

# Dosage Forms



**Dosage Forms are either classified according to the route of administration or to the physical form.**

**Route of administration:**

**Oral**

**Inhalational**

**Parenteral**

**Topical**

**Suppository**

**Ophthalmic**

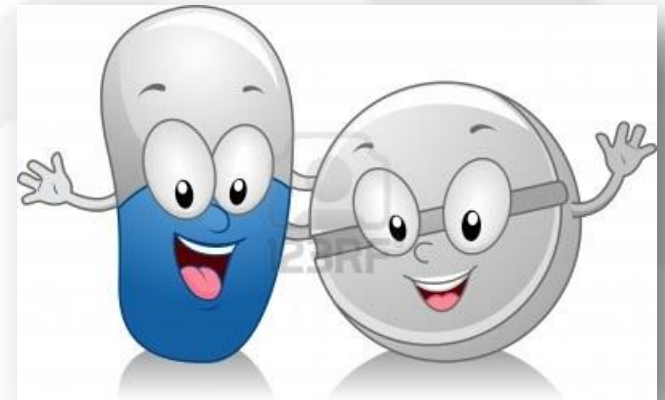
**Optic**

**Physical form:**

**Solid**

**Semisolid**

**Liquid**



# Solid Dosage Forms

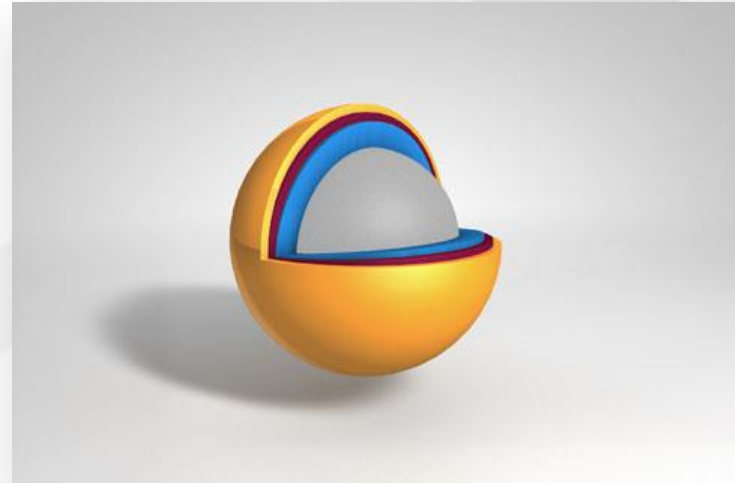
**1-Tablet (tab, tabs):** is a solid unit dosage form of medicament prepared by compression. It comprises a mixture of active substances (drug) and excipients.

- The excipients can include diluents, binders or granulating agents, glidants (flow aids) and lubricants to ensure efficient tableting;
- disintegrants to promote tablet break-up in the digestive tract;
- sweeteners or flavours to enhance taste;
- and pigments to make the tablets visually attractive.



❑ **A polymer coating is often applied *Y?***

- **to make the tablet smoother and easier to swallow,**
- **to control the release rate of the active ingredient,**
- **to make it more resistant to the environment (extending its shelf life),**
- **to enhance the tablet's appearance.**



**There are many types of tablets:**

➤ **Scored tablets:** have indented lines, usually dividing the tablet into two or more equal parts.

➤ **Sugar coated tablets:** a sugar coat is added to the tablet to mask the unpleasant taste of tablet, e.g. Flu-out.

➤ **Enteric coated tablets:** have special coating designed to allow tablet to pass through acid in stomach and not dissolve until in alkaline environment of small intestine – this avoids irritating the stomach, e.g. Aspirin.



➤ **Slow-release tablets**: designed to provide continuous, sustained release of a certain drug over time. e.g. voltarin (100) last 24 hour.

➤ **Caplets (capsule-shaped tablet)**: elongated shape tablets, which may make it easier for some to swallow.



## **2- Capsule (*cap* or *caps*): comes basically in two types:**

- **Hard gelatin capsules:** made using gelatin and contain dry, powdered ingredients and manufactured in two pieces.
- **Soft gelatin capsules:** drug usually in liquid form inside the shell and manufactured in one piece.





**3-Effervescent tablets:** are uncoated tablets that generally contain acid substances (citric and tartaric acids) and carbonates or bicarbonates, which react rapidly in the presence of water by releasing carbon dioxide.

**-They are intended to be dissolved or dispersed in water before use providing:**

**A- Very rapid tablet dispersion and dissolution.**

**B- Pleasant tasting carbonated drink.**





**4-Chewable tablet:** They are tablets that chewed prior to swallowing.



**5-Lozenges:** Solid preparations formed from sugar base, containing drug and other flavors. They are designed to dissolve slowly in the mouth and release the drug topically to the tissues of mouth and throat; they are not to be swallowed.



