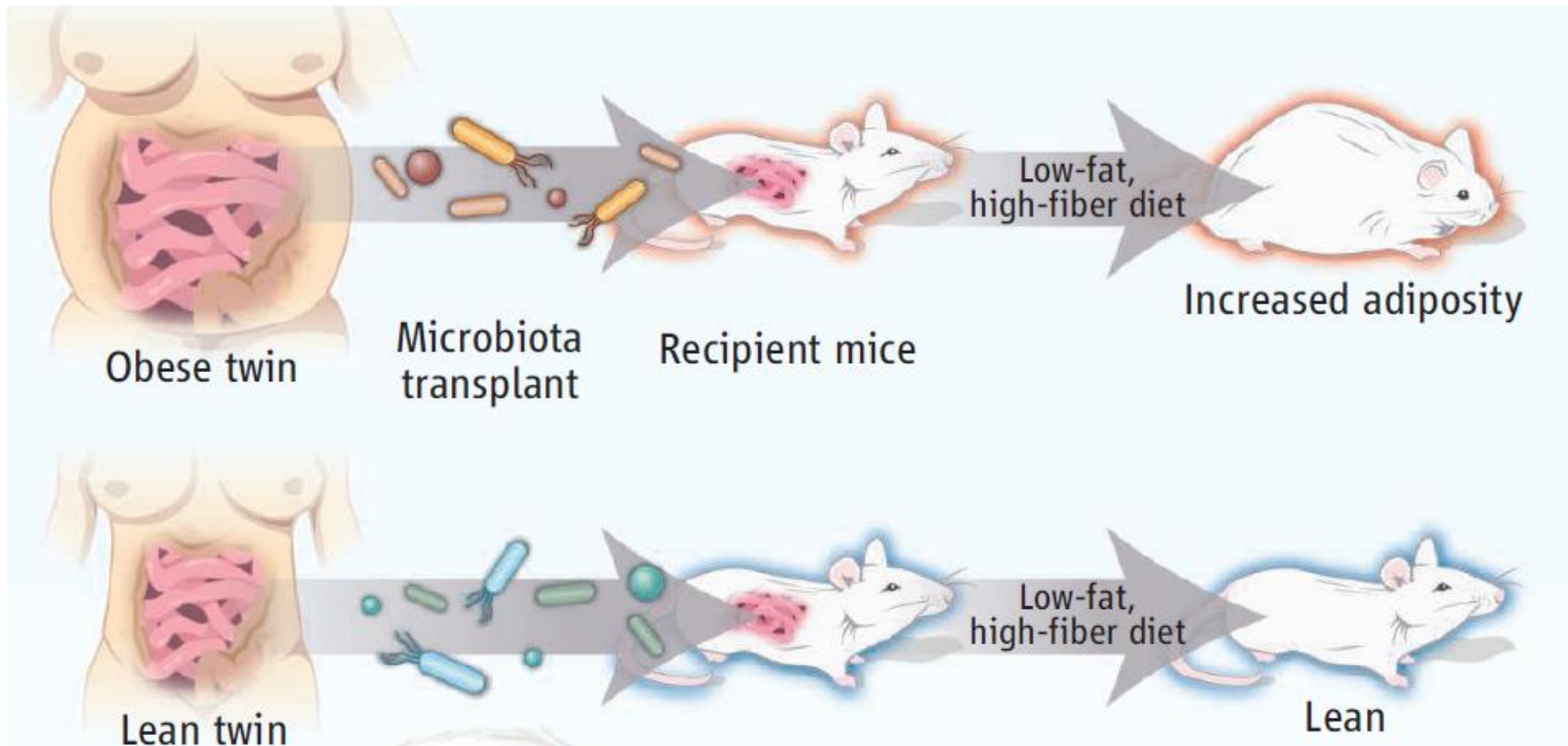
- The first studies showed a prominent bacterial signature of obesity in mice
- Some human studies recapitulated this signature

