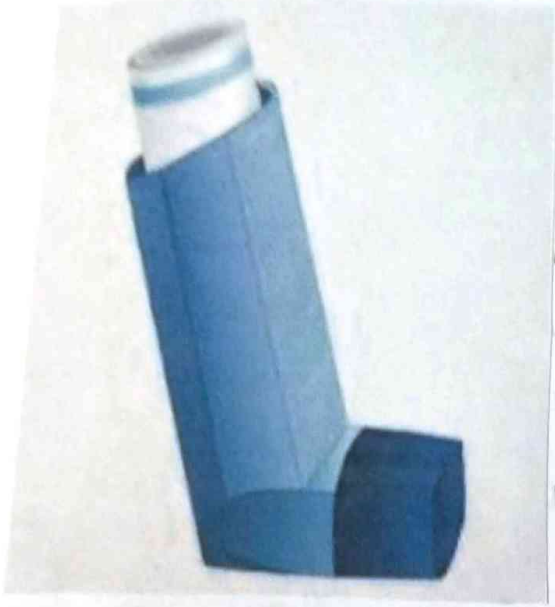
METERED DOSE INHALERS



Metered Dose Inhaler (MDI) is a device which delivers a fixed amount of medications in aerosol from each time it is activated.

- It can be used for exacerbation and maintenance therapy.
- They are effective, but require considerable co-ordination, ie, press and breath co-ordination.

DISADVANTAGES

→ Press and breath co-ordination may not be possible in young children.

→ After activation, the drug comes out at a pressure and a significant amount of the drug gets deposited in the oropharynx.

→ MDI continues to work past the labelled number of doses because of excess propellant.

USING AN MDI

1) Remove cap and shake the inhaler in vertical direction
2) Breath out gently.
3) Put mouthpiece in mouth and at start of inspiration that should be slow and deep, press canister down and continue to inhale deeply.
4) Hold breath for 10 seconds or as long as possible then breath out slowly.
5) Wait for a few seconds before repeating step 2 ~~and~~ 4.

SPACER

A spacer is a device used to increase the ease of giving aerosolized medication from MDI.
It adds space in the form of a tube or a chamber between the mouth and canister of medication.

Advantages

→ Use of spacer results in larger proportion of the medication being disposed in the lung, with less impaction in the oropharynx.
→ They also overcome the problem of poor technique and co-ordination of activation and inspiration.
→ Use of spacer allowed MDI to be used for young patients.

Disadvantages

→ Bulky
→ Relatively costly.
→ Cannot be used in young infants and toddlers.

Using an MDI with spacer and baby mask

1) Attatch baby mask to the mouth end of spacer.
2) Shake MDI; insert in the MDI end of spacer.
3) Cover baby's mouth and nose with baby mask.
4) Press canister and encourage the child to take tidal breathing with mouth piece (if possible) 5-10 times.
5) Remove baby mask and wait for 30-60 seconds before repeating step 2-4.

AMBU BAG

→ Used to give positive pressure ventilation with a self-inflating bag, face mask, pop off valve and a fish mouth valve.
→ It also contains reservoir bag size ranges from 250 ml (child/neonates), 1500 ml (Adults).

Indications

→ Neonatal resuscitation.
→ Paediatric cardiac arrest.

Contraindication

→ congenital diaphragmatic hernia.

OXYGEN MASK

Simple oxygen mask is made of clear, flexible (plastic or rubber that can be molded to fit to face.

- Delivers 35-60% oxygen.
- Flow rate 6-10 L/min.

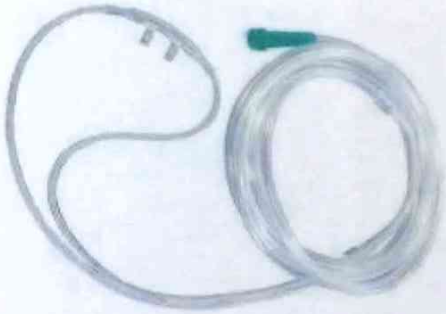
Advantages

→ Can provide increased delivery of oxygen for short period of time.

Disadvantages

→ It may interfere with feeding of child and can cause agitations for the child.

