


# **SUTURE MATERIAL**

## Ideal properties:

- Easy to handle.
  - Predictable behaviour in tissues.
  - Predictable tensile strength.
  - Sterile.
  - Secure knotting ability.
  - Minimal tissue reaction.
  - Non-allergenic, non-carcinogenic, non-shrinkage
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# CLASSIFICATIONS OF SUTURE MATERIALS

## According to source:

- 1.Natural
- 2.Synthetic
- 3.Metallic

## According to structure:

- 1.Monofilament
- 2.Multifilament

# CLASSIFICATIONS OF SUTURE MATERIALS

## According to fate:

- 1.Absorbable
- 2.Non-absorbable
  - i. Organic
  - ii. Inorganic
  - iii. Synthetic

## According to coating:

- 1.Coated
- 2.Uncoated

## Non absorbable

Organic	Inorganic	Synthetic
Cotton	Mettalic suture	Nylon
Silk	Suture wire	Terelene
Horse hair	Stainless steel wire	Vetafil
Linen	Tantalum Wire	Polyester
Umblical tape	Wound Clips	Synthetic Mesh
Dermal suture	Pin suture	Surgilene
Silk worm gut	Mettalic Mesh	Polybutester


# Absorbable

## 1. Catgut:

- It is obtained from the from the submucosa of small intestine of a sheep .
- Serosal layer of bovine intestine .
- Initially it was referred to as “kitgut” meaning the cord or string on fiddle.
- It is composed of formaldehyde treated collagen fibres.
- Sterilised by ionising radiation or by ethylene oxide.
- Available in presterilised aluminium foils containing 85% ethyl alcohol, it cannot be autoclaved.
- Heat denature the protein and tensile strength is reduced.
- The absorption time can be delayed by treatment with chromic acid ,iodine , tannin , formalin,or other chemicals.
- The catgut is also available as plain catgut, mild chromic catgut,medium chromic catgut and extra chromic catgut based on the degree of treatment with chromic acid.
- Plain Catgut                    Type A: Absorbed in about 5 days
- Mild chromic catgut        Type B : Absorbed in about 10 days
- Medium Chromic            Type C : Absorbed in about 20 days
- Extra Chromic                Type D : Absorbed in about 40 days

The material is available in sizes varying from no.

- 7/0 (Finest )
- 6/0
- 5/0
- 4/0
- 3/0
- 2/0
- 1/0
- 1
- 2
- 3 (Thickest )

- In routine surgical procedures, mild to medium chromic catgut is used.
  - It is absorbed and digested by macrophages and lysosomal enzymes.
  - Catguts weakens swell in vivo and henc result in poor knot security.
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## 2. **Kangaroo tendon :**

- It is obtained from the tendon of tail of the kangaroo
- It is used for suturing joint capsule, hernial ring and places where more strength is required.

## 3. **Fascia lata :**

- It is obtained from bovine fascia lata and it is available in tape like pieces preserved in glass tube.

## 4. **Cargile membrane:**

- It is obtained from bovine caecum in the form of thin sheet
- It is used to cover surfaces from which peritoneum has been removed. It is not generally used.

## 5. **Collagen:**

- It is prepared from bovine flexor tendon filament.
- It is a multi-filament absorbable suture and it is absorbed within 60 days.
- It is treated with formaldehyde and chromic acid or both.
- Less tissue reaction than catgut.
- It is used in ophthalmic surgery.

• **Polyglactin 910 (vicryl):**

- It is synthetic braided absorbable suture material consist of glycolic acid and lactic acid in the ratio of 9:1.
- Sterilised by ethylene oxide.Absorbed by hydrolysis in 40 to 90 days .
- Used in occular surgery and closing of muscles after laprotomy.
- It is inert , non-pyrogenic and produces mild tissue reaction. It remains stable in contaminated wound.

7. **Polyglycolic acid (daxon):**

- It is synthetic suture material prepared from glycolic acid.
- It is smooth, strong and absorbable.
- Absorbed in 100 to 200 days by hydrolysis.
- Used in closure of clean wound .
- size varies from 6/0 to 1.

# Vicryl



# Dexon

