INDIA'S No.1
Nursing Institute, Kota

- Complete Teaching
- Complete Practice
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Voogly Mci
NURSING | 11th - 12th | NEET

The Way From Confusion to Confidence

20 DAYS
TOPPERS COURSE

Rapid Revision All Topics & All Subjects

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STERILIZATION & DISINFECTION

Preventive Measure for Hospital Acquired Infection

- **Isolation:** Infective patients must be isolated in room with adequate ventilation and **negative pressure**
- **Nursing technique: Barrier nursing -** to minimize cross infection.
- **Hand washing:** The most common route of infection is via the hands.
- **soap and water may not be sufficient,** a **suitable disinfectant** must be used

Selected MCQs for OT

- **Q.** To prevent a **highly infectious disease transmitted** by aerosol – isolation in negative pressure room, facemask
- **Q. prophylactic antibiotic** – at the time of induction
- **Q.** antibiotics **start time** to prevent postoperative infection - 1 hour before surgery and continue after surgery
- **Q.** Preoperative **shaving** - Just before operation
- **Q. Ampicillin prophylaxis** is given in – biliary surgery

Techniques/agents for Sterilization	
Steam **(121°C for 15 minutes)**	**Surgical instruments**
Ethylene oxide	Heart lung machine, respirators, dental labs
Hot air oven	**Glass** syringe, test tubes, flasks, cutting instruments
Irradiation **(gamma rays)**	Industrial packaging
Paracetic acid (STERIS)	**Flexible endoscopes**
Isopropyl alcohol	**Clinical thermometer**
Beta propiolactone **>Formaldehyde**	**Fumigation of OT**, labs, wards
2% Glutaraldehyde	**Endoscope** (cystoscope, bronchoscope)
Autoclaving	Culture media, **suture materials** except catgut

Q. when there is **excessive blood loss** or when **unexpected contamination** occurs - **antibiotics** may be **repeated 8 and 16 hours later**

Q. BenzylpenicillinQ should be used if - **Clostridium gas gangrene infection** is a possibility

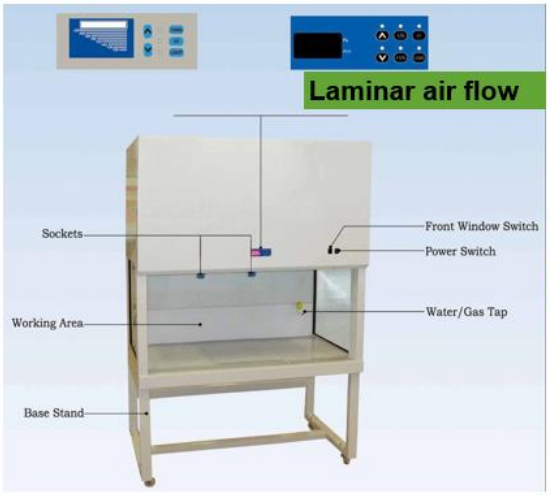
Septic Shock - Patients with **severe sepsis** who:

- Are **not responsive to IV fluid** infusion for resuscitation
- Require **inotropic or vasopressor agents** to maintain systolic blood pressure

Use of all the following significantly decreases airborne infection in operating room except:

a. Laminar air flow b. Air-conditioning
c. Ultraviolet light d. Microfilters

Answer – (b)



All the following are sporicidal agents except:

a. Ethylene oxide b. Phenol
c. Ozone d. Gluteraldehyde
Answer (b) phenol

Sporicidal Agents

- Ethylene oxide Glutaraldehyde
- Halogenes Ozone

Flexible endoscopes are best sterilized with:

a. Formaldehyde b. Ethylene oxide
c. Gamma irradiation d. Peracetic acid
Ans. d. Peracetic acid

Techniques of Sterilization	
Ethylene oxide	Heart lung machine, respirators, dental labs
Irradiation **(gamma rays)**	Industrial packaging

Paracetic acid (STERIS)	**Flexible endoscopes**
Beta propiolactone **>Formaldehyde**	**Fumigation of OT**, labs, wards

Best disinfectant for endoscope is:

a. Hypochlorite
b. Formaldehyde
c. Glutaraldehyde
d. Chlorohexidine

Ans. c. Glutaraldehyde

Techniques/agents for Sterilization	
sodium hypochlorite (bleach) and **Chlorhexidine**	disinfectants due to their ability to effectively kill a broad spectrum of microorganisms, including bacteria, viruses, fungi, and algae
Beta propiolactone **>Formaldehyde**	**Fumigation of OT**, labs, wards
2% Glutaraldehyde	**Endoscope** (cystoscope, bronchoscope)

What is the best time to give prophylactic antibiotic?

a. 1 day before surgery
b. At the time of skin incision
c. At the time of induction
d. 2 days before to 3 days after surgery

Ans. c. At the time of induction

BLOOD TRANSFUSION

Q. MC blood transfusion reaction is:

a. Febrile non-hemolytic transfusion reaction
b. Hemolysis
c. Transmission of infections
d. Electrolyte imbalance

- Febrile **non-hemolytic** transfusion reaction is the **most common complication** associated with the **transfusion of cellular blood components.**

Complications of Blood Transfusion		
(1) Reactions	**(2) Infections**	**(3) Other Complications**
• **m/c -** Febrile non-hemolytic transfusion reaction **(FNHTR)** • Allergic	• **Hepatitis B and C** • **HIV-1 and -2** • Malaria	• Graft-versus-host disease

• Delayed / acute / fatal **hemolyticQ** • Transfusion-related acute lung injury **(TRALI)Q** • Anaphylactic reaction	• West Nile virus • Parvovirus B-19 • **HHV-8 (Human Herpesvirus)** • CMV	

- **Massive transfusion** can lead to **coagulopathy and metabolic complications**

Metabolic Complications of Massive Transfusion	
General	**Electrolyte**
a) Fluid overload b) **Hypothermia** c) Impaired oxygen delivery capacity of Hb **(decreased 2, 3-DPG) –** di-phospho-glyceric acid	d) **Hyperkalemia** e) **Hypocalcemia** f) **Hypomagnesemia** g) **Metabolic alkalosis** h) Metabolic acidosis (rare)

- **Direct Coomb's test** or **direct antiglobulin test** on post-transfusion blood sample from patient should be done **to detect antibodies directed against the transfused RBCs**

Characteristics of Selected Blood Components			
Component	**Volume (in mL)**	**Content**	**Clinical use**
Whole Blood	**450 ml ± 45 mL**	**No elements removed**	• Used for acute **massive bleeding** • **open heart surgery** & • neonatal **total exchange**
Packed RBCs	**180–200 mL**	**RBCs** with variable **leukocyte** content and small amount of **plasma**	Increase **Hb 1 gm/dL** and **hematocrit 3%Q**

Characteristics of Selected Blood Components			
Component	**Volume**	**Content**	**Clinical use**
Platelets	50–70 mL	5.5 x 10^{10}/RD unit	Increase platelet count **5000–10,000/µL Q**
FFP	**200–250 mL**	**Plasma proteins: Coagulation factors, proteins C and S, antithrombinQ**	• Protein C and protein S are **proteins in your blood** that work together to prevent your blood from **clotting too much synthesized in liver**

			• **Increases coagulation factors about 2%**
Cryoprecipitate	**10–15 mL**	**Cold-insoluble plasma proteins, fibrinogen, factor VIII, vWFQ**	• **Topical fibrin glue, also 80 IU factor VIIIQ** • **Fibrin sealant** is the combination of thrombin and fibrinogen mixed with calcium to form fibrin, which is used as a **topical hemostatic agent**

- **Acute hemolytic transfusion reactions** following blood transfusion are **type II hypersensitivity reactions - life-threatening** and complications include **oliguria** and **acute renal failure (decreased renal blood flow)**
- **Rh positive** or **negative status** depends on the **presence or absence of antigen D (Rh D) on RBCsQ**.
- **Febrile (non-hemolytic)** reactions are caused by **antibodies** directed **against donor leucocytes** and **HLA antigen** mediate these reactionsQ.

Whole Blood	
Anticoagulant used	Maximum storage
ACD/CPD/CP2D	**21 daysQ**
CPDA-1 (citrate phosphate dextrose adenine)	**35 daysQ**

ACD - Acid Citrate Dextrose
CPD - Citrate Phosphate Dextrose Solution
CP2D - Citrate Phosphate Double Dextrose Solution

Q. Massive Blood Transfusion is defined as –

1) Transfusion **> patient's total blood volume in 24 hours** or
2) **> 10 units** or
3) single transfusion of **2500 ml or 5000 ml** over a period of 24 hours

Q. Collection of blood for cross matching and grouping is done before administration of which plasma expander?

a. Hydroxyl ethyl starch
b. Dextran
c. Mannitol
d. Hemacele

- **Dextran –** because it is **a polysaccharide polymer** that produce **osmotic pressure** similar to the plasma
- It interferes with **platelet function**, hence it is recommended that total volume of dextran should not exceed **1000 mL**

MC sign of **hemolytic transfusion reactions** in a conscious patient: **OliguriaQ >hemoglobinuria**

Red Blood Cells

RBCs are stored at **1-60 C**; Mean life of transfused RBCs is **35 daysQ**

Anticoagulant used	Maximum storage
ACD/CPD/CP2D	**21 days**
CPDA-1	**35 days**

- **Platelets** are the **only blood products** which are **stored at room temperature**, **20-24 degree CQ** (survival is **4-5 days)**
- **1 unit** of platelet increases the count by **5000-10000.**
- For **invasive procedures, 50,000/µL** platelets is the **usual target level**.
- Platelet count should be **1,00,000/µL** before accepting the **patient for surgery**
- Transfused platelets generally survive for 2-7 days following transfusion
- Blood platelets in stored blood are non-functional after 24 hours

Fresh-frozen Plasma (FFP)

- Stored at (**-18 degree C)** and has a **shelf life of 1 yearQ**
- Each unit contains **400 mg of fibrinogen** and **1 unit clotting factors**
- **Diminished c/f due to storage – labile (V & VIII)**

Indications for FFP	
• Correction of **coagulopathies**: – Rapid **reversal of warfarinQ** – • Supplying **deficient plasma proteins**	• Treatment of **thrombotic thrombocytopenic purpuraQ**

- **FFP** should **not be routinely used to expand blood volumeQ**.
- FFP: An **acellular component** and does not transmit **intracellular infections**, e.g., **CMV.**

- The **half-life** on the **most stable clotting** factor, - **factor VII, -** is **4 to 6 hoursQ**
- The **half life** of factor **VIII is 8-12 hours**
- **Hemophilia C (Rosenthal syndrome):** Due to factor **XI deficiency**

- **ideal supplying for fibrinogen – Cryoprecipitate**
- **Stored at ≤-18 degree C**
- **1 unit of cryoprecipitate = 80-145 units of Factor VIII + 250 mg of fibrinogen**

Q. All of the following infections may be transmitted via blood transfusion, except:

a. Parvo B-19 b. Hepatitis G
c. Dengue virus d. Cytomegalovirus

Q. Which of the following is the least likely complication after massive blood transfusion?

a. Hyperkalemia b. Citrate toxicity
c. Hypothermia d. Metabolic acidosis

Q. Fresh hold blood transfusion is done with in how much time of collection?
a. Immediately b. 1 hours
c. 4 hours d. 24 hours

Q. Which of the following investigations should be done immediately to best confirm a non matched blood transfusion reaction?
a. Indirect Coomb's test
b. Direct Coomb's test
c. Antibody in patient's serum
d. Antibody in donor serum

Q. One unit of fresh blood arises the Hb% concentration by:
a. 0.1 gm% b. 1 gm%
c. 2 gm% d. 2.2 gm%

Q. Which of the following statements about acute hemolytic blood transfusion reaction is true?
a. Complement mediated hemolysis is seen
b. Type III hypersensitivity is responsible for most cases
c. Rarely life threatening
d. Renal blood flow is always maintained e. No need for stopping transfusion

I.V. Fluids

Composition of crystalloid and colloid solutions (mM/L)						
Solution	**Na+**	**K+**	**Ca2+**	**Cl-**	**Lactate**	**Colloid**
Hartmann's (RL)	130	4	< 2.7	109	28	
Normal saline (0.9% NaCl)	154			154		
Dextrose saline (4% dextrose in 0.18% saline)	30			30		
Gelofusine	150		< 1	150		Gelatin 4%
Hemacel	145	5.1	< 6.26	145		Polygelin 75 g/L
Hetastarch						Hydroxyethyl starch 6%
Lactated potassium saline injection **(Darrow's solution)**	121	35		103	53	

- In **immediate post-operative period which electrolyte abnormality is common?**
- due to increased adrenocortical activity, there is Na+ retention and K+ excretion Q.

- **Dextran** interferes with platelet function
- Urine output is **best clinical guide** of tissue perfusion Q.

Isotonic	Hypertonic	Hypotonic

Dextrose 5% in water	5% dextrose in half normal saline	0.45 normal saline
0.9% normal saline	5% dextrose in normal saline	
Ringer lactate	Dextrose 10% in water	

- **Measurement of Blood Loss during Surgery**
- **Weighing the swabs** after use and **subtracting the dry weight** and **fluid** used + volume of blood collected in **suction bottles**

Average daily water balance of a healthy adult

Intake Volume	Output volume
• Water from beverage: 1200 ml • Water from food: 1000 ml • Water from oxidation: 300 ml	• Urine: 1500 ml • Insensible losses: 900 ml Q • Feces: 100 ml

Q. The highest concentration of **potassium** is in:
a. Plasma b. Isotonic saline
c. Ringer lactate d. Darrow's solution

Q. Pitting edema indicates an excess of __litres of fluid in tissue spaces
a. 2.5 b. 3.5
c. 4.5 d. 5.5

Q. In patients depending entirely on **parenteral fluids**, there is **weight loss of daily:**
a. 50 gm b. 150 gm
c. 200 gm d. 250 gm

Q. 20 mEq (mmol) of potassium chloride in 500 ml of 5% dextrose solution is given intravenously to treat:
a. Metabolic alkalosis b. Respiratory alkalosis
c. Metabolic acidosis d. Respiratory acidosis

Q. Haemacel contains:
a. Albumin b. Degraded gelatin
c. Calcium d. Sodium

Q. Low molecular weight dextran is contra indicated in:
a. Foctal distress syndrome b. Cerebrovascular accident
c. Electrical burns d. Thrombocytopenia

- **Positively** charged electrolytes – Cations
- Having the **same osmotic pressure** – isotonic
- Movement of water across a **semipermeable** membrane – osmosis

- Movement of molecules from an area of **higher concentration to** an area of lower concentration – diffusion
- **Negatively** charged electrolytes – anion
- **Movement of solutes out of a solution** with **greater hydrostatic** pressure – filtration
- A compound that **separates into ions** when dissolved in water – electrolyte
- Overall **particle concentration** – osmolarity
- Having a **lower osmotic pressure** – hypotonic
- Movement of **molecules** to an area of ***higher concentration*** – active transport
- All fluids **outside of the cell** - Extracellular fluid
- **Fluid between the cells** and outside the blood vessels (within tissues) - Interstitial fluid
- All fluids **within the cell -** Intracellular fluid

➢ Identify if the following electrolytes are **cations or anions,** whether they are primarily **extracellular or intracellular,** and their **primary role** in the body:
(A) Sodium
(B) Potassium
(C) Calcium
(D) Magnesium
(E) Chloride
(F) Bicarbonate
(G) Phosphate

• **Sodium:** Cation, extracellular—maintenance of **water balance,** nerve **impulse** transmission, regulation of **acid-base** balance, and participation in cellular **chemical reactions**

- **Potassium:** Cation, intracellular—necessary for **glycogen** deposits in the liver and skeletal muscle, transmission and conduction of nerve **impulses,** cardiac **rhythm**, and skeletal and smooth muscle contraction

- **Calcium:** Cation, intracellular—**bone and teeth** formation, blood **clotting,** hormone **secretion,** cell membrane integrity, cardiac **conduction**, transmission of **nerve impulses,** and muscle **contraction**

- **Magnesium:** Cation, intracellular—**enzyme** activities, **neurochemical** activities, and cardiac and skeletal muscle **excitability**

- **Chloride:** Anion, extracellular—follows sodium, important part of gastric hydrochloric **acid**
- **Bicarbonate:** Anion, both intracellular and extracellular—major chemical base buffer
- **Phosphate:** Anion, intracellular—necessary for **production of ATP,** the **energy source** for cellular metabolism.

Q. What age groups are most susceptible to fluid and acid-base imbalances?

Rationale: Infants, young children, and older adults are most susceptible to fluid and acid-base disturbances

Identify whether the following solutions are isotonic, hypertonic, or hypotonic:

(A) Dextrose 5% in water (D5W):
(B) 0.45% sodium chloride (0.45% NS):
(C) 0.9% sodium chloride (0.9% NS):
(D) Lactated Ringer's (LR):
(E) Dextrose 5% in 0.45% sodium chloride

Q. Identify three types of **medications** that may cause **fluid, electrolyte, or acid-base imbalances.**

Rationale: diuretics, ACE inhibitors, angiotensin II receptor antagonists, aldosterone antagonists, direct renin inhibitors, steroids, potassium supplements, opioid analgesics (respiratory center depressants), antidepressants, antibiotics, laxatives, NSAIDs, and antacids.

Q. A patient who is NPO, with normal renal function, needs to have _____ added to the solution.

Rationale: A patient who is NPO and receiving IV fluids needs to have **potassium** added to the solution

Q. Identify the signs and symptoms that are associated with phlebitis at an IV site.

Rationale: Signs and symptoms of phlebitis at an IV site are **redness, inflammation, tenderness, and warmth**

Q. The patient had a **rapid infusion of IV fluids** and has developed **crackles in the lungs, shortness of breath, and tachycardia**. The nurse should:

Rationale:
Based on the patient's status, the nurse should **slow** the rate of IV infusion, **notify** the health care provider, **raise** the head of the bed, provide supplemental **oxygen** as ordered, and **monitor** the patient's vital signs.

Q. Transfusion of a **patient's own blood** is termed:

Rationale:
Transfusion of a patient's own blood is an **autologous** transfusion

Q. Identify the electrolyte imbalance that is associated with each of the following test results:

(A) Serum sodium level—125 mEq/L:
(B) Serum potassium level—5.8 mEq/L:
(C) Serum ionized calcium level—3.7 mEq/L:
(D) Serum magnesium level—1.2 mEq/L:

Identify the **hormones** that control **fluid balance**

- ADH, aldosterone, and ANP

If a **hypotonic solution** is given intravenously to a patient, the **fluid will move into the cells.**

- True _____ False _____

Arterial pH is an indirect measurement of:

- Arterial pH is an indirect measurement of the **hydrogen ion** concentration

An average adult's daily total intake of fluid is ap proximately _____ mL.

- Which of the following is/are **most likely** to lead to a **fluid volume deficit?** Select all that apply.
  (A) Vomiting _____
  (B) Heart failure _____
  (C) Corticosteroid administration _____
  (D) Fever _____
  (E) Increased sodium intake _____
  (F) Diuretic administration _____

- When **selecting a site** to start an IV, the nurse should begin with the site that is: _____
- The IV should be started in the **most distal site**

- Identify the correct order of the following steps for the **removal of an IV.**
  (A) Turn off the roller clamp _____
  (B) Remove the IV catheter _____
  (C) Remove the dressing _____
  (D) Record the fluid infusion _____
  (E) Inspect the tip of the IV catheter _____
  (F) Perform hand hygiene and apply clean gloves _____
  (G) Place gauze over the site and apply light pressure _____

- The nurse is **preparing the IV fluid infusion.**
  (A) **What should be checked** when looking at the IV fluid?
  (B) When is venipuncture **contraindicated for a site?**
  - When preparing the IV, the nurse should look at the fluid to note the type of fluid and amount, expiration date, integrity of the container, and clarity of the solution.
  - Venipuncture is contraindicated if the site has signs of inflammation, infiltration, or thrombosis. An **infected site is red, tender, swollen, and possibly warm to the touch**.

- It is suspected that the patient is **experiencing hypokalemia.** Identify all of the signs that support this assessment. Select all that apply.
  (A) Bilateral muscle weakness _____
  (B) Positive Chvostek's sign _____
  (C) Bradycardia _____
  (D) Diminished bowel sounds _____
  (E) Tetany _____
  (F) ECG abnormalities _____

- Identify which of the following are correct when performing an **IV site dressing**. Select all that apply.
  (A) Apply tape over the IV insertion site _____
  (B) Cleanse the site _____
  (C) Use skin protectant where the tape will be _____
  (D) Anchor the IV tubing _____
  (E) Use clean technique for the procedure _____
  (F) Use a catheter stabilization device _____

- Which of the following are expected when assessing a patient with **ECV excess?** Select all that apply.
  (A) Hypotension _____
  (B) Bounding pulse _____
  (C) Dependent edema _____
  (D) Thirst _____
  (E) Slow capillary refill _____
  (F) Distended neck veins when upright _____

Q. Identify at least three ways to decrease intravascular infection related to intravenous therapy (IV).

- Palpate catheter insertion site for **tenderness daily**
- **fever without obvious** source
- Perform **hand hygiene** before and after palpating, inserting, replacing, or dressing any intravascular device.
- **Clean skin site vigorously before venipuncture**
- Allow site to **air-dry before proceeding** with procedure: **2% chlorhexidine for 30 seconds**, **povidone-iodine for at least 2 minutes**.
- **Do not palpate insertion site after skin has been cleaned**
- **Change gauze** dressings that cover a catheter site **every 48 hours.**
- **IV tubing administration sets** can remain sterile for **96 hours.**
- Replace dressing when dressing **becomes damp, loosened, or soiled.**
- **Replace** short peripheral catheters and **rotate sites**

- Indicate **precautions for venipuncture** in an **older adult patient**, when we need to avoid

Rationale:

- **Avoid using a tourniquet** when selecting a vein. Position the arm in a **dependent position** to fill the veins sufficiently for a venipuncture or **use a blood pressure cuff for better protection** of older-adult skin. If using a tourniquet, **place it over the patient's sleeve.**
- Use the **smallest-gauge IV catheter** or needle possible such as **22 or 24 gauge**.
- **Avoid placing IV in veins that are easily bumped** because older adults have less subcutaneous support tissue.
- **Avoid the back of the hand**
- Use **strict aseptic technique** because an older adult patient is more likely to be **immunocompromised.**
- **Do not slap the arm**

- **Reduce the venipuncture insertion angle** because of decreased supportive tissue.
- **Secure IV site with a catheter**
- **Use electronic infusion devices**

➢ The IV site is swollen, pale, and cool to the touch. The nurse identifies this as:
(A) phlebitis.
(B) infiltration.
(C) local infection
(D) allergic response.

➢ A hypotonic IV solution is expected to be administered to a patient who is experiencing:
(A) hypernatremia.
(B) hypocalcemia.
(C) hypervolemia.
(D) hypokalemia.

➢ The patient has hypernatremia with a fluid deficit. The nurse anticipates finding:
(A) dry mucous membranes.
(B) orthostatic hypotension.
(C) abdominal cramping.
(D) diarrhea.

➢ The patient who is experiencing a gastrointestinal problem has had periods of prolonged vomiting. The nurse is observing the patient for signs of:
(A) metabolic acidosis.
(B) metabolic alkalosis.
(C) respiratory acidosis.
(D) respiratory alkalosis.

➢ The patient has a potassium level above the normal value. The nurse anticipates that treatment for this patient with hyperkalemia will include:
(A) fluid restrictions.
(B) foods high in potassium.
(C) administration of diuretics.
(D) IV infusion of calcium.

➢ The patient has lost a large amount of body fluid. In assessment of this patient with hypovolemia (ECV deficit), the nurse expects to find:
(A) oliguria.
(B) hypertension.
(C) periorbital edema.
(D) neck vein distention.

➢ A patient with an IV infusion may develop phlebitis. The nurse recognizes this condition by the presence at the IV infusion site of:
(A) pallor.
(B) swelling.
(C) redness.
(D) cyanosis.

➢ The patient has had an IV line inserted. Upon observation of the IV site, the nurse notes that there is evidence of an infiltration. The nurse should first:
(A) slow the infusion.
(B) discontinue the infusion
(C) change the IV bag and tubing.
(D) contact the prescriber immediately.

➢ The nurse is assisting the patient with a fluid volume deficit to select an optimum replacement fluid. The nurse suggests that the patient drink:
(A) tea.
(B) milk.
(C) coffee.
(D) fruit juice.

➢ The patient has a history of alcoholism and is admitted to the medical center in a malnourished state. The nurse specifically checks the lab values for:
(A) hypercalcemia.
(B) hyponatremia.
(C) hyperkalemia.
(D) hypomagnesemia.

➢ Older adults have a greater risk of fluid imbalance as a result of;
(A) increased thirst response.
(B) decreased glomerular filtration.
(C) increased body fluid percentage.

(D) increased basal metabolic rate.

- An appropriate technique when initiating an intravenous infusion is to:
  (A) use hard, stiff veins.
  (B) shave the arm hair with a razor.
  (C) use the proximal site in the dominant arm.
  (D) apply the tourniquet 4–6 inches above the selected site.

- A unit of packed cells or whole blood usually transfuses over:
  (A) ½ hours.
  (B) 1 hours.
  (C) 2 hours.
  (D) 5 hours.

- A specific technique for initiating intravenous therapy for an older adult is to:
  (A) select sites in the hands.
  (B) use the largest possible IV cannula gauge.

.

(C) set the IV flow rate at 150–200 mL/hour.

(D) insert at a decreased angle of 10–15 degrees.

- For patients receiving anticoagulants, the nurse should apply pressure after the removal of the IV for at least:
  (A) 1 minute.
  (B) 2 minutes.
  (C) 5 minutes.
  (D) 20 minutes.

- The nurse is troubleshooting that is infusing too slowly. What action is indicated first?
  (A) Remove the IV from the site.
  (B) Check the IV catheter for kinking or dislodgement.
  (C) Increase the rate of the infusion.
  (D) Change the IV fluid bag and tubing

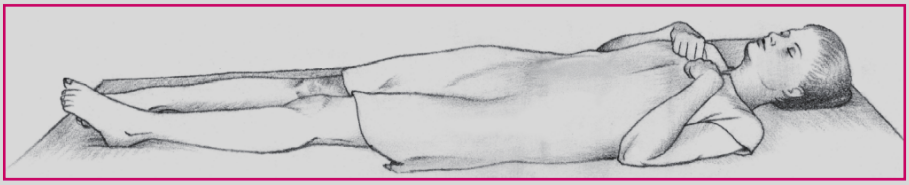
The Glas Glow Coma Scale

Eye-opening response	Verbal response	Motor Response
Spontaneously – 4 points	Oriented – 5 points	Obeys request- 6 points
To speech – 3 points	Confused – 4 points	Localizes pain – 5 points
To pain – 2 points	Inappropriate words – 3 points	Withdraws from painful stimuli – 4 points
No response – 1 point	Incomprehensible sounds – 2 points	Abnormal flexion- decorticate posture – 3 points
	No response – 1 point	Abnormal extension- decerebrate posture – 2 points
		No response – 1 point

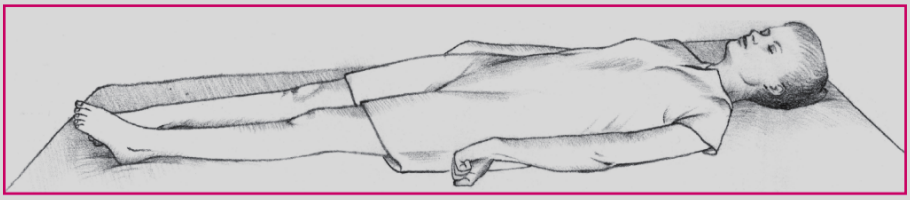
Test	Score	Patient's response
Eye opening response		
Spontaneously	4	Opens eyes spontaneously
To speech	3	Opens eyes when told to
To pain	2	Opens eyes only on painful stimulus
Never	1	Doesn't open eyes in response to stimulus
Verbal response		
Oriented	5	Tells correct date
Confused conversation	4	Tells incorrect year
Inappropriate words	3	Replies randomly with incorrect words
Incomprehensible	2	Moans or screams
None	1	No response
Total score	☐	

Motor response

Obeys commands	6	Shows two fingers when asked
Localizes pain	5	Reaches toward painful stimulus and tries to remove it
Withdraws	4	Moves away from painful stimulus
Abnormal flexion	3	Assumes a decorticate posture (in which the hands are toward the cord, shown below)



Abnormal extension	2	Assumes a decerebrate posture (shown below)



None	1	No response; just lies flaccid (an ominous sign)

Scoring:

14 – 15 = conscious
11 -13 = Lethargic
8 – 10 = Stupor
4 – 7 = Coma
3 = Deep coma = REPORT!!! usually every hour
8 = intubate * if with mech. vent just document

BRADEN SCALE & SORE

Sensory perception (respond meaningfully to pressure related discomfort)	**1**complete limited	**2** very limited	**3** slightly limited	**4** no limited
Moisture (degree exposure to moisture)	**1** constantly moisture	**2** very moist	**3** slightly moist	**4** rarely moist
Activity (degree of physical activity)	**1** bedfast	**2** chairfast	**3** occasionally need assistance	**4** walk on self
Mobility (ability to change & control body position)	**1** complete immobile	**2** very limited	**3** slightly limited	**4** no limited
Nutrition (usual food intake pattern)	**1** very poor	**2** probably inadequate	**3** adequate	**4** excellent
Friction / shear	**1** problem	**2** potential problem	**3** no problem	

Interventions -
- Turning every 2 hr
- Protective bedding
- 30 degree HOB
- Physical therapy
- Nutritional m/t

Scoring
- 6 – 9 = all (very high risk)
- 10 – 12 = more i/v (high risk)
- 13 – 14 = interventions (moderate risk)
- 15 – 18 prevention (preventive interventions)
- 19 – 23 = not at risk

- Pressure ulcers are due to **ischemia / pressure**
- The reduction of blood flow causes **blanching** (white color) of the skin when pressure is applied
- **Shearing** is the force exerted against the skin when a client is moved or repositioned in bed by being pulled or allowed to slide down in bed

- **Friction** is the force of two surfaces moving across one another

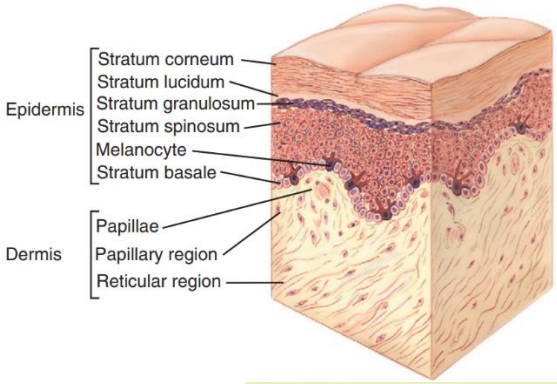
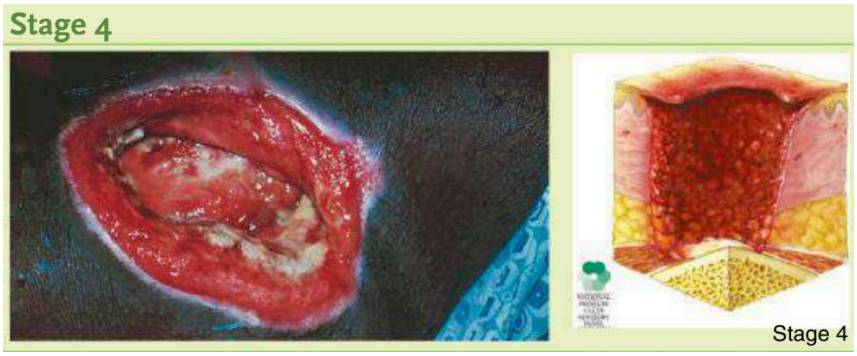
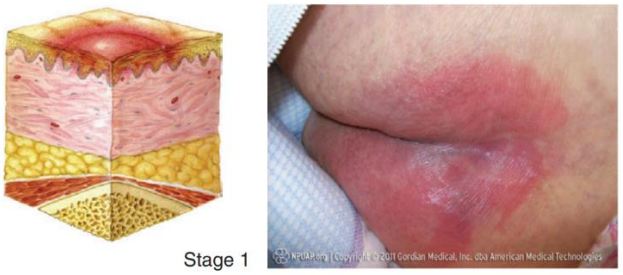


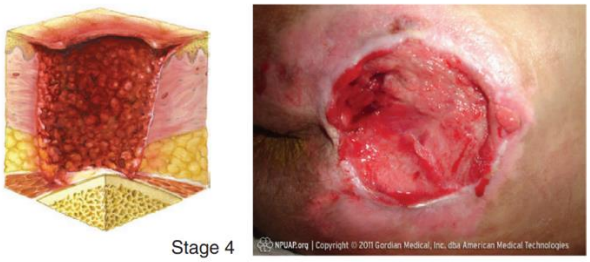
FIG. 48-2 Pressure ulcer with tissue necrosis.



