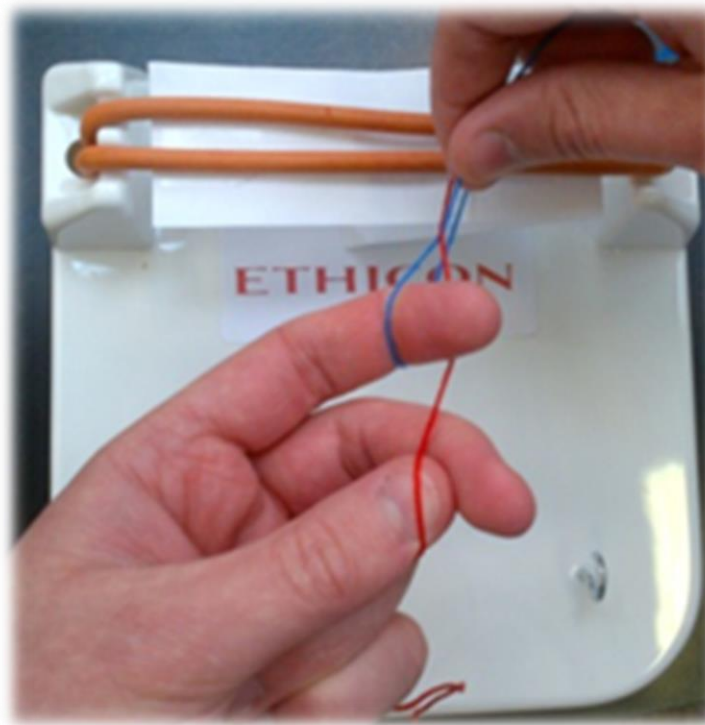


One Handed Tie



Disclaimer

A series of booklets has been developed by the Clinical Skills Lab team (staff, recent graduates and students) from the School of Veterinary Sciences, University of Bristol, UK. Please note:

- Each booklet illustrates one way to perform a skill and it is acknowledged that there are often other approaches. Before using the booklets, students should check with their university or college whether the approach illustrated is acceptable in their context or whether an alternative method should be used.
- The booklets are made available in good faith and may be subject to changes.
- In using these booklets, you must adopt safe working procedures and take your own risk assessments, checked by your university, college etc. The University of Bristol will not be liable for any loss or damage resulting from failure to adhere to such practices.

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Equipment for this station:

- String – practice on this – it's a lot cheaper than suture material and you will learn the movements
- Catgut
- A sandbag, hook, tubing – something to ligate

Considerations for this station:

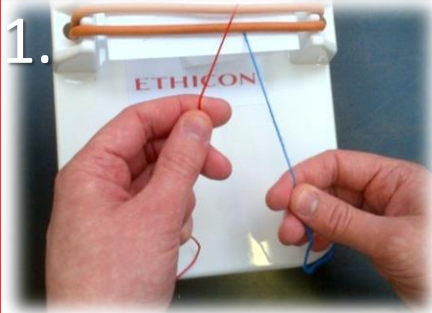
- Do not tie your knot in the middle of a piece of suture
 - You will only get one go at tying a knot
 - It will cost a lot more to your future employer!

Please inform a member of staff if equipment is damaged or about to run out.

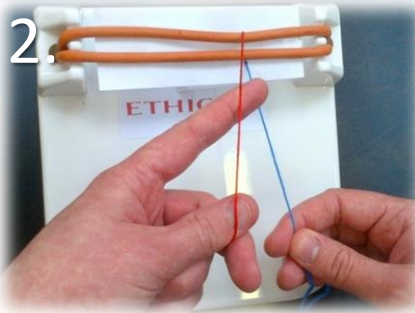


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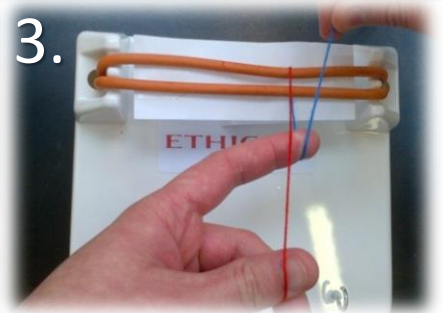
Clinical Skills: One Handed Tie



1. We have used different colours to illustrate how to do a one handed tie, in reality this would be each end of the same suture material.

