

The Definitive, Comprehensive Guide to How to Change, Restring, and Tie Classical Guitar Strings Part 2 of 2

By Douglas Niedt

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THIS IS IT!

Okay, you have read the information and watched the videos on why you should change your strings, how often to change them, THE RULES, finding a suitable spot to work, doing a checkup of the health of your guitar, and protecting the soundboard. It is time to change a string!

Which string should I change first?

I like to change the 1st string (the high E) first. It will take the longest amount of time to bring up to pitch. After I put it on, as I am changing the other strings, I can give it a few turns every so often to bring it slowly up to pitch. By the time I get the other strings on, this one will be close to its final pitch. To keep the tension on the neck as even as possible, I alternate between changing a treble string and bass string. I replace the 1st string/6th string, 2nd string/5th string, 3rd string/4th string. Many people would say this is overkill, but it makes a lot of sense, especially when you change strings as often as I do.

How to remove a string

You have washed your hands, right?

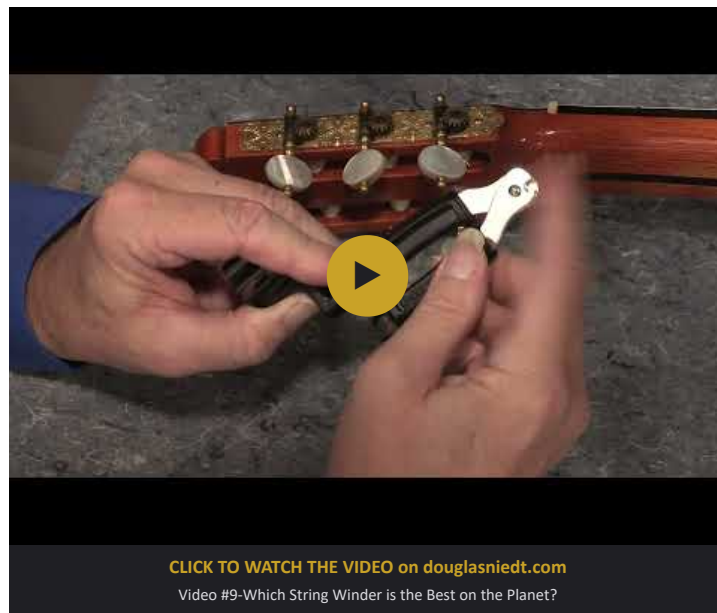
First, we are going to loosen the string. We can do that by hand. But a gadget called a string winder can do it much faster.

String Winders

Learn which string winder is the best on the planet! Watch Video #9.

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

Video #9-Which String Winder is the Best on the Planet?



Many styles of string winders are available. This Dunlop winder is a common type and works okay.



The winder head is a little large for most classical guitar knobs, so the tuning knob rattles around a bit. It can also hit against neighboring knobs if you are not careful. But it works.

Here is a beautiful winder, the Handmade Exotic Peg Winder by Indiana Guitar Studios, available from Strings By Mail.



The winder is available in several exotic woods. This model is rosewood. Unfortunately, the winder head on this one is also a little large for most classical guitar tuning knobs, so the tuning knob knocks around in the head. It can also hit against neighboring knobs. The handgrip is not quite as ergonomic as others. But it works. And for a string winder, it is quite beautiful.

Then, we have the D'Addario "Guitar Pro-Winder."



This model is very disappointing. When it arrived, the adjustment screw was completely locked down. It was unusable. When I realized the screw was too tight and loosened it, it finally turned (okay, maybe I'm just stupid). It contains a string cutter which does not work very well, certainly not as well as a good pair of wire cutters. It also has a bridge pin puller, which is not of use for the classical guitarist. And once again, the winder head is too large. All in all, this winder is very disappointing.

But then, (drum roll, please) we have the Music Nomad "GRIP Winder Rubber-Lined, Dual-Bearing Peg Winder."



It fits and grips almost all tuning knobs. The winder head has a rubber-lined design making it scratch-free. If you have fancy tuning knobs made of mother-of-pearl, horn, reconstituted stone, exotic woods, or high-quality imitation ivory, this is the string winder for you. There is no clanking, and the "narrow profile winder design" keeps it from hitting neighboring buttons. It also has the best ergonomic grip. It is a winner in every respect.

For gadget lovers, you can use an electric string winder to loosen the strings. Here is one by Ernie Ball:



They are not very reliable, but if you are looking for a new toy, give it a try.

Or, you can buy a peg winder attachment that will fit your electric drill. Here is one by Dr. Duck from ducksdeluxe.com.



Attach it to a compact, cordless, variable-speed drill, and you are ready to roll.



Yes, it is overkill, but some people love their gadgets.

Loosen the string

Loosen the string completely by turning the knob (also called the button or key) of the tuning machine. Stop when there are no more windings around the string roller (also called the post, barrel, or capstan).

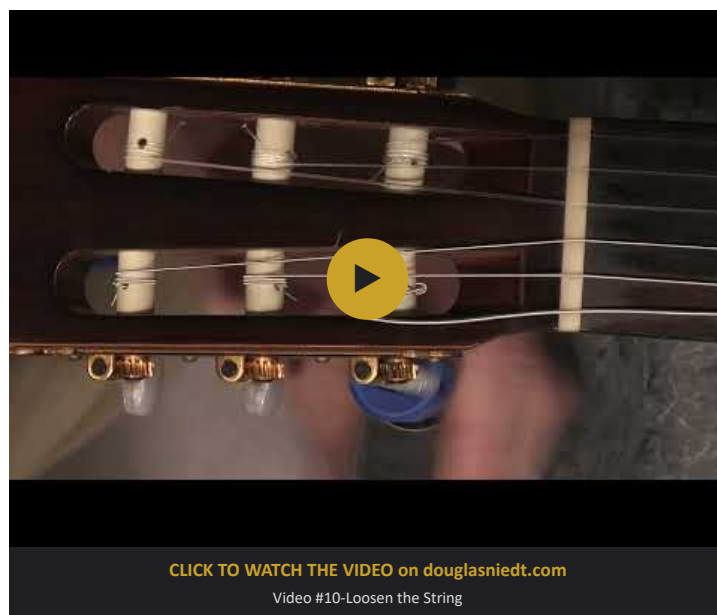


You can use a string winder to speed the process but use it carefully. I have seen students bend a cheap tuning knob shaft by turning the winder too vigorously.

Watch me loosen the string. I know. You must be on pins and needles, shaking with anticipation. Watch on fullscreen for an over-the-top-experience. Take a deep breath, and watch Video #10.

