



**Step-by-Step
Picture Guide**



**Suture Video
Tutorials!**



**Interactive
Quiz!**

HOW TO SUTURE

Interactive e-Book!

Thank you for downloading our Suture Step-by-Step e-Book Guide!

Our goal at A+ Medics is to assist medical and physician assistant students in learning how to suture. That is why we created this e-Book guide and Suture Practice Kit. We hope that our product will help you in reaching your career goals!



If you are reading this guide and have not yet bought our suture kit, you can get your very own A+ Medics complete suture practice kit directly from Amazon by clicking "Order here" button below or by visiting: <https://amzn.to/2lj6YOm>

Our Suture Practice Kit includes everything needed to start practicing different suturing techniques discussed in this eBook:

[Order Here](https://amzn.to/2lj6YOm)

Introduction

Welcome to the A⁺ Medics Suture Practice Guide. In this manual, you will learn the basics of suturing and how to perform surgical knot ties as well as five basic suturing techniques. There are many different suturing techniques but we chose to focus only on the five most common suturing techniques. The techniques included in the e-Book are: simple interrupted, simple running, vertical mattress, horizontal mattress, and subcuticular running suturing. Once you learn and master the five suturing techniques, you can expand and add other suturing techniques to your skillset.

One of the most crucial steps to advance your suturing skills is to practice as many times as possible. By repetition, you will be well prepared and confident when performing different suturing methods. Practice is the main key to master all the common techniques and take your suturing skills to the next level!

In this e-Book, we have included a step-by-step guide manual with images for each of the five basic suturing techniques. A correctly placed suture may be the difference between a minimal scar and a permanent unsightly scar after healing. If you would like to access step-by-step suturing videos you can find them by clicking below:

[Videos](#)

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Suturing Basics

Five Suturing Techniques

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Quiz

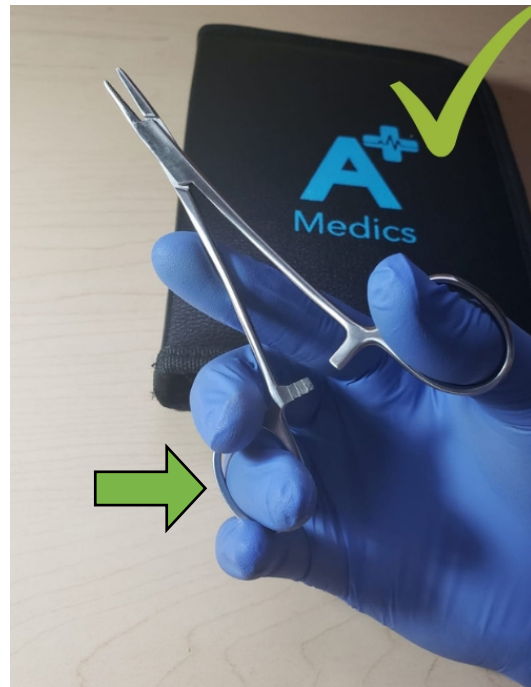
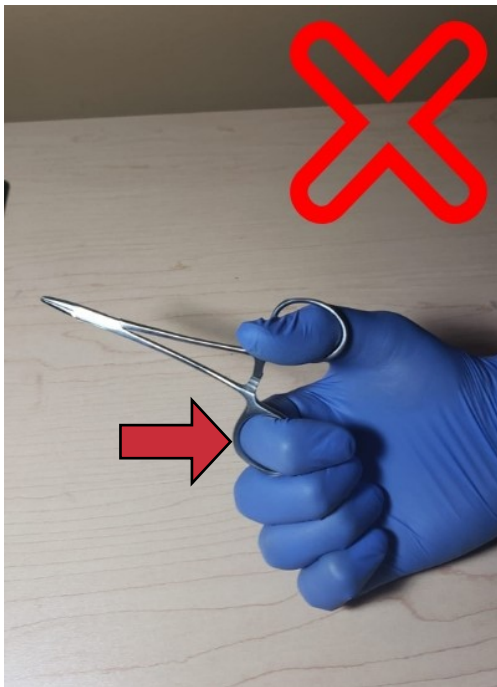
A⁺ Medics Kit & Tool Handling

Hegar Needle Holder/Driver

This is a primary instrument required when performing a suture. If you look at the jaws of the needle holder you will notice there are lacerations which firmly hold or secure the needle when suturing. Controlling the Needle Holder is crucial to perform a suture.

Handling:

1. Grasp the Needle Holder with your dominant hand.
2. Place your thumb through the upper ring.
3. Place your ring finger on the lower ring and place your index finger on the body or shaft of the Needle Holder.

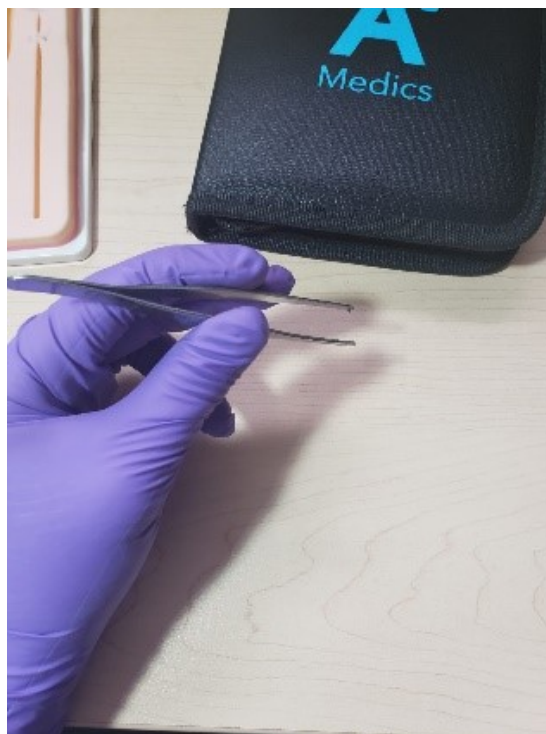


Adson/Toothed Forceps

The toothed Adson Forceps are intended to be used on handling skin. Using these toothed forceps you have to be careful when dealing with delicate skin (around the eyelids or the genital area) as they can macerate tissue that are very delicate.

Handling

1. Hold with your non-dominant hand.
2. Hold like a pencil or pen.
3. Be gentle with the skin, do not grip it too tight as you may damage the tissue.

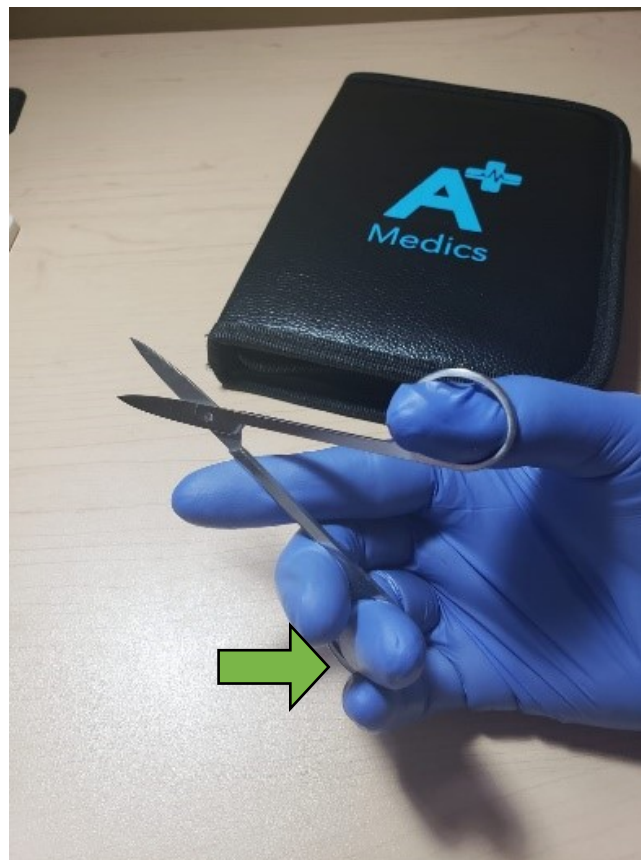


Surgical Scissors

Surgical scissors are held like the Needle Holder and are used for cutting sutures.

Handling

1. Grasp the Surgical Scissors with your dominant hand.
2. Place your thumb through the upper ring.
3. Place your ring finger on the lower ring and place your index finger on the body or shaft of the Surgical Scissors.



Scalpel Handle & Scalpel Blades

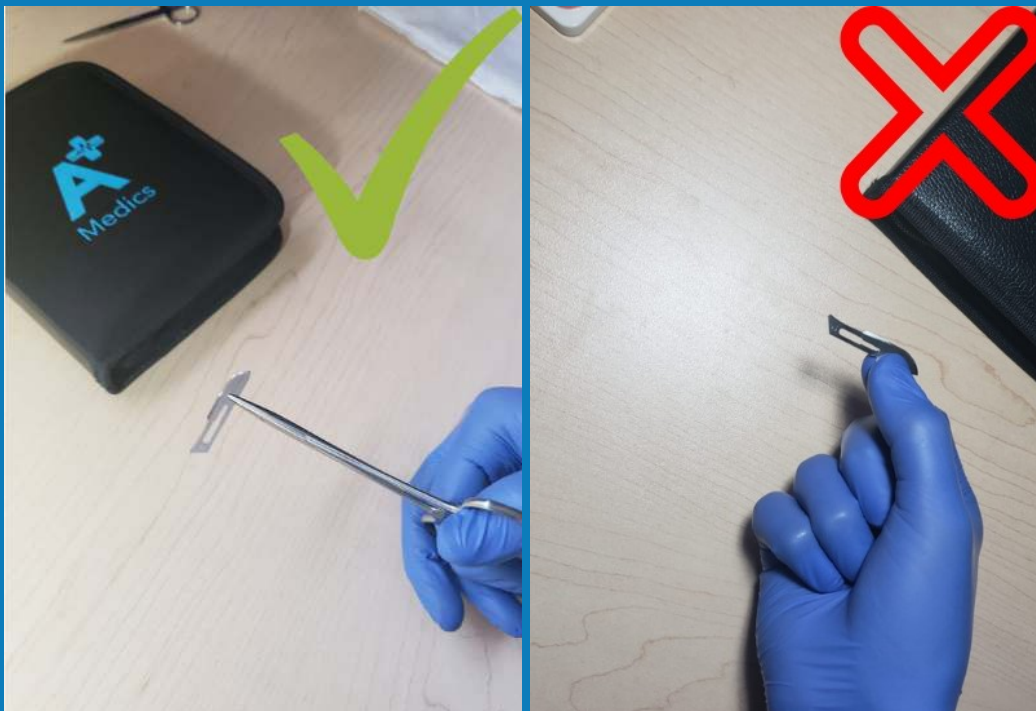
Incorrect handling of surgical blades can potentially lead to accidental injuries as well as damaging the blades' efficiency. Always avoid handling the blade using your fingers. The scalpel handle helps you to utilize the scalpel blade when making incisions to the suture practice pad.



