

# **SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES**



*Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai*

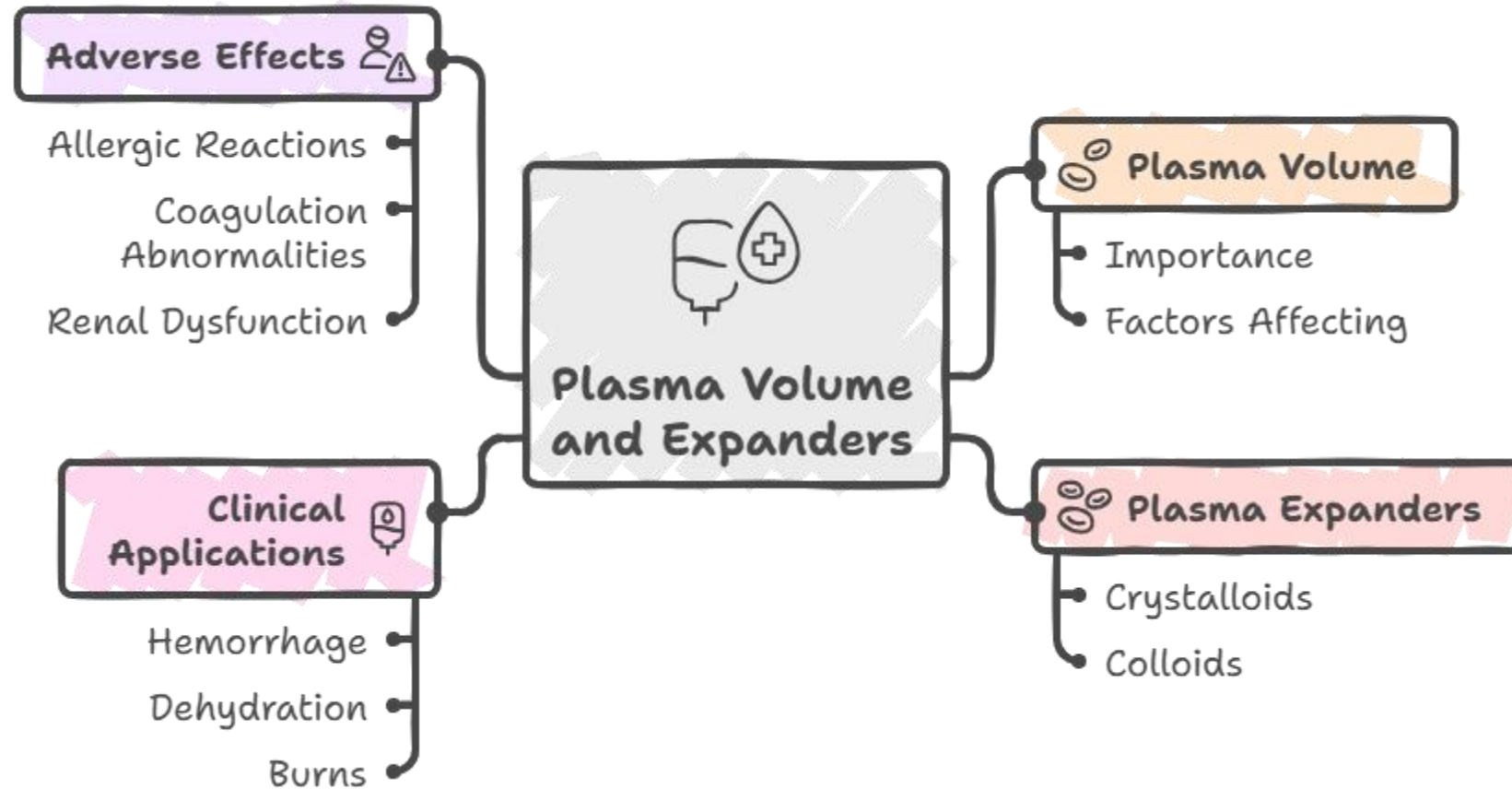
*Approved by Pharmacy Council of India, New Delhi*