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

Video #10-Loosen the String



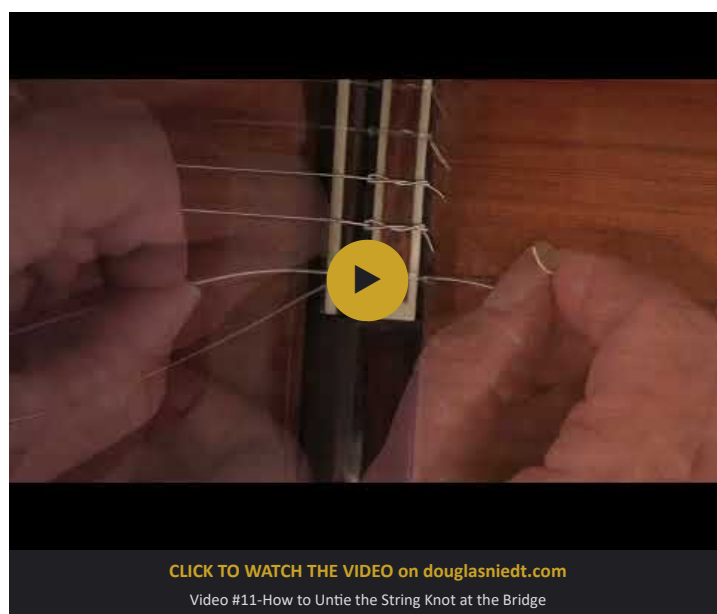
Untie the knot at the bridge

I prefer to untie the knot at the bridge first (see below if you prefer to untie the knot at the string roller first).

Watch Video #11, as I demonstrate a few tricks to speed up the untying process.

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

Video #11-How to Untie the String Knot at the Bridge



Optional: After you loosen the string completely, holding the string with your left hand, you can cut the string 4-6 inches from the bridge.



For some, this makes working with the string easier. Carefully move the long length of the string you are holding in your left hand out of the way, so it does not scratch the guitar.



Then, proceed to untie the knot.

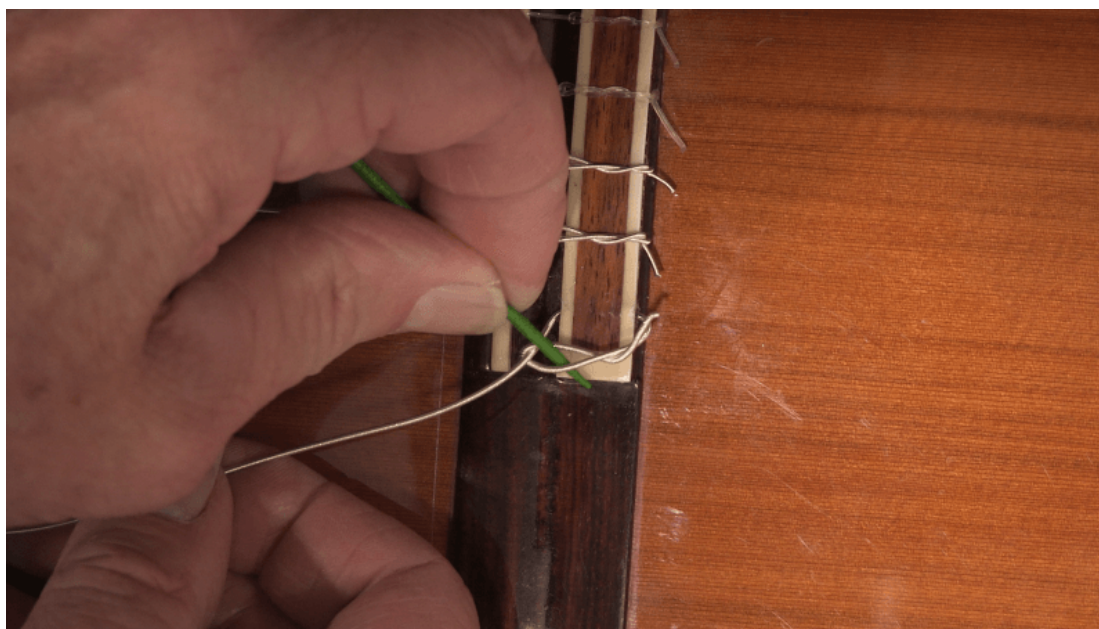
Untying a Bass String from the Bridge

Be sure you completely loosen the string before trying to untie the knot. Hold the string with your thumb and index finger half an inch to an inch from the knot. Push it partially through the bridge hole.



If you are lucky, the knot will free itself. If the knot does not release entirely, it may be loose enough for you to pull it apart with your fingers.

If the knot is tightly locked, you might need to loosen it with a sturdy toothpick or similar item.



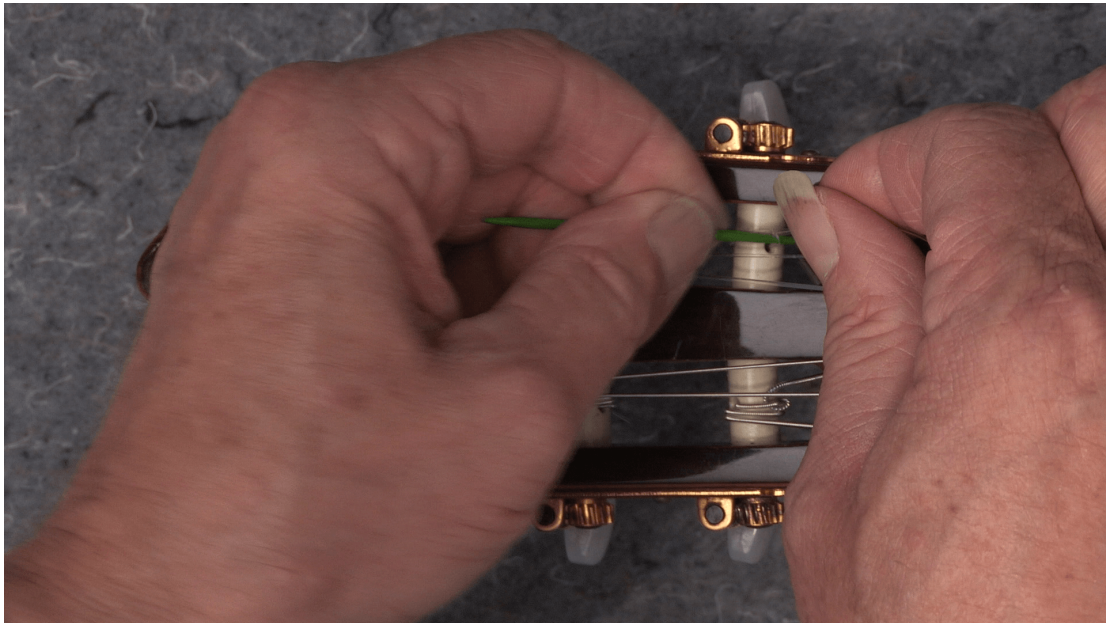
Whatever you use, be very careful not to scratch the bridge.

Untying a Treble String from the Bridge

The bass string knots usually come undone fairly easily. But the treble string knots can sometimes resist. Hold the string with your thumb and index finger half an inch to an inch from the knot. Try to push it partially through the bridge hole. If the knot does not release entirely, try to pull it apart with your fingers.



