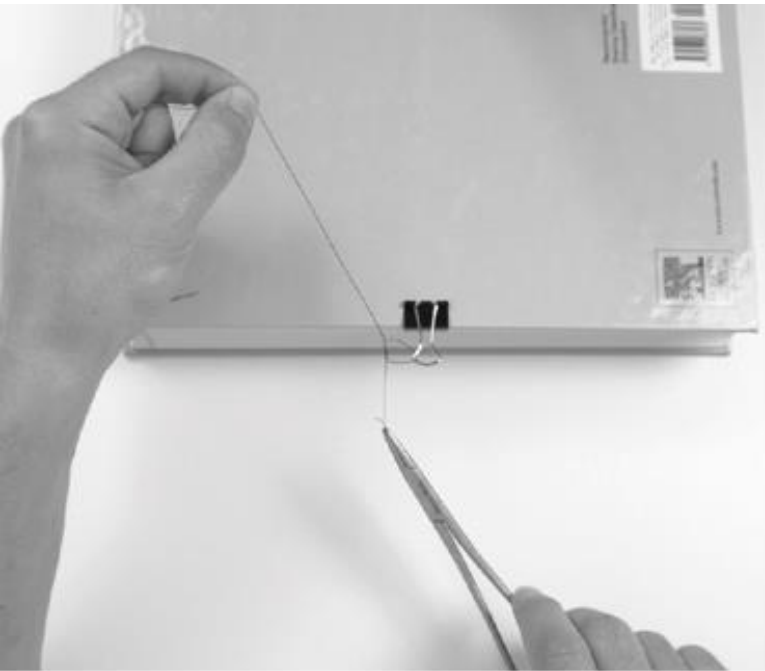


Surgery Skills

Learn Develop Excel



Surgery Skills



Introduction to Surgery

Course manual

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Introduction

This manual has been written to accompany the SurgerySkills.com 'Introduction to Surgery' video course, and when used with the video aims to help build your confidence when starting a surgery placement and develop a number of essential basic surgery skills.

There are elements found only in this manual whilst others will only be in the video, so please ensure you use them together.

We assume no knowledge of surgery to begin with and will guide you step-by-step through a number of elements, building confidence and a lifelong skillset.

- **Learn:** about theatre etiquette, the instruments, common suture techniques and handy tips & tricks.
- **Develop:** valuable knowledge and techniques quickly and effectively with our step-by-step approach.
- **Excel:** in your class or work by showing the skills and knowledge you have gained.

Course objectives

In completing this course, we aim for you to:

- **Gain new surgical skills**
- **Develop confidence and knowledge**
- **Master common knot tying techniques**
- **Build the foundations for advanced stages**

By learning in your own time and at your own pace, without any pressure, we hope you will enjoy our course whilst developing a range of techniques to help enhance the care you give throughout life.

About your course instructor

Mr Hamid Tehrani is a Consultant Plastic & Reconstructive surgeon from the UK, with a specialist interest in skin cancer surgery & reconstruction. He has taught hundreds of trainees and on numerous courses including those of the Royal College of Surgeons. As well as over 20 years surgical experience, positions held include:

- Chairman/Training lead of the UK Mohs surgery Training Interface Group, under Health Education England.
- Member of the Faculty of Surgical Trainers, Royal College of Surgeons.
- Chairman of the British Plastic Surgery Mohs special interest group.

He was the first Mohs-trained Plastic surgeon in the UK, and set up the UK's first Plastic surgery-led Mohs service which has since won numerous awards and commendations for the care given to patients.

Mr Tehrani is passionate about teaching, giving invited lectures to numerous surgical and medical specialties and training surgeons from across the world.



You will note throughout our course that we haven't used expensive models to demonstrate techniques – whilst you can of course buy these if you wish, we realise that many students may have financial restrictions so have used models that are as simple and cost-effective as possible and can be easily reproduced at home. We hope this helps!

Whilst this course provides certain techniques and opinions, they should not be taken as 'the best' or 'only' ways, and there are many other valid techniques that may be used. You may be given advice contrary to the contents of this course or adapt your techniques in time to differ to those described, but we hope the course will at least provide the foundations for doing so.

Completing this course does not imply competence to perform the techniques in live cases and you should always be overseen by a competent person when first doing so.

**If you haven't already got the video course, head over to
Surgeryskills.com to get it!**



Before your list

Starting a new surgical placement can be daunting, as you are entering a new environment with many situations that you won't have come across before.

Relax though - as a new member of the group you won't be expected to be able to do a heart transplant single-handed on day one! Surgical training is a learning process that takes years to accomplish and not only includes hands-on skills, but also knowledge, research and communication skills. The team know you are new and should allow for this.

When you know which team you will be joining, you can get some handy insights into what to expect from your placement by talking to previous trainees of the firm. This can help you to find out:

- What your timetable will be
- Where to meet on the first day
- What sort of operations you will be seeing
- Which wards the patients will be on
- What is expected of you
- What the Consultant/senior team members like/don't like from new members
- Anything else you need to know (eg the matron on the ward hates trainers being worn, etc)

Don't worry if you can't find any previous trainees to talk to though, you can still find out more by meeting the current team. If you are going to try to meet them, make sure you dress smart as you are making a first impression. If you get a chance to meet the Consultant in charge, then you can ask something like 'how can I best get the most from this placement'. This shows you're keen, and that you value their advice.

The thing to bear in mind is that a Consultant is usually incredibly busy, with little spare time – they will therefore tend not to give much of that time to a seemingly uninterested trainee. When a trainee does show an interest though, most surgeons will find the time to reward that interest with valuable training, advice and encouragement.

Seeing patients before the list

Seeing patients before their operations allows you to learn more about them including the symptoms and signs of their condition. It also allows you to read through their notes to get an overview of the consultations and investigations (such as scans) they have had and learn the processes involved.

Make sure you check with the team beforehand though, as although it is usually an expectation that you see pre-operative patients, you may occasionally be advised against this.

Also check with the lead nurse that they are happy with you being on the ward and seeing patients, as there may be restrictions such as infection control issues, or simply that the patient is having a meal so should not be disturbed. And of course, dress smartly!

When seeing patients, please do bear in mind that they are more than just names and numbers – they are people with real fears and anxieties and will often be due to have a life-altering operation. Some people will not want to speak to a student or trainee at this time – don't take this personally, it is completely understandable and should be respected.

If they are happy to speak to you though, then a few general pointers include:

- **Introduce yourself** – say your name, that you are a student/trainee, and that you are there to have a chat and learn about their condition. Bear in mind that some patients may still assume that you are a surgeon, so be aware of any information you offer; this is not the time to offer surgical advice, give medical promises or assurances of technical aspects – this could be wrong information, causing confusion and raising expectations or anxieties. If the patient does have any major concerns, try to find someone in the team that could help answer these.
- **Learn more about their condition** – ask about symptoms (eg pain) and signs (eg blood in stool), how long they have had their problem, and any previous treatments they have had.
- **Take a surgical history** – a broad guide for this is to ask about any other medical issues, any previous surgery, any medications, allergies, smoking (and if so how much), alcohol intake, drug use and social circumstances (eg is there someone at home to look after them post-operatively).
- **Examination** – again, check with the team beforehand if there's any reason why you shouldn't be examining patients. If you are going to examine the patient, then make sure you have checked if they have any pain, and don't do anything to make this worse. Have a chaperone present where appropriate, and always keep respectful of the patient and their dignity.

After you've seen the patients

Once you have seen the patients, you should ideally present your findings to someone to see if there's anything you have missed and to gain tips on improving your history and examination technique.

If there are any members of the team around, ask them if they are free to allow you to present a case to them. Bear in mind though that they may be extremely busy, so don't take it to heart if they say no. If you are unable to find anyone free, then a fellow trainee/student is always a good option to practice your presentation skills with.

Please note, during your meeting with the patient there may be a chance that you will discover something about them that the team are unaware of (for example having recently started new medication). If this is the case, do make sure you highlight this as soon as possible to the team – it could make a big difference to the planned treatment. You may be new to the team, but you're still an important member!

When you get home

Either at home, or in the medical library, try to read up on the operations that are coming up on the list. You don't need to read so much that you know more than the Consultant, just enough to have a good overview of what's happening. Don't forget that the internet is a great source of information, with most operations now available to watch and learn from.

A favourite question of surgeons is on the anatomy of the area they are operating on, so make sure you brush up on this. Again, you don't have to be too in-depth with this (not at first anyway, maybe a bit later though!), but enough to be able to answer most questions.

