Suture Material

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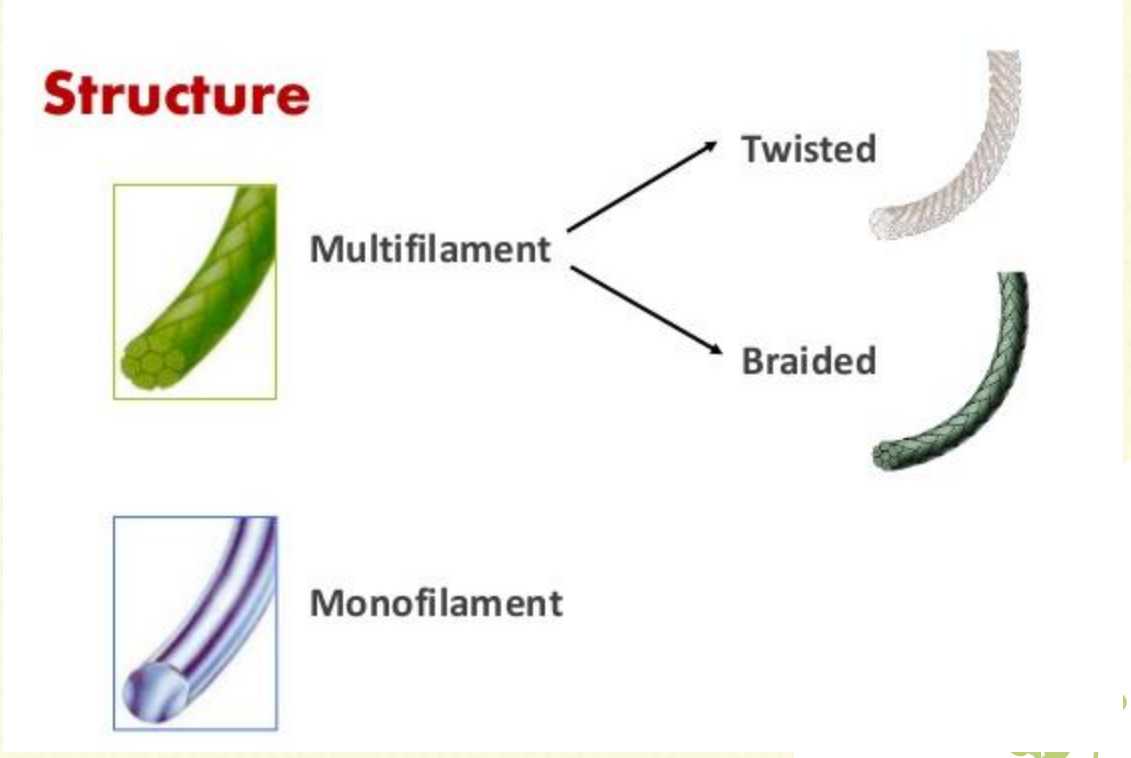
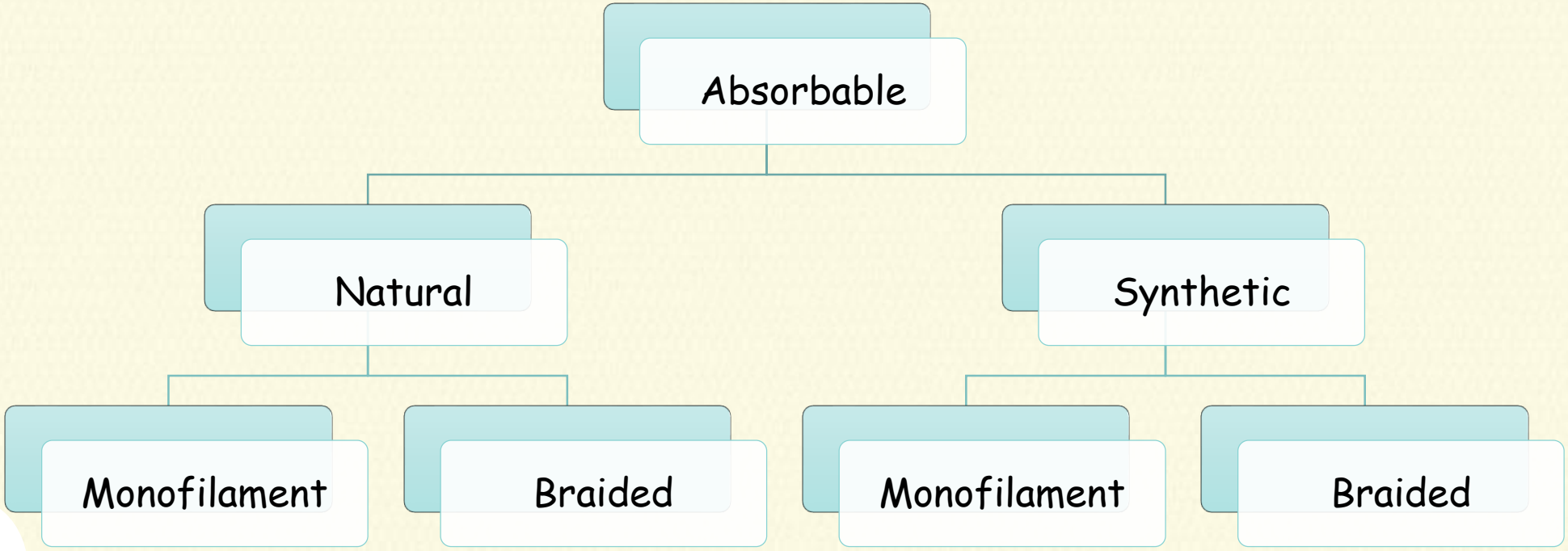
Classifications

