

TYPES OF DOSAGE FORMS

Definition: Dosage forms are the means by which drug molecules are delivered to sites of action within the body.

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 odour.
- 5- Placement of drugs within body tissues.
- 6- Sustained release medication.
- 7- Controlled release medication.
- 8- Optimal drug action.
- 9- Insertion of drugs into body cavities (rectal, vaginal).
- 10- Use of desired vehicle for insoluble drugs.

They are classified according to:

Route of administration

Oral
Topical
Rectal
Parenteral
Vaginal
Inhaled
Ophthalmic
Otic

Physical form

Solid
Semisolid
liquid

A **tablet** is a hard, compressed medication in round, oval or square shape.

The excipients include:

- Binders, glidants (flow aids) and lubricants to ensure efficient tableting.
- Disintegrants to ensure that the tablet breaks up in the digestive tract.
- Sweeteners or flavours to mask the taste of bad-tasting active ingredients.
- Pigments to make uncoated tablets visually attractive.

Sublingual and buccal medications are administered by placing them in the mouth, either under the tongue (sublingual) or between the gum and the cheek (buccal).

- The medications dissolve rapidly and are absorbed through the mucous membranes of the mouth, where they enter into the bloodstream.
- Avoid the acid and enzymatic environment of the stomach and the drug metabolizing enzymes of the liver.
- Examples of drugs administered by this route: e.g. vasodilators, steroidal hormones.

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Effervescent tablets are uncoated tablets 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.

- 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.

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A **capsule** is a medication in a gelatin container.

- Advantage: mask the unpleasant taste of its contents.

- The two main types of capsules are:

1- hard-shelled capsules, which are normally used for dry, powdered ingredients,

2- soft-shelled capsules, primarily used for oils and for active ingredients that are dissolved or suspended in oil.

- Pills are oral dosage forms which consist of spherical masses prepared from one or more medicaments incorporated with inert excipients.
- Pills are now rarely used.
- 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.

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- Effervescent granules evolve carbon dioxide when added to water.

a- Oral solution:

Oral solutions are clear Liquid preparations for oral use containing one or more active ingredients dissolved in a suitable vehicle.

b- Oral emulsion:

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Oral emulsions are stabilized oil-in-water dispersions, either or both phases of which may contain dissolved solids.

c-Oral suspension:

- Oral suspensions are Liquid preparations for oral use containing one or more active ingredients suspended in a suitable vehicle.
- Oral suspensions may show a sediment which is readily dispersed on shaking to give a uniform suspension which remains sufficiently stable to enable the correct dose to be delivered.

d- Syrup:

- It is a concentrated aqueous solution of a sugar, usually sucrose.
- Flavored syrups are a convenient form of masking disagreeable tastes.

e- Elixir:

- It is pleasantly flavored clear liquid oral preparation of potent or nauseous drugs.
- The vehicle may contain a high proportion of ethanol or sucrose together with antimicrobial preservatives which confers the stability of the preparation.

- Ointments are semi-solid, greasy preparations for application to the skin, rectum or nasal mucosa.

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- The base is usually anhydrous and immiscible with skin secretions.
- Ointments may be used as emollients or to apply suspended or dissolved medicaments to the skin.

2- Creams:

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

A- oil-in-water (O/W) creams: which are composed of small droplets of oil dispersed in a continuous aqueous phase.

Oil-in-water creams are more comfortable and cosmetically acceptable as they are less greasy and more easily washed off using water.

B- water-in-oil (W/O) creams: which are composed of small droplets of water dispersed in a continuous oily phase.

Water-in-oil creams are more difficult to handle but many drugs which are incorporated into creams in hydrophilic form will be released more readily from a water-in-oil cream than an oil-in-water cream.

Water-in-oil creams are also more moisturising as they provide an oily barrier which reduces water loss from the stratum corneum, the outermost layer of the skin.

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