# Gut microbiota and obesity



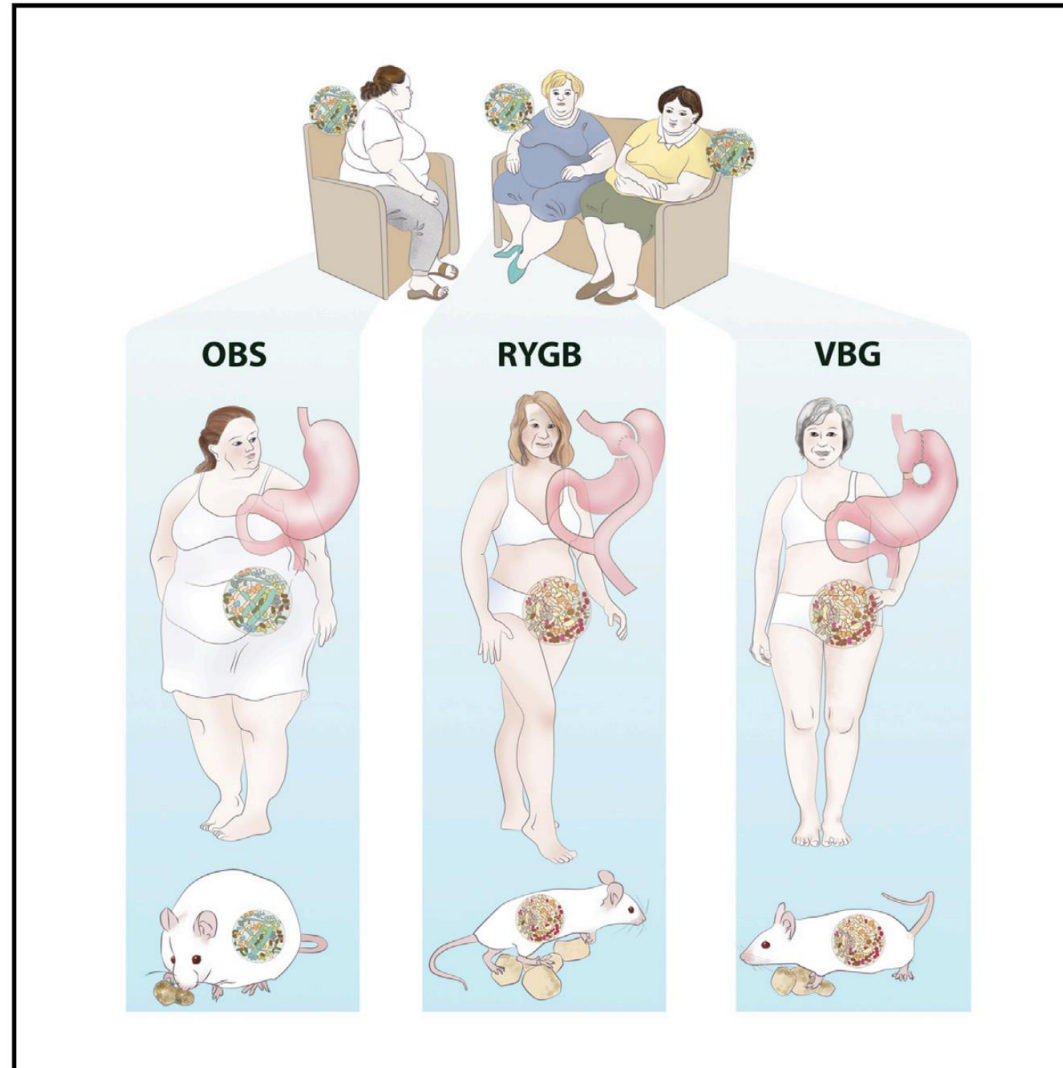
- The first studies showed a prominent bacterial signature of obesity in mice
- Some human studies recapitulated this signature
- Large meta-analysis showed there was **no clear taxonomic obesity signature**