Attaching Blade to Handle Guide (Steps 1-4)

STEP 1:

When attaching the blade to the scalpel handle you should grip the blade with the Hegar Needle Holder in the top side away from the sharp edge.





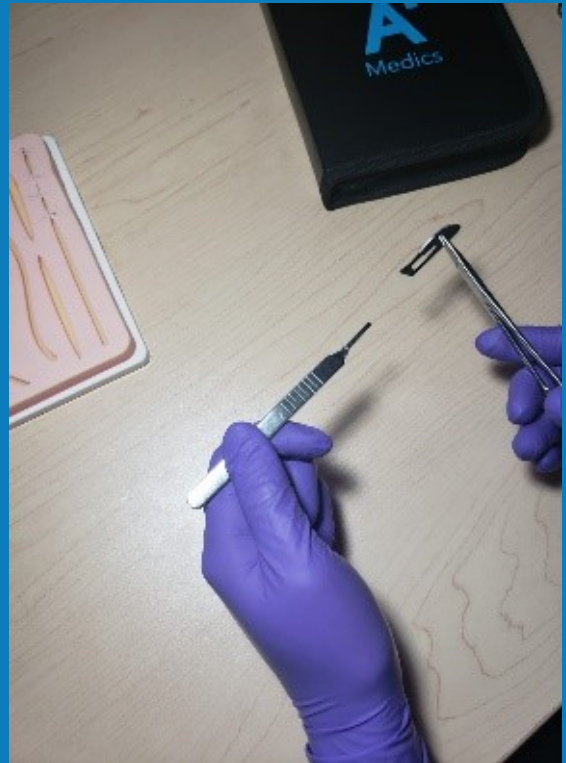
Scalpel Handle & Scalpel Blades



Attaching Blade to Handle Guide (Steps 1-4) Cont'd

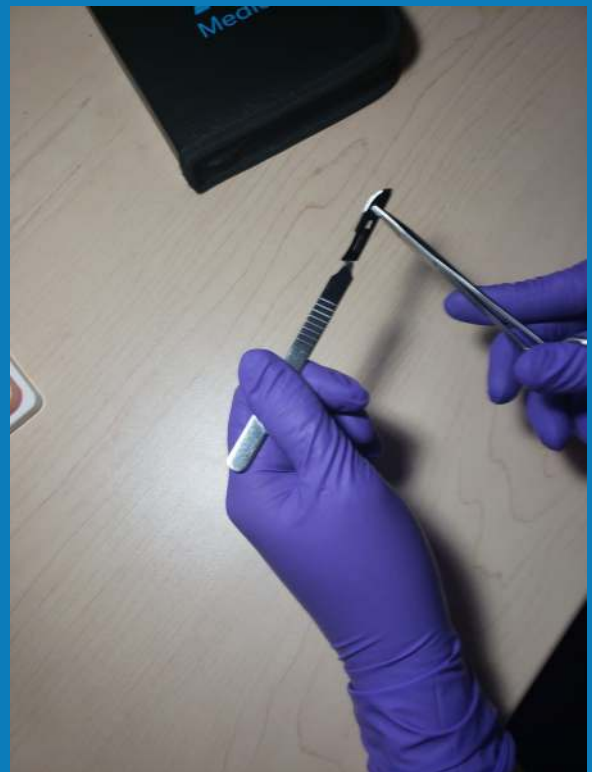
Step 2:

Hold the scalpel handle with your non-dominant hand and align the slot in the blade to correctly engage the blade within the scalpel handle.



Step 3:

Place the blade slightly upwards when sliding it onto the handle.





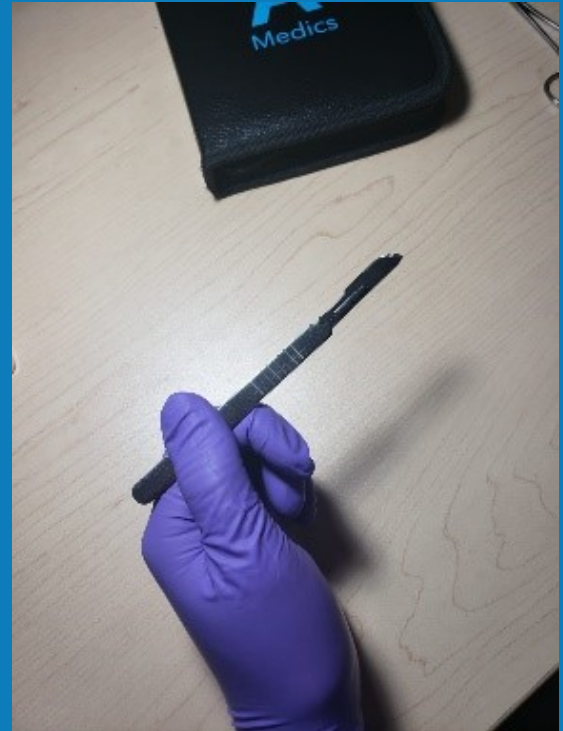
Scalpel Handle & Scalpel Blades



Attaching Blade to Handle Guide (Steps 1-4) Cont'd

Step 4:

Slide the blade back until it clicks into position, the blade should now be securely attached and is ready for use.



De-attaching Blade from Handle

To safely remove the scalpel blade, firmly grip the blade with the needle holder from the back edge and lift the back edge of the blade with the needle holder. Slide the handle away from the blade. Make sure when using these procedures to always keep the sharp cutting edge away from the hand and body. Ensure that the blade is also pointing downward and away from any personnel. Finally dispose of all sharp equipment in a protected container.





Scalpel Handle & Scalpel Blades



Handling

Grip 1: Pencil Grip

1. Hold with your dominant hand.
2. Place the thumb and index finger close to the neck of the handle and grasp it as if you are holding a pencil.
3. The motion when making an incision comes from the index finger and the thumb.

Note: Not Ideal for a long incision.



Grip 2: Finger Tip Grip

1. Hold with your dominant hand
2. The index finger is placed on the spine of the blade.
3. The motion comes from the arm as opposed to a finger motion to create the incision.

Note: Ideal for a long incision.



Curved Mosquito Forceps

Most commonly used in plastic and vascular surgeries. It is used to halt blood flow so cauterization can be performed.

Handling

1. Grasp the Mosquito Forceps with your dominant hand.
2. Place your thumb through the upper ring.
3. Place your ring finger on the lower ring and place your index finger on the body or the shaft of the Mosquito Forceps.



4/0 Nylon Thread Sutures with 3/8 Needle

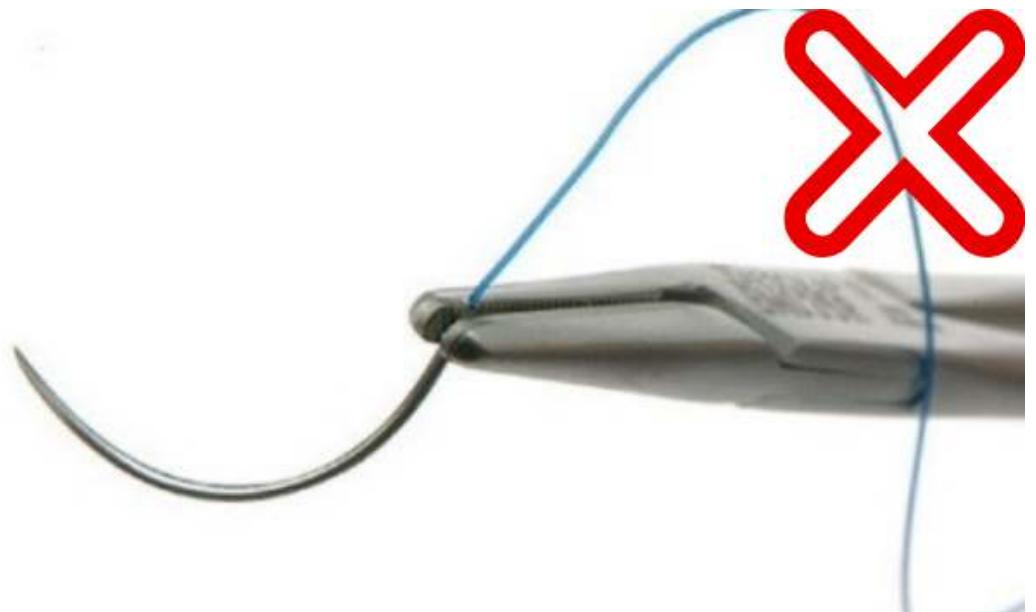
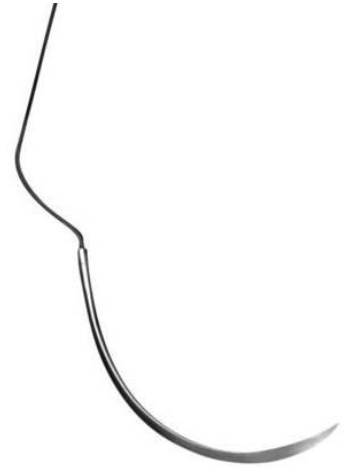
12 High quality suture threads attached to a 3/8 needle are included in the A+ Medics Kit.



