

PHARMACOLOGY FOR NURSING



كلية التمريض - جامعة تكريت

المرحلة الثانية | أدوية

أ د حسام الدين سالم النجار

2024-2025 \ First Term

Drug Dosage & Therapy Forms

Include:-solid, semisolid, liquid

A. Solid drug forms

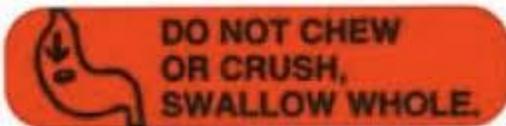
1. Tablet. In prescription usually abbreviated as tab or tabs - contains active drug in dried powder form as well as binders and fillers to give the tablet bulk and ensure the proper size and solidity.



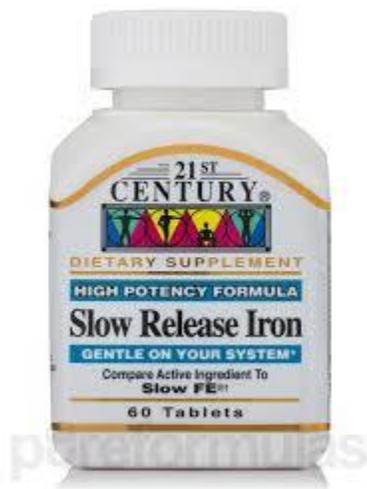
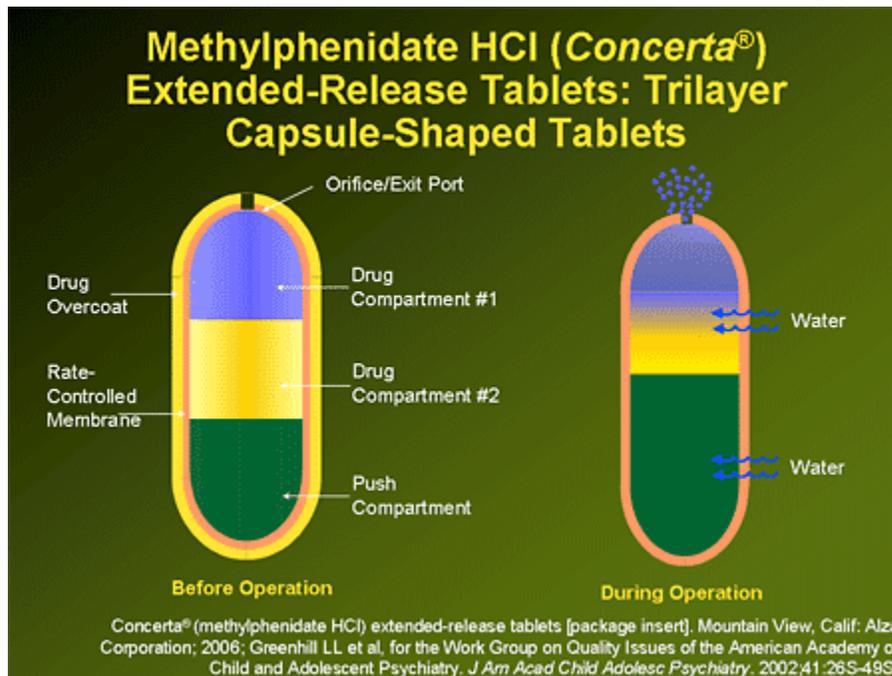
a. Scored tablets have indented lines, usually dividing the tablet into two equal halves, sometime three or four parts .



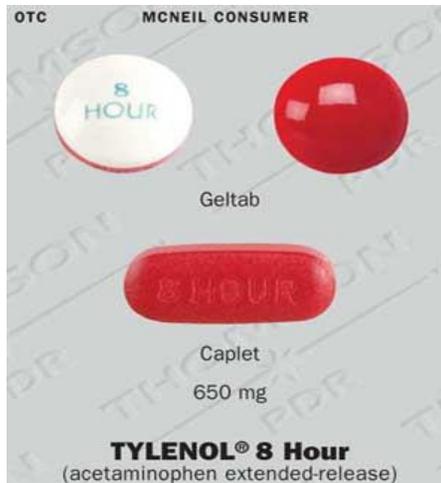
b. Enteric coated tablets have special coating designed to allow tablet to pass through acid in stomach and not dissolve until in alkaline environment of small intestine – this avoids irritating the stomach, e.g. Aspirin.