NASAL CANNULA



A device used to deliver supplemented oxygen or increased airflow to ~~lung~~ patient or patient in need of respiratory help.

→ These are devices without positive pressure FiO_2 (20-40) and flow rate is 0.5-4 L/ml.

→ In infants, max 2L/ml, children max ~~4~~ 4L/ml.

→ High flow rate may lead to nasal mucosa crusting and bleeding.

ENDOTRACHEAL TUBE

→ They are plastic tube made of PVC
→ ET should be of uniform diameter throughout the tube length and has a vocal cord guide at the tip and centimeter markings
→ ET tube size depends on the weight or gestation of the neonate.

→ ET tube's insertion depth is determined by a formula;

Nasotragal length (NTL) + 1 cm.

Indications [ET tube during resuscitation].

→ If neonate heartrate is <100 bpm despite 30 sec of effective PPV.
When prolonged BMV is required.
When BMV is ineffective.
When chest compression is needed.
When a diaphragmatic hernia is suspected or the airway is blocked with thick secretions.

Other uses

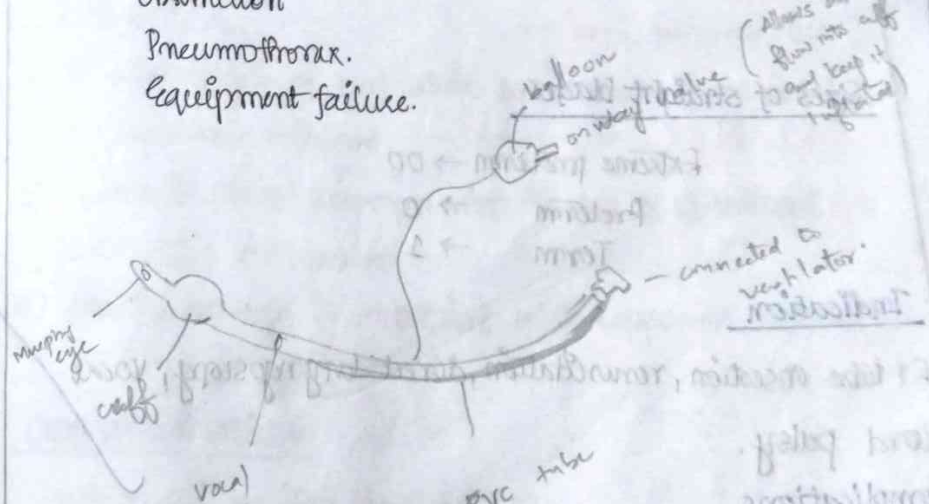
Giving anaesthesia, adrenaline infusion.

Complications

Pressure necrosis, VAP, pneumothorax.
Cough, vomiting, bradycardia.

User defect

Displacement
Obstruction
Pneumothorax.
Equipment failure.



LARYNGOSCOPE

2 types → Miller (straight)
→ Macintosh (curved)

Sizes of straight blades

Extreme preterm → 00
Preterm → 0
Term → 1

Indication

ET tube insertion, resuscitation, direct laryngoscopy, vocal cord palsy.

Complications

→ Blunt or penetrating trauma to the oropharynx, larynx and trachea or may chip teeth or lacerate the lips.

NASOGASTRIC TUBE

A nasogastric tube is a thin, soft tube that goes in through the nose down the throat and into the stomach.

Indications

1) Administration of medications or nutrients in unconscious or anorexic children.
2) Gastrointestinal decompression in case of intestinal obstruction or trauma.
3) Gastric lavage in a patient with upper GI bleeding or toxin ingestion.

Contraindications

→ Suspected basilar skull fracture.
→ Maxillofacial trauma.

Size

- Neonates and infants → 5–8 fr tube.
- 1 yr old → 10 fr.
- Teen age → 14–16 fr.

* Calculation of length of tubing to be passed is measured by: Measuring the distance from nostrils to ear to the mid-xiphoid umbilicus point.

Complications

→ Tracheal intubation.
→ Nasal or pharyngeal trauma.
→ Vomiting.

FEEDING TUBE / OROGASTRIC TUBE

An orogastric tube is a thin, flexible tube that is inserted into a baby's mouth and down the esophagus to its final destination in the baby's stomach.

