SIGMUM

STITCH PERFECT: SUTURING WORKSHOP

April 18th, 2026

Clinical School Johor Bahru

Monash University Malaysia

Sutures

Dr. Anil Gandhi

Assoc. Prof. Surgery

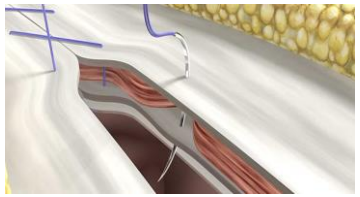
Monash university Malaysia

Sutures

A strand of material used to **approximate** (sew) or to **ligate** (tie) tissues

What is a SUTURE?
What is it used for?

Surgical suture is a medical device composed by a needle and a thread use to hold body tissues together after an injury or surgery.



Sutures

Ideal Suture

- Adequate strength retention with secure wound support throughout the critical wound healing period
- Rapid absorption
- High tensile strength

Sutures

Ideal Suture

- Minimal tissue reaction
- Predictable performance
- Sterile
- Consistent uniform diameter

Wound Closure – Common Options

Traditional sutures

Mechanical skin stapler

Histoacryl Tissue adhesives

The Goal for Wound closure Why Should We Care about Cosmesis ?

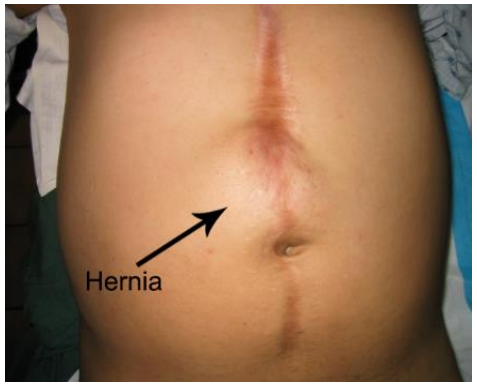
- **Preventing Abnormal Scarring (Elevated, Depressed, Keloids, Hypertrophic)**
- **Occurs in: Skin**

Skin

- **Cosmesis**
- **Minimize tissue trauma**
- **Achieve excellent wound approximation**

Why Should We Care about Strength ?

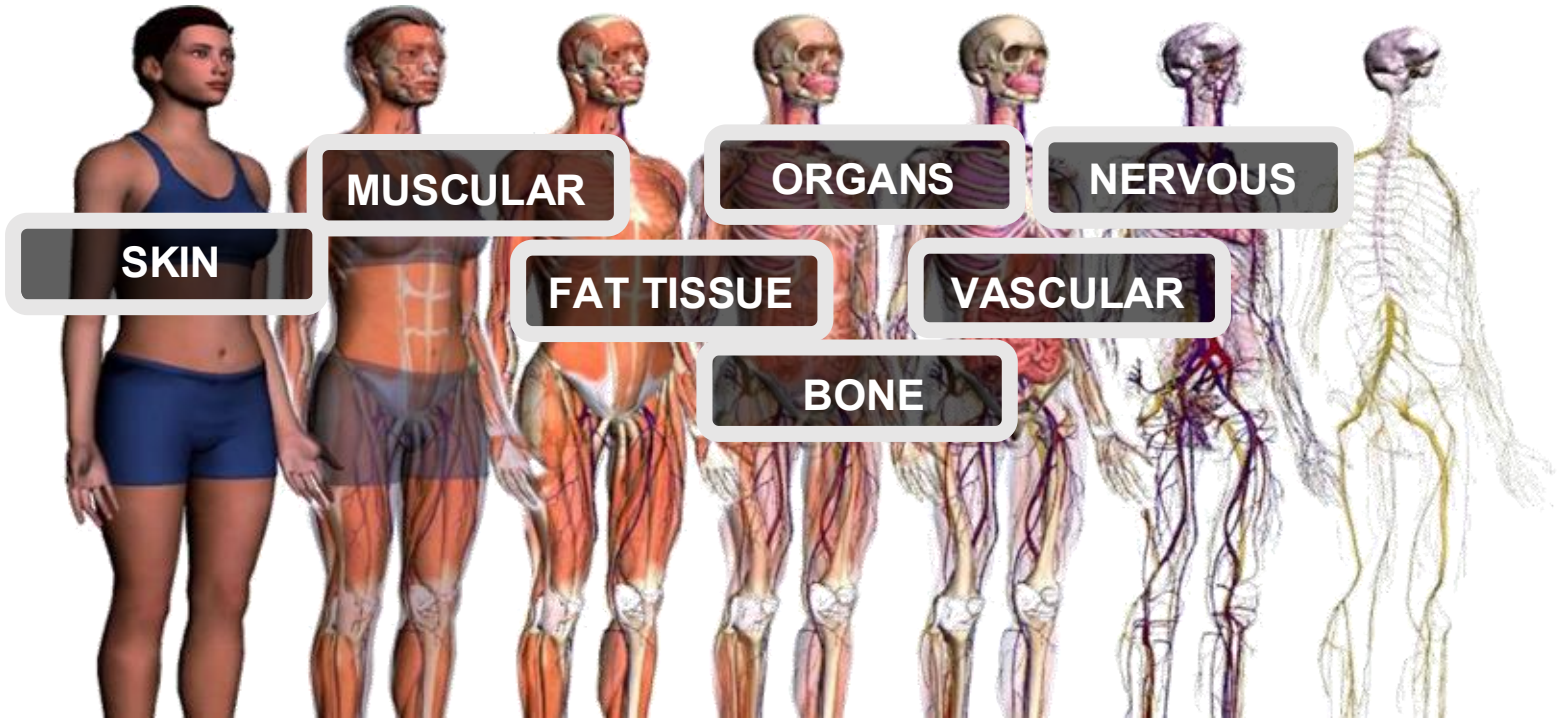
- **Preventing Wound Dehiscence and Hernia**
- **Occurs in: Skin & Fascia**



Fascia/Muscle

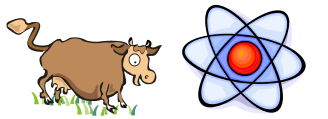
- **Closure strength**
- **Appropriate strength during critical healing period**
- **Good Absorption profile**