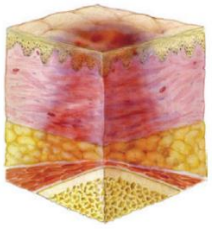
Stage I Nonblanchable Redness of Intact Skin	**Stage II Partial-thickness Skin Loss or Blister**	**Stage III Full-thickness Skin Loss (Fat Visible)**	**Stage IV Full-thickness Tissue Loss (Muscle/Bone**	**Unstageable Full-thickness Skin or Tissue Loss—Depth Unknown.**	**Suspected Deep-Tissue Injury -— Depth Unknown**
Skin is intact	Skin is not intact	Full-thickness skin loss is present with **adipose tissue visible** in the ulcer	Full-thickness skin and tissue loss with **exposed or palpable** fascia, muscle, tendon, ligament, cartilage, or bone	Obscured full-thickness **skin and tissue loss**	Persistent nonblanchable **deep red, maroon, or purple** discoloration.

Area is red (not purple or maroon) and does not blanch with external pressure	Partial-thickness skin loss with exposed dermis	Granulation tissue and rolled wound edges are often present	May have slough or eschar	The extent of the damage cannot be confirmed because it is obscured by **eschar and slough**	May appear differently in people with darker pigmentation.
May appear differently in people with darker pigmentation	Wound bed is viable, pink or red, and moist.	Slough and/or eschar may be present.	Rolled wound edges, undermining, or tunneling may be present		Epidermal separation shows a dark wound bed or a **blood-filled blister**
Area may be preceded by changes in sensation, temperature, firmness	Presents as an intact or open/ruptured serum-filled blister	Undermining and tunneling may be present			
		Subcutaneous tissue may be damaged or necrotic.			

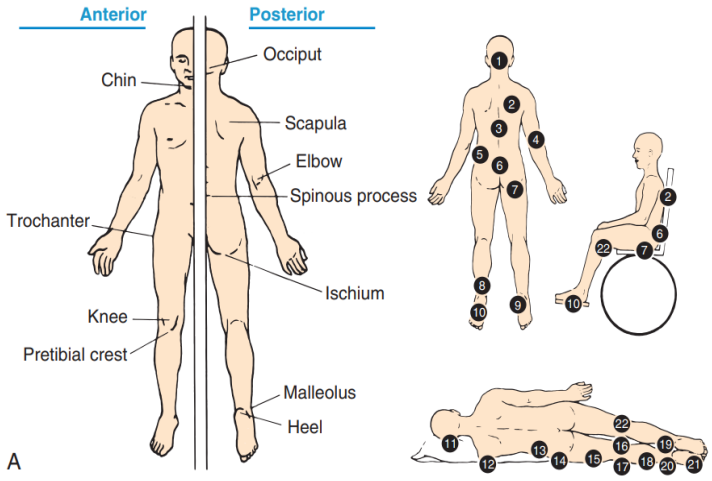




Unstageable

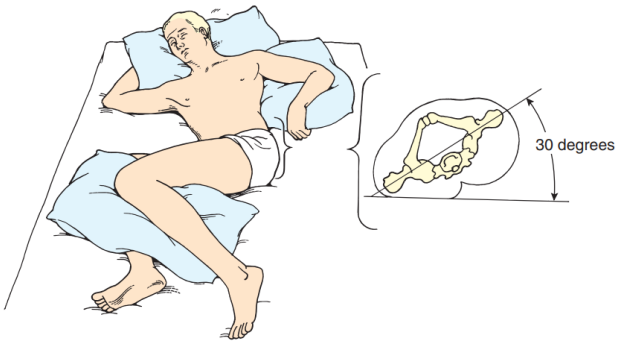


Suspected deep tissue injury



1. Occipital bone
2. Scapula
3. Spinous process
4. Elbow
5. Iliac crest
6. Sacrum
7. Ischium
8. Achilles tendon
9. Heel
10. Sole
11. Ear
12. Shoulder
13. Anterior iliac spine
14. Trochanter
15. Thigh
16. Medial knee
17. Lateral knee
18. Lower leg
19. Medial malleolus
20. Lateral malleolus
21. Lateral edge of foot
22. Posterior knee

Thirty-degree lateral position at which pressure points are avoided



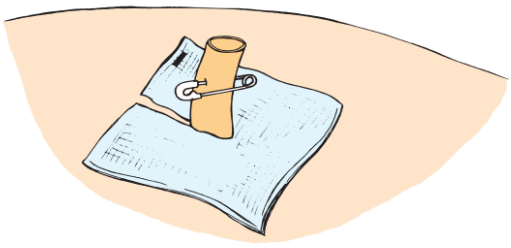


FIG. 48-10 Penrose drain.

Jackson-Pratt drainage device

WOUND CULTURES

- 22-gauge needle, pulling 0.5 mL of air into the syringe.
- apply suction to the 10-mL mark

FIG. 48-12 Wound culturette tube.

Use moisture barrier ointment over the ulcer at least 3 times a day to decrease friction and provide moisture to the open tissue

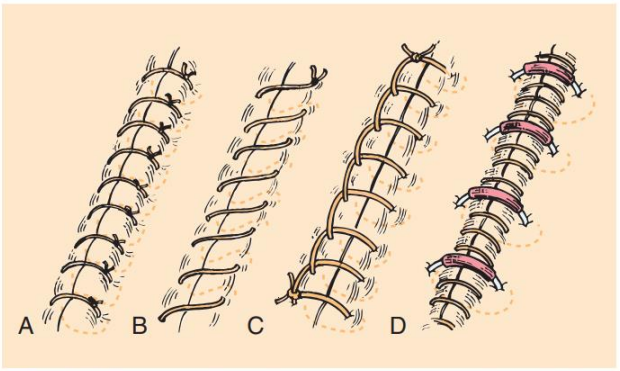


FIG. 48-27 Examples of suturing methods. **A,** Intermittent. **B,** Continuous. **C,** Blanket continuous. **D,** Retention.

- For a patient in the extended care facility who has a risk for pressure injuries, a nurse will implement:
  (A) massage of reddened skin areas.
  (B) movement of the patient in the chair every 3 hours.
  (C) maintenance of a position while in bed at 30 degrees or lower.
  (D) placement of plastic absorptive pads directly beneath the patient.

- To avoid pressure injury for an immobilized patient at home, a nurse recommends a surface to use on the bed. A surface type that is low cost and easy to use in the home is :
  (A) foam overlay.
  (B) water mattress.
  (C) air fluidized bed.
  (D) low-air-loss surface.

- A severely overweight patient has returned to the unit after having major abdominal surgery. When the nurse enters the room, it is evident that the patient has moved or coughed and the wound has eviscerated. The nurse should immediately:
  (A) assess vital signs.
  (B) contact the physician.
  (C) apply light pressure on the exposed organs.
  (D) place sterile towels soaked in saline over the area.

- A nurse is assessing a patient's superficial wound and notices that it has very minimal tissue loss and drainage. There are a number of dressings that may be used according to the protocol on the unit. The nurse selects:
  (A) gauze
  (B) alginate.
  (C) transparent film.
  (D) negative pressure wound therapy.

- A nurse is completing an assessment of the patient's skin integrity and identifies that an area is a full thickness loss of skin with adipose tissue, slough and eschar visible. The nurse identifies this stage of pressure injury as:
  (A) stage 1.
  (B) stage 2.
  (C) stage 3.
  (D) stage 4.

- A patient has a large wound to the sacral area that requires irrigation. The nurse explains to the patient that irrigation will be performed to:
  (A) decrease scar formation.
  (B) decrease wound drainage.
  (C) improve circulation in the wound.
  (D) remove debris from the wound.

- After neurosurgery, a nurse assesses the patient's bandage and finds that there is fresh bleeding coming from the operative site. The nurse describes this drainage to the surgeon as:
  (A) serous.
  (B) purulent.
  (C) sanguineous.
  (D) serosanguineous.

- A patient has a surgical wound on the right upper aspect of the chest that requires cleansing. The nurse implements appropriate aseptic technique by:
  (A) opening the cleansing solution with sterile gloves.
  (B) moving from the outer region of the wound toward the center.
  (C) cleaning the wound twice and discarding the swab.
  (D) starting at the drainage site and moving outward with circular motions.

- A nurse is aware that malnutrition places a patient at a greater risk for tissue damage. The patient with the greatest risk is the individual who:
  (A) experienced a 7% weight loss in the last month.
  (B) is between 45–60 years of age.
  (C) has an albumin level of 5 g/100 mL.
  (D) has a transferrin level of 120 mg/dL.

- The agent that is most effective and safest for cleaning a granular wound is:
  (A) acetic acid.
  (B) normal saline.
  (C) povidone-iodine.
  (D) hydrogen peroxide.

- A nurse is working with a patient who has a stage 3, clean pressure injury with significant exudate. The nurse anticipates that which of the following dressings will be used?
  (A) Adherent film dressing
  (B) Transparent dressing
  (C) Calcium alginate dressing
  (D) Dry gauze dressing

- For a patient's optimal nutritional intake that will promote formation of new blood vessels and collagen synthesis, the nurse plans to teach the patient to include a sufficient intake of:
  (A) fats.
  (B) proteins.
  (C) carbohydrates.
  (D) fat-soluble vitamins.

- The nurse notices that the skin surrounding a wound appears macerated. The nurse should:
  (A) obtain a wound culture.
  (B) monitor lab results.
  (C) turn the patient more frequently.
  (D) select a different dressing.

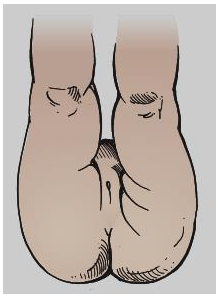
- A client with cholecystitis is taking Propantheline bromide (Pro-Banthine). The expected outcome of this drug is:
  1. Increased bile production.
  2. Decreased biliary spasm.
  3. Absence of infection.
  4. Relief from nausea.

- The therapeutic effects of desmopressin nasal spray (DDAVP) are obtained when the client no longer has:
  1. Polydipsia.
  2. Nasal congestion.
  3. Headache.
  4. Blurred vision.

- Which of the following laboratory fi ndings is present in nephrotic syndrome?
  1. Decreased total serum protein.
  2. Hypercalcemia.
  3. Hyperglycemia.
  4. Decreased hematocrit.

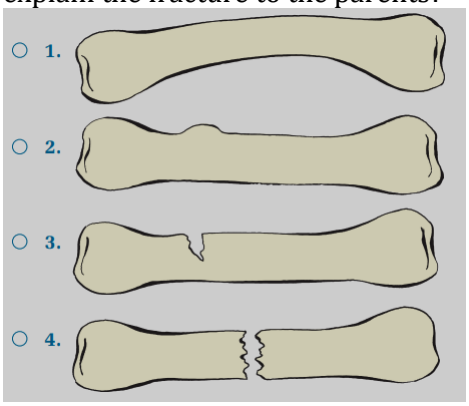
- A 25-year-old has been diagnosed with hypertrophic cardiomyopathy. The nurse should assess the client for:
  1. Angina.
  2. Fatigue and shortness of breath.
  3. Abdominal pain.
  4. Hypertension.

- The nurse is assessing the infant shown in the figure. On observing the client from this angle, the nurse should document that this infant has which of the following?
  1. Ortolani's "click."
  2. Limited abduction.
  3. Galeazzi's sign.
  4. Asymmetric gluteal folds.



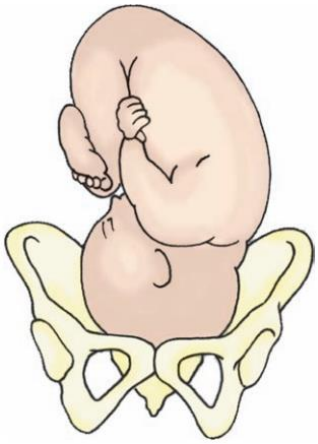
- The nurse is examining an infant for hip placement and has abducted her fl exed legs. The nurse should next:
  1. Rotate the hips.
  2. Extend the legs.
  3. Listen for a "click."
  4. Palpate the hips for a mass.

The nurse is explaining the nature of the fracture to the parents of a 10-year-old who has a greenstick fracture. Which drawing should the nurse choose to explain the fracture to the parents?



- A child is admitted with a fracture of the femur and placed in skeletal traction. What should the nurse assess first?
  1. The pull of traction on the pin.
  2. The Ace bandage.
  3. The pin sites for signs of infection.
  4. The dressings for tightness.

- The nurse is assessing fetal position for a 32-year-old client in her eighth month of pregnancy. As shown below, the fetal position can be described as which of the following?
  1. Left occipital transverse.
  2. Left occipital anterior.
  3. Right occipital transverse.
  4. Right occipital anterior.



- To obtain the obstetric conjugate measurement, the nurse would do which of the following?
  1. Add 1.5 cm to the transverse diameter.
  2. First measure the angle of the pubic arch.
  3. Subtract 1.5 to 2 cm from the diagonal conjugate.
  4. Measure the diameter of the pelvic inlet.

- When teaching a multigravid client diagnosed with mild preeclampsia about nutritional needs, which of the following types of diet should the nurse discuss?
  1. High-residue diet.
  2. Low-sodium diet.
  3. Regular diet.
  4. High-protein diet.

- Fifteen minutes after a client experiences an eclamptic seizure, the nurse should assess the client for which of the following?
  1. Polyuria.
  2. Facial fl ushing.
  3. Hypotension.
  4. Uterine contractions.

- A client at 36 weeks' gestation with eclampsia begins to exhibit signs of labor after an eclamptic seizure. The nurse should assess the client for:
  1. Abruptio placentae.
  2. Transverse lie.
  3. Placenta accreta.
  4. Uterine atony.

- 27. 1. After an eclamptic seizure, the client is at risk for abruptio placentae due to severe vasoconstriction resulting in hemorrhage into

the decidua basalis. Abruptio placentae is manifested by a board-like abdomen and nonreassuring fetal heart rate tracing. Transverse lie or shoulder presentation, placenta accreta, and uterine atony are not related to eclampsia. Causes of a transverse lie may include relaxation of the abdominal wall secondary to grand multiparity, preterm fetus, placenta previa, abnormal uterus, contracted pelvis, and excessive amniotic fluid. Placenta accreta, a rare phenomenon, refers to a condition in which the placenta abnormally adheres to the uterine lining. Uterine atony, or relaxed uterus, may occur after delivery, leading to postpartum hemorrhage.

- The nurse should do which of the following actions first when admitting a multigravid client at 36 weeks' gestation with a probable diagnosis of abruptio placentae?
  1. Prepare the client for a vaginal examination.
  2. Obtain a brief history from the client.
  3. Insert a large-gauge intravenous catheter.
  4. Prepare the client for an ultrasound scan.

Genetics

Basic of Human Body

- Punnett square is used for?
  (A) Finding genotype of offspring
  (B) Statistical analysis
  (C) Chi square calculation
  (D) Prevalence calculation

- Which of the following genetic disorders is characterized by the absence of melanin pigment in the skin, hair, and eyes?
  A) Cystic fibrosis
  B) Down syndrome
  C) Albinism
  D) Huntington's disease

  Explanation: The correct answer is C) **Albinism.** Albinism is a genetic disorder caused by mutations in genes responsible for producing melanin, resulting in the absence or reduction of pigment in the skin, hair, and eyes. Options A, B, and D refer to different genetic disorders with distinct symptoms and genetic mechanisms.

- Which genetic disorder is caused by a trinucleotide repeat expansion in the HTT gene, leading to progressive degeneration of nerve cells in the brain?
  A) Duchenne muscular dystrophy
  B) Cystic fibrosis
  C) Huntington's disease
  D) Sickle cell anemia

  Explanation: The correct answer is C) **Huntington's disease.** It is an **autosomal dominant** disorder caused by an expanded CAG repeat in the HTT gene. This expansion leads to the production of a **mutant huntingtin protein,** which causes **degeneration of nerve cells in the brain**. Options A, B, and D are caused by mutations in different genes and have distinct clinical manifestations.

- Which of the following genetic disorders is caused by a mutation in the CFTR gene, resulting in abnormal chloride ion transport and thick, sticky mucus production?
  A) Sickle cell anemia
  B) Cystic fibrosis
  C) Duchenne muscular dystrophy
  D) Hemophilia

  Explanation: The correct answer is B) Cystic fibrosis. It is caused by mutations in the CFTR gene, leading to defective chloride ion transport across cell membranes. This results in the production of thick, sticky mucus in various organs, leading to respiratory, digestive, and other health problems. Options A, C, and D are caused by mutations in different genes and have distinct clinical features.

- Which genetic disorder is characterized by an abnormal increase in the number of trinucleotide repeats in the FMR1 gene, leading to intellectual disability and behavioural problems?
  A) Fragile X syndrome
  B) Turner syndrome
  C) Marfan syndrome
  D) Klinefelter syndrome

  Explanation: The correct answer is A) Fragile X syndrome. It is caused by an expansion of CGG repeats in the FMR1 gene on the X chromosome. This expansion leads to reduced production of the FMRP protein, which is essential for normal brain development. Options B, C, and D refer to genetic disorders with different underlying genetic causes and clinical presentations.

- Which genetic disorder results from a deletion of a portion of chromosome 15, leading to characteristics such as intellectual disability, behavioral problems, and a happy demeanor with frequent smiling and laughter?
  A) Prader-Willi syndrome
  B) Angelman syndrome
  C) Cri-du-chat syndrome
  D) Rett syndrome

  Explanation: The correct answer is B) Angelman syndrome. It is caused by the loss of function of genes on chromosome 15, typically due to a deletion of the maternal allele or mutations in the UBE3A gene. Individuals with Angelman syndrome often exhibit a happy demeanor, with frequent smiling and laughter, along with intellectual disability and behavioral problems. Options A, C, and D refer to genetic disorders with different genetic mechanisms and clinical features.

- **Q. How is it possible for a baby to have type O blood if neither parent is type O?**
  A baby can have blood type O if each parent is heterozygous and has one *i* allele.

- **Q. What are all chromosomes other than the sex chromosomes called?**
  The chromosomes that are not sex chromosomes are called autosomes.

- **Q. The control of inherited traits by the combined effects of many genes - polygenic inheritance**
- **Q. the two alternative forms of a gene that code for the same trait and are at the same location on homologous chromosomes - alleles**

- **Q. abnormal number of chromosomes due to failure of homologous chromosomes or chromatids to separate - nondisjunction**
- **Q. inheritance based on genes that have more than two alternative forms; an example is the inheritance of blood type - multiple-allele inheritance**
- **Q. a cell in which one or more chromosomes of a set is added or deleted - aneuploid**
- **Q. refers to an individual with different alleles on homologous chromosomes - heterozygous**
- **Q. traits linked to the X chromosome -) sex-linked inheritance**

- **Q. permanent inheritable change in an allele that produces a different variant of the same trait**
  (a) carriers
  (b) dominant trait
  (c) mutation
  (d) nondisjunction

- **Q. Neither member of the allelic pair is dominant over the other, and the heterozygote has a phenotype intermediate between the homozygous dominant and the homozygous recessive**
  (a) aneuploid
  (b) incomplete dominance
  (c) multiple-allele inheritance
  (d) polygenic inheritance

- **Q. refers to how the genetic makeup is expressed in the body; the physical or outward expression of a gene**
  (1) genotype
  (2) phenotype
  (3) alleles
  (4) aneuploid

- **Q. a homozygous dominant, homozygous recessive, or heterozygous genetic makeup; the actual gene arrangement**
  (1) genotype
  (2) phenotype
  (3) alleles
  (4) aneuploid

- **Q. refers to a person with the same alleles on homologous chromosomes**
  (a) homozygous
  (b) heterozygous
  (c) carriers
  (d) dominant trait

- **Q. inactivated X chromosome in females**
  (a) mutation
  (b) nondisjunction
  (c) translocation
  (d) Barr body

- **Q. heterozygous individuals who possess a recessive gene (but do not express it) and can pass the gene on to their offspring**
  (a) heterozygous
  (b) carriers
  (c) dominant trait
  (d) mutation

- **Q.interchange of portions of nonhomologous chromosomes**
  (a) mutation
  (b) nondisjunction
  (c) translocation
  (d) Barr body

- **Q. an allele that masks the presence of another allele and is fully expressed**
  (a) heterozygous
  (b) carriers
  (c) dominant trait
  (d) mutation

- Q. the penetration of a secondary oocyte by a single sperm cell
  (1) fertilization
  (2) capacitation
  (3) syngamy
  (4) polyspermy

- Q. fertilization of a secondary oocyte by more than one sperm
  (a) syngamy
  (b) polyspermy
  (c) implantation
  (d) amniocentesis

- Q. the attachment of a blastocyst to the endometrium
  (a) polyspermy
  (b) implantation
  (c) amniocentesis
  (d) preeclampsia

- Q. the fusion of the genetic material from a haploid sperm and a haploid secondary oocyte into a single diploid nucleus
  (1) fertilization
  (2) capacitation
  (3) syngamy
  (4) polyspermy

- Q the induction by the female reproductive tract of functional changes in sperm that allow them to fertilize a secondary oocyte
  (1) fertilization
  (2) capacitation
  (3) syngamy
  (4) polyspermy

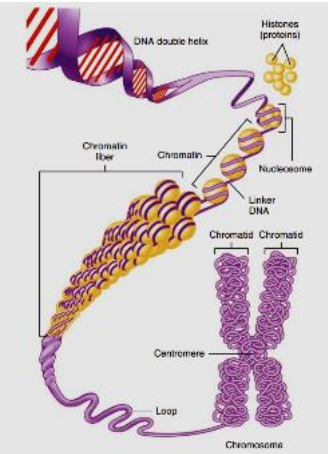
- Q. the examination of embryonic or fetal cells sloughed off into the amniotic fluid
  (a) polyspermy
  (b) implantation
  (c) amniocentesis
  (d) preeclampsia

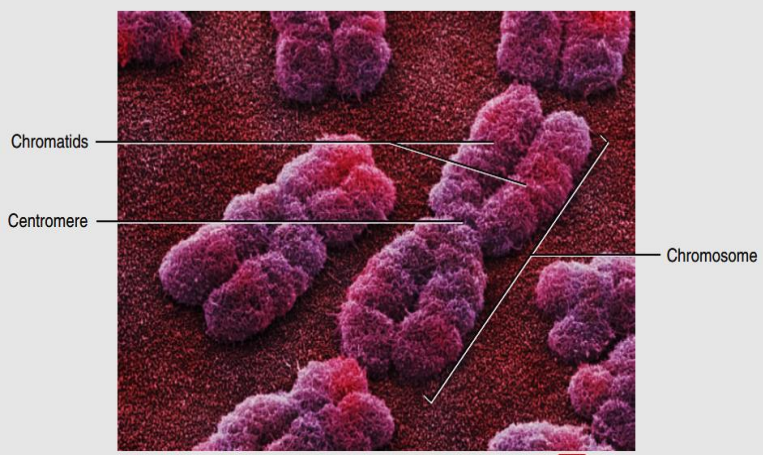
- Q. an abnormal condition of pregnancy characterized by sudden hypertension, large amounts of protein in urine, and generalized edema
  (a) implantation
  (b) amniocentesis
  (c) preeclampsia
  (d) parturition

- Q. noninvasive test that can detect fetal neural tube defects
  (a) preeclampsia
  (b) parturition
  (c) puerperium
  (d) maternal AFP Test

- Q. the process of giving birth
  (a) amniocentesis
  (b) preeclampsia
  (c) parturition
  (d) puerperium

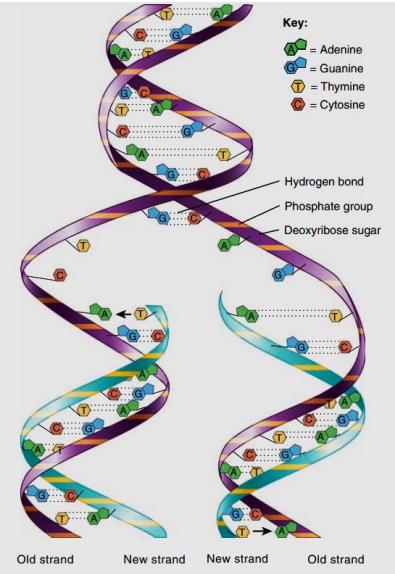
- Q. the period of time (about 6 weeks) during which the maternal reproductive organs and physiology return to the prepregnancy state
  (a) amniocentesis
  (b) preeclampsia
  (c) parturition
  (d) puerperium

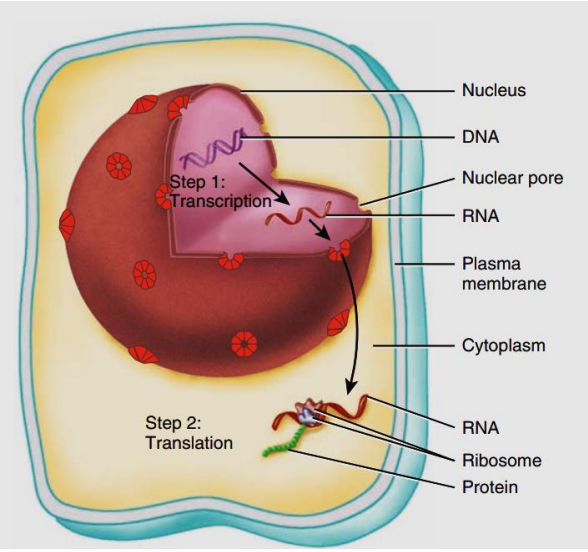




REPLICATION DOUBLES THE AMOUNT OF DNA

Transcription occurs in the nucleus; translation occurs in the cytoplasm





DNA (De – oxyribo nucleic acid)

- Double stranded
- it carry genetic information's
- Both chains of DNA connected with each other by nitrogenous bases

- Each DNA molecule is divided into discrete units **k/as Gene**

Autosomal Disorders

1. Trisomy 21 – **Down's syndrome**.
2. Trisomy 18 – **Edward's syndrome.**
3. Trisomy 13 – **Patau's syndrome.**
4. **Partial monosomy –** deletion of –

i. Short arm of chromosome 5(5p) – Cri-du-chat syndrome.

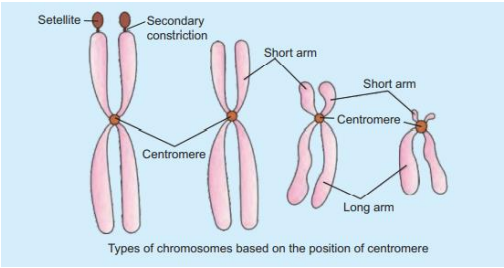
Note: p (for petit) = short arm; q = long arm.