Finally, try to make notes on each operation, history taking skills etc, whilst you learn. This makes it far easier to revise when the operation comes up again in the future, and of course for any exams!



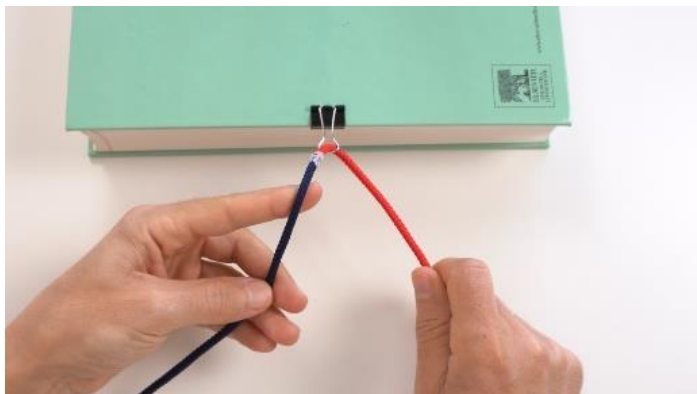
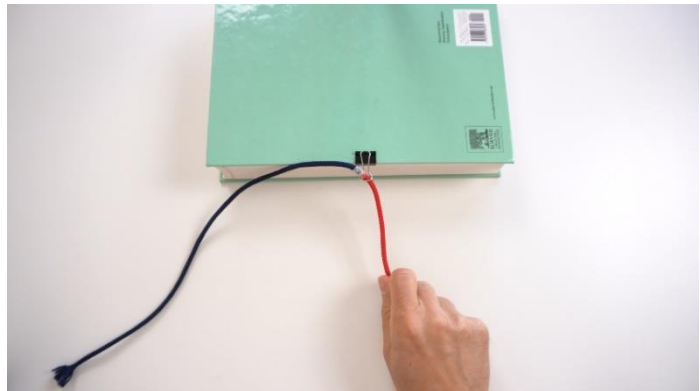
One handed reef knot

This knot is one of the mainstay knots seen in surgery and can be mastered fairly quickly with a little practice. It does actually require two hands to perform, but only one hand is 'doing the work'. We've explained the technique step-by-step here, but **it makes much more sense when you watch the video!**

Models can be bought to practice this, but we realise finances may be limited so in our video we have used 4mm 'piping cord' as our thread; this is fairly cheap and easy to buy on the internet (it's normally used in upholstery/sewing). Alternatively, you can use shoelaces (still on the shoe if you want), string, wool etc.

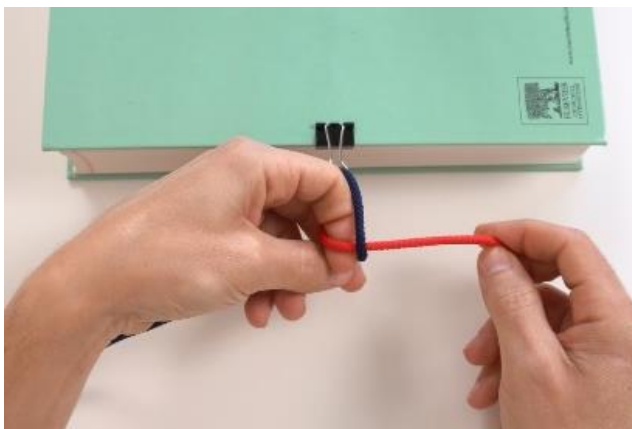
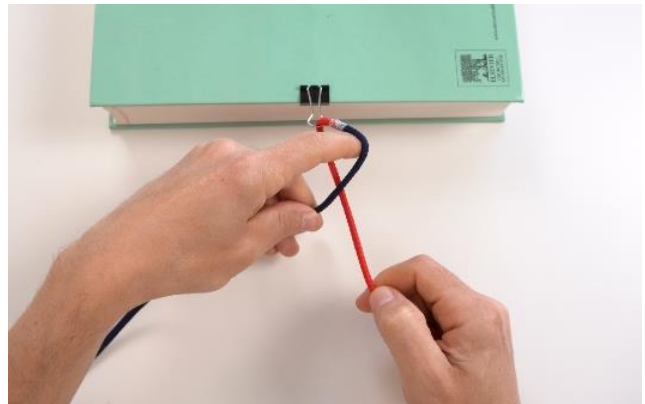
For ease, we will describe this as if you are right-handed. If you are left-handed, just reverse the hands in the instructions.

- Create your 'model' as described in the course and set your cord..
- Hold one end with your right hand (in the picture this is the red end).



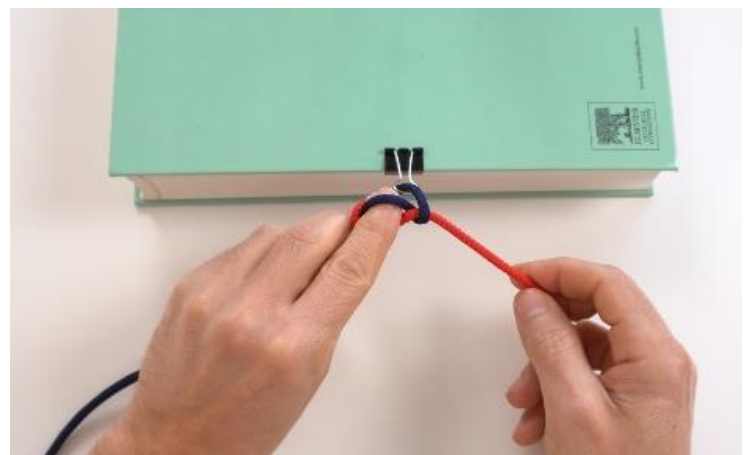
- The left hand holds the blue end between the thumb and middle fingers.
- The left index is extended out under the cord, forming an angle of around 30° with the thumb.

- The index finger now moves over the red cord, taking the blue cord with it.
- Note that the blue cord is resting on the red.

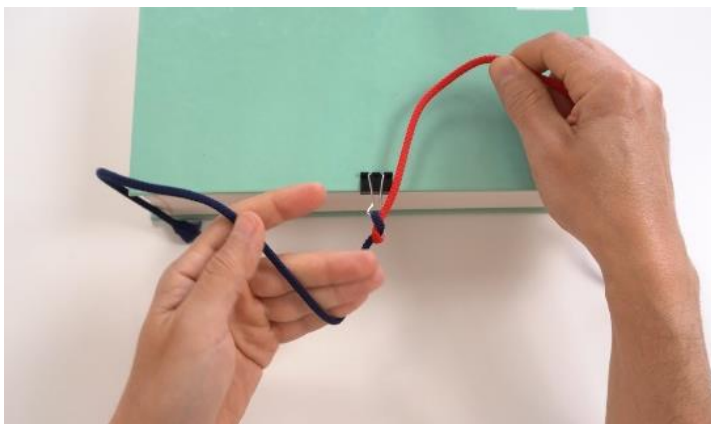
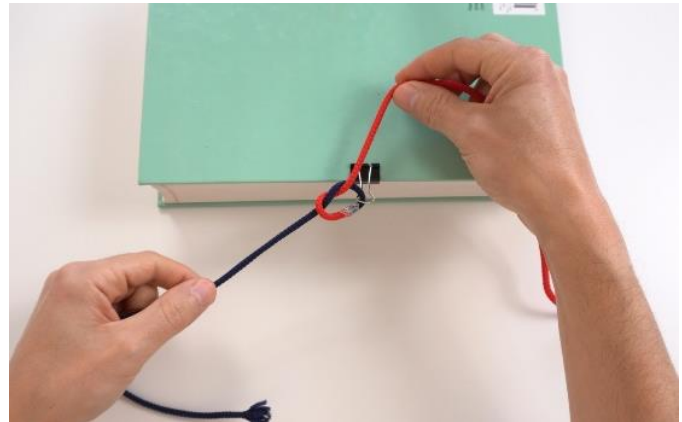


- The index finger curls around the red cord, passing into the gap between the red cord and middle finger.
- This allows the index fingernail to catch the blue cord

- By straightening the index slightly, the blue cord can be pulled through.
- Use the index to keep pulling the entire blue end through, as shown in the video.

