

Pharmacology

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Dosage forms :physical form of a dose of a chemical compound used as a drug or medication intended for administration or consumption.

The need for dosage forms:

- 1.Accurate dose
- 2.Protection e.g. coated tablets, sealed ampules.
- 3.Protection from gastric juice.
- 4.Masking taste and odor.
- 5.Placement of drugs within the body tissues.
- 6.Sustained release medication
- 7.Insertion of drug into body cavities(rectal).
- 8.Use of desired vehicle for insoluble drugs.

Dosage forms

A. solid dosage forms

B. liquid dosage forms

C. Inhalation dosage forms

A. Solid dosage forms:

Tablet (tab): a hard, compressed medication in round, oval, square shape solid dosage form containing unit dose of one or more medicament.



coated tab.



uncoated tab.



coated tab.

Types of tablet:

1.sugar coated tab. To mask bad test .(flu-out®)

A coating may be applied to:

- 1.Hide the taste of the tablets components.
- 2.Make the tablet smoother and easier to swallow.
3. Make it more resistant to the environment.
4. Extending its shelf life.

2.Enteric coated tab. To protect the drug from degradation by stomach acid, not dissolve in stomach and only dissolve in alkaline juice of the intestine where the drug is liberated(e.g. tab. erythromycin) or to protect stomach from irritant drug as aspirin®.

Types of tablet:

3. **Extended release tablet** as e.g. diclofenac 100mg tab.

(sustained release SR , controlled release CR, timed release TR .)

Advantage: to eliminate multiple dosage regimens ,for drugs requiring constant blood level over along period of time , or to avoid side effect of drug when need to give high doses



Types of tablet:

4. **Sublingual tab.** are placed under the tongue. Where it dissolve and exert their action e.g. nitroglycerine

5. **Chewable tab.** are chewed in the mouth prior to swallowing e.g vitamin products

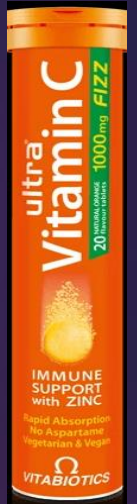


Types of tablet:

6. Effervescent tab.: are uncoated tab. that generally contain acid substances (citric and tartaric acids) and carbonates or bicarbonates and which react rapidly in the presence of water by releasing carbon dioxide. Effervescent granules evolve carbon dioxide when added to water.



7. Implants tab. use for sustained action and implanted under the skin .e.g. (for contraception)



Capsule: is medication in gelatin container.

Advantage: mask the unpleasant taste of its contents, protection from light.

Main types of capsules are:

-**Hard-gelatin capsules**, which are normally used for dry , powdered ingredients.



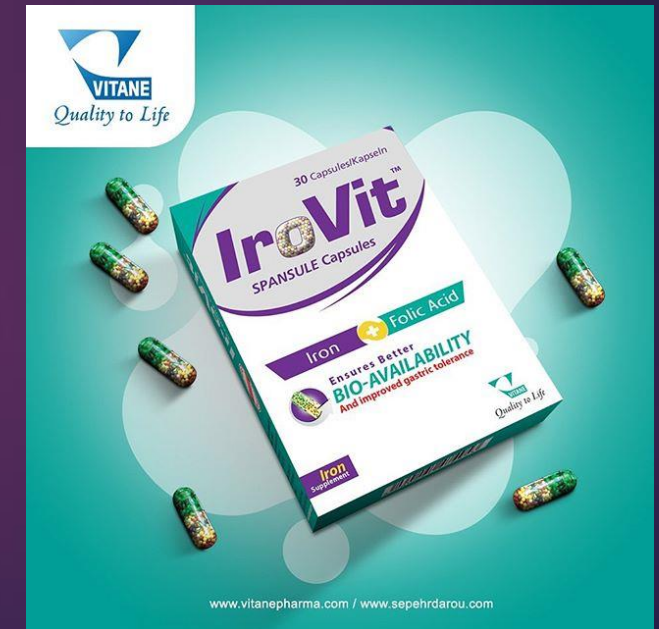
-**Soft-gelatin capsules**, primarily used for oils and for solution of drugs
e.g omega 3



Spansule: capsule containing medicine(in form of granules),coated with material having slow different dissolving rates so that the medicament is delivered at different specific time for prolonged action (ferofolic[®]).