**Coimbatore-641035**

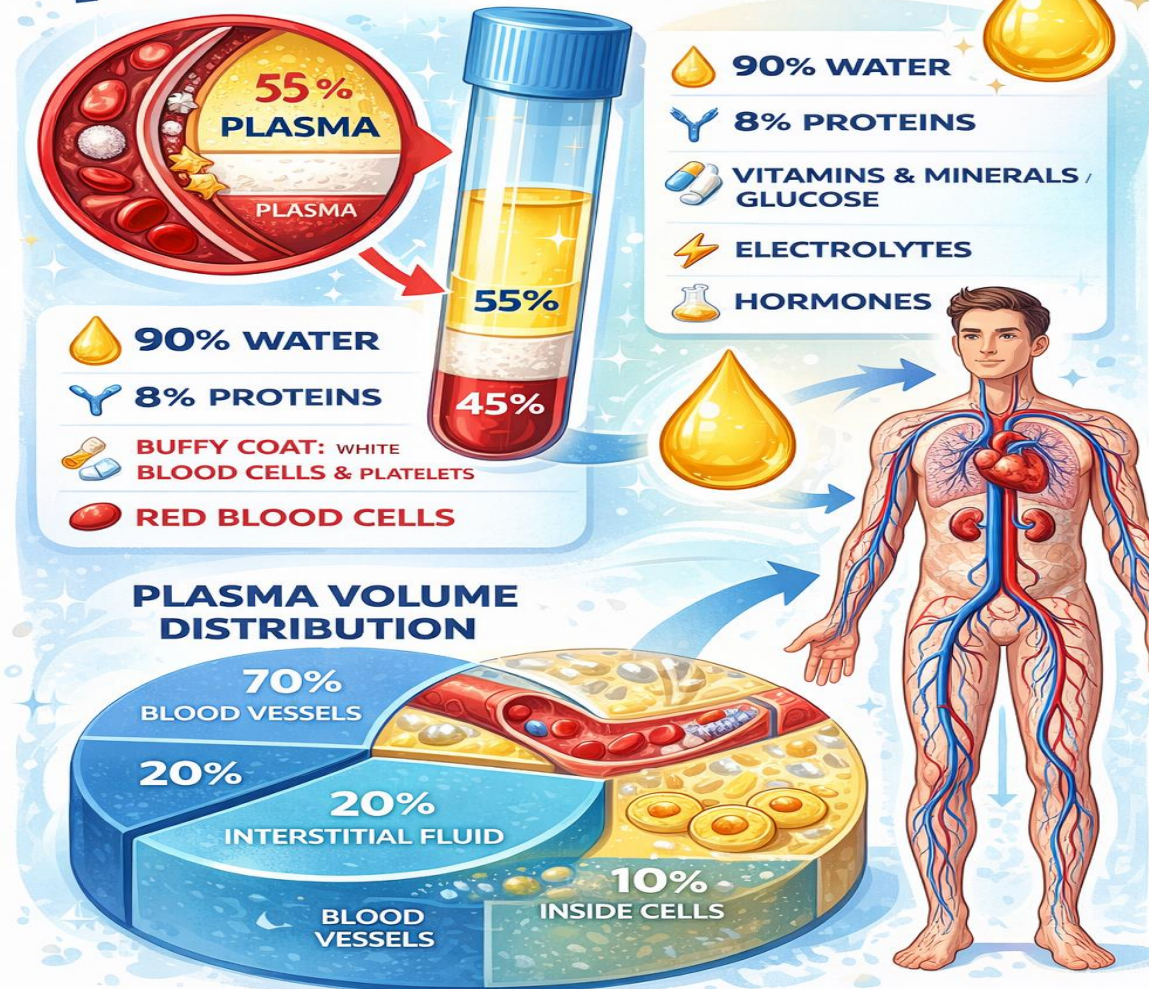
**TOPIC : PLASMA VOLUME AND EXPANDERS**

**COURSE:PHARMACOLOGY II**

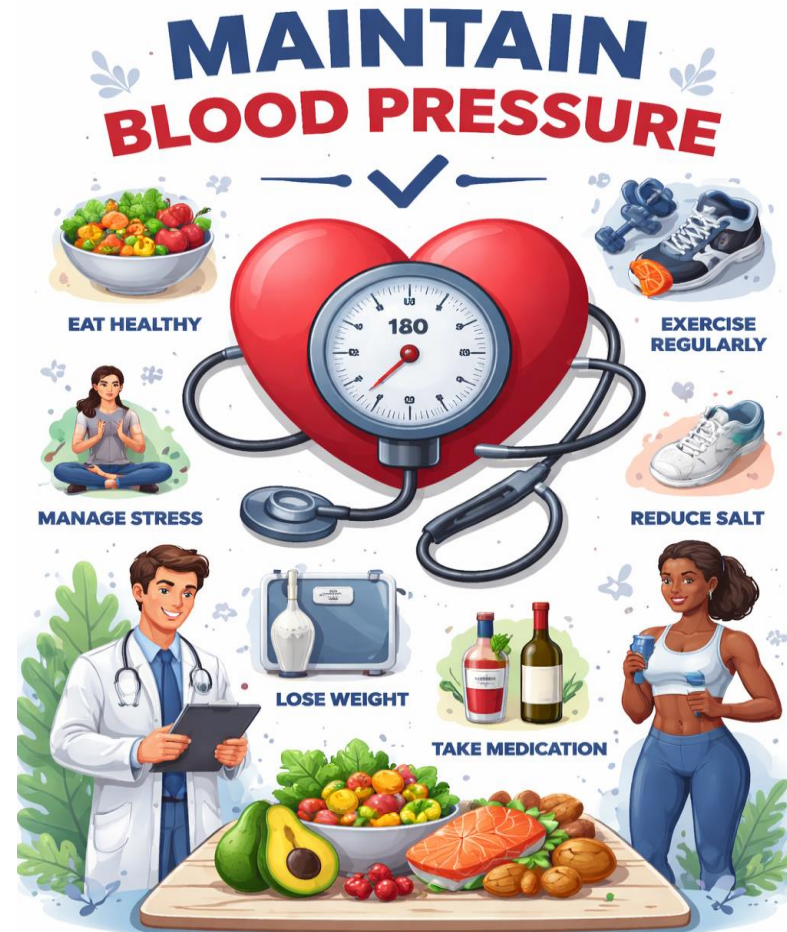
# MIND MAP:



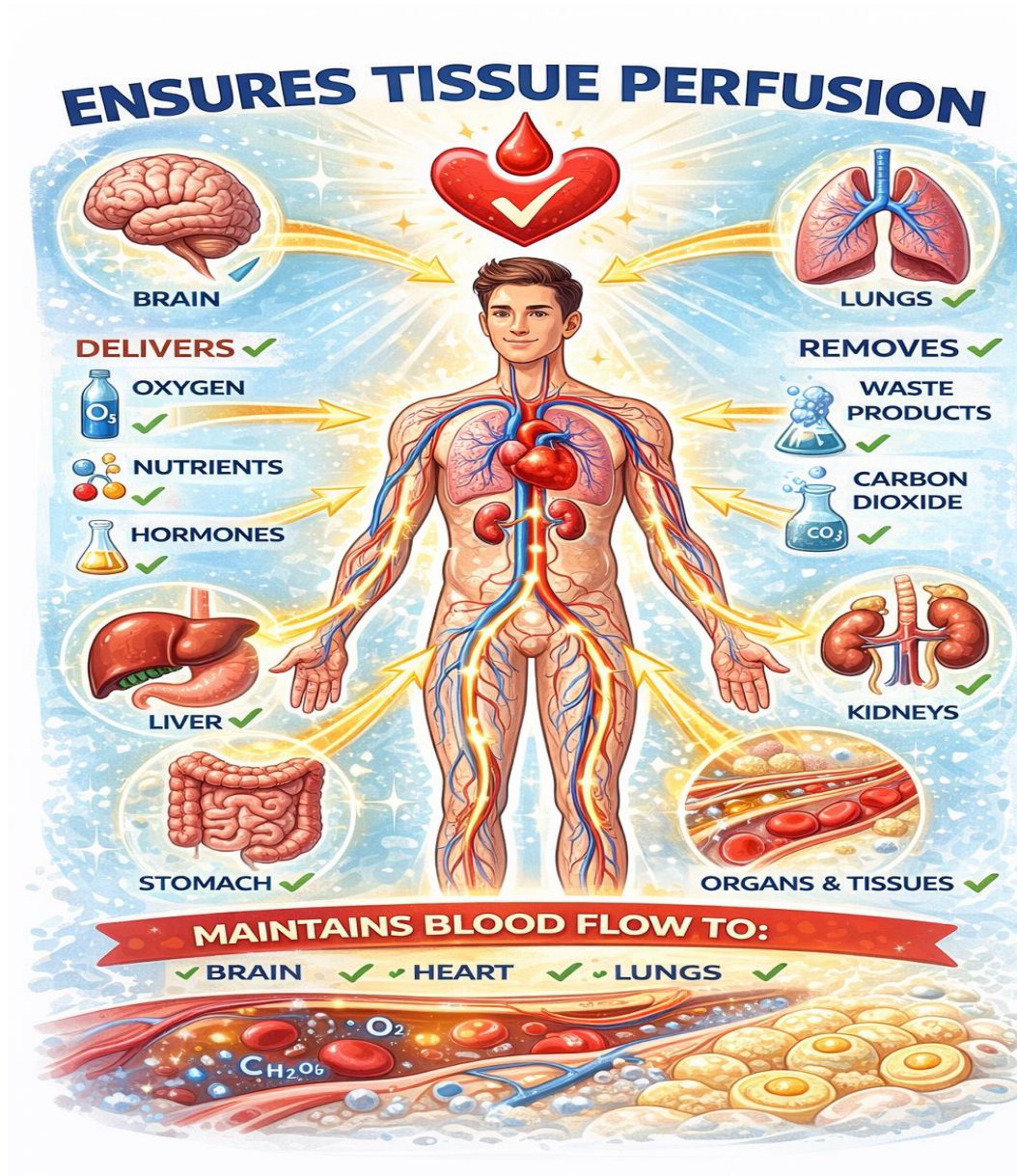
# PLASMA VOLUME

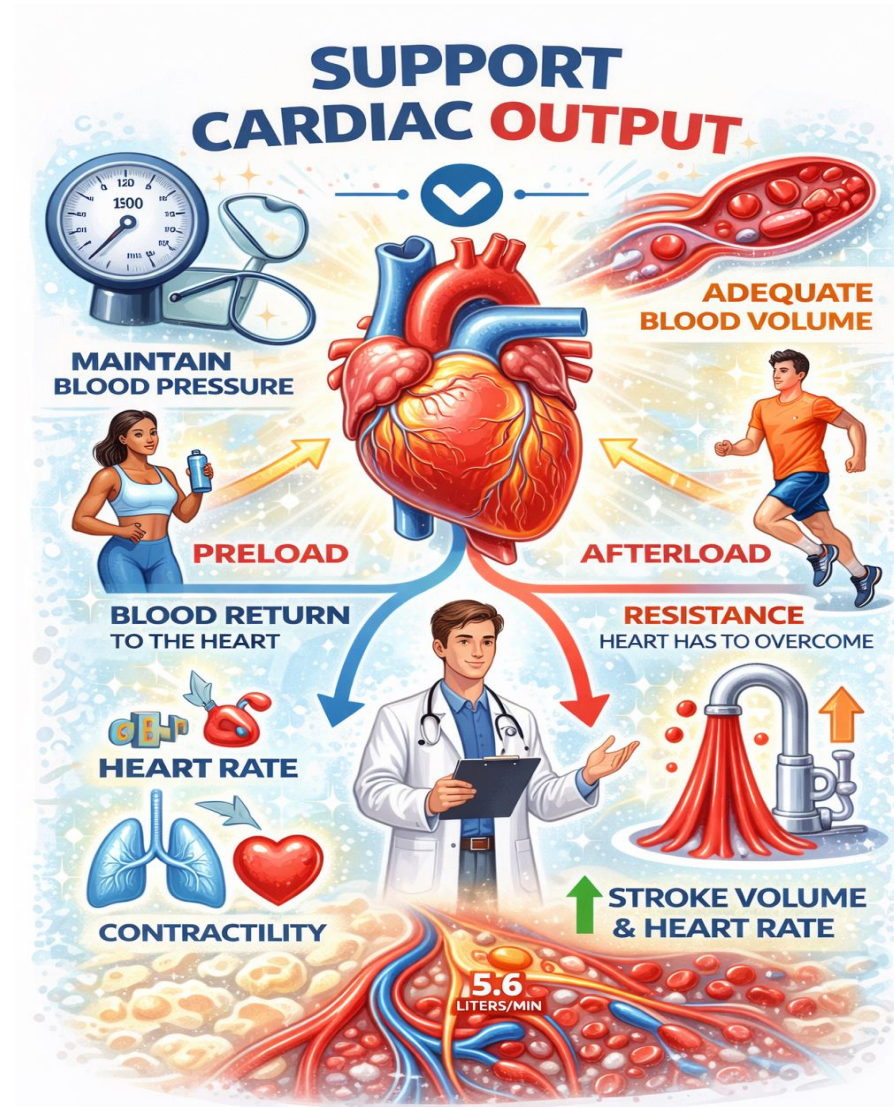


# Physiology of Plasma Volume :



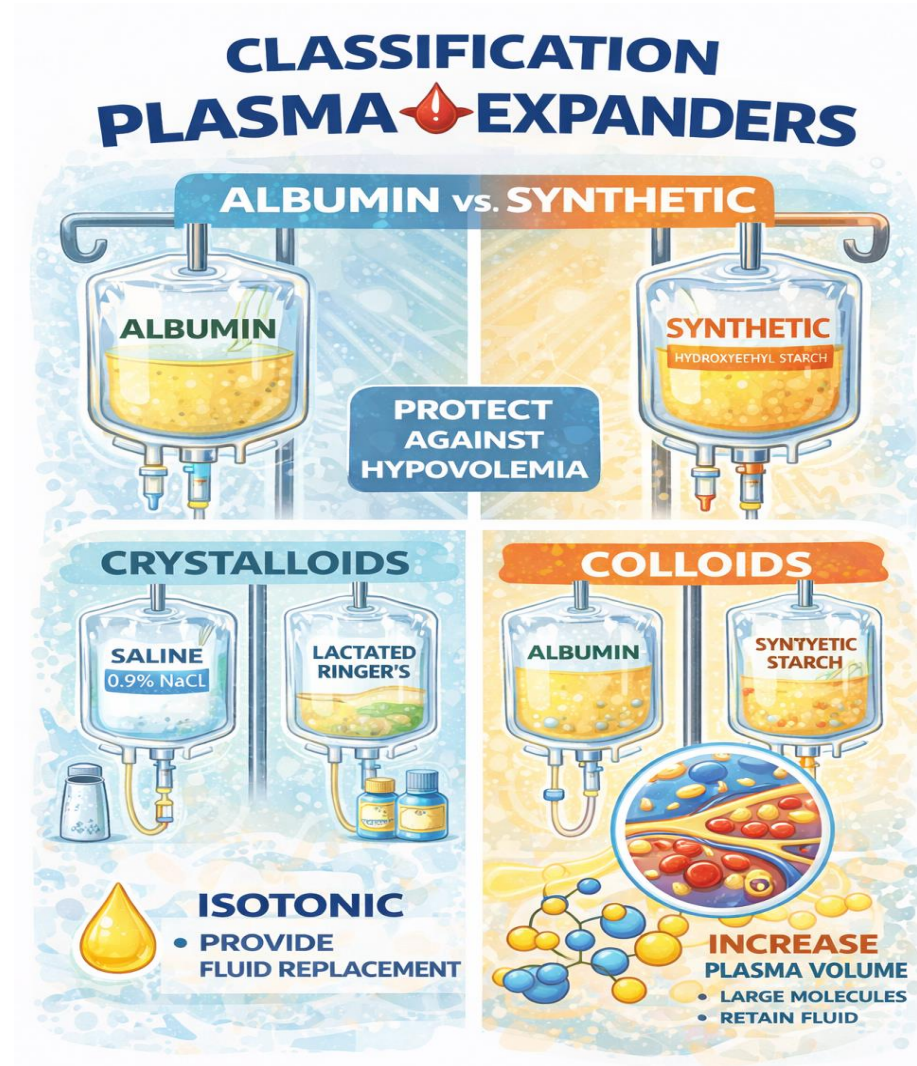








# Types of Plasma Expanders:

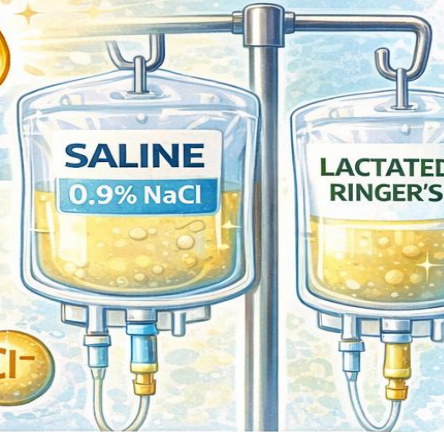


# PLASMA CRYSTALLOIDS

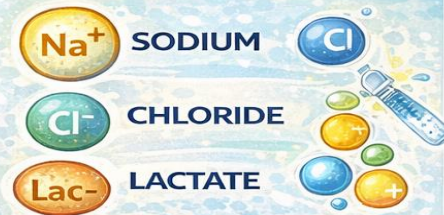
## ISOTONIC SOLUTIONS FOR FLUID REPLACEMENT