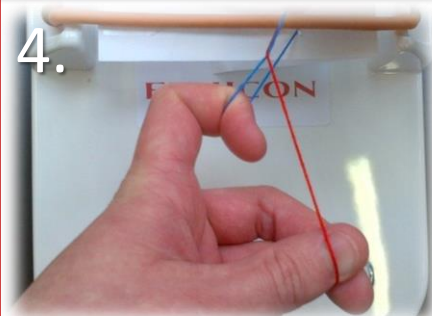


2. Place the index finger of your left hand between the strands so that it is resting above the blue strand.

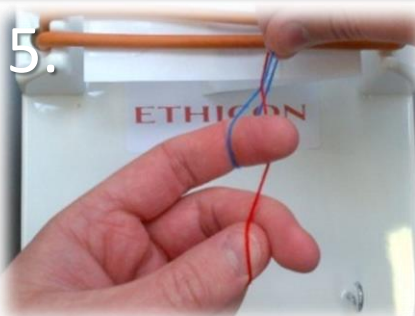


3. Wrap the blue strand around the index finger of your left hand by moving your right hand up and away from you.

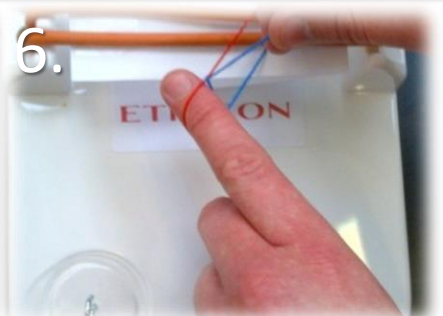
Hold the red strand (furthest from you) between thumb and middle finger in your left hand.
Hold the blue strand between thumb and first finger.



4. Keeping firm hold of the blue end in your right hand, and the red in your left, bend the index finger of your left hand to create a loop under the red strand.



5. Move your index finger over the top of the red strand

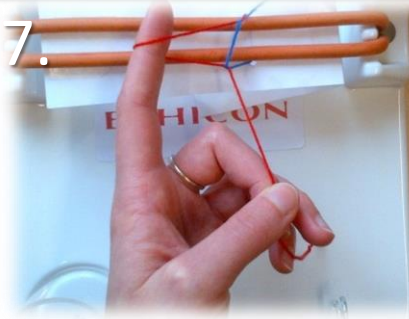


6. Turn your left hand over so that your palm is face down. As you do so, a) keep firm hold of both the ends, and b) make sure the index finger of your left hand goes between the blue and red strands *in the same gap as the rubber tubing runs*.



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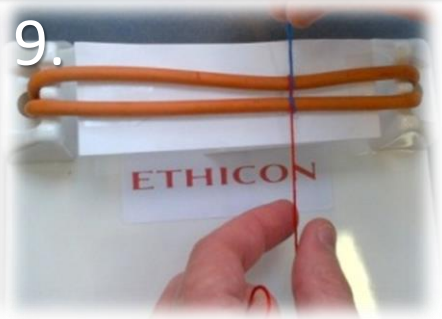
Clinical Skills: One Handed Tie



It should now look like this!



Let go of the end of the red strand so you are only holding the loop. At no point let go completely. Keep hold of the blue strand.

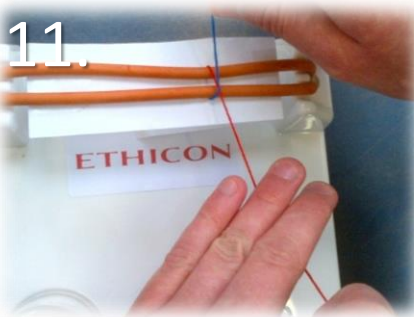


Pull the blue strand away from you and the red strand through and towards you – you now have your first throw.