4/0 Nylon Thread Sutures with 3/8 Needle

Handling

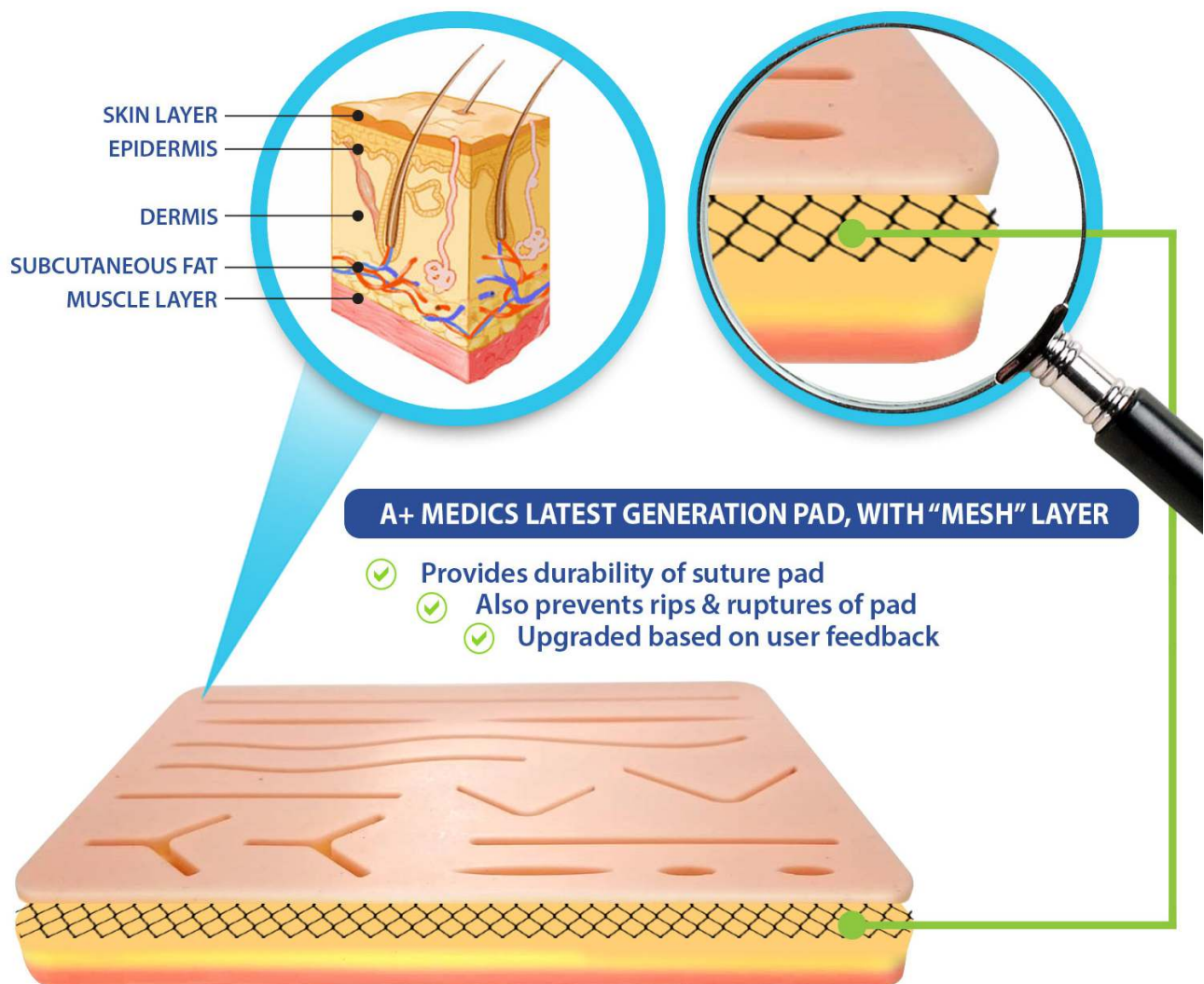
1. Use the needle holder to grasp and drive the needle into the skin.
2. Plan the entry & exit of your suture on either side of the wound before starting.
3. Place the needle in the holder, two-thirds of the distance from the tip to the thread.



Suture Practice Pad with Non-slip Base

The A+ Medics Suture Practice Pad (7.5 x 5.25 in) consists of three layers: skin, fat, and muscle to simulate real human flesh so you can effectively practice your suturing techniques.

The A+ Medics pad is made of high-grade silicone and consists of 14 pre-cut wounds. There is sufficient space on the pad for making incisions and creating custom wounds. The pad is designed to replicate the anatomical structure of human flesh to provide you the best simulation imaginable.



Carry-all Leather Case

The carry-all leather case is included in the A+ Medics Kit to allow for storing both the suture pad and surgical toolset. The case ensures long life-time durability of the pad and allows for easy storage and portability.



Instrument Ties & Knots

Ties:

There are three methods used in tying knots which are:

1. One-handed Tie
2. Two-handed Tie
3. Instrument Tie - *involves using the Hegar Needle Driver instrument instead of your hands to tie the knot*

Note: we will be using and demonstrating the Instrument tie method in this e-Book for tying the knots.

Knots:

There are four common types of knots which are:

1. Square Knot
2. Surgeon's Knot
3. Granny Knot or Slip Knot
4. Aberdeen Knot

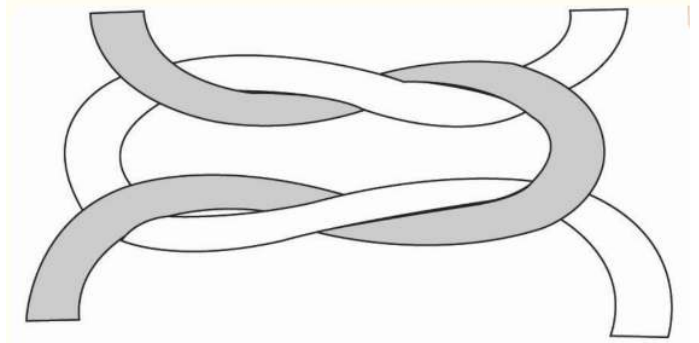
In this e-Book, a step-by-step guide is included to show how the square and surgeon knots are performed. You can use either the square or surgeon's knot when practicing the five suturing techniques.

IMPORTANT: After performing a square/surgeon's knot, it is advised to add 1 to 3 extra tie knots to secure the knot.



i Square Knot

The square knot consists of two throws and is tied by first crossing the right strand over the left strand in the first throw followed by left strand over the right in the second throw.



i How to: Square Knot

In this section, you will learn how to tie the square knot. You can either learn by watching the video or by following the step-by-step guide instructions. Choose your preferred method of learning.

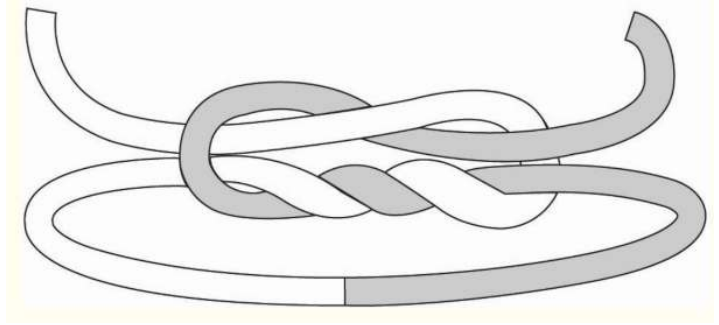
Choose by clicking on either option below

**Watch
Video**

**Step-by-Step
Guide**

i Surgeon's Knot

The surgeon's knot is similar to the square knot. It is basically a square knot with a double turn in the first throw. The advantage of having a double turn is that there is less likeliness for the first throw to slip while the second throw is being tied.



i How to: Surgeon's Knot

In this section, you will learn how to tie the surgeon's knot. You can either learn by watching the video or by following the step-by-step guide instructions. Choose your preferred method of learning.

Choose by clicking on either option below

**Watch
Video**

**Step-by-Step
Guide**

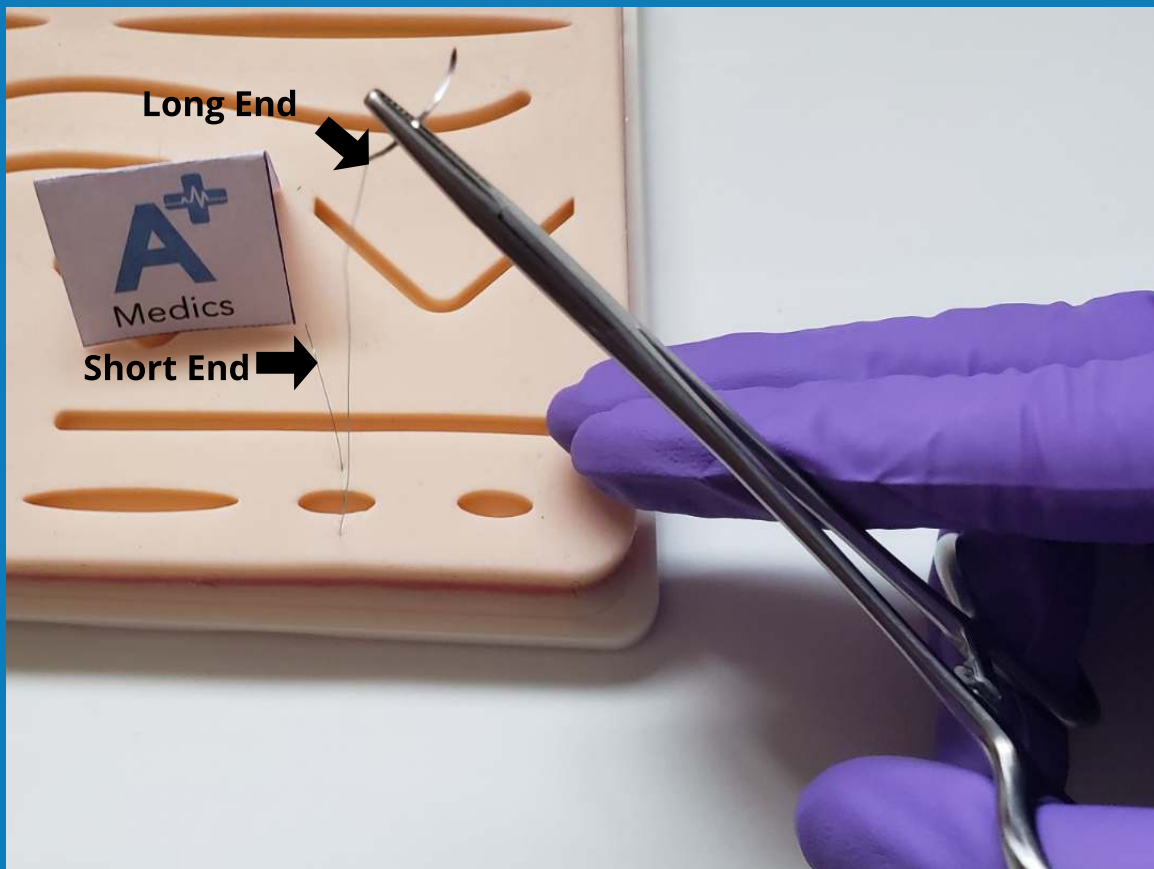
i Step-by-Step Guide: How to: Square & Surgeon's Knot

Follow Steps 1-10 for both the Square & Surgeon's knots as the steps are exactly the same for both knots with Step #3 being the only exception.

Please follow Step #3 that corresponds to the type of knot that you are practicing.

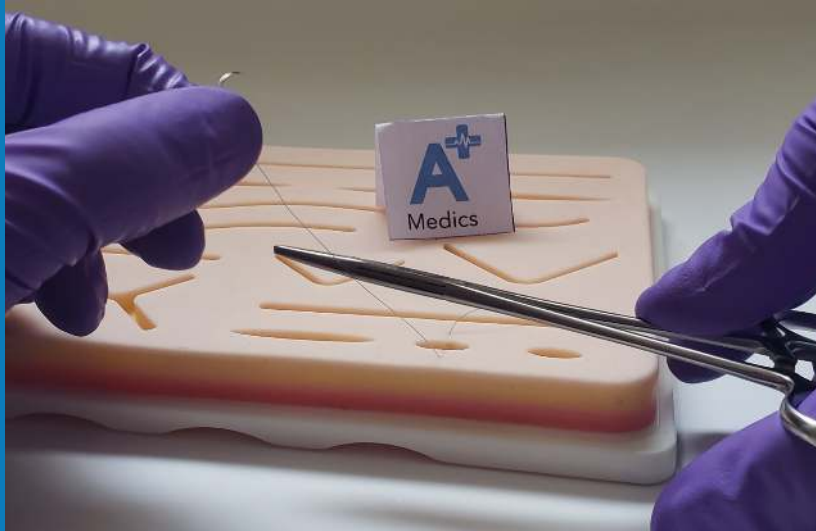
Step 1

Using the needle holder, pull the suture strand through leaving 2 centimeters strand (short end) and a longer end.



