

First Semester Basics of Surgery

FLUID THERAPY

Sawa University

College of health and medical techniques

Department of Anesthesia

Stage: Second

جامعة ساوة الاهلية

كلية التقنيات الصحية والطبية

قسم تقنيات التخدير

المرحلة: الثانية

محاضرة رقم: 5

Lecture No. 5

نظري

Theoretical

استاذ المادة : م.م. رباب سمير كاظم

Intravenous fluids

- are **chemically prepared solutions** that are administered to the patient.
- They are tailored to the body's needs and **used to replace lost fluid** and/or **aid in the delivery of IV medications**.





INDICATIONS

- For rapid restoration of fluid and electrolytes in dehydration due to vomiting, diarrhea, shock of hemorrhage or burns.
- Total parenteral nutrition.
- Anaphylaxis, cardiac arrest, hypoxia.
- Post gastrointestinal surgeries.
- For maintenance, as a special fluid.

ADVANTAGES

- ✓ Provides the patient with life-sustaining fluids, electrolytes, and drugs.
- ✓ Immediate and predictable therapeutic effects.
- ✓ Preferred for administering fluids, electrolytes, and drugs in emergency situations.
- ✓ Allows fluid intake when a patient has GI malabsorption.
- ✓ Permits accurate dosage titration for drugs.



DISADVANTAGES

- Needs hospitalization, costly.
- Infection.
- Pyrogenic reaction.
- Discomfort, poor patient compliance.
- Fluid overload - chances.

ELECTROLYTE REQUIREMENTS - DAILY



- ❑ Na+ 50-90 mmol / day
- ❑ K+ 50 mmol / day
- ❑ Ca+ 5 mmol / day
- ❑ Mg+ 1 mmol/day

INTRAVENOUS FLUIDS

IV FLUIDS COME IN FOUR DIFFERENT FORMS:

- COLLOIDS
- CRYSTALLOIDS
- BLOOD AND BLOOD PRODUCTS



COLLOID SOLUTIONS

- ✓ are IV fluids containing large proteins and molecules that tend to stay within the vascular space (blood vessels).
- ✓ are useful in maintaining blood volume.
- ✓ expensive, have specific storage requirements, and have a short shelf life.
- ✓ Commonly used colloid solutions include plasma protein fraction, dextran.