Once again, if the knot is tightly locked, you might need to loosen it with a sturdy toothpick or similar item.



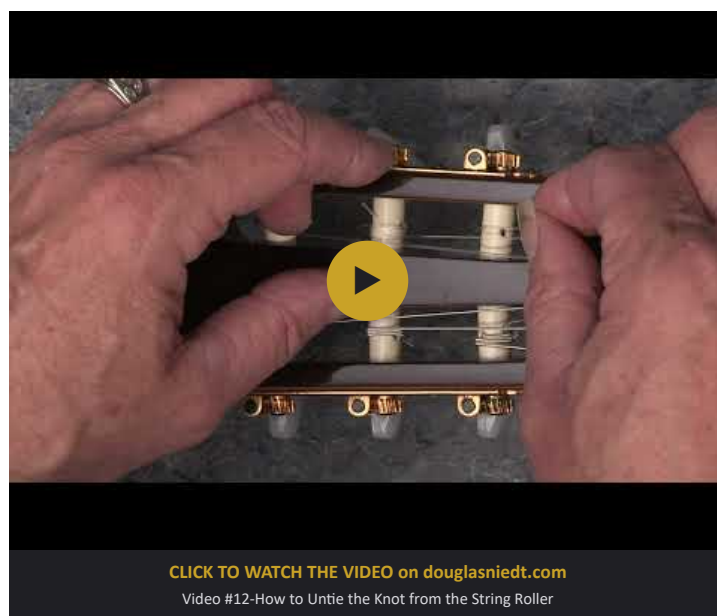
Whatever you use, be very careful not to scratch the bridge.

Untie the knot from the string roller

Hold onto your seat and watch as I demonstrate how to untie the knot from the string roller. Hollywood *wishes* they could make a non-stop action movie like this. Watch Video #12.

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

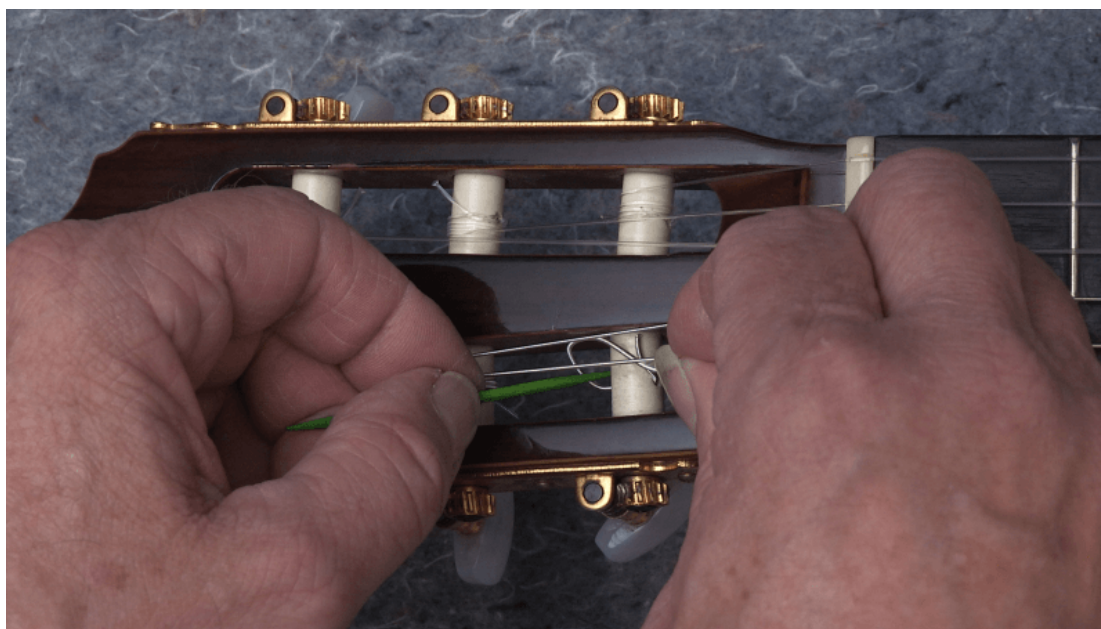
Video #12-How to Untie the Knot from the String Roller



Hold the string between your thumb and index finger and push the long length of string through the knot. Depending on how the knot was previously tied, push the string from either side of the roller.

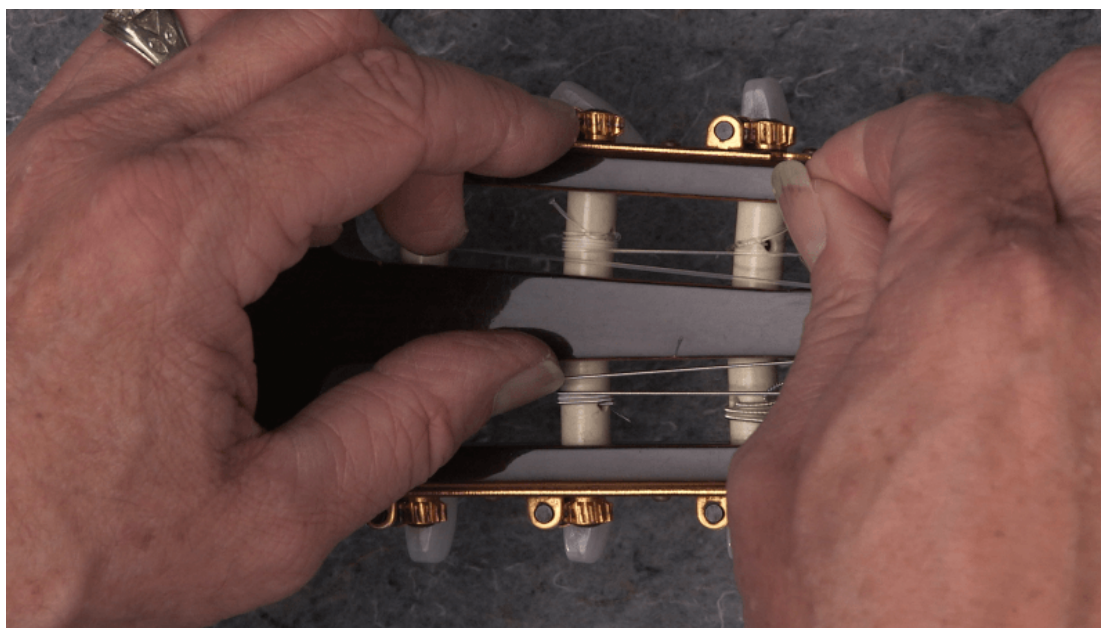


If you are lucky, the knot will free itself. If the knot does not release entirely, it may be loose enough for you to pull it apart with your fingers. If the knot is tightly locked, you might need to loosen it with a sturdy toothpick or similar item.