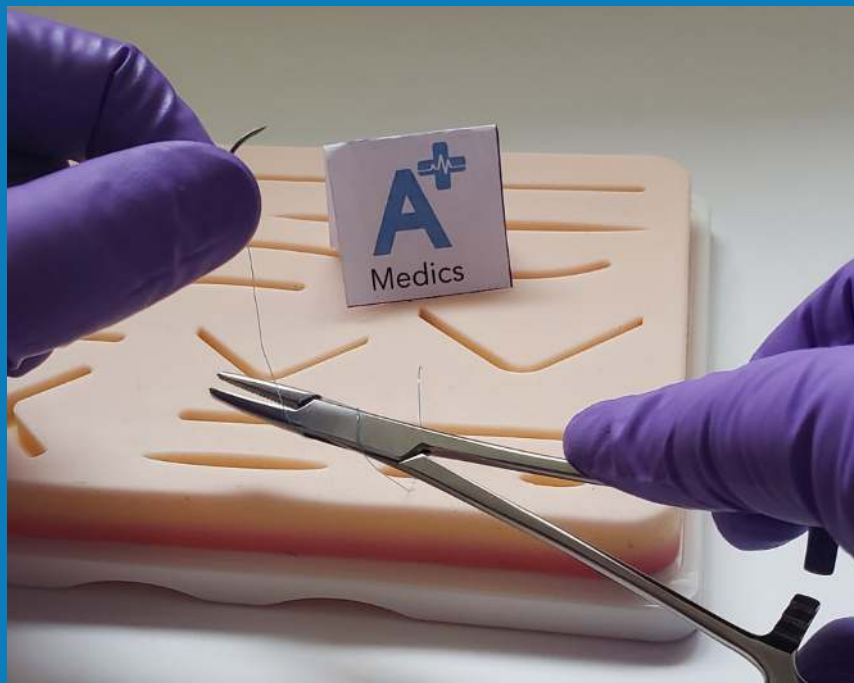
Step 2

Hold the needle with your left hand, and the needle holder with your right hand placing the holder between the long and short ends. Now place the needle holder against the long end near its midpoint



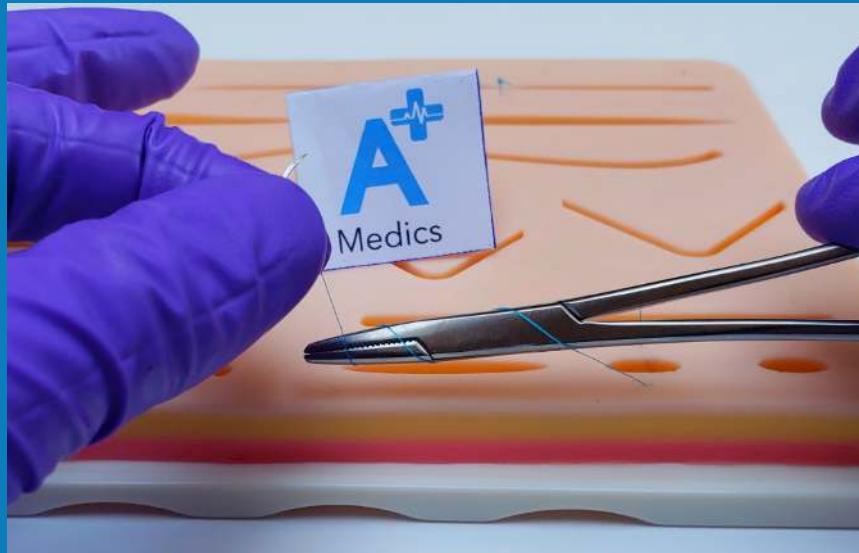
Step 3 (Square Knot)

With the left hand, loop the long suture away from you around the needle holder once.



Step 3 (Surgeon's Knot)

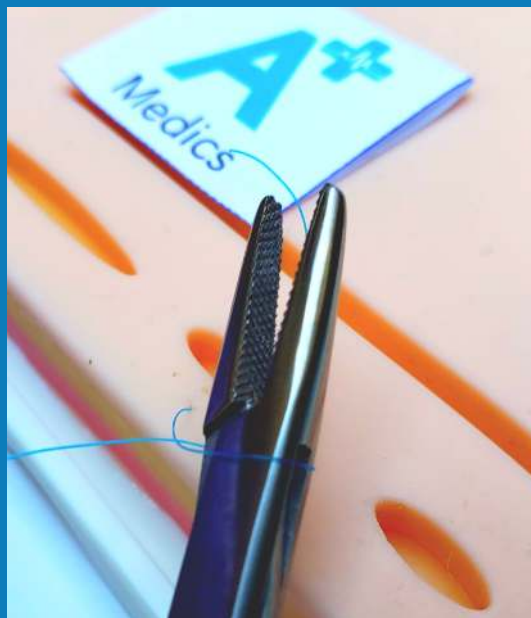
With the left hand, wrap the suture strand around the needle holder twice.



Step 4

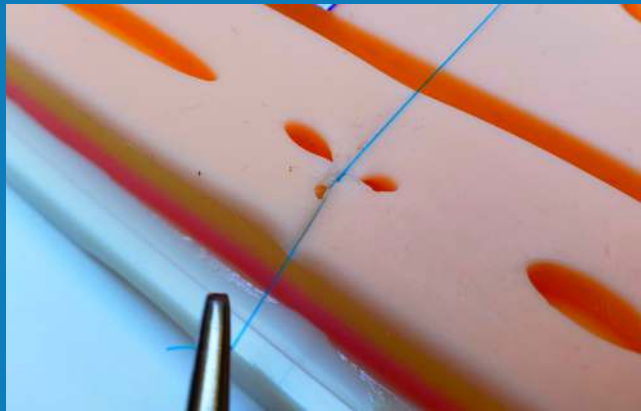
(Proceed with steps 4-10 for both: Square and Surgeon's knots)

With the strand still wrapped around the needle holder, open the needle holder and grasp the 2 cm strand with the needle holder.



Step 5

Now pull the 2 cm strand towards you and the long suture strand away from you to tighten the throw strand.



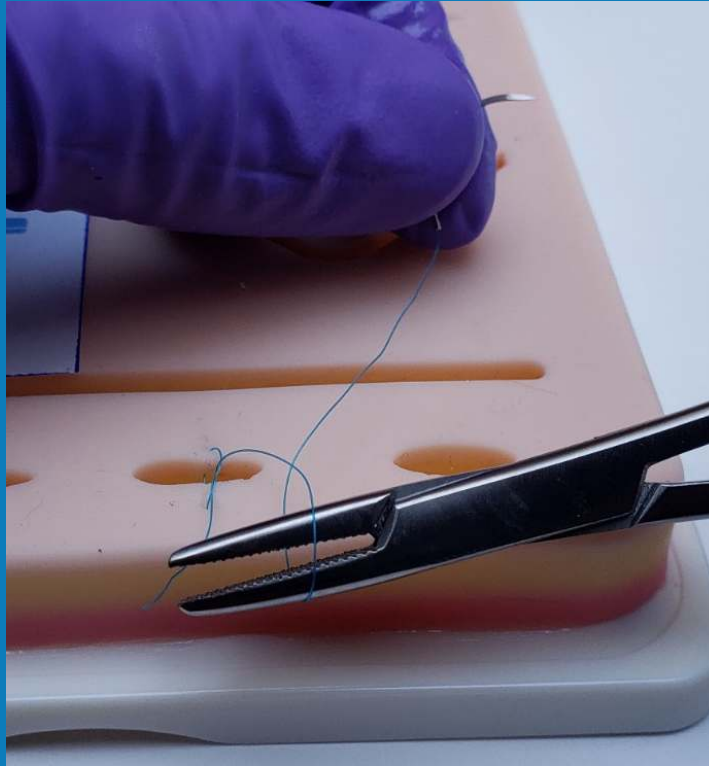
Step 6

Release the 2 cm strand from the needle holder and position the needle holder against the long strand and wrap the strand **once** around the needle holder using your left hand.



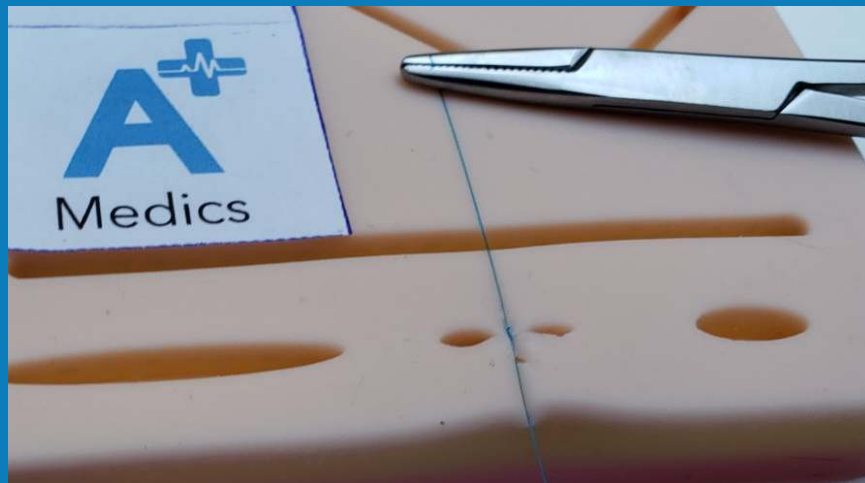
Step 7

Using the needle holder, grasp the 2 cm strand and pull it through the loop.



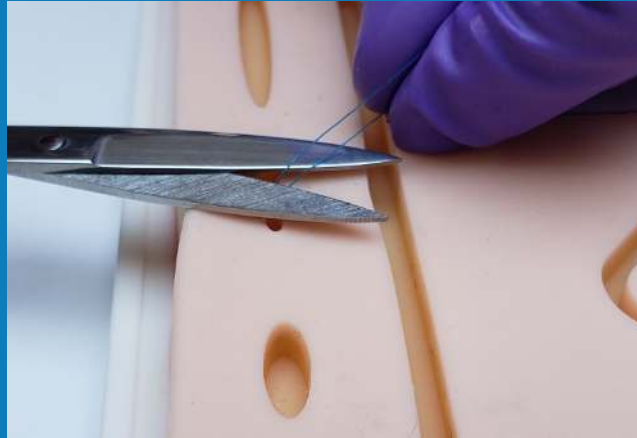
Step 8

Tighten the throw by pulling the 2 cm end away from you and the long suture end towards you.



Step 9

Now cut the suture ends so they are approx. 6 mm in length . if it is too short, the knot will come undone. If it is too long, the suture material will get trapped within other knots and they will come undone.