Indications

1) Nutritional support.
   - Patient with severe anorexia or cachexia.
   - Patient with neurological conditions that impair swallowing.
   - Patient ~~with~~ undergoing treatments that reduce apetite or intake.
2) GI decompression
3) Medication administration.

4) Gastric lavage.
5) Diagnosis and monitoring
   - To monitor gastric bleeding.
   - To obtain gastric samples for diagnostic purpose.

Contraindications

1) ABSOLUTE CONTRAINDICATIONS
→ Severe facial trauma or basal skull fracture.
→ Esophageal varices.
→ Recent nasal surgery or severe nasal trauma.

2) RELATIVE CONTRAINDICATIONS
→ Severe coagulopathy.
→ Esophageal stricture or severe esophagitis.
→ Recent esophageal or gastric surgery.
→ Patient with high risk of aspiration or with severe GERD.

5) Patient refusal.

FOLEY'S CATHETER

Indwelling catheter

→ Tube is placed in the body to drain and collect urine from bladder.

Urinary catheter
- Indwelling catheter
- Intermittent catheter
- External catheter.

Indications

1) Urinary retention.
2) Urinary incontinence.
3) Surgery: During and after certain surgeries, especially those monitoring urinary tract, prostate or pelvic area.
4) Monitoring output.
5) Neurological condition.

6) Bed ridden patients.
7) Bladder irrigations

Complications

→ UTI
→ Urethral injury.
→ Bladder spasm
→ Blockage
→ Hematuria
→ Urethral stricture
→ Bladder stones.
→ Paraphimosis.
→ Discomfort and pain.
→ Catheter malfunction.

INSULIN SYRINGE [TUBERCULIN SYRINGE]

It is a small syringe used primarily for administration of insulin.
It was also used for administration of tuberculin purified protein derivative during tuberculosis testing.

Characteristics

1. Volume : usually 1ml.
2. Graduations : Marked in 0.01 ml increments.
3. Needle : 26 to 27 gauge.
4. Plunger : A smooth operating plunger for accurate control of the dose

Common uses

1) Insulin administration and other subcutaneous injections.
2) Tuberculosis testing
3) Allergy testing
4) Vaccination
5) Research & laboratory.

Advantages

→ Precision
→ Ease of use.
→ Control.

AUTODISABLED SYRINGE

It is a type of medical syringe designed to be used only once, preventing reuse and thereby reducing the risk of cross-contamination and the spreading of infectious diseases. These syringes have built in mechanisms that automatically disable the syringe after a single use.

Characteristics

→ Single use mechanisms, built in safety.
→ Standard design.
→ Capacity : 0.5 to 5ml.

Common uses

Vaccination program, routine injections, blood draws.

Advantages

→ Infection control.
→ Safety.
→ Regulatory compliance.
→ Public health.

IV CANNULA

Characteristics of IV cannula for paediatrics:

1) Size: 22G to 24G.
2) Length: Shorter cannula are often preferred.
3) Material: Made from flexible biocompatible materials to minimize and reduce risk of phlebitis.

Common uses

1) Hydration
2) Medication.
3) Blood transfusion.
4) Nutritional support.
5) Diagnostic testing.

* Site selection → common site include vein of hand, forearm, feet etc. In neonates and infants, scalp vein or veins on the anterior cubital fossa may be used.
* Immobilization
* Pain management → Vein visualization.

Complications

→ Infections
→ Phlebitis.
→ Infiltration / extravasation.
→ Dislodgement.
→ Pain and discomfort.

THREE WAY STOPCLOCK

A stopclock is a form of valve used to control the flow of a liquid (medicine) infusion. It provides 3 way flow (from inlet to outlet, inlet to side port & side port to outlet), by the use of the handle on the top of stopclock.

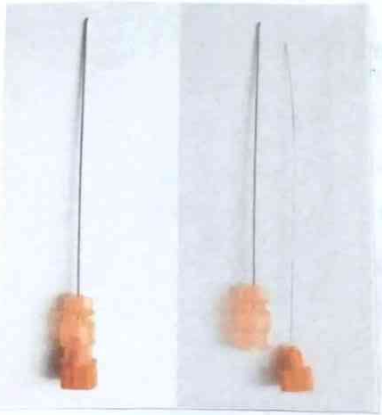
Three main positions

I. **Open to both ports:** When the handle is aligned with both ports (usually forming a T or cross shape), the fluid can flow freely thru the connected lines. This is often used to allow fluids to flow from a syringe or IV bag into a patient or to mix fluids.

