

# BASIC PRINCIPLES OF FLOW

Knowing the basic principles of flow is essential to understanding vascular physics and its related pathophysiology. If sonographers will understand these principles, the complicated will make sense.

## 1. FLOW IS FLOW WHEREVER YOU GO

See practical applications of flow in your everyday life. The same principles apply to vessels.



Post stenosis



Obstruction



Stenosis

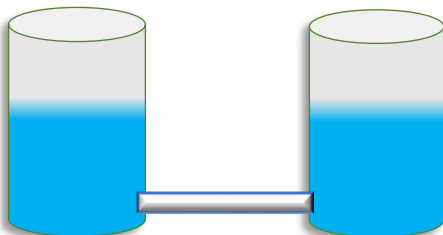
## 2. FLOW CAN ONLY GO FROM HIGH TO LOW (pressure)

With everything in life, it is only possible to go from high to low pressure. It cannot go the other way. Remember this principle when doing cardiac or arterial pressures.

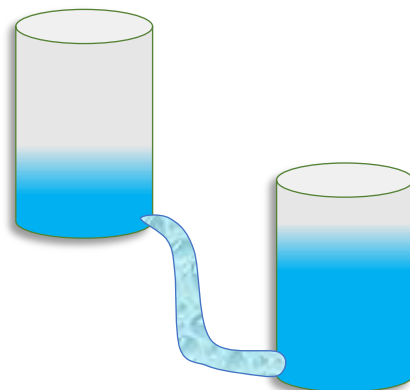


## 3. NO PRESSURE, NO FLOW

Unless there is a pressure gradient (difference) flow cannot occur.



NO PRESSURE, NO FLOW

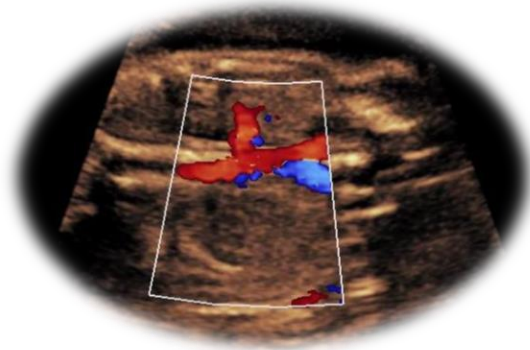
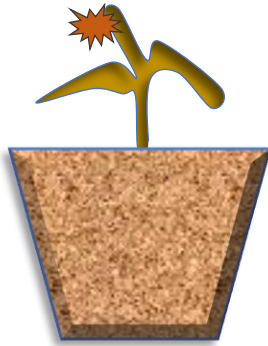


MORE PRESSURE, MORE FLOW

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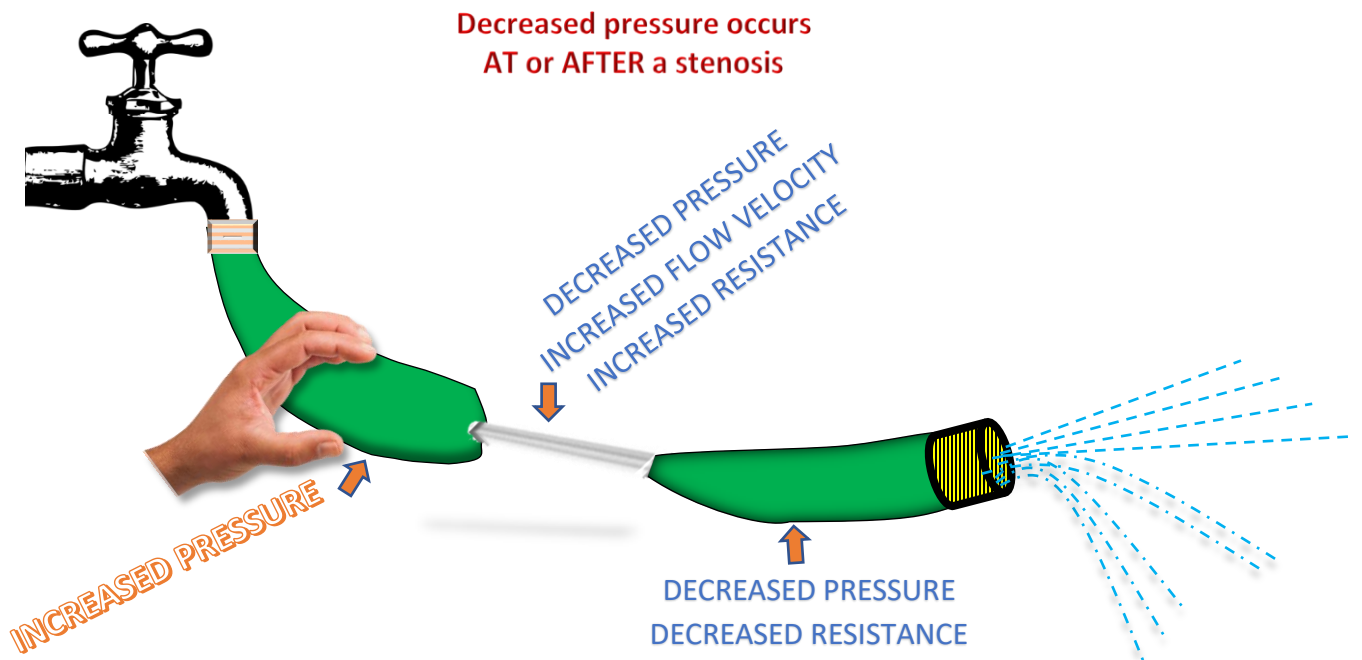
## 4. NO FLOW, NO GROW

Throughout our body, where there is no flow, cells do not grow. Vessels, organs, extremities will become atretic and die or will never develop at all.



RENAL AGENESIS

## PRESSURE AND FLOW PRACTICAL APPLICATION



A straw is always easier to squeeze than a hose because of decreased pressure.