GENE

- it is a basic unit of heredity
- it is portion of DNA like a book
- It contains a message (code) for synthesis of protein from amino acids
- 3 base pair are together called a "Triplet or Codon"
- Each codon forms one amino acid

Key Note:

1. Complete set of chromosome called human genome project (HGP)
2. Chromosome seen clearly during metaphase
3. In RNA nucleotides are bounded by "Phosphodiester bond"



Types of chromosomes based on the position of centromere

RNA (Ribo – nucleic acid)

- Single stranded
- it is polynucleotide chain

- Helps in protein synthesis
- Each nucleotide of RNA is formed by

- **Type of RNA**
- Messenger (m – RNA) – It carry genetic code from DNA to cytoplasm
- Transfer RNA (t – RNA) – decoding the genetic message
- Ribosomal RNA (r – RNA) – Helps in protein synthesis from amino acids (80% of total RNA)

Cell Organelles

Q. Which cellular component is responsible for **oxidative metabolism?**
Q. protein involved in forming the cytoskeleton
Q. main difference between a prokaryotic cell and an eukaryotic cell is the absence of
Q. "cell theory **was given by -**
Q. Most suitable medium for cellular activity
Q. Normal pH of body fluids ?
Q. The number of chromosomes in normal human cell
Q. Transfer of genetic information from one generation to the other is accomplished by
Q. Two strands of DNA are held together by which of the following
Q. DNA double helix is maintained by which bond :
Q. The base present in to DNA but absent into RNA is:
Q. Shrinkage of nucleus is known as
Q. Who discovered the double helix structure of deoxyribonucleic acid?
Q. Formation of RNA from DNA called
Q. Formation of protein from RNA k/as -

PLASMA MEMBRANE

- "Fluid mosaic model" given by "singer & nicolson" describe the structure of plasma membrane.
- Lipid bilayer
- **Selective permeable**

Active transport
Eg.Na+- K+ exchange pump

CYTOPLASM – fluid between the nucleus and cell membrane

Cytosol / Hyaloplasm / Ground plasm	**Trophoplasm**
Liquid part of cytoplasm except cell organelles	It involves cell organelles and cell inclusions

- **Nucleus:**
- first described by Robert Brown
- chromatin by - Fleming
- also k/as brain of cell/detector/controller of cell
- Every cell have nucleus except mature RBC

DIFFERENCES BETWEEN SER AND RER	
RER	**SER**
ribosomes attached to its membranes	**Ribosomes absent**
Fxn: Proteins synthesis	**Fxn:synthesis of glycogen, lipids and steroids**

Golgi apparatus:

- cup like shape
- Formed by 3 – 8 cisternae

Ribosome:

- Found on outer surface of nucleus & RER
- k/as protein factory because it synthesize protein molecules from amino acids by using RNA

Lysosome:

- Hydrolases enzymes present, pH = 5
- so K/as enzyme bag or digestive bag or suicide bag

Peroxisome:

- Gluconeogenesis
- Degradation of purine into uric acid
- Formation of myeline sheath

Centrosome:

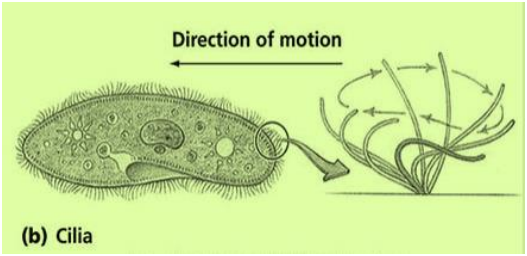
- Movement of chromosome during cell division
- also k/as "cell center"
- Absent in only "nerve cell" – so nerve cell never divide?

Cytoskeleton: formed by "Actin protein"

- An elaborate network of filamentous proteinaceous structures present in the cytoplasm is collectively referred to as the cytoskeleton
- Provides shape & movement to cell
- 3 types
- Microtubules, Micro filaments , Intermediate filaments

CILIA

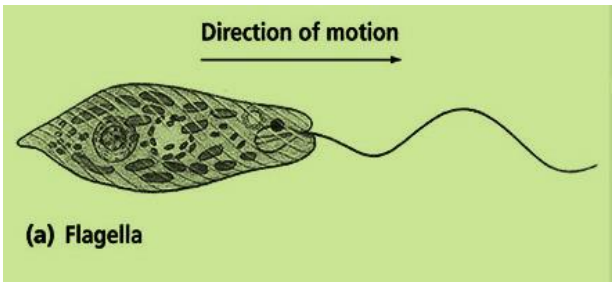
- Short, hair like & motile
- Eg. Respiratory tract, Fallopian tube



FLAGELLA

- Longer & motile

- Eg Sperm tail



Mitochondria: 1000 – 1600/cell

- Production of ATP so k/as Power house of cell or cell within cell
- Sausage shaped & double membranous
- aerobic respiration (Krebs's cycle)
- Most busy & most active
- rich in **Manganese (Mn)**

NUTRITION ANA

Q. Which is also called anaerobic cellular respiration
a) Link reaction
b) Glycolysis
c) Kreb's cycle
d) All of the above

Q. For each glucose molecule that undergoes glycolysis, how many ATP molecules are generated?
a) 2
b) 4
c) 6
d) 8
The reactions of glycolysis consume two molecules of ATP but generate four molecules of ATP, for a net gain of two.

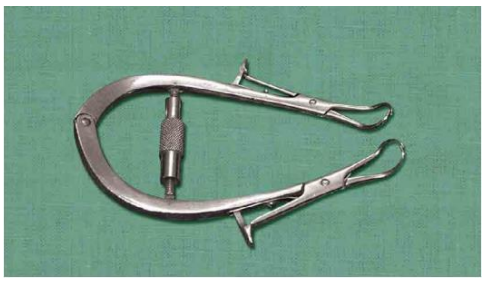
Q. In which part of the cell does glycolysis occur?
a) **Mitochondria**
b) **Ribosome**
c) **Nucleus**
d) **Cytoplasm**
Answer: Glycolysis occurs in the cytosol.

Q. When in cellular respiration is carbon dioxide given off? What happens to this gas?
a) It reuses again
b) It transported into blood
c) It uses for further ATP production
d) It transported into lungs & exhaled

Answer: d) CO2 is given off during the production of acetyl coenzyme A and during the Krebs cycle. It diffuses into the blood, is transported by the blood to the lungs, and is exhaled.

Q. What is the name of instrument?

a. Kocher's thyroid dissector b. Doyen's retractor
c. Joll's thyroid retractor d. Deaver's retractor

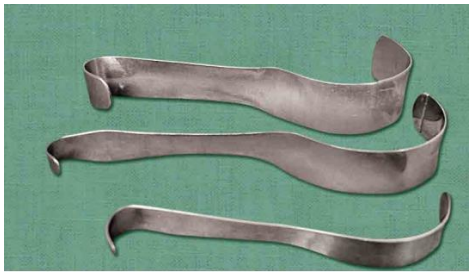


Joll's thyroid retractor

• Self retaining retractor used during thyroid operations to retract skin flaps

Q. What is the name of instrument?

a. Morris retractor b. Doyen's retractor
c. Volkman's retractor d. Deaver's retractor

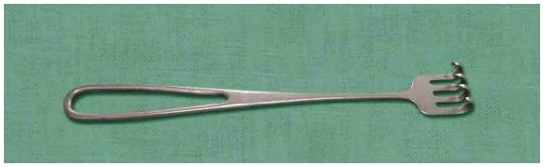


Deaver's retractor

• Used during cholecystectomy for retraction of right lobe of liver
• Used during pancreaticojejunostomy for retraction of stomach
• Used during kidney operations to retract the abdominal wall

Q. What is the name of instrument?

a. Morris retractor b. Doyen's retractor
c. Volkman's retractor d. Deaver's retractor



Ans. c. Cat's paw or Volkman's retractor

• Used for retraction of skin flaps or fascia for operation at the surface, e.g. excision of the sebaceous cyst, lipoma, dermoid.

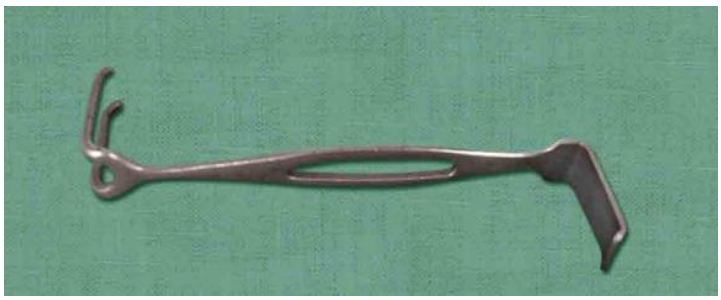
Q. What is the name of instrument?
a. Morris retractor b. Doyen's retractor
c. Czerney's retractor d. Deaver's retractor

Morris retractor
• Used for tissue retraction appendectomy, thyroidectomy, mastectomy and inguinal hernia operation

Q. What are the uses of instrument?
a. Used to retract skin flap for excision of sebaceous cyst
b. Used during venesection for retraction of skin
c. Used during tracheostomy for retraction of skin and thyroid isthmus
d. All of the above

Double hook retractor
• Used to **retract skin flap** for excision of sebaceous cyst
• Used during venesection for **retraction of skin**
• Used during **tracheostomy** for retraction of skin and thyroid insthmus

Q. What is the name of instrument?
a. Morris retractor b. Doyen's retractor
c. Czerney's retractor d. Deaver's retractor



Czerney's retractor
• Used for tissue retraction appendectomy, thyroidectomy, mastectomy and inguinal hernia operation

Q. What is the energy source that powers the proton pumps?
Answer: The energy source that powers the proton pumps is electrons provided by **NADH + H+** nicotinamide adenine dinucleotide (NAD) + hydrogen (H)."

Q. Where is the concentration of H+ highest?
Answer: The concentration of H+ is highest in the space **between the inner and outer mitochondrial membranes**

Q. How many molecules of O2 are used, and how many molecules of CO2 are produced during the complete oxidation of one glucose molecule?
Answer: During the complete oxidation of one glucose molecule, **six** molecules of O2 are used and **six** molecules of CO2 are produced

Q. What cells can carry out gluconeogenesis and glycogenesis?
Answer: **Hepatocytes** can carry out gluconeogenesis and glycogenesis

Q. Which type of lipoprotein delivers cholesterol to body cells?
Answer: LDLs deliver cholesterol to body cells

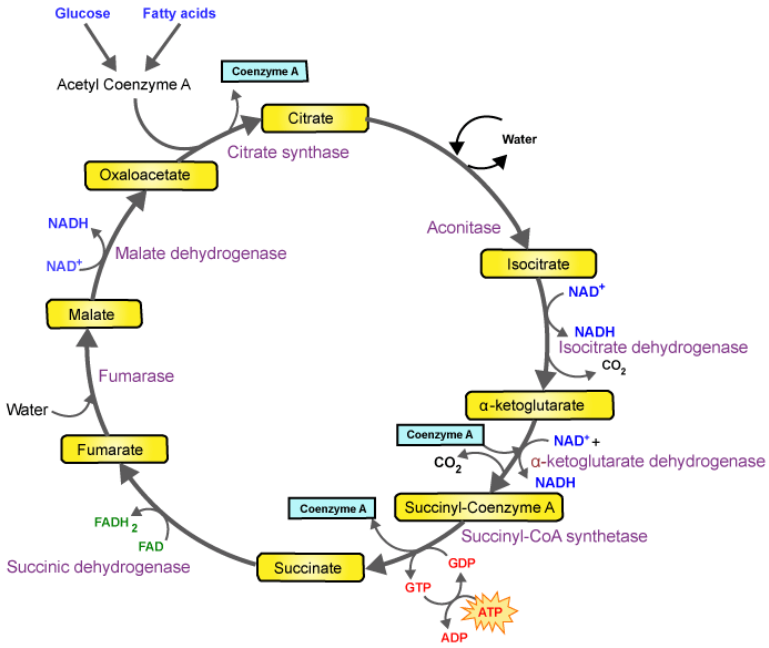
Q. What types of cells can carry out lipogenesis, beta oxidation, and lipolysis? What type of cell can carry out ketogenesis?
Answer: Hepatocytes and adipose cells carry out lipogenesis, beta oxidation, and lipolysis; hepatocytes carry out ketogenesis

Q. Phenylketonuria or PKU is a –
a) genetic error of vitamins metabolism
b) genetic error of protein metabolism
c) genetic error of CHO metabolism
d) genetic error of fat metabolism

- is a **genetic error of protein metabolism** characterized by elevated blood levels of the amino acid phenylalanine.
- Most children with phenylketonuria have a mutation in the gene that codes for the enzyme **phenylalanine hydroxylase,** the enzyme needed to convert phenylalanine into the amino acid tyrosine, which can enter the Krebs cycle

Q. Which substance is the gateway into the Krebs cycle for molecules that are being oxidized to generate ATP?
a) **Pyruvic acids**
b) **Acetyl coenzyme A**
c) **Glucose**
d) **Citric acid**
Answer: Acetyl coenzyme A is the gateway into the Krebs cycle for molecules being oxidized to generate ATP.

KREBS CYCLE (CITRIC ACID CYCLE)



Q. What factors can increase metabolic rate and thus increase the rate of heat production?

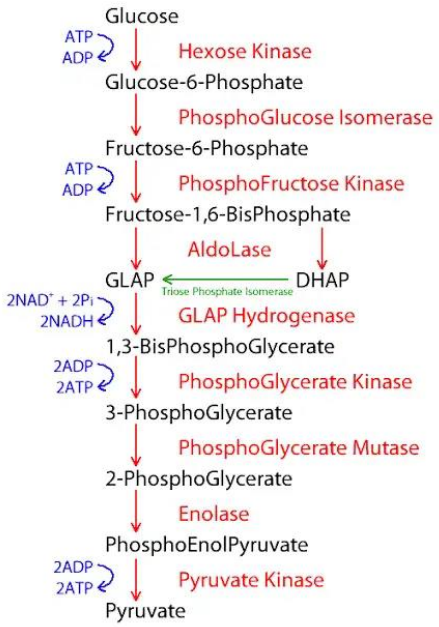
a) Exercise
b) Sympathetic nervous system
c) epinephrine, norepinephrine, thyroxine, testosterone & GH
d) All of the above

Answer: d) Exercise, the sympathetic nervous system, hormones (epinephrine, norepinephrine, thyroxine, testosterone, human growth hormone), elevated body temperature, and ingestion of food increase metabolic rate, which results in an increase in body temperature

Q. During glycolysis

(1) a 6-carbon glucose is split into two 3-carbon pyruvic acids
(2) there is a net gain of two ATP molecules
(3) two NADH molecules are oxidized,
(4) moderately high levels of oxygen are needed,
(5) the activity of phosphofructokinase determines the rate of the chemical reactions.

(a) 1, 2, and 3 (b) 1 and 2
(c) 1, 2, and 5 (d) 2, 3, 4, and 5



Q. Choose the one best answer to the following questions.
NAD+ and FAD
(1) are both derivatives of B vitamins,
(2) are used to carry hydrogen atoms released during oxidation reactions,
(3) become NADH and FADH in their reduced forms,
(4) act as coenzymes in the Krebs cycle,
(5) are the final electron acceptors in the electron transport chain.
(a) 1, 2, 3, 4, and 5 (b) 2, 3, and 4
(c) 1, 2, and 3 **(d) 1, 2, 3, and 4**

Q. If glucose is not needed for immediate ATP production, it can be used for
(1) vitamin synthesis,
(2) amino acid synthesis,
(3) gluconeogenesis,
(4) glycogenesis,
(5) lipogenesis.
(a) 1, 3, and 5 **(b) 2, 4, and 5**
(c) 2, 3, 4, and 5 (d) 1, 2, and 3

Q. Which of the following is the *correct* sequence for the oxidation of glucose to produce ATP?
(a) electron transport chain, Krebs cycle, glycolysis, formation of acetyl CoA
(b) Krebs cycle, formation of acetyl CoA, electron transport chain, glycolysis
(c) glycolysis, electron transport chain, Krebs cycle, formation of acetyl CoA
(d) glycolysis, formation of acetyl CoA, Krebs cycle, electron transport chain
(e) formation of acetyl CoA, Krebs cycle, glycolysis, electron transport chain.

Q. Which of the following would you ***not*** **expect** to experience during fasting or starvation?
(a) decrease in plasma fatty acid levels
(b) increase in ketone body formation
(c) lipolysis
(d) increased use of ketones for ATP production in the brain
(e) depletion of glycogen

Q. If core body temperature rises above normal, which of the following would occur to cool the body?
(1) dilation of vessels in the skin,
(2) increased radiation and conduction of heat to the environment,
(3) increased metabolic rate,
(4) evaporation of perspiration,
(5) increased secretion of thyroid hormones.
(a) 3, 4, and 5 **(b) 1, 2, and 4**
(c) 1, 2, and 5 (d) 1, 2, 3, 4 and 5

Q. In which of the following situations would the metabolic rate increase?
(1) sleep,
(2) after ingesting food,

(3) increased secretion of thyroid hormones,

(4) parasympathetic nervous system stimulation,
(5) fever.
(a) 3 and 4 (b) 1, 3, and 5
(c) 2 and 3 **(d) 2, 3, and 5**

Q. Which of the following are absorptive state reactions?
(1) aerobic cellular respiration
(2) glycogenesis
(3) glycogenolysis
(4) lipolysis
(a) 1 and 2 (b) 2 and 3
(c) 3 and 4 (d) 4 and 5

Which hormone responsible for

(a) gluconeogenesis	(1) insulin
(b) glycogenesis	(2) cortisol
(c) glycogenolysis	(3) glucagon
(d) lipolysis	(4) thyroid hormones
(e) lipogenesis	(5) epinephrine
(f) protein catabolism	(6) insulin like growth factors
(g) protein anabolism	

(a) 2 and 3, (b) 1, (c) 3 and 5,
(d) 2, 4, 5, and 6, (e) 1, (f) 2,
(g) 1, 4, and 6

Q. deliver cholesterol to body cells for use in repair of membranes and synthesis of steroid hormones and bile salts
(1) ketone bodies
(2) low-density lipoproteins
(3) high-density lipoproteins
(4) very-low-density Lipoproteins

Q. transport endogenous lipids to adipocytes for storage
(1) ketone bodies
(2) low-density lipoproteins
(3) high-density lipoproteins
(4) very-low-density Lipoproteins

Q. remove excess cholesterol from body cells and transport it to the liver for elimination
(1) ketone bodies
(2) low-density lipoproteins
(3) high-density lipoproteins
(4) very-low-density Lipoproteins

Q. Organic nutrients required in small amounts for growth and normal metabolism
(1) lipids
(2) proteins
(3) ATP
(4) Vitamins

Q. The energy-transferring molecule of the body
(1) lipids
(2) proteins
(3) ATP
(4) Vitamins

Q. Nutrient molecules that can be oxidized to produce ATP or stored in adipose tissue
(1) lipids
(2) proteins
(3) ATP
(4) Vitamins
(1) lipids

Q. The body's preferred source for synthesizing ATP
(1) glucose
(2) lipids
(3) proteins
(4) Vitamins
(1) glucose

Q. Composed of amino acids and are the primary regulatory molecules in the body
(1) glucose
(2) lipids
(3) proteins
(4) Vitamins

Q. Acetoacetic acid, beta-hydroxybutyric acid, and acetone
(1) neuropeptide Y
(2) cytochromes
(3) ketone bodies
(4) ATP
(3) ketone bodies

Q. Hormone secreted by adipocytes that acts to decrease total body-fat mass
(1) leptin
(2) Streptokinase
(3) Enterokinase

(4) Acetyl coenzyme A

Q. Neurotransmitter that stimulates food intake
(1) leptin
(2) neuropeptide Y
(3) cytochromes
(4) ATP

Q. inorganic substances that perform many vital functions in the body
(1) proteins
(2) minerals
(3) glucose
(4) Lipids

Q. Carriers of electrons in the electron transport chain
(1) proteins
(2) neuropeptide Y
(3) cytochromes
(4) ketone bodies

Q. The mechanism of ATP generation that links chemical reactions with pumping of hydrogen ions
(1) chemiosmosis
(2) deamination
(3) gluconeogenesis
(4) Decarboxylation

1. **Fructose** is found in the semen which is utilized by the sperm for energy.
2. Mostly digestion & absorption takes place in **jejunum**

Concentrated source of energy 1gm fat = 9 Kcal

Daily fat requirement :
- Adults, pregnant & lactating women = 10 – 20 %
- Children = 15 – 20%
- Infants = 25-30%

Functional protein :
(a) Structural protein - Keratin of hair & nails collagen of bone.
(b) Enzyme protein – Pepsin
(c) Transparent protein – Hemoglobin
(d) Hormonal protein - Insulin, Growth Hormone.
(e) Contractile protein - Actin, Myosin
(f) Storage protein - Ovalbumin
(g) Genetic protein – Nucleoprotein
(h) Defense protein - Immunoglobulin

(a) Essential amino acids : Eg. = 9 amino acids are essential amino acids, require in dietary intake
- Phenylalanine
- Lysine
- Arginine
- Tryptophane
- Methionine
- Leucine
- Isoleucine
- Threonine
- Valine

Histamine is the semi – essential amino acids

(b) Non-essential amino acids : - total 10
- Synthesized in the body so they need not be consumed in the diet.
- Alanine
- Aspartic acid
- Asparagine
- Cysteine

- Glutamate
- Glutamic acid
- Glycine
- Proline
- Serine
- Tyrosine

Q. Which hormones responsible for "**gluconeogenesis"**
(1) insulin
(2) cortisol
(3) glucagon
(4) thyroid hormones
Cortisol & glucagon

Q. Which hormone responsible for **"glycogenesis"**
(1) insulin
(2) cortisol
(3) glucagon
(4) Epinephrine
Insulin

Q. Which hormones responsible for "**glycogenolysis"**
(1) glucagon
(2) thyroid hormones
(3) epinephrine
(4) insulin like growth factors
Glucagon & epinephrine

Q. Which hormones responsible for "**lipolysis"**
(1) cortisol
(2) Glucagon epinephrine
(3) thyroid hormones
(4) epinephrine
(5) insulin like growth factors
Cortisol , thyroid, epinephrine & IGF

Q. Which hormone responsible for **"lipogenesis"**
(1) insulin
(2) cortisol
(3) glucagon
(4) Epinephrine
Insulin

Q. Which hormone responsible for **"protein catabolism"**
(1) insulin
(2) cortisol
(3) glucagon
(4) Epinephrine
Cortisol – so k/as proteolytic hormone

Q. Which hormone responsible for **"protein anabolism" except**
(1) insulin
(2) glucagon
(3) thyroid hormones
(4) insulin like growth factors
Glucagon

Q. The removal of electrons from an atom or molecule resulting in a decrease in potential energy known as
(1) metabolism
(2) catabolism
(3) oxidation
(4) reduction
Oxidation

Q. The addition of electrons to a molecule resulting in an increase in potential energy content of the molecule known as
(1) metabolism
(2) catabolism
(3) oxidation
(4) reduction
reduction

Q. The formation of glucose from noncarbohydrate sources known as
(1) glycolysis
(2) glycogenolysis
(3) glycogenesis
(4) Gluconeogenesis
gluconeogenesis

Q. Which term refers to all the chemical reactions in the body
(1) metabolism
(2) catabolism
(3) oxidation
(4) Reduction
metabolism

Q. Oxidation of glucose to produce ATP known as

(1) metabolism
(2) catabolism
(3) beta oxidation
(4) cellular respiration
cellular respiration

Q. The splitting of a triglyceride into glycerol and fatty acids called
(1) lipolysis
(2) phosphorylation
(3) glycolysis
(4) Lipogenesis
lipolysis

Q. The synthesis of lipids known as
(1) beta oxidation
(2) lipolysis
(3) lipogenesis
(4) Ketogenesis
Lipogenesis

Q. The formation of ketone bodies called as
(1) catabolism
(2) beta oxidation
(3) ketogenesis
(4) Deamination
ketogenesis

Q. The breakdown of glycogen back to glucose known as -
(1) glycolysis
(2) glycogenolysis
(3) glycogenesis
(4) Gluconeogenesis
glycogenolysis

Q. break down complex organic molecules into simpler ones is called as
(1) metabolism
(2) catabolism
(3) beta oxidation
(4) Oxidation
catabolism

1. Micronutrients:- minerals & vitamins
2. Macronutrient: - carbohydrate, protein & fat

1 Kcal = 4.2 KJ
1 mol ATP = 144 calories
1 gm CHO = 4 Kcal (17KJ)

Q. Overall rate at which metabolic reactions use energy called
(1) Metabolism
(2) Catabolism
(3) metabolic rate
(4) Oxidation rate
metabolic rate

Q. The breakdown of glucose into two molecules of pyruvic acid
(1) glycolysis
(2) glycogenolysis
(3) glycogenesis
(4) Gluconeogenesis
glycolysis

Q. Removal of CO2 from a molecule called
(1) beta oxidation
(2) reduction
(3) deamination
(4) Decarboxylation
decarboxylation

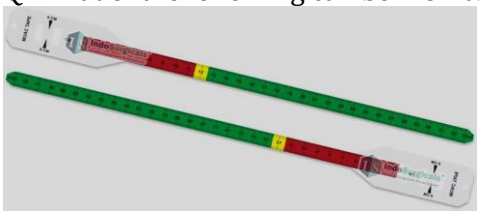
Q. Combine simple molecules and monomers to make more complex ones is known as -
(1) metabolism
(2) catabolism
(3) anabolism
(4) Oxidation
Anabolism

Q. What is the meaning of **"phosphorylation"**
a) Addition of a phosphate group to a molecule
b) Deletion of phosphate group
c) Transfer of phosphate group
d) Exchange of phosphate group
addition of a phosphate group to a molecule

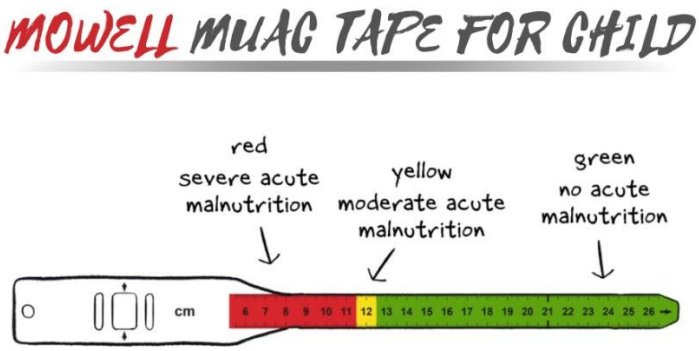
Q. Conversion of glucose into glycogen known as
(1) glycolysis
(2) glycogenolysis
(3) glycogenesis
(4) Gluconeogenesis
glycogenesis

- 1gm protein provide = 4 Kcal
- PEM/PCM is the deficiency disorder of protein & energy

Q. What of the following can be monitored using this tape



a) Nutritional status
b) Height
c) Skull growth
d) Ascites
Nutritional status



Mid-arm circumference:

- This is measured by **Shakir's tape**
- Markings on Shakir's tape –
  Green - > 13.5 cm – normal

Yellow – 12.5-13.5 cm – mild to moderate malnutrition
Red - < 12.5 cm – severe malnutrition

- Mid-arm circumference is **best measure of nutrition at a village level**.

Marasmus is defined as **< 60 percent <u>weight for age</u> without edema**	**Kwashiorkor** is defined as **60-80 <u>percent weight for</u> age with edema**

Q. Phrenoderma or 'toad skin' is caused by deficiency of
a) essential fatty acids
b) Nonessential fatty acids
c) Proteins
d) Carbohydrate
essential fatty acids

Therapeutic dose for **"Vit A deficiency"**

- 1 lakh IU orally or 50,000 IU I.M. for infants < 1 year and weight < 8 kg.
- 2 lakh IU orally or 1 lakh IU I.M. for others on days 0, 1 and 14

Vitamin	Function	Deficiency or Excess
Vitamin A **Retinol –** Animal source **Beta carotin –** Plant source	▪ To form rhodopsin ▪ Prevent Night blindness ▪ **Note:** Vitamin A is useful in cancer therapy	Xerophthalmia

Vitamin D • Calciferol • Cholecalciferol • Ergocalciferol • Anti-rachitic factor	1. Rickets – in children 2. Osteomalacia – in adults

Vitamin E γ, β, α - Tocopherol	▪ It is the most potent natural antioxidant ▪ Anti-sterility factor	1. Hemolysis 2. Immune – suppression

Vitamin K ▪ Phylloquinone (Plant) ▪ Menaquinone (Bacterial form) ▪ K1 – phytonadione ▪ K3 – menadione	▪ Synthesis of coagulation factors II, VII, IX and X	▪ Vitamin K is synthesized by bacteria in the intestine

Thiamin (Vitamin B1)	Deficiency:- ▪ Weakness ▪ Mental confusion ▪ Beri – beri ▪ Peripheral paralysis ▪ Wasting & Edema.

Riboflavin **Vitamin B2** ▪ Active riboflavin is FMN or FAD	▪ Cheilosis ▪ Glossitis ▪ Dermatitis ▪ Light hypersensitivity ▪ Corneal redness.