Surgical Layers

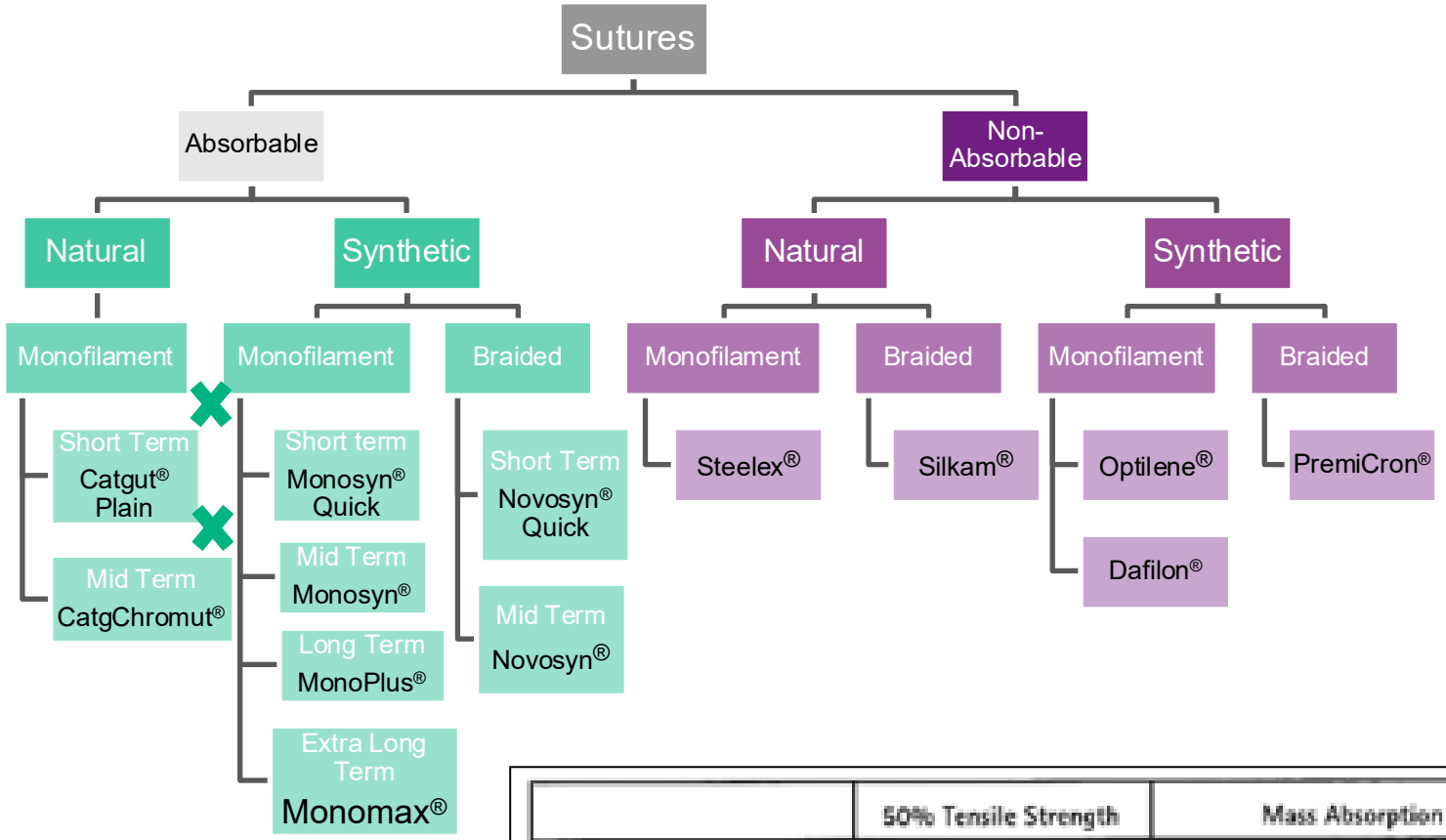


Suture Classification

Natural or Synthetic
Absorbable Or Non-Absorbable
Monofilament or Braided



Suture Portfolio



	50% Tensile Strength	Mass Absorption
Short Term	5 - 10 days	42 days
Mid Term	14 - 21 days	60- 90 days
Long Term	28 - 40 days	180 - 210 days
Extra Long Term	90 days	After 13 months

Classification

Absorbable Or Non-Absorbable

Natural or Synthetic

Monofilament or Braided

Absorbable	*Non-Absorbable*
» Absorbed rapidly » Broken down by body via enzymatic reaction or hydrolysis » Commonly used for tissue that heal rapidly » Soft tissue, bowel » Permanent wound support	» Inert and provide less inflammation and reduced scarring » Commonly used for skin and with tissue that heal slowly » Require manual removal post-op for skin » Tendon, vessel anastomosis

Classification

Absorbable Or Non-Absorbable

Natural or Synthetic

Monofilament or Braided

Natural	***Synthetic***
» Made of natural fibres (silk, catgut) » Provoke greater tissue reaction » Absorption by enzymatic	» Man-made materials » Minimal tissue reaction » Predictable in loss of tensile strength and absorption » Absorption by hydrolysis

Classification

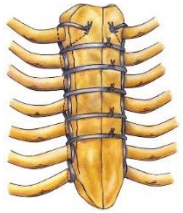
Natural or Synthetic

Absorbable Or Non-Absorbable

Monofilament or Braided

Monofilament	***Braided***
» Single strand / One filament	» Fibers are twisted are braided together
» No capillary action	» Capillary action
» Less infection risk	» Increased infection risk
» Smooth tissue passage	» Less smooth passage
» Minimal tissue trauma	» High tensile strength
» High tensile strength	» Good handling and ease of tying
» Possesses memory	» Fewer knots required
» More throws required	