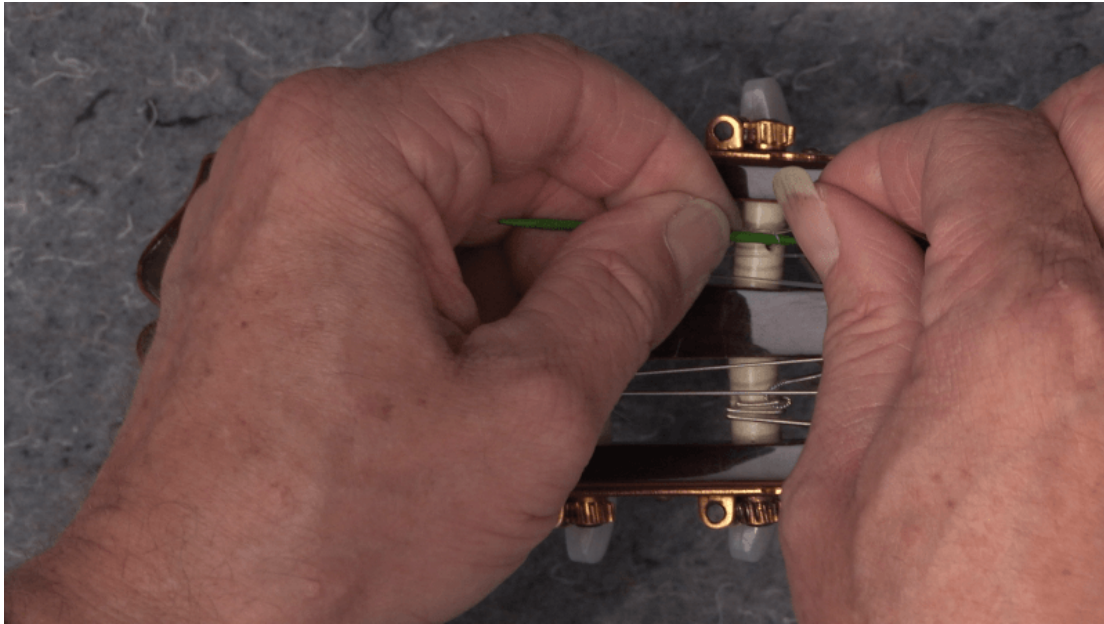


Whatever you use, you must be very careful not to scratch the roller.

The bass string knots usually come undone fairly easily. But the treble string knots can sometimes resist. Hold the string between your thumb and index finger and push the long length of string through the knot. Depending on how the knot was previously tied, push the string from either side of the roller.



If the knot does not release when you try to push the string through the knot, try to pull it apart with your fingers. Once again, if the knot is tightly locked, you might need to loosen it with a sturdy toothpick or similar item.



Whatever you use, be very careful not to scratch the string roller.

Find the correct new string

Be sure you choose the correct string! Some brands place a label on each string. Most do not. Keep track of which string is which. If you are not paying attention, have bad eyesight, or you are in a low-light environment, it is easy to mistake the 2nd string for the 1st string or the 5th string for the 4th string.

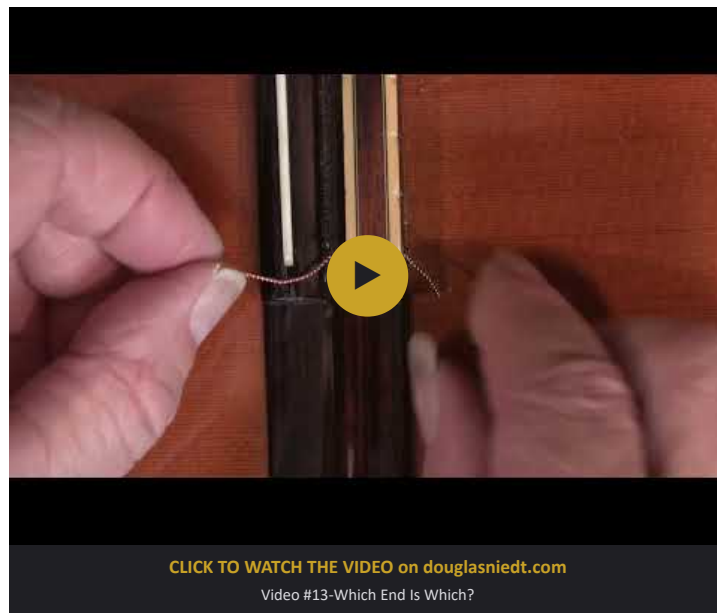
Uncoil the new string carefully from the package. Do not crimp it accidentally.

Which end is which?

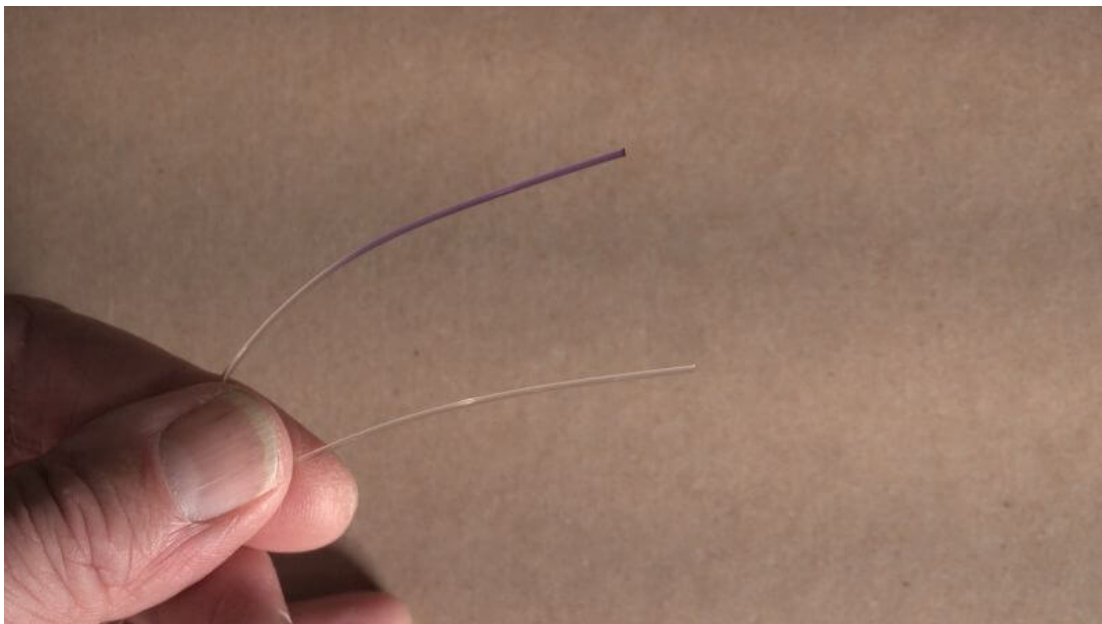
Watch this spine-tingling video to solve this mystery, which has confounded guitarists for generations. Or read below. Watch Video #13.