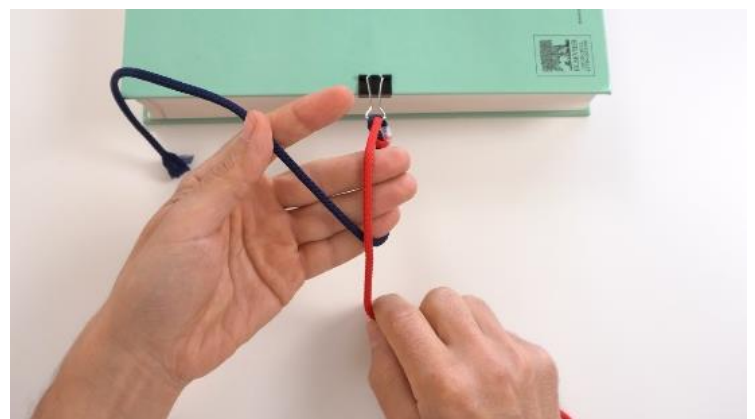


- The two ends of the cord are grasped and tightened.
- Note the right hand is 'going away' from you, the left being pulled towards you. This avoids the throw being twisted.



- Hold the blue cord with your left palm downwards, then turn your hand palm up.
- The blue cord now lies across the palm side of your fingers.
- Split your index finger away, to form an angle between the index and middle finger.

- The red cord is now pulled back towards you, to lay over the middle, ring and little fingers.

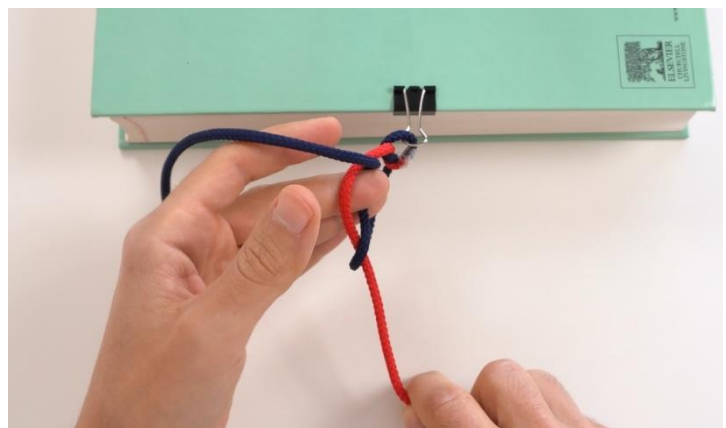


- Grasping the red cord with the pulp of the left middle finger, it is pulled under the blue cord.

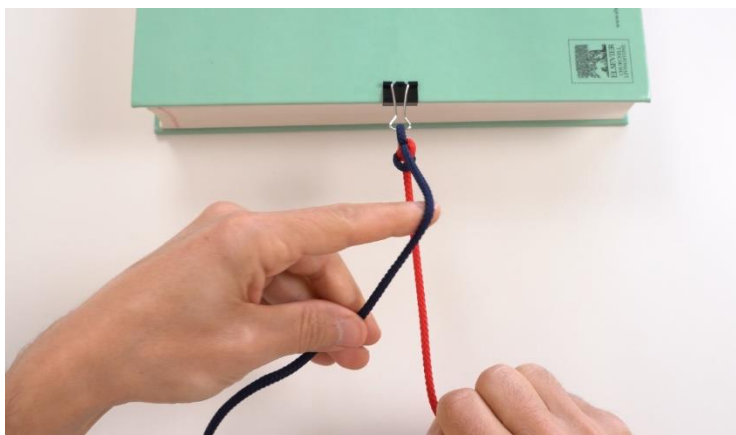
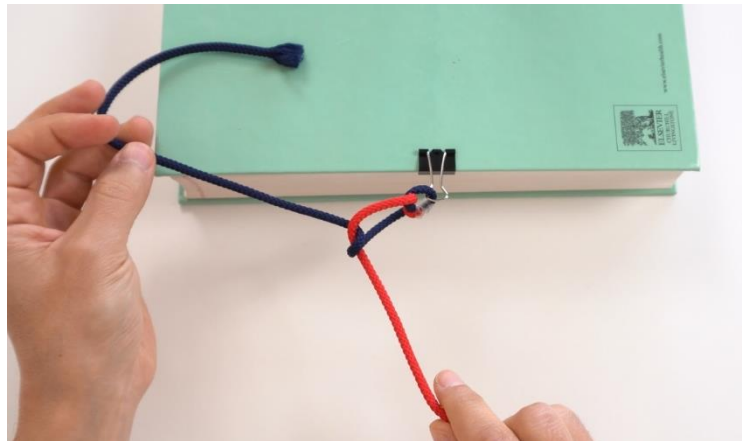


- Grasping the blue cord between the middle and ring fingers, it is pulled back under the red cord.

- Keep pulling the blue cord through.
- **Again, these steps may seem complex, but the video will make it seem much easier!**

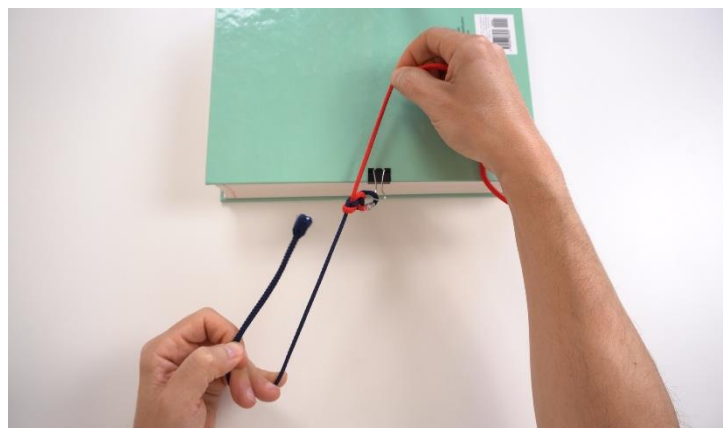


- Tighten the throw down. Note the red cord is this time being pulled towards you.



- A third throw is used to lock our knot.
- This is the same movement as we had in our first throw.

- The throw is snugged down to lock the knot.
- Note the right hand is 'going away' from you to keep the throw neat and untwisted and allow a secure lock.



Going to theatre

On the day of the surgical list the team will usually meet on the ward to see the patients pre-operatively. You may well be expected to be there too, but if not then do try to join the team as you can pick up lots of knowledge while they:

- Discuss the operations with patients and answer any questions or concerns
- Go through the risks of surgery with patients and confirm consent to proceed
- Examine the areas of concern
- Discuss operative issues amongst each other
- Prescribe appropriate peri-operative medications and fluids
- Check available scans and investigations

The learning experience can sometimes take on an almost 'osmotic' effect – just by being there and seeing tasks being performed, you will slowly pick up tips, tricks and knowledge. Also, the more keen you show yourself to be, the more likely this will be rewarded with quality teaching and training opportunities.

Having performed their ward tasks, the team will then go to the operating theatre.

You will need to change into surgical clothes (called 'scrubs'), which are often blue or green (but can be any colour!). The shoes worn are usually surgical clogs – if you don't have any, then the theatre staff can usually provide spare pairs to be borrowed (which is a good incentive to get your own!). Always check before borrowing any though, as you don't want to be found wearing someone else's shoes.....

Surgical hats are also usually provided in the changing rooms or nearby, and once you've put one on, you're ready to go to the operating room.



In the operating theatre

When you go into the operating room, there will likely be a number of staff in there, busily getting everything ready for the list. Do introduce yourself and say what role you are (student, trainee etc). Generally, some tips are:

- Stand somewhere out of the way, as people may be moving around with sterile equipment. Do stand close enough though to be able to see what's happening.
- Don't touch anything that could be sterile – this will de-sterilize it and will need to be changed.
- If you do think you've touched something sterile, TELL THE STAFF! Don't get hung up on being told off, usually people will be very understanding and appreciate your honesty. We'd rather change an instrument than risk creating an infection in the patient.
- If you're asked to do something you're not sure of (eg setting up specialized equipment etc), say so. Again, people appreciate honesty but won't appreciate you 'having a go' and doing it wrong. Don't then just walk away though, take this as a chance to learn how to do that task.
- If there are other students/trainees there, don't start talking loudly amongst yourselves - this is a good way to annoy the staff. Talking quietly is fine, but keep focused on what's happening.
- Feel free to ask questions, but wait until there is a 'lull' in activity. Asking lots of questions while someone is trying to concentrate will either be ignored or met with a short answer. The staff need to concentrate to ensure safety but will usually be happy to teach when appropriate.
- Keep your concentration through the day, not only because there's lots to see and learn, but also because you are in a surgical theatre where a lapse of concentration can lead to problems (eg touching something sterile). So, try to get a good sleep the night before and be as refreshed as possible for the list.