Step 10

Now you have performed a square knot or Surgeon's Knot

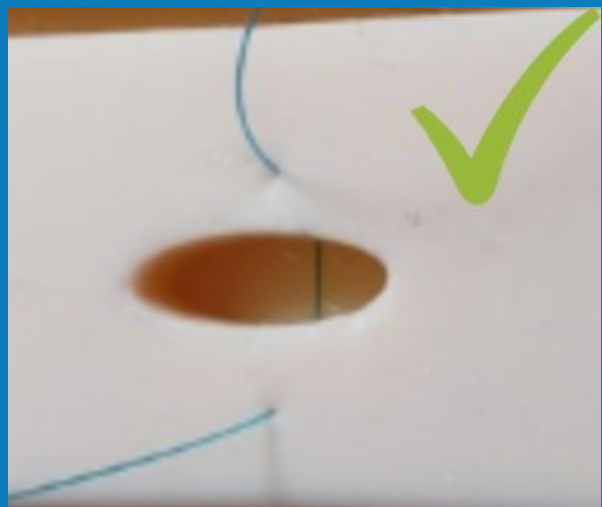
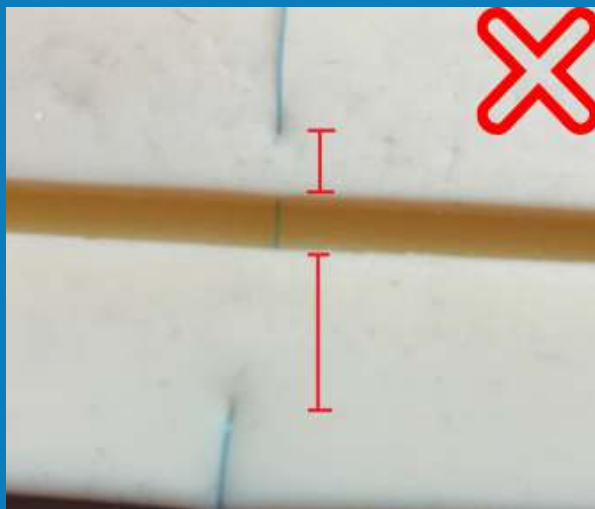
Note: After completing the knot, the skin edges should be touching each other to repair the tissue and the knot should lie over the skin and not the wound



Suturing Basics

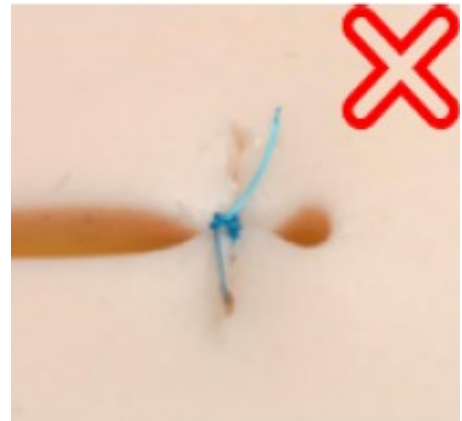
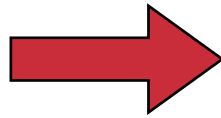
There are a few common mistakes that must be avoided when suturing. In this section, we will discuss some of the mistakes and how to avoid them.

1. Ensure that there are equal bite sizes on both sides of the wound – distance from the wound edge and the depths of bite must be similar on both sides.

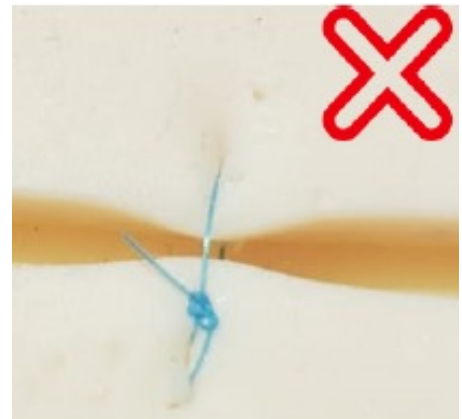
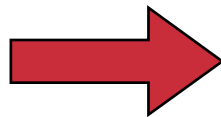


2. Knots should NOT lie over the wound and the skin edges must be touching after suturing.

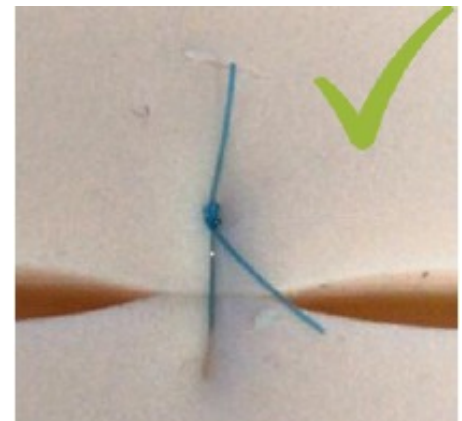
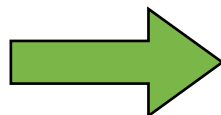
The knot should NOT be placed over the wound



The edges of the wound are not touching



Knot is not over the wound and edges are touching



3. Stitches should be spaced equally over the wound



The spacing between the knots across the wound is not equal



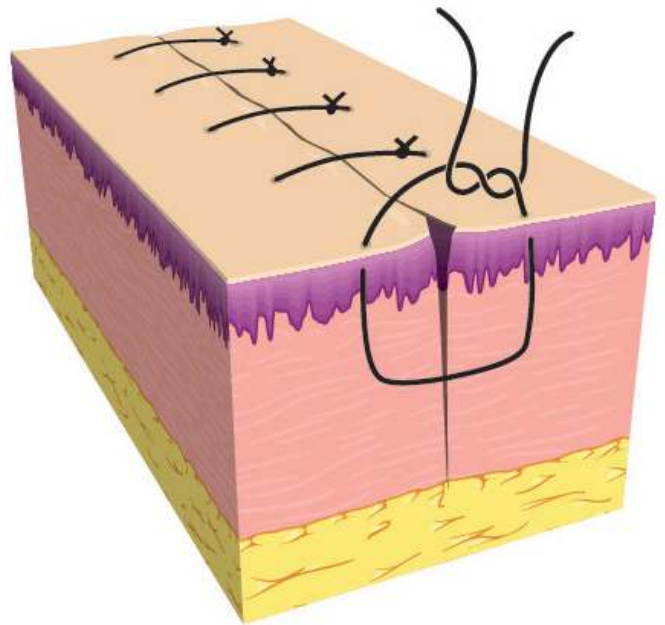
The spacing between the knots should be the same across the wound as shown above



Five Suturing Techniques

i Simple Interrupted Suture

This technique consists of multiple instrument ties performed again and again along the stretch of the wound. This is the most commonly used suturing technique and can be used alone in the context of small wounds under minimal to no tensions or as a secondary layer to aid in the approximation of the epidermis when the dermis has been closed using other deep suturing technique.



Choose by clicking on
either option below

**Watch
Video**

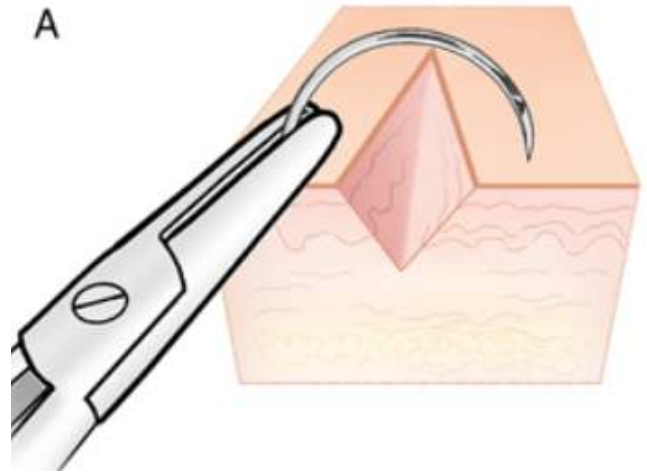
**Step-by-Step
Guide**



How to: Simple Interrupted Suture

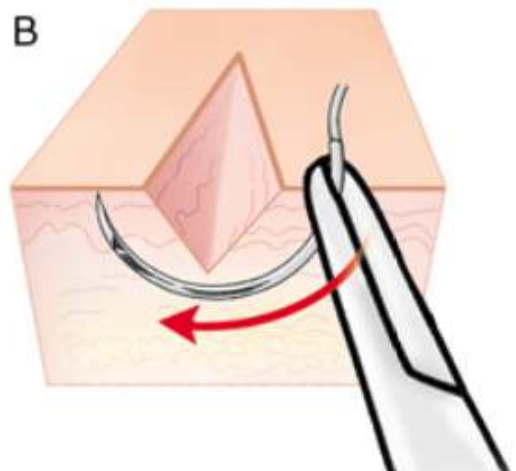
Step A

Pierce the skin surface with the needle perpendicular (90 degrees) to the skin at approximately 4mm from the wound edge.



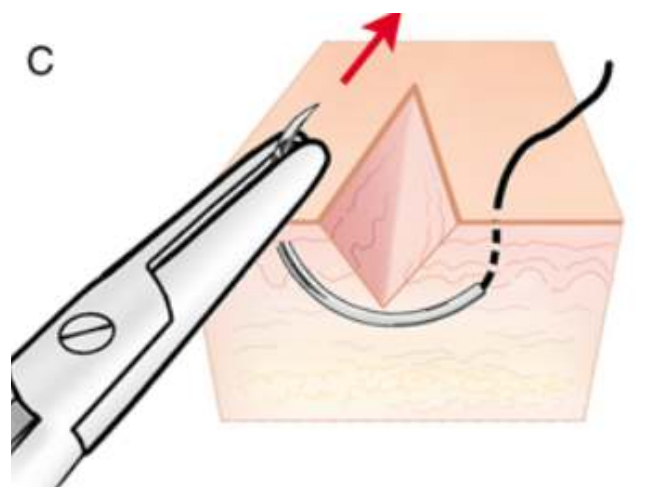
Step B

Rotate the needle through the dermis, taking the bite wider at the deep margin than at the surface.



Step C

The needle tip must travel perpendicular through the dermis from inside to outside and exits the skin on the opposing side. Use the curvature of the needle and supinate your wrist to move the needle through the skin.