II. **Closed to one port:** When the handle is turned to block one of the ports (typically forming an L shape with the line), the fluid is allowed to flow thru the other two ports while the blocked port is isolated.

III. **Closed all ports:** When the handle is turned so that all the ports are blocked (usually in a straight line with the handle pointing away from the ports), the fluid flow is completely closed.

LUMBAR PUNCTURE NEEDLE



TYPES OF LUMBAR PUNCTURE NEEDLE:

- Quincke tip.
- Pencil point tip.
- Acultip tip.
- Gentic Marx tip.
- Atraumatic tip.
- Sprotte tip.

A lumbar puncture needle pierces in the order;

Skin → Subcutaneous tissue → Supraspinous ligament → Interspinous ligament → Ligamentum flavum → Epidural space → Subarachnoid space.

INDICATION

Diagnostic

- Infections: Meningitis, encephalitis.
- Multiple sclerosis.
- GBS.
- Oncogenic.
- Metabolic
- Spontaneous subarachnoid hemorrhage.

Therapeutic

- Analgesic.
- Anaesthesia
- Antibiotic.
- Antineoplastic.

Contraindications

→ Raised ICP.
→ Local infections at site of lumbar puncture.
→ Bleeding diathesis.
→ Haemodynamic instability.

Site : Interspace between the posterior elements of L_3 and L_4 or L_4 and L_5.

Complications

→ Headache.
→ Lowerbackpain or infections
→ Brainstem herniation may occur in the presence of symptomatic intracranial hypertension

BONE MARROW BIOPSY NEEDLE

TYPES:

1) Jamshidi needle.
2) Vim Silvermon needle.
3) Klima sternal needle.
4) Salah BM aspiration needle.
5) Walterfield iliac crest BM aspiration needle.

Indications

Diagnostic

- ITP, Aplastic anaemia.
- Leukemia, megaloblastic anaemia, infections, storage disorders, PCO, myelofibrosis.

Therapeutic.

- Bone marrow transplantation.

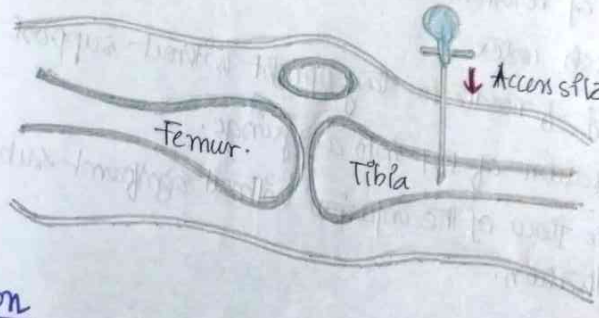
Site:

- Iliac crest (most common site)
- Sternum is not preferred due to associated pain and risk of injury to underlying structures.
- Proximal tibia medial to tibial tuberosity in infants.

Complications

- Bleeding and pain at the site of aspication.
- Bone injury with fracture of iliac bone.
- Subcutaneous infections or osteomyelitis are rare.

INTRAOSSEOUS NEEDLE.



Indication

→ It is a first line alternative when iv acces is not feasible in collapsed veins due to severe hypotension such as cardiopulmonary arrest or decompensated shock.

→ Almost any medication that can be administered into a central or peripheral vein can be safely infused.

→ Crystalloid solution, colloids and blood products can be safely infused as can hyperosmic solution.

Evidence of successful entry

(i) Lack of resistance (or give away) after needle passes through vortex.

(ii) Ability of needle to stay upright without support.

(iii) Aspiration of BM into a syringe.