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

Video #13-Which End Is Which?

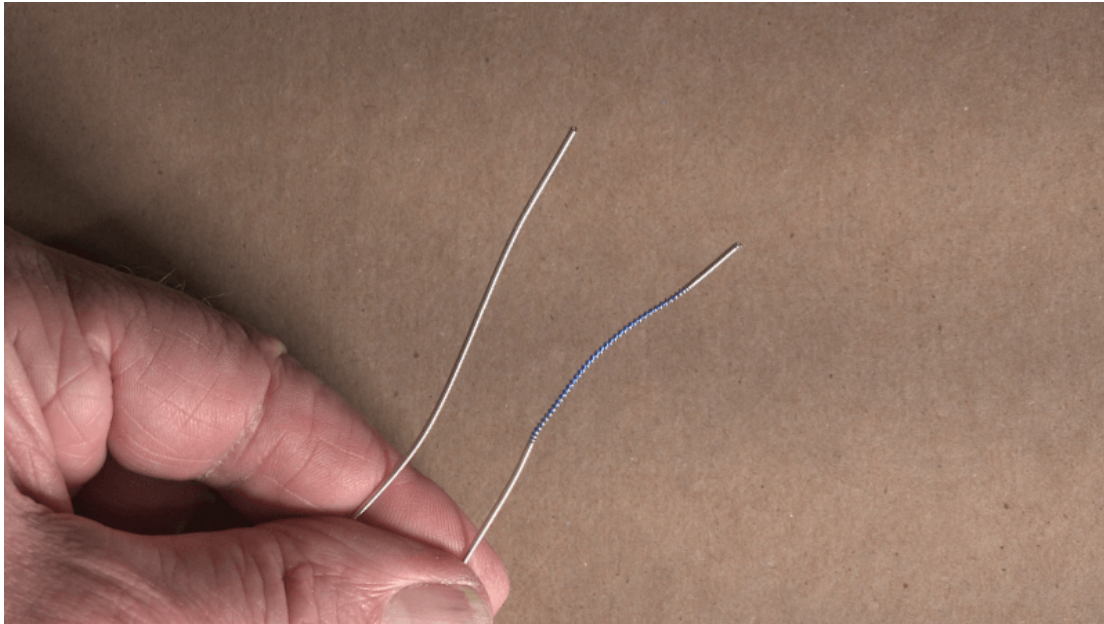


Some string manufacturers tint one end of their treble strings with a color.



The tinted ends are identifiers. I do not want to see the colors, so if a treble string has a tinted tip, I usually tie that end on the string roller, where I will snip it off later.

The wound bass strings have one end where the metal windings are tight all the way to the tip. But on some brands of strings, the other end has an inch or two of windings that are loosely wound.



Some people say the loosely-wound end is easier to fish through the tie block. Others say the loosely-wound end makes it harder to tie the knot at the tie block. The late Juan Orozco, the creator of Aranjuez Strings, told me the loose winding is the result of the way their machines wind the strings and had nothing to do with one end being for the tie block and the other for the string roller. The bottom line is that you can place either end of the string at the bridge. I strongly recommend putting the tightly-wound end at the tie block and the loosely-wound end on the string roller, where it will not cause any erratic string behavior and will probably get clipped off later.

However, be careful if you choose to put the loosely-wound end at the tie block. All the loose windings must be behind the saddle (the white piece of plastic or bone on which the strings rest). If any loose windings are on or in front of the saddle (towards the soundhole), the string will vibrate erratically and sound terrible.

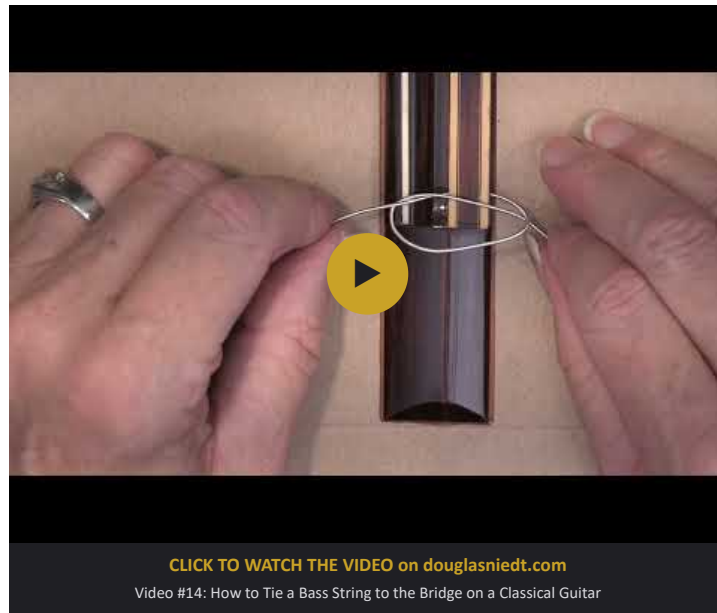
How to tie the classical guitar string knot on the bridge

How to Tie a BASS STRING to the Bridge on a Classical Guitar

Now we get to the good stuff! Watch this video on how to tie a bass string to the bridge on a classical guitar. Video #14.

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

Video #14: How to Tie a Bass String to the Bridge on a Classical Guitar



I prefer to change my strings on a sofa. When I am traveling, I use the hotel bed. In the video, for visual clarity, I am working at a table covered with a soft, thick, furniture packing pad to protect my guitar.

I am also protecting the top of my guitar with a "bib." See Part 1 to learn how to make your own or buy one.



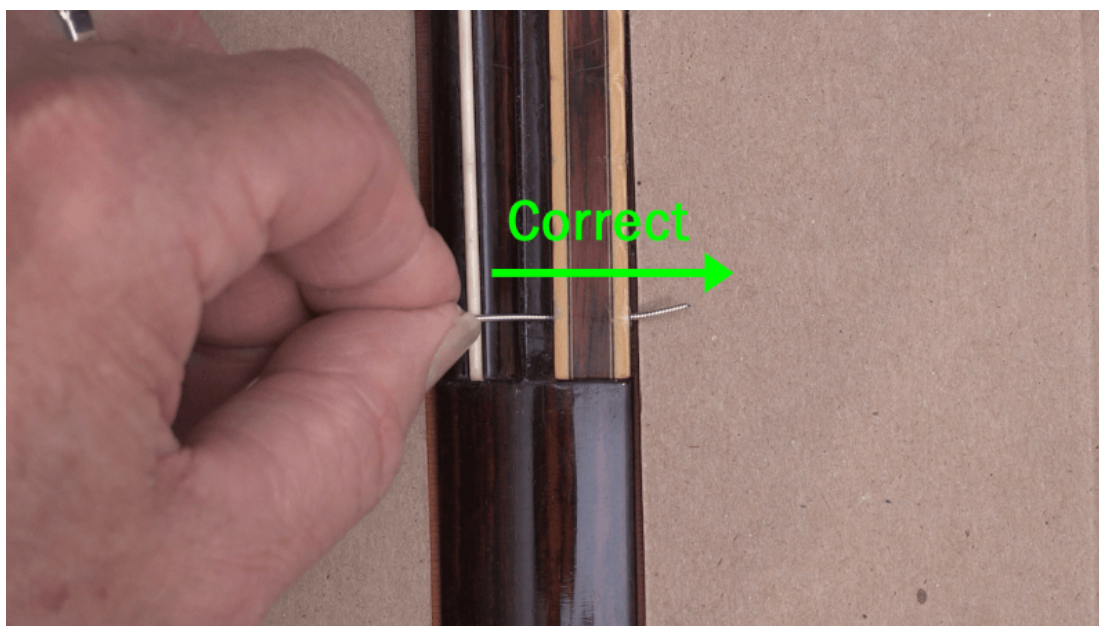
At the very least, place a strip of card stock behind the bridge (see Part 1). Doing this will prevent the tips of the strings from gouging or scratching the soundboard.