# Gut microbiota and obesity





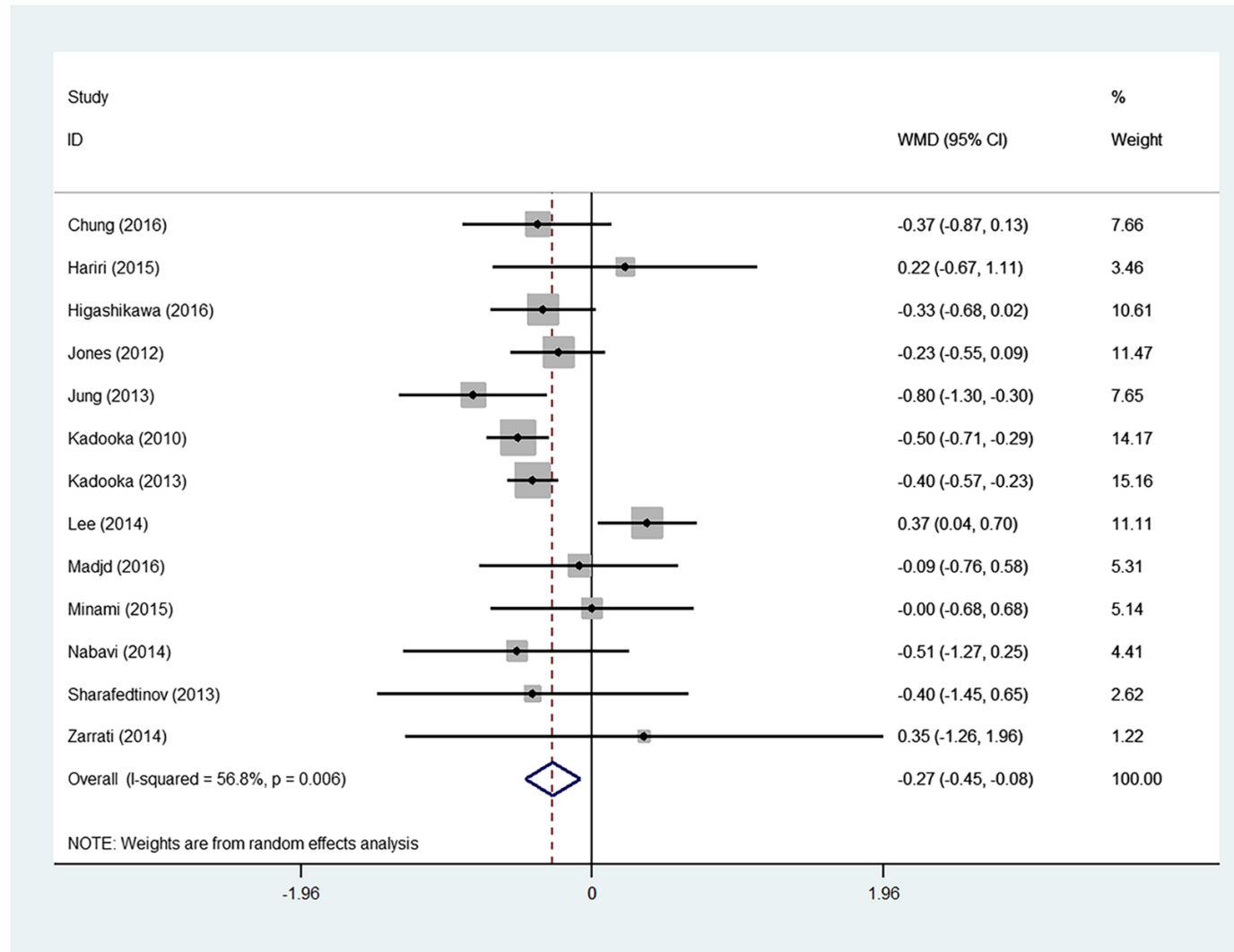
# Gut microbiota and obesity



Tremaroli, V et al., *Cell Metabolism* 2015

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# Gut microbiota in the clinic today



# Gut microbiota in the clinic today

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- Very few safety problems that have been identified with pro- or prebiotics
- May be some weight independent beneficial effects, but more work needs to be done
- Weight effects have very small effect size (~1.3 lbs weight difference)



- Many different strains and compounds are used
- Most probiotic species are not native to the human intestine (aerobic)
- We do not know how well they “engraft” into or change the ecosystem
- Very few metabolic clinical benefits have been seen