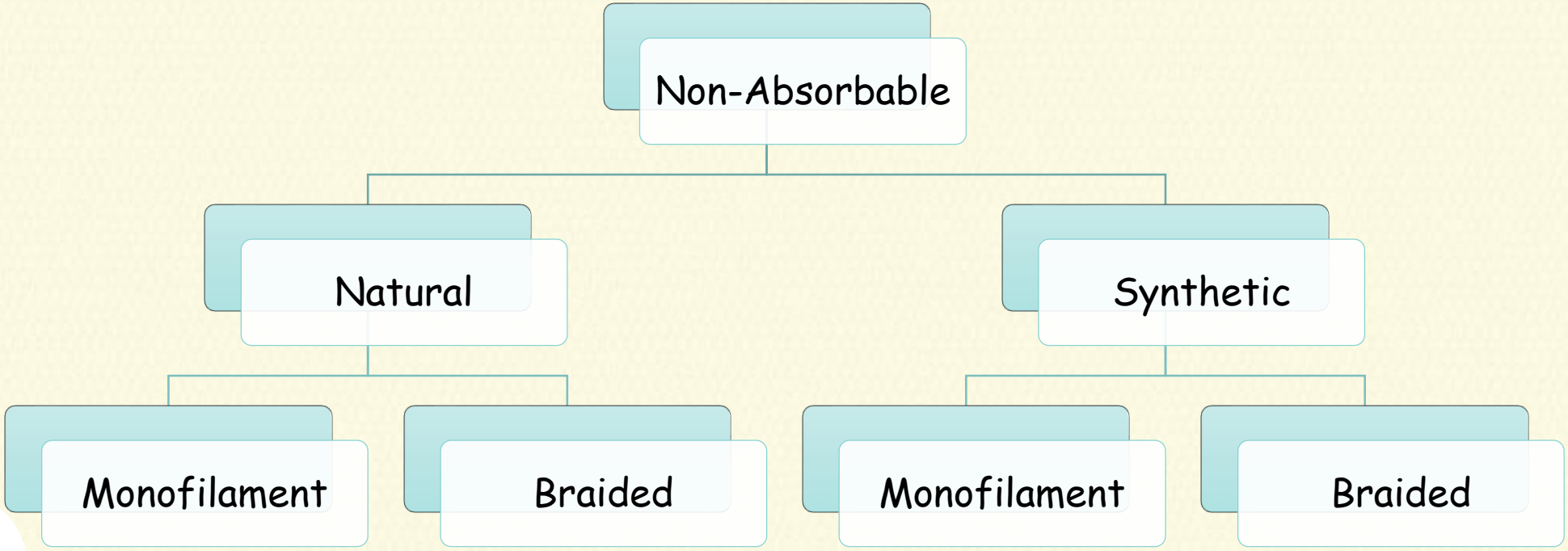
- Absorbabale vs non-absorbable
- Natural vs synthetic
- Monofilament vs polyfilament



