PROJECT 12:
HOW TO PLACE SUBCUTANEOUS SUTURES

Learn the technique for placing continuous subcutaneous sutures

**INFORMATION**

One should ideally suture wounds in anatomical layers. For instance, the surgeon cuts through skin (epithelium, dermis, subcutaneous tissue), then through a layer of connective tissue called fascia, then through a muscle and through a 2nd layer of connective tissue to get access in removing a diseased salivary gland. As he closes up, he will suture the 2nd layer of connective tissue, then the muscle, the first layer of connective tissue, the subcutaneous tissue and lastly the skin. He/she will aim at getting wound closure and eversion of the wound edges (being turned outward). All the layers except the skin will require absorbable sutures.
**REQUIREMENTS**

1. The Suture Kit

   1.1. Tissue forceps

   1.2. A suture needle with an eye

   1.3. Suture thread

   1.4. A needle holder

   1.5. Imitation skin

2. A bright study lamp or equivalent light source

**Step 1**

Use a needle with suture material attached, clipped to a Needle Holder (see Project 2 and 3).
**Step 2**
Place the imitation skin (with the prepared ±7 cm (2,5 inch) lacerations - see Project 4) - with the long axes horizontally positioned in front of you. For stability, secure the imitation skin to the table with surgical strapping/sticky- or masking tape. (You may want to work on a piece of cardboard to protect the desk). These cuts in the imitation skin represent surgical incisions or traumatic lacerations.

Study the diagram shown in the “Project A” section of the template.

**Step 3**
Take the tissue forceps in your left hand and the Needle Holder in your right hand (thumb in the upper eye and fourth finger in the lower eye of the handle as described previously). Ensure that the needle tip is facing forward and upwards.
**Step 4**
Use the Tissue Forceps to gently lift and open the far side of the incision/laceration on the imitation skin.

**Step 5**
Start by inserting the needle in the deep side of the laceration, penetrating the tissue in an upwards direction - letting the needle emerge just (1-3 mm/⅛ inch) below the epithelium. Assist the emerging needle through the tissues with your tissue forceps – then deliver ±3-5 cm / ±1-2 inches of suture thread out of the incision. Re-clip the needle holder – needle tip facing towards you and downwards.
**Step 6**

Insert the needle directly opposite the spot where the needle emerged previously, at exactly the same distance below the epithelium directing the needle downwards - aiming at taking an equivalent sized bite from the tissue on the opposite side.

Assist the emerging needle and deliver it out of the tissue using the tissue forceps. Clip the Needle Holder on the needle and deliver the suture thread with ±3-5 cm / ±1-2 inches of the free end remaining on the surface.

**Important note:** Ensure that both ends of the suture are either to the left or to the right side of the suture loop in the tissue. If one end is to the left and the other end to the right of the suture loop, the knot will land on top of the suture loop – defying the object of burying the knot in the deep part of the wound!
Step 7

Make a square knot ensuring that the two tissue sides are brought closely together (into close proximity).

If the square knot slips add another loop to the square knot – always in the opposite direction to the previous loop, alternatively you may choose to tie a surgeons knot.

Step 8

Cut the suture about 3 mm (⅛ inch) away from the knot – ensure that the tips of the cut suture do not protrude through the wound.
POINTS OF INTEREST

- Eversion of the sutured wound means that the incision line is somewhat raised above the skin surface. This accommodates scar tissue formation – so that the laceration surface ends up at the same level as the rest of the skin.

- Subcutaneous sutures are placed to eliminate so-called dead space, and to minimize tension on the skin sutures. It also assists in everting the incision line.

- Place enough subcutaneous sutures to do the job, but always keep in mind that all sutures are in essence foreign objects, so at the same time, keep these sutures to a minimum.

- Both “too much dead space” as well as “too many sutures” will increase the chances of wound infection – so keep it to a happy medium!

Subcutaneous sutures should always be of the absorbable variety. If you need suture strength to remain for an extended period of time – use standard Vicryl® or equivalent sutures (for shorter periods of time use the “rapid” variety).