Although I always change the 1st string first (as I explained above), I will begin by explaining how to tie the knot on the 6th string. It is easier to see the process and easier to tie.

Usually, you should change only one string at a time. I have removed all the other strings to make it easier for you to follow what is happening.

Step #1:

We already discussed the fact that in many brands of strings, one end of the string is tightly wound to the tip, but the other end is loosely wound. With your left hand, hold the tightly-wound end of the string about ½-1 inch from the tip. Going from the soundhole side of the bridge towards the base of the body, feed the tightly-wound end through the hole of the tie block.

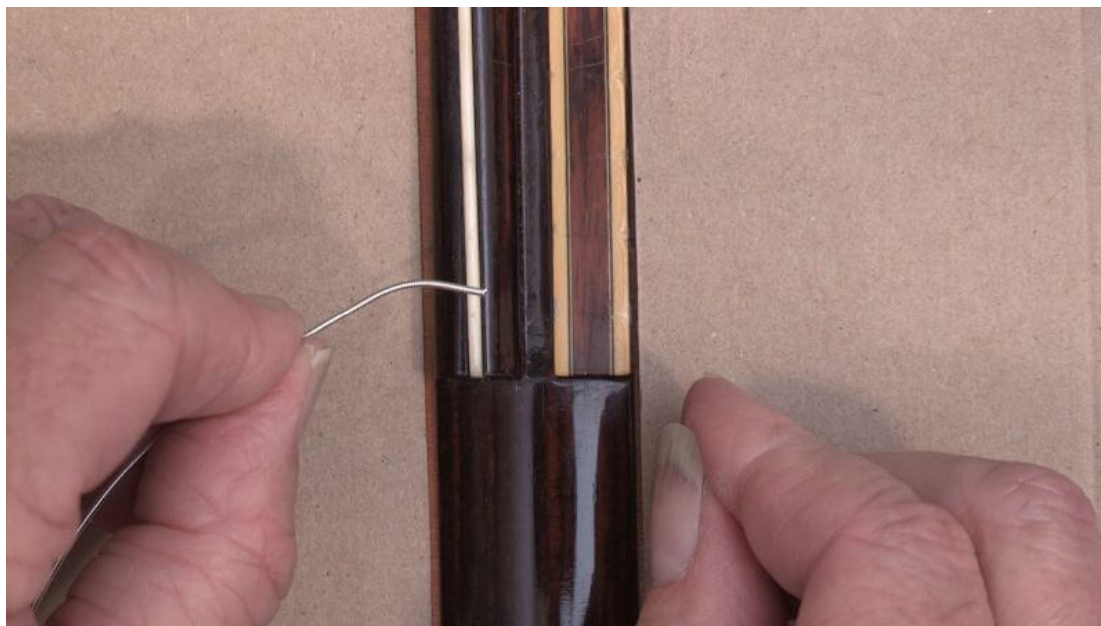


Do NOT feed it the opposite way.

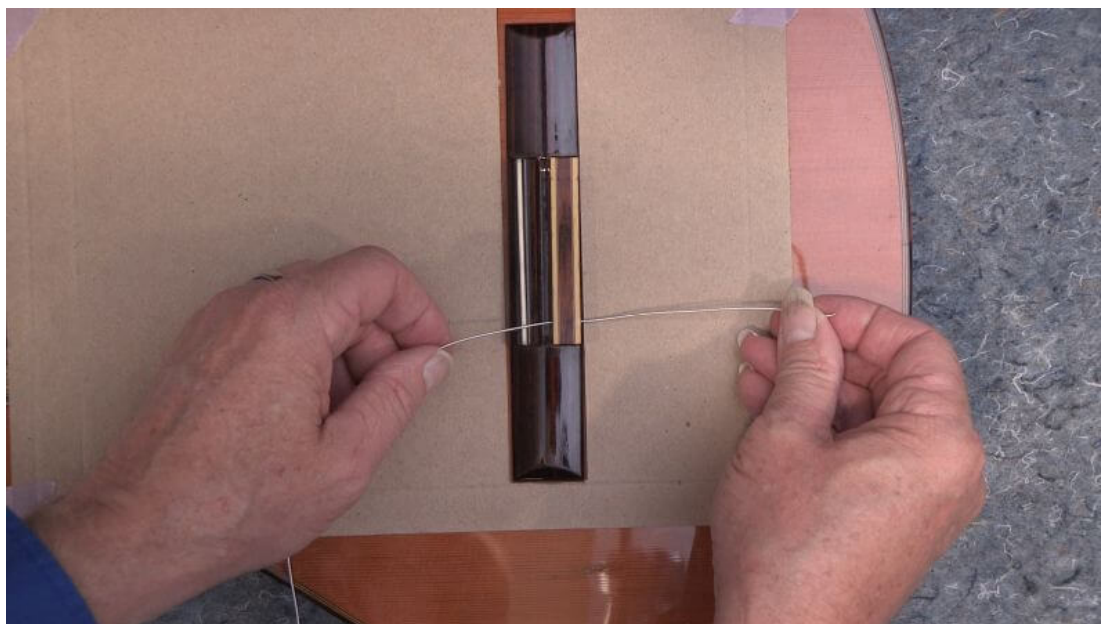


The bass string windings act like sandpaper and over time, will ream out the tie block holes.

If you bend the tip of the string to put a curve on it, it will be easier to fish it through the hole.

