Regulation of BP Via Regulation of Cardiac Output
(Cardiac Output = Heart Rate X Stroke Volume)

- **Mechanical**
  - Blood volume (hemorrhage, transfusion, fluid/electrolyte balance)
  - Afterload (hypertension), backpressure
  - Frank-Starling Law of Heart (preload/stretch)
  - Contractility
  - Venous Return (skeletal muscle/respiratory pump)

- **Neural**
  - Pressoreceptors (pressure)
  - Chemoreceptors (CO₂, H⁺, O₂)
  - Aortic & Carotid Sinus Reflex-Parasympathetic
  - Atrial/Right Heart/Bainbridge Reflex-Sympathetic
  - CAC-Sympathetic (NE—↑HR/↑FC) via cardiac accelerator nerves to SA, AV node, & v. myocardium
  - CIC-Parasympathetic (ACh—↓HR) via Vagus nerve to SA node and AV node

- **Neurotransmitters/Hormonal/Chemical**
  - NE, Epinephrine (medulla)—sympathetic
  - Acetylcholine—parasympathetic
  - Atropine (Belladonna)
  - Pilocarpine
  - Digitalis
  - Positive and negative inotropic agents
  - Ions (K⁺, Ca²⁺, Na⁺)
  - Renin-angiotensin-aldosterone pathway
  - Antidiuretic Hormone (ADH)
  - Which of these also work by regulating blood volume?

- **Other Factors**
  - Age
  - Gender
  - Emotions
  - Temperature
  - Physical fitness
  - Disease/heart conditions

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