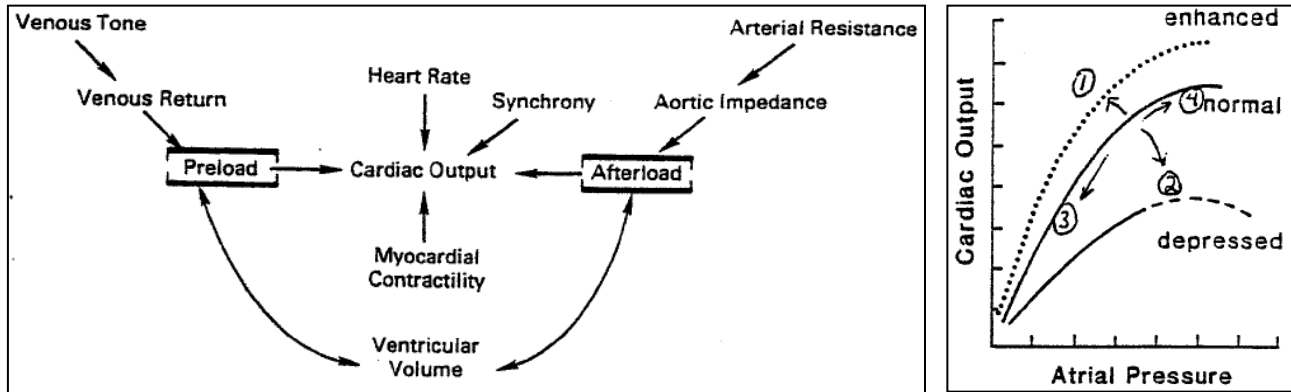


Frank-Starling Mechanism

Anesthetic Pearls: Anesthetic Implications of the Frank-Starling Mechanism

Principal factors determining **Cardiac Output (CO)** are:



Preload - Clinically synonymous with the volume of venous return to the heart, which establishes Cardiac Output by the Frank-Starling mechanism

Frank-Starling Mechanism - Increased stretch of the cardiac muscle fibers produces an increase in tension development

Ventricular Function Curves (Frank-Starling Curves) - Depict cardiac function (i.e. cardiac output) at different filling pressures (i.e. stretch, preload, or end-diastolic volume)

Frank-Starling Curve Changes:

1. Shift Curve to Left - Improved cardiac function, inotropes, sympathetic nervous system stimulation.
2. Shift Curve to Right - Depressed cardiac function, ischemia, valvular heart disease.
3. Down "Normal" Curve - No change contractility but decreased filling (↓volume) results in ↓ function (CO).
4. UP "Normal" Curve - No change contractility but increased filling (↑volume) results in ↑ function (CO) until a point is reached where the cardiac muscle is "overstretched" and CO decreases with increased volume.