

**BODY FLUID &  
FLUID COMPARTMENTS  
Introduction**

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- **LIFE EVOLVED IN ‘PRIMORDIAL SEA’**
- **CELLS ADAPTED TO A FLUID ENVIRONMENT**
- **CELLS HAVE FLUID BOTH IN AND AROUND THEM**
- **A FLUID MEDIUM IS NECESSARY FOR LIFE**

- **WE ARE 60% WATER**
- **IN A 70KG MAN = 42 L**
- **REST OF US:**
  - **PROTEIN 18%**
  - **FAT 15%**
  - **MINERAL 7%**

# IMPORTANCE OF WATER

- **UNIVERSAL MEDIUM**
- **UNIVERSAL SOLVENT**
- **CONDUCTOR OF IONS**
- **OSMOTIC PRESSURE**
- **HIGH SPECIFIC HEAT CAPACITY**
- **END PRODUCT OF METABOLISM**

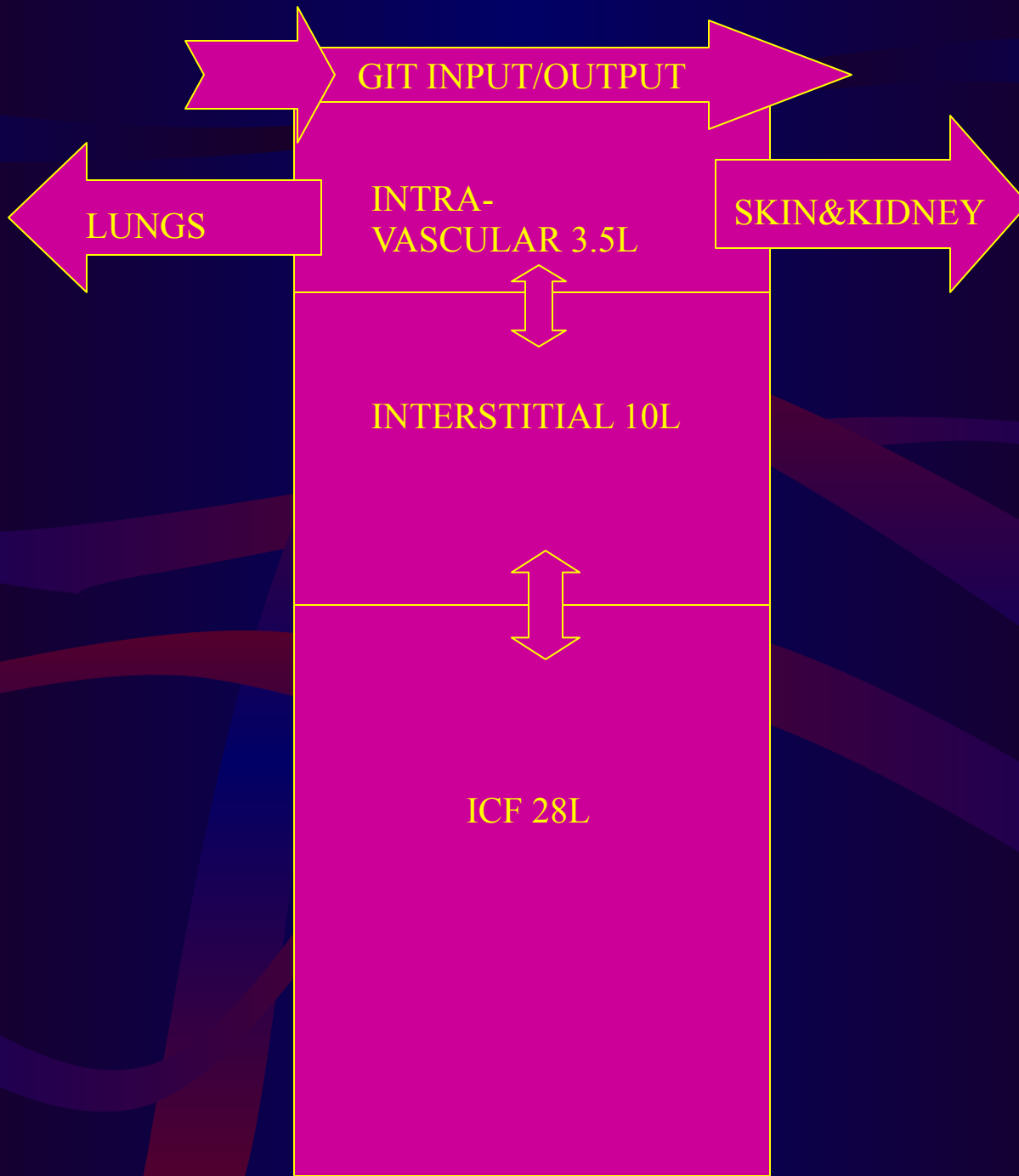


# FLUID COMPARTMENTS

- **TOTAL BODY WATER-**  
**60% OF BODY WEIGHT**  
**= 42 L**
- **2/3 OF TBW IS INTRA- CELLULAR**  
**= 28 L**
- **1/3 OF TBW IS EXTRA- CELLULAR**  
**= 14 L**

# FLUID COMPARTMENTS

- **EXTRA- CELLULAR FLUID = 14 L**
  - **3/4 IS INTERSTITIAL FLUID = 10.0 L**
  - **INTRA-VASCULAR = 3.5 L**
  - **REST IS TRANS-CELLULAR ~ 0.5 L**
    - **CEREBROSPINAL FLUID**
    - **JOINTS**
    - **BLADDER**
    - **PLEURAL, PERICARDIAL, PERITONEAL SPACE**



