



### **BEMER 3000 and Osteo-Arthritis (Degenerative Arthritis)**

Osteo-arthritis belongs to the family of rheumatic illnesses. In contrast to the inflammatory type of rheumatism in the joints, it is a degenerative disease with varied causes. Generally, it can be attributed to "wear and tear", and may be influenced by factors relating to age, heredity and metabolic processes. Any one of the joints can be affected, but the knees and hips are especially prone to this illness.

After the age of 50 about half of the population suffers from arthritic joints, but younger individuals may be affected also. Being overweight, lack of physical exercise, and stress can lead to a disturbance of metabolic function and thus result in osteo-arthritis.

This relationship becomes clear when we look at the anatomy and physiology of the joints. Joints connect the individual bones and thus enable movement. The joints are surrounded with a firm capsule of connective tissue, and become integrated into the muscular-skeletal system by tendons and sinews. The underlying process of osteo-arthritic changes is a thinning and eventual disappearance of the cartilage, which forms the smooth, gliding surface of the joints. This begins insidiously and painlessly (there are no pain receptors in the cartilage) as a pitting, flaking, and splintering disintegration of cartilage which covers the ends of the bones, until it may be worn away, the underlying bone exposed, and pain results when "bare bones" are moved against each other. The fluid that is usually present in the spaces between the cartilage not only serves as a lubricant and buffer but also as a nourishment for the cartilage. If the cartilage does not receive sufficient nourishment, its cells will die off. In addition, psychological tension, stress and depression can cause changes in the fluid's consistency.

This points to the fact that the oxygen partial pressure of the blood is as important for proper nourishment of the cartilage cells as it is for the metabolism of all other cells in the body.

Since osteo-arthritic changes in the joints make movement very painful, the affected person will move as little as possible. This will cause less lubricant to be produced and henceforth less nutrients available for the cartilage – a vicious cycle leading to a total stiffening of the joint. The result will be a lower quality of life and often less autonomy, especially for the older person.

What are the treatment options? Traditional medicine will focus on arresting the inflammation, reducing pain and improving the functional side, but it seldom seeks to treat the causes of joint degeneration. As a rule, cortisone-based preparations are used, which provide initial relief, but may have long-range side effects. Surgery is often a last resort. Acupuncture is sometimes used as an alternative pain management tool that does not have any side effects and provides relative improvement.

The only therapy addressing the causes of osteo-arthritis is the use of applied low frequency electro magnetic field therapy. This therapy has been scientifically researched and proven effective, especially in the area of healing of bones. Unfortunately there has been no integration of it into traditional medicine at this time. Already in the sixties there was proof of the piezo-electrical effect of the bones. When weight is applied to the bones, they produce an electrical current which influences the hardening of the bone cells.

Scientific studies proved that electro magnetic fields regenerate bone tissue and speed up the healing process. New bone cells mature more quickly when they are exposed to an electro magnetic field.

Therefore, the use of electro magnetic therapy (e.g. the BEMER 3000) will stimulate the formation of bone and cartilage in the affected joint. Pain relief will not be immediate, since the process of regeneration takes time. We suggest, for that reason, that BEMER therapy be combined with Acupuncture for more immediate pain relief. If the patient is experiencing less pain, he/she will be more active, which in turn improves the situation as elucidated earlier.

In particular, the increased movement will stimulate circulation and increase joint lubrication, thus supplying the cartilage with necessary nutrients. Exercise and activity will greatly enhance the electro magnetic therapy effects. It is important to engage in low weight bearing activity; swimming is ideal (avoid breast stroke since this uses a turning motion of the knee and could be harmful).

Another important factor are the nutrients present in the blood as these determine the consistency of the lubricant in the joints. We suggest the patient take a nutritional supplement that stimulates growth of skin, tissue, cartilage and bones. In order for the body's cells to properly metabolise these supplements it needs oxygen, which the electro magnetic therapy will provide through increased circulation and greater oxygenation of the blood. The oxygen partial pressure rises.

European physicians conducted a user study of low intensity low frequency pulsating electro magnetic fields with 236 osteo-arthritis patients for 6 weeks.

112 patients (48%) were complaint free, 83 patients (35%) experienced some improvement and 41 patients (17%) experienced no change.

Through long-term therapy and especially with a combination of therapies as mentioned above, the results are convincing and, most importantly, the treatment is completely without any side effects.