c.Slow-release tablets designed to provide continuous, sustained release of a certain drug over time .



d. **Caplets—coated tablets** in form of tablets; elongated shape may make it easier for some to swallow.



e.Lozenges – tablets formed from hardened base or sugar and water 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.



wiseGEEK

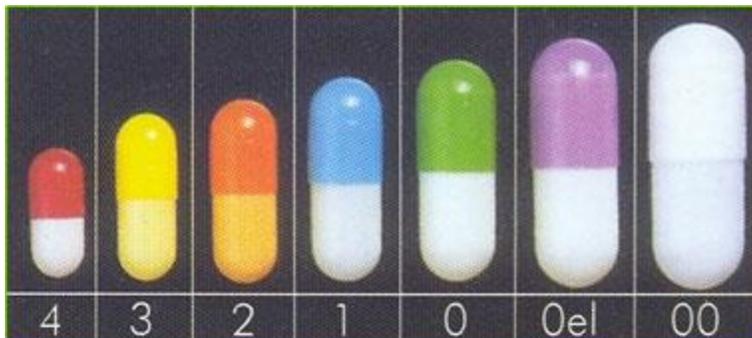
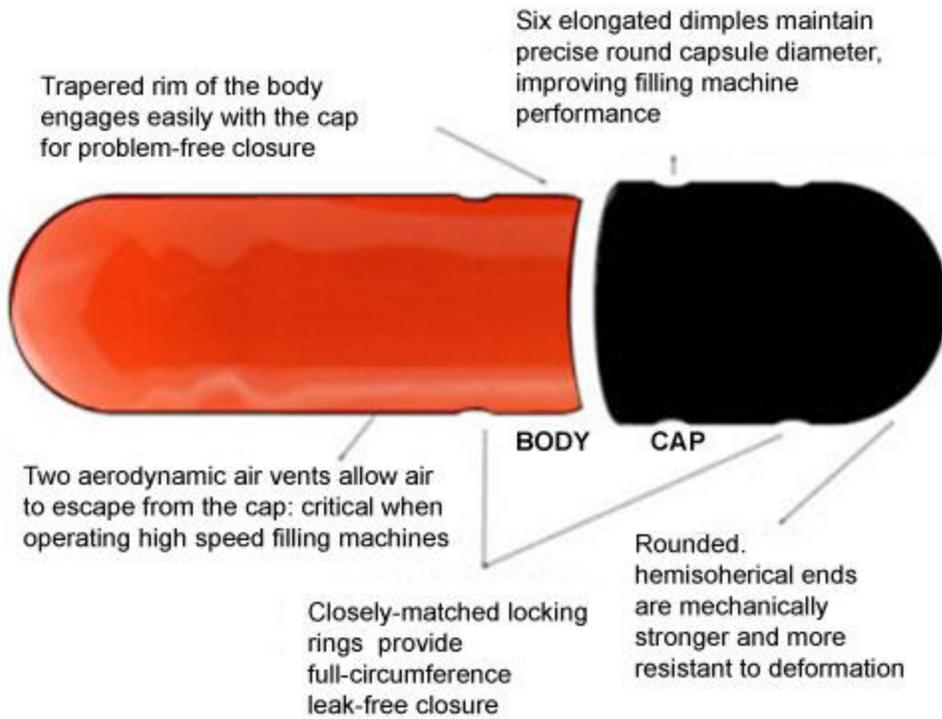
2. Capsule: in prescription usually abbreviated as *cap* or *caps*, comes basically in two varieties .



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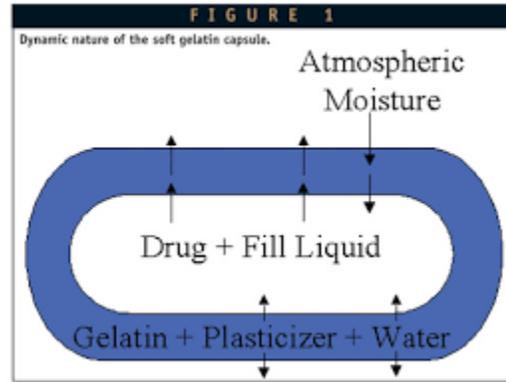
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1. Soft gelatin shell manufactured in one piece with drug usually in liquid form inside the shell, e.g. fat-soluble vita



mins



A and E.