Before the list starts though, the staff will usually all meet as a team to discuss the upcoming patients, and this is part of the WHO checklist.

The WHO checklist

The WHO (World Health Organization) surgical safety checklist was developed in 2007 to improve the safety of patients undergoing surgery around the world.

Whilst the format can vary slightly from hospital to hospital, the team usually meet to talk through each procedure on the list, to discuss patients and highlight any issues. When a patient comes into the operating theatre, further WHO checks are performed covering a number of common points including:

- All staff have introduced themselves to each other, stating their name and role.
- Patient confirms their identity, procedure they're having, site of procedure (eg left leg/right leg), and that they have consented to the operation.
- Does the patient have any allergies.
- Are there any identified issues with the equipment.
- Will there be any special equipment needed for the operation.
- What is the estimated blood loss.
- Have antibiotics been given.

A further check is then also performed at the end of the procedure, to check such issues as any untoward events, that all equipment is counted for, specimens labelled correctly etc.

It is important to concentrate and stay quiet during these checks, as they are a crucial part of the surgical procedure. It also gives an opportunity for anyone to raise concerns, so if you have any queries regarding the patient's safety, you should feel free to speak up (and indeed at any other time). Everyone present at an operation is part of the team, and the team's priority is always about putting patient safety first.

Further information can be found on the WHO website at www.who.int/patientsafety/topics/safe-surgery/en/

The operation

Often the patient has their general anaesthetic (goes to sleep) in a separate area to the operating room – this is, unsurprisingly, called the anaesthetic room. When the patient then comes into theatre, they will usually be on a bed or on a trolley (used for moving patients around the hospital). They are then transferred onto the operating table by using a plastic slide or slide sheets.

Be aware that patients may also be awake during their operations, for example when having local anaesthetic or spinal anaesthesia. Be respectful of the patient, and do not say anything that may raise anxiety – asking someone ‘should that machine be doing that?’ is an example of something to not say within earshot!

The operating area will be cleaned with sterilizing solution, and drapes laid over to protect the clean area. A general rule of thumb is that it should be safe standing approximately 6-8 feet (around 2 metres) from the patient; some surgeons may allow you to get closer, depending on the operation being performed.

As always, try to keep any talking to a minimum, and concentrate on what’s happening – even if you can’t see the surgery itself, take note of what the other staff are doing as there’s always something new to learn.



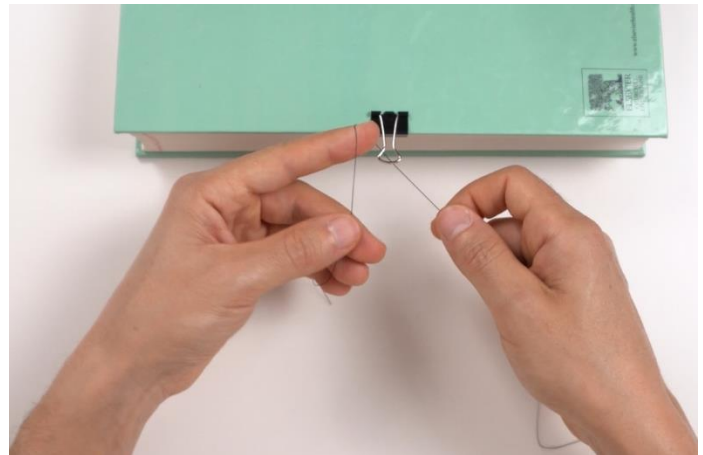
One handed reef knot – with thread

This next part of the course is the same as the previous 'one handed reef knot' section, except we are now progressing on to use suture thread.

If you want to buy actual suture thread from the internet, these are readily available and relatively inexpensive. Make sure you buy training sutures (non-sterile) as the sterile ones cost a lot more and are unnecessary for training with. A good starter thread is a 3/0 silk suture. Alternatively, simple cotton can be used, but make sure you use a fairly sturdy cotton, not one that is too fine.

Don't worry about speed or getting it right at first – this all comes with time and practice.

- As before, the movement starts with the left index extended out under the thread, forming an angle of around 30° with the thumb.



- The left hand moves over the right thread, so the threads cross

- The index flexes down and comes up through the gap in the first webspace.
- The left index nail catches the thread next to the left thumb.

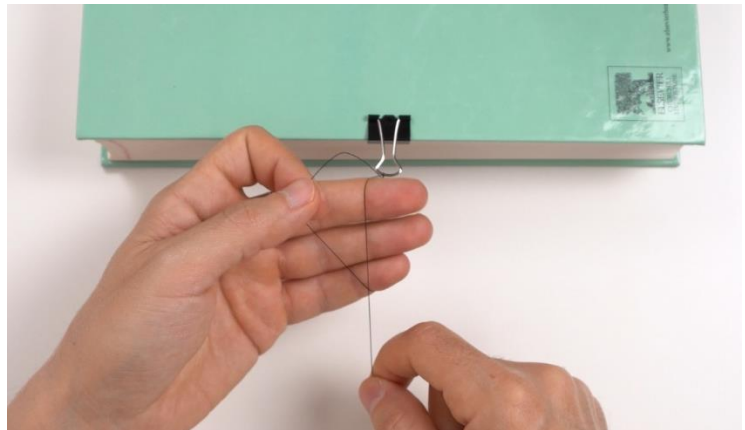


- The index straightens, carrying the thread with it on the back of the nail.

- Carry the full length of thread through and snug the throw down.
- Note the right hand pulls 'away from' you.

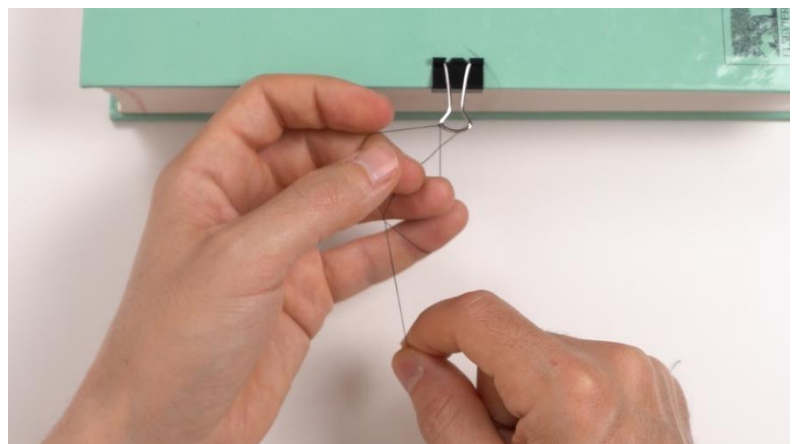


- The left hand now holds the thread between the thumb and index, and wraps the thread around the little finger, to lay over the middle, ring and little fingers.
- The right hand moves back towards you to lay on the same three fingers.

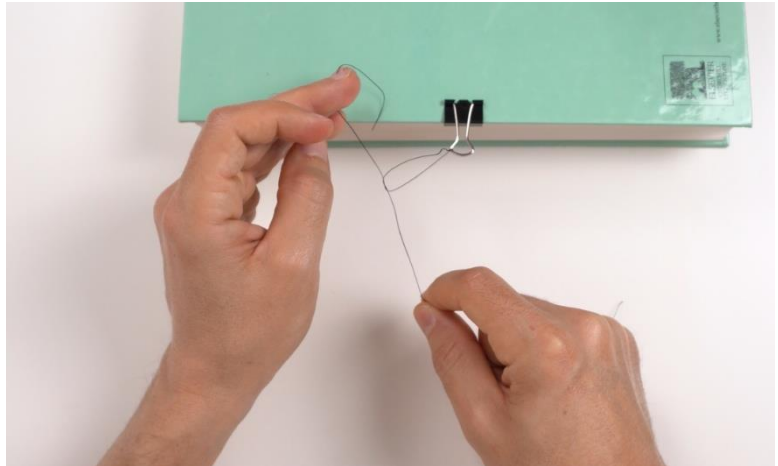


- The left middle finger flexes up, to catch the left hand thread with the back of the nail.

- The thread is grasped between the left middle and ring fingers, and as the hand is withdrawn the thread is pulled through the gap.



- Tighten the throw down. Note the right hand is this time being pulled towards you.



- A third throw is used to lock our knot.
- This is the same movement as we had in our first throw.



