

Do we know what we give to patients when we start a fluids therapy?

➤ Water

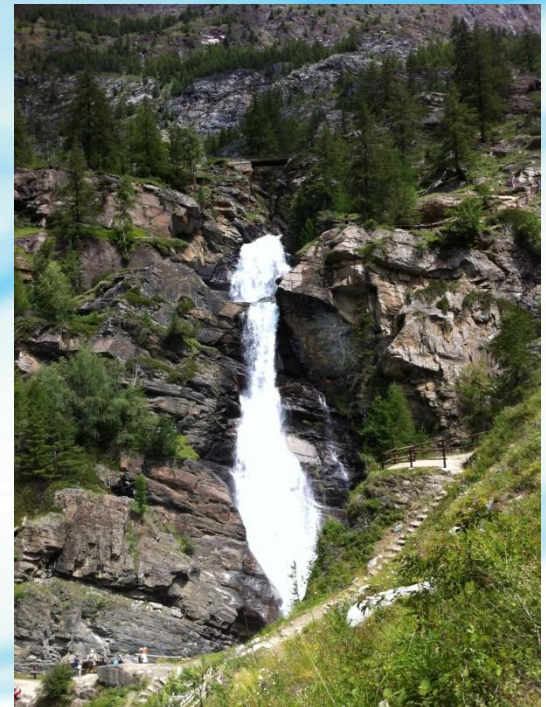
➤ Electrically active substances

- *Strong* ions, completely dissociated electrolytes
- *Weak* substances, incompletely dissociated

➤ Solutes

(diffusibility through the membranes, dimension)

- Crystalloids
- Colloids



NORMAL (?) SALINE ("fisiologica"!!!)

❖ H_2O + NaCl 0.9%

❖ $[\text{Na}^+ 154 \text{ mEq}; \text{Cl}^- 154 \text{ mEq}]$

Na^+ Cl^-

- Electrically active substances
 - *Strong* ions, completely dissociated electrolytes

CRYSTALLOIDS + COLLOIDS

- ❖ **H₂O**
- ❖ **Strong ions: (Na⁺, Cl⁻, K⁺, Ca⁺⁺, Mg⁺⁺; Acetate, Malate..)**
- ❖ **Hydroxyethyl starches**
- ❖ **Gelatine**

All fluids disappear inside the vein, and then?

Fluids of clinical interest:

- **Intra-cellular fluid (ICF), Extra-cellular fluid (ECF),**
- **Interstitial fluid, Plasma, Whole Blood**



Intravascular Volume

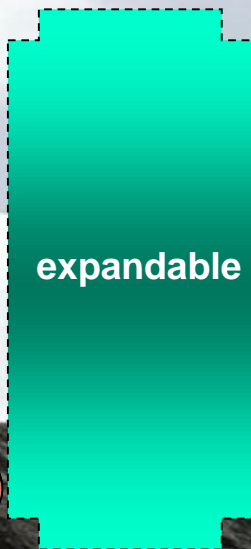
Interstitial Volume

Intracellular Volume

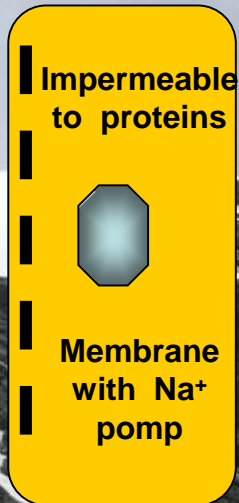
2 L NS, Lactate Ringer,.....



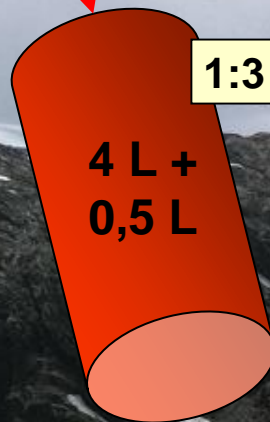
4 L



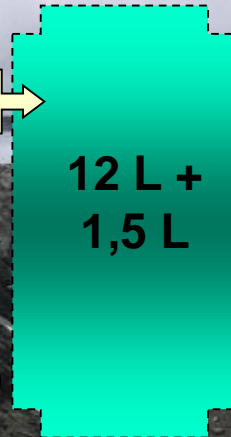
12 L



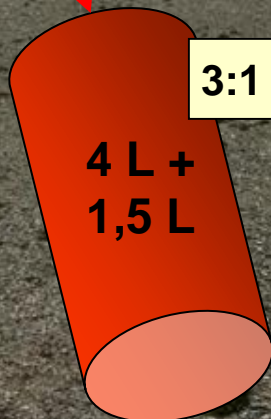
36 L



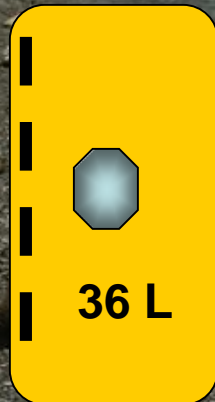
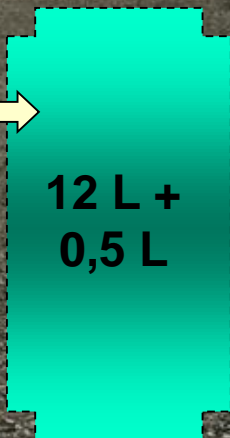
1:3



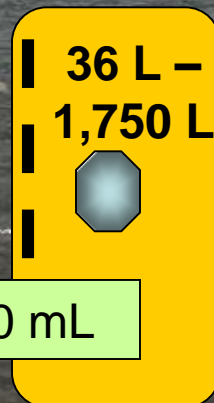
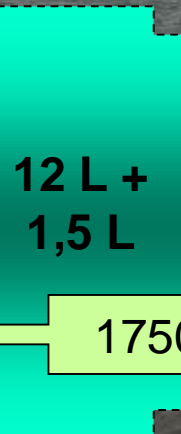
2 L of albumin 5%



3:1



250 mL of hypertonic saline 7,5%



1750 mL

And what about Glucose?

Intravascular Volume

Interstitial Volume

Intracellular Volume

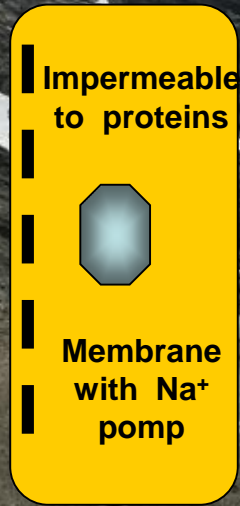
2 L Glucose 5%,
10%, 33%...



4 L



12 L



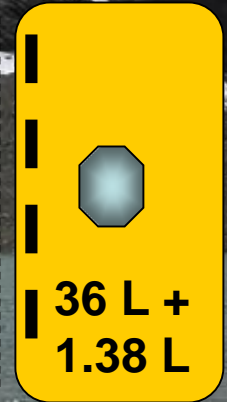
36 L



Intravascular Volume



Interstitial Volume



Intracellular Volume