# Gut microbiota in the clinic today

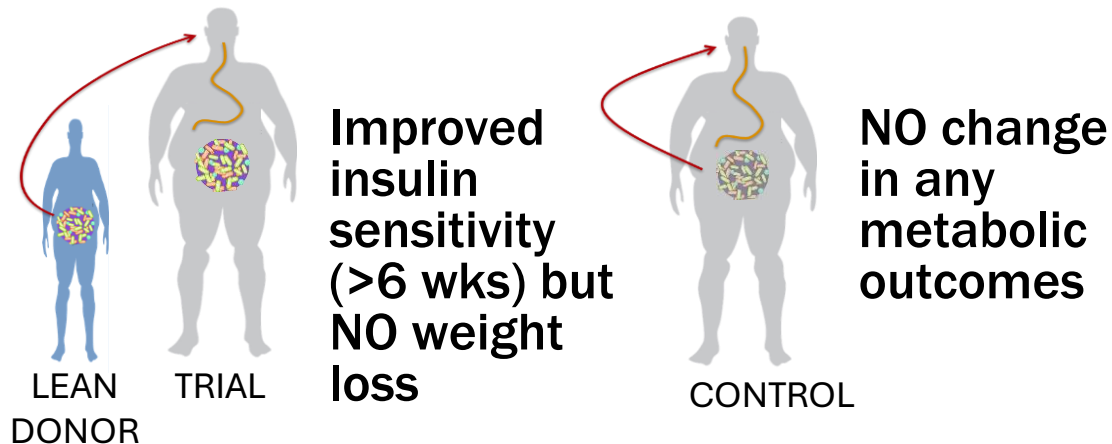
GASTROENTEROLOGY 2012;143:913-916

## BRIEF REPORT

### Transfer of Intestinal Microbiota From Lean Donors Increases Insulin Sensitivity in Individuals With Metabolic Syndrome

ANNE VRIEZE,\* ELS VAN NOOD,\* FRITS HOLLEMAN,\* JARKKO SALOJÄRVI,† RUUD S. KOOTTE,§  
JOEP F. W. M. BARTELSMAN,|| GEESJE M. DALLINGA-THIE,§ MARIETTE T. ACKERMANS,¶ MIREILLE J. SERLIE,#  
RAISH OOZEER,\*\* MURIEL DERRIEN,\*\* ANNE DRUESNE,\*\* JOHAN E. T. VAN HYLCKAMA Vlieg,\*\*  
VINCENT W. BLOKS,†† ALBERT K. GROEN,†† HANS G. H. J. HEILIG,§§ ERWIN G. ZOETENDAL,§§ ERIK S. STROES,§  
WILLEM M. DE VOS,†,§§ JOOST B. L. HOEKSTRA,\* and MAX NIEUWDORP\*\*§

BRIEF REPORTS



Exciting initial observation

... but multiple follow-up human studies have NOT been able to reproduce this result

# Gut microbiota in the clinic today



RESEARCH ARTICLE

## Fecal microbiota transplantation for the improvement of metabolism in obesity: The FMT-TRIM double-blind placebo-controlled pilot trial

Elaine W. Yu<sup>1,2\*</sup>, Liu Gao<sup>1</sup>, Petr Stastka<sup>1</sup>, Michael C. Cheney<sup>1</sup>, Jasmin Mahabamunuge<sup>3</sup>, Mariam Torres Soto<sup>3</sup>, Christopher B. Ford<sup>4</sup>, Jessica A. Bryant<sup>4</sup>, Matthew R. Henn<sup>4</sup>, Elizabeth L. Hohmann<sup>2,3</sup>