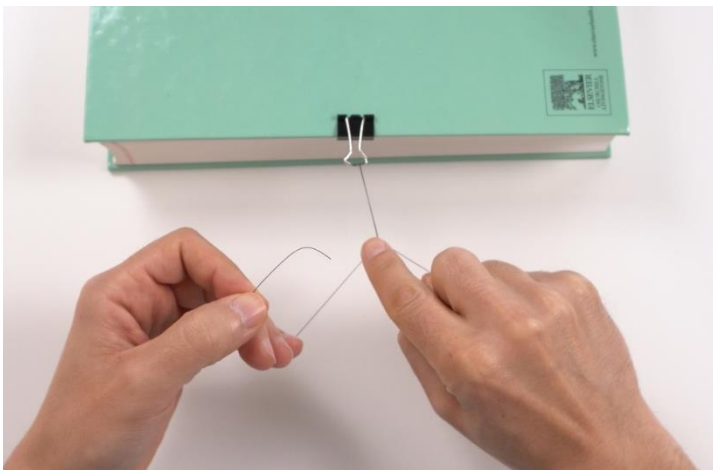
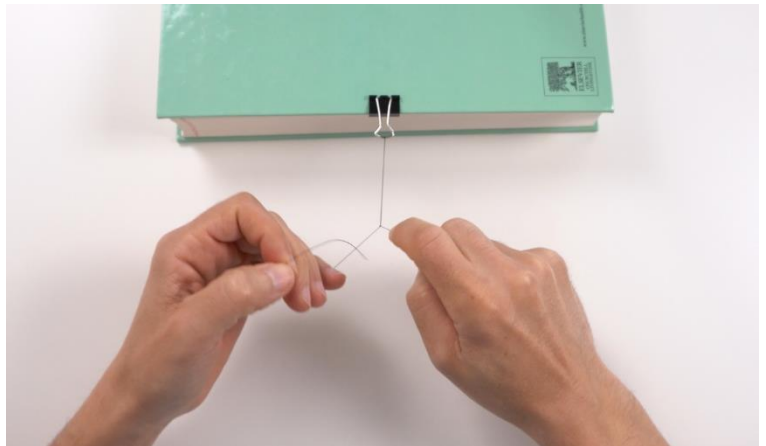
Tying at depth

Now that we've covered the one-handed reef knot, we can take things one step further. When using a hand-tied knot, it's often being used at depth, for example inside the abdomen, chest, pelvic cavity etc.

To practice the reef knot in a more 'real life' situation therefore, we can practice tying at depth. As the cavity may be quite restrictive, we can use a model to reproduce this.

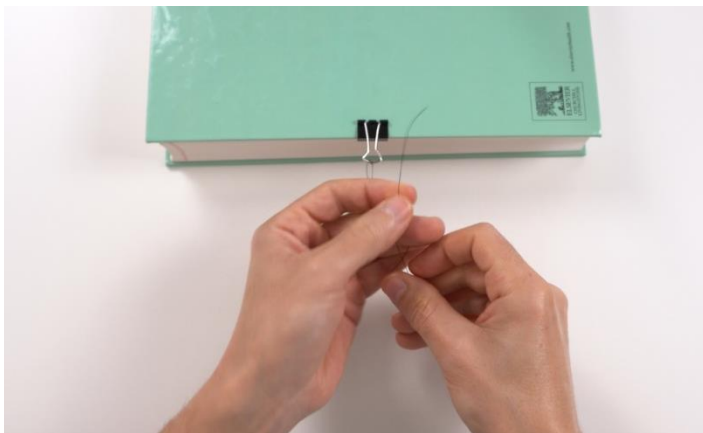
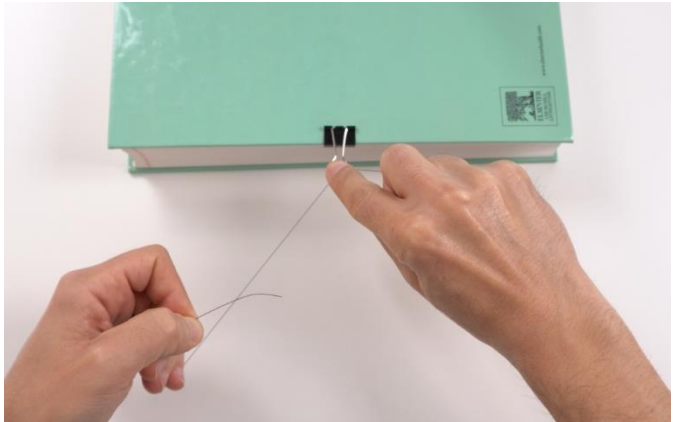
There are models for this that can be bought, but here we have used a really simple and cheap model, a coffee cup, so that anyone can practice this at home.

- To practice, we're not going to use the cup just yet.
- Make your first throw as you normally would for a one-handed reef knot.



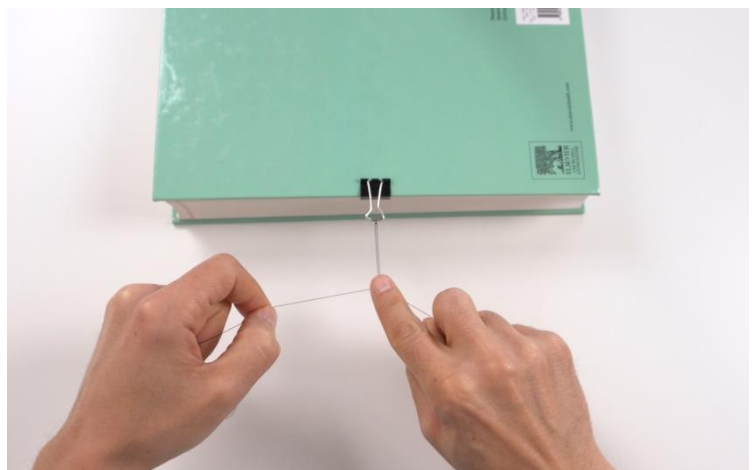
- Rather than pulling the hands apart to snug the throw down, place the index fingertip on the throw.

- Keeping light tension on the left hand thread, use your right index to slide the throw down to the clip, just as we show in the video.



- You can then perform your next throw.....

- And again use the right index to slide the throw down.
- A third throw completes the knot.
- Now that we've practiced the movement, we can go on to use our model.



- A coffee cup has had a slit made in the base.



- This allows the clip and threads to fit through the base of the cup.

- You can now practice tying at depth in a restrictive cavity. **Try following our video as you do so.**
- Try to master the fine-tuning of keeping the left thread taught but not too tight while sliding the throw down (in real life, if you pull too hard, it could tear through tissue).



Basic Instruments

Surgery involves a vast selection of instruments, but you'll be pleased to know you don't need to know them all! There are a few instruments which are pretty standard for most operations, including the needle holders, toothed forceps, non-toothed forceps, scissors and curved forceps.

- **The needle holders** are, as their name suggests, used to hold the needle when suturing. Also called needle drivers in some parts of the world, they have a ratchet system to allow them to lock in place when wanted. Some people prefer to hold them with the 'palm technique', but most use the classical technique of placing the thumb and ring finger in the rings of the holder, whilst using the index finger to stabilize. As explained in the video, the idea is to use only the pulps of the thumb and ring finger, to allow for greater manoeuvrability of the holders.



- **Toothed forceps** are used to grasp tissue and stabilize it whilst suturing. The teeth are fairly fine points though, so even a small force can exert a large pressure at the teeth tips. Care should therefore be taken to not crush the tissue by squeezing too hard with the forceps. The holding position is the 'pen grip'.



- **Non-toothed forceps** are also used to grasp tissue, such as fat, but as their name suggests they do not have teeth at their ends. Instead, they have grooves to allow them to grip onto tissue. Again, take care to not exert too much grip pressure with them.

- **Scissors** are held in a similar grip to the needle holders. If you are left handed, they can take some practice to master; rather than 'pushing' with your thumb as you cut, left handed use requires the thumb to 'pull inwards' as you cut. Even if you're right handed then you should still practice using your left hand as you may one day not have your right hand free (eg holding a retractor) when you need to cut a suture.