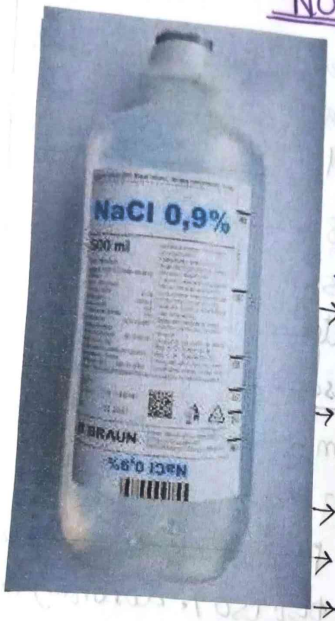
(iv) Free flow of the infusion without significant subcutaneous infiltration.

Complications

→ Osteomyelitis.
→ Subcutaneous abscess.
→ Extravasation of fluid into subcutaneous tissue.
→ Compartment syndrome, epiphyseal trauma.
→ Fat embolism.

DRUGS

NORMAL SALINE



Normal saline also known as 0.9% NaCl solution is a sterile solution of NaCl in water (crystalloid).

Indications

→ Fluid replacement: in diarrhoea, vomiting or excessive sweating.
→ Blood volume restoration: in cases of hemorrhage, surgery or trauma.
→ Medication dilution and administration.
→ Electrolyte imbalance.
→ flush iv lines.
→ Wound irrigation.

Contraindication

: Hypernatremia, CHF, severe renal impairment, edema, hyperchloremic acidosis.

Holliday-Segar Method.

Height	Daily requirement.
0-10 kg.	100 ml/kg.
10-20 kg.	1000 ml + 50 ml/kg for each kg > 10kg.
≥ 20kg	1500 ml + 20 ml/kg for each kg > 20kg

DEXTROSE 25 (D25)

Dextrose (25%) (25% w/w) often abbreviated as D25 is a sterile hypertonic solution of glucose used in medical setting.

- It contains 25gms of dextrose per 100ml of water.

Common uses

(i) Hypoglycemia : D25 is often used to treat low blood sugar levels especially in paediatric patients or when a less concentrated solution than D50 (50% dextrose) is preferred.

(ii) Emergency medicine : It can quickly raise blood sugar levels in patients who are unresponsive or unable to take oral glucose.

(iii) Neonatal care : Help to manage hypoglycemia in newborn.

Contraindication

→ Hyperglycemia. ✓

→ Intracranial or intraspinal hemorrhage ✓

→ Anuria ✓

→ Delirium tremors → can cause a rapid shift in electrolyte balance.

→ known allergy → Hypersensitivity to dextrose formulation.

VITAMIN A

Signs of Vitamin A Deficiency

→ Follicular hyperkeratosis of skin.
→ Night blindness.
→ Xerophthalmia.
→ Bitot's spot
→ Corneal opacity.
→ Keratomalacia.

Treatment of Vitamin A Deficiency

AGE	DOSE
<6 months	50,000 IU
6-12 months	1,00,000 IU
>1 year	2,00,000 IU

× Repeat on next day and 4 weeks later.

Prevention

As per National Prophylaxis Programme Against Night Blindness children blw 9 months and 3 years were given oral vitamin A every 6 months.
If 9 months → 1 lakh IU of Vit A along with measles vaccine.
If 15-18 months → 2 lakh IU of Vit A along with DPT booster.
Then 6th monthly till 5 year of age.

ADRENALINE

α and β adrenergic agonist

Routes → iv, im, intratracheal.

Anaphylaxis :
0.01 ml/kg/dose (max-0.5ml/dose) of 1:1000 solution of sc, repeat after 15-20 min.

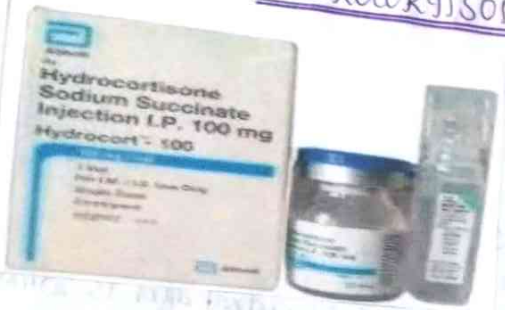
Resuscitation :
0.1-0.3 ml/kg/dose (1:10,000) iv

Bronchiolitis :
0.2 ml/kg of 1:1000 diluted in 3ml saline

Croup :
0.5 ml/kg (max: 5ml), usually 3-5 ml of 1:1000 nebulization.

