

ecp therapy

Understanding ECP Therapy

A skilled ECP technician administers the therapy on an outpatient basis. The technician remains nearby to monitor treatment and to help maintain patient comfort.

First, the patient lies on a comfortable treatment platform. Air pressure cuffs are wrapped snugly around the lower body on the calves, thighs, and buttocks. These cuffs are similar to blood pressure cuffs.

Next, the technician attaches electrodes to the patient's chest to monitor their heart rhythm. A computer then tracks and synchronizes cuff inflation and deflation with the patient's heart rhythm. The cuffs are set to inflate and deflate during the **diastolic** (resting) phase of the cardiac cycle.

How Does ECP Work?

During ECP Therapy, air pressure cuffs gently inflate and deflate with each heart beat. The cuffs provide a compression of the vasculature creating a strong "counterpulse." This counterpulse sends freshly oxygenated blood rushing back toward the heart. This increases the peak diastolic pressure and the oxygen-rich blood supply that is delivered to the **myocardium**, or heart muscle.

The external counterpulse also increases **preload**, or the volume of venous (used) blood flow that is returned to the heart. Ultimately, this helps to increase the amount of blood circulated through the cardiovascular system each minute. The combined effects of external counterpulsation help to increase **myocardial perfusion**, or the amount of oxygen absorbed by the heart muscle and perfusion of other vital organs. Furthermore, patient's symptoms are reduced or eliminated.

When the air pressure cuffs are released, the blood surges back toward the areas of compression, away from the heart. This action reduces **afterload**, or systemic vascular resistance. Systolic pressure drops further reducing the effort or workload of the heart.

Some clinical studies suggest that this process increases myocardial perfusion and stimulates the development of collateral vessels. Collateral vessels allow oxygenated blood to naturally bypass blockages and feed **ischemic**, or starving, areas of the heart.

1

First, air pressure cuffs are secured to the patient's lower body. While the heart is at rest (diastole), the **cuffs** that are attached to the **calves** will begin to rapidly **inflate** toward the thighs.



2

Next, the **thigh cuffs** will gently **inflate** compressing the blood vessels in the legs. This helps to increase the circulation of blood flow back toward the heart.



3

The **buttocks cuffs** will **inflate** last. This increases the blood flow to the coronary arteries which provide the much needed oxygen and nourishment to the heart muscle.



4

Lastly, **all cuffs** will **deflate** simultaneously prior to the next heart beat. This decreases **afterload**, or the workload of the heart when it contracts.