Niacin Vitamin B3 ▪ Active niacin is NAD+ and NADP+	▪ Role: Same as riboflavin

Pantothenic Acid
Vitamin B5

Vitamin B6 – pyridoxine	▪ Used in Hb synthesis.	▪ Anemia ▪ Dermatitis ▪ Neuritis ▪ Anorexia N/V

Vit. B7
Biotin

Folate
Vit. B9
Q. The gene responsible for folic acid transport is located on - Chromo. 21
Q. Total serum folic acid is = 2-20 mg/ml
Q. Folate reductase is inhibited by - methotrexate and trimethoprim

Cobalamin Vitamin B12	Q. Which vit k.as **extrinsic factor – vit B12** Q. Transport: by transcobalamin Q. Absorption: occurs in the **terminal ileum** Q. Deficiency – pernicious anaemia

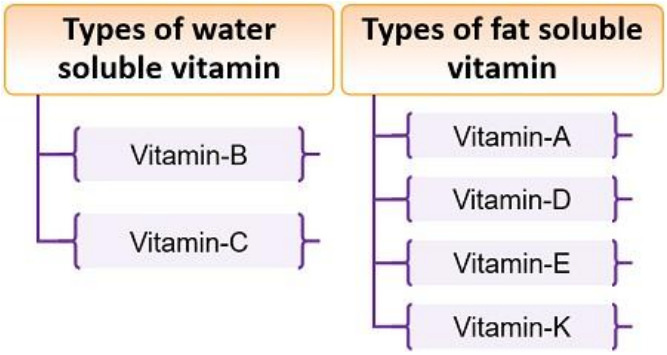
Q. Synthesis of glucose from non-carbohydrate source is referred as:
Answer: (b) Gluconeogenesis

Q. BMI greater than 30 is considered as:
Answer: (c) Obese

BMI RANGE AND CATEGORY CHART

CATEGORY	BMI RANGE kg/m²
Underweight	<18.5
Normal Weight	18.5 - 24.9
Overweight	25 - 29.9
Obese	>30

Q. Which of the following vitamins are soluble in water?
Answer: (b) Vitamin C



Q. Vitamin B1 is also known as:
Answer: (b) Thiamine

Q. In which organ does the maximum absorption of Iron take place?
Answer: (b) Small Intestine

Q. Which of the following is significantly different between human and cow's milk ?
Answer: (c) Proteins and Lactose

Components	Cow (100 mL)	Buffalo (100 mL)	Human (100 mL)
Protein (g)	3.2	6.5	1.1
Fat (g)	4.1	4.3	3.4
Lactose (g)	4.4	5.1	7.4
Calcium (mg)	120	210	28
Energy (kcal)	67	117	65

Q. Which one of the following vitamins help in wound healing?
Answer: Vitamin C

Q. Which one of the following sugar concentration is highest in honey?
Answer: Fructose

Q. Which one of the following sugar concentration is highest in honey?
Answer: Fructose

Q. Which of the following symptoms is most commonly associated with Vitamin C deficiency?
Answer: Bleeding gums

Q. Deficiency of vitamin B1 causes:
Answer: Beriberi

Q. Deficiency of which vitamin causes scurvy?
Answer: Vitamin C

Q. The mineral element which is essential for synthesis of thyroxin is:
Answer: Iodine

Q. Deficiency of which of the following vitamins causes pellagra:
Answer: Niacin B3

Q. Vitamin E is otherwise known as:
Answer: Tocopherol

Q. Disease kwashiorkor is caused due to deficiency of .....
Answer: Proteins

Q. Bone deformation can occur due to lack of:
a. Calcium
b. Vitamin D
c. Phosphorus
d. All of these
Answer: (d) All of these

Q. Vitamin 'D' deficiency may result in:
Answer: Rickets

Q. Which of the following vitamins is considered as good for eyes:
Answer: A

Q. Vitamin essential for coagulation of blood is:
Answer: K

Q. Protein requirement for a pregnant women per day is.....
Answer: average 60 g/d

Q. Prevention of Food Adulteration Act was initiated in the year
Answer: 29 sept 1954

Q. Lactose is made up of
Answer: Glucose and galactose

Q. Which of the following nutrient does not provide energy to body?
a) CHO
b) protein
c) minerals
d) fat
Answer: Minerals

Q. Calorific value of carbohydrates is:
Answer: 4 kcal/gram

Q. Deficiency of essential fatty acids cause
a. Dermatitis
b. Growth retardation
c. Reproductive failure
d. All of the above
Answer: All of the above

Q. Linoleic acid is found mostly in
a. Sunflower oil
b. Corn oil
c. Sunflower oil
d. All of the above
Answer: (d) All of the above

Q. Cholesterol is required for
a. Formation of bile
b. Precursor for all steroid hormones
c. Formation of vitamin D
d. All of the above
Answer: (d) All of the above

Q. Energy required in addition to total calories for a lactating mother
from 0-6 months is
Answer: 2000 +600 kcal

Q. Food energy is measured in
Answer: Kilocalories

Q. bleeding gums is mostly deficient in
Answer: Vitamin C

Q. Which vitamin functions like a steroid hormone:
Answer: Vitamin D

Q. Deficiency of the which vitamin causes megaloblastic anemia
Answer: Folic acid

Q. The storage form of iron is
Answer: Ferritin

Q. Which of the following is the richest source of potassium?
Answer: Potatoes & banana

Q. Which of the following trace element is essential for the synthesis of insulin?
Answer: Zinc

Q. The amount of protein in daily energy intake should be
Answer: 10-15%

Q. The amount of fat in daily energy intake should be
Answer: 20-30%

Q. For planning a balanced diet it is essential to have
a. Knowledge of the RDAs
b. Physiological status
c. Food groups

d. All of the above

Answer: (d) All of the above

Q. Which of the following service(s) is/are provided under ICDs programme?

a. Supplementary nutrition
b. Health referrals
c. Nonformal education
d. All of the above

Answer: (d) All of the above

Q. Milk sugar is called

Answer: Lactose

Q. What is the name of instrument?

a. Ovum forceps
b. Sponge holding forceps
c. Cord holding forceps
d. Pile holding forceps

Sponge Holding Forceps

cleansing the skin with swab dipped in antiseptic solution during all operations

a. Lister's sinus forceps
b. Kocher's hemostatic forceps
c. Babcock's tissue forceps
d. Lane's tissue forceps

Kocher's hemostatic forceps

Used during appendectomy to crush the base • Used to hold perforating vessels during mastectomy

Q. What is the name of instrument?

BIOCHEMISTRY

Biochemistry

- Amino acids
- Proteins
- Enzymes
- Carbohydrates
- Lipids
- Bioenergetics – TCA, ETC,
- Heme & globin
- Fat & water soluble vitamins
- Minerals
- Immunoglobulins
- cori cycle

Q. Following intermediate of citrate cycle used for heme synthesis

a) Succinyl CoA
b) Fumerate
c) Oxaloacetate
d) Citrate

Succinyl CoA

Q. Which is increased in blood after overnight fasting

a) Insulin
b) Glucose
c) Fatty acids
d) None

Fatty acids

Q. Which of the following amino acid is responsible for the absorption of UV light in proteins
a) Leucine
b) Proline
c) Arginine
d) Tryptophan
Tryptophan – amino acids absorb UV light
Other phenylalanine & tyrosine also

Q. Which amino acid require for carboxylation of blood clotting factors by vitamin K
a) Histidine
b) Histamine
c) Glutamate
d) Aspartate
Glutamate
Vitamin – biotin as cofactor

Q. Phosphorylation of amino acids by
a) serine
b) Tyrosine
c) Leucine
d) Tryptophan
Serins & tyrosine

Q. Which of the following is non essential amino acid ?
a) Lysine
b) Tyrosine
c) Arginine
d) Histidine
Choose Arginine not histidine

Q. Which is semiessential AA
a) Histidine
b) Glycine
c) Tyrosine
d) Glutamate
From these options histidine is best answer

Notionally essential AA	Non essential
1) Methionine 2) Threonine 3) Tryptophane 4) Valine 5) Isoleucine 6) Leucine 7) Phenylalanine 8) Lysine 9) Histidine 10) Arginine** - semi Trick – MeTT VIL PHLY – met will fly	All other except these

Q. 11. Basic amino acids is / are, except
a) Leucine
b) Arginine
c) Lysine
d) Histidine
a) Leucine

Q. 13 sulphur containing amino acid is
a) Cysteine
b) Leucine
c) Arginine
d) Threonine
Cysteine & methionine

Q.15 Which is not an essential amino acid
a) Tryptophan
b) Threonine
c) Histidine
d) Cysteine
d) Cysteine

Q. 1 Ammonia from brain is detoxified as
a) Glutamate
b) Glutamine
c) Alanine
d) Urea
b) Glutamine – ammonia from brain & most of tissue is detoxified as glutamine

Q.6 Glutamine in blood acts as
a) NH3 transporter
b) Toxic element

c) Stored energy
d) Abnormal metabolite
a) NH3 transporter – ammonia transporter in brain & most of tissue

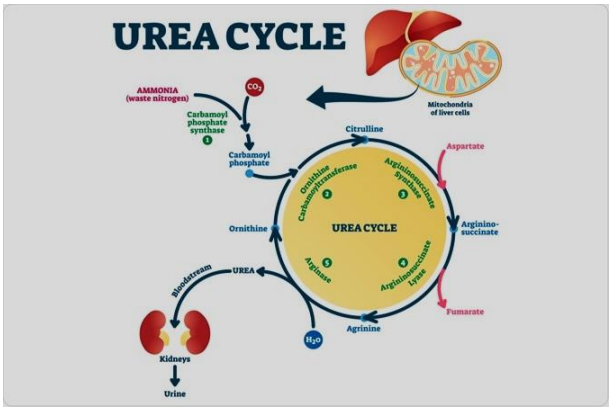
Q. 7. amino acid absorption is by
a) Facilitated diffusion
b) Passive transport
c) Active transport
d) Pinocytosis
c) Active transport sodium dependent active transport

Q. 11. substrate linking kreb's cycle and urea cycle is
a) Fumerate
b) Aspartate
c) Alanine
d) Arginine
Aspartate & Fumerate – it is compound that link kreb's cycle & urea cycle

Q. Which enzymes are part of urea cycle
a) Ornithine trans carbamylase
b) Asparginase
c) Glutamate synthesis
d) Arginino succinase
a) Ornithine trans carbamylase
d) Arginino succinase

Q. 16Urea cycle occurs in
a) Liver
b) GIT
c) Spleen
d) Kidney
a) Liver

Q. 18Urea cycle occurs in
a) Cytoplasm
b) Mitochondria
c) Both
d) Endoplasmic reticulum
b) Mitochondria



Q. 8 melanine derived from
a) Tryptophan
b) tyrosine
c) Methionine
d) Alanine
b) tyrosine

Q. 9 Melatonin derived from
a) Tryptophan
b) tyrosine
c) Methionine
d) Alanine
a) Tryptophan

Q. 12 dopamine is synthesized from
a) tryptophane
b) Threonine
c) Tyrosine
d) Lysine
c) Tyrosine

Q. 7Biuret test is used for detection of
a) protein
b) Cholesterol
c) Steroid
d) Sugar
a) protein

Q. Best investigation for HBA1c
a) Affinity chromatography

b) Ion exchange chromatography
c) High performance liquid chromatography
d) Electrophoresis
High performance liquid chromatography

Q. Best test for metabolic disorders
a) Western blot
b) Tandem mass spectrometry
c) ELISA
d) Immunoturbidimetry
Tandem mass spectrometry

Q. Confirmative test for protein are
a) Western blot
b) ELISA
c) Chip assay
d) Dot blot
All bcz they based on antigen antibody interaction hens they are confirmative test for proteins

Q. Type I collagen is not present in
a) Bone
b) Hyaline cartilage
c) Ligament
d) Aponeurosis
b. Hyaline cartilage
Type II – in cartilage & vitrous humors

Q. Type of collagen maximum in skin
a) Type I
b) Type II
c) Type III
d) Type IV
In dermis 80% type I collagen

Q. Keratin is present in both skin and nails, but the nails are more harder than skin, why
a) Increased number of disulphide bond
b) Decrease number of water molecules
c) Decrease Na content
d) Increased hydrogen bond
Increased number of disulphide bond

Q. Immunoglobulins are
a) Proteins
b) Glycoproteins
c) Proteoglycan
d) Glycosides
b) Glycoproteins

Q. Proteins are stored by
a) Golgi bodies
b) Mitochondria
c) Ribosomes
d) Nucleus
a) Golgi bodies

Q. Not a function of endoplasmic reticulum
a) Protein synthesis
b) Muscle contraction
c) Protein storing
d) Glycoproteins
b) Muscle contraction

Q. Which enzyme is deficient in alcoholics
a) Aconitase
b) Citrate synthase
c) Isocitrate dehydrogenase
d) Alpha ketoglutarate dehydrogenase
Alpha ketoglutarate dehydrogenase (oxidoreductase class) – bcz of thiamine deficiency – thiamine dependent enzymes reduced

Q. Biomarker for alcoholic hepatitis
a) ALP
b) AST
c) LDH
d) GGT
GGT – gamma glutamyl transferase

Q. What happen to LDH 1 & 2 in MI
a) LDH 1 > LDH 2
b) LDH 2 > LDH 1
c) LDH 1 = LDH 2
d) Not changed
LDH 1 > LDH 2

Q. What is the primary function of the electron transport chain?
A. To produce glucose from carbon dioxide
B. To convert water to oxygen
C. To generate ATP through oxidative phosphorylation
D. To break down fatty acids into acetyl-CoA
Answer: C. To generate ATP through oxidative phosphorylation

Q. Where does the electron transport chain occur in eukaryotic cells?

A. In the cytoplasm
B. In the inner mitochondrial membrane
C. In the nucleus
D. In the endoplasmic reticulum
Answer: B. In the inner mitochondrial membrane

Q. What molecule donates electrons to the electron transport chain?
A. ATP
B. Water
C. Oxygen
D. NADH
Answer: D. NADH

Q. What is the final electron acceptor in the electron transport chain?
A. Water
B. ATP
C. Oxygen
D. NADH
Answer: C. Oxygen

Q. What is the main byproduct of the electron transport chain?
A. Glucose
B. Water
C. Carbon dioxide
D. Acetyl-CoA
Answer: B. Water

Q. What is the link reaction?
A. The conversion of glucose to glycogen
B. The conversion of acetyl-CoA to ATP
C. The conversion of pyruvate to acetyl-CoA
D. The conversion of pyruvate to lactate
Answer: C. The conversion of pyruvate to acetyl-CoA

Q. Where does the link reaction occur in eukaryotic cells?
A. In the cytoplasm
B. In the nucleus
C. In the mitochondrial matrix
D. In the endoplasmic reticulum
Answer: C. In the mitochondrial matrix

Q. What enzyme is primarily involved in the link reaction?
A. Hexokinase
B. Pyruvate dehydrogenase
C. Phosphofructokinase
D. ATP synthase
Answer: B. Pyruvate dehydrogenase

Q. What is the main product of the link reaction?
A. ATP
B. Glucose
C. Acetyl-CoA
D. NADH
Answer: C. Acetyl-CoA

Q. Which molecule is released as a byproduct of the link reaction?
A. Carbon dioxide
B. Water
C. Oxygen
D. NADH
Answer: A. Carbon dioxide

Q. What is the role of NAD+ in the link reaction?
A. It is converted to ATP
B. It is converted to NADPH
C. It accepts electrons to become NADH
D. It accepts protons to form water
Answer: C. It accepts electrons to become NADH

Q. How many molecules of pyruvate are converted in one cycle of the link reaction per glucose molecule?
A. One
B. Two
C. Three
D. Four
Answer: B. Two

Q. What is the fate of acetyl-CoA produced in the link reaction?
A. It is used in the Krebs cycle
B. It is stored as glycogen
C. It is converted to lactate
D. It is released as carbon dioxide
Answer: A. It is used in the Krebs cycle

Q. What is the primary function of the HMP shunt?
A. To produce ATP through oxidative phosphorylation
B. To convert pyruvate to lactate
C. To generate NADPH and ribose-5-phosphate
D. To break down fatty acids for energy

Answer: C. To generate NADPH and ribose-5-phosphate

Q. Where does the HMP shunt occur in eukaryotic cells?
A. In the cytoplasm
B. In the mitochondria
C. In the nucleus
D. In the endoplasmic reticulum
Answer: A. In the cytoplasm

Q. What molecule serves as the starting point for the HMP shunt?
A. Glucose-6-phosphate
B. Fructose-1,6-bisphosphate
C. Pyruvate
D. Acetyl-CoA
Answer: A. Glucose-6-phosphate

Q. Which enzyme catalyzes the first step in the HMP shunt?
A. Hexokinase
B. Glucose-6-phosphate dehydrogenase
C. Pyruvate kinase
D. Phosphofructokinase
Answer: B. Glucose-6-phosphate dehydrogenase

Q. What is the main product of the oxidative phase of the HMP shunt?
A. NAD+
B. NADPH
C. ATP
D. GTP
Answer: B. NADPH

Q. What is the role of ribose-5-phosphate, a product of the HMP shunt?
A. It serves as a precursor for glycolysis
B. It serves as a precursor for the synthesis of nucleotides
C. It serves as an intermediate in the Krebs cycle
D. It serves as an intermediate in the electron transport chain
Answer: B. It serves as a precursor for the synthesis of nucleotides

Q. In which tissues is the HMP shunt most active?
A. Muscle and skin
B. Liver and adipose tissue
C. Brain and spinal cord
D. Heart and lungs
Answer: B. Liver and adipose tissue

Q. What metabolic function does NADPH perform?
A. It provides reducing power for biosynthetic reactions
B. It participates in the electron transport chain
C. It acts as a substrate for glycolysis
D. It helps regulate calcium levels in the cell
Answer: A. It provides reducing power for biosynthetic reactions

Q. LDH -5 level elevated in which cell injury
a) Liver
b) Heart
c) Muscle
d) RBC
Liver

Q. 1A patient come with lactose intolerance. He should avoid all except
a) Skimmed milk
b) Icecream
c) Yoghurt
d) Condensed milk
Yoghurt - lactobacillus present in youhurt produce lactase enzyme which helps in digestion of lactose in diet

Q. 3Which of the following is not dietary fibre
a) Cellulose
b) Pectin
c) Gum
d) Inulin
All are Fiber but inulin is best answer

Q. 4 which of the following are reducing sugars except
a) Glucose
b) Maltose
c) Isomarase
d) Sucrase
e) Trehalose
Sucrase & Trehalose – bcz they do not have free functional groups

Q. 5.Method of transport of glucose in the intestine is
a) Primary active transport
b) Secondary active transport
c) Simple diffusion
d) Counter transport

Two method for CHO absorptions are
Secondary active transport – glucose & galactose
Other CHO – carrier mediated diffusion

Q. 6The form of glucose predominantly seen is as
a) Alpha D glucopyranose
b) Alpha D glucofuranose
c) Beta D glucopyranose
d) Beta D glucofuranose
Beta D glucopyranose

Q. 7The glycaemic index is highest for
a) Glucose
b) Fructose
c) Sucrose
d) Sugar alcohols
Glucose

Q. 8. benedict test red color produced by
a) Sucrose
b) Inositol
c) Fructose
d) Lactose
e) Maltose
Fructose, Lactose, Maltose – positive BT also by glucose, galactose, isomaltose

Q. 9. which of the following are not aldose
a) Glucose
b) Mannose
c) Fructose
d) Galactose
e) Glycerol
Fructose & glycerol

Q. 10 glucose detection can be done by all except
a) Glucose oxidase test
b) Ferric chloride test
c) Dextrostix
d) Folin & Wu method
e)
Ferric chloride test – it is test done in Alkaptonuria and phenylketonuria
Q. 11 which of the following carbohydrate metabolism is used for liver function assessment
a) Galactose tolerance test
b) Sucrose tolerance test
c) Glucose tolerance test
d) Lactose tolerance test
Galactose tolerance test

Q. 16 which deposition result in cataract
a) Glucose
b) Galactose
c) Sugar amines
d) Sugar alcohols
Sugar alcohols – galactosemia, dulcitol & galactictol responsible for cataract

Q. 17Cellulose is
a) complex lipoproteins
b) Starch polysaccharide
c) Non starch polysaccharide
d) Complex glycoproteins
Non starch polysaccharide

Q. 21Heparin is a
a) Glycosamino glycan
b) Polysaccharide
c) Proteoglycan
d) Carbohydrate
Glycosamino glycan

Q. 23 after overnight fasting, level of glucose transporters reduced in
a) Brain cell
b) RBCs
c) Adipocytes
d) Hepatocytes
Adipocytes

Q. 25Defect in renal glycosuria
a) GLUT 1
b) GLUT 2
c) SGLT 1
d) SGLT 2
SGLT 2

Q. 27Glucose tranporter present in RBC
a) GLUT 1
b) GLUT 2
c) GLUT 3
d) GLUT 4
GLUT 1

Q. 28The monosaccharide with maximum absorption in intestine is
a) Glucose
b) Galactose

c) Fructose
d) Mannose

Galactose

Q. 1Patient with type I DM, with complaint of polyurea. Which of the following will occurs normally in his body

a) Glycogenesis in muscle
b) Increase protein synthesis
c) Increased conversion of fatty acids to acetyl – CoA
d) Decrease in cholesterol synthesis

Increased conversion of fatty acids to acetyl – CoA

Q. 7 respiratory quotient after exclusive carbohydrate meal

a) 1
b) 1.2
c) 0.8
d) 0.7

1

Q. 11Glycolysis occurs in

a) Cytosol
b) Mitochondria
c) Nucleus
d) Lysosome

Cytosol

Q. 15What activate kinase of glycolysis

a) ATP
b) cAMP
c) Insulin
d) Glucagon

Insulin

Q. 18Key glycolytic enzyme

a) Phospho fructo kinsase
b) Hexokinase
c) Pyruvate kinase
d) Glucose 1, 6 bisphosphatase

A,B,C

Q. 21Cancer cell derived nutrition from

a) Anaerobic glycolysis
b) Oxidative phosphorylation
c) Increase in mitochondria
d) Aerobic glycolysis

Aerobic glycolysis

Q. 26Enzyme responsible for complete oxidation of glucose into co2 and water is present in

a) Cytosol
b) Mitochondria
c) Lysosome
d) Endoplasmic reticulum

Mitochondria

Q. 47Glucose can be synthesize from all except

a) Amino acids
b) Glycerol
c) Acetoacetate
d) Lactic acid

Acetoacetate

Q. 62In humans carbohydrates are stored as

a) Glucose
b) Glycogen
c) Starch
d) Cellulose

Glycogen

Q. 1True about HMP shunt cycle

a) Take place in cytosol
b) Does not produce ATP
c) NADH is produced in oxidative phase
d) Found in liver, adipose tissue, gonads
e) Pyruvate is produced in nonoxidative phase

A,b,d

Q. 3NADPH is produced by

a) Glycolysis
b) Citric acid cycle
c) HMP shunt
d) Glycogenesis

HMP shunt

Q. 6 severe thiamine deficiency is associated with

a) Decrease RBC transketolase activity
b) Increase clotting time
c) Decreased RBC transaminase activity
d) Increased xanthic acid excretion

a. Decrease RBC transketolase activity

Q. 14Enzyme deficiency in galactosemia

a) Galactose 1 phosphate uridyl transferase
b) Aldolase B
c) UDP galactose 4 epimerase
d) Fructokinase

a. Galactose 1 phosphate uridyl transferase

Q. 26Substrate used by RBC in fasting state
a) Glucose
b) Amino acids
c) Ketone body
d) Fatty acids
Glucose

Q. 28During exercise most rapid way to synthesize ATP is
a) Glycogenolysis
b) Glycolysis
c) Phosphocreatine
d) TCA cycle
Phosphocreatine

Q. 2 which is omega 6 fatty acid
a) Gamma linolenic acid
b) Alpha linolenic acids
c) Arachidonic acids
d) Palmitic acid
e) Linoleic acids
A,c,e
Omega 3 fatty acids are – alpha linolenic, timnodonic, cervonic acids

Q. 3Essential fatty acids are
a) Palmitic acids
b) Linoleic acid s
c) Linolenic acids
d) Oleic acids
e) Free fatty acids
B,c

Q. 6PUFA content is seen in
a) Groundnut oil
b) Safflower oil
c) Corn oil
d) Sunflower oil
B,c,d - polyunsaturated fatty acids

Q. 9Most essential fatty acids is
a) Linolenic acid
b) Linoleic acid
c) Arachidonic acid
d) Eicosapentaenoic acid
Linoleic acid

Q. 11 maximum source of linoleic acid is
a) Coconut oio
b) Sunflower oil
c) Palm oil
d) Vanaspati oil
Sunflower oil

Q.15 Which is not present in plant
a) Cholesterol
b) Linolenic acid
c) Linoleic acid s
d) Lauric acid
Cholesterol

Q. Number of iron in transferrin
a) 1
b) 2
c) 3
d) 4
2

Q. Number of iron in ferritin
a) 4
b) 40
c) 400
d) 4000
4000

Q. Number of pyrrole rings in porphyrins
a) **2**
b) **3**
c) **4**
d) **5**
4

Q. Structure of hemoglobine and myoglobin is similar in
a) Primary structure
b) Secondary structure
c) Tertiary structure
d) Both secondary and tertiary
D both

Q. What is the Cori cycle?
A. The process of converting glucose to glycogen in the liver
B. The cycle of converting lactate to glucose in the liver
C. The process of breaking down glucose in muscles

D. The cycle of converting fatty acids to glucose in muscles
Answer: B. The cycle of converting lactate to glucose in the liver

Q. Where does the Cori cycle primarily take place?
A. In muscle cells and the pancreas
B. In adipose tissue and the brain
C. In the liver and muscle cells
D. In the heart and lungs
Answer: C. In the liver and muscle cells

Q. What is the initial substance produced in muscles during anaerobic conditions in the Cori cycle?
A. Glucose
B. Lactate
C. Glycogen
D. Pyruvate
Answer: B. Lactate

Q. What is the main purpose of the Cori cycle?
A. To produce ATP during aerobic conditions
B. To maintain pH balance in the body
C. To convert lactate back to glucose
D. To store energy as glycogen in muscles
Answer: C. To convert lactate back to glucose

CELL CYCLE & DIVISION

- Cell division without reduction is called -
- longest stage in the cell cycle is – interphase
- Which type of epithelial tissue is composed of several layers of cells – stratified
- contractile protein that found in skeleton muscles – actin
- Immediate source of energy for the muscle contraction – adenosine
- What is the main source of energy for cardiac muscle – fat
- Sarcomere refer to that portion of the myofibril between – two Z lines
- Tropomyosin is a type of – regulatory proteins
- The type of muscle found in the visceral organs and blood vessels is called
- A plane that passes through the midline of the body and divides it into equal right and left sides is called
- Which plane divides the brain into unequal right and left portions?

Q1 which tissue is called covering & lining tissue?
(a) Connective tissue
(b) Epithelial tissue
(c) Muscular tissue
(d) Nervous tissue

Q2 Which is most abundant tissue?
(a) Connective tissue
(b) Epithelial tissue
(c) Muscular tissue
(d) Nervous tissue

Q3 which tissue have good power of regeneration?
(a) Connective tissue
(b) Epithelial tissue
(c) Muscular tissue
(d) Nervous tissue

Q4 secretory part of glands formed by
(a) Simple cuboidal
(b) Stratified cuboidal
(c) Simple columnar
(d) Stratified columnar

Q5 ducts of glands are composed by which tissue?
(a) Simple cuboidal
(b) Stratified cuboidal
(c) Simple columnar
(d) Stratified columnar

Q6 Which type of tissue provides first line defense against microbes in body
(a) Connective tissue
(b) Epithelial tissue
(c) Muscular tissue
(d) Nervous tissue

Q7 Group of cell that are similar in origin, structure & Function called tissue Which is a unique similarity
(a) Structure
(b) Function
(c) Origin
(d) All of the above

Q8 Tissue word was coined by
(a) Paul Mayer
(b) Bichat
(c) Wood worth
(d) Swann and schleidon

Q9 who is Father of histology
(a) Paul Mayer
(b) Bichat
(c) Wood worth
(d) Swann and schleidon

Q10 Histology term given by
(a) Paul Mayer
(b) Bichat
(c) Wood worth
(d) Swann and schleidon

Q11 Blood vessels & lymph vessels are absent but contains nerve supply is a feature of
(a) Connective tissue

(b) Epithelial tissue
(c) Muscular tissue
(d) Nervous tissue

Q12 single layer of cells they are flat, irregular & scaly like tiled floor is a feature of
(a) Simple squamous
(b) Simple cuboidal
(c) Simple columnar
(d) Stratifies squamous

Q13 Heart, lining of blood vessels & lymph vessels k/as Endothelium forms by
(a) Simple squamous
(b) Simple cuboidal
(c) Simple columnar
(d) Stratifies squamous

Q14 Serous Membranes (Pleura, peritoneum, pericardium) called mesothelium formed by
(a) Simple squamous
(b) Simple cuboidal
(c) Simple columnar
(d) Stratifies squamous

Q15 which is not an example for simple squamous tissue
(a) Alveoli of lungs
(b) Bowmen's capsule
(c) Inner surface of tympanic membrane (eardrum)
(d) Duct of glands

Q16 which is not an example for Simple cuboidal epithelium
(a) Cover surface of ovary and testes
(b) Alveoli of lungs
(c) Lenses, retina, Iris, choroid & ciliary body (eye structure)
(d) Secretory part of gland.

