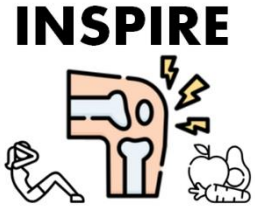
Why we are doing the INSPIRE Study



Lay Summary:

Endocannabinoids are molecules made by our bodies which are similar to some of the substances in marijuana. They regulate appetite, mood, sleep, muscle strength, inflammation and they also are involved in how strongly we feel and respond to pain. There have been efforts to generate new drugs that are similar to "endocannabinoids" to treat various diseases but because they are involved in so many functions these compounds end up having unforeseen side effects.

The microbes in our guts have been implicated in the levels of pain and inflammation that people experience. And physical exercises are well known to reduce the levels of pain experienced by people with chronic conditions such as arthritis.

We propose to understand (identify) the molecules that are involved in all of these related processes linked to pain by asking people to take fibre and or do exercise for six weeks, both of which increase endocannabinoid levels

We will measure levels of pain and pain sensitivity, peoples' mood, and take bloods to measure endocannabinoids, gut microbes, substances produced by microbes that alter inflammation, inflammatory substances, other pain related substances

The results of this study will help people with chronic pain in the following ways:

- Understand the mechanisms by which lifestyle interventions like diet and exercise work and whether they can be added to each other to improve pain.

- To measure how much of the effects of changes in endocannabinoids on pain reduction is linked to changes in mood or to changes in inflammation or to different levels of substances directly related to pain transmission and which genes in our bodies are involved.

- Understand if there are molecular factors that result in improved or reduced endocannabinoid changes and their effects on pain.

- Help develop new drugs to treat pain by understanding which mechanisms are modulated by the various receptors of drugs that target the endocannabinoid system.