

Arterial line dynamic response testing

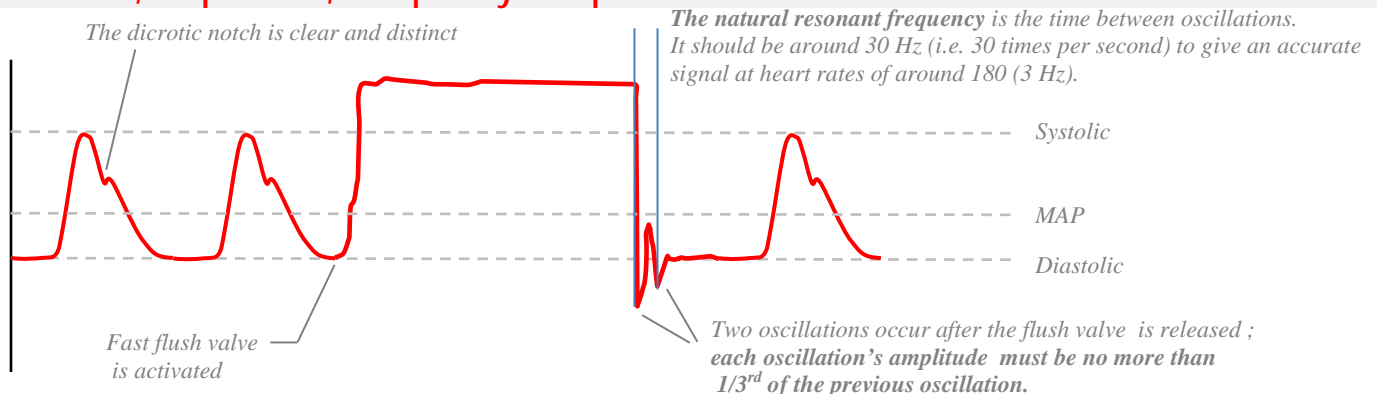
Dynamic Response is a function of Natural Resonant Frequency and Damping Coefficient

The Natural Resonant Frequency: How fast the system vibrates in response to a pressure signal
The Damping coefficient: How quickly those vibrations come to rest in the system

The Square Wave Test

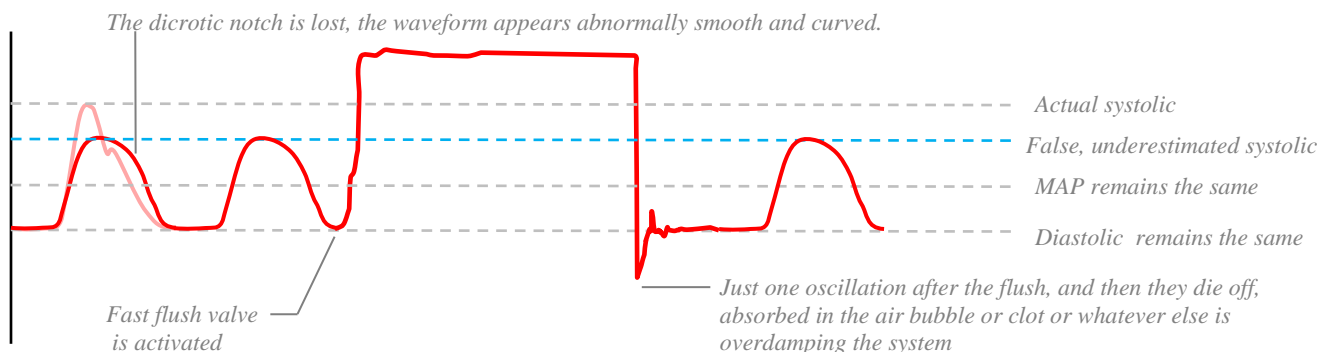
When you squeeze the fast flush valve, you let the transducer taste some of the 300mmHg in the pressurized saline bag. This produces a waveform that rises sharply, plateaus, and drops off sharply when the flush valve is released again. This is the "square wave".

The accurate, responsive, adequately damped art line trace



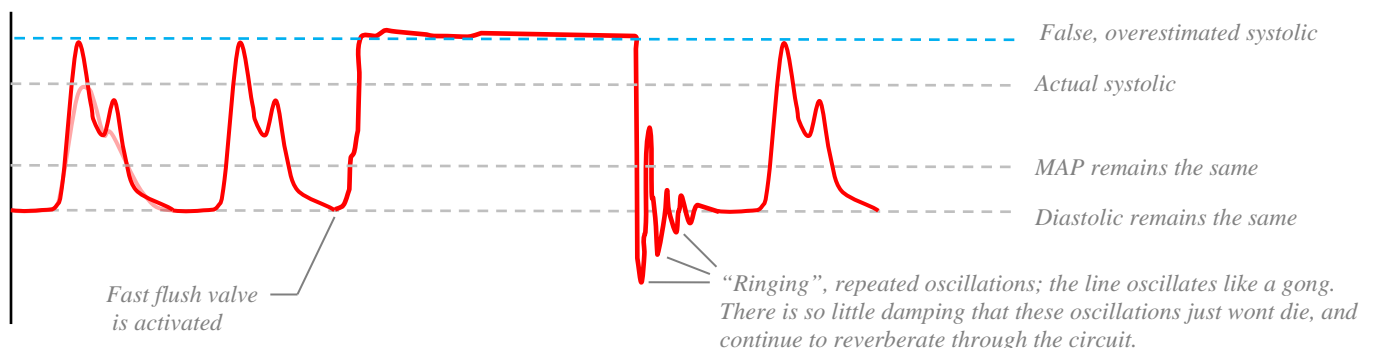
A good art line trace has a distinct dicotic notch, and after the fast flush test there are two oscillations only.

The over-damped art line trace



The over-damped trace will lose its dicotic notch, and there won't be more than one oscillation. This happens when there is a clot in the catheter tip, or an air bubble in the tubing.

The under-damped art line trace



The under-damped trace will overestimate the systolic, and there will be many post-flush oscillations.