

## Use of BEMER Therapy in the Treatment of Diabetes Mellitus

Diabetes Mellitus is a dysfunction of the carbohydrate metabolism due to a relative or absolute insulin deficiency.

It is caused by the pancreas producing too little insulin, or by a breakdown in the body's insulin utilization. In the worst case scenario no insulin is produced at all and food containing sugar or carbohydrates cannot be metabolized, causing an increased level in blood sugar.

The pancreas weighs about 2.5 to 3.5 ounces, lies beneath the pylorus (exit of the stomach) and, along with the bile duct, connects to the c-shaped loop of the duodenum. In order to perform its key function in the digestion of carbohydrates, fats and proteins, it contains two distinctly different cell structures: first the exocrine glands that produce between 1.3 and 4.3 pints of alkaline digestive secretions depending on the amount of food consumed; these secretions contain important enzymes for the digestion of fats and proteins. The second type of cell structure are the island-like beta cells, about one million of them (hence the name "insulin") that produce about 7 ounces of insulin per day. Alpha cells produce glucagon, which serves as an equalizer for the insulin in the blood sugar regulation.

Insulin is of particular importance for the entire metabolic process, since carbohydrates, especially glucose which is important for the body's energy budget, can only be transferred into the cells with the help of insulin. Insulin deficiency causes an increase in blood sugar and thereby severe disturbances in cellular metabolism. In the circulatory system increased blood sugar leads to destruction of the vascular walls, impairs the oxygen bonding capacity of the blood and downgrades the blood flow properties. This in turn increases the risk of thrombosis and vascular obliteration. The longer the duration of diabetes mellitus and the poorer the blood sugar values are, the greater the risk for long-term damage, especially to the vascular system.

Based on the types of symptoms and treatment options, we can distinguish between two basic types of diabetes mellitus:

### Diabetes Type I:

- § Extensive or complete breakdown of the body's own insulin production. From the very beginning insulin therapy is required. This form of diabetes usually develops before the age of 40.
- § A genetic pre-disposition exists. Due to an auto-immune reaction (viral infections, environmental stresses) the insulin producing beta cells are destroyed. It can also develop idiopathic without any underlying disease.

### Diabetes Type II:

- § Hereditary or acquired reduced reliance on the body's own insulin, which gets aggravated even further by overeating and by being overweight.
- § The course of treatment usually includes a variety of medications.

⇒ The foundational therapy in both cases is a proper diet!

Special types of diabetes mellitus are gestational diabetes and some other more rarely occurring forms.

Only after about 80% of the body's own insulin production has ceased, will the condition become apparent in one third to one half of all patients - with the typical symptoms of fatigue, lack of energy, loss of weight, leg cramps, itching, increased thirst, frequent urination and susceptibility to infection.

It can take weeks, months, or even years from the time diabetes actually begins to the time the symptoms appear; therefore, it is recommended that high-risk individuals undergo regular testing of blood sugar levels. The longer the high levels of blood sugar exist, the higher the risk of long term damage, which will influence the quality of life for the diabetic. As previously mentioned, the vascular system is most severely affected; about 70% of diabetics die from the consequences of heart and circulatory disease.

In principle, for the diabetic, vascular damage will develop over time in one of two different forms depending on the metabolic condition: diabetic micro-angiopathy or macro-angiopathy.

**Micro-angiopathy** is a disease of the inner walls of the small blood vessels, especially the ultra fine capillaries, caused by the continuously elevated blood sugar level. In sensitive organs like the retina and the kidneys, insufficient circulation can lead to serious malfunction and secondary diseases. Here, the changes in blood flow parameters and the heightened risk of thrombosis have an especially adverse effect. Micro-angiopathy plays a significant role in the development of nerve damage (polyneuropathy), kidney insufficiency, retinopathy and heart failure.

**Macro-angiopathy** displays the same characteristics as general arteriosclerosis of the major blood vessels with the distinction that it will develop rather quickly and more pronounced in the diabetic patient.

Typical forms of the disease are seen in coronary heart disease, sclerosis of the cerebral vessels accompanied by increased risk of stroke, and peripheral artery occlusive disease of the legs. If affected by the latter, patients experience increasing pain while walking, mostly in the calves and feet, and must make frequent stops. After having walked a good distance, even with rest stops, they experience a feeling of heaviness in the legs.

In connection with the frequently present diabetic polyneuropathy, the secretion of the sweat glands is diminished, increasing the risk of dry skin and damage to the skin's natural protective film.

The risk for minor injuries to become infected and to develop into slow healing ulcers is great. In addition, sensitivity to temperature and pain can be impaired, increasing the chance for injury.

Along with the narrowing diameter of the peripheral blood vessels, circulation and metabolic function decrease, leading to muscle degradation in the arch of the foot, causing pain and disturbing growth of bones, skin and toenails.

After years of poorly regulated blood sugar levels, the characteristic "diabetic foot" develops – often as a result of incorrect diet, lack of exercise, the above mentioned risk factors and poor foot care.

### **Arteriosclerosis:**

Due to its pathology and the sometimes drastic consequences like heart attack or stroke, arteriosclerosis, colloquially described as hardening of the arteries, statistically is one of the highest ranked causes of death. Since over one half of all available remedies are expended in the care and treatment of arteriosclerosis, this disease represents a huge expense for the health care industry.