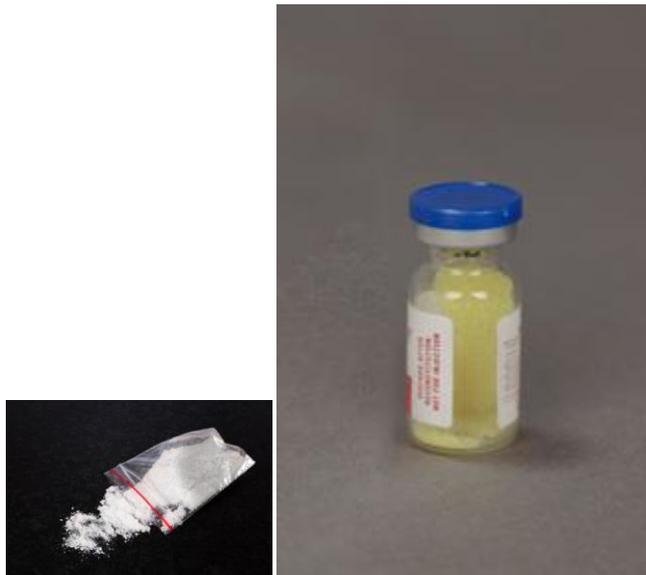
2. hard shell manufactured in two pieces that fit together and hold the drug, either in powdered or granular form.



3. powder: a finely ground form of an active drug



1. Can be contained in capsules for oral administration
2. Can be used for topical application
3. Can be found in glass vials as dried form of the drug where it must be reconstituted by adding sterile water or sterile NaCL for purpose of injection, e.g. I/V. ampicillin.



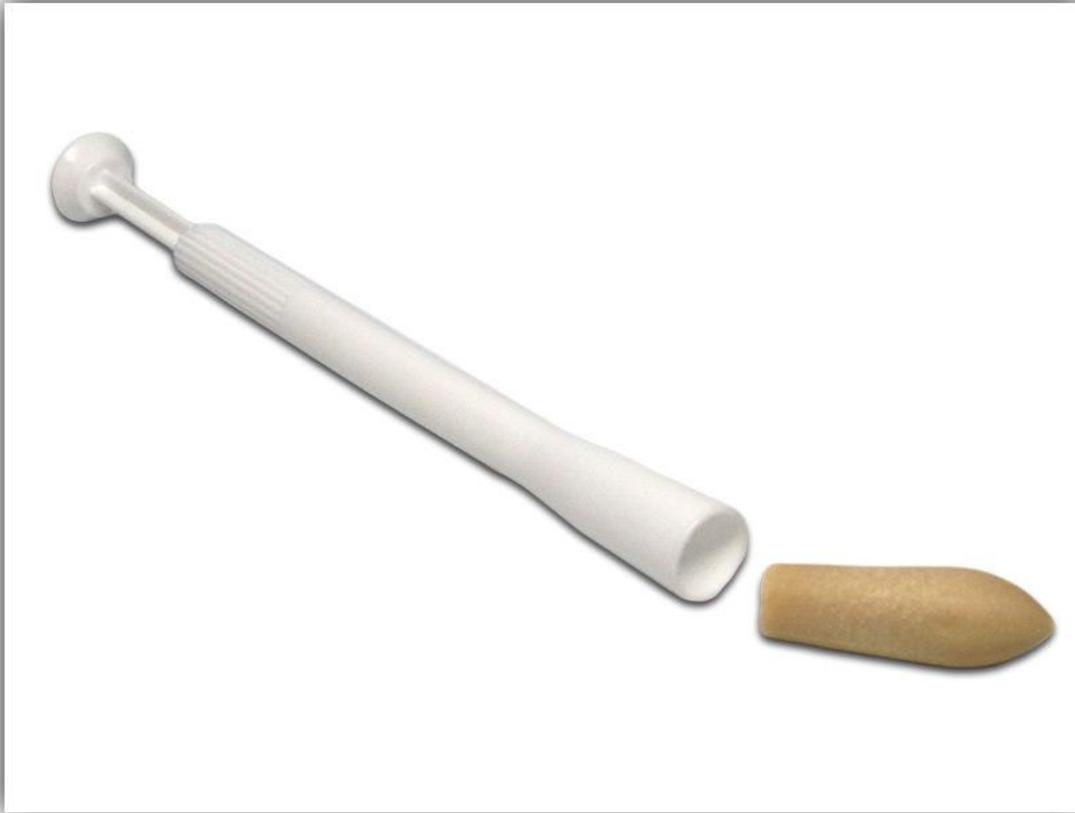
4- Suppository: a solid base of glycerin containing the



