

Name: _____ Class: _____

Types of Sutures – Vocabulary Sheet

Physical Construction of Suture

A suture is any strand of material used to approximate tissue edges and give artificial support while the tissue heals naturally. There are three things to consider when determining a type of suture. This information should be indicated somewhere on the packaging of the suture:

1. Absorbable or non-absorbable
2. Natural or synthetic
3. Braided (multifilament) or monofilament

ABSORBABLE

Absorbable sutures are designed to break down over a specific timeframe and be absorbed by the body. They are used when temporary support is required and the healing tissue will eventually support itself. Absorption occurs by phagocytosis and proteolysis in a natural suture, and by hydrolysis in a synthetic suture.

NON-ABSORBABLE

Non-absorbable sutures are designed to either be left permanently in the body or be removed after a certain healing period. Permanently placed, non-absorbable sutures are generally used in tissue where, even though healing may occur, the new tissue may never have the needed strength to support itself. The effective tensile strength of such sutures remains high over time. When used to close skin, non-absorbable sutures are usually removed in 10-14 days, but this may vary by location and situation.

NATURAL SUTURE MATERIALS

Natural sutures are made from animal or plant materials. Their protein composition can elicit the most pronounced tissue reaction (inflammation) of any suture material. Their useful strength in tissue varies from a few days with plain catgut to several months for silk and can vary by individual.

SYNTHETIC SUTURE MATERIAL

Sutures can be made from synthesizing a wide variety of polymers. Synthetic materials cause less tissue reaction than natural fibers. Therefore, their strength as well as absorption rate for absorbable sutures is more uniform and predictable in every individual.

BRAIDED (MULTIFILAMENT)

This construction involves several filaments (or strands) being braided or twisted together. This results in a strong suture that is flexible and easy to handle. Multifilament sutures pass less easily through tissue than smooth monofilaments and the resulting "tissue drag" can cause tissue trauma. Suture manufacturers have addressed this issue by coating many of the braided sutures, thus reducing the degree of "tissue drag." The surface of a suture must be compatible with specific tissue application and have the desired knotting characteristics and capabilities. A rough suture surface can cause trauma and cutting of surrounding tissues,

both of which are undesirable. Therefore, selection of materials should consider both the structure of the tissue and the surface of the suture. In principle, a suture with a rough surface can be tied with fewer knots than one with a smooth surface, as knots are less likely to slip. Care must be exercised with the tying of all types of sutures.

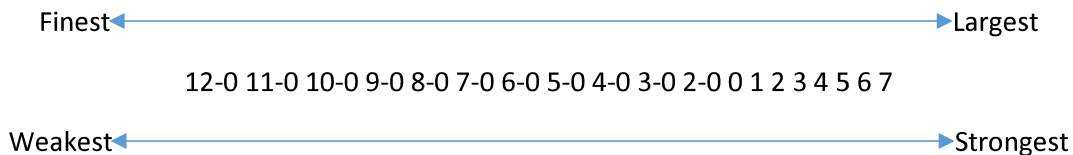
MONOFILAMENT

This type of suture construction results in a single strand or filament. The surface is very smooth and passes easily through tissue, but they can be difficult to handle and tie, as they are less flexible than braided sutures. Most monofilaments also have “memory.” This memory results in a suture that holds the shape it had in the package, making it more difficult to work with. Some memory can be relaxed, but it is not effective in all sutures.

SUTURE SIZING

Sutures are available from a "7" (heaviest) to "12-0" (finest). The most important factor in deciding suture size is the relationship between the tensile strength of the suture and the tissue to be sutured. The tensile strength of the wound need only match or slightly exceed the holding power of the tissue to be sutured. For example, you do not need a rope to tie your shoes; it might work, but it's overkill. A shoelace would do. Finer diameter sutures make smaller knots, provide less tissue reaction, and result in minimal scar formation.

Finer strands are very flexible and easy to handle, but require gentle tying. Closely placed, fine sutures create a stronger suture line than widely spaced, heavy sutures. Tissue drag is also closely related to gauge; the finer the gauge, the less tissue trauma is caused by the passage of the suture.



SKIN SUTURE SELECTION

The skin is one area where the final result, based on your selection of suture and your technical skill, will be the most evident to your patient (or client if it is a pet). Make informed choices that will give the best result possible; stitches that are tied too tight and are left in too long may leave “hatch marks” on either side of the scar. The hole made by the stitch may rip and become larger with increased tension on the wound (i.e. swelling). Sometimes these marks are more noticeable long term than the scar itself.