Respiratory- cardiovascular figure explanation

# Negative Pressure VentilationA diagram of a nervous system Description automatically generated

Here, we see a compartmentalized figure of the physiological interactions during negative pressure ventilation.

In the first compartment, the Thorax, Patm drives flow into the alveoli, due to negative Ppl created during inspiration. However, the pressures of the right side of the heart (RH) are practically unaffected by the changes in Ppl, owing to the fact that both the RH and pulmonary circulation are equally affected by this pressure[[1]](#footnote-1)

Simultaneously, in the abdomen, the venous return from systemic circulation is affected by the increased intrabdominal pressure (IAP). This increase in IAP increases the tension on the vena cava (VC), which in turn increases flow to the RV.

# Positive Pressure VentilationA diagram of a normal ventilator Description automatically generated

During mechanical ventilation, the pressure driving the expansion of the lungs is positive. The figure describes the effects of mechanical ventilation on the cardiac system.

When Ppl becomes positive, the transabdominal pressure decreases. This causes the abdomen to dilate, thus decreasing IAB, consequently decreasing driving pressure of the VC.

Less driving pressure of the VC equates to less flow to the RV, which decreases pulmonary flow. When pulmonary flow decreases, so does aortic flow.

# Pulsus Paradoxus

A graph of a pulse

Description automatically generated with medium confidence

# Frank-Starling Law

A diagram of a diagram

Description automatically generated

1. https://atm.amegroups.org/article/view/19389/html [↑](#footnote-ref-1)