Side effects :
Tachycardia, Palpitations, Anxiety.

HYDROCORTISONE



Indication and doses

- Status asthmaticus
  4-8 mg/kg/dose.
  IV q 4-6 hr iv.
- Endotoxic shock
  50 mg/m² initial dose.
  followed by 50-150 mg/m²/day q 6hr iv for 48-72 hrs.
- Acute Adrenal insufficiency
  1-2 mg/kg/dose iv, then ~~25-150 mg/~~ 25-150 mg/m²/day iv or im

Side effects

Hypertension, hyperglycemia, asthythmia, hypocalcemia, euphoria, insomnia, headache, cushing's syndrome, peptic ulcer, cataract, immune suppression, skin and muscle atrophy acne and edema.

Contraindications

- → Peptic ulcer
- → DM
- → Hypertension
- → Pregnancy
- → HSK
- → TB
- → Osteoporosis.
- → Epilepsy
- → Psychosis
- → Renal failure.

ADENOSINE

0.1 mg/kg/dose
Central maximum dose 6mg) rapid iv (over 1-3 sec)
If no response in 1-2min, 0.2 mg/kg bolus. To ensure that the drug reaches the circulation, administer directly into vein with a 3 way stop cock with 5-10 ml saline flush ready to push immediately; maximum single dose 0.25 mg/kg or 12 mg.

Side effects

Transient chestpain, dyspnea, flushing bronchospasm
→ carbamezepine and dipyramidole increase the toxicity/ effect of adenosine.

Contraindication

- → Hypersensitivity
- → 2nd and 3rd degree AV block.
- → Sinus node disease: Sick sinus syndrome or symptomatic bradycardia.

MIDAZOLAM

* Status epilepticus:
  0.1 mg/kg orally upto 2 doses, 5 min apart.
* Sedative, hypnotics, antidepressants:
  0.07 – 0.2 mg/kg/dose im or iv.
  Preoperative sedative or conscious sedation (mechanical ventilation):
  above dose followed by 0.2-1 µg/kg/min for neonates and 0.5–3 µg/kg/min for infants and children.
* Intranasaly
  0.2 mg/kg may be used for acute seizure control

Side effects

→ Respiratory depression.
→ Shock.

Contraindication

→ Hypersensitivity
→ Acute narrow angle glaucoma.
→ Shock
→ Hypotension or head injury.

LORAZEPAM

* Sedatives
* Hypnotics
* Antidepressants
* Antiepileptics.

0.1 mg/kg iv; repeat at 5 min
Long duration of action than diazepam; 0.03 – 0.05 mg/kg/dose; PO q 8–12 hr.

Side effects

Confusion, Depressed mood, Hyperactivity, Agitation, Hostility

Contraindications

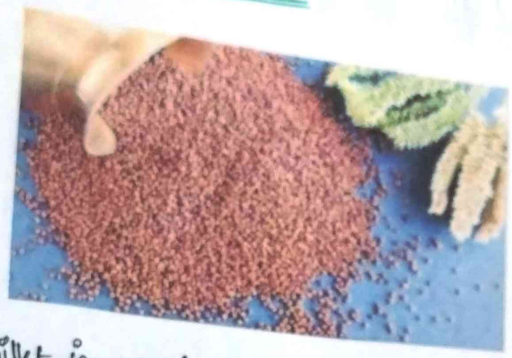
Hypersensitivity, psychosis, acute narrow angle glaucoma, and use in children younger than 6 months.

Adverse effects

Mild drowsiness, ataxia, confusion, respiratory disturbance, bradycardia, hypotension.

NUTRITION

RAGI



Finger millet is popularly known as "Ragi" in India.

Ragi as weaning food:

* Ragi is high in certain minerals such as calcium, iron and fibre.
* Ragi is readily digestable and can help increase babies apetite.

Cheapest among millets.

Energy (per 100 gm)	328 kcal
Protein (per 100 gm)	7.3 g
Carbohydrate (per 100 g)	72 g
Fat (per 100 gm)	1.3 g
Calcium (per 100 gm)	344 mg
Iron (per 100 gm)	3.9 mg

WHITE RICE

→ Cereal group.
→ Rice protein rich in lysine.
→ Poor source of calcium and Iron.
→ Good source of vitamin B group especially thiamine, devoid of vitamin A, D, E.
Milling deprives nutritive elements especially thiamine & riboflavin.