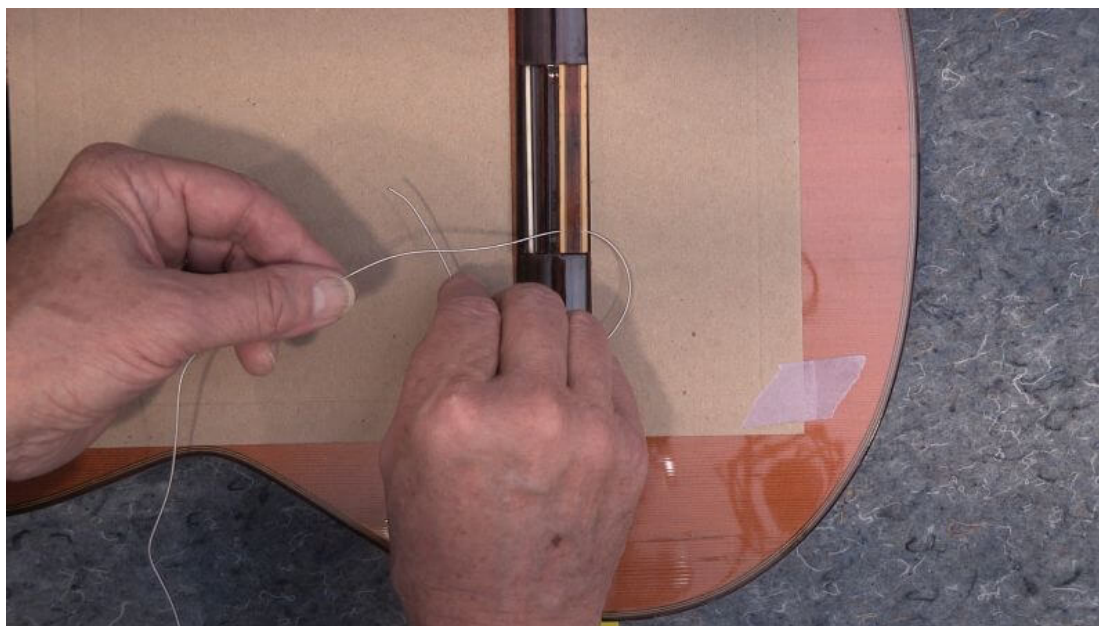


Feed enough string through the hole so you can work comfortably. That will be about 4-6 inches of string for someone with small hands and 7-8 inches for large hands.



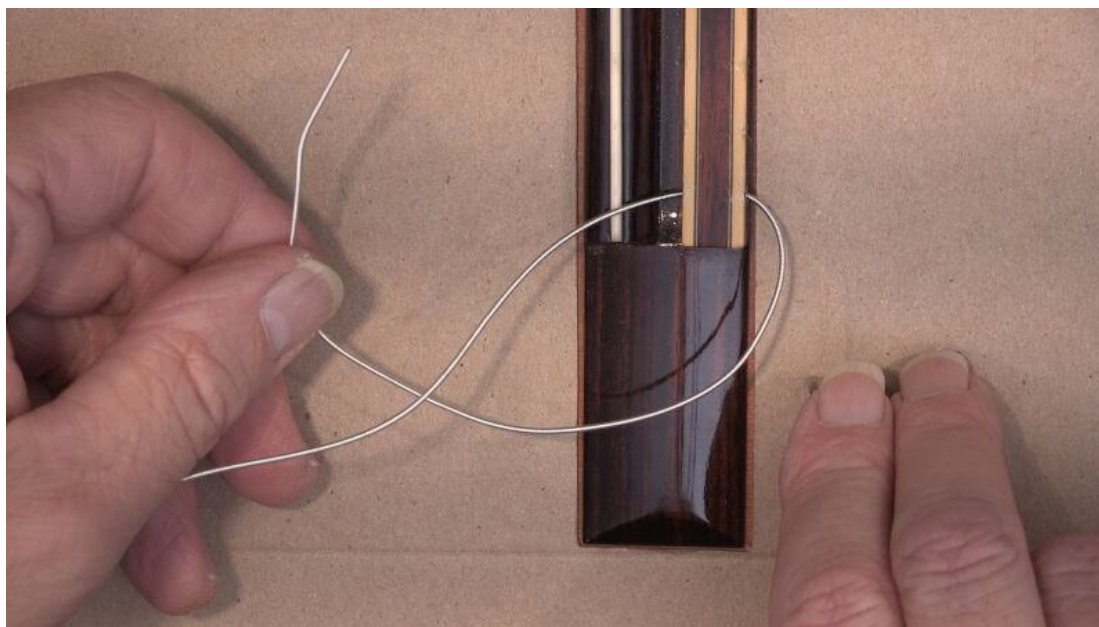
Step #2:

Hold the longer length of string with your left hand. With your right hand, bring the tip of the string toward you and pass it under the length of string you are holding with your left hand.



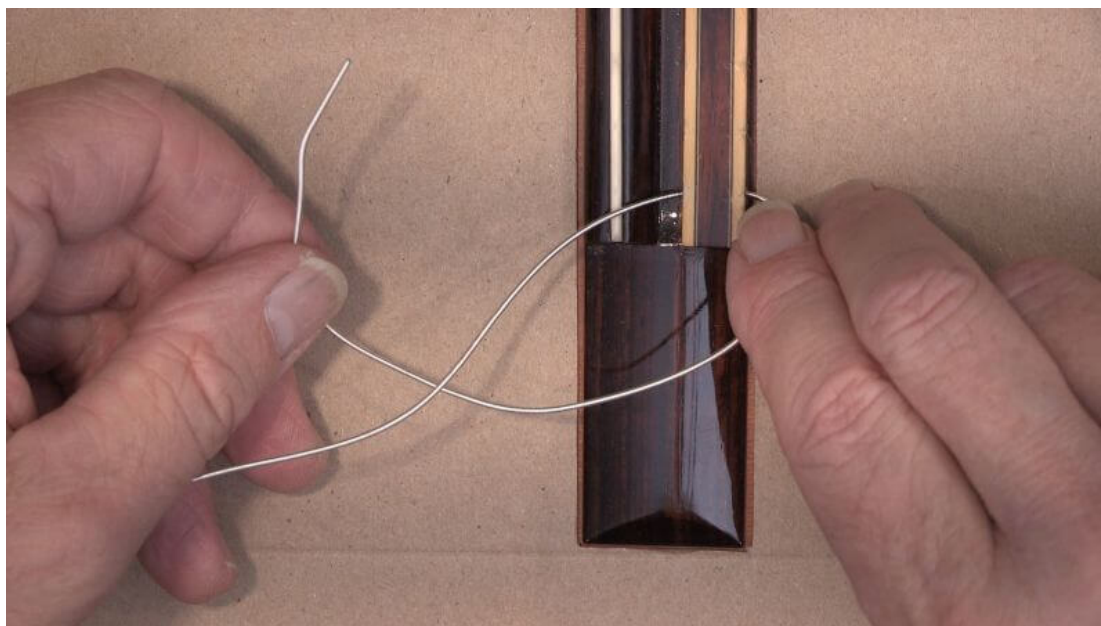
Step #3:

Grab the tip of the string with your left hand and let go of the string with your right hand. You now have a loop.



