

Metabolic Effect of Lipid Accumulation in the Body of Animals

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Fibromyalgia syndrome (FMS), the second most common "rheumatic" disorder, is characterized by chronic pain located in many areas of the body with associated symptoms of sleep disturbances, cognitive dysfunction, fatigue, and a range of gastrointestinal symptoms. The estimated incidence of FMS is 2-4% and most patients are female. However, diagnosis is usually difficult, with most patients waiting more than 2 years for diagnosis, leading to higher costs. Currently, FMS is treated with a multi-mode method, which can be divided into drug therapy and non-drug therapy.

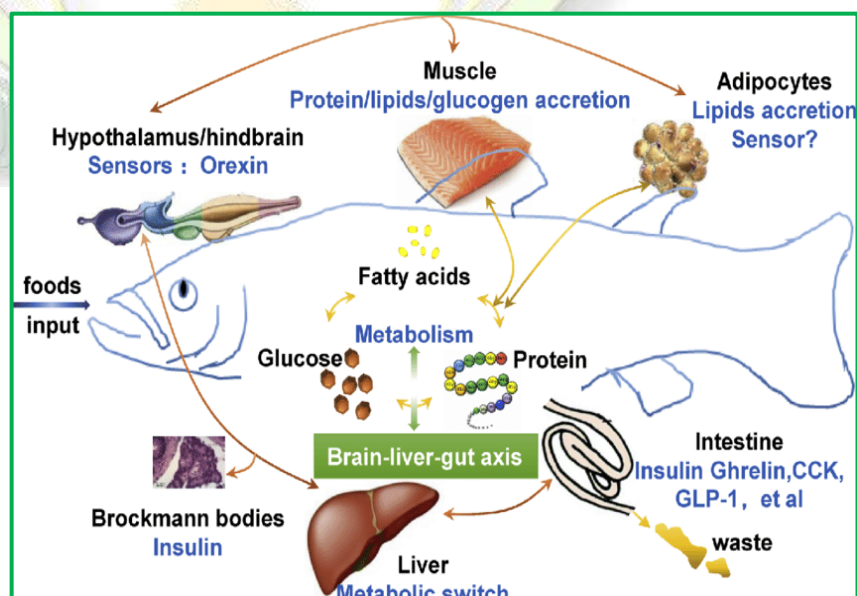
Product of lipid accumulation

VAI has been shown to be related to both tissue insulin sensitivity and visceral adipose tissue. Another useful tool is the Lipid Accumulation Product (LAP), which increases waist circumference and triglyceride levels and has been recognized as an effective marker of metabolic syndrome in the adult population.

The former mainly uses non-steroidal anti-inflammatory drugs (NSAIDs), opioids and other drugs. But Ernest Choy's research shows no significant differences between NSAIDs and placebo in reducing pain. Additionally, the use of opioids can cause hyperalgesia and paradoxically increase the pain of FMS. The low efficacy and high side effects of drug therapy make it difficult to prioritize treatment.

The European League against Rheumatism (ELAR) therefore recommends non-pharmacological therapy as first-line therapy, which includes patient education, exercise, cognitive behavioural therapy, and complementary and alternative medicine. In addition,

Wang C confirmed the therapeutic effect of tai chi on fibromyalgia in a 2010 study. Among non-pharmacological treatments, therapy guidelines for FMS recommend acupuncture because it can improve FMS symptoms. Studies indicate that 60-90% of FMS patients use one or more complementary or alternative therapy methods, and of these, 22% try acupuncture



therapy. There is strong evidence supporting the therapeutic effects of acupuncture.

The review confirmed that acupuncture had significant effects on improving pain and quality of life in patients with FMS, either in the short or long term, with fewer adverse reactions and greater safety. While comparing acupuncture with other non-pharmacological treatments, it was concluded that acupuncture has better pain relief. For example, he concluded that acupuncture had a greater improvement in FMS compared to exercise alone; study showed that acupuncture demonstrated greater improvement in pain and fatigue symptoms in FMS compared to education. This shows that the effectiveness of acupuncture is more pronounced than other non-pharmacological treatments.

Body mass index

High serum Cu concentrations are associated with obesity; Cu has been shown to be positively correlated with body mass index (BMI) and leptin and insulin levels. Although the metabolic syndrome can be aggravated by heavy metals, abnormal serum concentrations of bio elements can also coexist with METS. It has also been shown that diabetic patients have higher serum levels of Ca and Mg, and Cr and Mn are higher in obese men. Finally, there is very little data on the concentrations of bio elements in bone tissue compared to indicators of metabolic disorders. Studies widely report the relationship between body mass indices and bone mineral density, but rarely consider bone mineral composition.

The specific mechanism of acupuncture for FMS is currently unknown. Now there are two main hypotheses. The first is the neurohormonal theory, which suggests that by inserting needles into specific sites, A-delta and C afferent nerve fibres are stimulated, which are then transmitted to multiple sites in the central nervous system to trigger the release of endogenous opioids. Another theory is the long-term depression hypothesis, which suggests that acupuncture leads to the release of neurotransmitters that regulate A-delta fibres and provide long-term pain relief.

At the current stage, the distribution to study acupuncture treatment for FMS is relatively scattered, which makes it difficult for clinical practitioners and researchers in related fields to understand emerging research trends in a timely and effective manner. Through bibliometric, researchers can quantitatively identify detailed research trends and sudden changes for making academic decisions.

The aim of this study was to investigate the relationships between serum and bone concentrations of selected bio elements such as zinc, copper, iron, chromium, magnesium and selenium, and heavy metals such as lead, and selected indicators of metabolic disorders Visceral Adiposity Index (VAI), Lipid Accumulation Product (LAP) and Body Mass Index (BMI).

There was no relationship between serum and bone concentrations of bio elements and lead and BMI. Bone Mg was significantly higher in men with higher VAI, but no such relationship was observed in serum. Similarly, bone Mg and Zn were higher in patients with higher LAP, which was not observed in serum. A multivariate logistic regression analysis adjusted for age was performed. There was a correlation between serum Zn concentration and the cut-off point for VAI. The cut-off point for LAP was related to the concentrations of Mg, Zn and Cu in the bone tissue.

We found some relationships between concentrations of selected bio elements and Pb and VAI, LAP and BMI in bone, but not in serum. VAI was positively correlated with bone Mg, while LAP was positively correlated with bone Cu, Zn, and Mg.

The relationships between macronutrient and micronutrient concentrations in various body tissues and metabolic disorders are varied but still not fully understood. They are responsible for maintaining normal osmotic pressure and electrolyte balance; they regulate various metabolic processes and are elements of hormones, enzymes and coenzymes.