Advantage of spansule:

1. provide controlled and sustained release of single or multiple prescription over time
- 2.Reduce the dosing frequency
- 3.improve patient compliance and reduce side effects of drug.



Lozenge : it is a solid preparation consisting of sugar and gum , the latter giving strength and cohesiveness to the lozenge and facilitating slow release of the medicament. It is used to medicate the mouth and throat .e.g.cough remedies(Strepcils®).

tablet intended to be dissolved slowly in the mouth to temporarily stop coughs, lubricate, and soothe irritated tissues of the throat (usually due to a sore throat), possibly from the common cold or influenza.



Pastilles :they are solid medicated preparations designed to dissolve slowly in the mouth , softer than lozenges.



Granules: they are consisting of solid , dry aggregates of powder particles often supplied in single dose sachets. Some granules are placed on the tongue and swallowed with water , others are intended to be dissolved in water before taking.



Powder: solid dried form of drug.

- simple powder (one active ingredient) e.g. acetylsalicylic acid (Aspirin) powder
- compound powder (more than one active ingredients)

Powder enclosed in sachets and in capsules.



Suppository : small solid medicated mass usually cone shaped that is inserted either into the rectum (rectal suppository) , vagina(vaginal suppository or pessaries) where it melts at body temperature.



Liquid Dosage form

Oral emulsion : fixed oil dispersed in water.

Oral suspension : liquid preparation for oral use containing one or more active ingredients suspended in suitable vehicle (is insoluble powder in water).



Syrup : concentrated aqueous solution of a sugar, usually sucrose to which medicaments are added .flavored syrups are a convenient form of masking disagreeable tastes (is sweet flavored preparation).



Elixir :it is pleasantly flavored clear liquid oral preparation of potent or nauseous drugs. The vehicle may contain high proportion ethanol or sucrose together with preservatives which confer stability of the preparation.



Linctuses: viscous, liquid oral preparation that are usually prescribed for the relief of cough.



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.

Mouth wash: are similar to gargles but are used for oral hygiene and to treat infections of the mouth.



Drops

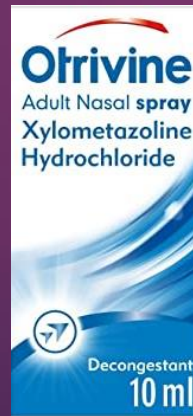
Oral drop: liquid preparation for oral use that are intended to be administered in small values with the aid of suitable measuring device they may be solutions, suspensions, or emulsions.



For the eye there are also drops, ointment, gel

Ear drops instilled into ear with dropper

Nose: drop, spray (decongestant)



Topical dosage form

Ointment : semi-solid greasy preparation that applied externally ,primarily to the skin and also mucous membranes e.g. the rectum ,nasal ,eye.

Typically medicated ointments are used for the treatment of infection , inflammation and pruritus . however , non medicated ointment are commonly used due to their emollient/lubricating properties.

They are used as emollients or for the application of active ingredients to the skin for protective, therapeutic, or prophylactic purposes and where a degree of occlusion is desired.

Ointments are usually very moisturizing, and good for dry skin. They have a low risk of sensitization due to having few ingredients beyond the base oil or fat, and low irritation risk. They are often disliked by patients due to greasiness.

Ointments

- ▶ Ointments contain the most oil so they can be quite greasy, but are the most effective at keeping moisture in the skin.
- ▶ strong emollient effect makes it useful in dry skin conditions
- ▶ occlusive effect enhances penetration of active drug and improves efficacy (especially in thickened, lichenified skin)
- ▶ provides a protective film on the skin (e.g., useful in housewife's hands, irritant dermatitis)
- ▶ greasy, sticky, retains sweat (therefore, not suitable in wet weepy dermatitis, hairy areas, or hot weather conditions)

