HUMIC ACID (MOOR MUD)

Humic Acid/Moor Mud Therapy- A Potential Treatment for:

- **Osteoarthritis, Fibromyalgia, Chronic Fatigue Syndrome, Myofascial pain (Muscle, ligament and tendon injuries such as tendinitis)**
- **A Biochemical Detoxification and Heavy Metal Chelation Agent**

BACKGROUND

Humic Acid (HA) has been utilized in traditional Chinese medicine **and possesses various pharmacologic properties, including anti-inflammatory, anti-hypertensive, anti-neoplastic, and hemostatic activities** (Guan and Yang, 1999), and HA displays anti-proliferative (anti-carcinogenic and anti-metastatic) effects by inducing apoptosis (Yang et al., 2004). Humic acid (HA) is a group of high-molecular-weight polymers originating from decomposition of organic matter, in particular, dead plants. HA exists abundantly in peat, soil, and trace amounts are contained in well water, and other sources. Mud therapy is still relatively unknown in North America, however it is has been used successfully for decades in European Countries such as Germany, France, and Italy as a treatment for pain, impairment and the symptoms of acute disease.

CLINICAL FINDINGS AND APPLICATIONS

Mud pack treatment significantly improved the pain and functional status of patients with Osteoarthritis (OA). Beneficial effects, in terms of pain relief and improvement in functional status, have also been reported in patients with rheumatoid arthritis, psoriatic arthritis, and fibromyalgia syndrome. Results also demonstrated that patient **analgesic consumption was significantly decreased in people suffering with these conditions.** The beneficial effect of mud pack treatment is often attributed to its thermal effects; however, several studies suggest that a specific mode of action should also be considered. Gallic, vanilic, humic, fulvic, and protocatechic acid derivates are commonly found in the chemical composition of moor muds, and it can be speculated that they may contribute to the effects of mud. **The findings of scientific studies indicate that mud pack treatment, especially direct application of mud, is effective on Osteoarthritis in terms of pain alleviation, functional capacity, and reduced analgesic consumption.**

BIOCHEMISTRY

In addition to the effects of Humic and Fulvic Acids, an **anti-inflammatory compound** of mature moor mud called sulphoglycolipid, a product of colonized microorganisms during the maturation process, has been shown to contribute to the therapeutic activity of thermal mud. Beer et al. reported that fulvic , humic and ulmic acids, water-soluble compounds of mud, were found to have a **stimulatory effect on contractile activity of smooth muscle tissue.** It is also assumed that gallic, vanilic, and protocatechic acid derivatives may have a role in the chemical effects of mud.

Decreases in plasma levels of interleukin-1 and tumor necrosis factor-*a*, and consequent **reduction in cartilage inflammation and tissue destruction with mud treatment** have been reported. Additionally, it has been found that matrix metalloproteinase- 3 plasma levels were significantly lower in OA patients treated with mud baths. Patients suffering from OA benefited from mud application for a considerable amount of time after the physical application. Study outcomes strongly imply that chemical components of the mud actively contribute to this effect.

ROLE IN HEAVY METAL DETOXIFICATION

Heavy metal toxicity may lead to a wide array of diseases and symptoms, including tinnitis, or ringing of the ears. **Contamination of the air we breathe, the water we drink and the food we eat by heavy metals is an increasingly serious health concern. Arsenic, mercury, cadmium and lead are all by-products of a high-tech, industrialized society.**

Heavy metal toxicity can be divided into acute poisoning and chronic low-level exposure. While severe acute poisoning is relatively rare, chronic low-level exposure is very common.

Today, mercury, lead and other heavy metals are ubiquitous in our environment. Mercury for instance is found in dental amalgams, seafood, some pesticides, fungicides and many vaccines. Lead may be found in lead based paint (in stripping, peeling and household), vinyl mini-blinds, glass painting, welding, home auto restoration, and alcohol stored in lead crystal. Leaded gasoline has been banned for several years due to its negative effects on children's physical and mental development.

Several industries including mines are sources for many heavy metals in our environment. **Many of these metals bio-accumulate in the food chain.** Plankton and algae in the oceans absorb Mercury. Small fish feed on these plants. Larger fish will eat these small fish and incorporate the mercury in the tissues, thus the mercury will bioaccumulate in larger fish such as tuna. **As little as 1.5 ounces of tuna may contain mercury that reaches the maximum "safe" does as established by the US environmental protection agency.**

<u>Accumulation of these metals also occurs in the human body. Heavy metals may be stored in not only fat cells, but also in the bones, organs (i.e. thyroid) and also the brain and spinal cord.</u>

Humic/Fulvic Acid) has the capability of transferring metals to and from metallo-proteins in vivo. These proteins play a role in metal storage and sequester excess metal ions, **preventing toxicity**. Because free metal binding capacity is high, Humic/Fulvic Acid will form complexes with metals that are free or attached to metallo-proteins, helping in the excretion of these metals. **Thus, Humic and Fulvic Acids act as strong Chelation agents in the body, helping to bind and excrete heavy metals.**

ATHLETIC PERFORMANCE

The optimization of biochemical properties in the body through Humic Acid use has not gone unnoticed by Athletes. A recent article at Bodybuilding.com (http://www.bodybuilding.com/fun/humicacid.htm) outlines the benefits of Humic Acid for training and general health.

CONCLUSION

In conclusion, based on the accumulation and synthesis of a wide body of scientific and anecdotal evidence, **Moor mud treatment should be incorporated into any holistic complementary treatment modality for effective results in terms of reducing pain, analgesic consumption, and improving functional capacity.** Furthermore, its ease of application coupled with its effective detoxification effect makes it an excellent component to the maintenance of optimal health in those without injury or disease. Finally, its **potential for performance enhancement through optimal biochemical cellular status makes it an increasingly attractive option for a natural boost for athletic competitions, and an effective complement to rehabilitation and training protocols.** Humic Acid (Moor Mud) can be used externally, such as is commonly used as a bath additive which is absorbed transdermally. However, in lesser quantities, Humic Acid (Moor Mud compounds) can be ingested as a health supplement.

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