Q17 which tissue called germinal epithelium
(a) Simple squamous
(b) Simple cuboidal
(c) Simple columnar
(d) Stratifies squamous

(e)

Q18 which is only a tissue in which basement membrane is absent
(a) Simple squamous
(b) Transitional tissue
(c) Stratified squamous epithelium
(d) Stratifies cuboidal

Q19 Lining of urinary bladder composed by
(a) Simple squamous
(b) Transitional tissue
(c) Stratified squamous epithelium
(d) Stratifies cuboidal

Q20 which type of tissue provides "First line defense against microbes"
(a) Simple squamous
(b) Transitional tissue
(c) Stratified squamous epithelium
(d) Stratifies cuboidal

Q21 Papanicolaue test/pap smear should be started within
(a) 1 year of onset of puberty
(b) 2 year of onset of puberty
(c) 3 year of onset of puberty
(d) Just after birth of a female child

Q22 pap test sample is taken from
(a) Non – keratinized st. sq. epi. of cervix, vagina & uterus
(b) Keratinized st. sq. epi. of cervix, vagina & uterus
(c) Stratified cuboidal epithelium
(d) Stratified columnar epithelium

Q23 pap test is performed to detect
(a) Cancerous conditions of cervix
(b) Pre – cancerous conditions of cervix
(c) Pre – cancerous conditions of bladder
(d) All of the above

Q24 changes in the cellular morphology that observed in pap test
(a) Dysplasia
(b) Hyperplasia
(c) Hypertrophy
(d) Metaplasia

Introduction & definition:

- Group of cell that are similar in <u>origin,</u> structure & function
- Tissue word was coined by **"bichat"** (father of histology)
- Histology term given by **"Paul mayer"**

1. EPITHELIAL TUSSUE

- Blood vessels & lymph vessels are absent but rich nerve supply
- have good power of regeneration (repairing)
- It is also k/as "covering and lining tissue"

1. <u>Simple epithelium</u>

Location				
Heart, lining of blood vessels & lymph vessels where it is k/as Endothelium	Serous Membranes	Alveoli	Bowmen's capsule	

<u>2. Simple cuboidal epithelium</u> - Single layer of cube shape cells		
Cover surface of ovary and testes		Secretory part of gland
Sp.NOTE: it also k/as germinal epithelium because in gonads (testes & ovary) cuboidal cell divided to form egg & sperm		

<u>B. Compound Epithelium</u>

<u>1. Transitional Epithelium</u>

- it is only a tissue in which basement membrane is absent
- which provides stretching to organs
- Lining of urinary bladder, urethra, renal pelvis

<u>2. Stratified Compound Epithelium</u> <u>(a) St. Squ. Epi. –</u> "Covering & Lining"	
Keratinized	Non – keratinized
Eg. Epidermis of skin	Cover surface of tongue
Hairs, Nails	Conjunctiva of Eye
Sp.Note: both type of tissue provides "First line defense against microbes"	

<u>(b) St. Cuboidal Epi. -</u> E.g. Ducts of glands

<u>(c) St. Columnar Epi. -</u> E.g – Larynx, Uterus, Epiglottis.

Sp.NOTE: Papanicolaou test/pap smear – collection & microscopic examination of Non – keratinized st. sq. epi. of cervix, vagina & uterus.

Performed to detect :Pre – cancerous conditions" **(Dysplasia)**

Started within 3 year of onset of puberty.

Exercise - 1

1. Endothelium lining of a blood vessel is formed of 1) Ciliated epithelium

2) Columnar epithelium
3) Cuboidal epithelium
4) Simple squamous epithelium

2. Cells of squamous epithelium are
1) Columnar
2) Tall with elongated nuclei
3) Flat plate like
4) Cube like

3. Goblet cells are
1) **Unicellular glands**
2) Multicellular glands
3) Dead keratinised cells
4) Stratified epithelium

4. Simple epithelium is made of
1) Non-cellular layer of hyaluronic acid
2) Undividing cells
3) Loosely arranged cells
4) single layer of cells

5. Compound squamous epithelium occurs in
1) Stomach
2) Intestine
3) Trachea
4) Pharynx

6. The epithelium that forms the lining of stomach and intestine is
1) Columnar
2) Squamous
3) Cuboidal
4) Ciliated epithelium

7. Ciliated epithelium occurs in
1) Trachea and lungs
2) Trachea and liver
3) Bronchioles and fallopain tubes
4) Bronchioles and lungs

8. Microvilli of epithelium
1) Increase the surface area
2) Protect the cells
3) Engulf the foregin matter
4) Give movement to cells

9. Which of the following junctions help to stop substance from leaking across a tissue?
1) Adhering junctions
2) Gap junctions
3) Tight junctions
4) Both 1 and 2

10. Which of the following gland do not have duct?
1) Salivary gland
2) Mammry gland
3) Intestinal gland
4) Adrenal gland

G1 (first gap phase)	**S (Synthesis phase)**	**G2 (Second gap)**
8 – 10 hr	8 hr	4- 6 hr
Centrosome replication begins duplicate cell organelles	DNA replication	Centrosome replication completed Enzyme & Protein synthesis

Q. **"centrosome move** to an opposite pole" in which phase of cell division
Q. Centromere of chromosome pair line up in which phase ?
Q. identical set of chromosome move to an opposite pole of cell

Prophase - I in meiosis is more complex and longer as compare of mitosis				
Leptotene	zygotene	pachytene	Diplotene	Diakinesis

Q. Which is basic reason for cell injury/cell death
Q. erythropoietin secretion increases due to which factor
Q. constant state in internal body environment like Temp, pH, Glucose, O2/Co2 & BP k/as -

APOPTOSIS	NECROSIS
Natural / programmed cell death	Uncontrolled / unprogrammed / accidental cell death
k/as cell suicide	k/as cell murder

MICROBIOLOGY

Q. Father of bacteriology
a) Robert Koch
b) Louis Pasteur
c) Edward Jenner
d) Paul Ehrlich
a) Robert Koch

Q. Father of microbiology
a) Robert Koch
b) Louis Pasteur
c) Edward Jenner
d) Paul Ehrlich
b) Louis Pasteur

Q. Father of immunology
a) Robert Koch
b) Louis Pasteur
c) Edward Jenner
d) Paul Ehrlich
b) Edward Jenner

Q. Father of chemotherapy
a) Robert Koch
b) Louis Pasteur
c) Edward Jenner
d) Paul Ehrlich
d) Paul Ehrlich

Q. 1st disease
a) Measles (Rubeola)
b) Scacrlet fever
c) 3 day measles (rubella)
d) Sandfly fever
a) Measles (Rubeola)

Q. 2nd day disease
a) Measles (Rubeola)
b) Scacrlet fever
c) 3 day measles (rubella)
d) Sandfly fever
b) Scacrlet fever

Q. 3 day fever
a) Measles (Rubeola)
b) Scacrlet fever
c) 3 day measles (rubella)
d) Sandfly fever
d) Sandfly fever

Q. What is the Gram staining result for Streptococci?
1. A) Gram-negative
2. B) Gram-positive
3. C) Acid-fast
4. D) None of the above

Answer: B) Gram-positive

Q. Which of the following is a common shape of Streptococci bacteria?
1. A) Rod-shaped
2. B) Spiral
3. C) Spherical
4. D) Corkscrew

Answer: C) Spherical

Q. What is the common arrangement of Streptococci bacteria?
1. A) Clusters
2. B) Chains
3. C) Pairs
4. D) Tetrads

Answer: B) Chains

Q. Which of the following is a type of Streptococci that causes strep throat?
1. A) Streptococcus pyogenes
2. B) Streptococcus pneumoniae
3. C) Streptococcus mutans

4. D) Streptococcus agalactiae

Answer: A) Streptococcus pyogenes

Q. Which of the following diseases is commonly associated with Streptococcus pneumoniae?

1. A) Tooth decay
2. B) Meningitis
3. C) Rheumatic fever
4. D) Strep throat

Answer: B) Meningitis

Q. How are Streptococci typically classified?

1. A) Based on their shape
2. B) Based on their growth in oxygen-rich environments
3. C) Based on their hemolytic properties
4. D) Based on their antibiotic resistance

Answer: C) Based on their hemolytic properties

Q. What is the name of the toxin produced by Streptococcus pyogenes that can cause scarlet fever?

1. A) Tetanus toxin
2. B) Diphtheria toxin
3. C) Streptococcal pyrogenic exotoxin
4. D) Botulinum toxin

Answer: C) Streptococcal pyrogenic exotoxin

Q. Which of the following is a group of streptococci commonly found in the human oral cavity?

1. A) Group A streptococci
2. B) Group B streptococci
3. C) Viridans streptococci
4. D) Group C streptococci

Answer: C) Viridans streptococci

Q. Which test is commonly used to differentiate between different species of Streptococci?

1. A) Catalase test
2. B) Coagulase test
3. C) Blood agar hemolysis test
4. D) Oxidase test

Answer: C) Blood agar hemolysis test

Q. 3rd disease
a) Measles (Rubeola)
b) Scacrlet fever
c) 3 day measles (rubella)
d) Sandfly fever
c) 3 day measles (rubella)

Q. 7 year itch
a) Pertussis
b) Tetanus
c) Scabies
d) Candida albicans
c) Scabies

Q. 100 day cough
a) Pertussis
b) Tetanus
c) Scabies
d) Candida albicans
a) Pertussis

Q. Which is also called slim disease or white disease
a) Tetanus
b) Mumps
c) HIV
d) Dengue
c) HIV

Q. Which is wheel shape virus
a) Rota virus
b) Pox virus
c) Adenovirus
d) All of above
a) Rota virus

Q. Which is brick shape virus
a) Rota virus
b) Pox virus
c) Adenovirus
d) All of above
b) Pox virus

Hypersensitivity reactions

	Type I	Type II	Type III	Type IV
	Immediate hypersensitivity	Antibody mediated	Immune complex mediated	Delayed Hypersensitivity
Mediator	IgE, Histamine	IgM & IgG	IgM, IgG & leukocyte	T cell & macrophages
	Edema Vasodilation Allergries Hey fever, hives	Autoimmune hemolytic anemia Erythroblastosis fetalis Graft rejection	Arthus reaction SLE	Tuberculin test Chronic graft rejection Contact dermatitis

Q. What type of hemolysis is associated with Streptococcus pneumoniae?
1. A) Alpha hemolysis
2. B) Beta hemolysis
3. C) Gamma hemolysis
4. D) Delta hemolysis

Answer: A) Alpha hemolysis

Q. Causative agent for duodenal ulcer is
a) Shigella
b) E.coli
c) H. pylori
d) Lactobacillus

Q. What is the tested in RT – PCR for covid – 19
a) DNA
b) RNA
c) MPO
d) Cytosolic protein

Q. Which antibody seen in recent infections
a) IgM
b) IgG
c) IgE
d) IgD

Q. nurse working in ICU is complaining for **" loss of smell"** next best test to go for
a) Nasopharyngeal swab for RT - PCR
b) Rapid antigen test
c) IgM antibody to SARS – Cov 2
d) CXR

Q. A bacterium can sustain 80 degree centigrade is classified as
a) Thermophilic
b) Mesophilic
c) Cycrophilic
d) Halophilic

Q. NIH swab is used for
a) Pin worm
b) Whip worm
c) Round worm
d) Schistosomiasis

Q. Transfer of DNA in bacteria is called
a) Conjugation
b) Transduction
c) Transformation
d) Translation

Q. Sporulation occurs in which phase of bacterial growth curve
a) Stationary phase
b) Lag phase
c) Log phase
d) Decline phase

Q. glutaraldehyde is used for all except
a) Bronchoscope
b) Thermometer
c) Proctoscope
d) Endoscopic tube

Phenol / alcohol is used for thermometer

Q. Which is most potent disinfectant
a) 70% alcohol
b) Glutaraldehyde
c) Povidone iodine
d) Sodium hypochloride

Q. Cold sterilization is done by
a) Steam
b) Ionizing radiation
c) Infra red

d) UV

Q. Most important drawback of tuberculin test
a) False negative cases
b) Cant differentiate b/w latent & active TB
c) Does not differentiate b/w primary & miliary TB
d) Cant screen the latent TB

Q. Mesophilic microorganism grow at which temp
a) – 20 to 7 degree C
b) 10 to 20 degree C
c) 25 to 40 degree C
d) 55 to 80 degree C

Q. Yellow bag is destroyed by
a) Incineration
b) Autoclave
c) Hot air oven
d) Steam sterilization

Q. Incineration is done for
a) Human body parts
b) Syringe
c) Body fluids
d) Gloves

Q. gram stain is a
a) Simple stain
b) Differential stain
c) Negative stain
d) None
Gram positive – appear blue
Negative – pink/red

Q. method of choice for sterilization of liquid paraffin
a) Flaming
b) Moist heat
c) Autoclave
d) Hot air oven

Q. What is the following culture medium is made by adding Agar
a) Solid medium
b) Liquid medium
c) Selective medium
d) Transport medium

Q. Paul bunnel test is used to diagnosis of
a) Chicken pox
b) Yellow fever
c) Genital herpes
d) Mononucleosis
EBV infection, k/as glandular fever

Q. Widal test is performed when in typhoid patients
a) 1st week
b) 2nd week
c) 3rd week
d) 4th week

Q. most common cause of cold / coryza is
a) Influenza virus
b) Adenovirus
c) RSV
d) Rhinovirus

Q. Definitive host of ascariasis is
a) Dog
b) Man
c) Pig
d) Monkey

Q. IgM is
a) Monomer
b) Dimer
c) Pentamer
d) Tetramer

Q. most common site of angioedema
a) Hands
b) Lips
c) Skin
d) Eyelid

Q. immunoglobulin found in bronchial secretions
a) IgA
b) IgG
c) IgM
d) IgE

Q. Most bacteria grow at which pH
a) 1.5
b) 3.5

c) 6.5
d) 7.4

Q. m/c/c of diarrhea in children
a) CMV
b) Rota virus
c) Rhino virus
d) EBV

Q. Which is bullet shape virus
a) Variola
b) Rabies
c) Adeno
d) Picorna

Q. Seasonal influenza is caused by
a) H1N1
b) H5N1
c) H3N2
d) All

Q. Bird flue / avian influenza caused by
a) H1N1
b) H5N1
c) H3N2
d) All

Q. Swine flue caused by
a) H1N1
b) H5N1
c) H3N2
d) All

Q. m/c parasitic cause of death in India
a) Ascariasis
b) Malaria
c) w. bancrofti
d) None

Research And Administration

Q. 1 to answer the question **by scientific approach** and **data collection** is termed as –
(A) Problem solving
(B) Research
(C) Decision making
(D) Target study

Q2. "**statement of research problem"** should have all **except**
(A) Variable
(B) Research design
(C) Hypothesis
(D) Population

Q3. What is the "**purpose" of nursing research**, Except
(A) To Provide evidence-based care
(B) To increase the knowledge
(C) To find out new facts
(D) To revise all the work previously done

Q4. the "**importance" of nursing research** is to provide
(A) Quality nursing care
(B) Comprehensive nursing care
(C) Evidence based nursing care
(D) Individualized nursing care

Q5 A statement of the expected "**relationship**" between two or more **variables** is known as
(A) Concept definition
(B) Hypothesis
(C) Problem statement
(D) Research question

- ***Null Hypothesis (H0):***
- **Ask from students**
- There is no significant difference in the levels of anxiety between nurses who participate in a mindfulness-based stress reduction program and those who do not
- ***Alternative Hypothesis (H1):*** Nurses who participate in a mindfulness-based stress reduction program will have significantly lower levels of anxiety compared to those who do not participate.

Q. Identify the type of hypothesis in given example
Example:
Nurses who participate in a mindfulness-based stress reduction program will have significantly lower levels of anxiety compared to those who do not participate.
a) Null hypothesis
b) Alternative hypothesis
c) Both
d) None

Q6. The **plan of research study** in known as -
(A) Research sampling
(B) Research design
(C) Hypothesis
(D) Research Methodology

Descriptive Research Design:
Purpose: To describe characteristics of a specific population, phenomenon, or condition.
Examples: Surveys, case studies, and observational studies.

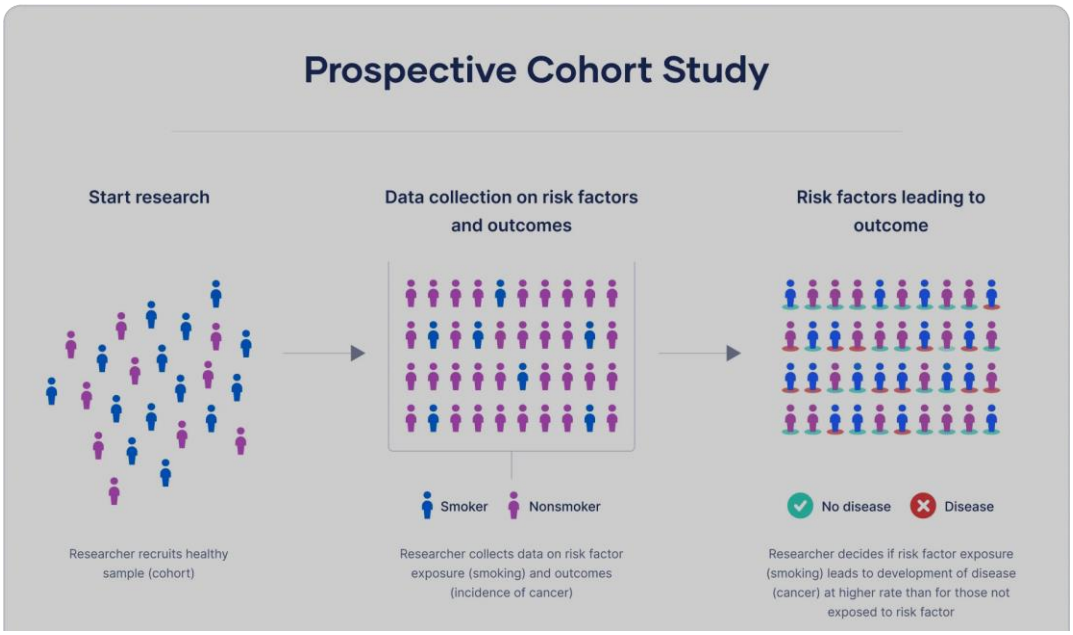
Correlational Research Design:
Purpose: To examine relationships between variables without manipulating them.
Examples: Examining the relationship between sleep quality and job performance in nurses.

Experimental Research Design:
Purpose: To test a hypothesis by manipulating one or more independent variables while controlling other variables.
Examples: **Randomized controlled** trials (RCTs) to test the effectiveness of an intervention.

Quasi-Experimental Research Design:
Purpose: Similar to experimental design but **without random** assignment to groups.
Examples: Comparing outcomes of different nursing shifts in a hospital without randomization.

Cross-Sectional Research Design:
Purpose: To collect data at **one point in time** from **different groups** of people.
Examples: A survey assessing the health status of various age groups in a community.

Longitudinal Research Design:
Purpose: To collect data over a period of time to observe changes and developments.
Examples: A study following a cohort of nurses over several years to assess changes in job satisfaction.



Q. what is the **term used for study** of any factor, characteristics, quality or attribute under study.
(A) Sample
(B) Population
(C) Variable
(D) Hypothesis

Q. **Process of selecting a portion** of the population in a research study is referred as -
(A) Sampling
(B) Sampling bias
(C) Sampling error
(D) Sampling design

Q. The **information collected** from participants in the research study is called
(A) Research variables
(B) Research Hypothesis
(C) Research data
(D) Research methodology

Q. All of the following are used in **review of literature** except
(A) Locating resources
(B) Reading notes
(C) Statement of research topic
(D) Using library

Q. Which of the following is **not true** about the **characteristics of good research?**
(A) Orderly and systemic process
(B) Conducted using large amount of funds
(C) Finding solution of problem
(D) Begin with clearly defined purposes

Q. The most objective **means of obtaining nursing knowledge** is through
(A) Trial and error
(B) Tradition
(C) Scientific research
(D) Authority

Q. The "**basic research**" is conducted with which of the following as the aim?
(A) To make a decision
(B) To develop knowledge for immediate use
(C) To develop or refine theories and principles
(D) To provide a solution for a new problem

Q. Which of the following is **not the element** of an **informed consent?**
(A) Purpose of study
(B) Subject selection process
(C) Offer answer only for selected questions

(D) Alternative procedures, if any, are disclosed

Q. When conducting a **literature review**, it is advised to
(A) Collect most of the information from internet
(B) Gather literature from books
(C) Gather literature from journals
(D) Seek assistance from librarian

Q. What is **research design**
(A) Choice between qualitative and quantitative methods
(B) a framework for every stage of collection and analysis of data
(C) a technique for drawing a presentation on paper
(D) a graph

Q. The **process of selecting a subject for survey** is known as
(A) Research
(B) Survey research
(C) Sampling
(D) Research design

Q. **Facts generally accepted as true, even they are not scientifically proved** are known as -
(A) Assumptions
(B) Hypothesis
(C) Delimitations
(D) Statistics

- In nursing research, assumptions are statements that researchers accept as true without testing them

1. Theoretical Assumptions:

Researchers often use a theoretical framework to guide their study. They assume that the theory accurately represents the relationship between the variables being studied.

1. Methodological Assumptions:

These assumptions pertain to the research methods and data collection techniques used in the study. For example, researchers may assume that a particular measurement tool is valid and reliable for the population being studied.

Q. The **basic research** is conducted with which of the following as the aim?
(A) To make a decision
(B) To develop knowledge for immediate use
(C) To develop or refine theories and principles
(D) To provide a solution for new problems

Q. **Quantitative research** is a process to:
(A) Evaluate theories and hypothesis
(B) Develop theories and hypothesis
(C) Describe social phenomenon
(D) Obtain experiences, Feelings, and beliefs

Q. Which of the following is a **measure for central tendency**?
(A) Mean
(B) Median
(C) Range
(D) Mode

The mean, also known as the **average,** is a measure of central tendency that represents the arithmetic average of a set of values

$$\text{Ages} = [30, 45, 52, 39, 47, 33, 28]$$

To calculate the mean age:

1. **Sum all the ages:** Add up all the values in the data set.

$$\text{Sum} = 30 + 45 + 52 + 39 + 47 + 33 + 28 = 274$$

$$\text{Mean} = \frac{\text{Sum}}{\text{Number of values}} = \frac{274}{7} = 39.14$$

Q. What is the **median** of the following set of scores 18, 6, 12, 10, 14
(A) 10
(B) 14
(C) 18
(D) 12

Medium – centere most value
= n+1/2 = 5+1/2 = 6/2 = 3rd value = 12

Q. Which of the following is **not a measure of variability**?
(A) Median
(B) Variance
(C) Standard deviation
(D) Range

1. **Arrange the data in ascending order**: Sort the values from lowest to highest.
Sorted blood pressures=[115,120,125,130,135,140,150]
Sorted blood pressures=[115,120,125,130,135,140,150]

2. **Find the middle value**: Since there are 7 values in the data set, the middle value is the 4th value (because $\frac{7+1}{2} = 4$).

$$\text{Median} = 130$$

$[120, 130, 115, 140, 150, 135]$, then the sorted data would be $[115, 120, 130, 135, 140, 150]$. The two middle values are 130 and 135, so the median would be:

$$\text{Median} = \frac{130+135}{2} = 132.5$$

Q. If data have significant variability, which of the following **measures of central tendency is most appropriate** to be considered?
A. **The mean**
B. The median
C. The mode
D. The range

Q. When distribution of data in **not known** or cannot be considered as normal distribution, then which of the following inferential test of significance is **considered to compare the difference between set of data?**
A. T-test
B. **Chi-square test**
C. ANOVA
D. Z-test

- **T-test**: This test assumes the **data is normally distributed** and the variances are equal (in the case of a two-sample t-test). It compares the means of **two groups**.
- **Chi-square test**: This test is a **nonparametric test** used for categorical data to test the independence of two variables or to assess how well observed data matches an expected distribution.
- **ANOVA**: This test assumes the data is **normally distributed** and the variances are equal across groups. It compares the means of **three or more groups**.
- **Z-test**: This test also assumes a normal distribution and is typically used **when the sample size is large.** It compares the means **of two groups.**

Q. Which of the following is not one of the seven major parts to the research report?
A. Results
B. Abstract
C. Method
D. **Footnotes**

Q. It is in this section that you fully interpret and evaluate your result:
(A) Introduction
(B) Method
(C) Results
(D) Discussion

Q. Ideally the abstract should be about how many words?
(A) 50-75
(B) 75-100
(C) 150-175
(D) 250-300

Q. The most frequently occurring number in a set of values is called the _____.
A. Mean
B. Median
C. **Mode**
D. Range

Q. Which of the following is the formula for range?
A. H + L
B. L × H
C. L – H

D. **H – L**

difference between the highest and lowest values in a data set.
Range=Maximum Value−Minimum Value
Where:

- **Maximum Value** is the highest value in the data set.
- **Minimum Value** is the lowest value in the data set.

For example, if you have a data set with values [10, 20, 30, 40, 50], the range would be calculated as:
Range=50−10=40
So, the range of the data set is 40.

Q. Which of the following is an example of nominal data? (one correct choice)
A. Number of people on a course
B. Cancer staging scale
C. **Types of employment among rural dwellers**
D. Heart rate

Q. Correlation is a procedure used to determine if
E.
(A) X comes before Y
(B) X causes Y
(C) X and Y vary together
(D) X and Y vary together

Correlation is a **statistical measure** that describes the **strength** and **direction** of a relationship between two variables (X and Y).
When two variables are correlated, changes in one variable are associated with changes in the other variable.

Q. Which of the following is a nonparametric test?
A. ANOVA
B. Student's t-test
C. **Chi-squared test**
D. Z-test

Q. Which of the following stands true for the full form of SPSS?
A. Statistical package for social system
B. **Statistical package for social science**
C. Statistical package for statistical science
D. Statistical package for statistical system

Statistical Package for the Social Sciences (SPSS) is a widely used software for statistical analysis in various fields, including nursing research

PEDIGREE ANALYSIS

Q. Which type of inheritance is often indicated in a pedigree when males and females are equally affected and the disorder appears in every generation?
A. X-linked recessive
B. X-linked dominant
C. Autosomal recessive
D. Autosomal dominant
Answer: D. Autosomal dominant

Q. In a pedigree, a circle typically represents:
A. A male individual
B. A female individual
C. An affected individual
D. An unaffected individual
Answer: B. A female individual

Q. If two unaffected parents have an affected child, which pattern of inheritance is **most likely?**
A. Autosomal dominant
B. X-linked dominant
C. Autosomal recessive
D. X-linked recessive
Answer: C. Autosomal recessive

Q. Which inheritance pattern is characterized by more males being affected than females in a pedigree, and the trait may **skip generations?**
A. Autosomal dominant
B. Autosomal recessive
C. X-linked dominant
D. X-linked recessive
Answer: D. X-linked recessive

Q. In a pedigree, how is an affected individual typically denoted?
A. A shaded square or circle
B. A line through a square or circle
C. A triangle
D. An open square or circle
Answer: A. A shaded square or circle

Q. Which type of inheritance pattern is consistent with a trait that is expressed only in males and never in females?
A. Autosomal dominant
B. Autosomal recessive
C. X-linked dominant
D. Y-linked
Answer: D. Y-linked

Q. What is the relationship between two individuals who are **first cousins?**
A. They share 25% of their genes
B. They share 12.5% of their genes
C. They share 50% of their genes
D. They share 6.25% of their genes
Answer: B. They share 12.5% of their genes

Q. A horizontal line in a pedigree connecting a square and a circle represents:
A. Siblings
B. Marriage or mating
C. Parent and child relationship
D. Cousins
Answer: B. Marriage or mating

Q. In an X-linked dominant inheritance pattern, which statement is true?
A. All sons of an affected male are affected
B. All daughters of an affected male are unaffected
C. Affected females pass the disorder to all their children
D. Affected males pass the disorder to all their daughters and none of their sons
Answer: D. Affected males pass the disorder to all their daughters and none of their sons

Q. In a pedigree, a double line connecting a square and a circle represents:
A. Marriage or mating
B. A consanguineous (related) marriage or mating
C. Siblings
D. Unrelated individuals
Answer: B. A consanguineous (related) marriage or mating

BRADEN SCALE POTTER

To avoid pressure injury for an immobilized patient at home, a nurse recommends a surface to use on the bed. A surface type that is low cost and easy to use in the home is :
(A) foam overlay.
(B) water mattress.
(C) air fluidized bed.
(D) low-air-loss surface.
Rationale: A

For a patient in the extended care facility who has a risk for pressure injuries, a nurse will implement:
(A) massage of reddened skin areas.
(B) movement of the patient in the chair every 3 hours.
(C) maintenance of a position while in bed at 30 degrees or lower.
(D) placement of plastic absorptive pads directly beneath the patient.

Rationale: C

A patient has experienced a traumatic injury that will require applications of heat. The nurse implements the treatment based on the principle that:
(A) patient response is best to minor temperature adjustments.
(B) the foot and the palm of the hand are the most sensitive to temperature.
(C) long exposures help the patient develop tolerance to the procedure.
(D) patients are more tolerant to temperature changes over a large body surface area
Rationale: A

A severely overweight patient has returned to the unit after having major abdominal surgery. When the nurse enters the room, it is evident that the patient has moved or coughed and the wound has eviscerated. The nurse should immediately:
(A) assess vital signs.
(B) contact the physician.
(C) apply light pressure on the exposed organs.
(D) place sterile towels soaked in saline over the area.
Rationale: D

A patient with a knife protruding from his upper leg is taken into the emergency department. A nurse is waiting for the physician to arrive when a newly hired nurse comes to assist. The nurse delegates the new staff nurse to do all of the following as soon as possible except:
(A) assess vital signs.
(B) remove the knife to cleanse the wound.
(C) wrap a bandage around the knife and injured site.
(D) apply pressure to the surrounding area to stop bleeding.
Rationale: B

A nurse is assessing a patient's superficial wound and notices that it has very minimal tissue loss and drainage. There are a number of dressings that may be used according to the protocol on the unit. The nurse selects:
(A) gauze
(B) alginate.
(C) transparent film.
(D) negative pressure wound therapy.
Rationale: C

A nurse is completing an assessment of the patient's skin integrity and identifies that an area is a full thickness loss of skin with adipose tissue, slough and eschar visible. The nurse identifies this stage of pressure injury as:
(A) stage 1.
(B) stage 2.
(C) stage 3.
(D) stage 4.
Rationale: C

A patient has a large wound to the sacral area that requires irrigation. The nurse explains to the patient that irrigation will be performed to:
(A) decrease scar formation.
(B) decrease wound drainage.