# FLUID MOVEMENT

## **FILTRATION**

- THIS IS THE MOVEMENT OF FLUID THROUGH A BARRIER FROM AN AREA OF HIGH PRESSURE TO AN AREA OF LOWER PRESSURE



# OSMOSIS

**THE MOVEMENT OF SOLVENT  
THROUGH A SEMI-PERMIABLE  
MEMBRANE FROM AN AREA OF LOW  
TO HIGH SOLUTE CONCENTRATION**

**– THE PRESSURE REQUIRED TO PREVENT  
SUCH A MOVEMENT IS OSMOTIC  
PRESSURE**

# Fluid Balance

- External Flux

- Source

- Intake
    - Endogenous (200-500ml/24 hrs)

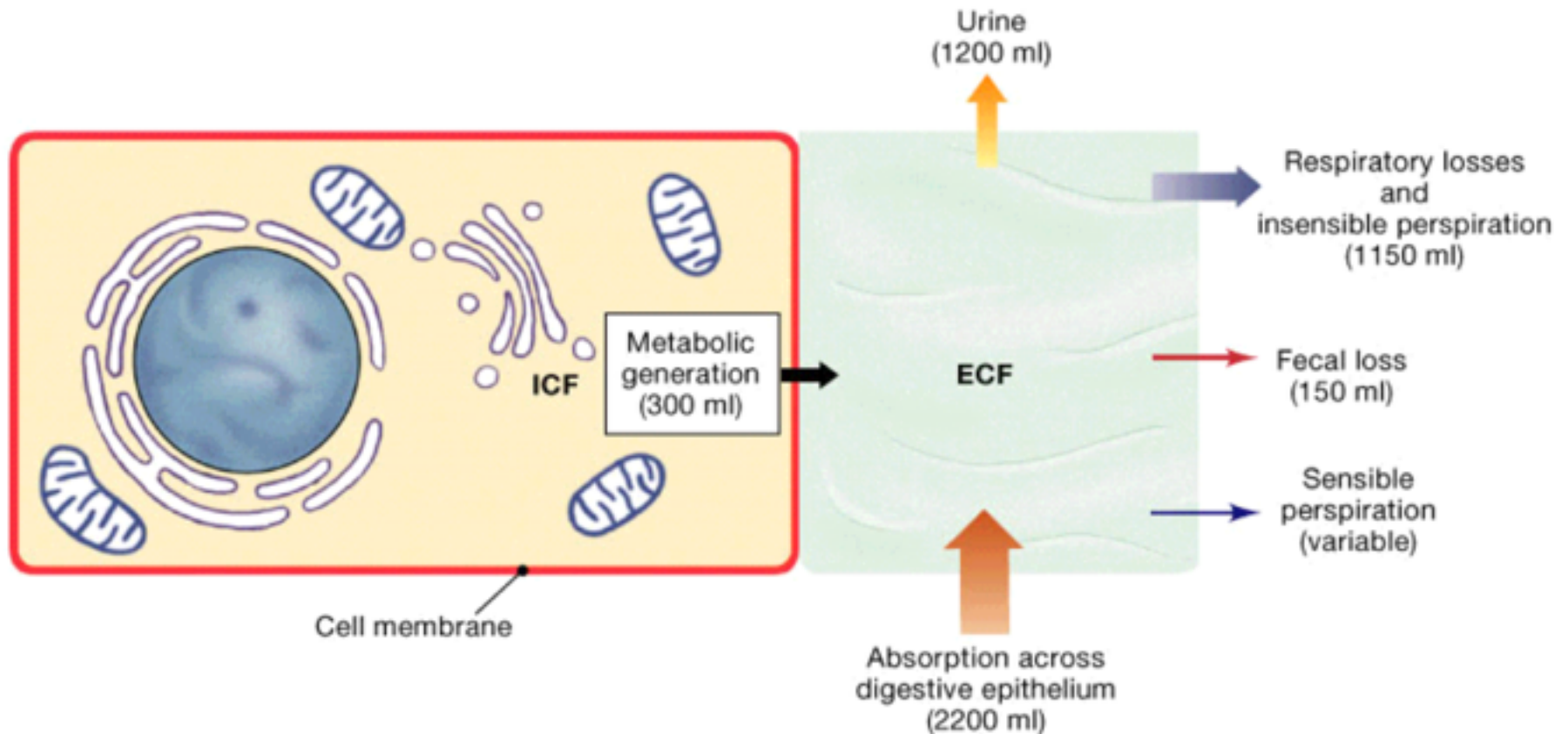
- Loss

- Urine- 500-600ml obligatory
    - Stool- 100-300 ml
    - Skin- 'insensible' 750 ml- 1L
    - Resp- 750ml

# Fluid Balance II

- Internal flux
  - CVS
  - Renal- Filtration/ reabsorption
  - Lymphatics
  - GIT-
    - Secretions:6L
    - Reabsorption
      - Small int: >5L
      - Colon: 1L

# Fluid Exchanges



# Fluid Therapy

- Aim:
  - Blood volume and composition maintenance
  - Ensure survival
  - Restore fluid & electrolyte balance
  - Stop loss
- **BODY'S OWN ABILITY MUST NOT BE UNDERESTIMATED**







