### ✓ CONTAINS:

- ✓ SODIUM
- ✓ CHLORIDE
- ✓ LACTATE
- ✓ ELECTROLYTES



## CRYSTALLOIDS



EXPANDS  
INTRAVASCULAR VOLUME

## COLLOIDS

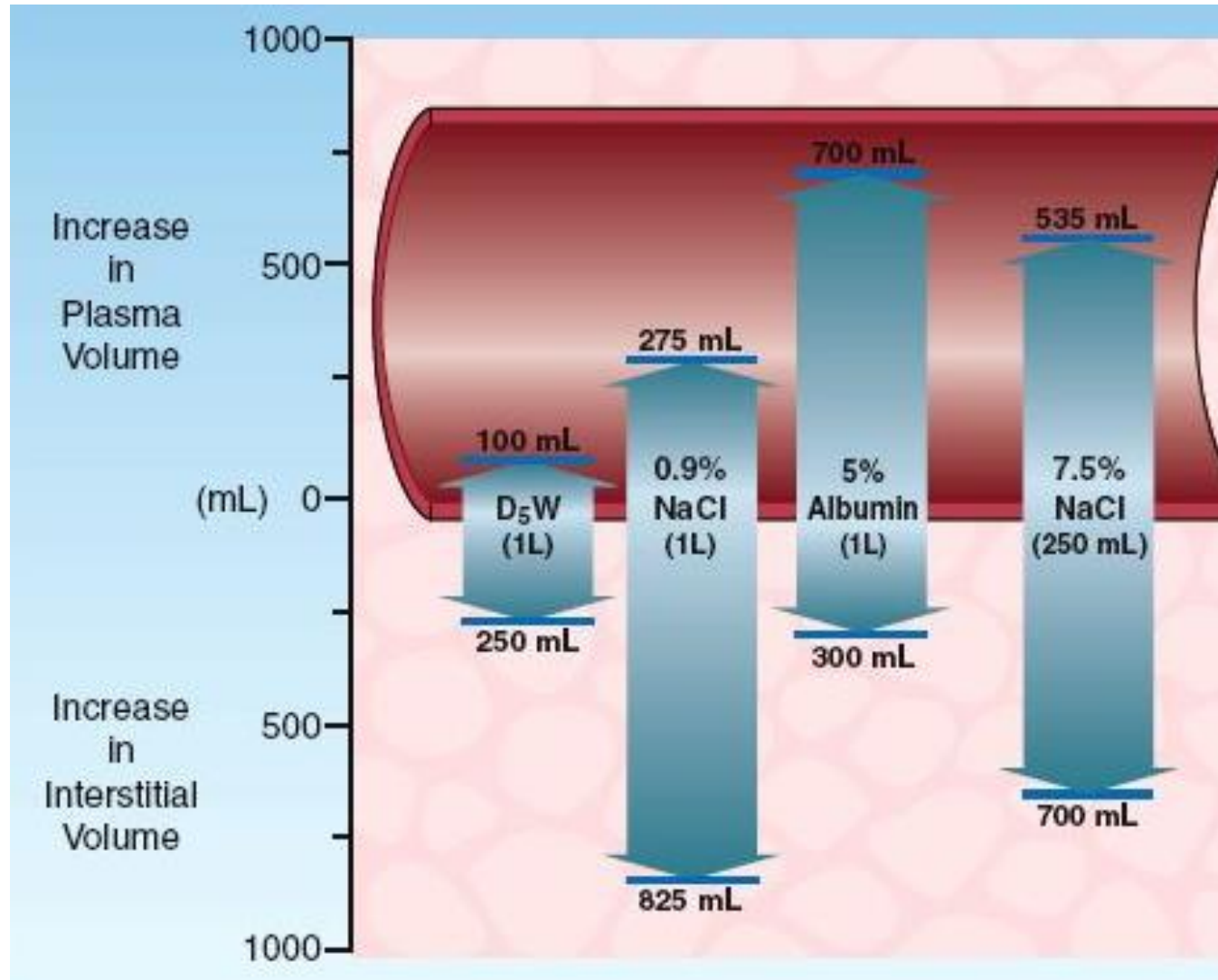


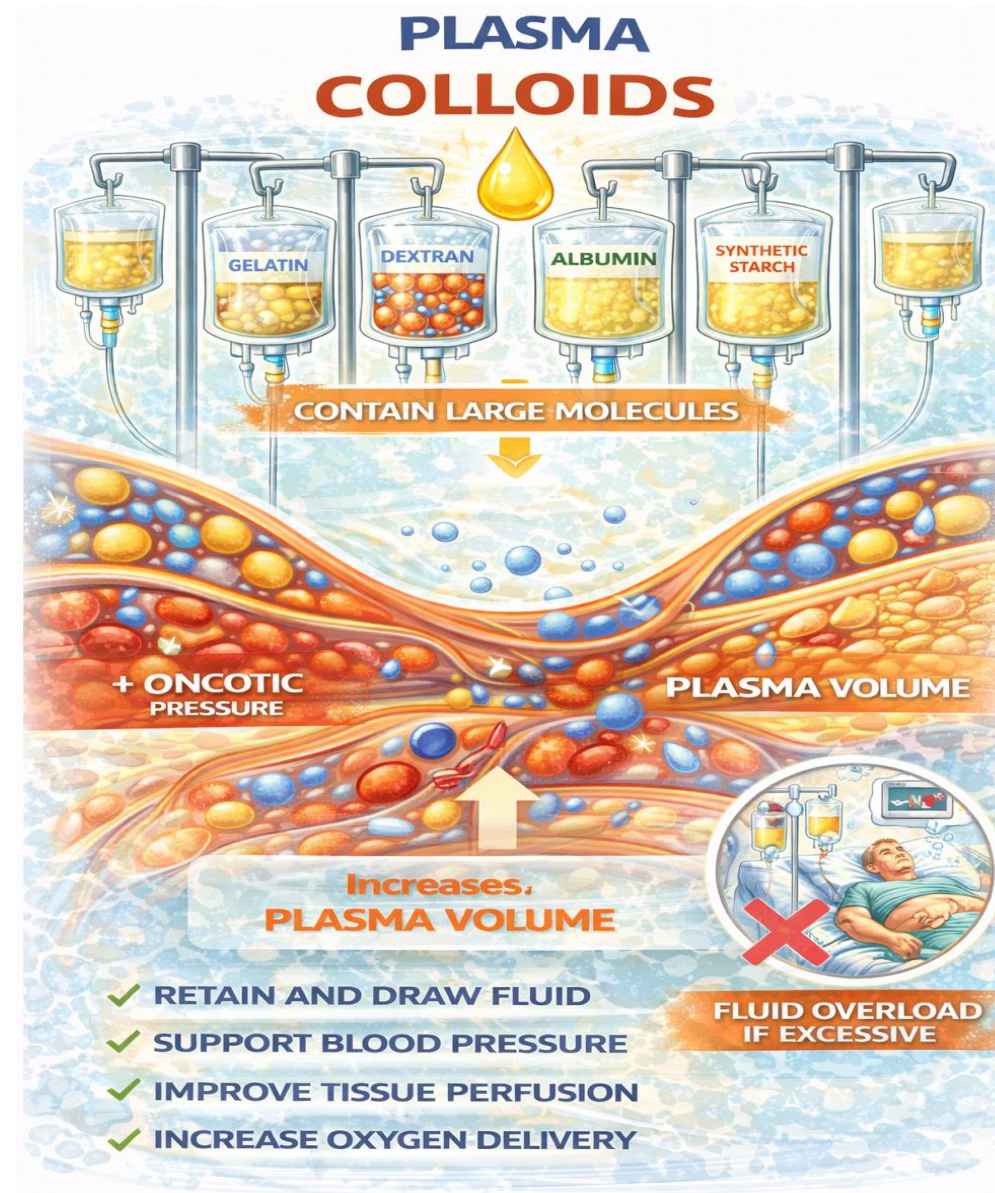
REFORMS LOST  
FLUIDS & ELECTROLYTES

BALANCE

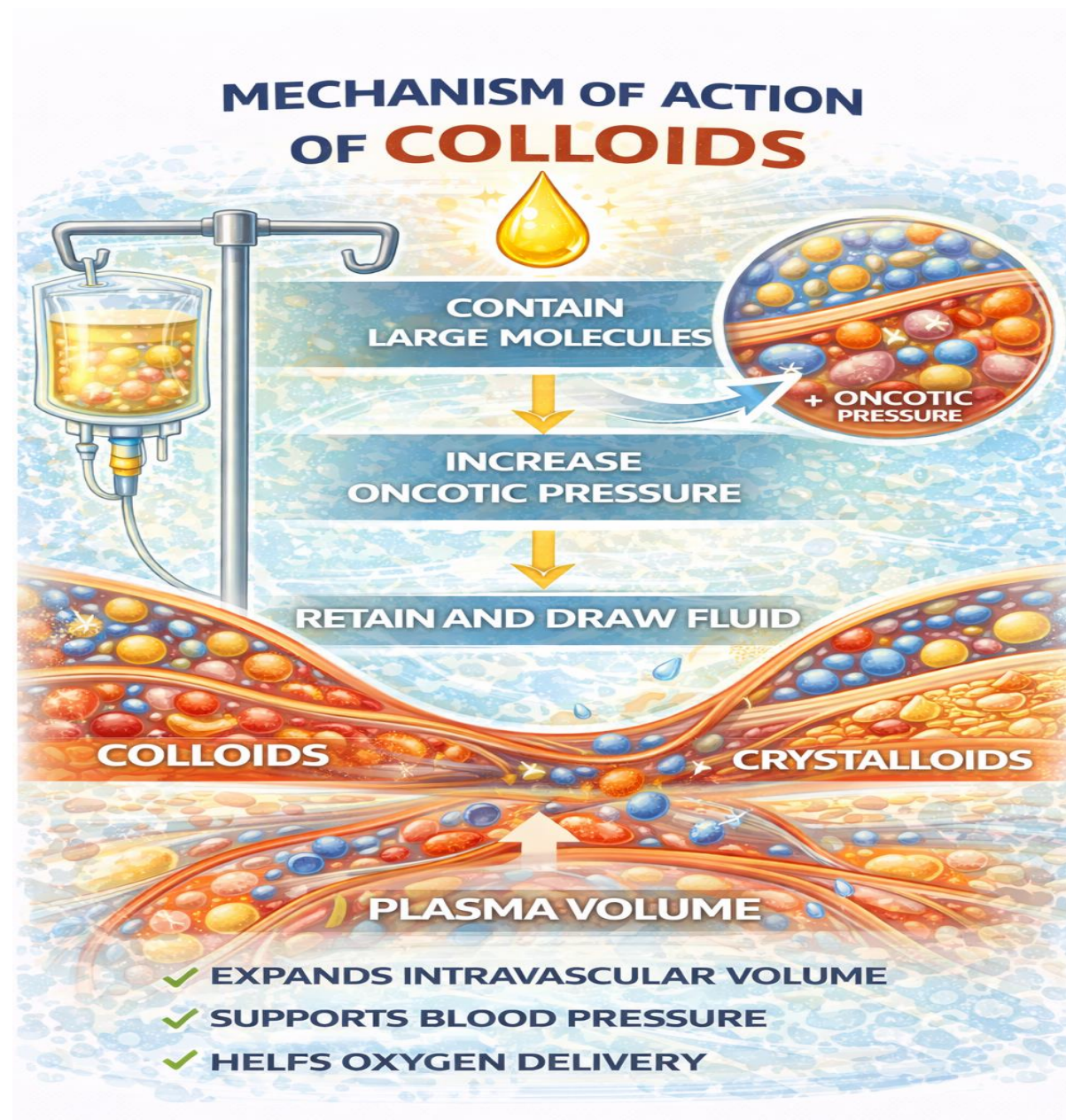




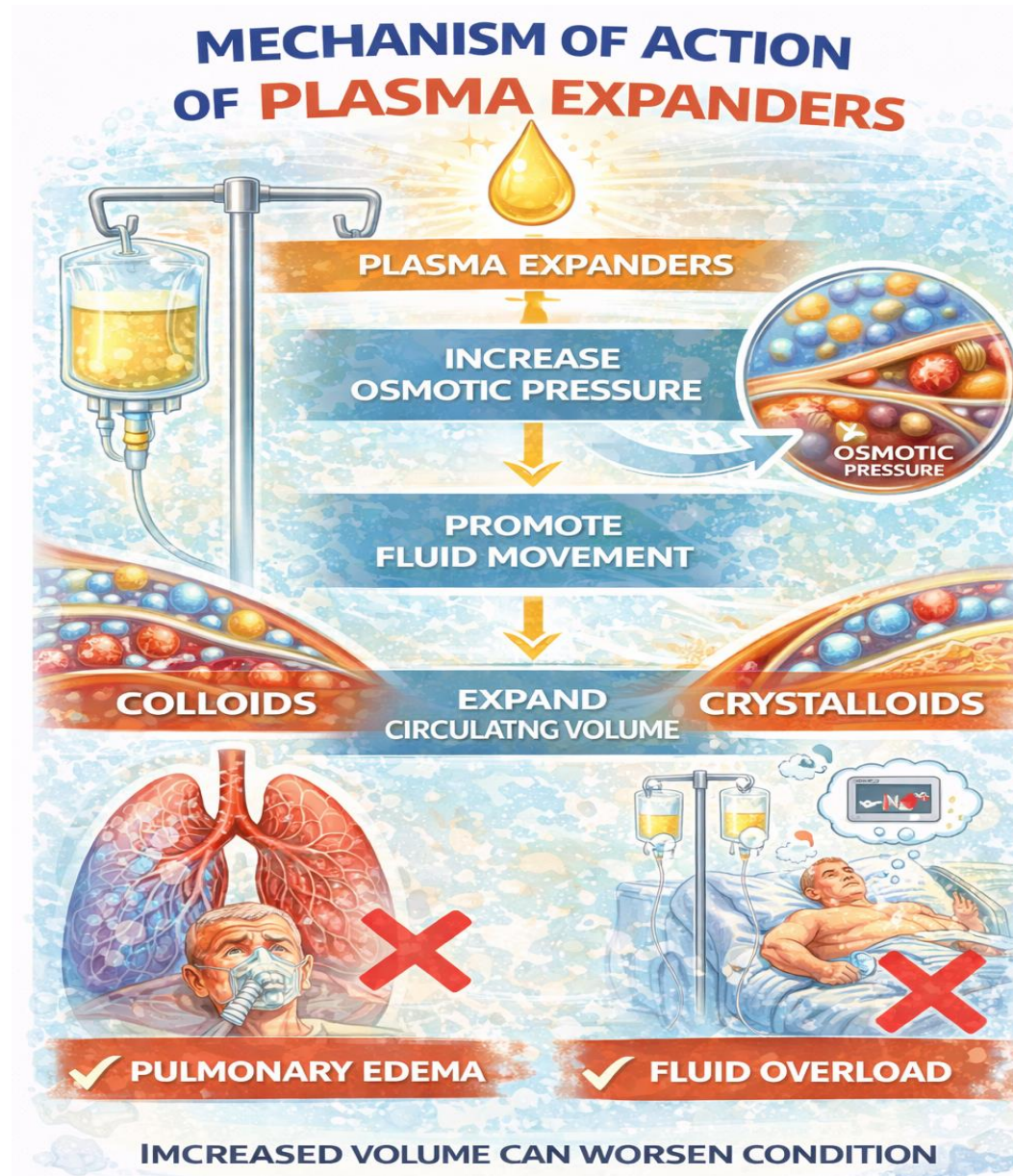




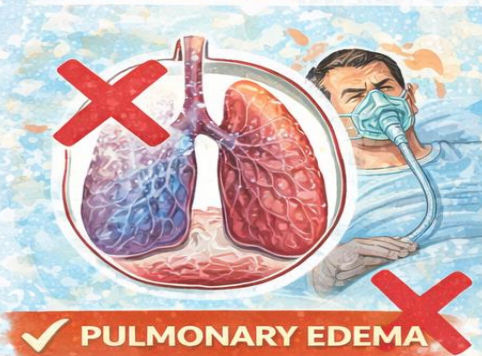
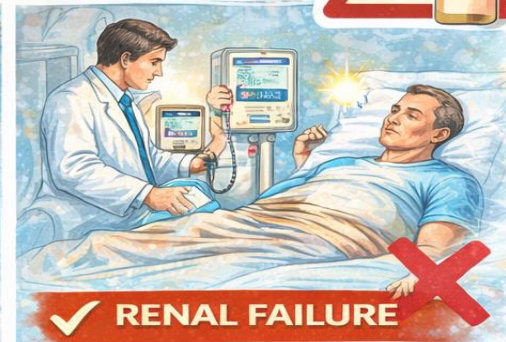
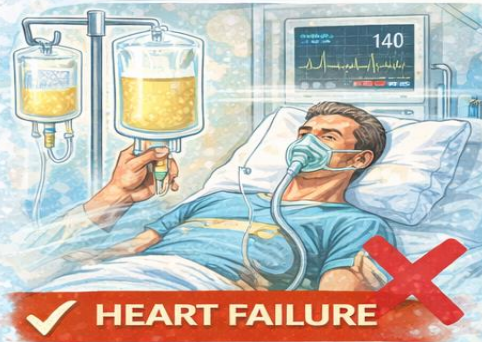








# CONTRAINDICATIONS OF PLASMA VOLUME



**INCREASED  
VOLUME CAN  