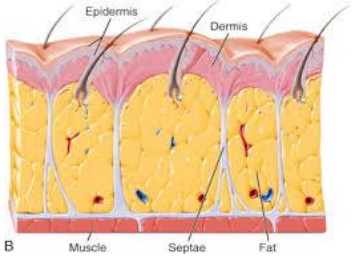
Suture Sizes



Smallest

Largest

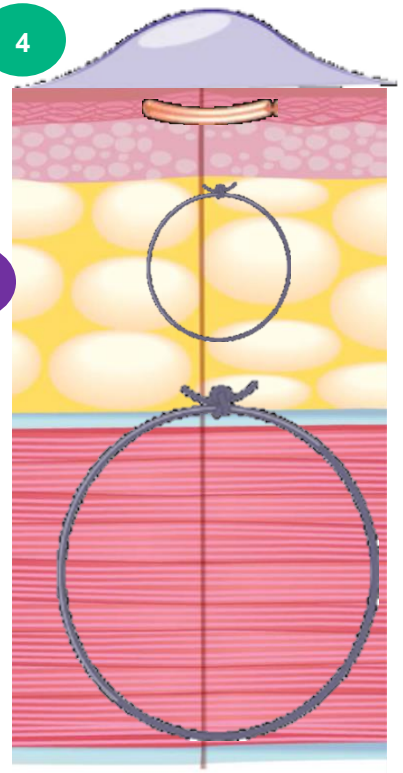
USP	11 - 0	10 - 0	9 - 0	8 - 0	7 - 0	6 - 0	5 - 0	4 - 0	3 - 0	2 - 0	0	1	2	3	4	5	6	7	USP
	Micro / Ophthalmic Surgery			Vascular Surgery			Skin			SubQ	Fascia		Retention		Surgical Steels				



Suture Sizes

Cuticular
Histoacryl®

4



3

Skin
Size 3/0 – 5/0

SubQ
Size 2/0 – 3/0

2

1

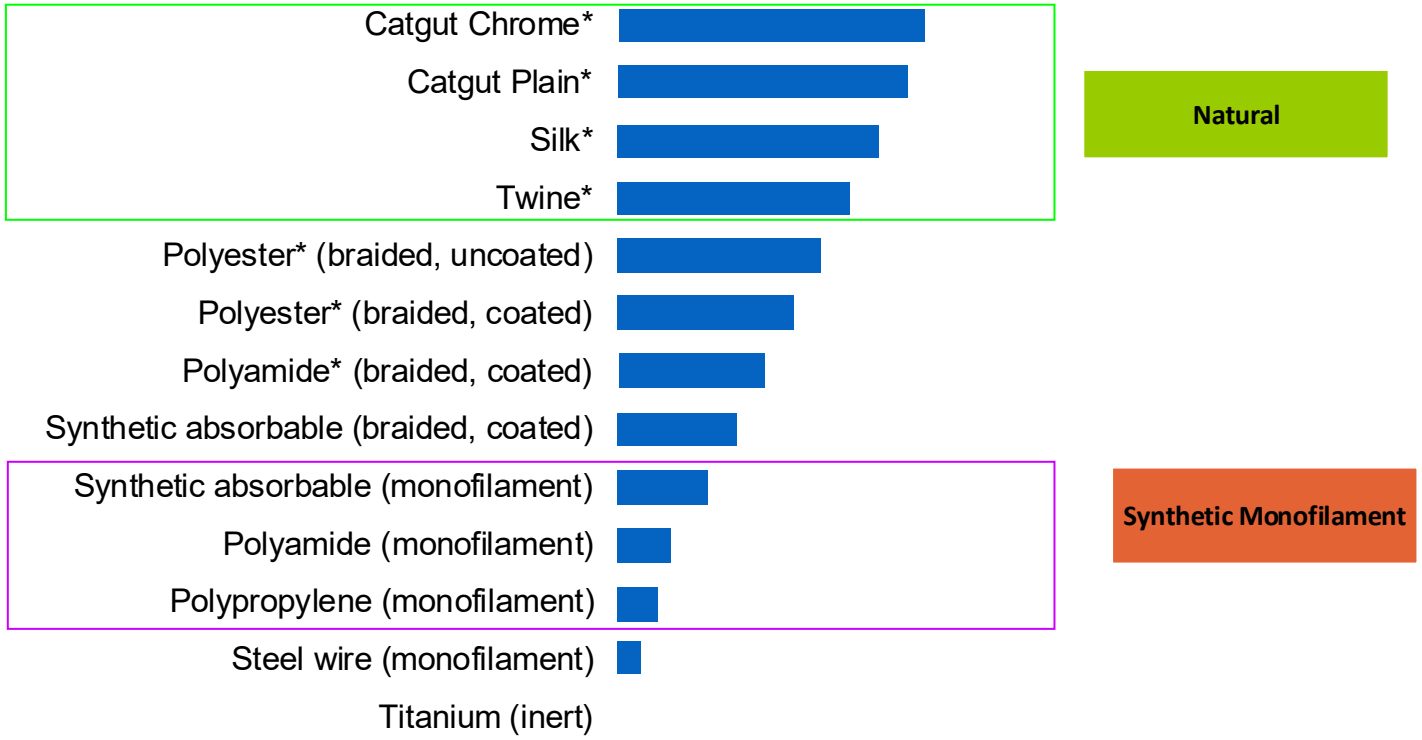
Fascia
Size 1 – 2/0

Small

Suture size

Large

Tissue Reaction



Natural

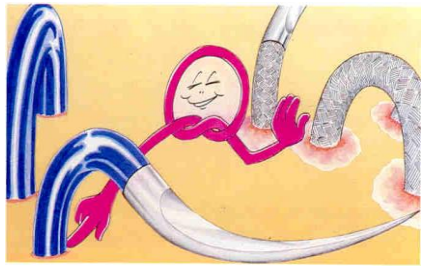
Synthetic Monofilament

** Strong reaction in tissue*

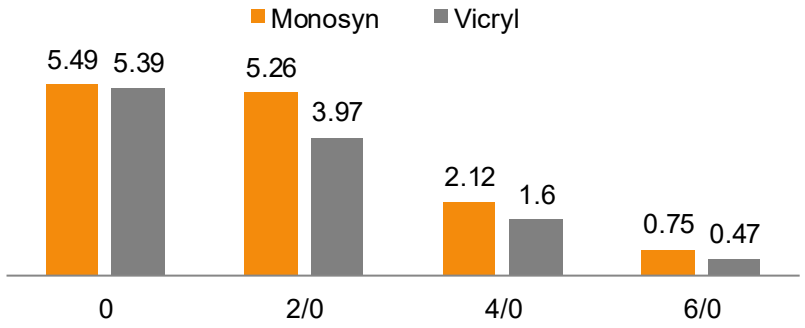
Absorption via hydrolysis causes less tissue reaction than enzymatic degradation

Why use a Monofilament?