Nutritive value (per 100g)

Energy	345 kcal
Protein	6.8 gm.
Fat	0.5 gm
Carbohydrate	78.2 gm.
Calcium	10 mg

PARBOILED RICE

→ Cereal group.
→ Parboiled rice, also known as converted rice, is rice that has been partially boiled.
→ Parboiling is a technique used to preserve the nutritive quality of rice.

Steps of parboiling

- Soaking
- Steaming
- Drying

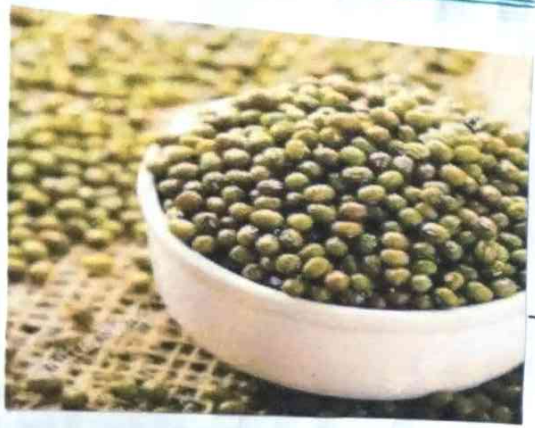
Advantages of parboiling
→ ↑ nutritive quality
→ Improve storage time
→ Resist insect infestation

During steaming, vitamins and minerals in outer layer are drained into endosperm.

Nutritive value (per 100 gm)

Energy	343 kcal.
Protein	6.4 gm.
Fat	0.4 gm.
Carbohydrate	79 gm.
Calcium	9 mg.

GREEN GRAM (PULSE)



→ Rich source of folate, thiamine, riboflavin, niacin, pyridoxine, Zn, Mg, Ca.
→ Potent antioxidant that assist in triggering immunity

Nutritive value (per 100 gm)

Energy	315 kcal.
Protein	19.7 gm.
Fat	1.1 gm.
Calcium	113 mg.
Iron	3.9 mg.

* pulses are deficient in methionine, Vit A, C

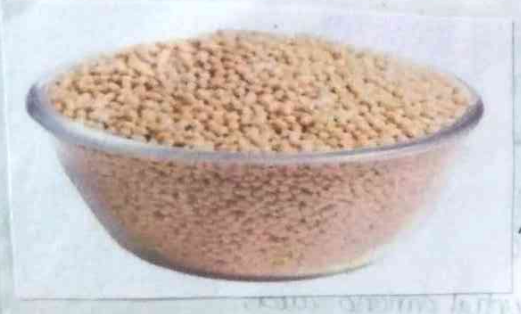
RED GRAM (PULSE)

→ The biological value improves greatly when wheat or rice is combined with red gram because of complementary relationship of essential amino acids
→ It is particularly rich in lysine, riboflavin, thiamine, niacin and Fe.

Nutritive value (per 100 gm)

Energy	335 kcal.
carbohydrate	–
Protein	22.3 gm.
Fat	1.7 gm.
Calcium	73 mg
Iron	2.7 mg.

BLACK GRAM (PULSE)



Black gram or urad dal holds a high protein value than most of the legumes.

→ It is an excellent source of dietary fibre, riboflavin, vitamin B complex, Fe, Cu, Ca, Mg, Zn, K, P which offer a myriad of healing health benefits.

→ When combined with rice, by supplementary action of protein gives all essential amino acids.

Nutritive value (per 100 gm)

Energy	341 kcal
Protein	24 gm
Fat	1.4 gm
Calcium	154 mg.
Iron	3.8 mg.

BENGAL GRAM (PULSE)

→ Often called black brown peas or chana.
- Chicken pea or chick pea.
- Garbanzo bean.
- Egyptian pea.

→ Usually considered as vital pulse due to its high protein and fibre content.

→ Rich source of potassium and phosphorus.

