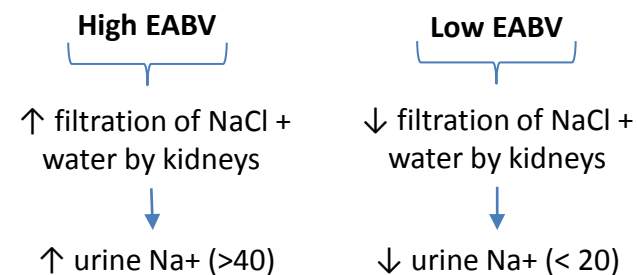


# Effective Arterial Blood Volume (EABV)

- The part of the intravascular volume (IV) that is in the arterial system and effectively perfusing tissues (Usually 700ml/70kg in men)
- A indirect reflection of the pressure perfusing the kidneys
- Stretch –sensitive baroreceptors on the carotid sinuses and glomerular afferent arterioles sense this arterial pressure

EABV can be predicted by Urine [Na+]



**2 exceptions:** urine Na+ can be high with low EABV when:

1. Pt is on lasix: prevents Na+ reabsorption in loop of Henle.
2. Pt has diseased tubule cells (preventing Na+ reabsorption)

## Factors affecting EABV

### Normal State

### Diseased state

#### Change in posture

#### Change in diet (ingested Na+)

#### Hypotension (Shock)

#### Conditions causing pitting edema

i.e. standing up

Na+ gain: ↑ EABV, Urine Na+ > 40  
 Na+ loss: ↓ EABV, urine Na+ <20

Gravity pulls blood to feet/legs

i.e. ↑ Salt intake

Legs hyper-perfused, brain under-perfused (low EABV)

↑ salt+water in blood, ↑ salt+water leaking into ISF

Carotid sinus baroreceptor activation ↑ sympathetic tone

High EABV  
 (→Hypertension, edema, high urine Na+: >40)

Vasoconstriction of vessels in feet restores cerebral perfusion

Compensation: ↓ RAAS, ↑ tubular Na+ reabsorption

#### Overfill

(pathologic kidney retention of Na+/water)

#### Underfill

(pathologically low EABV for other reasons)

**Heart failure (lower cardiac output)**

**Vascular capacitance**