As press reports frequently tell us, many people with chronic pain conditions, such as fibromyalgia, choose to use illegal substances, such as cannabis, for relief of their symptoms. When people use cannabis/marijuana as a means of easing — for example — their pain symptoms, the active cannabinoid substance, anandamide, works by mimicking endogenous (self-produced) anandamide, by binding to cannabinoid neuroreceptors, producing pain relieving effects.¹

It therefore appears that our bodies can produce virtually identical chemicals to those contained in cannabis.

This requires that we have receptor sites that can be stimulated by such self-produced chemicals. It also seems that there exist some surprising ways to encourage self-production of these endocannabinoids — including moderate or aerobic exercise² and bodywork!

This offers a partial explanation for phenomena that in the past were ascribed to endorphin effects — such as ‘runner’s high’, and possibly to the wonderfully relaxed and euphoric feelings following good bodywork/ massage.

As John McPartland³ explains: “The endocannabinoid (eCB) system, like the better-known endorphin system, consists of cell membrane receptors, endogenous ligands, and ligand-metabolizing enzymes. Two cannabinoid receptors are known: CB1 is principally located in the nervous system, whereas CB2 is primarily associated with the immune system. Two eCB ligands, anandamide (AEA) and 2-AG, are mimicked by cannabis plant compounds.”⁴

The endocannabinoid system is fascinating, and is very important to our understanding of a number of issues relating to pleasure, pain, weight gain and the links between these topics and bodywork and exercise!

What Happens when this System is Blocked?

Because endocannabinoids stimulate appetite, attempts have been made by pharmaceutical companies to find drugs to completely block the eCB receptors — the logic being that if these were non-operating, appetite would be suppressed, and weight would decline.

This hypothesis is at least partially correct — however when eCB receptors are blocked by drugs (such as rimonabant), so that endocannabinoids cannot function, while appetite is indeed suppressed and weight loss induced, the side-effects can be devastating.

In 2007 the US Food and Drug Administration (FDA)⁵ rejected the licensing of such a drug because subjects in rimonabant studies suffered depressed mood, anxiety, headache, nausea and diarrhoea, while latent multiple sclerosis and seizure disorders were triggered, and the risk for suicide doubled.

As McPartland notes, genetically-modified mice that have no ability to produce endocannabinoids “suffer increased morbidity and premature mortality, and show greater aggression, epilepsy, age-related neuron loss, anxious-genic-like and depressive-like behavior."⁶

To summarize (because of space constraints):

- Endocannabinoids are self-produced chemicals (e.g. anandamide or AEA, also known as Tetrahydrocannabinol or THC) that mimic the pain relieving and pleasure enhancing effects of cannabis;⁷

In 2004 Dietrich & McDaniel⁸ demonstrated that pleasant feelings following physical activity/exercise were the result of the release of the naturally produced body chemical, the endocannabinoid, anandamide;

- Darmani et al⁹ have noted that anandamide is copiously produced in the body, not only in response to aerobic activity, but to pain and — it seems — as a response to bodywork such as massage, deep tissue work, high velocity (HVLA) manipulation and — according to McPartland¹⁰ — 4VC (4th ventricular compression) as used in cranial treatment;

- Cranial therapists and practitioners may find it of interest that McPartland reports that cerebral spinal fluid (CSF) is “awash with eCBs”, and that cells lining the ventricular system express endocannabinoids and eCB enzymes¹¹, which modulate the rhythmic production of CSF, and control eCB levels in the CSF;¹²

- The endocannabinoid system influences embryological development, diminishes pain transmission and sensation, and also reduces inflammation¹³ in myofascial tissue;

- To emphasize: as part of its normal ‘metabolic housekeeping’, as well as in response to aerobic activity, and to bodywork of all sorts (as well as to pain), your body produces chemicals — not only endorphins as previously thought¹⁴, but endocannabinoids, that make you feel good (euphoria), ease pain, reduce inflammation and enhance a healthy appetite;

- It seems from research evidence that the endocannabinoid (eCB) system also balances sympathetic-parasympathetic tone, imparts anti-emetic and anti-hypertensive benefits, and favourably modulates stress in the HPA axis;¹⁵

- Suppression of the endocannabinoid system pharmaceutically in order to reduce weight has been shown to have potentially disastrous results.

References


Meet the Endocannabinoids — Pleasure Producers, Pain Relievers — And Much More: The Bodywork Connection

Leon Chaitow MDO is a registered Osteopath and Naturopath and is an Honorary Fellow at the University of Westminster. He is author of over 70 books, edits the peer reviewed Journal of Bodywork & Movement Therapies, and practises in a NHS Health Centre and privately. He teaches widely to Physiotherapists, Osteopaths, Chiropractors and Massage Therapists. For further information Leon can be contacted at leonchaitowl@mac.com or via his website: www.leonchaitow.com

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