Absorbable


Absorbable
Natural
Synthetic
Monofilament
Braided
Monofilament
Braided
Plain Catgut
Chromic catgut
Polydiaxanone - PDS
Polyglycolic acid- Dexon
Polyglactin - Vicryl

Non -Absorbable



Expanded polytetrafluoroethylene (ePTFE) – expanded monofilament

Absorbable vs Non- absorbable

- Strength of absorbable sutures are less

- Non-absorbable sutures
- retain strength indefinitely and are used
- where strength is needed until repair is completed naturally (abdominal incision and hernia repair)

Natural vs Synthetic

Natural

- Catgut
- Silk
- Linen (strong inflammatory reaction)

Synthetic

- Dexon
- Vicryl
- PDS
- Nylon
- Polypropylene
- ePTFE

Monofilament vs Braided

Monofilament

- Catgut
- Polydiaxanone
- Wire
- Polypropylene
- Nylon

They are smooth

Pass easily through tissue

Cause less tissue reaction

Braided

- Polyglycolic acid
- Polyglactil
- Silk
- Nylon
- Linen

Handle well

More risk of infection

Features of a ideal suture material

- Adequate tensile strength
- Good knot holding property
- Should be least reactive
- Easy handling property
- Should have less memory
- Should be easily available and costeffective

Packaging…


Metric Gauge
Imperial Gauge
Product (re-order) Code
3-0
(2 Ph. Eur.)
VCP497H
Needle size & curvature
PS-2
19 mm 3/8c
Cutting
Coated
VICRYL* Plus
Antibacterial / Polyglactin 910
non colorato intrecciato sutura assorbibile
incolora trenzado sutura absorbible
ongekleurd gevlochten
chirurgisch hechtmateriaal resorbeerbaar
ATRALOC*
Needle type
Needle point
Needle profile
45cm
36 pezzi / unidades / stuks
LOT TK8DXPM0
STERILE EO
2006-09
ETHICON
Sterilised Ethylene Oxide
Do Not Re-use
See Instructions for use
Expiry date
Batch Number

Table: Uses of different sizes of suture.

Size	Uses
7/0 and smaller	Ophthalmology, microsurgery
6/0	Face, blood vessels
5/0	Face, neck, blood vessels
4/0	Mucosa, neck, hands, limbs, tendons, blood vessels
3.0	Limbs, trunk, gut, blood vessels
2/0	Trunk, fascia, viscera, blood vessels
0 and larger	Abdominal wall closure, fascia, drain sites, arterial lines, orthopaedic surgery


Polyglycolic Acid
(synthetic absorbable suture)
Chromic(Catgut)
Plain(Catgut)
Silk(Braided)
Nylon (Monofilament)
Polypropylene
(Monofilament)
Polyester(Braided)
Stainless Steel
Wire (monofilament)

Absorbable Suture Materials

Plain catgut

- Absorbed by inflammatory reaction and phagocytosis
- Absorption time – 7 days

- Used for
  - Subcutaneous tissue
  - Muscle
  - Circumcision in children

Chromic catgut

- Catgut with chromic acid salt
- Brown in colour
- Absorption time 21 days

- Used for
  - Suturing muscles
  - Fascia
  - External oblique aponeurosis
  - Ligating pedicles

Vicryl – Polyglactic acid

- Absorbed in 90 days
- Absorption is by hydrolysis
- Violet in colour (braided)
- Polyfilament and braided

- Used for
  - Bowel anastomosis
  - Suturing muscles
  - Closure of peritoneum

Dexon – Polyglycolic acid

- Creamy yellow in colour

PDS- Poly Dioxanone Suture Material

- Costly
- But better than vicryl

Uses in absorbable suture materials

- Bowel anastomosis (gastrojejunostomy, resection & anastomosis)
  - Vicryl
- In cholecystojejunostomy, choledechojejunostomy
  - Vicryl
- In suturing muscle, fascia, peritoneum, sub cutaneous tissue, mucosa

Uses of absorbable suture materials

- Ligation of pedicles during hysterectomy
  - 1-zero chromic catgut
  - Vicryl
- In circumcision
  - 3-zero plain or chromic catgut
- Absorbable suture materials should not be used for
  - Suturing tendons
  - Nerves
  - Vessels (vascular anastomosis)