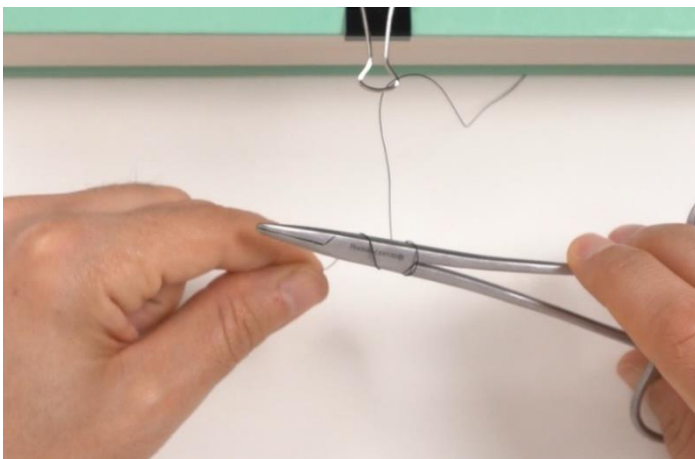
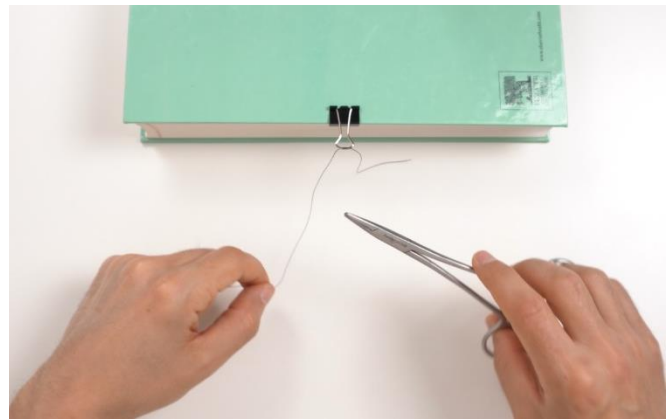


- **Curved forceps**, also called haemostats, are used to clamp onto vessels. A suture thread can then be passed around their tips to tie off the vessel. They are held in a similar grip to the needle holders, and have curved tips to allow easier use in cavities and at depth. They also have a ratchet system, so can be locked in place until they are no longer needed.

The instrument tie

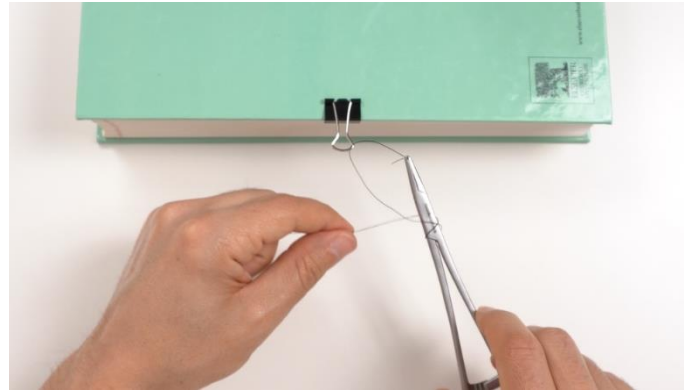
Now that we've mastered the one-handed reef knot, let's move on to learning how to tie a suture with instruments. This is essential to learn as it is a part of everyday surgery, and is especially useful when you want to tie a knot with a needle still attached to the thread – trying this with a hand tie risks a needle injury!. We've explained the technique step-by-step here, but **it makes much more sense when you watch the video!**

- We're using the 'book and clip' model here, and a needle holder. Disposable holders can be bought fairly cheaply on the internet.



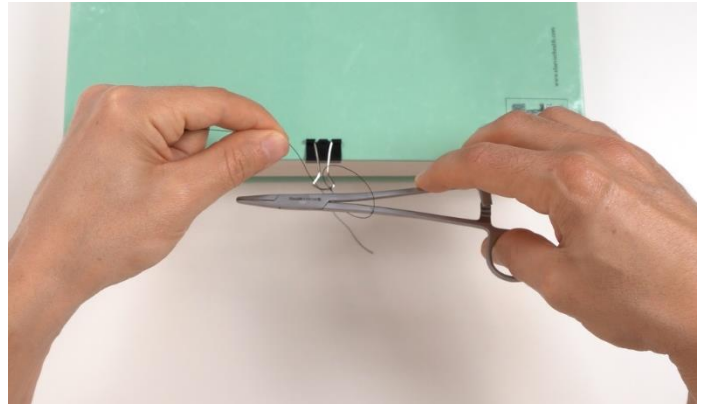
- Now begin your surgical knot – holding the long end of the thread in your left hand, pass this under then over the holders, looping over them twice.

- Grasp the short end of your thread with the needle holders.



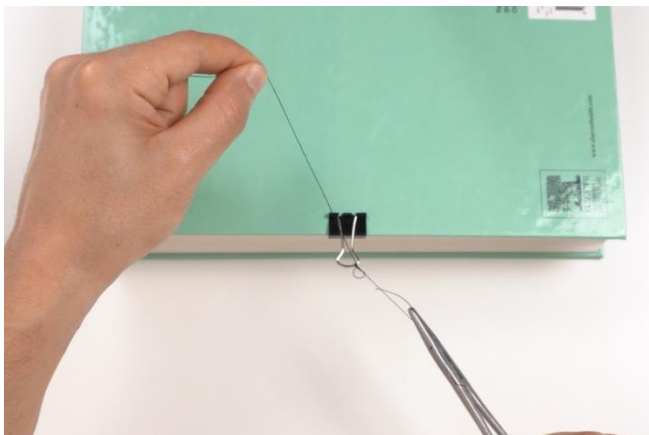
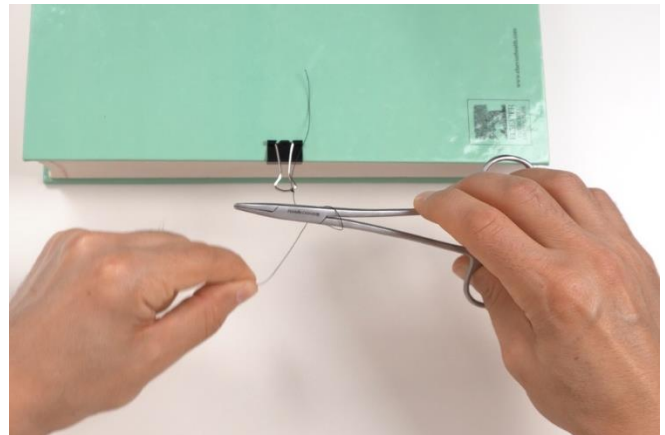
- By pulling the 'tail' through and taking the long thread 'away from you' in your left hand, a throw forms.
- Snug this throw down.

- Now form a single loop by bringing the long thread towards and then away from you, going over then under the holders as you do so.



- Grasp the tail and pull through the loop whilst pulling the long thread in your left hand towards you. Snug this down.

- Lastly, to lock the knot, form another single loop by taking the long thread away then towards you, again going over then under the holders.



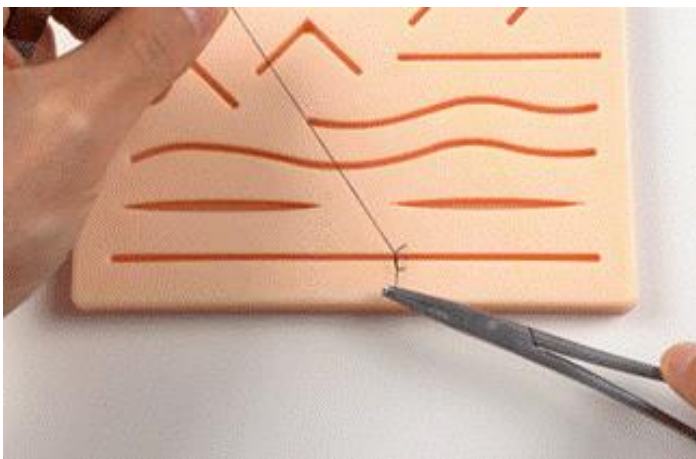
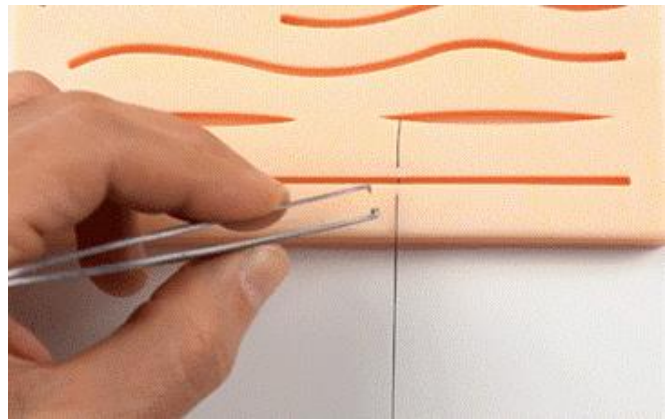
- Grasp the tail and pull through the loop whilst pulling the long thread away from you. Snug this down to lock your suture knot in place.



