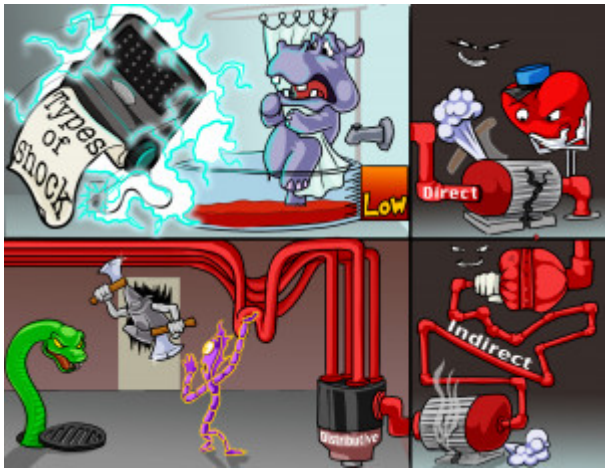
Types of Shock

Shock is a condition characterized by decreased tissue perfusion and impaired cellular metabolism. The four main types of shock are classified by either the functional impairment or the site of origin and they include hypovolemic, cardiogenic, obstructive, and distributive. More than one type of shock can be present at the same time.



PLAY PICMONIC

Hypovolemic
Hippo-volume-cup
Hypovolemic shock occurs due to a loss of intravascular fluid volume. In this shock state, the size of the vascular compartment stays the same, but the volume of blood or plasma is decreased. A reduction in intravascular volume results in a decreased venous return to the heart leading to decreased cardiac output.

Depleted Volume
Low Volume-of-fluid
Depleted volume can be either an absolute or a relative volume loss. Absolute hypovolemia is fluid physically leaving the body through mechanisms such as hemorrhage, gastrointestinal loss such as from vomiting or diarrhea, diabetes insipidus, diuresis, or fistula drainage. Relative hypovolemia involves fluid moving out of the vascular space into the extravascular space, otherwise known as third spacing. This is common in burn patients who experience increased capillary permeability, causing third spacing of fluid.

Cardiogenic
Heart
Cardiogenic shock occurs when the heart is unable to pump enough blood to meet the body's metabolic needs as a result of direct pump failure. There are various reasons why cardiogenic shock occurs (i.e., myocardial ischemia, structural problems, dysrhythmias). However, they all result in pump failure leading to impaired tissue perfusion and cellular metabolism.

Pump Failure
Broken Pump
Direct pump failure may result from either systolic or diastolic dysfunction of the heart's pumping action leading to reduced cardiac output. Systolic dysfunction is the inability of the heart to pump blood forward, while diastolic dysfunction is the inability of the heart to fill.

Obstructive
Obstruction-of-blood-flow
Obstructive shock occurs when a physical obstruction to blood flow occurs. This obstruction can result from conditions such as pulmonary embolism, cardiac tamponade, tension pneumothorax, or superior vena cava syndrome. These cause restrictive diastolic filling of the ventricles leading to decreased cardiac output and impaired delivery of oxygen to tissues.

Indirect Pump Failure
Indirect Broken Pump
Unlike cardiogenic shock, obstructive shock results in decreased cardiac function by noncardiac factors (indirect pump failure). The prevention of diastolic filling of the ventricles by a mechanical obstruction leads to decreased CO, increased afterload, and differing filling pressures.

Distributive
Distributor-cap
Distributive shock occurs due to abnormal distribution of blood flow in the vessels. This category of shock differs from the others in the sense that it occurs even though the output of the heart is normal.

Lost Vascular Tone

Loose Blood Vessels

The general malfunction leading to distributive shock is a decrease or loss of vascular tone.

Neurogenic

Nerves

Neurogenic shock is caused by the loss of vascular tone normally supported by the sympathetic nervous system. It can stem from circumstances such as severe pain, anesthesia, stress, spinal cord injury, or head trauma.

Anaphylactic

Anvil-axes

Anaphylactic shock is a hypersensitivity or allergic reaction to a sensitizing substance such as a food, drug, or chemical. It causes massive vasodilation and an increase in capillary permeability. This leads to fluid shifting from the vasculature into the interstitial space.

Septic

Sepsis-snake

Septic shock is the presence of sepsis with hypotension despite adequate fluid resuscitation. It begins with an infection that leads to a systemic inflammatory response causing peripheral vasodilation, increased capillary permeability, excessive cellular activation, and increased coagulation.