WORSEN CONDITION**



**BETTER FOR**

- ✓ FLUID REPLACEMENT
- ✓ TRAUMA
- ✓ HYPOVOLEMIA



# CLINICAL USES OF PLASMA VOLUME

**✓ HYPOVOLEMIC SHOCK**

**✓ DEHYDRATION**

**✓ BLOOD LOSS AFTER TRAUMA**

**✓ SEVERE BURNS**

**✓ SURGERY**

**✓ HEMORRHAGE**

**BETTER FOR**

- ✓ INCREASING PLASMA VOLUME
- ✓ TRAUMA
- ✓ SURGERY

**BETTER FOR**

- ✓ FLUID REPLACEMENT
- ✓ DEHYDRATION
- ✓ ELECTROLYTE IMBALANCE



# Multiple Choice Questions (MCQs)

1. Which of the following is a crystalloid plasma expander?

- a) Albumin
- b) Dextran
- c) Normal Saline
- d) Hydroxyethyl Starch (HES)

2. Which of the following plasma expanders is most likely to cause allergic reactions?

- a) Albumin
- b) Normal Saline
- c) Dextran
- d) Ringer's Lactate

3. Which of the following is a potential complication of using Hydroxyethyl Starch (HES) as a plasma expander?

- a) Hyperkalemia
- b) Acute Kidney Injury
- c) Hypoglycemia
- d) Metabolic Alkalosis

4. Which type of plasma expander is most effective at rapidly expanding plasma volume?

- a) Crystalloids
- b) Colloids
- c) Both are equally effective
- d) Depends on the specific solution

5. Plasma constitutes approximately what percentage of total blood volume?

- A. 35%
- B. 45%
- C. 55%
- D. 70%



# References:

- Myburgh, J. A., & Mythen, M. G. (2013). Resuscitation fluids. *New England Journal of Medicine*, 369(13), 1243-1251.
- Vincent, J. L., & De Backer, D. (2013). Circulatory shock. *New England Journal of Medicine*, 369(18), 1726-1734.
- Wilkes, N. J., & Woolf, R. (2008). Intravenous fluids: What clinicians need to know. *British Journal of Anaesthesia*, 101(3), 301-308.

# THANK YOU !