Suture Materials - Patterns

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Suture plays a critical role in everyday surgery. Without suture material, we would not be nearly as capable in the world of surgery. When choosing suture material, it is important to think about where you are placing it, the location's environment, how long you want it there, and the reason you are using it. This will help guide your decision.

Suture Consideration

- There are several suture characteristics that are important to keep in mind when selecting suture type.
- A few things to consider:
    - Memory: tendency for suture to return to its original shape
    - Plasticity: degree that suture will deform without breaking and maintain its shape
    - Tensile strength: ability to resist deformation and breakage and the stress at which deformation or breakage occurs
    - Knot strength: force necessary for knot to slip
    - Capillarity: degree of fluid transferred by the suture as a result of absorption
    - Monofilament vs. Multifilament
    - Absorbable vs. Non-absorbable

Suture Size

- Suture size is straightforward ... as you move from 0, to, 2-0, to 3-0 the suture is getting smaller in diameter. As you move from 0 to 1, 2, 3, and so forth, suture diameter is increasing.

Suture Needle Types

- There are different needle types which surgeons will use, depending on the tissue they are working with. They are broadly classified as taper, cutting, or blunt.
- Selecting the appropriate needle type will help diminish unnecessary trauma to tissues and decrease surgeon frustration.
- We commonly think of surgical needles being curved but you can also purchase straight needles, which may or may not be swaged.

- Common suture needle types:
  - Taper point
  - Taper cut
  - Regular cutting
  - Reverse cutting
  - Blunt point

Monofilament vs. Multifilament

- Monofilament
  - Single strand
  - Less pliable and more susceptible to damage
- Multifilament
  - Multiple braided or twisted strands
  - Greater strength and pliability
  - Increased tendency for bacterial colonization
    - Avoid in contaminated wounds or where wicking of bacteria would be a problem

Common Absorbable Suture Type

- Catgut
- Dexon
- Monocryl
- Vicryl
- Caprosyn
- PDS II
- Maxon
- Biosyn

Common Non-Absorbable Suture Type

- Nylon
- Polypropylene (Prolene)
- Silk
- Polybutester (Novafil)
- Polymerized caprolactam (Vetafil)

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Basic Suture Patterns