(C) improve circulation in the wound.
(D) remove debris from the wound.
Rationale: D

A nurse is working with an older adult patient in an extended care facility. While turning the patient, the nurse notices that there is a reddened area on the patient's coccyx. The nurse implements skin care that includes:
(A) soaking the area with normal saline and baking soda.
(B) using a mild cleansing agent, drying, and applying a protective moisturizer.
(C) washing the area with an astringent and painting it with povidone-iodine solution.
(D) applying a dilute solution of hydrogen peroxide and water and using a heat lamp to dry the area.
Rationale: B

A patient has a wound to the left lower extremity that has minimal exudates, and granulation tissue and collagen formation. The nurse identifies the healing phase of this wound as:
(A) primary intention.
(B) proliferative phase.
(C) secondary intention.
(D) inflammatory phase.
Rationale: B

After neurosurgery, a nurse assesses the patient's bandage and finds that there is fresh bleeding coming from the operative site. The nurse describes this drainage to the surgeon as:
(A) serous.
(B) purulent.
(C) sanguineous.
(D) serosanguineous.
Rationale: C

A patient has a surgical wound on the right upper aspect of the chest that requires cleansing. The nurse implements appropriate aseptic technique by:
(A) opening the cleansing solution with sterile gloves.
(B) moving from the outer region of the wound to-ward the center.
(C) cleaning the wound twice and discarding the swab.
(D) starting at the drainage site and moving outward with circular motions.
Rationale: D

A nurse is working in a physician's office and is asked by one of the patients when heat or cold should be applied. In providing an example, the nurse identifies that cold therapy should be applied for the patient with:
(A) a newly fractured ankle.
(B) menstrual cramping.
(C) an infected wound.
(D) degenerative joint disease.
Rationale: A

A patient will require the application of a binder to provide support to the abdomen. When applying the binder, the nurse uses the principle that the:
(A) binder should be kept loose for patient comfort.
(B) patient should be sitting or standing when it is applied.
(C) patient must maintain adequate ventilatory capacity.
(D) binder replaces the need for underlying bandages or dressings.
Rationale: C

A nurse is aware that malnutrition places a patient at a greater risk for tissue damage. The patient with the greatest risk is the individual who:
(A) experienced a 7% weight loss in the last month.
(B) is between 45–60 years of age.
(C) has an albumin level of 5 g/100 mL.
(D) has a transferrin level of 120 mg/dL.
Rationale: A

The agent that is most effective and safest for cleaning a granular wound is:
(A) acetic acid.
(B) normal saline.
(C) povidone-iodine.
(D) hydrogen peroxide.
Rationale: B

A nurse is working with a patient who has a stage 3, clean pressure injury with significant exudate. The nurse anticipates that which of the following dressings will be used?
(A) Adherent film dressing
(B) Transparent dressing
(C) Calcium alginate dressing
(D) Dry gauze dressing
Rationale: C

For a patient's optimal nutritional intake that will promote formation of new blood vessels and collagen synthesis, the nurse plans to teach the patient to include a sufficient intake of:
(A) fats.
(B) proteins.
(C) carbohydrates.
(D) fat-soluble vitamins.
Rationale: B

The nurse notices that the skin surrounding a wound appears macerated. The nurse should:
(A) obtain a wound culture.
(B) monitor lab results.
(C) turn the patient more frequently.
(D) select a different dressing.
Rationale: D

Localized collection of blood under the tissues – hematoma
- Separation of wound layers with protrusion of visceral organs – Evisceration
- Superficial loss of dermis – abrasion
- Pressure exerted against the skin when the patient is moved – shearing force
- Hardening of tissue due to edema or inflammation – Induration
- Removal of devitalized tissue – Debridement
- Torn, jagged damage to dermis and epidermis – laceration
- Separation of skin and tissue layers – dehiscence

- Red, moist tissue consisting of blood vessels and connective tissue - Granulation tissue
- External contributing factors for pressure ulcer - Shear, friction, moisture
- Internal factors - poor nutrition, cachexia, infection, impaired circulation, obesity, and advanced age

1. Patients in what age groups are at the highest risk for pressure injuries and sensitivity to heat and cold applications?

Rationale:

14. Infants, young children, and older adults are most susceptible to sensitivity to heat and cold therapy

1. The major change in an older adult's skin that contributes to pressure ulcer development is:

Rationale:

15. Dryness and the loss of dermal thickness of the older adult's skin makes it less tolerant to pressure, friction, and shearing forces. In addition, impairment of blood circulation and oxygen can be factors

1. Identify the following related to wound healing.

(A) A clean surgical wound with little tissue loss heals by:

(B) A severe laceration or chronic wound heals by:

Rationale:

16. a. Primary intention
    b. Secondary intention

(A) Wounds that are kept moist for several days heal faster than those that are kept dry.
True _____ False _____

(B) Specimens for wound cultures should be taken from wound areas with clean, healthy skin.
True _____ False _____

(C) The Centers for Medicare and Medicaid Services (CMS) do not reimburse an acute care facility if a patient with intact skin develops a stage 3–4 pressure injury while hospitalized.
True _____ False _____

a. True
b. True
c. True

(D) For incontinent patients, under pads and diapers with a plastic outer lining are the best supplies.
True _____ False _____

(E) The usual wound care in the home environment is performed by the patient or family using sterile technique.
True _____ False _____

(F) Povidone-iodine (e.g., Betadine), hydrogen peroxide, and acetic acid should not be used to irrigate a clean, granular wound.
True _____ False _____

(G) High pressure over a short time and low pressure over a long time cause skin breakdown.
True _____ False _____

d. False
e. False
f. True
g. True

(A) Separation of the layers of the skin with serosanguineous drainage noted - Dehiscence

(B) Bluish swelling or mass at the site - Hematoma/bleeding
(C) Fever, general malaise, and increased white blood cell (WBC) count - Infection
(D) Green, odorous local drainage - Infection
(E) Decreased blood pressure, increased pulse rate, increased respirations - Bleeding/shock
(F) Visceral organs protruding through abdominal wall - Evisceration
(G) Wound edges swollen, painful, with redness extending from the edges outward - Infection

- Clear, watery plasma – Serous
- Fresh bleeding – Sanguineous
- Pale, more watery, with plasma and red blood cells – Serosanguineous
- Thick, yellow, green, or brown with organisms and white blood - Purulent

Pressure reduction:

- Use turn sheets, trapeze bars, and lift equipment to help with mobility.
- Maintain the elevation of the head of the bed to 30 degrees or less for the supine position to prevent shear and subsequent tissue injury.
- Reposition and turn regularly and frequently

1. Arrange the steps for obtaining a wound culture in correct order.
   (A) When tip is saturated, insert into appropriate sterile container. _____
   (B) Complete lab slip providing clinical data which includes wound site, time collected and prior antibiotics. _____
   (C) Moisten swab with normal saline. _____
   (D) While applying pressure, rotate applicator within 1–2 cm^2 of clean wound tissue (try to draw out tissue fluid). _____
   (E) Clean wound surface 1 cm^2 with an antiseptic solution. _____
   To obtain an aerobic wound culture, the steps are e, c, d, a, and b

1. Identify how the nurse determines whether a wound is healing.

Rationale:

25. The nurse determines wound healing by measuring the wound diameter and depth, assessing the wound tissue, checking the periwound skin condition, and observing for exudate.

1. A patient who is sitting out of bed in a chair and requires assistance to move around should be limited to _____ hours sitting and should be repositioned every _____ hour(s).

Rationale:

26. A patient who is out of bed in a chair should be limited to 2 hours sitting and repositioned at least every 1 hour.

1. **For use of a negative pressure wound therapy system:**
   (A) The purpose of the therapy is to:
   (B) The tube is attached to suction that is usually set at:
   (C) The dressing that is used for this system is:
   (D) What should be done if the patient verbalizes an increase in discomfort with this treatment?
   (E) How often should the system be changed?

Rationale:

29. For a negative pressure wound therapy system:
    a. The purpose is to remove excess fluid, stimulate granulation tissue growth, and reduce wound bacteria.
    b. Continuous therapy delivered at 125 mm Hg is most routinely used, lower levels of pressure (75–80 mm Hg) can be used to reduce pain.
    c. The dressing that is used is either black or white foam that is cut to fit the wound.
    The transparent dressing should cover the wound, extend 3–5 cm beyond the wound edges, provide an occlusive seal, and be free of wrinkles.
    d. If there is an increase in discomfort, provide more analgesia (as indicated), instill normal saline to moisten foam, switch to white foam, decrease pressure setting, change from intermittent to continuous cycling, or change the type of system.
    e. The system should be changed every 48 hours.

1. For wound irrigation, identify the following that are considered as safe guidelines.

(A) Patient positioning
(B) Syringe size
(C) Angiocath gauge
(D) psi
(E) The syringe should be held how far above the wound?
(F) During an irrigation, the nurse notes sanguineous return. The nurse should:
(G) It is noted that there is retained debris in the wound. The nurse should:
(H) How do you irrigate a deep wound with a very small opening?

Rationale:

30. For wound irrigation:
    a. Position patient so wound is vertical to collection basin. Position comfortably to allow gravitational flow of solution over wound and into collection basin. Irrigant should be room temperature
    b. Syringe size: 35 mL
    c. Angiocath size: 19 gauge
    d. psi: between 4 and 15
    e. The syringe is held 1 inch (2.5 cm) above the wound.
    f. Reduce the irrigating pressure and notify the health care provider.
    g. Use more fluid or pressure.
    h. Attach a soft catheter to irrigation syringe. Insert tip of catheter into the opening about 1.3 cm (0.5 inch).

1. Which of the following are correct nursing interventions for elastic bandages? Select all that apply.

(A) Placing the body part to be bandaged in anatomical position _____
(B) Applying a bandage to an extremity from proximal to distal _____
(C) Positioning pins or knots toward the wound _____
(D) Overlapping turns by one-half to two-thirds the width of the bandage _____
(E) Assessing circulation once daily _____

Rationale:

32. The correct nursing interventions are statements are: a and d.

1. **Specify whether the following effects are a result of heat (H) therapy, cold (C) therapy or both.**
   (A) Vasoconstriction ____
   (B) Decreased blood viscosity ____
   (C) Increased tissue metabolism ____
   (D) Decreased muscle tension ____
   (E) Increased capillary permeability ____
   Rationale:
   34. a. Cold
   b. Heat
   c. Heat
   d. Heat and Cold
   e. Heat

(A) Provide an instance in which the application of heat is contraindicated.
(B) Provide an instance in which the application of cold is contraindicated.
Rationale:
35.
a. Application of heat is contraindicated in the presence of active bleeding or acute inflammation, and for patients with cardiovascular disease.
b. Application of cold is contraindicated in the presence of edema at the site, decreased circulation, and shivering.

1. **The usual duration of time for the application of heat or cold is:**
   Rationale:
   36. Heat and cold are usually applied for about 20–30 minutes

1. **Which of the following are correct for the application of heat or cold? Select all that apply.**
   (A) Providing a timer or clock so the patient may help time the application ____
   (B) Allowing the patient to adjust the temperature setting ____
   (C) Placing the patient in a position that prevents movement away from the temperature source ____
   (D) Maintaining the temperature as hot or as cold as the patient is able to stand ____
   (E) Applying a heating pad or cold pack directly to the skin ____
   (F) Adding hotter solution to a soak to maintain temperature while the patient remains immersed ____
   (G) Keeping the rest of the patient draped or covered while receiving treatment ____
   Rationale:
   37. The correct interventions for application of heat and cold are: a and g.

1. **Using the Braden Scale, what is this patient's risk for pressure injury?**

		Score
Sensory	Very limited	____
Moisture	Occasionally	____
Activity	Chairfast	____
Mobility	Very limited	____
Nutrition	Probably inadequate	____
Friction/Shear	Potential problem	____
	Total score	____
	Patient risk	____

Rationale:
38. Total Score 5 13 points
Patient Risk 5 "moderate risk" status

1. Which of the following are correct for application of a moist dressing? Select all that apply.

(A) Wringing out excess moisture from the dressing _____
(B) Pouring the solution directly onto the dressing in the wound _____
(C) Loosely packing sinus tracks or dead spaces in the wound _____
(D) Avoiding the use of secondary dressings _____
(E) Using Montgomery ties or straps perpendicular to the wound _____

Rationale:

39. The correct actions for a moist dressing are: a, c, and e.

(A) Nonblanchable hyperemia is:
(B) This assessment signifies:
(C) When nonblanchable hyperemia is assessed, the stage is reversible if pressure is relieved.
True _____ False _____

Rationale:

40. a. Nonblanchable hyperemia is redness that persists after palpation and indicates tissue damage.
b. This signifies that deep tissue damage is present andis commonly the first stage of pressure ulcer development.
c. True: Damage can be reversed with the removal of pressure and protection of the tissue.

1. Which of the following are correct actions for a postoperative dressing? Select all that apply.

(A) Routinely changing the dressing soon after the procedure _____
(B) Reinforcing saturated dressings _____
(C) Providing the patient with an analgesic 30 minutes before the dressing change _____
(D) Expecting inflammation of the wound edges for at least a week after the surgery _____
(E) Noting the amount, color, consistency, and odor of wound drainage _____

Rationale:

41. For a postoperative dressing, the correct actions are: b, c, and e.

1. Topical skin care for a patient should include: Select all that apply.

(A) Massaging reddened areas _____
(B) Examining the skin at least daily _____
(C) Using a mild cleansing agent _____
(D) Keeping the head of the bed at greater than a 30-degree angle _____
(E) Applying a moisture barrier product _____
(F) Repositioning the patient in the chair every 3 hours _____

Rationale:

43. Topical skin care should include: b, c, and e.

1. How are enzyme agents used?

Rationale:

44. Enzymes debride dead (necrotic) tissue to clean wound surface. Enzymes are not applied to healthy tissue.

1. Match the following wounds with the type of dressing that is most appropriate.

Wounds	***Dressings***
(A) Maintains moist environment to facilitate wound healing while protecting wound base. _____	1. Gauze
(B) Delivers moisture to a wound and is absorptive. _____	2. Transparent film
(C) Maintains a moist environment and offers intact skin protection. _____	3. Hydrocolloid

Rationale:

45. a. 3, hydrocolloid
    b. 1, gauze
    c. 2, transparent film

1. The correct way to remove old tape from the skin is to:

Rationale:

46. The correct way to remove old tape is to apply pressure against the skin away from the tape. It may be necessary to moisten the tape with normal saline if it is very sticky

1. How can the nurse reduce discomfort during dressing changes?

Rationale:

47. Discomfort may be reduced during dressing changes by administering analgesics 30 minutes before; allowing "time-outs" during painful procedures; planning dressing changes when a patient is feeling best; gently removing tape, bandages, and ties; soaking dried dressings before removal; avoiding aggressive packing; positioning and supporting the wound area; and using low adhesive or non-adhesive dressings.

1. Identify the correct techniques for the application of a sling. Select all that apply.
   (A) Have the patient sit or lie supine for application. _____
   (B) Ask the patient to bend the affected arm, bringing the forearm straight across the chest. _____
   (C) Position the base of the triangle under the wrist and the point of the triangle at the elbow. _____
   (D) Tie the ends at the back of the neck. _____
   (E) Make sure that the lower arm is supported at a level above the elbow. _____

Rationale:

48. A sling is correctly applied with: a, b, c and e.

1. The desired temperature for a cold soak is _____.

Rationale:

49. The desired temperature for a cold soak is 59°F or 15°C.

1. For sitz baths:
   (A) When are they usually used?
   (B) What safety measures are implemented?

Rationale:

50. a. Sitz baths are used for patients who had rectal surgery, an episiotomy during childbirth, painful hemorrhoids, or vaginal inflammation.
    b. Only the pelvic area is immersed in warm fluid to avoid vasodilation. Warm water is added carefully during the procedure, which usually lasts 20 minutes. Drape the patients shoulders and thighs, and make sure that the patient is able to sit comfortably and safely. Check that the patient is tolerating the procedure and is not experiencing nausea or lightheadedness.

1. The support system of choice for a patient with atelectasis and/or pneumonia is:

Rationale:

52. Kinetic therapy is the support system of choice for patients with these respiratory issues.

1. If there is a chance of splashing during wound care or irrigation, the nurse should use:

Rationale:

53. If there is a chance of splashing,PPE should be used, including goggles, mask, and gown.

IBQS hemato, Oncology

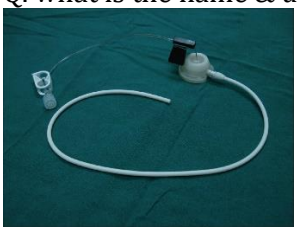
Q. The given image show methylene blue being injected in the peritoneum region. Which of the given procedure is being performed?

- SENTINENEL LYMPH NODE BIOPSY (SLN)
- Sentinel LN is first LN which receive lymph directly from tumor.

Q. Which of the following technique has been depicted in the given image?

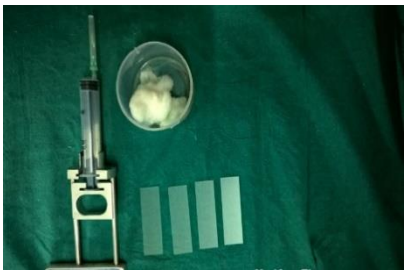
- Sentinenel Lymph Node Biopsy (Sln)

Q. what is the name & use of given Equipment?



- Chemo port : it is a totally implantable venous access device used to administer chemotherapy.
- Internal jugular veins & subclavian veins are the m/c sites for port placement?

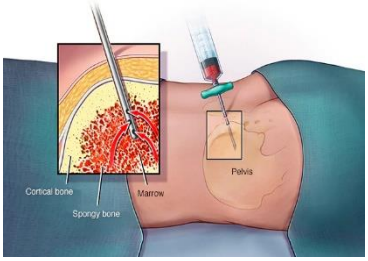
Q. what is the name of given instrument?



- **FNAC NEEDLE**

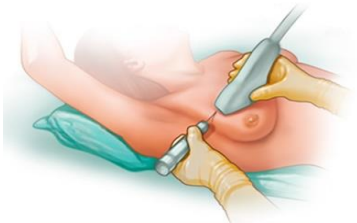
- **Breast MRI**
- During a breast MRI, you lie on your stomach on a padded scanning table. Your breasts fit into a hollow depression in the table

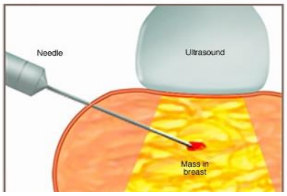
Q. Identify the given following procedure?



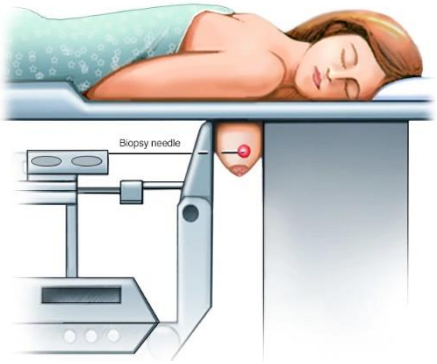
• Answer: Bone marrow aspiration and biopsy
• From back of your hipbone (pelvis).

In this procedure we are demonstrating Core needle biopsy
A core needle biopsy uses a long, hollow tube to extract a sample of tissue



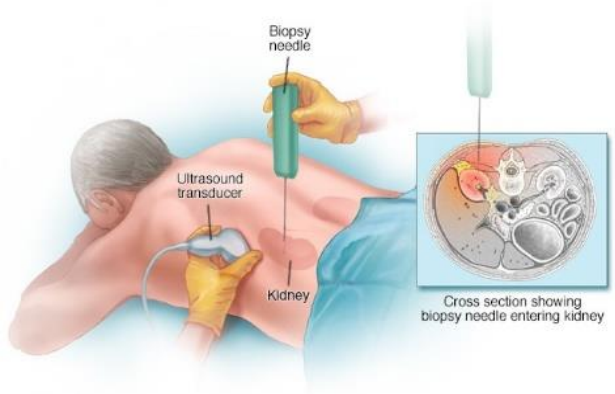


- **In this procedure we are demonstrating Core needle biopsy**
- A core needle biopsy uses a long, hollow tube to extract a sample of tissue



- **Stereotactic breast biopsy**
- During a stereotactic breast biopsy, your breast will be firmly compressed between two plates. X-rays (mammograms) are used to produce stereo images

Q. identify the given procedure?

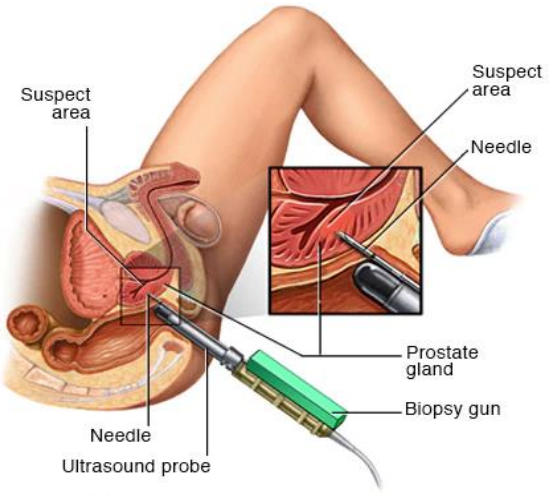


- **Kidney biopsy**
- During a kidney biopsy, your doctor uses a needle to remove a small sample of kidney tissue for lab testing

Q. identify the given procedure?

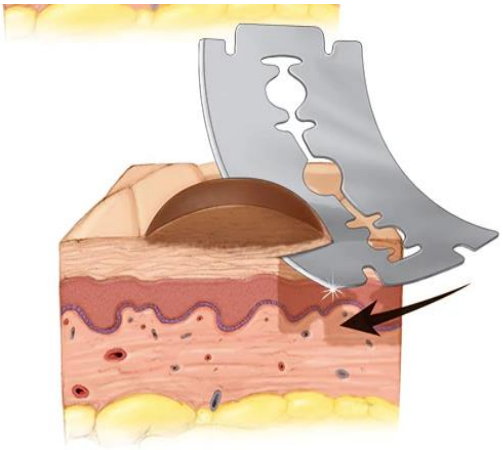
- **Liver biopsy**
- A liver biopsy is a procedure to remove a small sample of liver tissue for laboratory testing

Q. identify the given procedure?



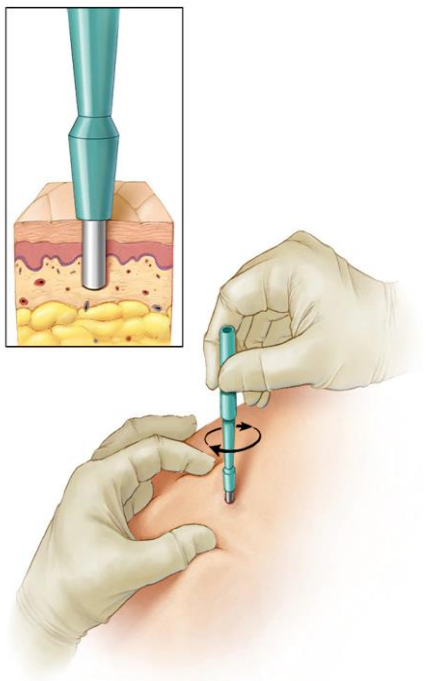
- **Trans rectal biopsy of the prostate**
- During a trans rectal biopsy, a biopsy gun quickly projects a thin needle into suspect areas of the prostate gland, and small sections of tissue are removed for analysis

Q. identify the given procedure?



Shave biopsy

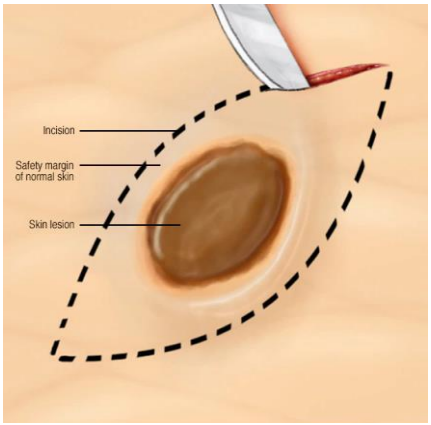
- During a shave biopsy, a doctor uses a tool similar to a razor to scrape the surface of the skin
- Stitches usually aren't necessary



Punch biopsy

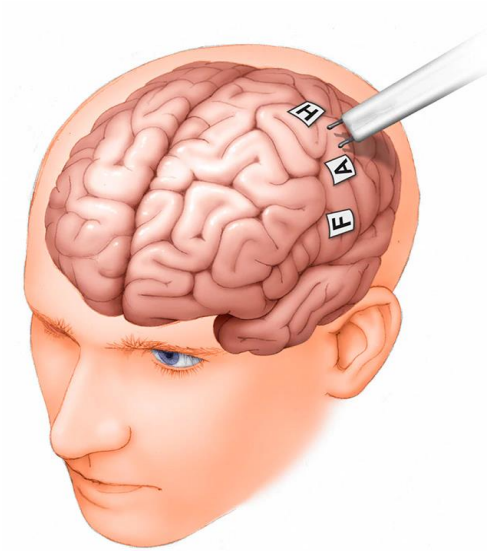
- During a punch biopsy, a doctor uses a special circular blade to remove deeper layers of skin for testing
- stitches may be necessary to close the wound

Q. identify the type of biopsy?



Excisional biopsy

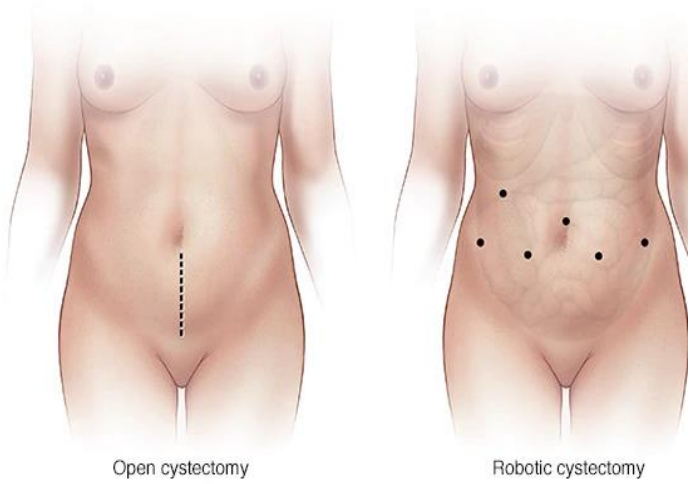
- During an excisional biopsy, the doctor removes an entire lump or an entire area of abnormal skin



Brain mapping

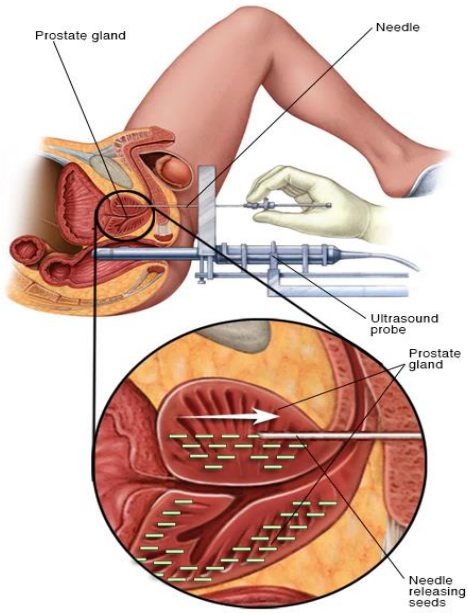
- During brain mapping, your doctor identifies the areas of your brain that control vision, speech and movement to determine the precise location to perform brain surgery without reducing your brain function

Q. identify the given incision line for which purpose?



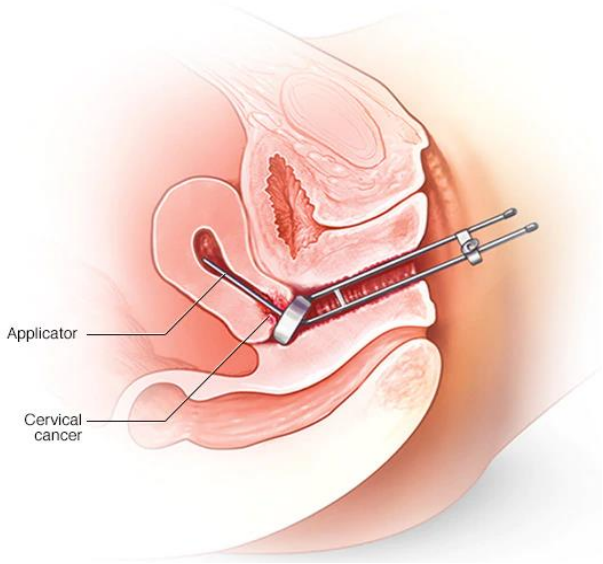
Cystectomy incision - to remove bladder

- During an open cystectomy (shown left), your surgeon makes a cut (incision) that runs from just below your bellybutton to just above your pubic bone



Permanent prostate brachytherapy

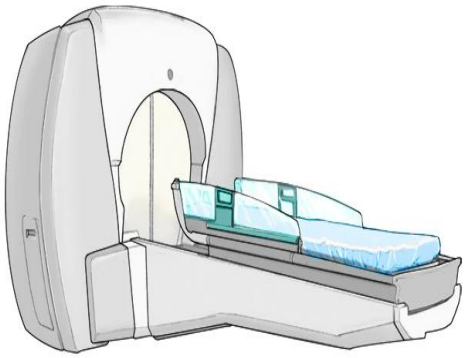
- Permanent prostate brachytherapy involves placing many radioactive seeds within the prostate to treat prostate cancer. During the procedure, an ultrasound probe is placed in the rectum to help guide the placement of seeds. The seeds emit radiation

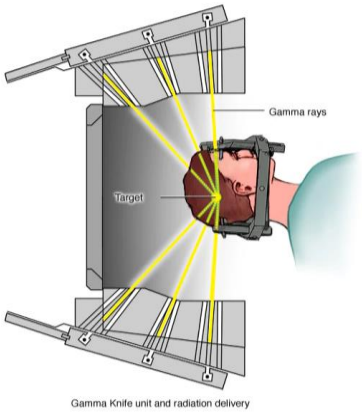


Intra cavity brachytherapy

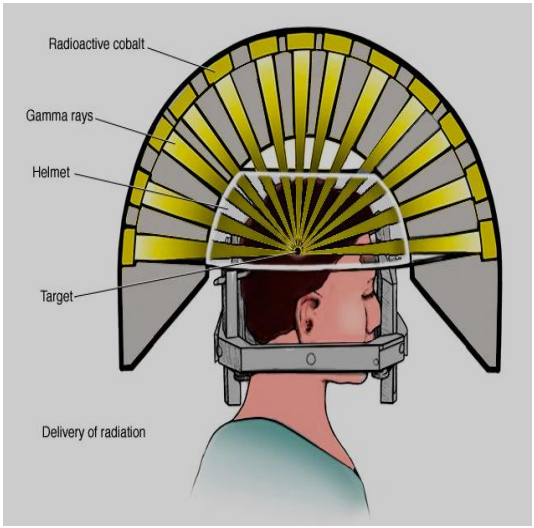
- During intra cavity brachytherapy, an applicator containing a radioactive substance is placed within the body, at or near the site where the tumor is located or was removed

Gamma Knife stereotactic radiosurgery

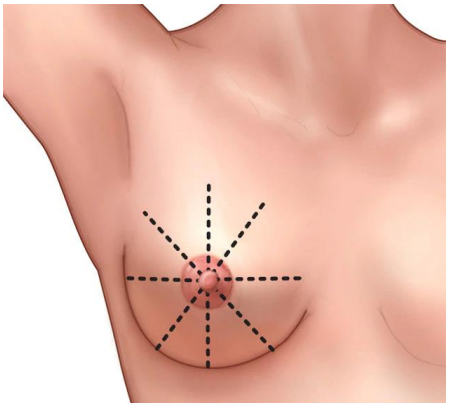




Gamma Knife delivery of radiation



Q. which procedure is demonstrating in given image



Breast self-exam

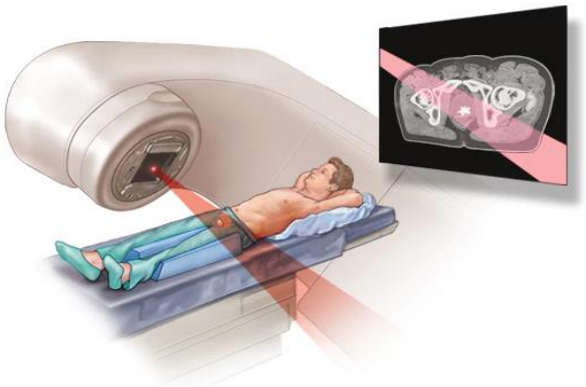
Q. name the given following surgery ?