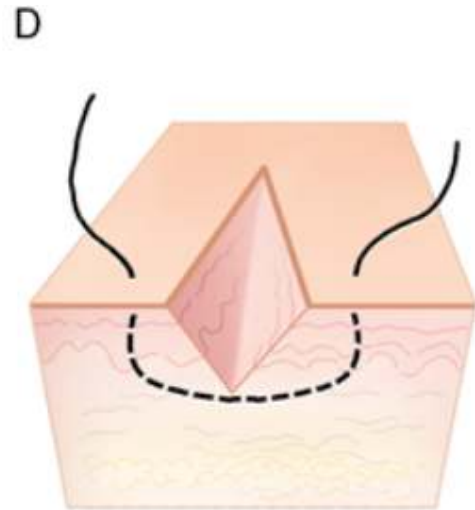




How to: Simple Interrupted Suture

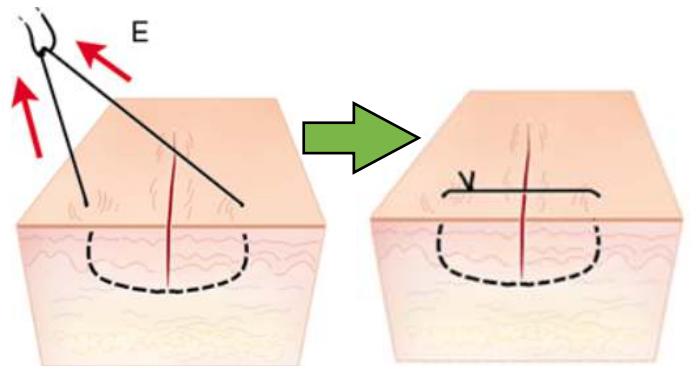
Step D

Using the needle driver, pull the suture through so there is approximately 2cm length on the opposing side.



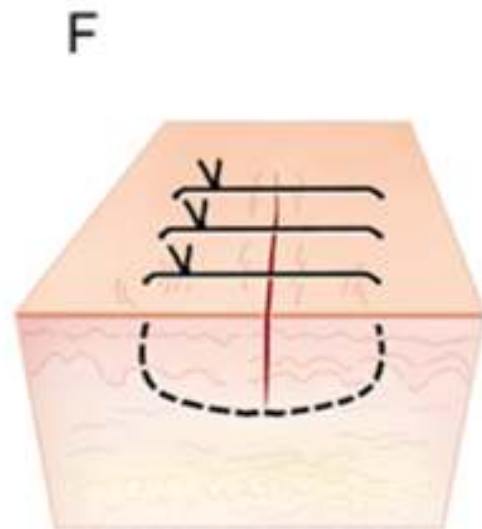
Step E

Tie off the suture material gently to create a knot. (refer to "Instrument Ties & Knots" section for how to perform the knot)



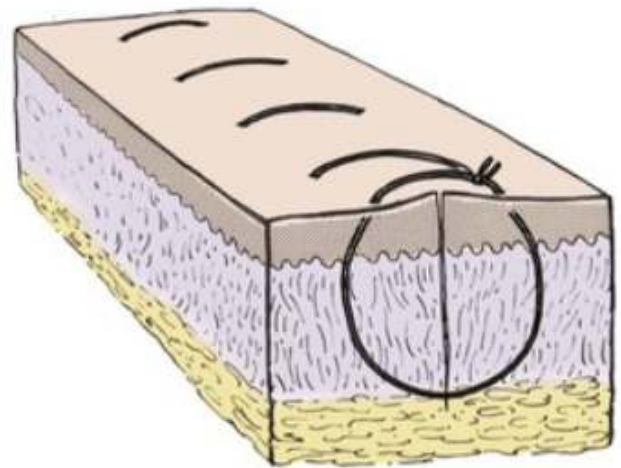
Step F

Place and tie each stitch individually following steps A through E along the stretch of the wound.



i Simple Running or Continuous Suture

The simple continuous pattern or simple running method is very similar to the simple interrupted method. However, after tying the first knot, the suture will continue on each side of the incision until the end of the incision line. The suture is then tied with a final knot. Therefore, there will be a knot in the beginning and at the end of the laceration. This method is used when speed is important (an example: using this technique to close a scalp laceration on a screaming child).



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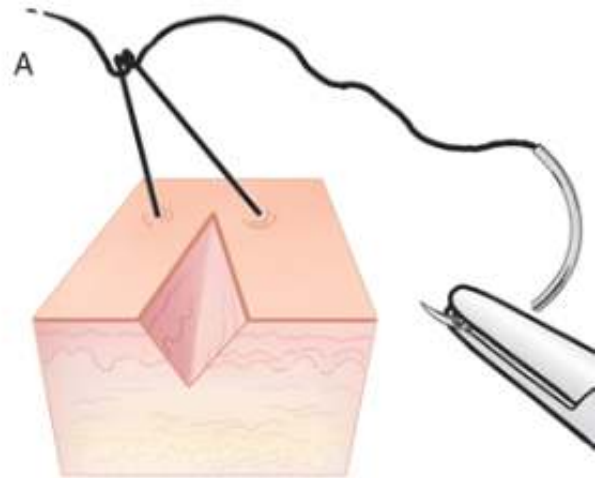
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i How to: Simple Running Suture

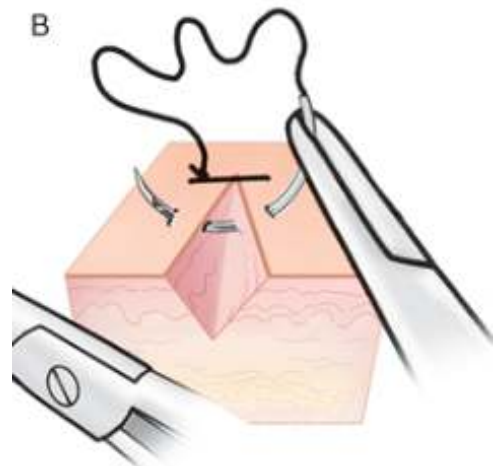
Step A

Begin this technique by creating a simple interrupted suture. The first stitch will serve as the anchoring knot for the running line of sutures. The loose tail (short strand) is trimmed, and the needle will be reloaded back into the skin to create a row of stitches holding together the edge of the wound.



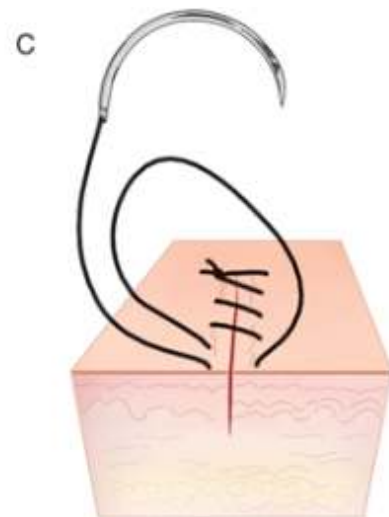
Step B

Place a second stitch about 3 mm away from the first stitch piercing in through the skin surface and exiting the skin on the opposing side.



Step C

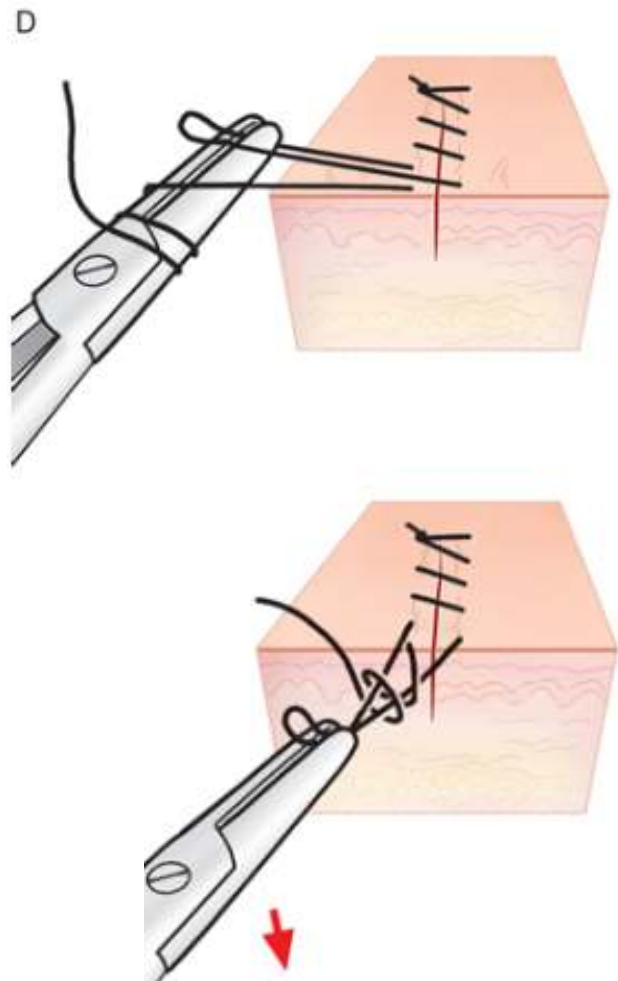
Make evenly spaced passes with the needle for the length of the wound, keeping each pass perpendicular to the suture line. For the last stitch, DO NOT pull the thread completely through as you will be leaving a loose "loop" to use in creating the last knot.



How to: Simple Running Suture

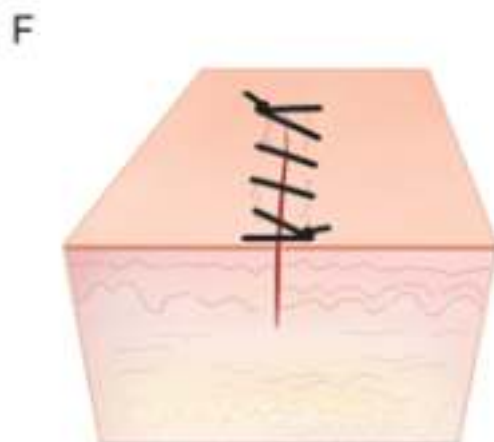
Step D

Hold the loop using the needle driver and tie it off to create the last knot. (Please refer to the video to learn how to perform the knot).



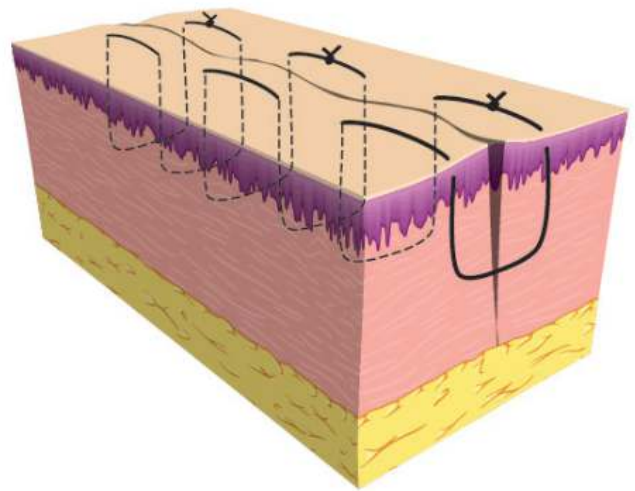
Step E

You have now created a simple running suture. The result should look as the figure illustrated.



i Horizontal Mattress Suture

The horizontal mattress suture is an everting suture technique that spreads tension along a wound edge. This technique incorporates a large amount of tissue within the passage of the suture thread thus making it effective in holding skin flaps together in place. This technique is effective in holding fragile skin together, such as the skin of an elderly patient or a patient receiving chronic steroid therapy. It can also be used as a secondary layer to aid in everting the wound edges when the dermis has been closed using a deep suturing technique.