Non-Absorbable Suture Materials

Silk

- Black colour

- Coated material to reduce capillary action

Polypropelene

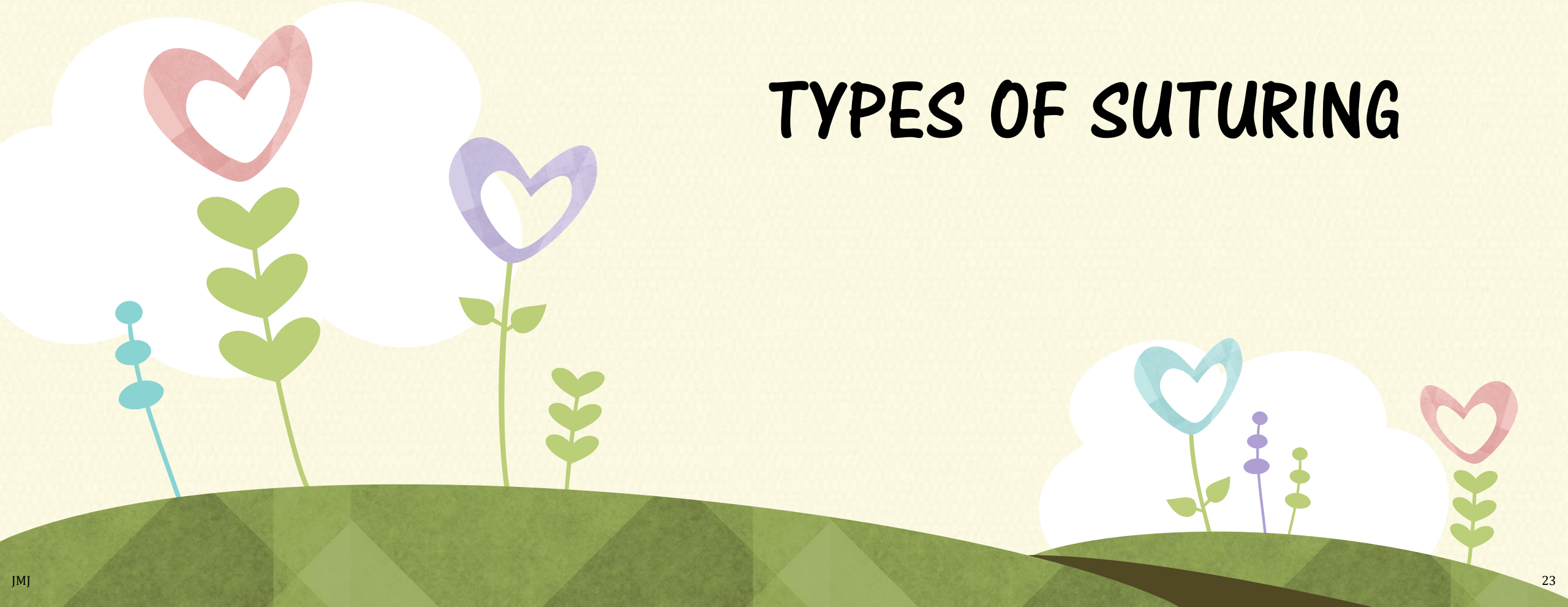
- Blue in colour
- Got high memory

MEMORY – is recoiling tendency after removal from the packet. Ideally suture material should have low memory