(simple) mastectomy

Q. identify the given procedure

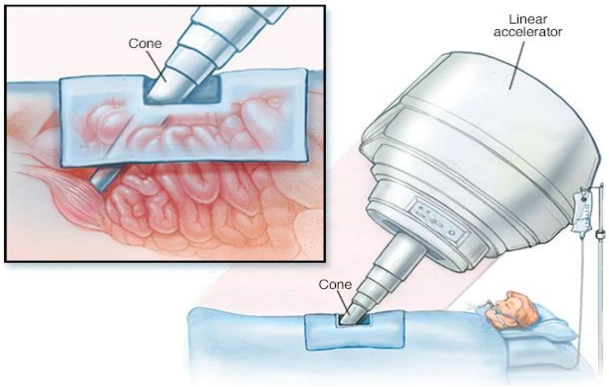
- **CT scan**
- cross-sectional CT scan images (slices) of your body

Q. identify the given procedure

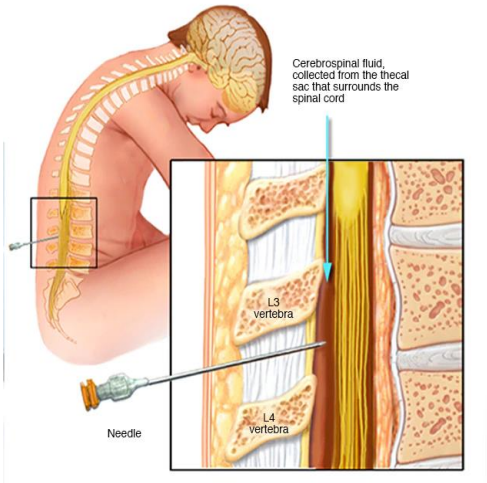


- External beam radiation for prostate cancer

Q. identify the given procedure



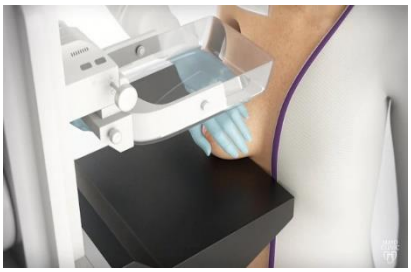
- **Intraoperative radiation therapy**
- During intraoperative radiation therapy (IORT), radiation is directed through the surgical incision onto a specific site.



Spinal tap (lumbar puncture)

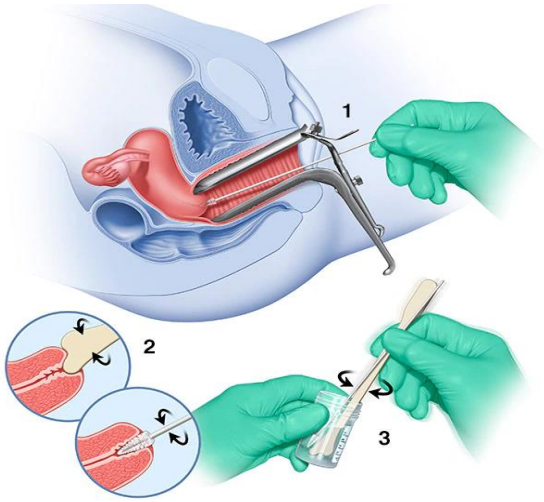
- During a lumbar puncture (spinal tap) procedure, you typically lie on your side with your knees drawn up to your chest. Then a needle is inserted into your spinal canal — in your lower back — to collect cerebrospinal fluid for testing

Identify the given treatment modality?



Receiving a mammogram

- During a mammogram, you stand in front of an X-ray machine designed for mammography. A technician places your breast on a platform and positions the platform to match your height.



Pap test

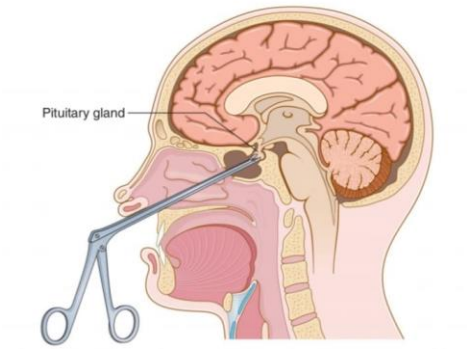
- In a Pap test, your doctor uses a vaginal speculum to hold your vaginal walls apart. Next, a sample of cells from your cervix is collected using a small cone-shaped brush and a tiny wooden spatula (1 and 2).

Q. IDENTIFY THE GIVEN DISEASE CONDITION?

Bilateral axillary lymph nodes—lymphoma

MCQs Endocrino

- Q1 what is the name of given surgery as show in photograph?
- Q2 This surgery is performed in which disease condition



Q. The nurse is caring for a client after **hypophysectomy** and notes clear nasal drainage from the client's nostril. The nurse should take **which initial action**?
(A) Lower the head of the bed.
(B) Test the drainage for glucose.
(C) Obtain a culture of the drainage.
(D) Continue to observe the drainage

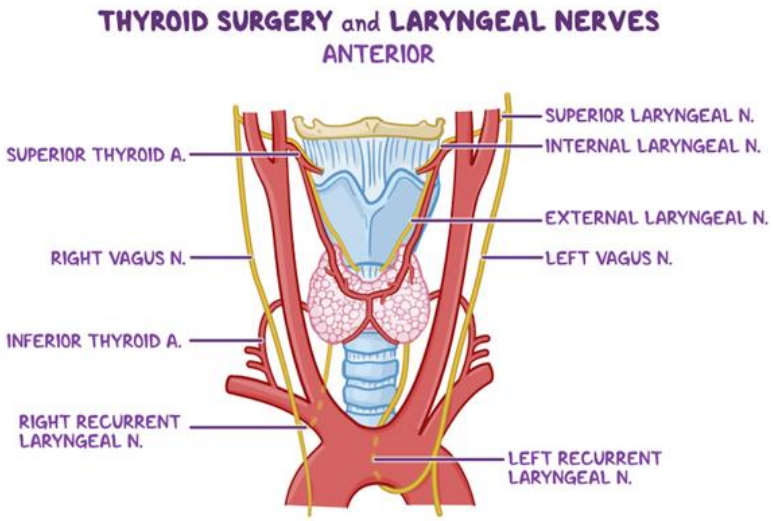
Q. After several diagnostic tests, a client is diagnosed with **diabetes insipidus**. The nurse performs an assessment on the client, knowing that which symptom is **most indicative** of this disorder?
(A) Fatigue
(B) Diarrhea
(C) Polydipsia
(D) Weight gain

Q. What is the **best reason** for the nurse in instructing the patient to **rotate injection sites** for insulin?
(A) Lipodystrophy is very painful
(B) Poor rotation can cause superficial hemorrhage
(C) Lipodystrophic area can cause erratic insulin absorption
(D) Injection site should never be reused

Q. All of the following are included in diabetic **teaching plan except:**
(A) Change position frequently to increase circulation
(B) Inspect feet and legs daily for any changes
(C) Keep the unused insulin in the refrigerator
(D) Keeps legs elevated on 2 pillow while sleeping

Q. The nurse is caring for a postoperative **Para thyroidectomy** client. Which client complaint would indicate that a life-threatening complication may be developing, requiring notification of the health care **provider immediately?**
(A) Laryngeal stridor
(B) Abdominal cramps
(C) Difficulty in voiding

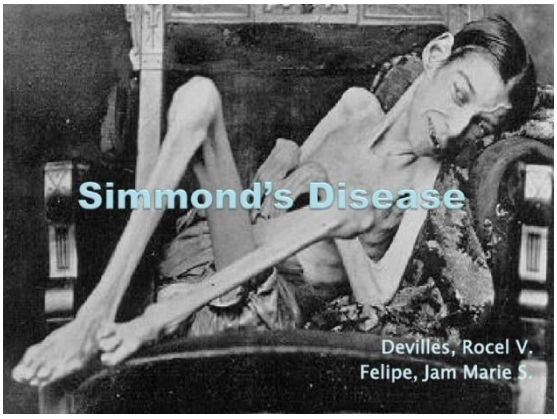
(D) Mild to moderate incisional pain

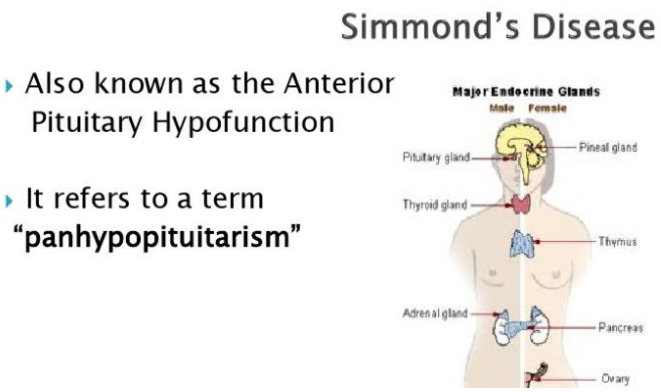


Q. A client is brought to the emergency department in an unresponsive state, and a diagnosis of **hyperglycemic hyperosmolar nonketotic syndrome** is made. The nurse would **immediately** prepare to initiate which anticipated health care provider's prescription?
(A) Endotracheal intubation
(B) 100 units of NPH insulin
(C) Intravenous infusion of normal saline
(D) Intravenous infusion of sodium bicarbonate

Hyperglycemic hyperosmolar nonketotic syndrome (HHNS) is a serious complication of diabetes characterized by very high blood glucose levels, **increased blood osmolarity**, and a lack of significant ketoacidosis. The **treatment priorities** for HHNS include fluid replacement to address **dehydration** and electrolyte imbalance, as well as insulin administration to lower blood glucose levels.
Given the situation described, the nurse would most likely prepare to initiate the anticipated health care provider's prescription of:
(C) Intravenous infusion of normal saline
Normal saline (0.9% sodium chloride) would be given **to help rehydrate** the client and correct the electrolyte imbalance. **Once the client is rehydrated, the provider may prescribe regular insulin (not NPH insulin) intravenously** to lower the blood glucose levels.

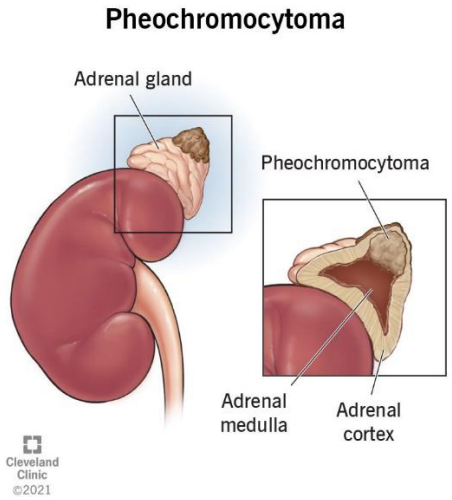
Q. Which of the following **potentially serious complications** could occur with therapy for **hypothyroidism?**
(A) Acute hemolytic reaction
(B) Angina or cardiac arrhythmia
(C) Retinopathy
(D) Thrombocytopenia





Q. Literally meaning of **Simmonds disease/ Pituitary cachexia** is
(A) Hypersecretion of all anterior pituitary hormone
(B) Hypo secretion of all anterior pituitary hormone
(C) Hypo secretion of all posterior pituitary hormones
(D) Hypersecretion of all Adrenal cortex hormones

Q. A nurse is caring for a client with an **underactive thyroid gland.** Which responses should the nurse expect the client to exhibit as a result of decreased level of T3 and T4? **Select all that apply**
(A) Irritability
(B) Tachycardia
(C) Weight gain
(D) Cold intolerance
(E) Profuse diaphoresis



Q. A nurse is caring for a client newly admitted with a diagnosis of **pheochromocytoma**. Which clinical findings does the nurse expect when assessing this client? **Select all that apply**
(A) Headache
(B) Palpitations
(C) Diaphoresis
(D) Bradycardia
(E) Hypotension.

Clinical findings commonly associated with pheochromocytoma include:
(A) Headache (B) Palpitations (C) Diaphoresis
Headache, palpitations, and diaphoresis (sweating) are typical symptoms experienced by clients with pheochromocytoma due to the excessive release of catecholamines.
Bradycardia (D) and hypotension (E) are less common in pheochromocytoma. In fact, the condition is more often associated with tachycardia (fast heart rate) and hypertension (high blood pressure).

Q. The nurse is preparing a plan of care for a client with **diabetes mellitus** who has **hyperglycemia**. The nurse places **highest priority** on which client problem?
1. Lack of knowledge
2. Inadequate fluid volume
3. Compromised family coping
4. Inadequate consumption of nutrients

Hyperglycemia can lead to osmotic diuresis, resulting in significant fluid loss and potential dehydration. Therefore, **correcting dehydration and restoring fluid volume is the highest priority.** It helps manage hyperglycemia and prevent complications such as ketoacidosis or hyperglycemic hyperosmolar syndrome (HHS).

F & E Tonicity, Solution, Pressure

FUNDAMENTALS OF NURSING

- **Fluids and Electrolytes**
- ➢ Risk for Imbalances:
- Infants - 80%
- Male – 60 %
- Female – 50 % *(more body fats)
- Elderly – 40 %
- 2/3 – ICF
- 1/3- ECF – intravascular & interstitial tissues

Cellular Transport

- ➢ **Passive –** No energy
- **Osmosis –** Movement of H2O from lOw to high concentration
- **Diffusion –*(**diffuse) Movement of solutes from high to low concentration.
- ➢ **Active –** Uses energy (ATP)
- Na+ and K+ pump Impulses contraction

Pressure

- **Oncotic – pulling force**, prevent leakage of fluids that causes edema or ascites
- **Albumin-** balancing act
- Ex: NephrOtic Syndrome damage to the glomerulus (filter)
  Nsg I/v: give IV Albumin
- **Hydrostatic – pushing force**, to prevent hypertension

TONICITY OF IV SOLUTIONS

Tonic – concentration of solution , **tonicity opposite with prefix**

Feature	1. Hypotonic	2. Isotonic	3. Hypertonic
1. Cell Tonicity 2. Cellular change	- **Increase** - **cell lyses** - produces cellular swelling - osmosis, movement of water into the cell - **for patients cause:** DKA, hyperosmolar hyperglycemia - **Avoid:** patient with inc. ICP, burns, trauma - ex. Dehydration, Fluid Vol. Deficit - ex. 0.33 % NaCl ***(almost all <1/with point)** - 0. 45 % NSS - 0. 22 % Saline - D5W (inside the cell)	- **equal,** - no cellular change - **fluid maintenance, replacement** for patients with burn, dehydration due to N/V - ex. 5% dextrose in 0.225 Saline - PNSS - PLR (burn) - D5W (outside isotonic)	- **Decrease** - **shrinking** of the cell, movement of water out of the cell - usually central line, mostly in ICU - Inc. ICP – give mannitol - ex. D5050 * (not less than 1/ no point) - D5LR - hyperglycemia - 3 % Saline - 5 % Saline

FLUID IMBALANCE

Fluid volume deficit (FVD)

S/sx: neonate: sunken fontanels and eyeballs

- Flat neck veins
- Dry poor skin turgor
- Constipation
- Oliguria
- Weight loss

Ex. Shock (isotonic)

V/S: hypotension (dec BP)
Tachycardia (inc HR)
Tachypnea (inc RR)

- **Pulse pressure** – narrow - 90/60 *(N-40); (systolic – diastolic = pulse pressure)
- **HCT** - concentrated *(N : M – 42 - 52 %, F – 35 - 47 %)
- **CVP** – measure fluid balance
- **CVP** - *(N – 5 - 10 cm H2O / 3 – 8 mmhg)

Mgt: - IVF

I&O replacement & monitoring

Fluid Volume Excess (FVE)

- periorbital or facial edema
- distended jugular neck veins
- CHF
- Ex. ↑ ICP ↓LOC

V/S:

- Hypertension ↑ BP
- Bradycardia ↓ PR
- Bradypnea ↓ RR
- Pulse pressure – widened - 140/90
- HCT - ↓ dilution
- CVP ↑
- pulmonary edema
- edema generalized
- crackles / rales
- ascites
- DOB
- weight gain
- Coughing
- **Mgt.** 3D - Diuretics Dialysis Digoxin
- replace albumin (IV)

SODIUM ELECTROLYTE IMBALANCE

1. SODIUM (Na+) – N 135 – 145 mEq/L

HYPONATREMIA

cause1: SIADH → ↑ADH → Fluid retention → Weight gain →

a. Serum → Hemodilution → Dilutional hyponatremia → dec.HCT
b. Urine → Oliguria → inc. USG N – 1.010-1.030

Mgt: Demeclocycline (Declomycin)

- **cause2:** ↓ Na → ↓ H2O → S/Sx FVD

Mgt: IVF

HYPERNATREMIA

- **Cause1:** DI → ↓ ADH → Fluid loss → Weight loss

a. Serum → Hemoconcentration → ↑ HCT → Hypernatremia
b. Urine → Polyuria → Diluted → ↓ USG

Mgt:

- Vasopressin
- Desmopressin

Cause2: ↑Na → ↑H2O → S/Sx FVE

Mgt: Diuretics, Digoxin, Albumin

POTASSIUM

POTASSIUM (K+)

- ↓K+ = ↓impulses
- Directly proportional to impulses
- N – 3.5-5.1 mEq/L

HYPOKALEMIA = ↓ K+= ↓ impulses

a. **CNS –** lethargy
b. **HEART –** T wave inversion/ depression, **U wave***
c. **GIT –** constipation
d. **MUSCLES –** Early – cramping

Late – weakness

Mgt: replacement K+; **oral** kalium durule

IVF KCl

- No IV push always incorporate
- Never add more than 40 mEq/ L
- Never infuse in more than 10 mEq/L

Inc. K+ rich diet
Potatoes (baked with skin)
Apricot (dried)
Banana
Orange Kiwi
Watermelon Cantaloupe
Strawberries
Avoid digoxin because it will lead to digitalis toxicity*
Avoid K+ wasting drugs
Bumetanide (Bumex)
Furosemide (Lasix) – loop diuretic
Hydrochlorothiazide
Mannitol – osmotic diuretic

HYPERKALEMIA= ↑ K+= ↑ impulses

a. **CNS –** seizures
b. **HEART –** tall peak T wave
c. **GIT –** diarrhea
d. **MUSCLES:**
Early: spasm
Late: weakness

Mgt:

- **(Sodium polystyrene)** Kayexalate – permanent to ↓ K+
- **Oral** (powder, dilute in H2O), enema
- **IV GI solution** (D5050 with insulin) – temporary solution/emergency cases

- **Avoid K+ sparing diuretics**
  Spironolactone
  Amiloride
  Triamterene

- **↓ K+ foods**
  Apples
  Blackberries **B**lueberries
  Pineapple **P**eaches
  Cherries **G**rapefruit

CALCIUM

Q which is correct about given image, except

A. hypercalcemia
B. Hypocalcemia
C. Tetany
D. Chvostek's sign

Q. in the given image identify the correct electrolyte abnormality

A. it is indicating hypocalcemia
B. Hypercalcemia
C. Hyperkalemia
D. Hypokalemia

3. CALCIUM – 4.5 – 5.5 mEq/L / 8.6 – 10 mg/ dL

- opposite with impulses

HYPOCALCEMIA = ↓ Ca+ = ↑ impulses

- **Tetany**
- (+) **Chvostek sign** – facial muscle twitching
- (+) **Trousseau sign** – carpal spasm
- Prolonged ST/QT interval
- **WOF: laryngospasm (**airway problem**)**
- **Mgt:** diet – milk /dairy products

- IV calcium gluconate
- Oral **calcium chloride/ carbonate**

HYPERCALCEMIA=

- ↑Ca+ = ↓impulses
- Bones (brittle)- ↓ Ca+ cause it's in the blood
- Stones – renal calculi
- Moans – muscle weakness
- Groans - GIT – constipation
- Shortened ST & widened T wave
- Mgt: **Calcitonin** (movement of Ca+ from blood → bones)

Fosamax (bone mineralization)
Diuretics & Dialysis - excretion of excess calcium

- Shortened ST & widened T wave

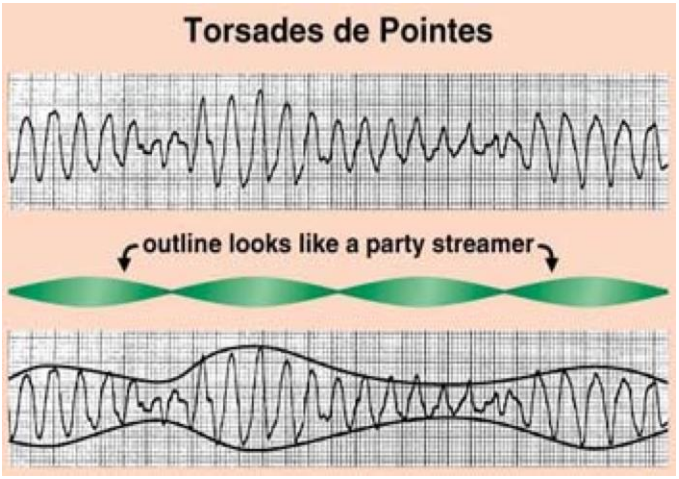
Po4, Mg

4. PHOSPHORUS – 2.7- 4.5 mg/dL

➢ **HYPOPHOSPHATEMIA-** ↓Ph – malnutrition / starvation / antacids
• alcoholism

➢ **HYPERPHOSPHATEMIA-** Ph inc. – tumour lysis syndrome
• renal insufficiency

5. MAGNESIUM
↓Mg+ = ↑impulses
• opposite impulses
• N – 1.5 – 2.5 mEq/L



➢ **HYPOMAGNESEMIA** = ↑ impulses
CNS: Brain – seizure
Spinal cord – hyperreflexia + 4 **(N +2)**
MUSCLES: Spasm Tetany Cramps
HEART: V tach* - Polymorphic VT **(Torsade's de Pointes)**
ECG: Tall T waves and depressed ST
Mgt: MgSO4 IV
Mg Salts p.o.

➢ **HYPERMAGNESEMIA=** ↓ impulses
DTR (-) or absent (deep tendon reflex)
Respiratory – ↓
Oliguria
BP decrease
Mgt: Calcium gluconate **(antidote Mg toxicity)**
Diuretics
Dialysis
O2 (mechanical ventilator)

- Prolonged PR
- Widened QRS complexes

Sp.Note: N Cholesterol 200 mg/dL

ABG (ARTERIAL BLOOD GASSES)

ABG (ARTERIAL BLOOD GASSES)

✓ **Patency radial and ulnar artery -Allen's Test**

a. **Occlude both radial and ulnar artery**
b. **Close and open hands 3 times**
c. **Release ulnar artery**
d. **Access perfusion hands**

ABG INTERPRETATION

Step 1: pH ↓ Acidosis
↑ Alkalosis

Step 2: Respiratory Opposite, Metabolic Equal (ROME)

Step 3: Compensation???

If Normal pH: Fully compensated
If abnormal pCO2 or HCO3 but pH is abn – Partially
If Normal pCO2 or HCO3: Uncompensated

- **Step Number 2 explanation:** A simple way to remember how to interpret ABGs is by using the ROME method of interpretation, which stands for **R**espiratory **O**pposite, **M**etabolic **E**qual. This means that the respiratory component (PaCO2) moves in the opposite direction of the pH if the respiratory system is causing the imbalance. If the metabolic system is causing the imbalance, the metabolic component (HCO3) moves in the same direction as the pH.