Arteriosclerosis is characterized by a change in the walls of blood vessels. A relatively small damage to the vessel wall can lead to localized inflammation, which in turn, through a chain of chemical processes, causes increased presence of connective tissue cells. The resulting fatty plaque is deposited on the vessel wall and presents increased risk for the formation of thromboses. The clots lead to narrowing or clogging of a blood vessel, which means that the adjoining tissue is cut off from any blood supply. Depending on the localization, diminished circulation in the lower extremities manifests itself in part with extremely painful muscle cramps, initially only when stressed, later on also while resting. Coronary artery disease presents itself with tightness and pain in the chest (angina pectoris).

Acute clotting in the brain leads to a stroke, in the heart to a heart attack, and in the legs to an acute arterial blockage. The amount of damage depends on the size of the blocked blood vessel and the duration of absolute blockage. There is always the risk of necrosis (dying of tissue).

BEMER-therapy can be used to improve the circulation and to give general support to the body's self-regulatory mechanisms. Through the following scientifically proven effects, BEMER therapy can lead to the improvement or stabilization of physical well-being and can contribute significantly to the support of conventional therapies:

- § Positive physiological effect on the condition of microcirculation, and increased utilization of oxygen in the capillary tissue
- § Positive effect on the protein biosynthesis (repair proteins)
- § Improved micro-hemodynamic conditions for the first steps of immunological processes, and thereby in indirect strengthening of the body's own defense mechanisms
- § Positive effect on the vegetative nervous system

BEMER therapy is a complex method that optimizes energy production by the individual cells (ATP) through improved circulation and increased oxygen utilization, thereby contributing to the overall regulation of the body's metabolism. Based on these facts and the benefits observed in patients with a range of severe physical disabilities we can safely say that BEMER therapy is an important and essential foundation for strengthening the body's self-healing mechanisms, supporting other treatment measures, and decreasing the side effects of prescription medications, and therefore of great value to patients with diabetes mellitus.

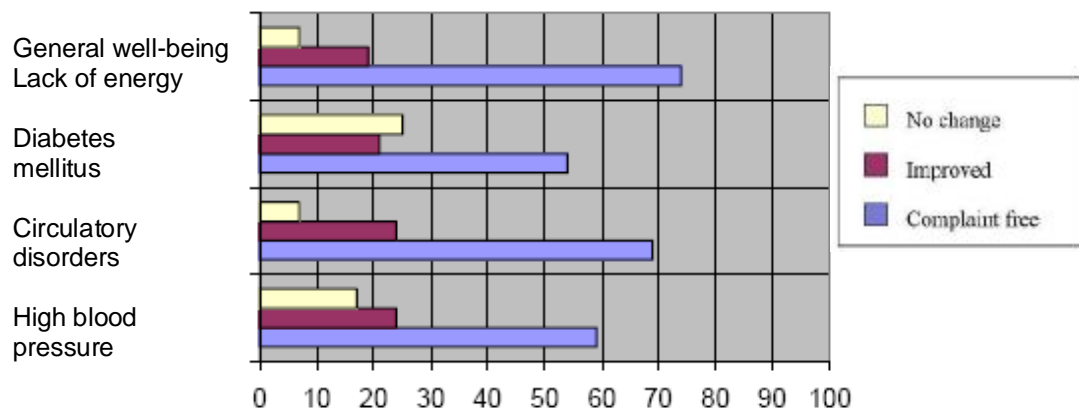
User recommendations for BEMER therapy with diabetes mellitus
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- § Two to three times a day on the mat according to the basic program
- § As long as no insulin needs to be taken, it is recommended to apply the intensive applicator once daily above the pancreas using P4

Because of the complex characteristics of diabetes mellitus as well as frequent co-morbidity, the most effective therapy setting will need to be determined individually, especially for the intensive applicator. It is best to consult a medical professional who is familiar with BEMER therapy.

A European physician's user study under the direction of the AFB documented the effects of the electromagnetic field of the BEMER 3000 therapy system. A total of 1116 patient protocols were captured. Since several patients presented with more than one clinical condition, 2031 cases of illness were documented. A therapy span of 6 weeks and observation of 319 subjects (see excerpt below) showed the following results: (please note: patients evaluated for diabetes mellitus were not taking insulin)

**Excerpt from the physician's user study with the BEMER 3000 therapy system**



Percentage values for documented cases

Literature and studies:

Härtling, H.: *Behandlung verschiedener orthopädischer Krankheitsbilder mit dem BEMER 3000* (2002)  
 Klopp, R.: *Magnetfeldtherapie: Komplementär-therapeutisch sinnvoll oder Unsinn?* Institut für Mikrozirkulation Berlin (2005)  
 Michaelis, H.: *Ärztliche Anwenderstudie 09/03*. Akademie für Bioenergetik (2003)  
 Michels-Wakili, S., Kafka W.A.: *BEMER 3000-typisch gepulste elektromagnetische Felder niedriger Energie reduzieren Zahnarztangst* (2003)  
 Preissinger, M.: *Verbesserte Wundheilung durch gekoppelte, BEMER 3000 typisch gepulste, Elektromagnetfeld- und LED-Licht- Therapie am Beispiel vergleichender Untersuchungen an standardisierten Wunden nach Ovarioektomie bei Katzen*. ÖGT Kleintiertage Dermatologie Salzburg Congress (2002)  
 Schütze, N., Walther, M., Kafka, W.A.: *Einsatz extrem niederfrequent (BEMER-typisch) gepulster schwacher elektromagnetischer Felder im Bereich der Orthopädie*. Orthopädische Praxis 41, 1 (2005)

Please note: Broad acceptance of medical products generally takes several years. We are committed by law to advise you that the effectiveness of electromagnetic fields is still being discussed controversially and has not been commonly accepted.