

Gut bacteria linked to chronic fatigue

Tom Whipple Science Editor

Chronic fatigue syndrome has been linked to changes in the gut's bacteria in the latest research showing that the condition once derided as "yuppie flu" has real physiological effects.

The scientists involved said that they were hopeful the work could lead to treatments for at least some of those suffering from the condition.

People suffering from CFS, also known as ME, often also have irritable bowel syndrome. In the new study the researchers investigated the link between the two, showing that there were clear gut bacteria changes asso-

ciated with CFS, a debilitating condition that leaves people extremely tired for much of their lives. Despite affecting an estimated 250,000 people in Britain, its causes and mechanism are poorly understood. Theories have ranged from its being a response to viral infection to its being purely psychiatric. Recent research found a chemical signature that seems to show metabolic changes similar to hibernation.

In a new study published in the journal *Microbiome*, researchers showed that the bacteria in the guts of 50 people with CFS were different from those of people without CFS and that this was true whether or not they also had irrita-

ble bowel syndrome, a condition that causes digestive problems.

Ian Lipkin from Columbia University said that it was impossible to tell whether the changes were a cause or consequence of the illness but that it was not implausible that the actions of gut bacteria could make people feel more tired.

"It's something people have been talking about for a while. The idea would be that certain bacteria have an impact on the metabolism. They affect the ability to assimilate nutrients, the energy balance, and cause inflammations which can make you feel ill."

Many scientists now believe CFS is an umbrella term for several different

conditions and Professor Lipkin thinks that even if promoting different bacteria to change the "microbiota" helps some, it will not help everyone. Even so, he said that he hoped to investigate further and anticipated that others would too. "The ME/CFS community is very eager to find solutions. I expect there will be people immediately trying to modify their microbiota. In the end we think all this needs to be done in a full clinical trial but there will be people acting on this."

People with CFS have been frustrated by the pace of research and even by the characterisation of the disease. Many are angered by NHS advice, based on a major trial, that suggests exercise and cognitive behavioural therapy, arguing that this does not treat it as the physiological condition they believe it is. Some feel stigmatised by a perception that it is not a real condition, hence the yuppie flu label.

Professor Lipkin said that he was aware of the desperation for answers. He said: "We don't think this could be a panacea. It is a complex disorder. But we do think there are a group of people who may be helped. It is our fervent hope to find real solutions. People become despondent and even suicidal. I want them to realise that we are working on this. Please hang on."

Analysis

In a Portsmouth hospital, in a small freezer, you will find a miracle cure. Whenever a doctor in the south of England calls, they take out a test tube and bike it over – ready to be administered to a willing patient. Or, at least, to a reluctantly resigned patient (Tom Whipple writes).

The hospital runs a faecal transplant bank, and those test tubes are administered orally.

The reason people put up with it is that by transplanting the gut microbes of a healthy person through their faeces they can cure *C. difficile*, a disease that kills thousands. It is just the latest condition to benefit from the revolution in our understanding of human biology that has come about by appreciating the bits of us that aren't human.

Our bacterial passengers make up a significant proportion of the cells in our body, but are far more than passengers. Scientists are now realising the implications of changing our gut flora and the consequences for a vast range of diseases, from multiple sclerosis to diabetes — to, at least according to the latest research, chronic fatigue syndrome.