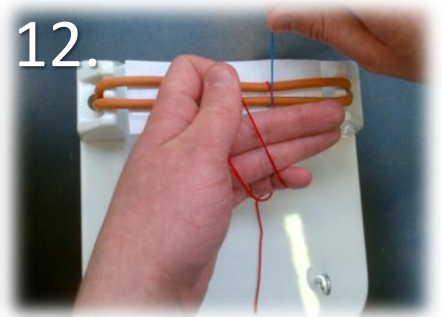
From now on you need to keep an even tension on the strands or you risk tying a granny knot.



Grip each strand between the thumb and forefinger of each hand – red should still be in the left.



Place the remaining 3 fingers of your left hand over the top of the red strand, palm down.

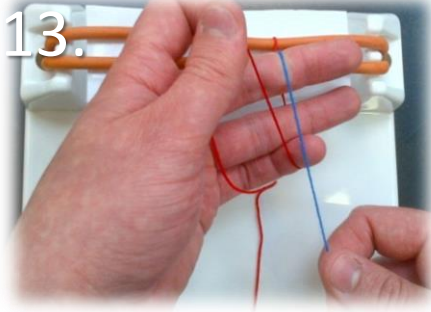


Turn your left hand palm up by bringing your fingers towards you.

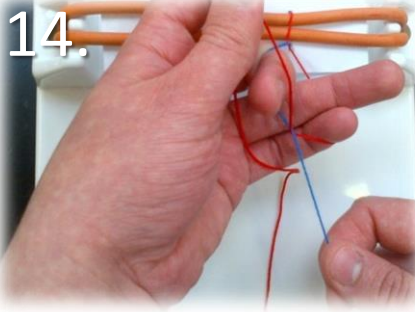


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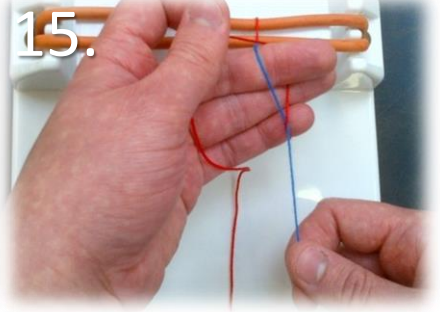
Clinical Skills: One Handed Tie



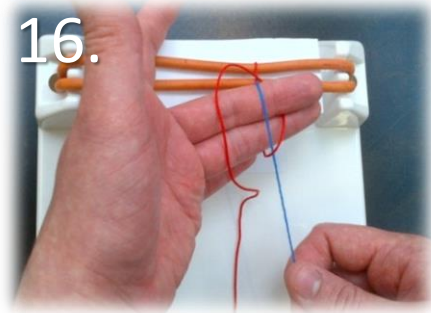
13. Bring the blue strand towards you, over the top of the middle to little fingers.



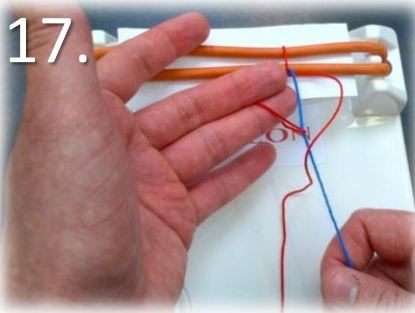
14. Catching the blue strand, bend the middle finger of your left hand under the red strand.



15. Straighten your middle finger over the red strand.

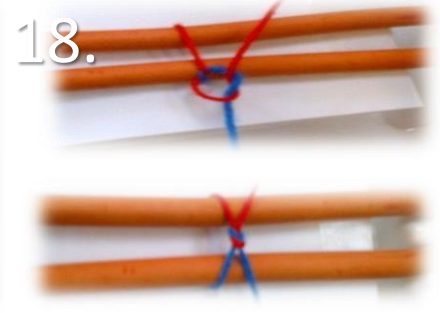


16. Release your thumb and forefinger grip of the red strand, but grasp it between your middle and ring finger.



17. Pull your middle and ring finger containing the red strand under the blue strand and pull all the red strand out.

Tighten the blue and the red strand.



