



# Hypertension

## INDIGO Biofeedback

Blood pressure is the force with which blood circulates toward and away from the heart; when it is too high or high for prolonged periods, the pressure can become too strong for the arteries. This can be dangerous, especially in cases where arteries are weakened or clogged by cholesterol. High blood pressure, referred to as hypertension, is a major risk factor for heart disease, stroke, congestive heart failure, and kidney disease, the number one and three killers in the USA.

Hypertension is also called the silent killer, because 20% of people have it and do not know it. In fact, 33% of non institutionalized American adults, and 53% of Nursing Home residents are known to have hypertension (2010). It is estimated that the direct and indirect costs of high blood pressure this year in the United States alone will total \$76.6 billion. Sixty per cent of people with diabetes are also hypertensive; poor diet, lack of exercise, tobacco and alcohol use, and obesity also put people at a great risk of contracting hypertension. Many people experience no symptoms at all, while others experience dizziness, shortness of breath, chest pain, blurred vision or nausea. Standard treatment includes antihypertensive medications, diet and exercise. (Linden, Lenz, 2001)

### The science behind biofeedback's role in managing hypertension:

Biofeedback-assisted relaxation therapy has been shown in many studies to control essential hypertension. Linden, et al. reported that after 10 weeks of psychophysiological treatment, including individualized relaxation therapy and biofeedback, significant reductions in both systolic and diastolic blood pressure were observed. In a separate study, Yucha et al provided a multimodal training program to hypertensive individuals and also reported significant decreases in blood pressure. (Kuboki, Nakao, Nomura, Yano 2003)

These studies showed biofeedback resulted in significantly greater reductions in SBP (7.3 mmHg) and DBP (5.8 mmHg) than other modalities. Another study revealed significant reductions in systolic blood pressure were observed over eight weeks in the patients who used the (biofeedback) device compared with controls. (Yucha, 2008) In some instances, as biofeedback trains clients to improve relaxation skills and self-regulation over blood pressure, the dosage of anti-hypertensive medication required for homeostasis is decreased; thus minimizing the burdens of chemical toxicity on the body.

### Probable mechanisms of INDIGO biofeedback efficacy in hypertension

INDIGO biofeedback works by helping clients relax. In the relaxed state they are able to change physiological responses which cause: the constriction of peripheral blood vessels, heart racing from stress hormones, inflammation and deterioration of blood vessels due to prolonged effects of excessive cortisol and increased blood pressure overall. It is also able to help clients gain control over certain nervous system responses, resulting in improved circulation, body temperature and decreased sympathetic activity. These relaxing effects of biofeedback may also help reduce blood pressure by restoring proper blood pressure dipping during sleep. (McGrady, nd)

In addition, biofeedback can also be helpful in managing the comorbid conditions and risk factors associated with hypertension. Please see our White Pages on obesity, diabetes, stress, and addictions.

If you or someone you love needs help managing hypertension we invite you to share this information on the benefits of INDIGO biofeedback with them today.