

Enhanced External Counterpulsation Therapy

What Is “EECP”

EECP is a mechanical procedure in which long inflatable cuffs (like blood pressure cuffs) are wrapped around both of the patient’s legs. While the patient lies on a bed, the leg cuffs are inflated and deflated with each heartbeat. This is accomplished by means of a computer, which triggers off the patient’s ECG so that the cuffs deflate just as each heartbeat begins, and inflate just as each heartbeat ends. When the cuffs inflate they do so in a sequential fashion, so that the blood in the legs is “milked” upwards, toward the heart.

EECP has two potentially beneficial actions on the heart. First, the milking action of the leg cuffs increases the blood flow to the coronary arteries. (The coronary arteries, unlike other arteries in the body, receive their blood flow after each heartbeat instead of during each heartbeat. EECP, effectively, “pumps” blood into the coronary arteries.) Second, by its deflating action just as the heart begins to beat, EECP creates something like a sudden vacuum in the arteries, which reduces the work of the heart muscle in pumping blood into the arteries. Both of these actions have long been known to reduce cardiac ischemia (the lack of oxygen to the heart muscle) in patients with coronary artery disease. Indeed, an invasive procedure that does the same thing, intra-aortic counterpulsation (IACP, in which a balloon-tipped catheter is positioned in the aorta, which then inflates and deflates in time with the heartbeat), has been in widespread use in intensive care units for decades, and its effectiveness in stabilizing extremely unstable patients is well known.

Does it work?

EECP now appears to be quite effective in treating chronic stable angina. A randomized trial with EECP, published in the *Journal of the American College of Cardiology* in 1999, showed that EECP significantly improved both the symptoms of angina (a subjective measurement) and exercise tolerance (a more objective measurement) in patients with coronary artery disease. EECP also significantly improved “quality of life” measures, as compared to placebo therapy. More recent data show that this improvement in symptoms following a course of EECP seems to persist for up to five years. Furthermore, there is also preliminary data suggesting that EECP may be useful for treating unstable angina, as adjunctive therapy after revascularization (i.e., with angioplasty, stent, and/or bypass surgery), and even as first-line (instead of last resort) therapy for more routine forms of angina. Based on observed response in clinical trials, therapy with EECP can offer symptomatic and clinical relief in patients with angina pectoris, including:

- Reduced need for antianginal medications
- Reduced frequency and intensity of chest pain
- Increased exercise tolerance
- Immediate and sustained improvement in myocardial perfusion of ischemic areas

AS a result of symptomatic and clinical improvements, patients have reported an improved sense of well-being and overall improvement in quality of life.

What do I have to do?

You have to commit the time for the treatment in order to benefit from it. ECP is administered as a series of outpatient treatments. Patients receive 5 one-hour sessions per week, for 7 weeks (for a total of 35 sessions). The 35 one-hour sessions are aimed at provoking long lasting beneficial changes in the circulatory system.