drug

1. Manufactured in appropriate size for rectal and vaginal insertion

a. Vaginal suppositories most often used to treat vaginal infections.



b. Rectal suppositories offer alternate route of administration for patients who complain of vomiting e g paracetamol supp for babies and children as analgesic and antipyretic drug.



II. Semi-solid drug forms

Dosage forms that are too soft in structure to qualify for solids but too thick to be considered liquid; while most creams and ointments are applied to the skin like nitroglycerin ointment (antianginal).

A. Cream– a semisolid emulsion of oil and water, the main ingredient being water .



1. **Oil and Water** remain well mixed by adding emulsifying agents
2. a large number of topical drugs are manufactured in a cream base, e.g. hydrocortisone cream
- 3-easy to apply and appear to vanish when rubbed into skin.

B. Ointment– a semisolid emulsion of oil and water, the main ingredient being oil

1. Many topical drugs are produced in ointment form
2. Specially formulated ophthalmic ointments are made to be applied topically to the eye without causing irritation.



Ointments

- Contains more than 50% hydrocarbons and less than 20% water.
- Thicker consistency, greasy, difficult to spread over large areas of the skin.
- Stay longer on the surface of skin, prescribed for dry skin, keeps moisture for a longer period.

Creams

- Contains less than 50% hydrocarbons and more than 20% water.
- o/w or w/o type emulsion.
- Lighter in consistency, easy to spread over large areas.
- Due to high water content, skin dry up faster. Better for greasy/oily skin.

C. Pastes:e.g. ZnO combines three agents oil, water and powder .its an ointment in which a powder is suspended .

SEMISOLID DOSAGE FORMS

Include drug delivery systems and dosage forms intended to be applied to the skin.

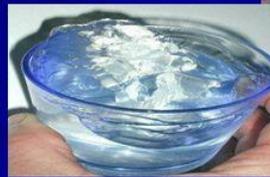
Ointments



Pastes



Creams



Gels

Topical dosage forms (Cont.):

5- Pastes :

- Pastes are basically ointments into which a high percentage of insoluble solid has been added
- The extraordinary amount of particulate matter stiffens the system.
- Pastes are less penetrating and less macerating and less heating than ointment.
- Pastes make particularly good protective barrier when placed on the skin, the solid they contain can absorb and thereby neutralize certain noxious chemicals before they ever reach the skin.
- Like ointments, paste forms an unbroken relatively water – impermeable film unlike ointments the film is opaque and therefore can be used as an effective sun block accordingly.
- Pastes are less greasy because of the absorption of the fluid hydrocarbon fraction to the particulates.

D. Lotion:-

- Are similar to creams but contain more water. They are actually suspension of finely dispersed powdered material in a base of water or oil and water .lotion are easy to apply useful for cooling and drying the skin.



E-Gel :-are water –based substances thickened without oil or fat .



III. Liquid drug forms:

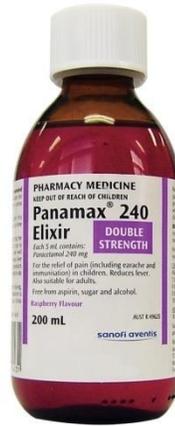
come in solutions and suspensions; generally described as either

Aqueous from the Latin meaning watery consistency

• **Viscous** designating a non-watery or thick liquid

A. Solution: never need to be mixed as the drug-to-water concentration remains the same in every part of the solution.

1. Elixirs: solutions that contain an alcohol and water base, added sugar and flavorings, e.g. Tylenol; commonly used for pediatric and elderly patients who have difficulty



swallowing tablets or capsules

13-Liquid preparations (Cont.):

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.



