

## SUPPOSITORIES

Definition:

Suppositories are solid or stiffened semi solid dosage forms intended for insertion into body orifices (rectum, vagina, urethra) where they melt, soften, or dissolve and exert a local or systemic effect.

Local action:

Rectal suppositories intended for localized action are most frequently used to relieve constipation or pain, irritation, itching, and inflammation associated with hemorrhoids.

Systemic action: (e.g. Antiasthmatic, antirheumatic & analgesic drugs).

The suppository may be ideally used in:

- 1- Babies or old people who cannot swallow oral medication.
- 2- Post operative people who cannot be administered oral medication.
- 3- People suffering from severe nausea or vomiting.
- 4- Drugs inactivated by the pH or enzymatic activity of the stomach or intestine.
- 5- Drugs irritating to the stomach.
- 6- Drugs destroyed by portal circulation.

Classification Of Suppositories:

Rectal suppositories are cylindrical or conical and tapered or pointed at one end. They generally weigh approximately 2 g and are about 1-1.5 inches long. Infant suppositories weigh approximately one-half that of adult rectal suppositories. The modern rectal suppository is a conical or torpedo shaped item which is about 2 - 3 centimeters in length. Suppositories for adults weigh 2 grams each and children suppositories weigh 1 gram each.

Vaginal suppositories are available in various shapes, e.g., ovoid or globular, and weigh approximately 3-5 g each. Extemporaneously prepared vaginal suppositories utilizing water-soluble bases, such as polyethylene glycol, are preferred as they will minimize leakage.

Urethral suppositories, are usually about 5 mm in diameter and 50 mm in length for females and 125 mm in length for males, with weights being 2 g for female and 4 g for male. Suppositories are indicated for administering drugs to infants and small children, severely debilitated patients, those who cannot take medications orally and those for whom the parenteral route might be unsuitable.

Suppositories are used to administer drugs for either systemic or local application.

Vaginal suppositories are commonly used to treat gynaecological ailments, including vaginal infections such as candidiasis.

Rectal suppositories are commonly used for:

- For laxative purposes, with chemicals such as glycerin or bisacodyl.
- Local applications include the treatment of hemorrhoids, itching and infections by delivering a moisturizer or vasoconstrictor.
- For general medical administration purposes: the substance crosses the rectal mucosa into the bloodstream; examples include paracetamol (acetaminophen), diclofenac, opiates, and eucalyptol suppositories.
- Systemic application: for example, extemporaneously compounded suppositories containing metoclopramide, haloperidol, dexamethasone, diphenhydramine and benztropine can be administered prophylactically to effectively control severe nausea and vomiting, and a prolonged release morphine alkaloid suppository for chronic pain has been used.

Urethral suppositories are used for the treatment of severe erectile dysfunction. (for example Alprostadil). They are marketed under the name Muse in the United States. Its use has diminished since the development of oral impotence medications, but is still on the market.

Physiological factors affecting rectal absorption:

1- Quantity of fluid available:

The quantity of fluid available for drug dissolution is very small (approximately 3 ml). Thus the dissolution of slightly soluble substances is the slowest step in the absorptive process.

2- The properties of rectal fluid:

The rectal fluid is neutral in pH (7 – 8) and has no buffer capacity.

3- Contents of the rectum:

When systemic effects are desired, greater absorption may be expected from an empty rectum as the drug will be in good contact with the absorbing surface of the rectum.

4- Circulation route:

The lower hemorrhoidal veins surrounding the colon receive the absorbed drug and initi