Clinical Gastroenterology and Hepatology 2019

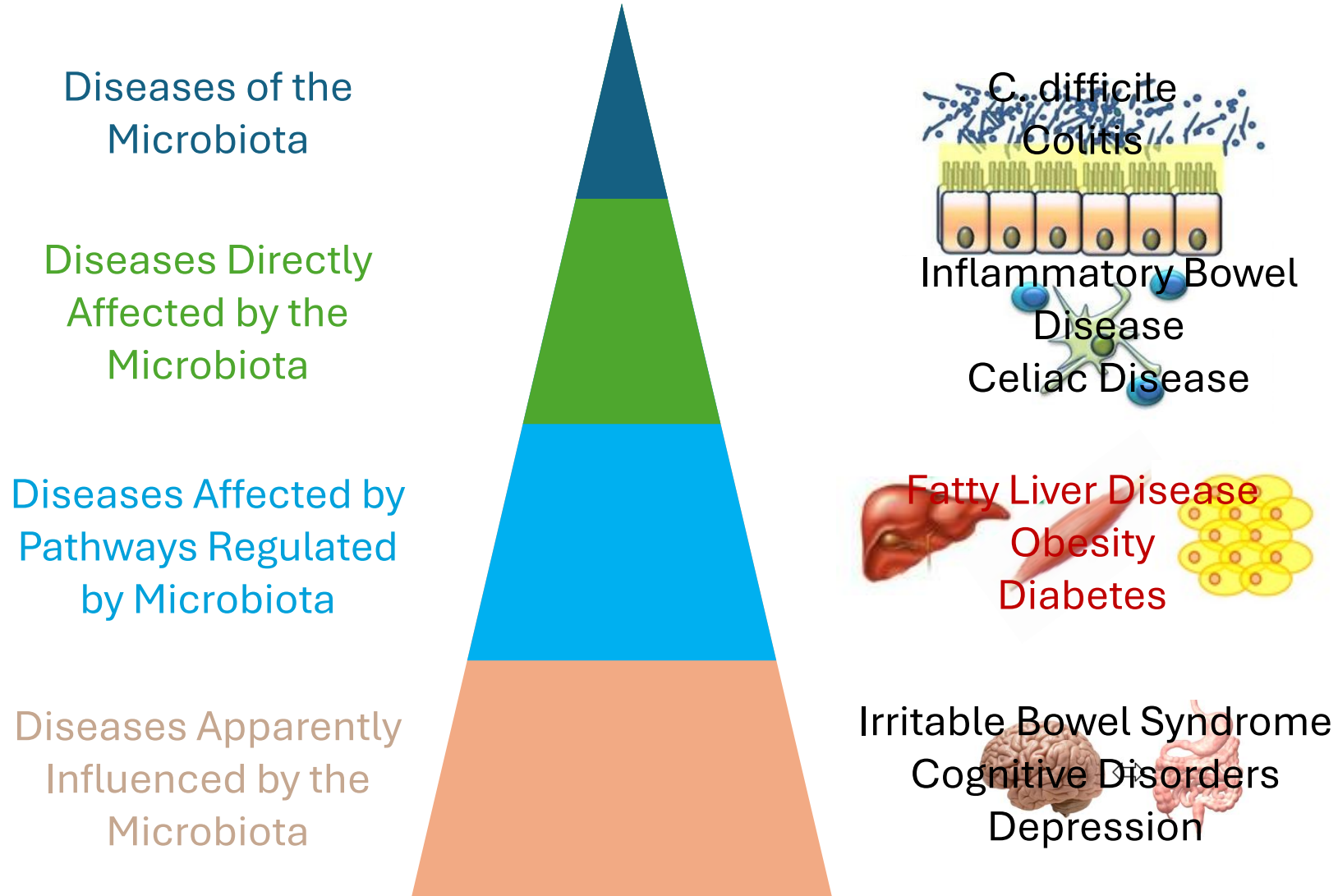
### Effects of Fecal Microbiota Transplantation With Oral Capsules in Obese Patients

Jessica R. Allegretti,<sup>\*</sup> Zain Kassam,<sup>‡</sup> Benjamin H. Mullish,<sup>§</sup> Austin Chiang,<sup>||</sup> Madeline Carrellas,<sup>\*</sup> Jonathan Hurtado,<sup>\*</sup> Julian R. Marchesi,<sup>§</sup> Julie A. K. McDonald,<sup>§</sup> Alexandros Pechlivanis,<sup>§</sup> Grace F. Barker,<sup>§</sup> Jesus Miguens Blanco,<sup>§</sup> Isabel Garcia-Perez,<sup>§</sup> Wing Fei Wong,<sup>||</sup> Ylaine Gerardin,<sup>‡</sup> Michael Silverstein,<sup>‡</sup> Kevin Kennedy,<sup>#</sup> and Christopher Thompson<sup>\*</sup>

#### Conclusion:

**NO significant effect of microbiota Transplantation on body weight**

# Gut microbiota in the clinic tomorrow





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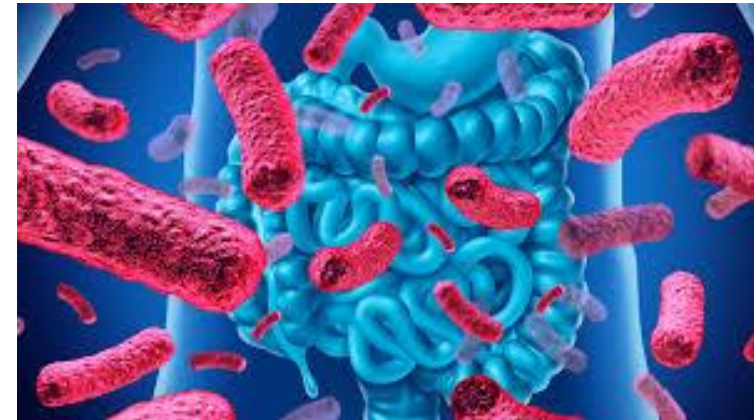
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