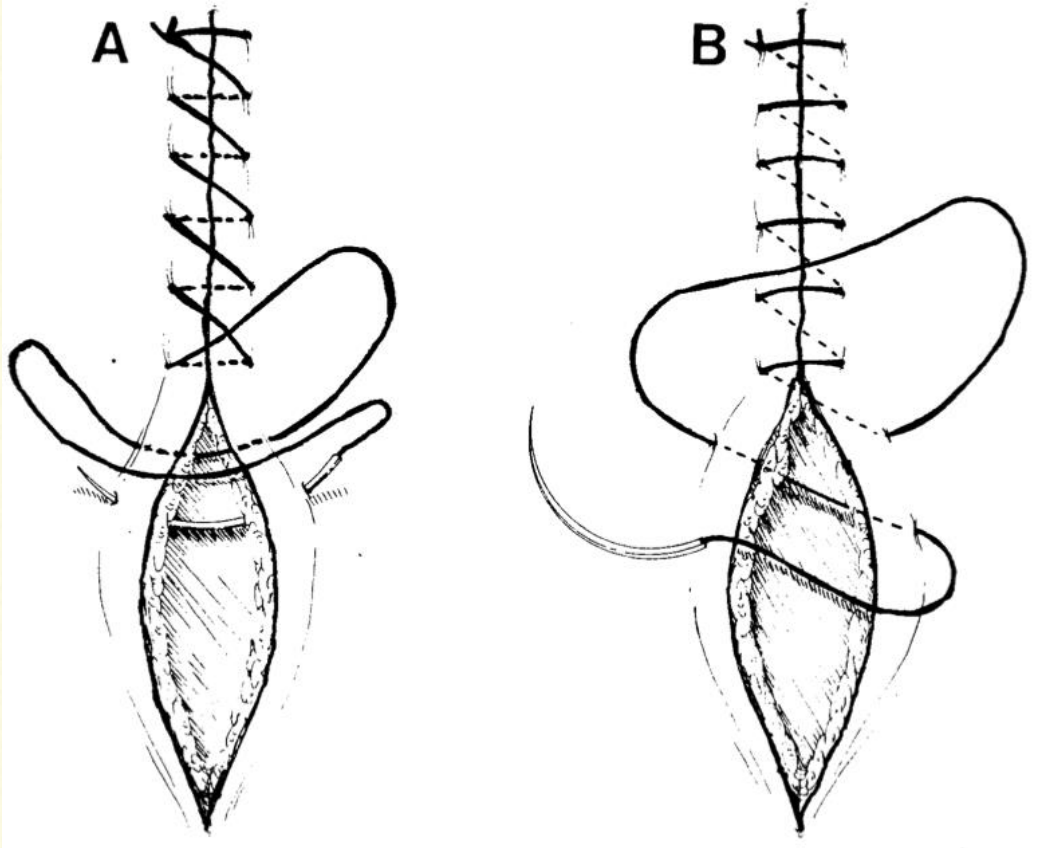
Uses of non- absorbable suture materials

- In herniorraphy for repair
- For closure of abdomen after laparotomy
- For vascular anastomosis (6-zero), nerve suturing, tendon suturing
- For tension suturing in the abdomen
- For suturing of skin