2. Syrups: do not contain alcohol and are concentrated solutions of sugar, water, and flavorings. They are sweeter and more viscous than elixirs. Most cough medications are syrup based.



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

- **Mouth Washes:** Hydroalcoholic solutions. used for two purposes therapeutic and cosmetic.
- Therapeutic to reduce plaque, gingivitis, dental caries.
- Cosmetic to reduce bad breath through the use of antimicrobial and/ or flavoring agents.



B. Suspensions: contain fine, undissolved particles of drug suspended in a liquid base. These particles will settle to the bottom of the container, making it necessary to shake the suspension well before use to evenly distribute the drug particles. e.g. antacids.



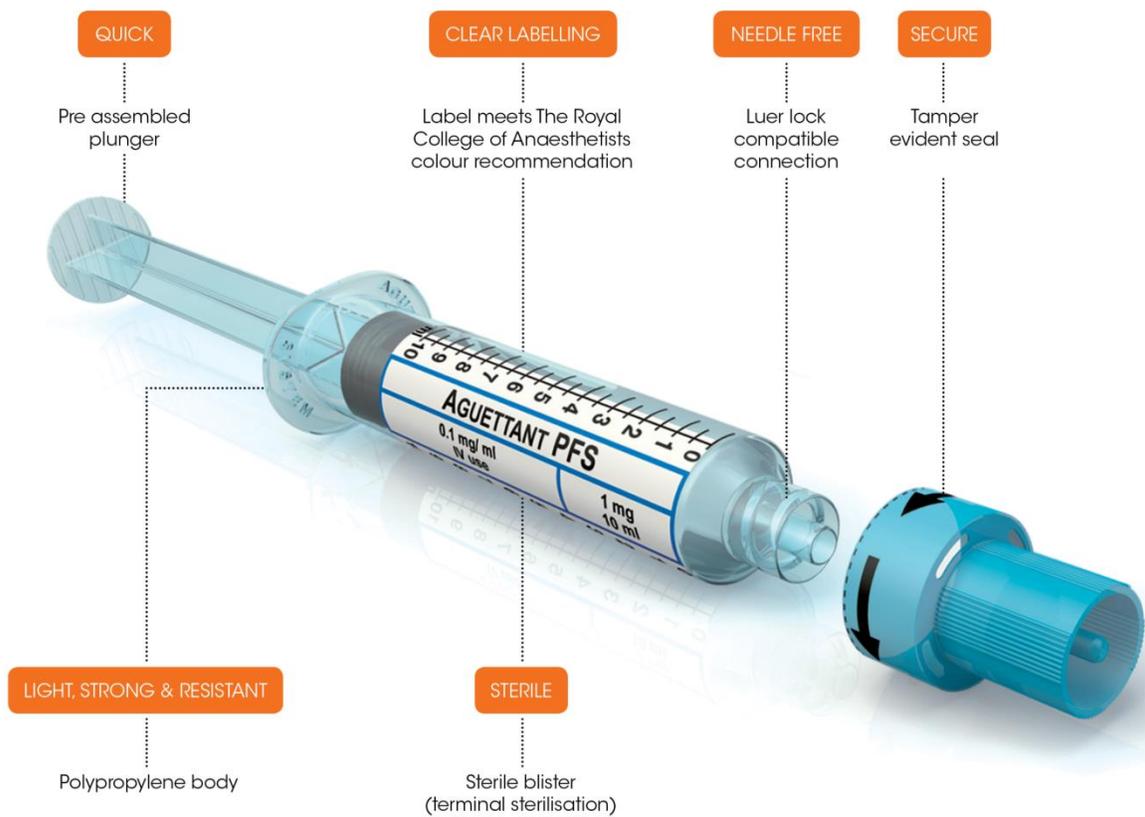
1. **Emulsion:** a suspension of fat particles in a watery base.
2. **Lotion:** topically applied suspension of an active drug in a water base, usually some skin-moisturizing agent added; sometimes may be without moisturizer, e.g. Calamine lotion
3. **Gel:** a suspension in which the drug particles are suspended in a thickened water medium.

