

Suturing

Introduction:

Wound repair techniques are procedures in which the edge of wound are brought together to allow more rapid healing with minimal scar formation.

Suture Materials:

Absorbable: Used for dermis, fat, muscle and fascia.

- Plain or chromic
- Polyglactin 910 (Vicryl)
- Polyglycolic acid (Dexon)
- Polyglyconate (Maxon)
- Polydioxanone (PDS)

Non absorbable: used for skin, tendons or abdominal wall fascia.

- Silk
- Nylon
- Ethibond
- Polypropylene (Prolene)

Needles:

Curved / straight: atraumatic - suture material built into end of needle.

Round bodied: only sharp at tip. Use for bowel, peritoneum, fat.

Taper cut: round but sharp edges also.

Cutting edge: flattened with sharp edges. Use on skin and fibrous tissue

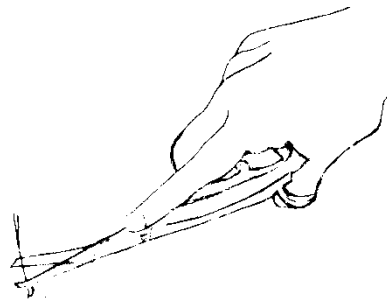
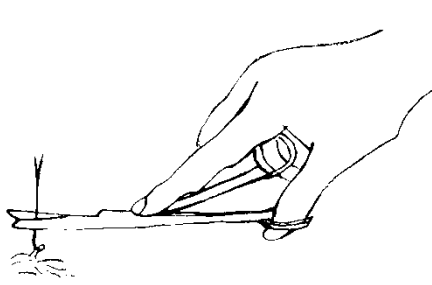
Equipment:

- Suture material with curved needle
- Needle holder
- Toothed forceps
- Suture scissors
- Wound irrigation device and normal saline
- 1% Lidocaine

Technique:

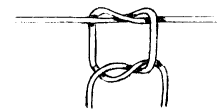
1. Wash your hands, don gloves.
2. Cleanse, irrigate, and debride the wound if necessary. Explore the wound for injury to surrounding structures and for foreign bodies.

- ϫ. Numb the wound by injecting Lidocaine subcutaneously around the wound.
- ϫ. Grasp the needle about $\frac{1}{2}$ to $\frac{1}{4}$ way along its length with needle holder.
- ϫ. The needle is inserted at right angles to the skin and far enough from the wound edge.
- ϫ. Following the curvature of the needle, push and rotate it down through at the bottom of the wound, so there is no dead space left deep to the suture. An equivalent bite of tissue is taken on the opposite side. Toothed forceps should be used to assist in manipulating tissue and to aid correct needle placement.
- ϫ. Pulling the suture through the wound.
- ϫ. Commence knot-tying by positioning the needle-holder along the length of the wound lay the suture across the holder and coil the suture around it twice. Alternatively coil the holder around the suture. Turn both the needle-holder and the suture toward the free end of the suture. Grasp the free end, and pull it through.
- ϫ. Slide the throw down, holding the suture ends parallel to the wound surface so that the knot lays flat, and to one side of the wound edge.
- ϫ. With the needle holder again positioned along the length of the wound make a single loop of suture around it, this time in the opposite direction. Tying the second (single) throw. It lays on top of the first throw. This latter technique depending on the type of suture material may be used.
- ϫ. For extra knot security, further throws can be added. These are single throws tied in opposite directions. If the suture material is non absorbable, slip the scissors down to the knot (about 3-6 mm) turn the blade slightly, and cut. If the suture material is catgut, leave the end about $\frac{1}{4}$ inch long because the catgut will loosen up a bit after it becomes moist.



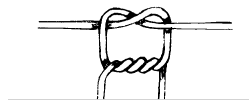
Square or Reef knots

This is the most frequently used surgical knot.