Instrument tie in practice

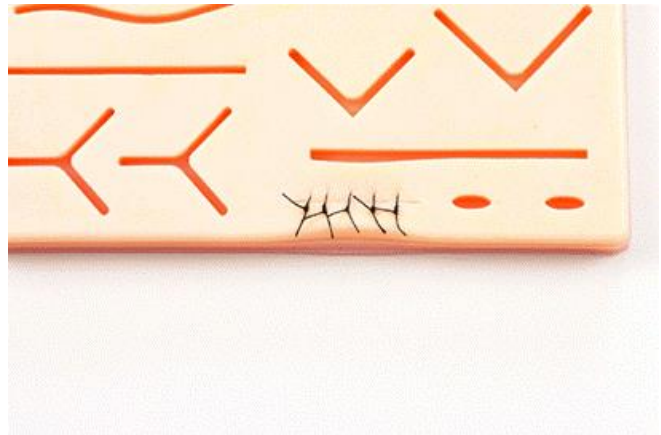
The instrument tie is an extremely useful technique to master and will come into use even if you don't end up in surgery as a career. From securing chest drains to arterial lines, or closing wounds in the emergency department, a good grasp of the instrument tie will really help you.

- To show how the instrument tie can work in real life, we are passing a suture across a 'wound' on a practice pad



- The wound can now begin to be closed. A surgical knot is placed using the needle holders, in the same way as described in the previous chapter

- The technique is repeated across wounds to give a neat wound closure



By using the instrument tie in this case you:

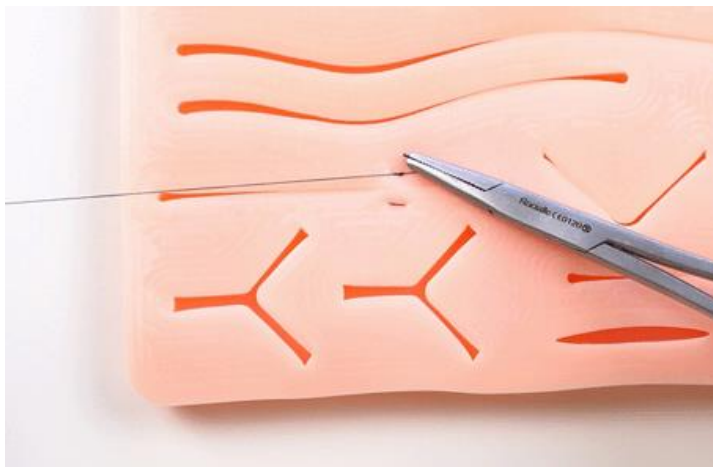
- Don't risk injuring yourself on the needle that's still attached
- Don't need to put your needle holders down for every tie
- Can often tie down in a more precise and controlled way
- Waste less thread. The 'short end' of the thread, that is trimmed off when cutting each suture, is only 1 or 2cm long in the instrument tie. In the hand tied knot, it is often 15cm+, so lots of thread gets wasted for every knot.



Introduction to suture techniques

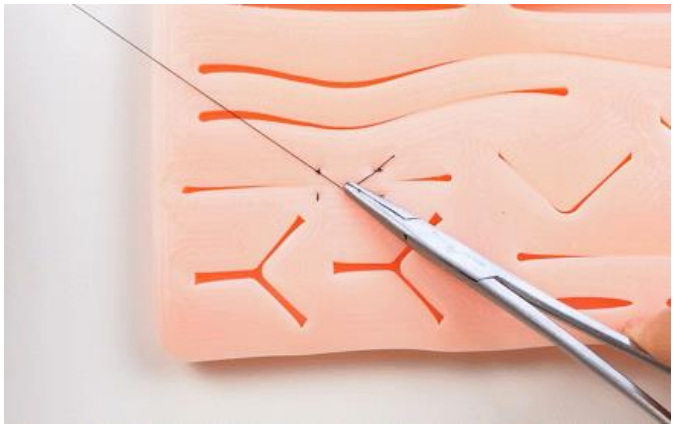
We've just seen how an instrument tie can be used to tie sutures and close wounds, but what are the different types of closure methods for skin wounds called? We go through a range of the more common suture techniques that you may see, to hopefully make your time in theatre make more sense.

- This is the suture technique you saw in the previous chapter. It's called 'interrupted sutures', as they are placed one after another and aren't joined together
- This is one of the most common ways to close a wound and allows for accurate closure whilst slowly reducing tension as you place one stitch after another



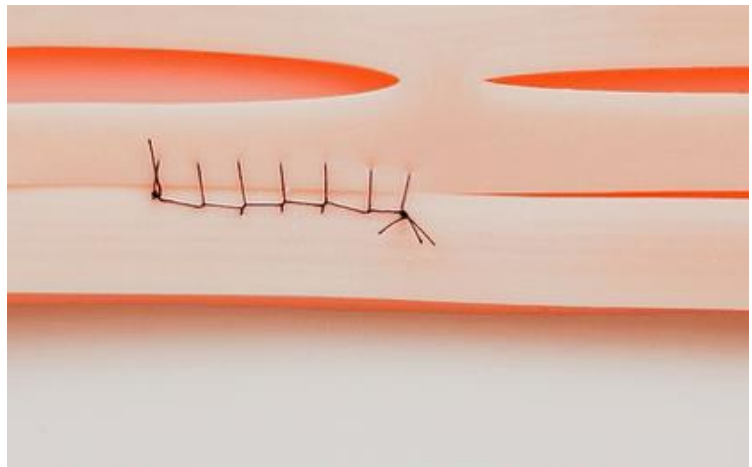
- This is the horizontal mattress suture. As you will see from the video, it requires passing the needle back through the skin edges
- It's called a horizontal mattress as it lies parallel (horizontally) to the wound
- This suture helps evert wound edges and aid healing

- The vertical mattress is similar to the horizontal, except (no surprise) it lies vertically to the wound.
- Again, it's useful to evert wound edges

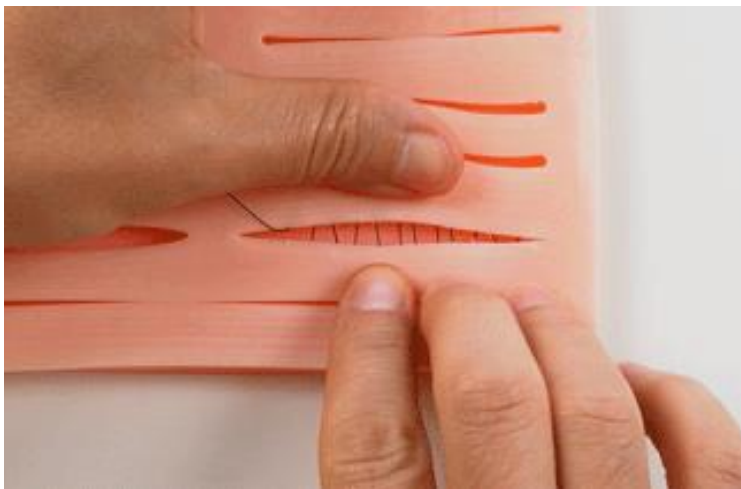


- The continuous suture, unlike the interrupted sutures, is one long running stitch.
- This is a speedy way to close a wound, but care needs to be taken to avoid strangulating the tissue

- The running locked suture, sometimes called a blanket suture, is similar to the continuous suture but has 'locks' placed with every stitch placed
- The locks help to guide skin eversion and can help control tension, but can also strangulate tissue edges if care is not taken



- This wound has been closed with a subcutaneous continuous suture
- This gives an 'invisible' suture, but is generally limited to straight wounds that are under minimal tension



- This shows how the subcutaneous continuous suture works
- Each stitch has been placed in the dermis, just under the skin surface, slowly working your way up the wound and creating a 'ladder' or 'train track' appearance
- When the leading thread is pulled, the sutures tighten and the wound will come together

This is of course just a very brief overview of different suture techniques, but hopefully it gives you an idea of what you may see in theatre.

