

# Surgical needle

see [Atraumatic needle](#).

Eyed or reusable [needles](#) with holes (called eyes), which are supplied separate from their [suture](#) thread, are necessary for suture. The suture must be threaded on site, as is done when sewing in a recreational setting. The advantage of this is that any thread and needle combination is possible to suit the job at hand. Swaged, or atraumatic, needles with sutures comprise a pre-packed eyeless needle attached to a specific length of suture thread. The suture manufacturer swages the suture thread to the eyeless atraumatic needle at the factory. The chief advantage of this is that the doctor or the nurse does not have to spend time threading the suture on the needle, which may be difficult for very fine needles and sutures. Also, the suture end of a swaged needle is narrower than the needle body, eliminating drag from the thread attachment site. In eyed needles, the thread protrudes from the needle body on both sides, and at best causes drag. When passing through friable tissues, the eye needle and suture combination may thus traumatise tissues more than a swaged needle, hence the designation of the latter as "atraumatic".

There are several shapes of surgical needles. These include:

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Straight
1/4 circle
3/8 circle
1/2 circle. Subtypes of this needle shape include, from larger to smaller
size, CT, CT-1, CT-2 and CT-3.[1]
5/8 circle
compound curve
half curved (also known as ski)
half curved at both ends of a straight segment (also known as canoe)
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The ski and canoe needle design allows curved needles to be straight enough to be used in laparoscopic surgery, where instruments are inserted into the abdominal cavity through narrow cannulas.

Needles may also be classified by their point geometry; examples include:

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taper (needle body is round and tapers smoothly to a point)
cutting (needle body is triangular and has a sharpened cutting edge on the
inside curve)
reverse cutting (cutting edge on the outside)
trocar point or tapercut (needle body is round and tapered, but ends in a
small triangular cutting point)
blunt points for sewing friable tissues
side cutting or spatula points (flat on top and bottom with a cutting edge
along the front to one side) for eye surgery
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Finally, atraumatic needles may be permanently swaged to the suture or may be designed to come off the suture with a sharp straight tug. These "pop-offs" are commonly used for interrupted sutures, where each suture is only passed once and then tied.

Eyed surgical needles which form 3/8th of a circle, in different sizes.

Eyed surgical needles which are semicircular, in different sizes.

Sutures can withstand different amounts of force based on their size; this is quantified by the U.S.P. Needle Pull Specifications.

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