Compensation:

Respiratory Acidosis & Alkalosis

- pH is normal (compensated)
- HCO3 is abn (partial compensation)
- HCO3 is normal (uncompensated)

Metabolic Acidosis & Alkalosis

- pH is normal (compensated)
- paCO2 is abn (partial compensation)
- paCO2 is normal (uncompensated)

Normal Values:

Ph	**7.35 – 7.45**
PaCO2	**35 – 45 mmHg**
HCO3	**22 – 26 mEq/ L**
paO2	**80 – 100 mmHg**
SaO2	**95 -100 %**

Ph 7.5 ↑ **PaCO2 32 ↓** **HCO3 26 N**	**Uncompensated -** **Respiratory -** **Alkalosis.**
Ph 7.37 N **PaCO2 32↓** **HCO3 19↓**	**Fully compensated -** **Metabolic -** **Acidosis.**
Ph 7.33↓ **PaCO2 46 ↑** **HCO3 30↑**	**Partially compensated -** **Respiratory -** **Acidosis.**

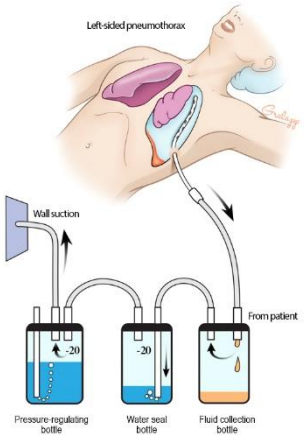
INTERPRETING ABG

	Respiratory CO2 = acidic	**Metabolic HCO3 = alkalosis**
Acidosis – pH↓	**PCO2↑ K+ ↑** **Ex. COPD, Obstruction r/t hypoventilation Asthma- late sign** **PRIO:** MS, MG, GBS, ALS Comp. Respi. Paralysis **Mgt:** Deep breathing Exercise Purse lip breathing (inhale nose, exhale mouth)	**↓HCO3 ↑K+** Clients with ↑lactic acid DKA, Renal failure, MI Burns, Diarrhea, **Mgt:** NaHCO3 IV
Alkalosis – **pH↑**	**↓PCO2 ↓K+** Hyperventilation Asthma – **initial sign** Anxiety, Panic attack **Mgt:** Brown bag Method Partial rebreather mask (reservoir mask)	**↑HCO3 ↓K+** Vomiting Continuous NGT drain/ suction/lavage Antacid overdose **Mgt:** Diamox Aluminum Chloride

CHEST DRAINAGE SYSTEM

CHEST DRAINAGE SYSTEM

- **Dislodged (Patient)**
  - ✓ Cover with sterile vaselinized gauge/petroleum (?best); (?1st) cover with gloved hand
- **Disconnected (tubing)**
  - ✓ Immerse tip into bottle of sterile H2O (?best); (?1st) clamp
- **CTT removal –** exhale and bear down/valsalva



Drain/Collection	H2O seal	Suction chamber
Normal: < 100 ml/hr **Color:** serous/clear, Serous sanguinous **WOF:** purely blood (bleeding) bright red/ sanguinous	**Normal:** 2 cm H2O **Gentle** intermittent bubbling/ fluctuation. **Constant**/continous - **leak** **No bubbling** **- 1st 24 hours-**kink or obstruction **- after 24 hours** Lung reexpansion	Normal: Continous / gentle constant bubbling due to (-) pressure

INFECTION PRECAUTION

INFECTION PRECAUTION

Tier 1. Standard

- Universal handwashing
  - personal protective equipment (gowns, gloves, mask, goggles)
  - **H**IV and hepatitis
  - **I**nfectious mononucleosis *(kissing's disease)

Tier 2. Transmission Based

Airborne – private room with negative pressure

✓ N95 mask, Hepa filter mask, high efficiency

Measles (Rubeola)
TB
Varicella (chicken pox)
HZ Herpes zoster (shingles) -initial airborne, if with lession contact

Hepa filter mask

Contact- gloves and gowns
Clostridium difficile – diarrrheal dse
Rotavirus; *RSV (Respi. Syncytial Virus)
Impetigo
Bronchiolitis
MRSA (Methicillin resistant staphylococcus aureus)
VRE (Vancomycin resistant enterococcus)
Hepatitis B/C/D/F/G **(blood-consonant)**

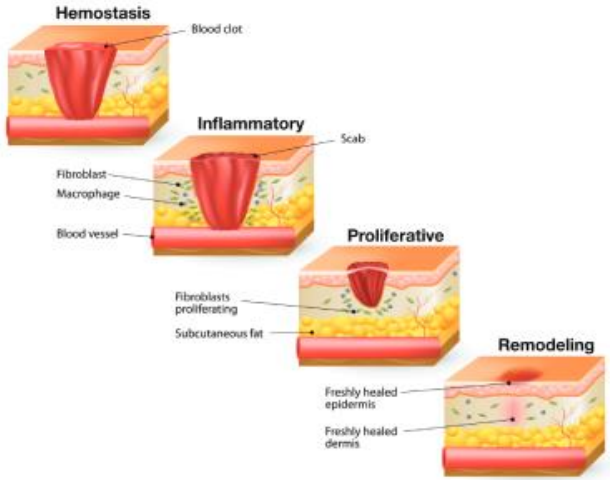
Droplet –simple surgical mask, 3 ft distance
Diptheria
Rubella (german measles)
Oral pharyngitis
Pertussis, **P**neumonia
Erythema Infectiosum (5th dse),
Epiglotitis
Tonsilitis
Influenza (flu)
Scarlet fever
Meningitis /mumps (parotitis)
Enteric- fecal oral route (gloves and gown)
Shigella dysenteriae
Salmonella
Hepatitis A/E (vowels)

SAFE DONNING AND REMOVAL OF PPE

Donning PPE	Removing PPE
1. Gown 2. Mask 3. Goggles 4. Gloves	1. Gloves 2. Goggles 3. Gown 4. Mask

WOUND HEALING & CARE

-diet: Inc. Protein and Vit. C
NATURAL PROCESS:
1. Hemostasis
- Control bleeding
- macrophages
- clots
- platelets



2. Name the 4 phases of tissue repair according to Bailey's.
A. Inflammatory, coagulation, fibroplasia, remodeling
B. Coagulation, inflammatory, fibroplasia, remodeling
C. Coagulation, inflammatory, remodeling, fibroplasias
D. Inflammatory, coagulation, remodeling, fibroplasias

2. Inflammation
- bradykinins, prostaglandins, histamines
- 1st 3 days
- vasodilation
- redness
- swelling
- pain

3. Proliferation
   - 3rd day onwards
   - granulation
   - contractions
   - epithelialization

4. Maturation/Remodeling
   - collagen synthesis (scar formation)

Phase of wound healing process		
Inflammatory phase	**Fibroblastic phase**	**Maturation Phase**
Pain, Redness, Swelling, Local Edema, Warm	Scar formation	Scar become thin and in elastic
1 – 5 day	4 day to 2 -4 weeks	4 week to 1 year

MICRONUTRIENTS

HIGH CARBS	LOW CARBS
✓ inc. calorie ✓ inc. energy ✓ for patients with marasmus, hepatitis, kidney disease	✓ dec. glucose ✓ CO2 production

HIGH CHON (protein)	LOW CHON
- inc. albumin ✓ wound healing/repair ✓ pt post op; burn ✓ COPD- source of energy ✓ Nephrotic syndrome	– dec. urea –kidney – dec. ammonia-liver biproducts - kidney failure - liver cirrhosis - hepatic encephalopathy dec. LOC Nephritic syndrome r/t acute glomerulonephritis **(Azotemia-** inc. BUN)

HIGH FAT	LOW FAT
✓ insulation ✓ heat production ✓ absorption of VIT ADEK	- bile related - liver cirrhosis - peritonitis - hepatic encephalopathy - cholelithiasis - cholecystitis - post cholecystectomy - CAD, MI

ENTERAL AND PARENTERAL NUTRITION

NGT INSERTION

✓ High fowlers

1. Assess nasal patency
2. Lubricate the tip of tube (KY jelly)
3. Nasopharynx – instruct to tilt the head back
4. Oropharynx- instruct to flex the neck then shallow

*Gag reflex – stop temporarily

*Respiratory distress- stop and remove and wait till distress resolve

Methods:

✓ CXR – best method

✓ Gastric content aspirate

✓ Gastric pH- acidic 1-5; if ph > 6 = lungs

✓ Insufflation - Insufflation is the act of blowing something into a body cavity.

✓ Least commonly done – immerse the tip of the tube in the glass of H2O

✓ Normal- No bubbling

✓ With bubbling- lungs

NGT FEEDING

✓ Semi-fowlers

1. Assess bowel sounds
2. Placement - pH
3. Residual volume — Normal < 100 ml/hr
   Coffee colored – bleeding *Report

1. Flush
2. Feed
3. Flush

*during feeding: cramps- stop temporarily

NGT SUCTION

✓ Semi-fowlers

WOF: K+, metabolic alkalosis

TPN

- subclavian vein (central vein)
- jugular vein
- maintain sterile technique
- **compatible substances** – Glucose, Enzymes, Lipids, Amino acids
- WOF 1. Priority – Infection – sterile!!!
  2. Hyperglycemia
  3. Air embolism

Bland diet	**Balanced diet**	**BRAT diet** BRAT (**Banana, Rice, Applesauce, and Toast/tea)**
- for pts with upper GI dses – GERD, peptic ulcer *(GI irritants) NO Coffee Alcohol Spicy Hot	- for pts with DM - Obese	✓ boiled egg ✓ ground meats X fried

		X milk Limit fat **Low residue** - Lower GI disorders - Diarrheal dses CROHNS Diverticulitis

Gluten free diet -for pts with celiac dse NO Barley Rye, flour Oats Wheats ✓ rice ✓ corn	**Purine free diet -**for pts gout uric acid stones NO Anchovies Lentils Legumes Beers/beans Nuts Organ meats Yeast Sprouts	**Tyramine free diet -**MAOI's diet of choice for patients with depression lead to **hypertensive crisis -**levodopa - migraine **AVOID** aged, processed, fermented, pickled, smoked, cheese. ALL cheese except cottage cheese

DECUBITUS

Q. most painful-decubitus ulcers are

a. I b. II c. III d. IV

Q. Hydrocolloid dressing is indicated in case of

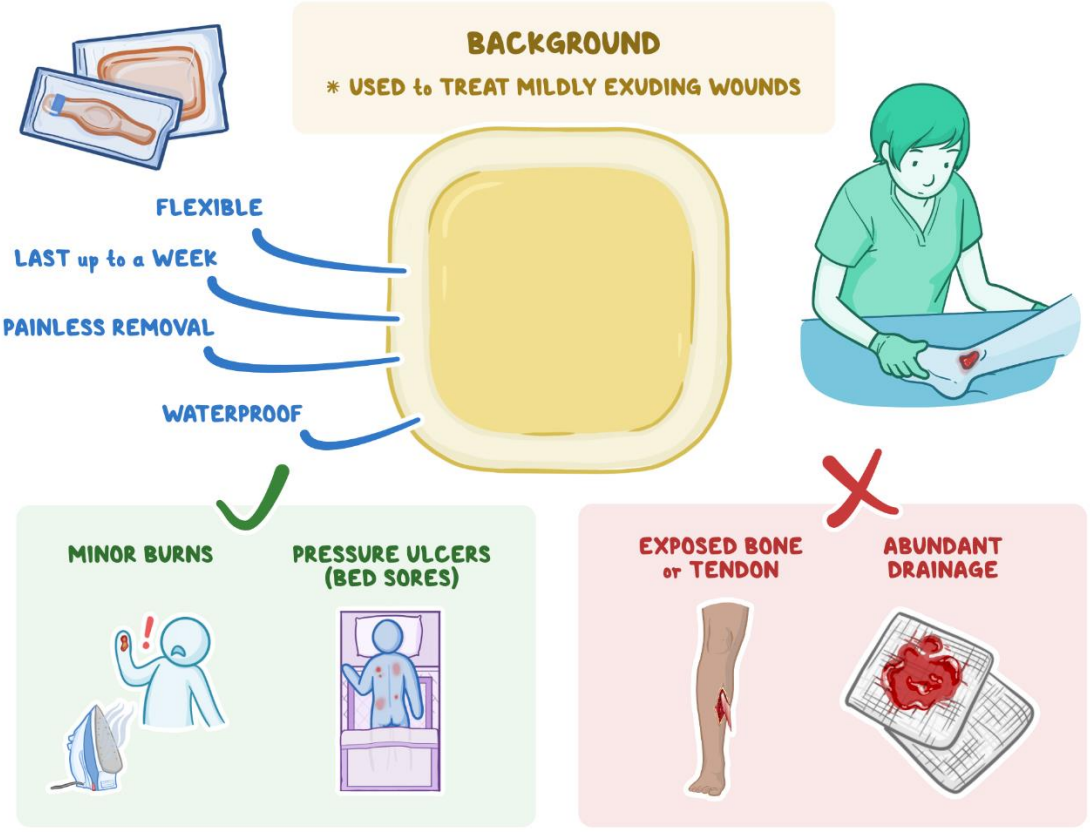
a. I b. II c. III d. IV

DECUBITUS/PRESSURE ULCER

- **Turn every 2 hours**

	Characteristic	Dressing
I	Intact, redness	Tegaderm
II	Opening to the dermis (most painful-nerve ending)	Hydrogel
III	Subcutaneous (not painful)	Hydrocolloid (duoderm)
IV	Bones & muscles cavity	Sterile foam & Sterile dressing

Hydrocolloid (duoderm)



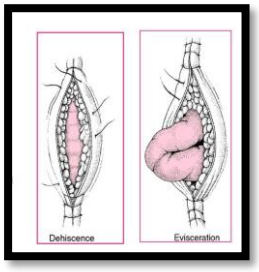
Sterile foam & Sterile dressing

Q. Popping out of internal organ is called
a. Dehiscence
b. Evisceration
c. Maceration
d. Sloughing

Q. Suture separation is called
a. Dehiscence
b. Evisceration
c. Maceration
d. Sloughing

Dehiscence- suture separation
Evisceration- popping out of internal organ
BOTH: Splint or support if pt cough

- ✓ **Initial: low semi fowlers (1st)**
- ✓ **Cover with sterile moistened gauze (best)**
- ✓ **Notify Dr, V/S**

Dehiscence	Evisceration	Maceration	Sloughing
Wound rupture along a surgical line 	Protrusion of wound through surgical line	Softening and breaking down of skin due to contact with moisture 	Process of shedding necrotic or dead tissue from wound 

MEDICAL & SURGICAL POSITION

Procedure	Positions	
	During	After
Thoracentesis	Sit, leaning forward	Unaffected side - to promote lung expansion (lungs) -to prevent bleeding (eyes)
Lobectomy	Expose Site	
Segmentectomy		
Eye cataract surgery		
Pneumonectomy		Affected side Comp: tracheal deviation

Procedure	Positions	
	During	After
Lumbar puncture	Side, Knee Chest	Supine -to prevent CSF leakage
Lower spinal surgery	Prone	
Cervical spinal surgery		
Infratentorial surgery (nape) (craniotomy)		
Supratentorial surgery (hairline) (craniotomy)	Semi-fowler	Semi-fowler- to prevent increased ICP
Liver biopsy (RUQ)	Left side/supine	Right side- to prevent bleeding
Gastrectomy	Supine	Low to semi fowlers to relax abd tension
Cardiac catheterization		Supine with the affected leg straight 4°-6° to prevent clot formation/ bleeding
Amputation	Expose site	1st 24°-elevate to prevent edema After 24°-prone to prevent contractures to easily attached prosthesis

Condition	Position
Arterial disorders – too low perfusion	Dependent position (low)
Venous disorders- too high perfusion	Elevate
Increased ICP	Semi-fowlers position - head neutral
COPD	High fowlers position

BASIC LAB PROCEDURE

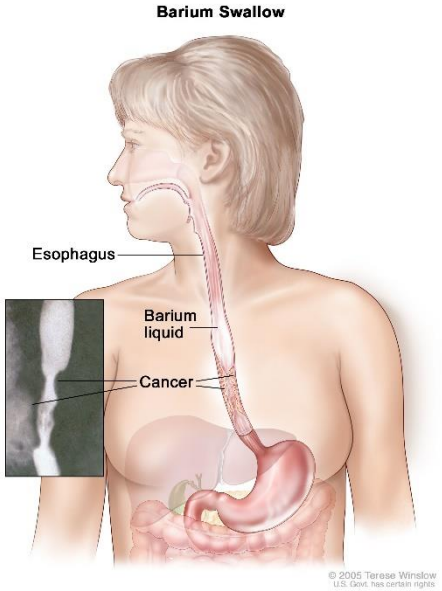
RADIOGRAPHIC

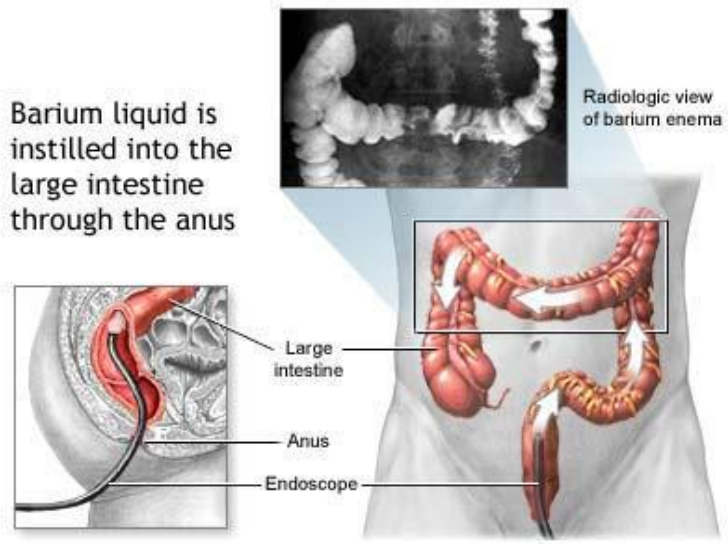
1. Barium (GIT)

A. Swallow (upper GI series)
Pre-pro = high fowlers, NPO 6-8 hours
Post-pro = S/E: <u>constipation chalk like stools</u>

Mgt: inc.OFI

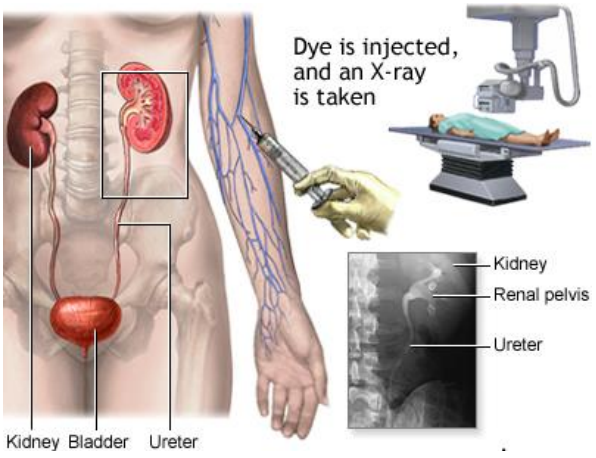
B. Enema (lower GI series)
Pre-pro = Left Sim's, NPO 6-8 hours
Post-pro = S/E: constipation chalk like stools
Mgt: Inc.OF



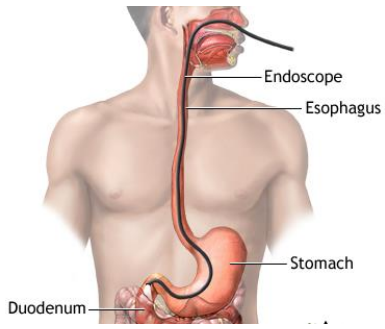


2. Iodine (GUT) -IVP or intravenous pyelogram

Pre-pro = supine or flat on bed, NPO 6 - 8 hours, Ask allergy shellfish
Post-pro = S/E warm and have salty taste
Mgt: inc.OFI
Complication: for BOTH
WOF Anaphylaxis can cause airway problem



ENDOSCOPY GIT



1. EGD or esophagogastroduodenoscopy (upper)

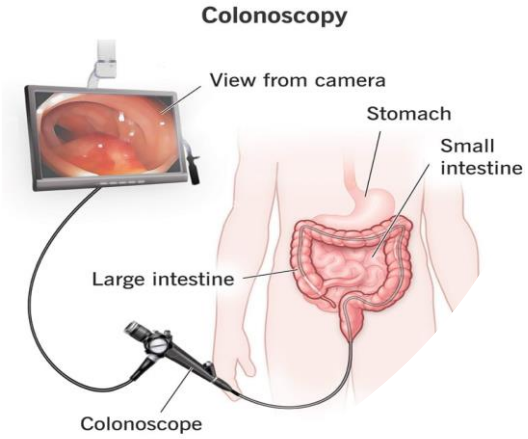
Pre-pro = left lateral, NPO 6-8 hours,
Pre-meds - lidocaine spray * (gag, atropine)
Post-pro = assess for gag reflex Bowel sounds Flatus
WOF: perforation

2. Colonoscopy (lower)

Pre-pro = clear liquid foods only, stop clear liquids 4 hours prior, empty the bowel, left lateral.

Post-pro = Bowel sounds & movement Flatus, contact provider-feeling bloated, N/V, fever

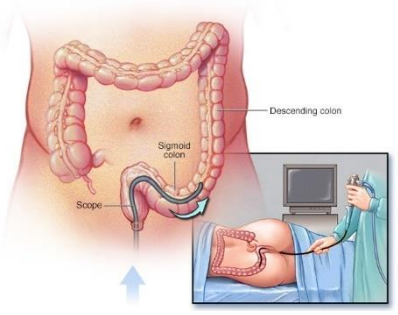
WOF: perforation, problems passing urine, abd becomes tender and hard, stools are black/blood, vomit with blood/bile



3. Sigmoidoscopy (lower) – usually enema 1 hour prior to the procedure

Pre-pro = empty the bowel, left lateral. NPO 6-8 hours

Post-pro = same Colonoscopy



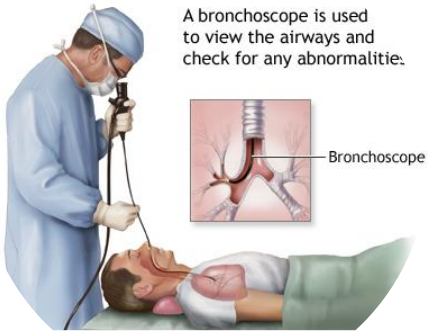
LUNGS

1. Bronchoscopy

Pre-pro = supine, NPO 6-8 hours.

Pre-meds - lidocaine spray

Post-pro = same EGD



GERIATRIC NURSING

GERIATRIC NURSING

Dev't Task: Ego Integrity VS Despair 65 yo

A. Cognitive decline: Alzheimer's dse

Safety-long term care facility-name and picture

- -hospital ward – room nearest to the station

B. ↓Visual acuity: Presbyopia (farsightedness)

- - Notify the Dr to prescribe reading glasses/ convex lenses

C. ↓Hearing – Presbycusis

- ✓ Do not shout/ pitched tone; normal tone and stand in front of the patient

D. ↑Lung residual volume- weakness of diaphragm – Risk for pulmonary disorders ; flu; pneumonia and influenza

E. ↑Clotting – MI/ CAD/ CVA

F. Color difficult to be distinguised: Purple

- ✓ Easiest - RED

G. Bone deminiralization – osteoporosis →

- ↓ estrogen → Ca+ rich diet;
- ↑ Ca Supplement → Fosamax

H. ↓Gastric enzymes: indigestion → constipation

- ↑ OFI/ fiber ; do not abuse laxative lead to constipation

I. ↓Bladder capacity: shrink → Incontinence → Kegel's exercise

J. ↓GFR: drug toxicity

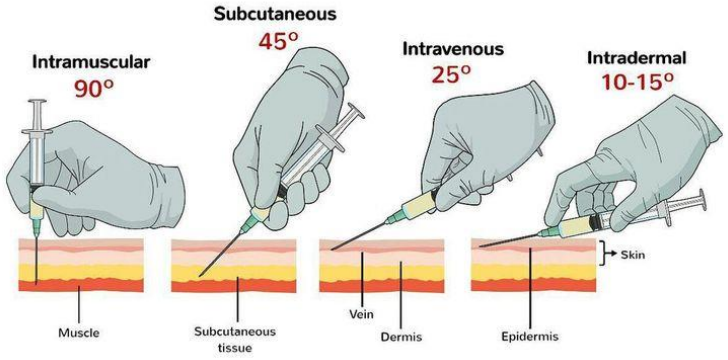
K. No taste buds – dulled taste → tendency

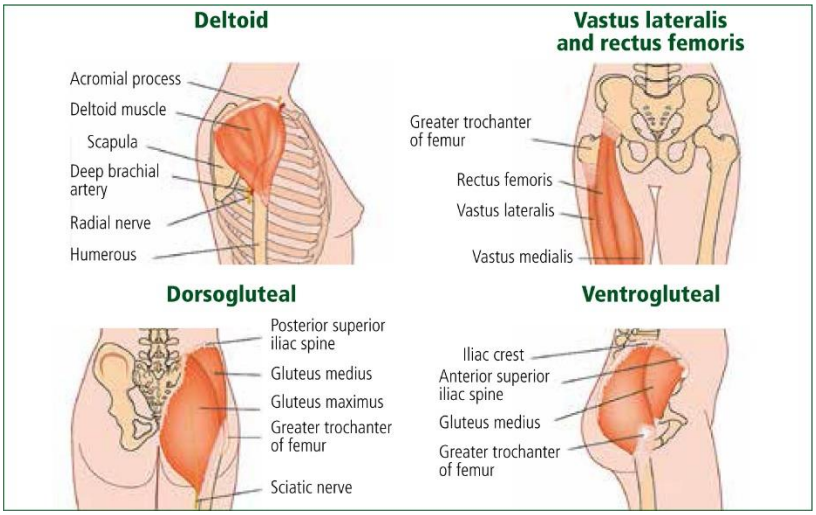
- ↑ Salt → hypertension

MEDICATIONS AND CALCULATIONS PARENTERAL MEDICATIONS

Injection Route	Best Site	Angle	Gauge (needle)
Intradermal (ID)	Forearm	10°-15° max	25-26
Subcutaneous (SQ)	Abdomen thigh, arm	45°	22-24
Intramuscular (IM)	Adult-Deltoid Pedia - Vastus Lateralis Ventrogluteal – large amount Buttocks -upper outer- prevent hitting sciatic nerve lead to paralysis	90°	20-21

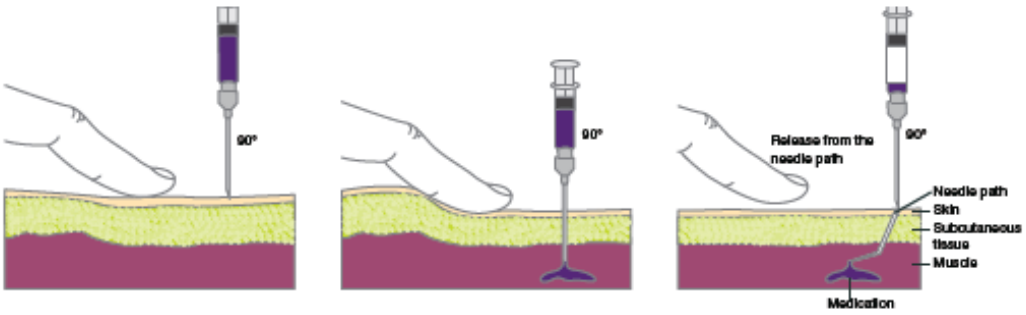
Injection technique





Z track method *(in IM medications)
- prevent leakage & irritation & staining
- ex. Iron (imferon) – dark brown color
- do not massage

FIGURE 1. Z-TRACK METHOD FOR INTRAMUSCULAR INJECTIONS



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INTRAVENOUS FLUIDS

VESICANT – cause blistering	NON-VESICANT
Ex. Chemo agents, (Check patency vein, aspirate) There will be vein rupture ↓ Tissue leakage ↓ Burns (extravasation) Mgt: **STOP!**	IVF **1. Phlebitis-** inflammation Vein, warm, redness, pain ✓ Change IV 72°
Notify Dr	**2. Infiltration-** pain, cool, pale ✓ Remove & change IV site, apply warm compress, elevate
	3. Speed shock – too rapid adm. of IVF-distended (initial) veins specially infants Mgt: diuretics
	4. Air embolism - restlessness ↓LOC Mgt: 1. Stop 2. Position Left Trendelenburg to trap the air 3. Notify the Dr 4. O2 supply (100%)

Starting an IV infusion:

1. Open and prepare the infusion set
2. Spike the solution container
3. Apply a medication label in the container
4. Apply a timing label in the container
5. Hang the solution
6. Partially fill the drip chamber in the solution
7. Prime the tubing

Changing from IV Solution to Tubing:

1. Clamp the tubing on the administration set
2. Invert the solution bag and remove the spike
3. Remove protective cap from the tubing
4. Spike the new tubing to the solution bag
5. Release clamp to allow IVF through tubing
6. Reopen the clamp and adjust the flow rate
7. Open clamp on new tubing with short extension tubing taped in place

Changing an IV Catheter to an Intermittent infusion Lock

1. Prepare materials needed
2. Remove the IV tubing and insert intermittent infusion plug into the IV catheter
3. Instill saline or heparin solution
4. Tape the intermittent infusion plug in place using a chevron or U method
5. Teach the client on how to maintain the lock
6. Document

Computation:

Oral meds: solid (tablets or capsules)

No. of tablets = $\frac{\text{Desired x tablet (med label)}}{\text{Available}}$

Oral/Parenteral Meds: Liquid form

Dose in mL= $\frac{\text{Desired dose x Dilution (med label)}}{\text{Stock dose}}$

1. The order is to give Demerol (meperidine) 35 mg I.M. q 4h p.r.n. for pain. The medication is supplied in an ampule marked 50mg per ml. How much of the medication should the nurse give?

   Calc. 35mg x 1mL/ 50mg = 0.7 mL

Answer: 0.7ml

2. A client is to receive 10 mEq of KCl diluted in 250 cc of normal saline over 4 hours. At what rate should the nurse set the client's IVF pump? a. 13 cc/hr

   b. 63 cc/hr

c. 80 cc/hr
d. 125cc/h
Cal
250cc/ 4hr = 63 cc/hr

3. Heparin 20,000 units in 500 ml D5W at 50 ml/hr has been infusing for 5 ½ hours. How much heparin the client received?
a. 11,000 units
b. 13,000 units
c. 15,000 units
d. 17,000 units hr
Calc. 20,000 U/ 500 ml = 40U/ml x 50ml/hr
= 2000U/hr x 5.5 = 11,000

4. A client was ordered to be infused with 1000 ml of D5W in 12 hours. The drop factor is 15 per ml. The IVF must be set at how many drops per min? Ans. 21 gtts/min
Calc. 1000ml x15/ 12 hr x 60 min =15000/ 120 =21

IVF rate

ml/hr = total vol (ml) x gtt factor (15) / no. of hrs
gtts/min = vol in cc x gtt factor / no. of hrs x 60 mins

Cardio drugs:

Dobutamine, the constants are
Single dose= 16.6 (translates to 250/250 or 500/500)
Double =33.3 (translates to 500/250 or 1000/500)
Dopamine, the constants are
Single dose= 13.3(translates to 200/250 or 400/500)
Double =33.3 (translates to 400/250 or 800/500)

5. A patient weighing 182 lbs was ordered to be given DOBUTAMINE at 5 mcg/kg/min. The preparation is 500mg in 250 mL of D5W. How many ml/hr should the patient receive? How many ugtts/min should the patient have?
Calc. 182/2.2 = 82.7 kg
500 x 1000 = 500,000 mcg

- $\frac{5\text{mcg}}{\text{Kg}} \times \frac{250\text{ ml}}{500{,}000\text{mcg}} \times \frac{82.7\text{kg}}{1\text{kg}} \times \frac{60\text{min}}{1\text{hr}} = \frac{}{\text{min}} = \mathbf{12.4\text{ml/hr}}$
- $\frac{\text{Dose x wt in kg x } 5}{\text{Constant}} \times \frac{82.7}{33.3} = \mathbf{12.4\text{ ml/hr}}$

6. A patient weighing 176 lbs was prescribe DOPAMINE at 5 mcg/kg/min. The preparation is 400mg/250 ml in D5W. How many ml will the nurse give in an hour? Round of the nearest whole number. Calc. 176/2.2 = 80 kg

- $\frac{5\text{mcg}}{\text{Kg}} \times \frac{250\text{ ml}}{400{,}000\text{mcg}} \times \frac{80\text{kg}}{1\text{kg}} \times \frac{60\text{min}}{1\text{hr}} = \frac{}{\text{min}} = \mathbf{15\text{ml/hr}}$
- $\frac{\text{Dose x wt in kg x } 5 \times 80}{\text{Constant}} = \frac{}{26.6} = \mathbf{15\text{ ml/hr}}$

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