To learn more about these sutures, and how to do them, have a look at our **Basic Suturing Skills course**

Feeling unwell

While you're in theatre, there is a chance you may begin to feel sick or faint. There's a number of reasons for this, including:

- Feeling too warm (for example burns surgery requires a very warm theatre)
- Feeling stressed or anxious
- The sight of blood
- Smells you may experience
- Standing in one position for too long

Firstly, understand that if you do begin to feel unwell, there is absolutely no shame in this. As surgical trainees, we see this very commonly and it is entirely understandable.

If you start to feel sick, tell a staff member if possible (but don't worry if you need to leave quickly!), and leave the theatre. Try to find some fresh air if possible, or head to the bathroom.

If you feel faint, sitting in a chair may help, as may fresh air, but if you feel very faint then it is always better to lie yourself on the floor before you fall onto it!

If you know you have a tendency to feel sick or faint, it may be wise to discuss this with your team beforehand so they can watch out for you.

Trying to counter recurrent feelings of faintness or sickness can sometimes be difficult, but some methods which can help include:

- Feeling too warm – if you know the theatre will be warm, drink plenty of fluids beforehand.
- Feeling stressed or anxious – work out what your anxieties are and try to resolve these in your mind. If it is because the theatre environment seems daunting, then be assured that things become second-nature very quickly.
- The sight of blood – don't worry, many doctors have had such an issue. Generally it may improve in time, although some turn to such methods as hypnosis. If you aren't able to overcome this then surgery may not be for you, but again it is nothing to feel ashamed of, it's just one of those things.
- Smells you may experience – this usually becomes second nature fairly quickly, but if not then some people counter this by wiping a pleasant smelling balm under their nose prior to theatre. Use a clear one though!
- Standing in one position for too long – either take a few steps when you can, or at least raise yourself on tip-toes every so often to help counter this

Eating too much or too little before a list can also be a cause of feeling unwell, so ensure you have a light breakfast (or more if your issue is faintness), and plenty of fluids.



Opening packets

This may seem like a common-sense task, but actually there is a technique to opening packets whilst still keeping the contents sterile. We're going to cover a few different scenarios.....

- We're starting with the situation of a small packet.
- Find the end that has the two leaves loose.



- Grasping each leaf between thumb and index in a tight grip, start to slowly pull them apart in a controlled way.

- Continue to pull the packet apart until about two-thirds open. The contents can now be taken out of the packet by somebody scrubbed.



- For larger packets, a different technique can be used.
- Again, identify which end to open – it is made easier in this case with a printed arrow.

- Carefully peel apart the leaves of the packet slightly to allow access.



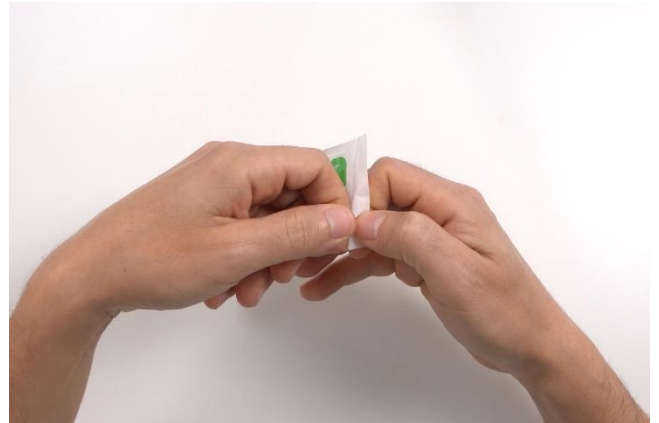
- Hold the base leaf down on the work surface using your thumb and index. Note they are placed on the non-sterile part of the packet.
- Use your other hand to slowly pull the film back in a steady controlled way.

- If you don't pull the film fully back, it will tend to float up in the air and risk being de-sterilized.



- Instead, pull the film back until you feel resistance. When you let go now, the film should stay in place.
- A scrubbed person can now access the sterile instruments.

- For smaller packets, such as suture packets, again grasp the loose leaves in a pinch grip.



- Pull apart in a smooth controlled way.
- Keep the packet upright to avoid it falling on the floor.



- When approximately two-thirds open, the contents can then be slid out onto a sterile surface.

If you think you may have accidentally touched or de-sterilized the contents when opening a packet, let the scrub staff know immediately. This is really important as otherwise the patient could get an infection.

Even if you get told off for having de-sterilized the equipment, don't let this get you down - bear in mind that you have done the right thing to own up to an easy mistake to make, and you have kept the patient safe.

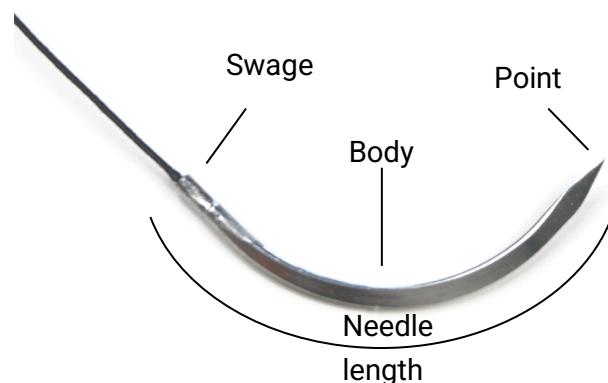
Sutures

Sutures (known commonly as 'stitches') have a needle attached to a thread.

- Suture thread may be absorbable or non-absorbable.
- The configuration may be monofilament (a single smooth strand) or multifilament (a number of strands, usually braided together).
- They may be made from a number of different materials, including nylon, polypropylene, glycolide, silk, steel etc.
- The diameter (and so tensile strength) of the thread is written as either a single number or as "-0". Very robust threads are in the 1,2,3 or more range and in this instance a size 3 thread is not as thick as a 5. When the threads drop below size 1, they are written as "-0". Then the higher number means a finer thread, so a 7-0 thread is finer than a 5-0. In skin surgery 3-0, 4-0, and 5-0 are commonly used. Threads such as 11-0 are very fine and used in microsurgery.



- The needle consists of a point (tip), body and swage. The swage is where the needle is attached to the thread. Needles can be described in various ways, including the type of point, body shape, length and curvature. Needle choice depends on what you are suturing.
- The **point** refers to the shape of the needle point and includes cutting, reverse cutting, taper and round/blunt tips.
- The **body** refers to the shape of the body of the needle, as if cut in half and viewed straight on. Shapes include square and round bodied needles.
- the **length** is in mm, and for example common skin sutures are 19mm or 26mm. You would pick the size according to the need, for example a 26mm being used for a thick skin area such as the back, and a 19mm for the face.
- The **curvature** refers to the shape of the needle as a proportion of a circle. The needle shown below is a 3/8 circle needle, as it literally represents 3/8 of a circle. Others exist such as 1/4, 1/2, 5/8 – for skin though, we usually use 3/8.



End of the list

As the list comes to an end it may be tempting to quietly slip out of theatre and get off home, but if you do then you'll miss out on a real learning opportunity. After the list, the team will usually go to the ward to see the post-operative patients and other in-patients under their care, and in this time you can:

- Learn about the care of the post-operative patient including pain management, fluids, drain monitoring etc.
- Learn about the care of other in-patients.
- See the dynamics of a team ward-round.
- Bond with the team (they will appreciate a keen trainee staying for the ward round – it may well even be expected!)
- Chat more informally with the team – as it is the end of the day, stress levels are usually reducing and you may find that team members are more ready to chat and give exam advice, career guidance etc.

When you get home, try to read up on the procedures you have seen as this will help reinforce learning and fill in any gaps you may have missed seeing. The internet is also a great source of procedure videos, allowing you to have a surgeon's-eye view of the entire operation.

Make sure you make notes during the day and when you re-read about procedures, as it is likely these procedures will come up again at some point in your attachment. Notes will make it easier to revise for upcoming lists and for any exams.

This might seem like a lot of work to be doing after a long day, but it will really pay back in the future!

Surgery Skills

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Thank you for taking our course, we hope you've gained new skills and knowledge to help you throughout your career.

Please remember though, that the contents of this course are meant as a foundation and are by no means 'the only way' to perform things and may not even be 'the best way' for all people. You may be taught other ways or develop your own techniques that differ from those in this course. That's absolutely fine – the important thing is to develop a technique that suits you best, to give the best care possible. Also when first performing these techniques in real life, please make sure you are overseen by an experienced competent person.

Don't forget to visit our site for more information, to sign up to the video course, or to see details of our other surgical courses.

www.surgicalskills.com