



# Diabetes

## INDIGO Biofeedback

Diabetes is characterized by elevated glucose (sugars) in the blood and resistance of cell membranes to insulin, the hormone that helps metabolize sugar. It is estimated that 350 million people worldwide have either Type one or two diabetes.

Type two diabetes is an epidemic that is bulging along with rates of obesity in many cultures. 80% of people diagnosed with diabetes die of stroke or heart disease. In fact, in Canada, where over 9 million people have diabetes, over 41,500 people die of related complications annually. The symptoms include: a metallic taste in mouth, fatigue, dizziness, mood swings, slow to heal, compromised immune function, inability to focus or concentrate due to glucose fluctuations and more.

Type One tends to be looked upon primarily as a genetic predisposition (the pancreas not producing enough insulin); while hypothesis of causation in type Two tends to point toward lifestyle choices such as diet, alcohol and sugar intake, exercise and weight management, whereby the pancreas is either overburdened or not able to produce enough/ or quality insulin. Both types can have serious overall health complications such as: nerve damage (neuropathy), cardiovascular disease, kidney failure, blindness, periodontal diseases, poor circulation and wound healing which can frequently lead to amputation.

Standard treatment consists of anti-hyperglycemic medications, synthetic insulin, diet and exercise. Patients must take an active role in daily management; typically one must measure blood glucose several times per day and take oral medicine, perhaps along with insulin shots at mealtimes, as well as exercise, closely monitor diet, and adjust calories depending on activity level. While patients may have more control over type two diabetes than many other health epidemic issues, it requires full compliance with the treatment program to be successful.

Stress and cortisol play enormous roles in how the pancreas is able to manage glucose and how insulin is received in the body. Endocrinologists are now surmising that increases in stress and the resulting cortisol levels and inflammation are predictors of obesity and type two diabetes. Excessive or prolonged stress, and heightened inflammatory markers also negatively impact both insulin resistance and neuropathy. Biofeedback can help! Studies on those with noninsulin-dependent diabetes showed comprehensive intervention, including education and biofeedback, were associated with significant decreases in average blood glucose and HbA1C (Cox, Grower-Dowling, McGinnis, McGrady, 2005).



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One study with McGinnis et al showed “Several explanations can be suggested to account for the results of biofeedback on blood glucose levels. Forehead muscle tension feedback (surface electromyography) helped patients to reduce facial tension and relax skeletal muscles, while increased finger temperature was an indicator of general relaxation”. In this study both depression and anxiety scores decreased, which may suggest a psychological mechanism for blood glucose reduction. Patients also reported improved sleep duration and quality with the use of biofeedback and relaxation therapy at bedtime. (McGrady, 2002)

Louise Hay states that the pancreas is an organ associated with joy, this study may suggest that those with suppressed joy, and those who suffer from depression/ anxiety may be more prone to diabetes, and its devastations. (You Can Heal Your Life, 1984)

Poor circulation is one of the greatest risk factors for people living with diabetes. This can impact healing overall. Biofeedback has been scientifically shown to increase peripheral blood flow, as shown in one randomized controlled study of 32 patients with chronic non-healing ulcers. After biofeedback therapy, the experimental group improved healing to foot ulcers in; 87.5% of ulcers, in contrast to 43.8% in the control group (Rice, Kalker, Schindler)

Biofeedback has long been known as an exceptionally effective intervention for neurological disorders. The neuropathy that accompanies diabetes is no exception. INDIGO biofeedback offers an excellent means of retraining neural response and re-educating nerves back to a healthier, more interactive state.

Because the nervous system is electrically based, biofeedback therapy becomes almost homeopathic. The INDIGO uses mild, subtle, electrical currents to stimulate neural response, this can have an enhancing effect on the overall function of neurological system and on client's circulatory system- two crucial health factors in fighting diabetes.

INDIGO biofeedback also has the unique ability to uncover how various specific emotions and stress reactions may be interfering with the utilization or process of insulin; thus educating clients as to essential lifestyle changes which can have a huge impact on type two diabetes. While at the same time, generating retraining and re-education protocols to gently shift these reactions and restore healthier homeostasis.



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