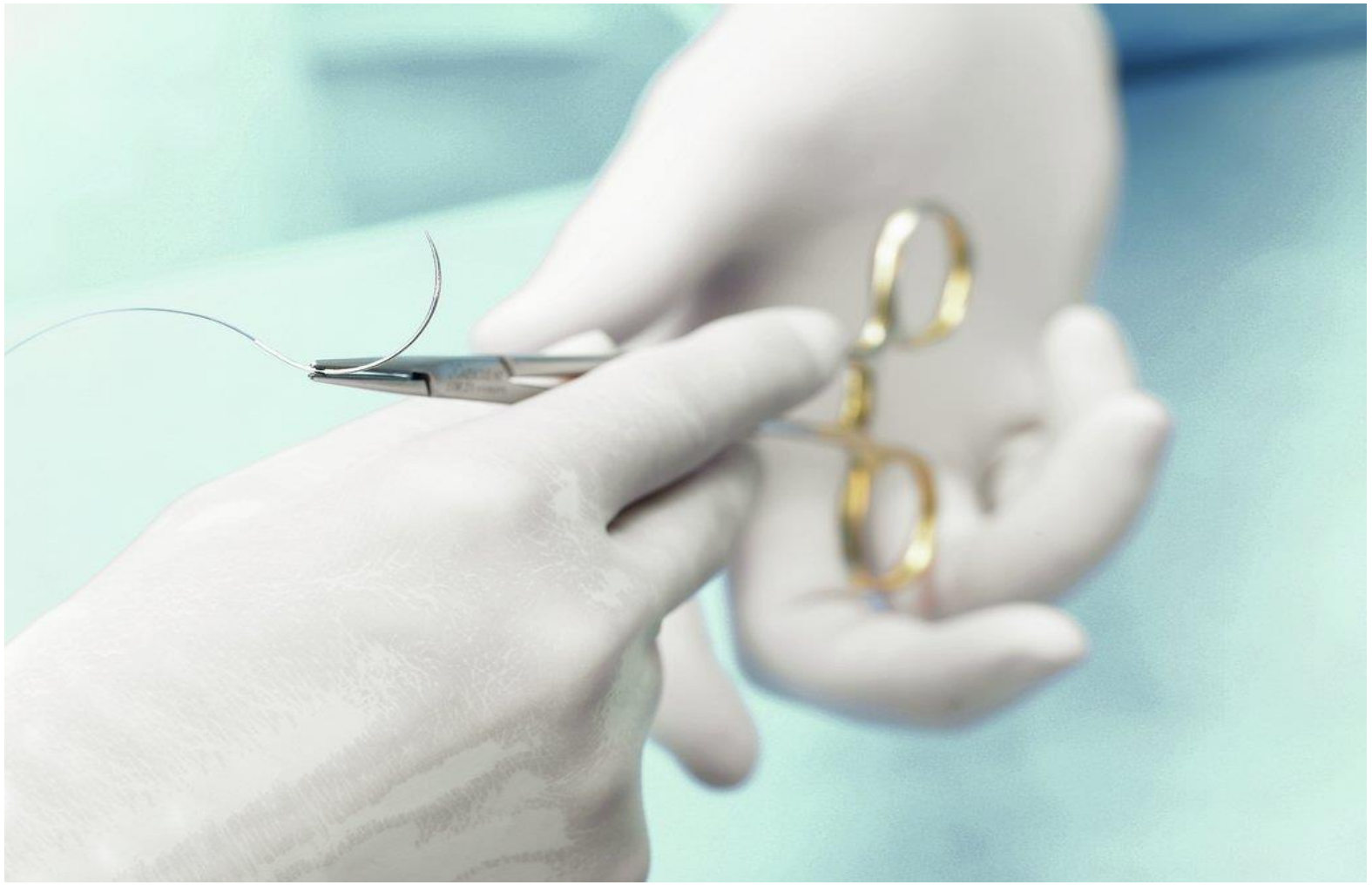
1. Less infection promoting effect[1],[2]
2. Smooth passage through the tissue[2]
3. Secure knot and high knot tensile strength