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either option below

**Watch
Video**

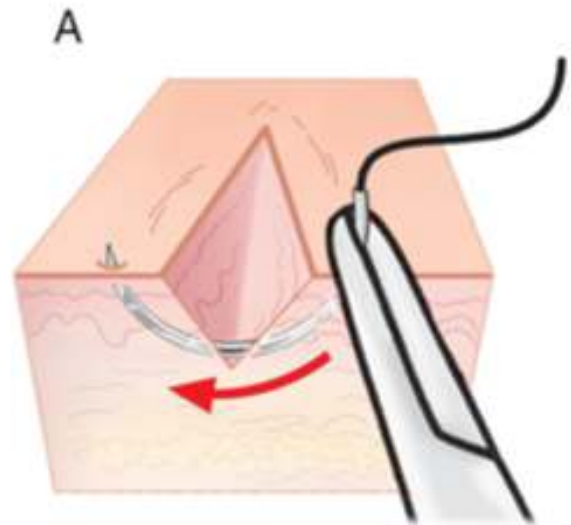
**Step-by-Step
Guide**



How to: Horizontal Mattress Suture

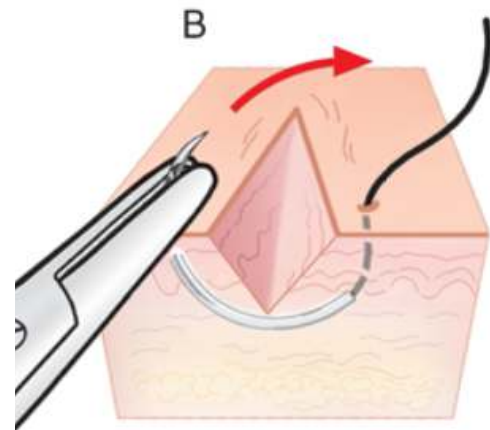
Step A

Pierce the skin surface with the needle perpendicular (90 degrees) to the skin at approximately 4 to 8 mm from the wound edge (slightly farther from the wound edge than for placement for simple interrupted sutures). Rotate the needle through the dermis, taking the bite wider at the deep margin than at the surface.



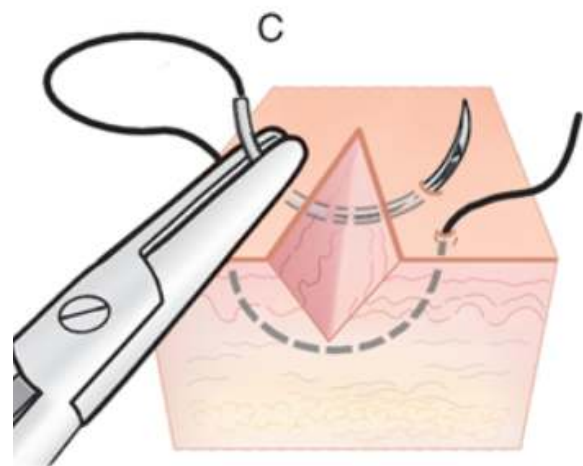
Step B

The needle tip must travel perpendicular through the dermis from inside to outside and exits the skin on the opposing side. Use the curvature of the needle and supinate your wrist to move the needle through the skin.



Step C

After the first bite, reload the needle in a back-handed fashion. The aim is to throw another suture across the wound parallel to your first suture. Make sure to enter perpendicular to the wound and exit on the side where you began.

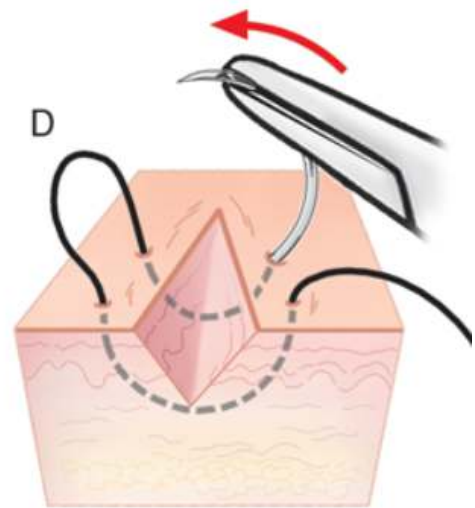




How to: Horizontal Mattress Suture

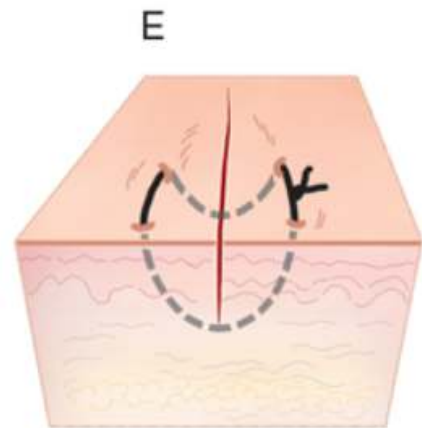
Step D

Reload your needle back and come back up pulling the suture through.



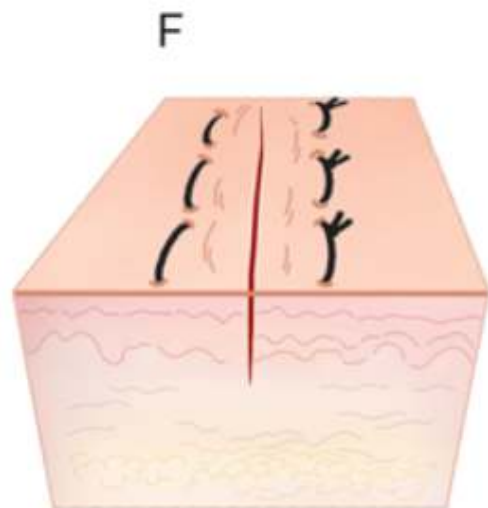
Step E

Tie off the suture (surgeon's knot) on the original side of the wound where the suturing began. (refer to "Instrument Ties & Knots" section for how to perform the knot)



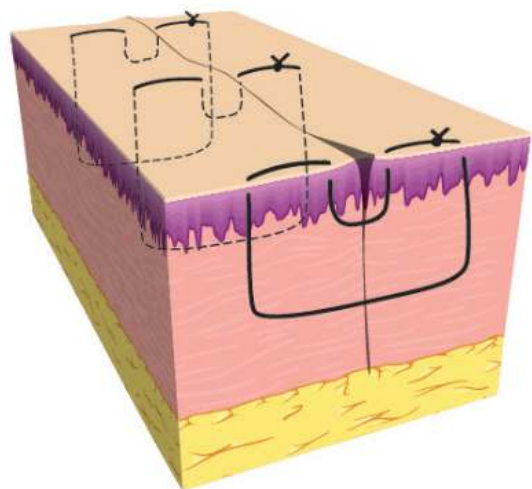
Step F

You can create more than one horizontal mattress suture along the size of the wound.



i Vertical Mattress Suture

The Vertical Mattress suture uses the far-far & near-near system. The far-far suture placement passes 4 to 8 mm from the wound edge, fairly deep in the wound below the dermis while the near-near suture placement should be within 1 to 2 mm from the wound edge and occurs at shallow depth (about 1 mm) in the upper dermis. Like horizontal mattress suture, vertical mattress suture allows for skin edges to be closed under tension when wound edges have to be brought together over a distance. Although horizontal & vertical mattress sutures can produce surface scarring, early removal of these sutures can limit this damage.



Choose by clicking on
either option below

**Watch
Video**

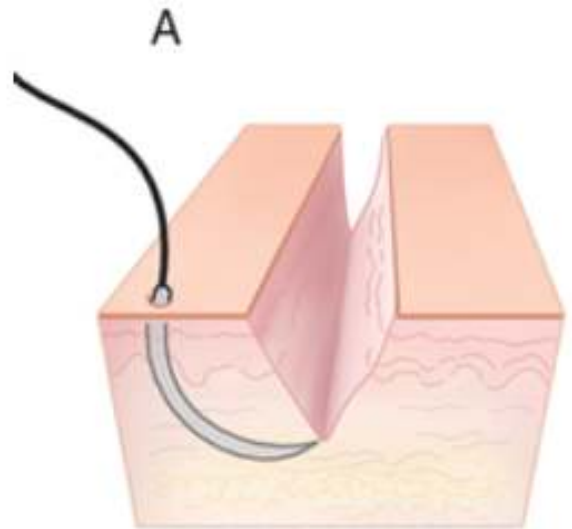
**Step-by-Step
Guide**



How to: Vertical Mattress Suture

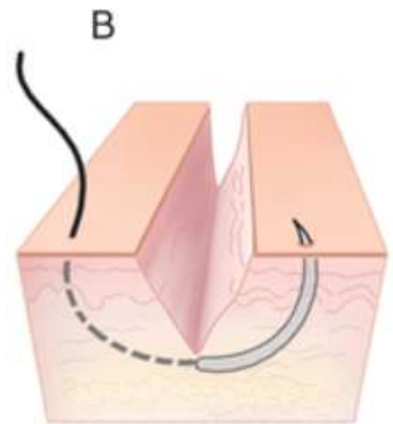
Step A

Insert the needle perpendicular to the epidermis at 4 – 8 mm away from the wound edge. You will begin your vertical mattress suture as if you're performing the simple interrupted suture technique but taking a bigger bite of the skin.



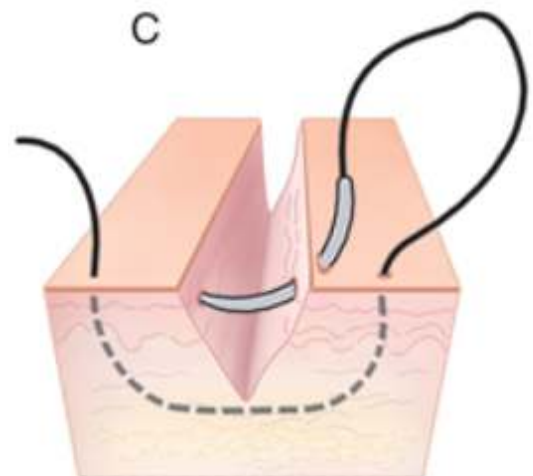
Step B

Supinate your wrist so that the needle passes through fairly deep in the wound below the dermis and rises out on opposing of the wound. There should be equal bites of depth and distance from the wound edge.



Step C

Re-grasp the needle & insert it perpendicular to the epidermis within 1-2 mm away from the wound edge (Remember to take smaller bites of the skin edge).