Injectable drug dosage forms:

vials and ampoules







Special drug dosage form system :

Prefilled syringes or ready use syringes



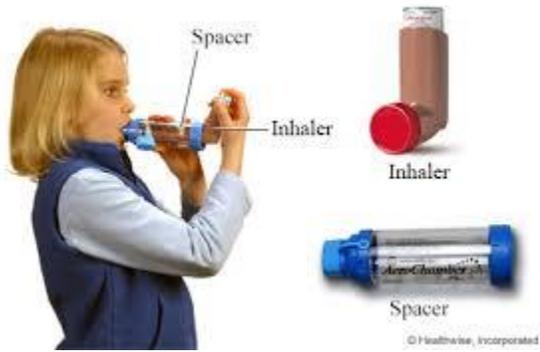
Benefits of prefilled syringes are:

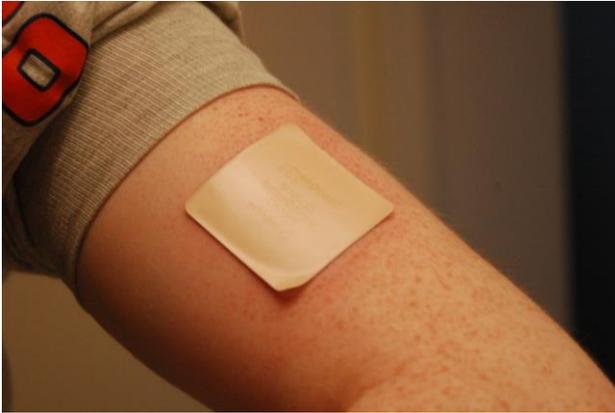
1\ Elimination of overfill of expensive drug products, therefore reducing waste.

2\ Elimination of dosage errors, since the exact amount of a deliverable dose is contained in the syringe (unlike a vial system).



inhalers, transdermal patches.





NDC 0406-9000-76

Five (100mcg/hr) Systems

FENTANYL TRANSDERMAL SYSTEM

Rx only

100mcg/hr

C
II

In vivo delivery of 100mcg/hr fentanyl for 72 hours

Because it can cause trouble breathing which can be fatal,
DO NOT USE FENTANYL TRANSDERMAL SYSTEM:

- For short term or any post-operative pain, or occasional pain
- For mild pain or pain that can be treated with non-opioid or as-needed opioid medication
- Unless you have been using other narcotic opioid medicines (must be opioid tolerant)

Each transdermal system contains: 11.0mg fentanyl

DO NOT USE IF SEAL ON POUCH IS BROKEN

KEEP OUT OF REACH OF CHILDREN

Read enclosed fentanyl transdermal system Medication Guide for important safety information.

**ONLY for pain requiring
opioid medicine
around-the-
clock**

Mallinckrodt

Subcutaneous Implants

In medicine, a subcutaneous implant, or subcutaneous pellet, is an implant that is delivered under the skin into the subcutaneous tissue by surgery or injection and is used to deliver a drug for a long period of time.



Contraceptive implant device.



Breast silicone implants

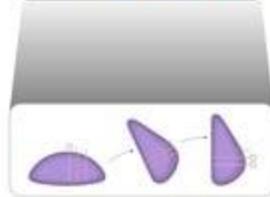
Rigorous analysis of anatomy and anthropometric measurements



Divina™ 3-D Scanner



Successful outcomes of an implant-based augmentation mammoplasty combined with imaging modalities