**6-Powder:** a finely ground form of an active drug.

**7-Granules:** are consisting of solid, dry aggregates of powder particles.



**8-Suppository:** a solid base of glycerin or cocoa butter containing the drug, manufactured in appropriate size for rectal and vaginal insertion. vaginal suppositories most often used to treat vaginal infections. Rectal suppositories often offer alternate route of administration for patients who are vomiting.



# Semisolid Dosage Forms

## 1. Cream:

- emulsion of water and oil
- classified as oil in water (o/w) or water in oil (w/o) emulsions
- \* o/w creams spread easily and do not leave the skin greasy and sticky.
- \*\* w/o creams are more greasy and more emollient than o/w creams. (but less than ointment).
- useful in wet skin conditions
- creams contain emulsifiers and preservatives which may cause contact allergy.
- More skin penetration than ointment.



out of 26



## **2. Ointment:**

- **semi-solid preparations of hydrocarbons (petrolatum, mineral oil, paraffins, synthetic hydrocarbons).**
- **strong emollient and occlusive effect makes it useful in dry skin conditions.**
- **greasy, sticky, retains sweat.**
- **contains no water and does not require a preservative.**
- **Less skin penetration than creams.**



### 3. Paste:

● mixture of powder and ointment. Pastes are less penetrating than ointment. Pastes make particularly good protective barrier when placed on the skin.



# Liquid Dosage Forms

Come mainly in solutions and suspensions.

**1-Elixirs:** solutions that contain an alcohol and water base, added sugar and flavorings.

**2-Syrups:** do not contain alcohol and are concentrated solutions of sugar, water, and flavorings. They are sweeter and more viscous than elixirs.





**3-Tinctures:** solutions that have an alcohol and water base and are applied topically, e.g. tincture of iodine.

**4-Liquid sprays:** solutions of a drug combined with water or alcohol. Commonly used for topical application.

**5-Foams:** another form of liquid medication propelled by spraying.



**6-Suspensions:** contain fine, undissolved particles of drug suspended in a liquid base. These particles will settle to the bottom of the container after prolonged standing, making it necessary to shake the suspension well before use to evenly distribute the drug particles.



**7-Emulsion:** a suspension of fat particles in a watery base.

**8-Lotion:** topically applied suspension of an active drug in a water base, usually some skin-moisturizing agent added; sometimes may be without moisturizer, e.g. Calamine lotion.

**9-Gel:** a suspension in which the drug particles are suspended in thickened water or a water-alcohol mixture. Gels on contact with the skin, dry and leave a thin film of active medication.



**10-Injections:** is a method of putting liquid into the body, usually with a syringe.

There are several methods of injection, including:

**Intravenous injection(IV):** It is a liquid administered directly into the bloodstream via a vein.

**Intramuscular (IM)** and **Subcutaneous (SC)** injection: Depends on drug diluents, they could be aqueous solution or depot preparations (solid or oil base, from which the drug gradually absorbed by surrounding tissue)

**Infusions:** These are dilute solutions containing the readily soluble constituents of crude drugs.



## ***Q/ What's the difference between vials and ampoules?***

**A/ Vials usually keeps contents sealed in screw caps and can be opened and closed indefinitely. Closed with screw cap or dropper to allow more than one dose to be taken and has a rubber cover to avoid contamination.**

**Ampoules are made completely of sealed glass and need to be broken to access the material sealed inside. Therefore, ampoules are not reusable.**



***Vial***



***Ampule***

**11-Inhalers:** are solutions, suspensions or emulsion of drugs in a mixture of inert propellants held under pressure in an aerosol dispenser.

**12-Nebulizer:** is a device used to administer medication to people in forms of a liquid mist to the airways.



***Nebulizer***



***Inhaler***



**13-Eye drops:** are saline-containing drops used as a vehicle to administer medication in the eye.

**14-Ear drops:** are solutions, suspensions or emulsions of drugs that are instilled into the ear with a dropper.

**15-Nasal Drops and Sprays:** Drugs in solution may be instilled into the nose from a dropper or from a plastic squeeze bottle.





**16-Gargles:** They are aqueous solutions used in the prevention or treatment of throat infections. Usually they are prepared in a concentrated solution with directions for the patient to dilute with warm water before use.

**17-Mouthwashes:** These are similar to gargles but are used for oral hygiene and to treat infections of the mouth.



***Some pharmaceutical preparations are:***

**Extracts: These are concentrated preparations containing the active principals of vegetable or animal drugs.**





**\*Onset of action: the time from the administration of drug till the drug begins its effect.**

**\*Duration of action: the time from beginning of action to the end of drug action.**