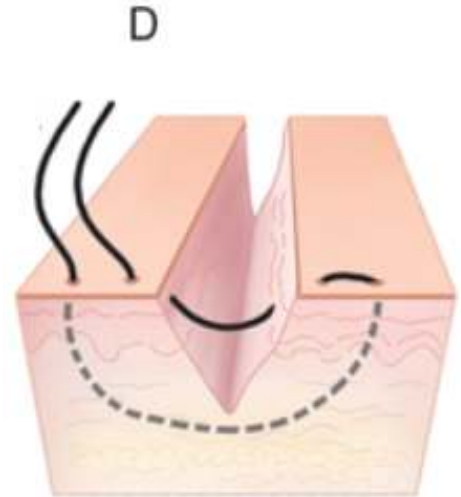




How to: Vertical Mattress Suture

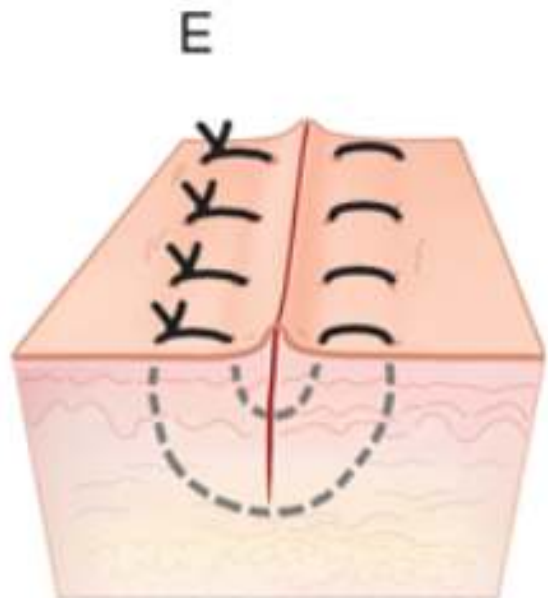
Step D

Move the needle through the dermis and out of the skin above the previous throw. Then pull the suture through.



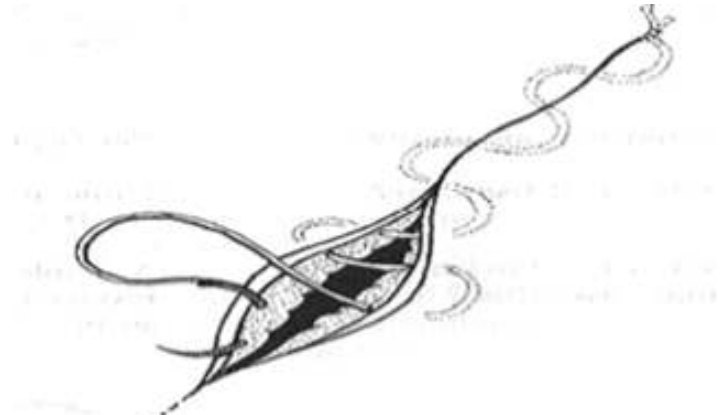
Step E

Perform a tie knot. The knot should be created on the original side starting side. Trim the suture and now you got a vertical mattress suture. You can create a few mattress sutures along the size of the wound as shown. (refer to "Instrument Ties & Knots" section for how to perform the knot)



Running Subcuticular Suture

The running subcuticular suture is a buried form of the running horizontal mattress suture. It is placed by taking horizontal bites through the dermis on alternating sides of the wound. No suture marks are visible, and the suture may be left in place for several weeks. The running subcuticular is valuable in areas in which tension is minimal, the dead space has been eliminated, and the best cosmetic result is desired. Since the epidermis is penetrated only at the beginning and end of the suture line, the subcuticular suture effectively eliminates the risk of crosshatching. The suture does not provide significant wound strength, although it does precisely approximate the wound edges. This technique is one of the hardest to master and watching a video is highly recommended prior to following the step-by-step guide.



Choose by clicking on
either option below

**Watch
Video**

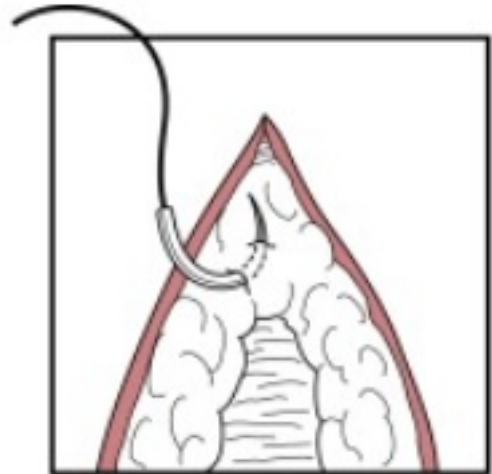
**Step-by-Step
Guide**



How to: Running Subcuticular Suture

Step A

First you will be creating a buried knot. To do this, you will first insert the needle close to the apex of the wound. Insert the needle in the dermis of the wound (direction: deep to superficial)



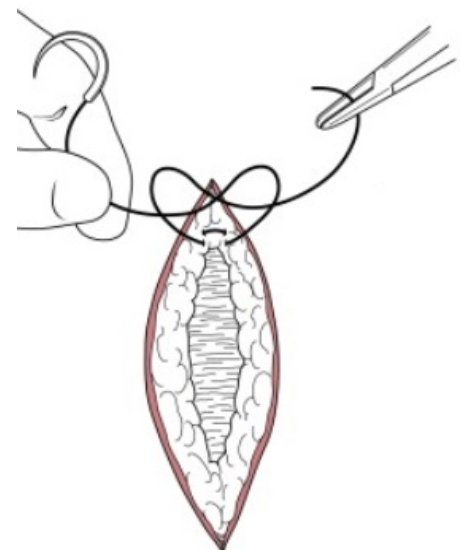
Step B

Re-insert the needle on the opposing side going the opposite direction (superficial to deep) and pull the suture through



Step C

Create a square/surgeon's knot deep in the dermis and add 2-3 more ties to secure the knot (refer to "Instrument Ties & Knots" section for how to perform the knot)

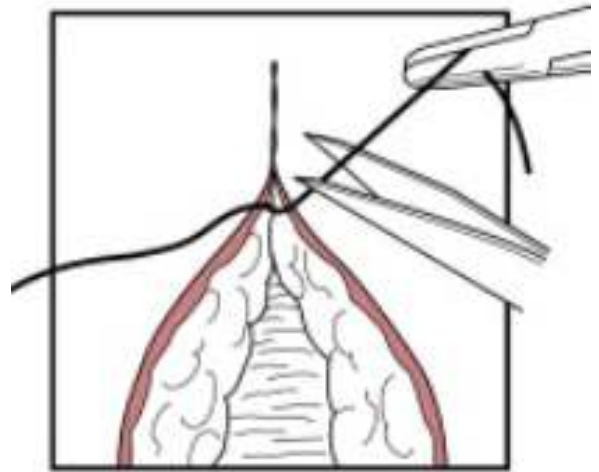




How to: Running Subcuticular Suture

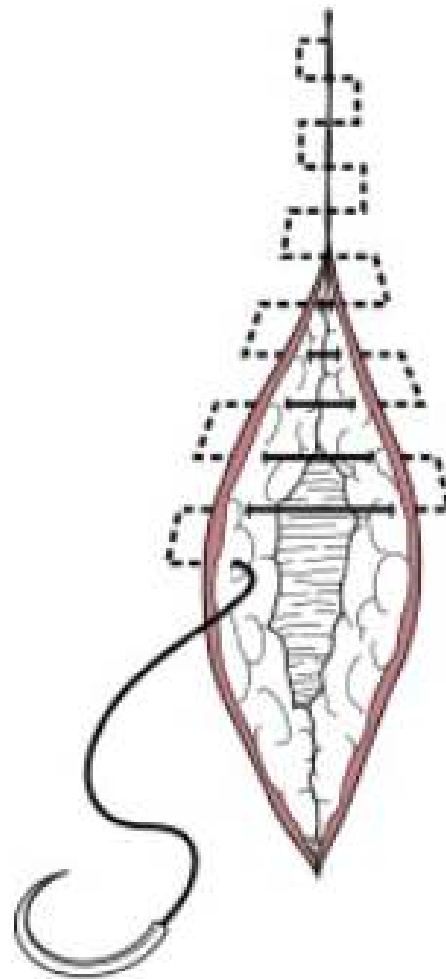
Step D

Cut the short end and bury the knot. To bury the knot, re-load the needle underneath the knot through the dermis and pull it upwards all the way through so it comes out from the apex of the wound.



Step E

Begin taking bites starting from the apex of the wound. To take the first bite, insert the needle parallel to the skin through the dermis on one side of the wound. (Note: In the subcuticular running method, the bites are taken parallel to the skin rather than perpendicular thus the needle enters & exits from the same side). Re-insert the needle on the opposing adjacent side and take a bite the same way as done on the original side. Repeat this step all the way across the wound as shown in the diagram.

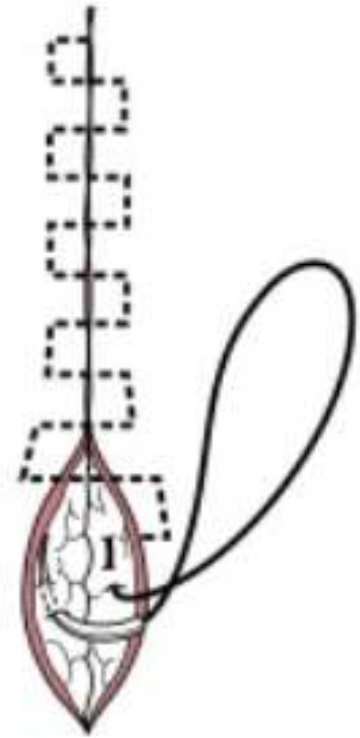




How to: Running Subcuticular Suture

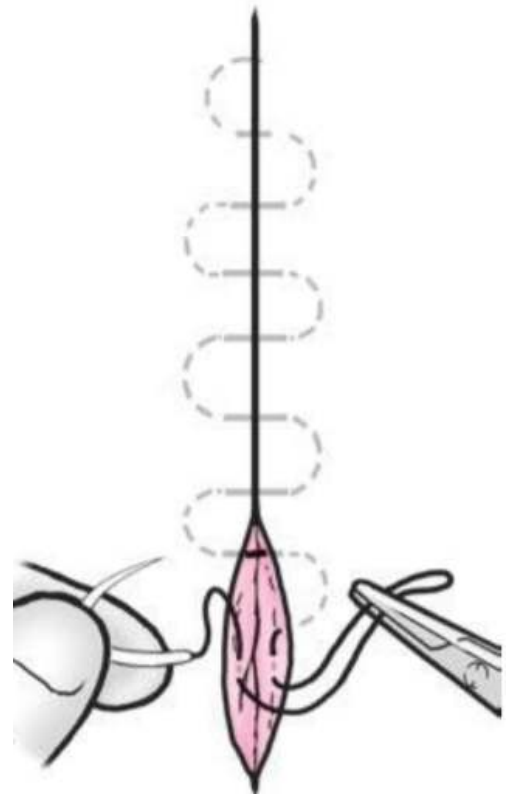
Step F

Keep taking bites all the way along the tissue until you reach the end of the incision. Take the last bite and leave a loop to tie a knot.



Step F

Perform an instrument tie. Cut the suture loop and leave the needle attached. Re-load the needle underneath the knot through the dermis and pull it upwards all the way through so it comes out from the skin burying the knot. Cut the tail end of the suture. The suture should not be visible once you are done.



Quiz

[Click Here](#)

Thanks for reading our guide!!

We hope that you found this guide helpful in advancing your suturing skills and we wish you all the best in your career!

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