Nutritive value (per 100 gm)

Energy	378 kcal.
Carbohydrate	—
Protein	20.5 gm.
Fat	6.04 gm.
Calcium	57 mg.
Iron	4.31 mg.

TOOR DAL (PULSE)

→ Also called pigeon pea.
→ It is rich in protein.
→ It may decrease total cholesterol and LDL cholesterol due to its anti-oxidant activity and high fibre content.
→ Good source of phosphorus, antioxidants. Gluten free.
→ Rich in thiamine.

Nutritive value (per 100 gm)

Energy	343 kcal
Protein	22.8 gm.
fat	1.43 gm.
Calcium	57 mg.
Iron	3.09 mg.

GREEN LEAFY VEGETABLES

→ These are cheap, protective food.
→ These include palak, amaranth, cabbage, lettuce, coriander etc.
→ Darker the green leaves, greater the nutritive value.
→ Rich source of Ca and Fe.
→ Presence of high amount of oxalates.
→ Low calorific value, contain high dietary fibre, raise bulk, high water.
→ Low in lipids.
→ Contain plenty of phytochemicals such as β-carotene.

DRUM-STICK (VEGETABLE)

→ Rich in vitamins especially vitamin C and A, minerals (Ca, K, Fe), protein, anti-oxidants and dietary fibres.

→ Since it is a good source of Fe, it helps to prevent anemia.

Nutritive value (per 100gm)

Energy	37kcal.
Protein	2.1 gm.
Fat	0.2gm.
Calcium	30 mg.
Iron	0.36 mg.

AMARANTHUS (GREEN LEFY VEGETABLE)

→ Rich in protein, Ca, Fe, Cu, essential vitamin, Mg, Zn Mn, etc

→ Cu and Mn are used for their antioxidant property.

Nutritive value (1 cup)

Energy	7kcal.
Protein	0.8 gm
Calcium	29.7 mg.
Iron	0.81 mg
Magnesium	24 mg

CARROT (VEGETABLE)

→ Rich source of β-carotene (vitamin A) and Ca.
→ Poor source of protein and vitamin C.
→ Fair source of vitamins B like niacin and B6.

Nutritive value (per 100 gm)

Protein	0.9 gm.
Carbohydrate	10.6 gm
fat	1.2 gm.
Calcium	80 mg.
Iron	2.2 mg

APPLE (FRUIT)

→ Rich source of fibre, vitamin C and various anti oxidants.
→ Low in caloric content.
→ Moderately rich in potassium

Nutritive value (per 100 gm)

Energy	52 kcal.
Ca	–
Fe	–
Dietary fibre	2.4 gm.
Vitamin C	4.6 mg.
K	107.2 mg.
carbohydrate	13.84 gm

Reference protein beg it has all the essential Amino acid.

EGG

→ All nutrients are present except carbohydrates and vitamin C.

→ Boiled egg is nutritionally superior to raw egg as raw egg contain avidin which inhibit biotin absorption.

Nutritive value

Energy	70 kcal
Protein	6 gm
Cholesterol	250 gm

NPU = 100 for egg; so considered as reference protein.

Net protein utilization

MILK

→ Major source of Ca and riboflavin.

→ Contain easily digestable fat

→ Poor source of Fe and vitamin C.

	Calorie	Protein
Cow's milk	67 kcal	3.2 gm
Breast milk	65 kcal.	1.1 gm.

Most dense containing milk → Buffalo

COCONUT OIL

→ Majority of fat (88%) in coconut oil → saturated fatty acid.

→ Contain variable amount of vitamin E, the fat soluble vitamin antioxidant.

→ Adding oil to food for children as part of weaning helps in improving calorie content of food.

Nutritive value (per table spoon)

Calorie	104 kcal
fat	11.5 gm
Saturated fat	9.6 gm.

SUNFLOWER OIL

→ Sunflower oil is the non-volatile oil pressed from the seeds of sunflower

→ Primarily composed of linoleic acid, a PUFA and oleic acid, a MUFA.

→ The oil contain a large amount of vitamin E.

→ Sunflower oil is mainly a triglyceride.

Nutritive value (per table spoon)

Calorie	124 kcal
Total fat	14 gm.
Saturated fat	1.4 gm.
Protein	0
Carbohydrate	0
Fibre	0