Ointment

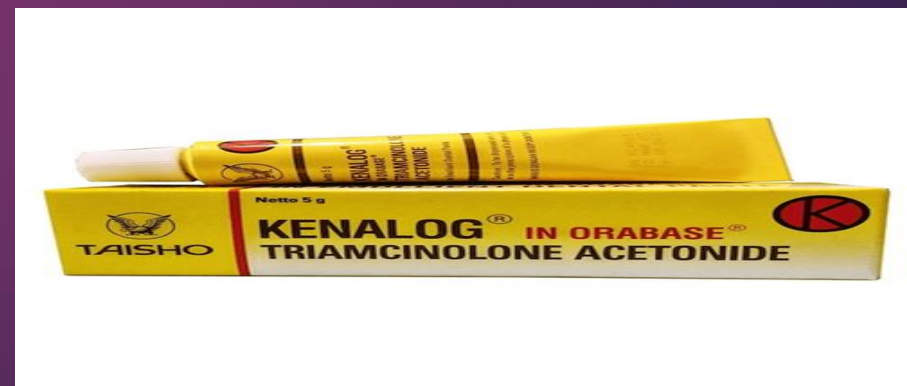


Pastes :are basically ointments which contain a high proportion of finely powdered medicaments .
the viscosity of pharmaceutical paste is greater than of pharmaceutical ointment.

two types of paste: fatty paste (zinc oxide paste) or non greasy paste.

- ▶ **Kenalog in Orabase** is a paste that contains the medicine **triamcinolone** acetonide. **Triamcinolone** acetonide belongs to a class of drugs known as corticosteroids. relieve itching, burning, inflammation and allergies.
- ▶ This medication is used for the temporary relief of symptoms from mouth sores due to injury. This drug comes in a dental paste that allows it to stick to the inside of the mouth /cheeks/gums.

Reducing the swelling, itching , and pain that can occur with mouth sores.



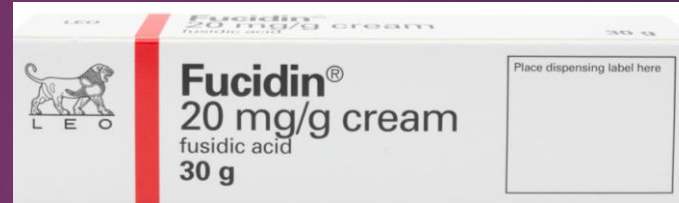
Creams: are semi-solid emulsions, that is mixtures of oil and water . they are divided into two types:

1. **Oil in water (o/w) cream (aqueous):** which are composed of small droplets of oil dispersed in a continuous aqueous phase, are more comfortable and cosmetically acceptable as they are less greasy and more easily washed off using water.

2. **Water in oil (w/o) cream (oily):** are composed of small droplets of water dispersed in a continuous oily phase, are more difficult to handle but many drugs which are incorporated into creams are hydrophobic and will be released more readily from water in oil cream than oil in water cream, are more greasy and more emollient

- For wet or oozy skin conditions — creams, lotions, and drying pastes are most suitable.
- Gel or lotion for hairy areas.
- For burn ,wounds→ creams
- For dry, scaly skin conditions — ointments and oils are appropriate.

Creams:



Lotion: are fluid preparations , used for soothing , antipruritic effects. advantageous in the treatment of conditions characterized by significant inflammation and tenderness



Collodion : is a solution nitrocellulose in ether or acetone .sometimes with addition of alcohols. For external use, when applied on the skin the solvent evaporates and leaving dry celluloid like film, e.g. compound wart remover.



Gel : Semi-solid system composed of solid three dimensional ,cross linked matrix of polymers within a liquid , yielding a jelly -like material.it is used for medication ,lubrication . e.g. voltaren gel on skin , benzocaine gel for relieve pain of minor mouth problem toothache ,sore gum

- Gels liquify on contact with the skin, dry and leave a thin film of active medication



Inhaled Dosage form:

1.**Inhaler**: is solution, suspension or emulsion of drug in a mixture of inert propellant held under pressure in an aerosol dispenser.as used to treat asthma.



2.**Nebulizer**: is a device used to administer medication to people in form of a liquid mist to the airways, used in treatment of serious cases of respiratory disease and severe attacks of asthma.



Injections:

1.Ampoules: a small cylindrical glass/plastic container. they are used for single dose small volume drug/water.



2.Vial: for single- dose or multi- dose. Has rubber cover to avoid contamination.



Injectons:

3. Prefilled syringe : some medicine supplied in prefilled syringe for self administration (single dose medicine filled in syringe with fixed needle).



4. Intravenous fluid:

Normal Saline , Ringer solution

Large volume of fluid giving by intravenous infusion for electrolyte balance, fluid replacement **or as** vehicle for other drug.