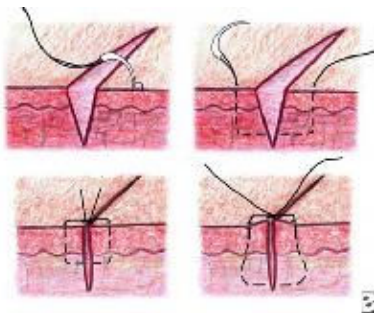


Surgeons' knot

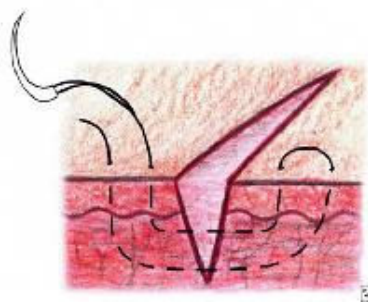
Variation of the square knot. An extra row made to prevent slippage of the first throw.



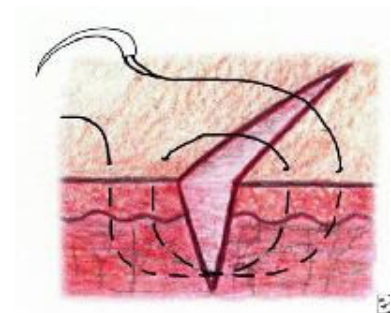
Types of Suturing



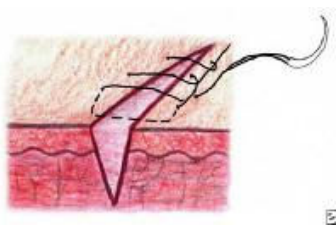
Simple Interrupted



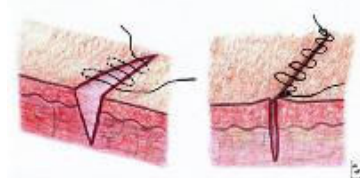
Vertical Mattress



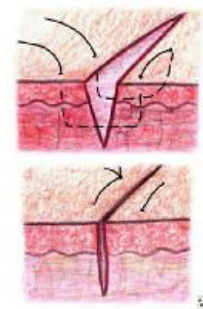
Far-near near-far



Running Locked

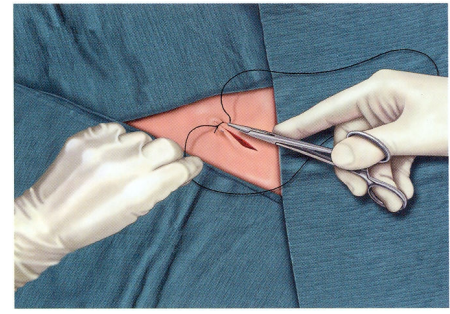
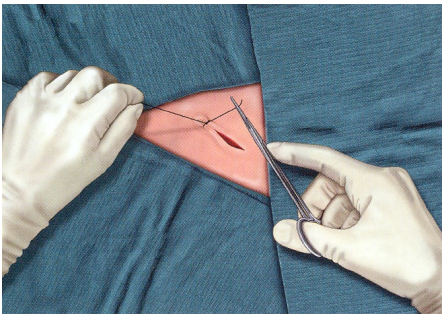
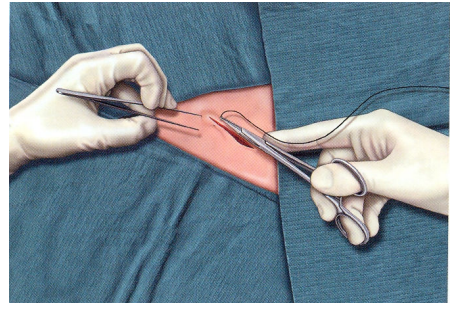
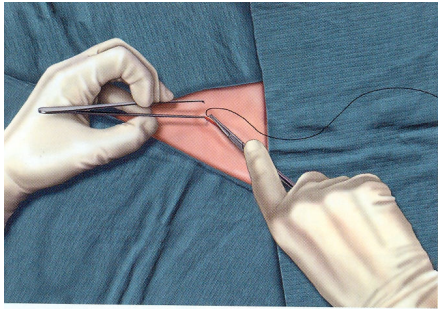


