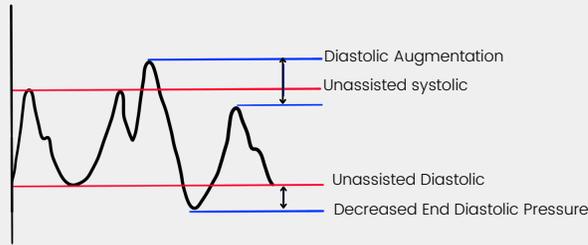


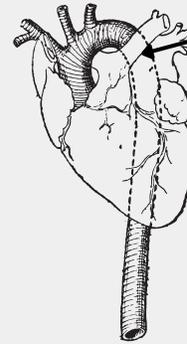
# Balloon Pump Cheat Sheet

## WAVEFORM BASICS



The purpose of the balloon pump is to increase aortic diastolic pressure (Diastolic Augmentation) and decrease left ventricular end diastolic pressure in order to increase coronary perfusion pressure.  $CPP = DBP - LVEDP$

## CORRECT PLACEMENT



The balloon should be placed adjacent to the inferior aspect of the aortic arch so that the left subclavian artery is not occluded and to prevent occlusion of the renal arteries.

The radiopaque tip should lie in the 2nd intercostal space on a chest X-ray.

## TYPES OF TRIGGERS

### ECG Trigger

The balloon will deflate at the peak of the R wave. Inflation will be triggered in the middle of the T wave.

### Pressure Trigger

The arterial waveform is used to trigger the balloon pump. Inflation is triggered at the diastolic notch.

### Internal Trigger

This is an asynchronous mode that is set during cardiac arrest or bypass. Usually set at 80 bpm.

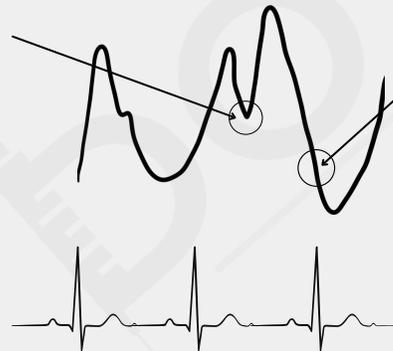
## PROPER TRIGGERING

### Proper Inflation

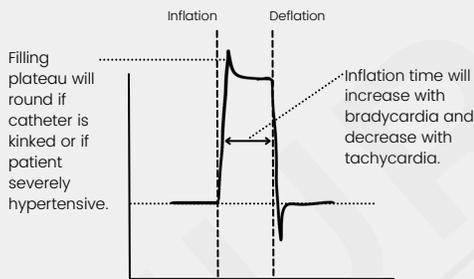
The proper point of inflation is at the diastolic notch. Should correlate approximately with the T wave.

### Proper Deflation

The proper point of deflation is at the end of diastole and should correlate with the peak of the R wave.



## BALLOON WAVEFORM



A sudden decrease in the baseline pressure of the balloon could indicate a balloon rupture, triggering an alarm.

## MODES OF OPERATION

### Automatic

The computer picks the most reliable trigger source and sets the inflation and deflation time.

### Semi-Automatic

The operator chooses the source and sets the initial inflation and deflation times. The computer will then determine subsequent intervals.

## RATIO OF AUGMENTATION

1:1  
Augmentation will occur with every beat.

1:2  
Augmentation will occur with every other beat.

1:3  
Augmentation will occur with every third beat.

Weaning is often done by gradually decreasing the rate of augmentation from 1:1 to 1:3

## ASSESSMENT

- Assess MAP from IABP waveform and titrate drips accordingly.
- Monitor pedal and radial pulses on the same side that the balloon pump is inserted. Absent pulses could indicate migration and blockage of arteries.
- Monitor urine output. A decrease in urine output could indicate balloon migration and occlusion of the renal arteries.
- Monitor insertion site for any signs of bleeding or hematoma.
- Monitor helium tubing for any signs of leak or blood. Could indicate balloon rupture.
- Make sure a chest X-ray is done at least every 24 hours to confirm placement.

## Miscellaneous

Augmentation alarm should be set 10mmHg below the augmented diastolic pressure. Decreased augmentation could indicate need for vasopressor support.

Check helium tank levels QShift.

Never power flush or draw from the IABP arterial line. If needed, get a provider order to do so.

Patients with a pacer should still be on ECG trigger unless there is not a pronounced R wave.

Patients with afib should still use ECG trigger but pressure trigger will work as well.