Simple Knot pull tensile strength



Surgical Needles



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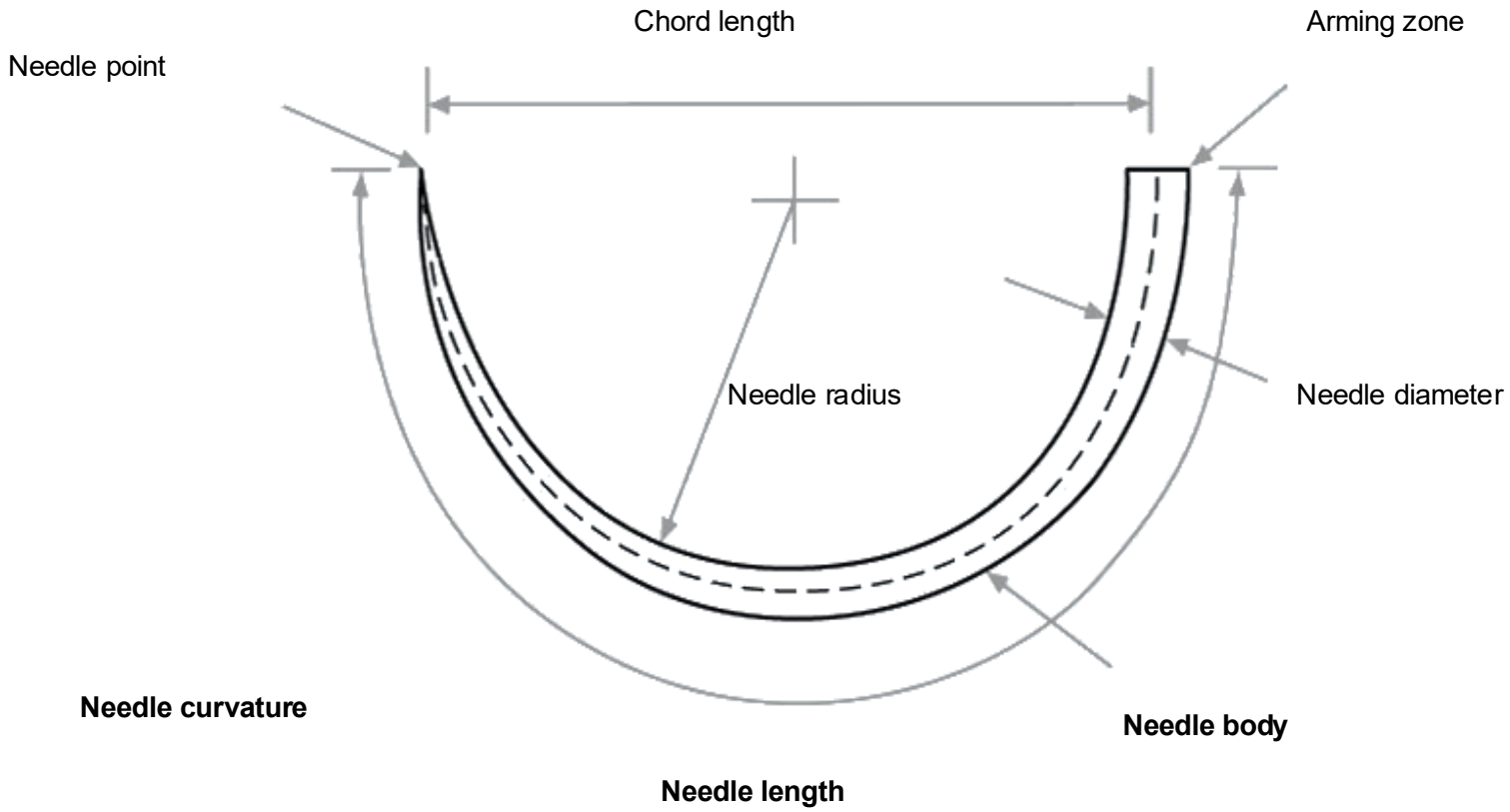
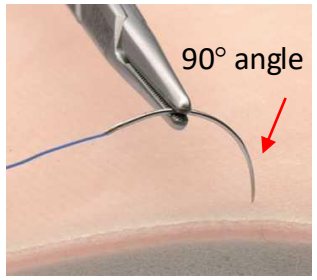
Anatomy of Needle



Holding the needle

RIGHT

WRONG



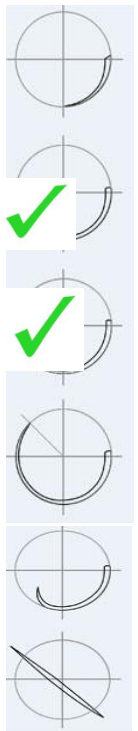
RIGHT

WRONG

When penetrating the tissues, always hold the needle tip at an angle of 90° to the tissue's surface. This will ensure the optimal hold of the tissues being sutured.

Needle Curvature

- 1st alphabet



Shape	Applications
1/4 circle (V)	Ophthalmologic and microsurgical operations
3/8 circle (D)	Vascular vessels, biliary ducts, urinary ducts, skin(Intradermic), MIS, ophtalmic, tendons etc.
1/2 circle (H)	Gastrointestinal tract, vascular vessels, abdominal wall, cardiac surgery, tendons, muscular layers, urogenital tract. Is the most used shape to close the surgical layers in all surgical specialities
5/8 circle (F)	Urogenital tract, pelvic organs, closure of narrow and deep incisions

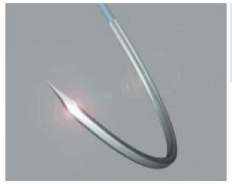
- ✓ Skin
- ✓ Internal tissue

Progressive (P)	CABG(Vascular anastomosis in coronary artery bypass)
Straight (G)	Gastrointestinal tract(purse string sutures), tendons, skin