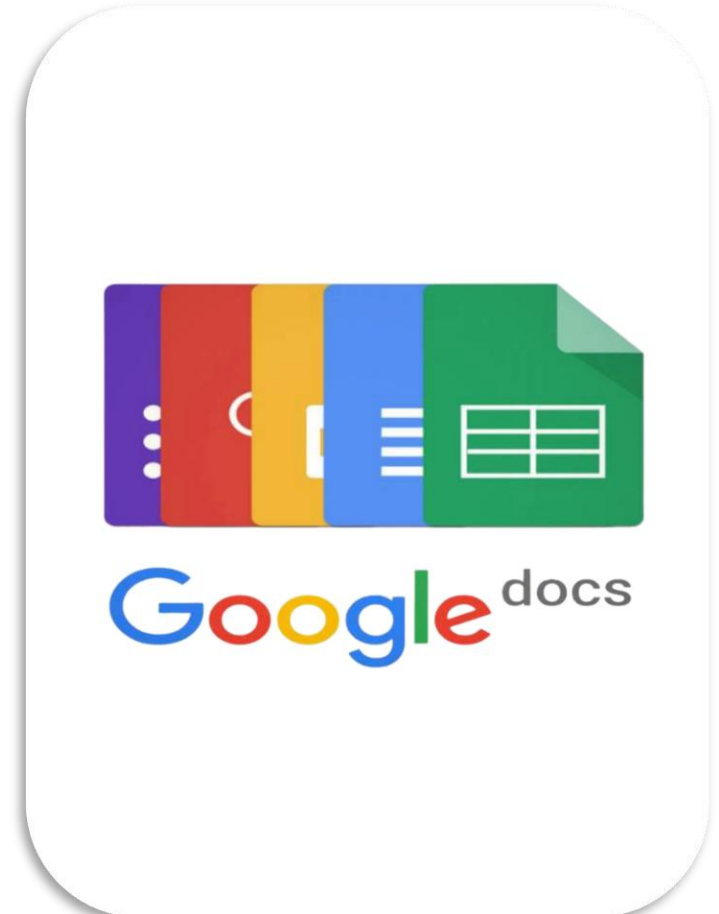
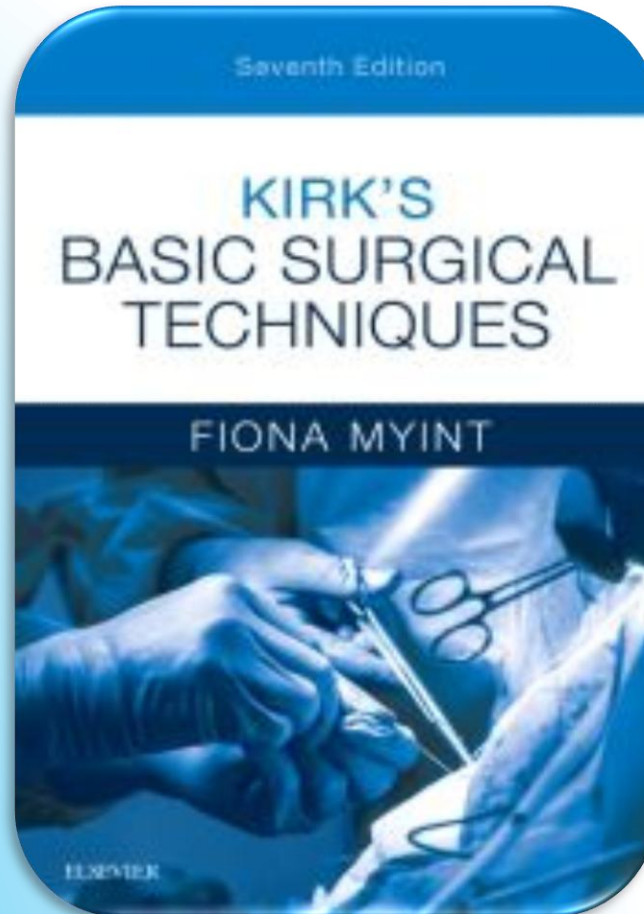
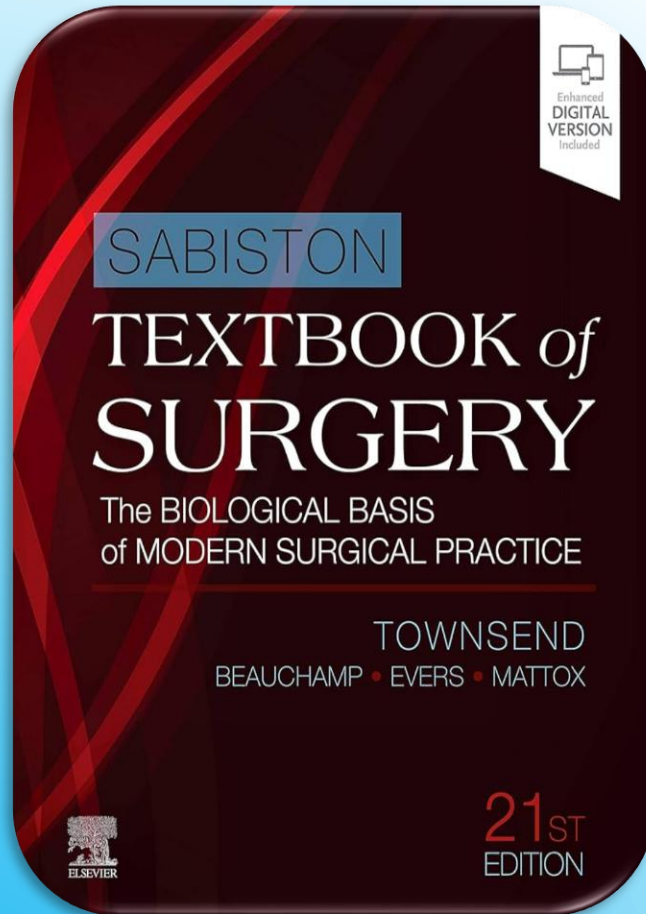
CRYSTALLOID SOLUTIONS

- ✓ are the primary fluid used for IV therapy.
- ✓ contain electrolytes but lack the large proteins and molecules found in colloids.
- ✓ come in many preparations and are classified according to their "tonicity."
- ✓ A crystalloid's tonicity describes the concentration of electrolytes dissolved in the water, as compared with that of body plasma.



<u>Isotonic</u>	<u>Hypotonic</u>	<u>Hypertonic:</u>
solutions that exert the same osmotic pressure as that of plasma	A solution that exerts less osmotic pressure than that of blood plasma	The solution exerts higher osmotic pressure than that of plasma e.g.
▪ Normal saline 0.9% ▪ Ringers lactate ▪ Blood components	▪ Dextrose 5% and water ▪ Half strength normal saline 0.45% ▪ Quarter strength normal saline 0.2%	▪ Dextrose 5% normal saline ▪ Dextrose 5% 1/2 strength normal saline ▪ Dextrose 10% in water ▪ Dextrose 20% in water ▪ Dextrose saline 3% or 5%

REFERENCES



Basic surgical technique, Fiona Myint, seventh edition

Text book of surgery, COURTNEY M. TOWNSEND, JR., MD, 21 edition, 2022



THANK YOU

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