**Fat in Soil bacteria may protect against stress written by Caroline Paddock, PhD on May 31 2019**

Read the article at <https://www.medicalnewstoday.com/articles/325357>

Then answer the following questions:

1. What have these scientists found that can help explain why living with dirt can benefit human health.

They have found a bacterium that lives in soil and makes an anti-inflammatory fatty acid that can promote resilience to stress.

1. Which environmental bacterium have researchers at the University of Colarado Boulder being studying?

Mycobacterium vaccae

1. What have these researchers purified and identified from these soil bacteria?

A unique anti-inflammatory triglyceride

1. What is a macrophage and what is their role?

A type of immune cell which eliminate pathogens and play a central role in inflammation.

1. Why does Christopher Lowry, professor at CU Boulder think this finding is a huge step forward?

Because it identifies an active component of the bacterium and the receptor for this active component in the host.

1. What does the theory behind the “hygiene hypothesis” state?

That people’s modern lives distance them from land and contact with farm animals, so their bodies miss out on the collaboration with micro-organisms. This damages the immune system and increases the risk of allergy and asthma.

1. What was the initial assumption behind this hypothesis?

It was that exposure to potentially harmful mico-organisms helped the immune system to develop resilience against them.

1. Give an example, mentioned in the article, of how exposure to beneficial bacteria can be good for mental health

Children that grow up on farms with animals have immune systems that are more resilient to stress and are less likely to develop mental illness than children that grow up in the city without pets.

Or: injecting rodents with M.vaccae has a similar effect on behaviour as anti-depressants with lasting anti-inflammatory effects on the brain.

1. Who may a new “stress vaccine” help?

It may help protect people in high stress occupations like soldiers and firefighters, from developing stress related psychiatric illnesses.

1. What would future studies need to confirm before developing a drug?

It would need to be confirmed that the fatty acid does indeed have therapeutic potential.