Horizontal Mattress

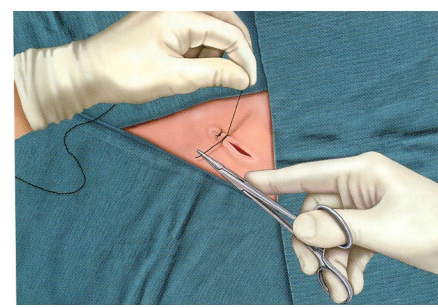
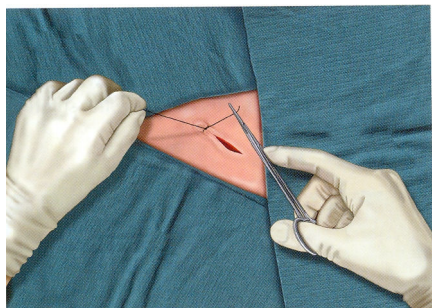
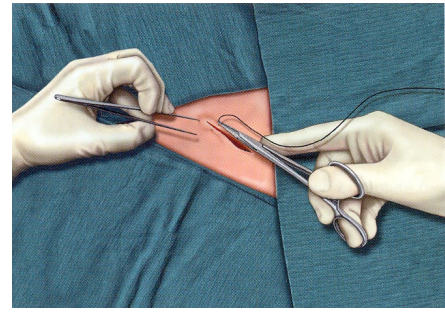
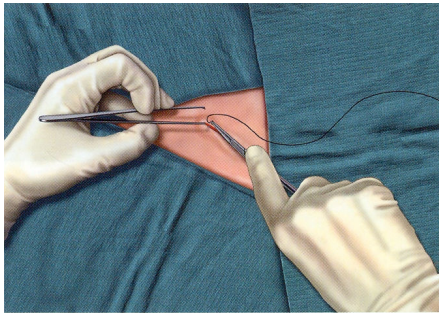


Subcuticular

Continuous Sutures



Simple Interrupted Sutures



Continuous Suture Removal:

1. Cut the suture in several places where it is exposed, crossing the wound edges.
2. Remove portions of the stitch by grabbing an end with a clamp or forceps and pulling gently.
3. The sutures to the knot must be cut in several places for removal.

Suture Removal Guidelines

Site	Days
Scalp	7
Face	3 to 5
Chin	7
Trunk	7 to 10
Arm	7 to 10
Hand	10 to 14
Leg	10 to 14
Sole of foot	14 to 21

Complications:

- Infection
- Bleeding
- Hematoma formation
- Wound dehiscence
- Scar formation

Checklist for Suturing

١. Checks patient's name and hospital number
٢. Assembles correct equipment in the tray
٣. Greets and introduces oneself to the patient
٤. Explains procedure and gets verbal consent
٥. Mentions hand washing
٦. Opens the equipment or asks assistant to open it
٧. Wears gloves and gown
٨. Cleans the wound with an aseptic technique
٩. Numbs the wound
١٠. Requests suitable suture
١١. Grasps needle correctly after giving time to work anesthetic
١٢. Picks up skin edge and passes the needle through the skin
١٣. Passes through opposite side and apposes the skin edges
١٤. Knots as follows: <ul style="list-style-type: none">• Coils the suture around needle holder , that is along the length of the wound• Lays knot flat to one side of the wound edge• Makes a single loop in the opposite direction and ties the second throw• Leaves the end of the suture material in suitable length and cuts
١٥. Repeats the mentioned procedure, ٥-١٠ mm apart from the last stitch.
١٦. Applies dressing
١٧. Explains warning signs
١٨. Explains time of bathing and suture removing if needed
١٩. Sends the patient to receive a tetanus immunization if needed
٢٠. Thanks and listens to the patient's questions
٢١. Removes gloves