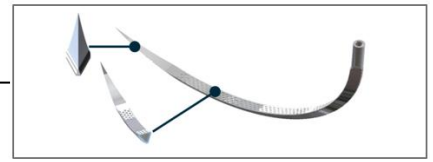
Needle Body Types

The combination of the needle body and needle point

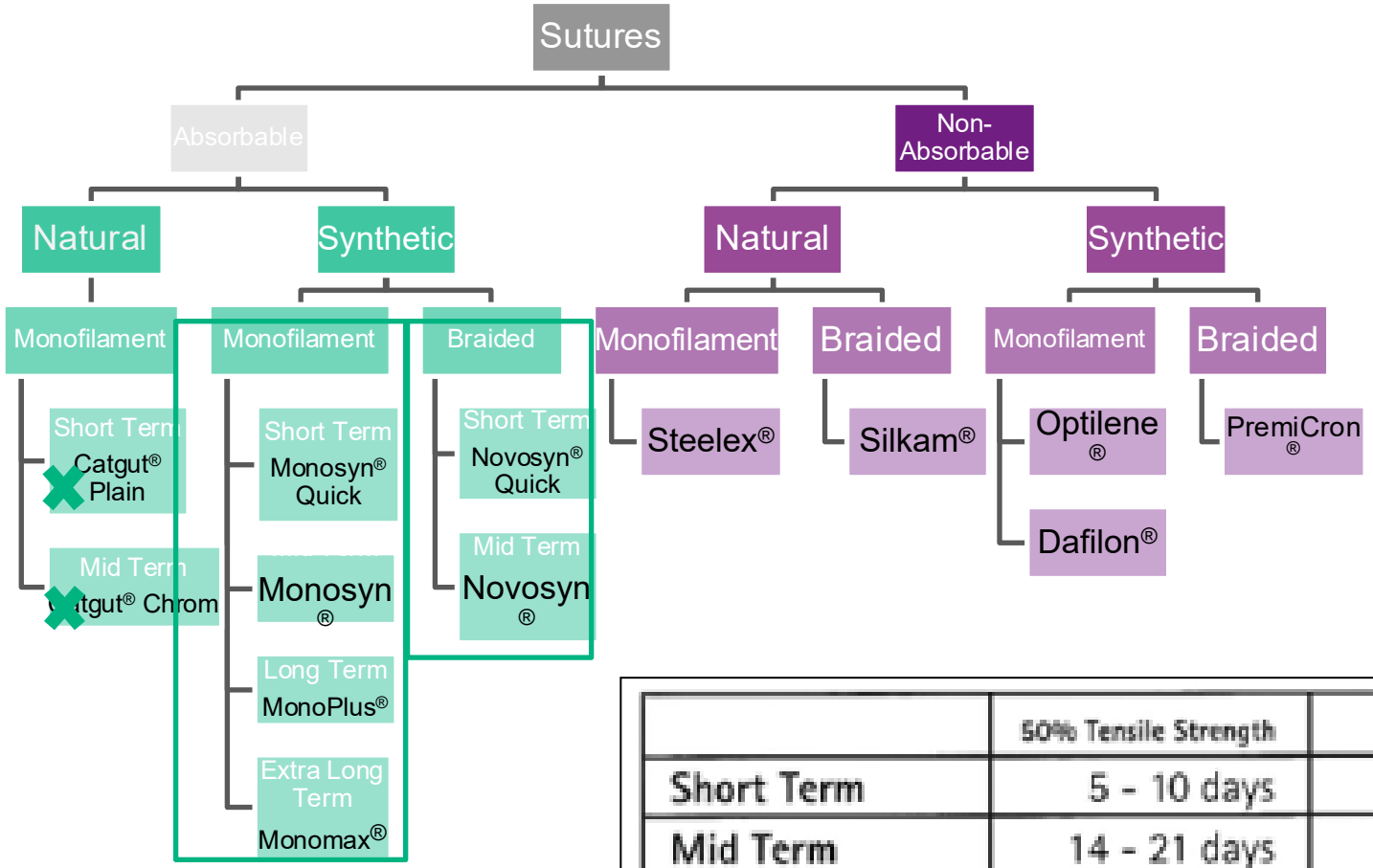
Round bodied needle	●	Taper point ●
		Taper needle with short cutting point ⊗
		Taper needle with trocar point ⊕
		Taper needle with blunt point ○
		Taper needle with protection point ○
		Taper needle with sternum point ◭
Cutting needle	▼	Reverse cutting needle ▼
		Reverse cutting needle precision point ▽
		Reverse cutting micro engraved needle with precision point ▽
Lancet needle	▬	Micro-lancet needle ▬
		Lancet needle with micro point ▬



Dermaslide Needle



Suture Portfolio



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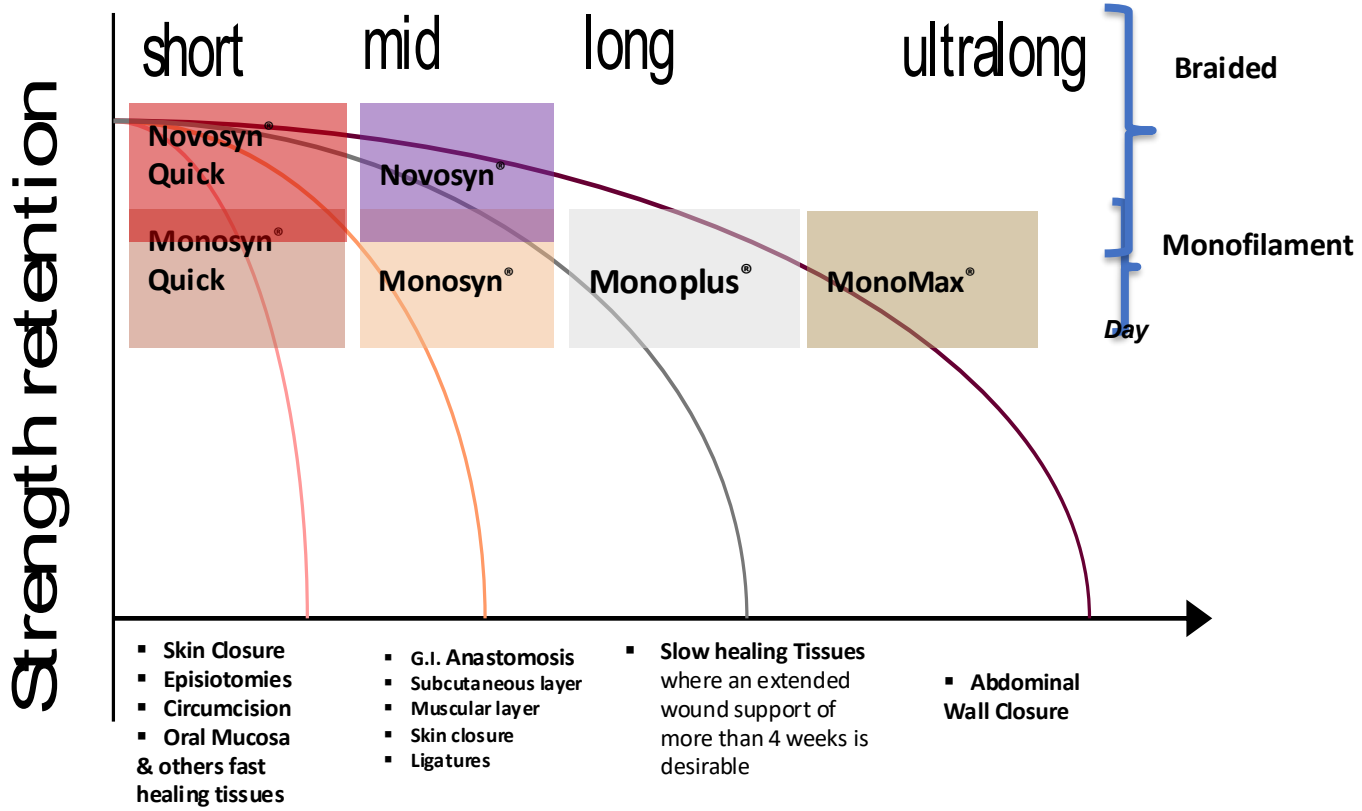
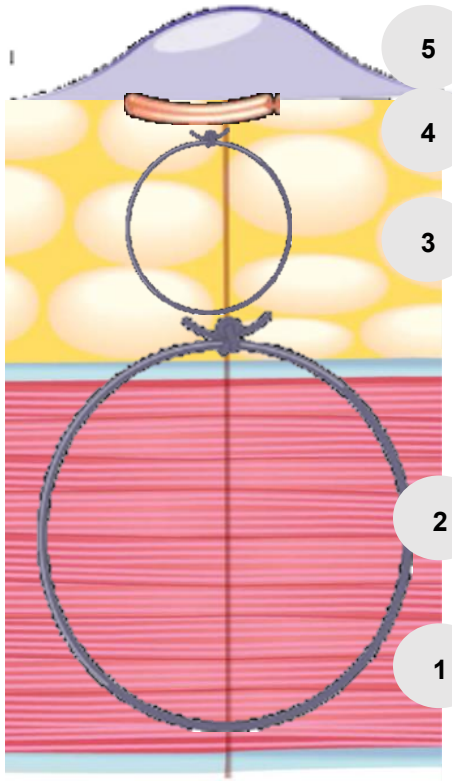
Complete range of Monofilament and Braided sutures for all indications