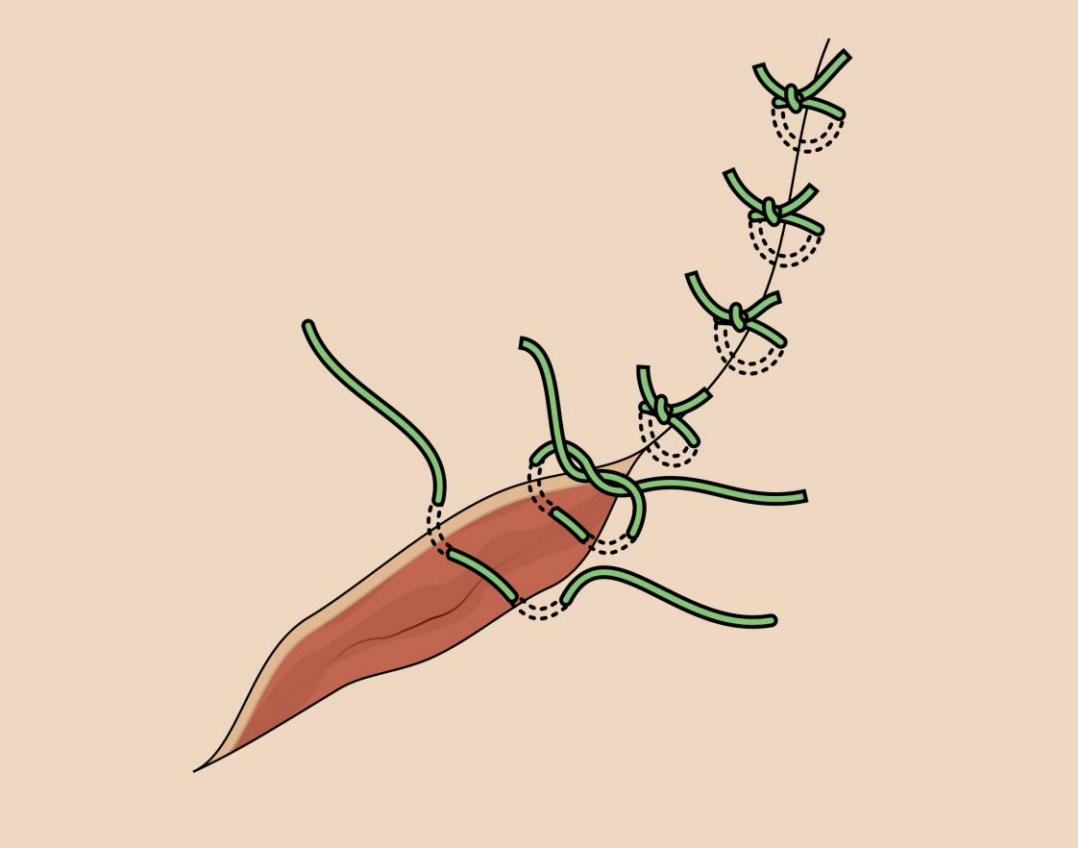
TYPES OF SUTURING



Simple continuous suture



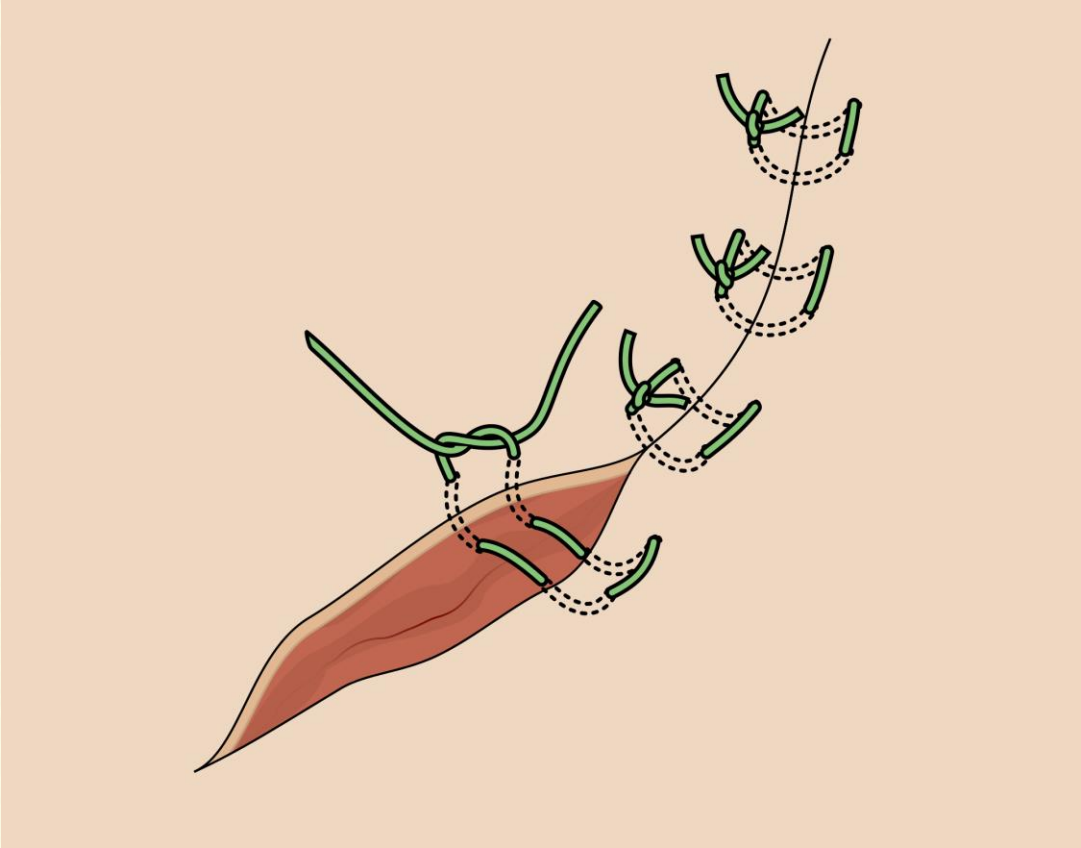
Interrupted simple suturing



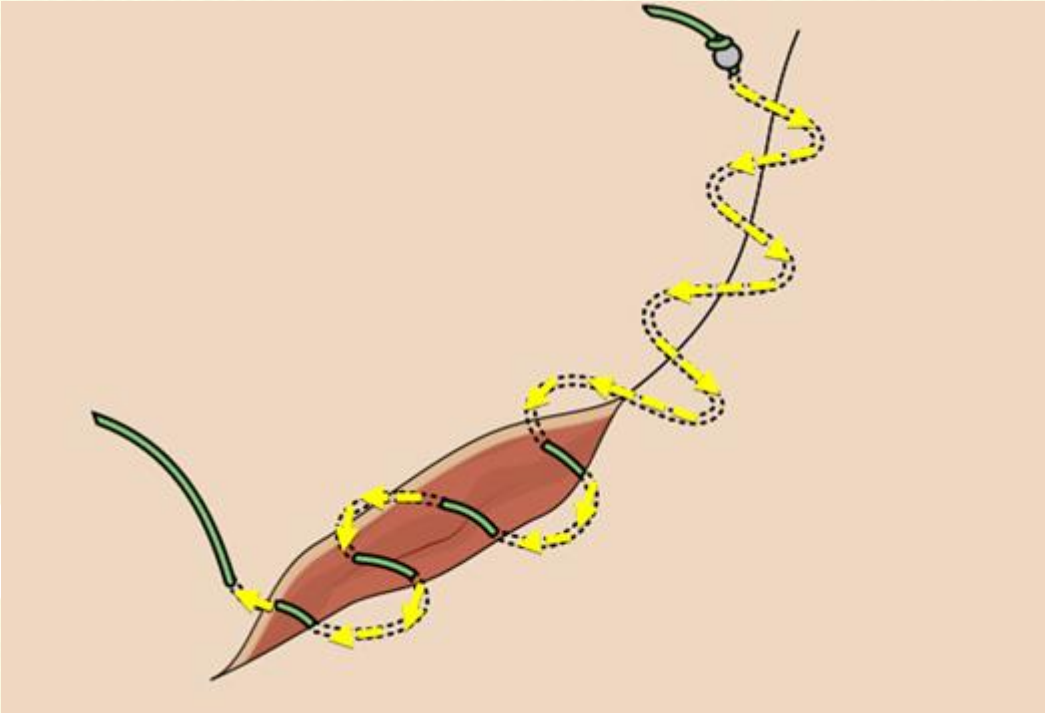
Increase risk of infection

Easy when need of draining

Interrupted mattress suturing



Subcuticular suturing