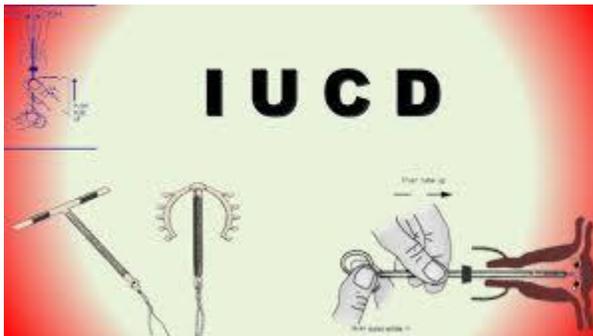
Motiva Ergonomix™ Round SilkSurface



Meticulous assessment of the patient safety



Aplio i600 HRUS



INTRAUTERINE CONTRACEPTIVE DEVICES

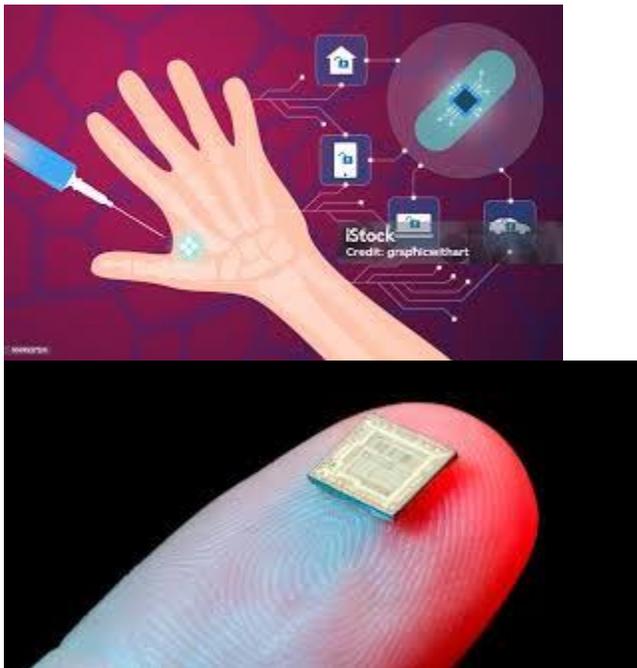
A subdermal implant is a body modification placed under the skin, allowing the body to heal over the implant and creating a raised design. Such implants fall under the broad category of body modification. Many subdermal implants are made out of silicone, either carved or mold injected. Many people who have subdermal implants use them in conjunction with other types of body modification to create a desired, dramatic effect. This process is also known as a 3-D implant, or pocketing.

Electronic implants

For electronic implants see [microchip implant](#).

Cosmetic implants

Cosmetic Implants range from small subdermal silicone implants to form desired shapes and forms, ranging to LED light implants that emit light from under the skin.



A human microchip implant is any electronic device implanted subcutaneously (subdermally) usually via an injection. This type of subdermal implant usually contains a unique ID number that can be linked to information contained in an external database, such as identity document, criminal record, medical history, medications, address book, and other potential uses.

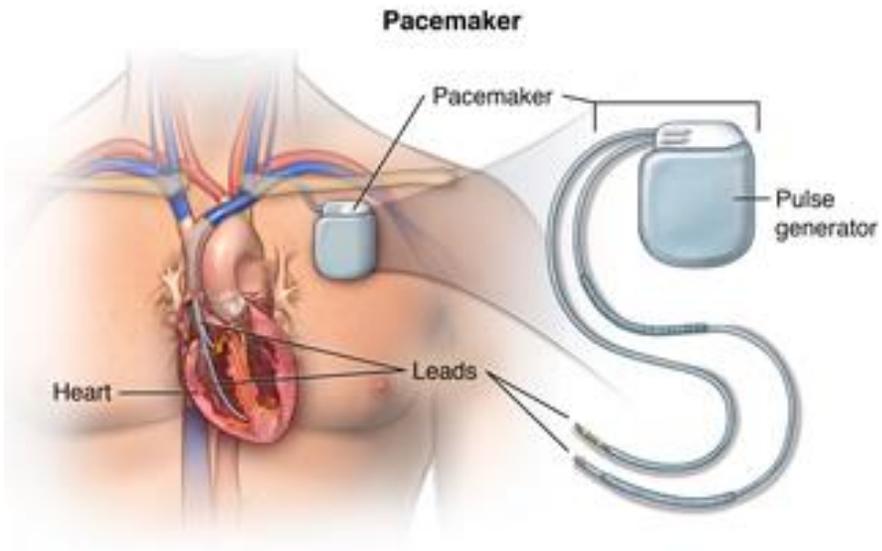
A list of popular uses for microchip implants are as follows;

Address book, Cryptocurrency wallet, Keycard, Medical history/medical records, Medical identification tag , Payment cards and Travel cards .

A **cardiac pacemaker implant** is a small device put under the skin in chest used to treat some arrhythmias. During an arrhythmia,



the heart can beat too



fast, too slow,
or with an irregular rhythm.



Dental implants



SUBDERMAL IMPLANT



IRIS IMPLANT



BREAST AUGMENTATION