Summary

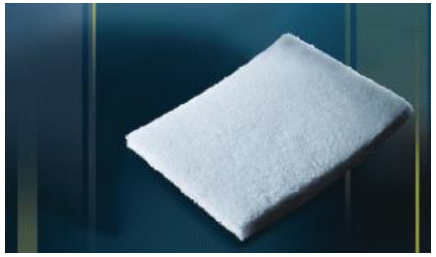


	Suture Material	Suture Size	Needle Types	Needle Size
5	Histoacryl			
4	Monosyn / Monosyn Quick	4/0 – 3/0	3/8 Cutting (DS, DSMP, DGMP)	19 – 24 mm
3	Monosyn / Novosyn	3/0 – 2/0	1/2 Round Bodied (HR)	26 mm
2	Novosyn / MonoPlus	2/0 - 1	1/2 Round Bodied (HR, HRC)	37 - 43 mm
1	Monomax	0 - 1	1/2 Round Bodied (HR, HRC)	40 – 48 mm

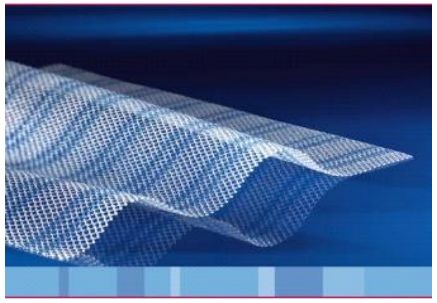
Specialties Range

Histoacryl tissue adhesive

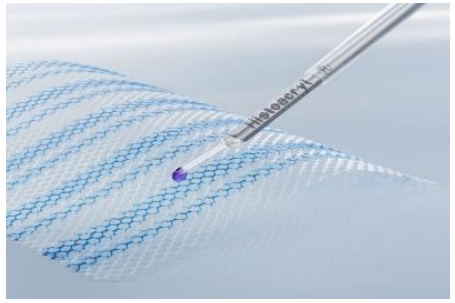
Manipler Skin stapler



Lyostypt Collagen hemostat



Optilene Mesh for Hernia Repair

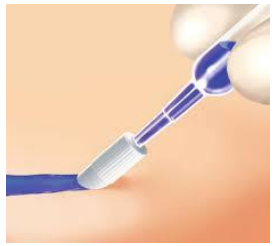


Lapfix for laparoscopic Hernia mesh fixation

Histoacryl ® flexible

Histoacryl® Flexible

	Histoacryl® Flexible
Description	• Tissue adhesive and microbiological barrier product
Composition	• n-butyl-cyanoacrylate + softener
Indications	• Skin Closure (<25cm)
Colour	• Blue (D&C Violet No2)
Sizes	• 0.5 ml ready-to-use ampoule
Storage Temperature	• Room temperature (25ºC)
Applicator	• Applicator Tip



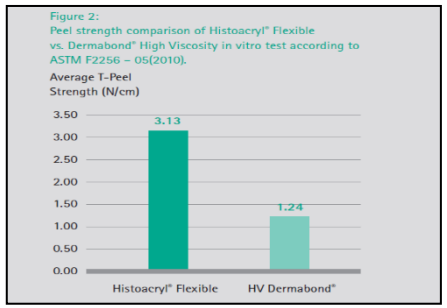
Histoacryl® Flexible Advantages

1. Flexibility
Allows closure of incisions up to 25 cm [1, 8]

3. Quick and Easy:
skin wound closure in 30seconds[7] **;**
ready to use product stored at room temperature

6. Excellent cosmetic result :
high patient satisfaction[3,4,5,6]

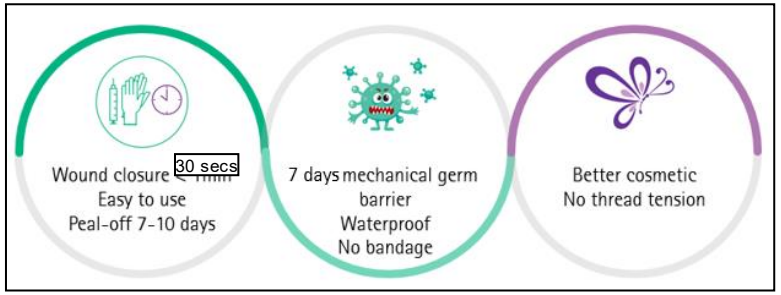
4. High Strength
Requires only one layer of adhesive to achieve a full strength bond



2. Microbial barrier
100% effective for 7 days [2,11]

- **Staphylococcus aureus**
- **Staphylococcus epidermidis**
- **Escherichia coli**
- **Pseudomonas aeruginosa**
- **Enterococcus faecium**
- **Brevundimonas diminuta**
- **Candida albicans**