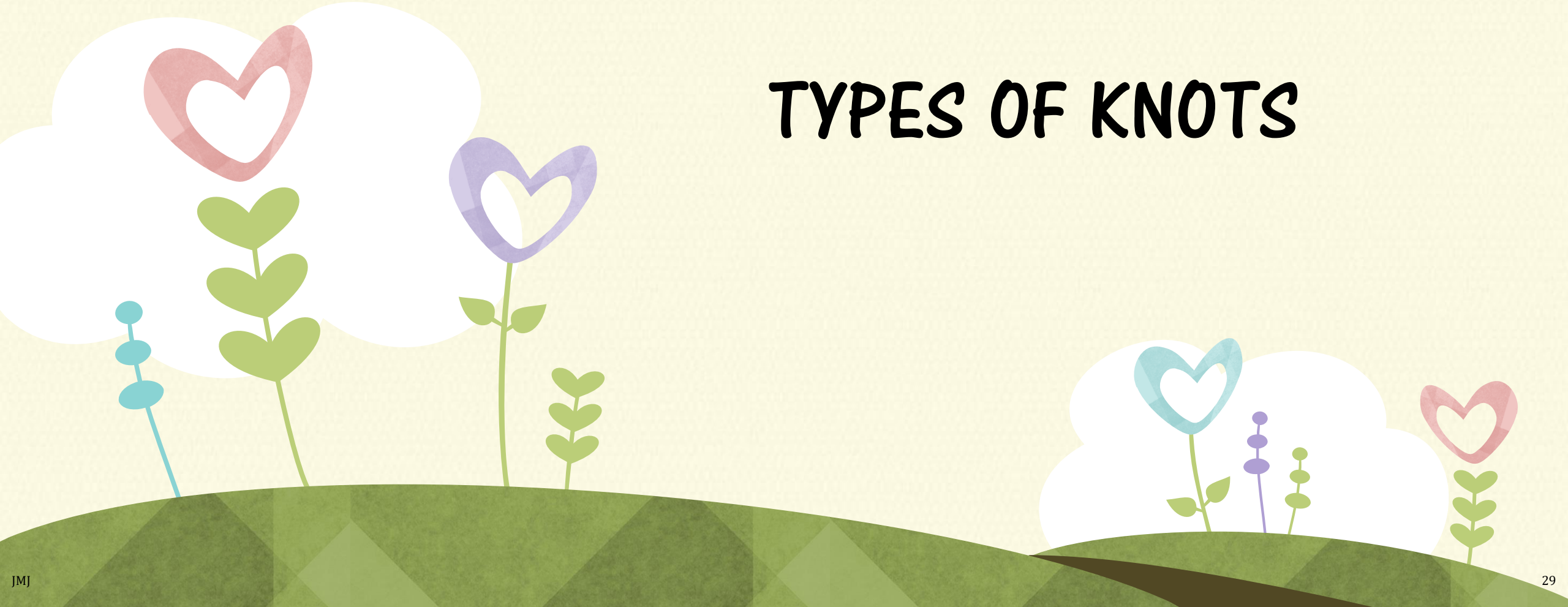


Good cosmetic results

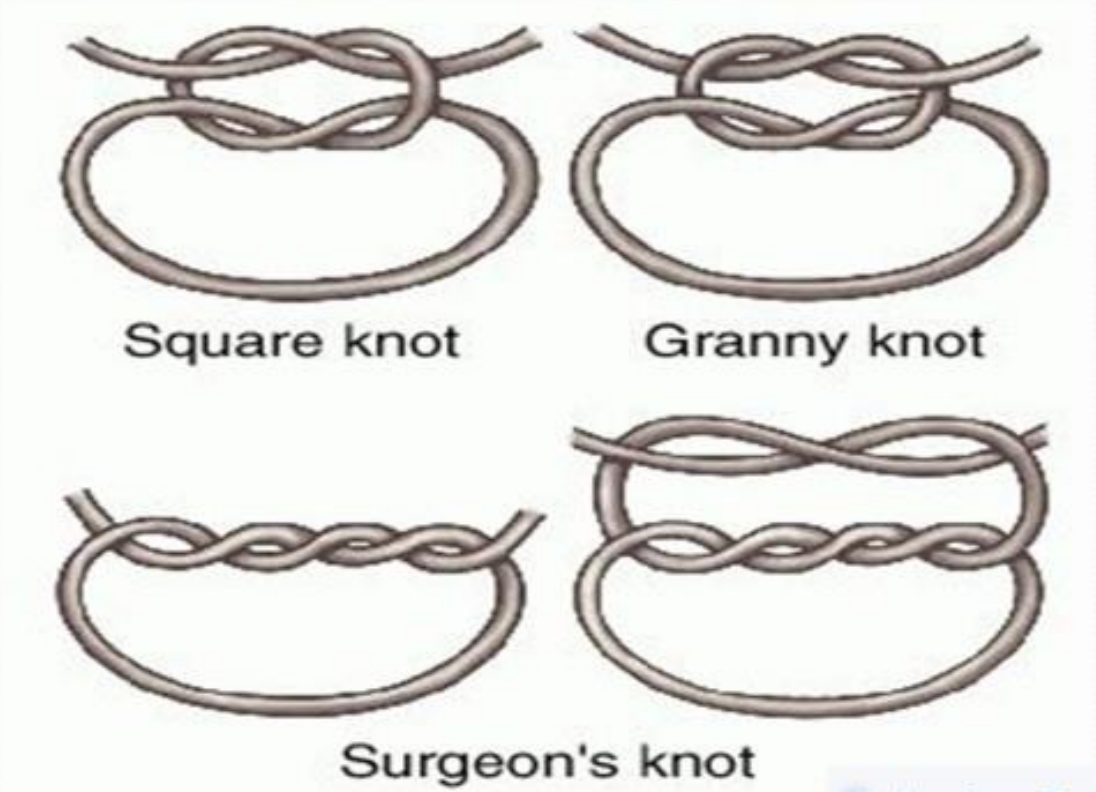
Suture Removal

- Face and neck → 3-4 days
- Scalp → 5-7 days
- Limbs → 5-7 days
- Hands and feet → 10-14 days
- Abdomen → 8-10 days

TYPES OF KNOTS



Types of Knots



NEEDLES

	POINT TYPE	SYMBOL
	TAPER POINT	●
	BLUNT TAPER POINT	○
	CUTTING EDGE	▲
	REVERSE CUTTING EDGE	▼
	TAPERCUT	✇
	MICRO-POINT SPATULA CURVED	▼
MICRO-POING REVERSE CUTTING		▼

Needles

Cutting edge

- Triangular in cross section

- Skin
- Tendon
- Breast tissue

Round body

- Oval or round in cross section

- GI tract
- Vascular anastamosis

THANK YOU!