18. You will have a square knot. Tighten it by pulling both strands evenly.

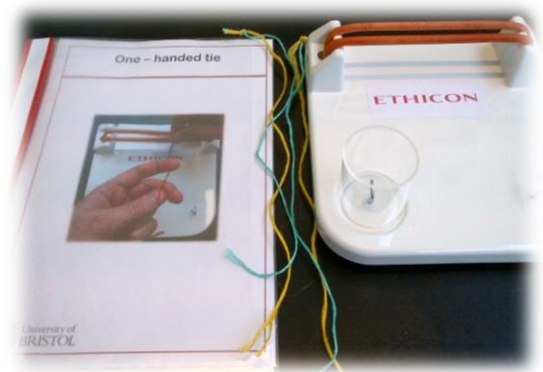


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Resetting the station: One Handed Tie

1. Cut off (or untie if re-using material) all your knots
2. Put unusable material in the bin
3. Put useful lengths beside the station or on the trays provided
4. Place any instruments on the tray
5. Leave the station tidy and ready for the next person

Station ready for the next person:



Please inform a member of staff if equipment is damaged or about to run out.

Instrument ties

Square Knot and Surgeon's Knot



Definitions

There are many different words you will need to be familiar with when discussing suture, suturing and surgical knots. Sometimes people in practice use the terms throws / loops / wraps to all mean the same thing which can be confusing. We have defined how **we** will use these terms when teaching you how to place secure surgical knots:

- **Suture material** = surgical thread used to create surgical sutures and/or ligatures.
 - (e.g. Nylon)
- **Suture pattern** = the pattern used to close tissues during surgery
 - (e.g. simple interrupted, simple continuous, cruciate and intradermal)
- **A Throw** = Square/surgeon's knots are made up of first and second throws with extra throws on top to secure the preliminary knot. Each throw may have one or more loops/wraps around the needle holder. Throws usually go in opposite directions to each other.
- **A Surgical knot** = a combination of throws of surgical suture used to create a knot that is secure and unlikely to undo.

N.B. Loops / wraps are all used typically to mean the same thing, but it is best to think of throws in terms of the direction you are taking the suture.



Clinical Skills

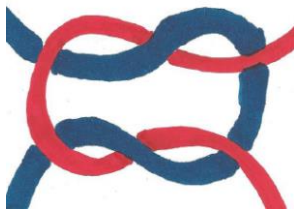
Knots and Throws

Square Knot & Surgeon's Knot

Different surgeons have different preferences for the knots they use in different circumstances. Below are two approaches.

Square knot:

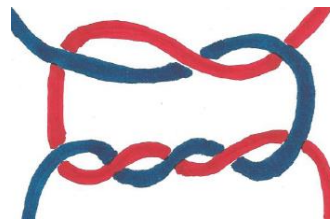
1st throw = single wrap/loop
2nd throw = single wrap/loop
(1+1)



Surgeon's knot:

Surgeon's throw = double
wrap/loop
2nd throw = single wrap/loop
(2+1)

The double wrap of the first throw gives extra friction which is useful when working with slippery suture material.



Total numbers of throws (T) (Numbers of loops per throw)		Square Knot (2T) (1+1 = 2L)	Surgeon's Knot (2T) (2+1 = 3L)
Simple Interrupted pattern		3T (1+1+1=3L)	4T (2+1+1+1=5L)
Simple continuous pattern (subcutaneous or linea alba)	Start	4T (1+1+1+1=4L)	5T (2+1+1+1+1=6L)
	End (1 more throw than starting knot)	5T (1+1+1+1+1=5L)	6T (2+1+1+1+1+1=7L)