5. Water-resistant:
patient is allowed to shower but prolonged soaking should be avoided



Histoacryl® for skin closure

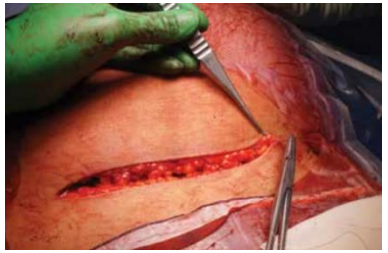
Laceration

Thyroidectomy
skin closure

Trocar site closure (lap chole/
lap cystectomy/lap
myomectomy/
lap urology/lap appendix etc)

Chemo Access port
chamber and puncture site

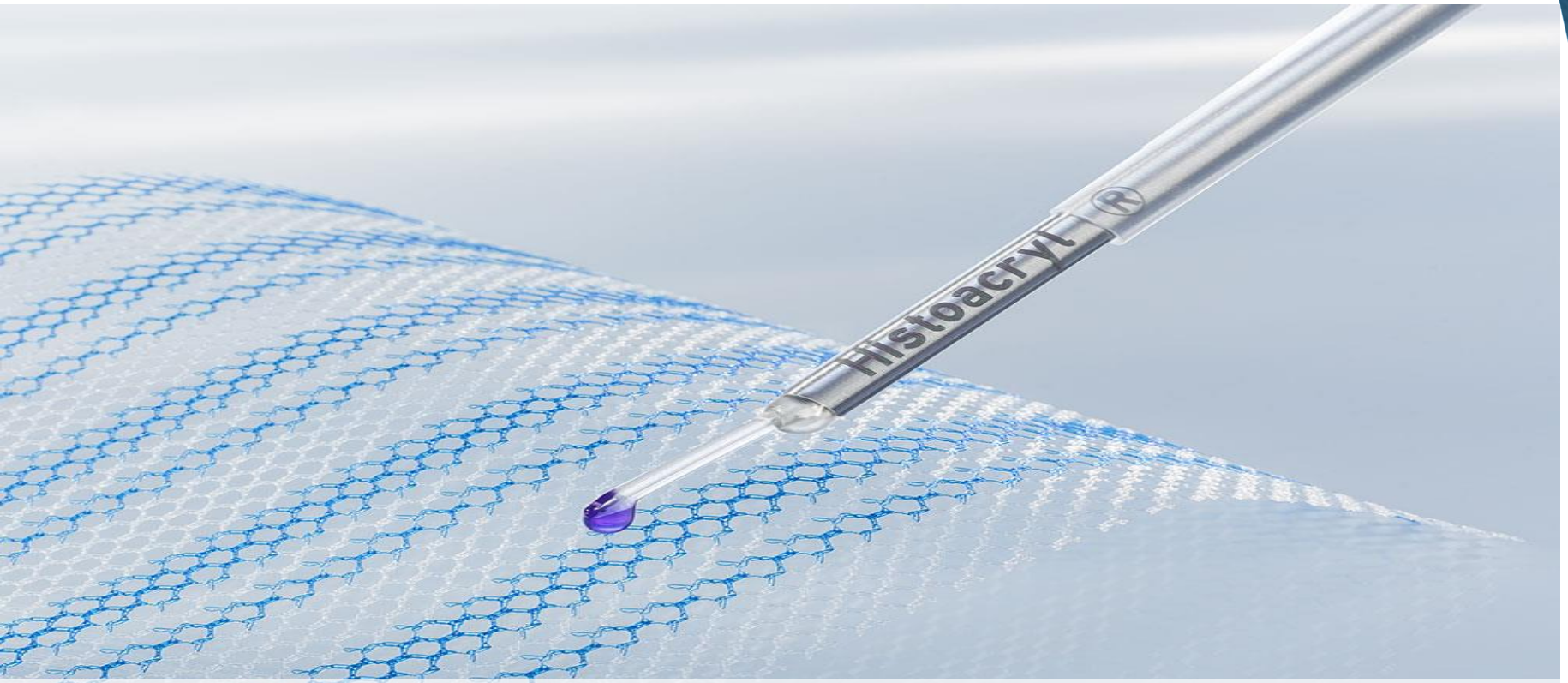
Breast surgery (can
start with Lumpectomy
skin closure)



C-sec skin closure

IV catheter insertion site
& under IV catheter hub

Arteriovenous Fistula (AVF)
skin closure



HISTOACRYL®
Atraumatic Mesh Fixation with LAPFIX

Product Features

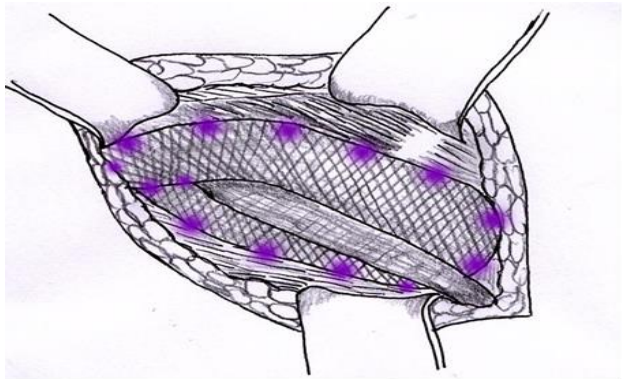
Syringe Luer Lock compatible with Histoacryl®.

Cannula from current Histoacryl®. Metallic, marked with Histoacryl® brand, specially designed point, protector for trocar introduction.

Histoacryl® ampoule.

Application – How to use

- Point wise fixation with **small drops** every 2 cm[1]
- Glue drop should be placed 10 mm from mesh edge.
- 6-8 drops for 10 x 15 cm mesh.
- Pull tip away from mesh after few seconds when glue starts to harden.
- If the tip get block, cut a small piece.
- Difficult access: Try to place it in 45ºC from the mesh.



1. Helbling C, Schlumpf R. Hernia. 2003;7(2);80-4.

Take Home Message

Histoacryl Mesh Fixation

Good fixation

Prevent complications

Easy to use

Affordable

Sutures

Thank You