

BACTERIUM RESTORES MUCUS LAYER

The benign bacterium *Akkermansia muciniphila* repairs the thickness of the gut lining in elderly mice, thus helping to protect the intestines. Bente van der Lugt got her PhD for research on this at Human Nutrition & Health.

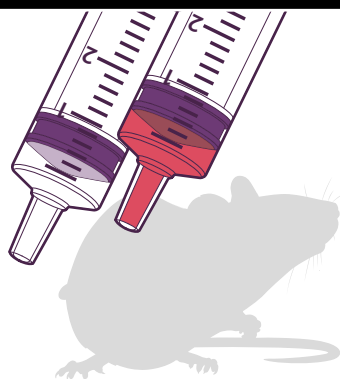
Infographic Pixels&inkt

The intestines have a mucus lining that forms a barrier between the gut bacteria and the rest of the body. The lowest layer of mucus is totally sterile, while the top layer is full of organisms that use the mucus lining as a source of energy. During the ageing process, the guts and the gut flora change: the balance between good and harmful bacteria gets disturbed and the mucus lining gets thinner. This takes away an important energy source for some micro-organisms in the gut. What is more, the danger arises of bacteria and harmful substances getting into the rest of the body from the gut and causing inflammatory reactions. Van der Lugt and her colleague Clara Bolzer at Microbiology discovered a way of repairing the mucus lining with a benign bacterium called *Akkermansia muciniphila*. This is how they studied it:

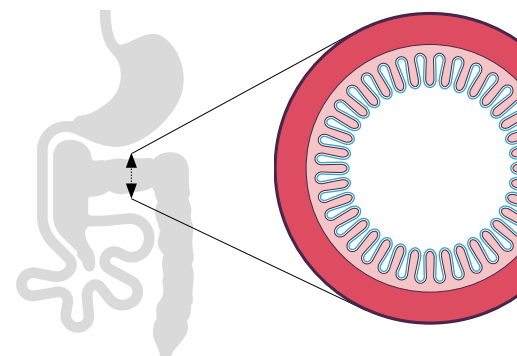
Large intestine

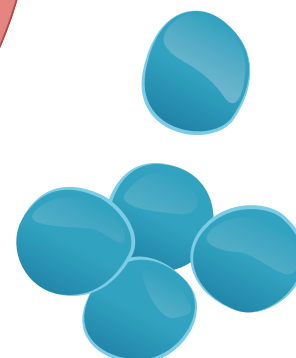
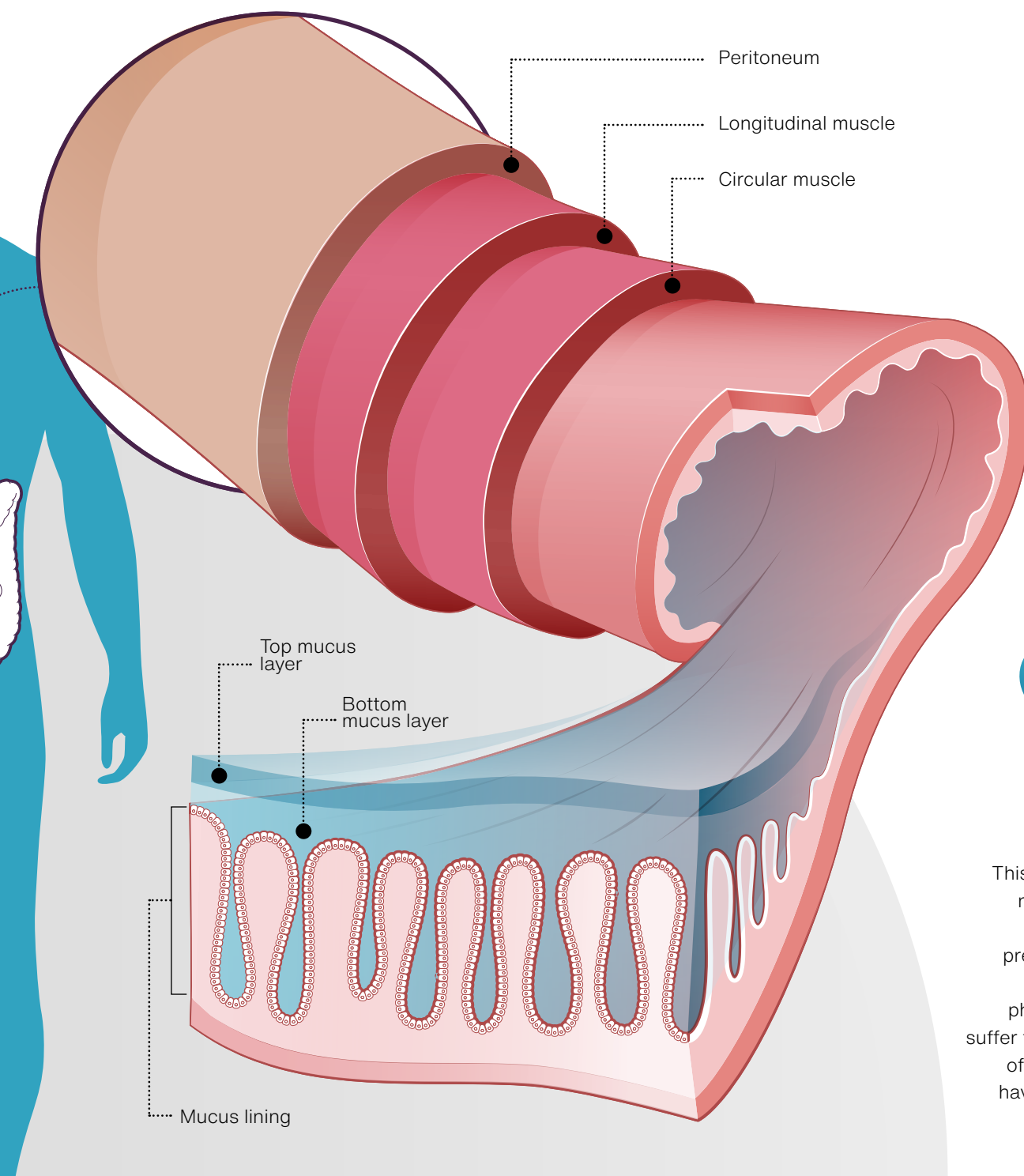
Small intestine

1 Special mice that age fast were fed with the *Akkermansia* bacterium in the form of liquid drops three times a week. The control group got the same liquid without bacteria.



2 Ten weeks later, the researchers studied the state the mice's guts were in. The mice were sacrificed to science and the researchers removed their intestines.

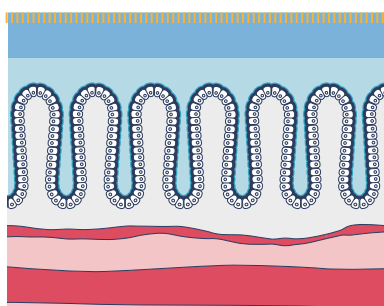




Akkermansia muciniphila

This benign bacterium occurs naturally in the human gut. Scientists had discovered previously that *Akkermansia* plays an important role in physical health. People who suffer from chronic inflammation of the bowel or from obesity have fewer of these bacteria.

3 They dyed sections of gut with a special dye that makes the mucus layer clearly visible. They studied the result under a microscope.



4 The mice that had been fed with the benign bacterium *Akkermansia* had developed a thicker mucus layer than the control group.