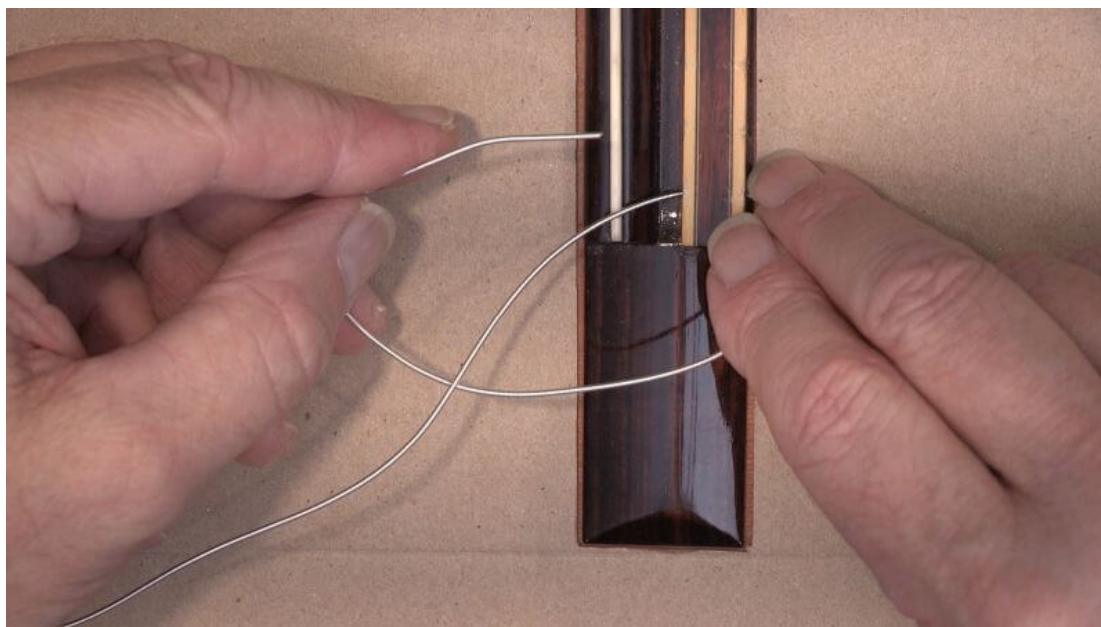
Step #4:

Still holding the tip of the string with your left hand, hold the loop with your right hand just below the bridge (towards the base of the guitar).

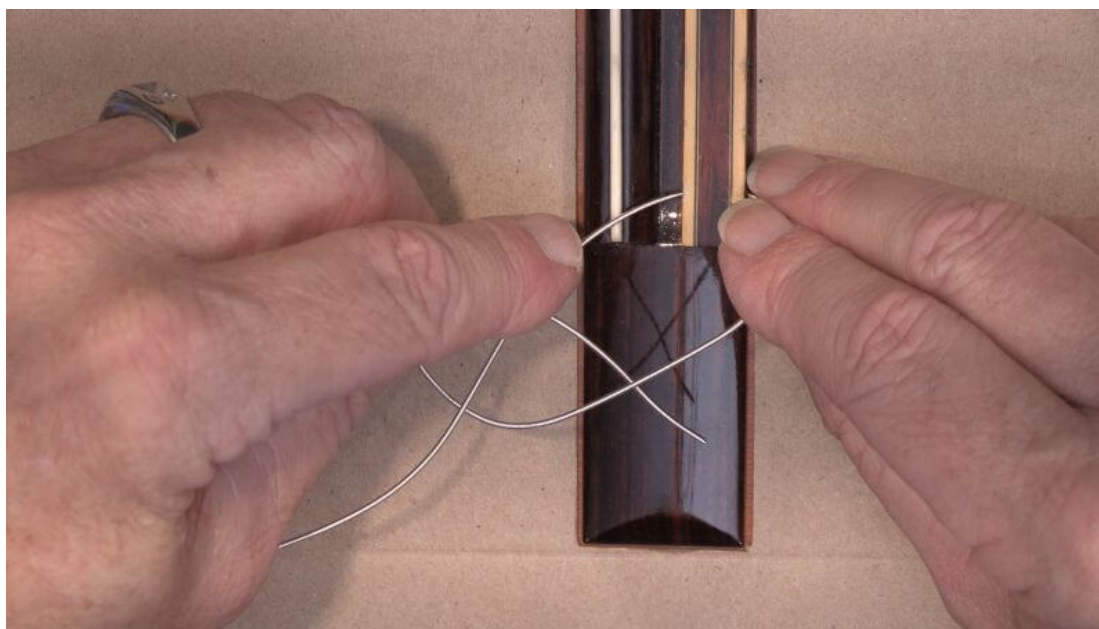


Step #5:

Point the tip of the string toward the base of the guitar.

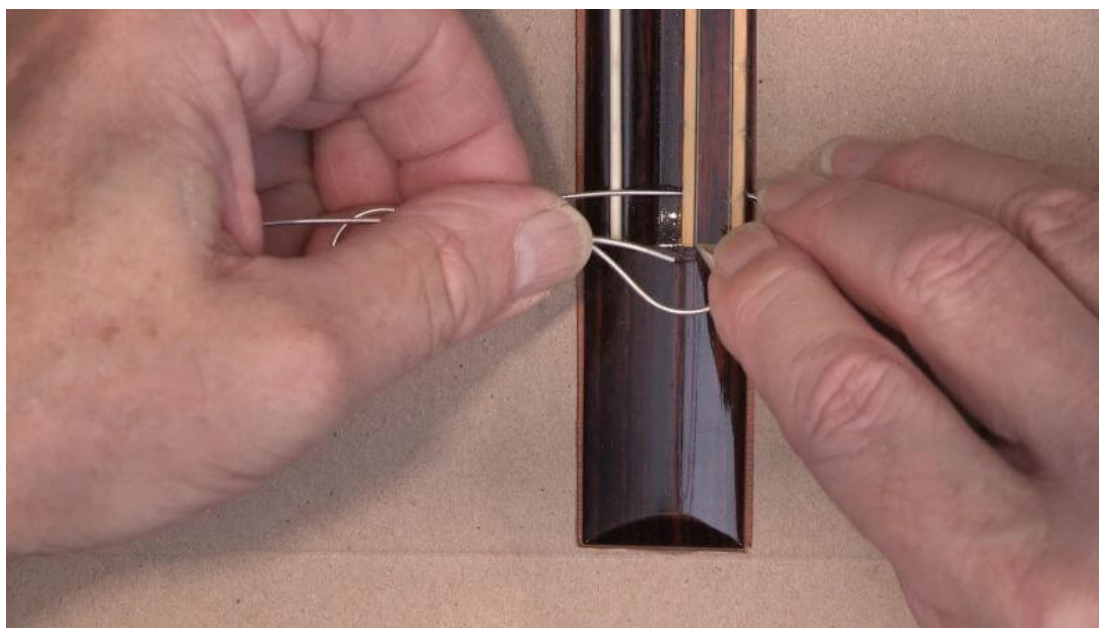


Pass the tip of the string through the loop.

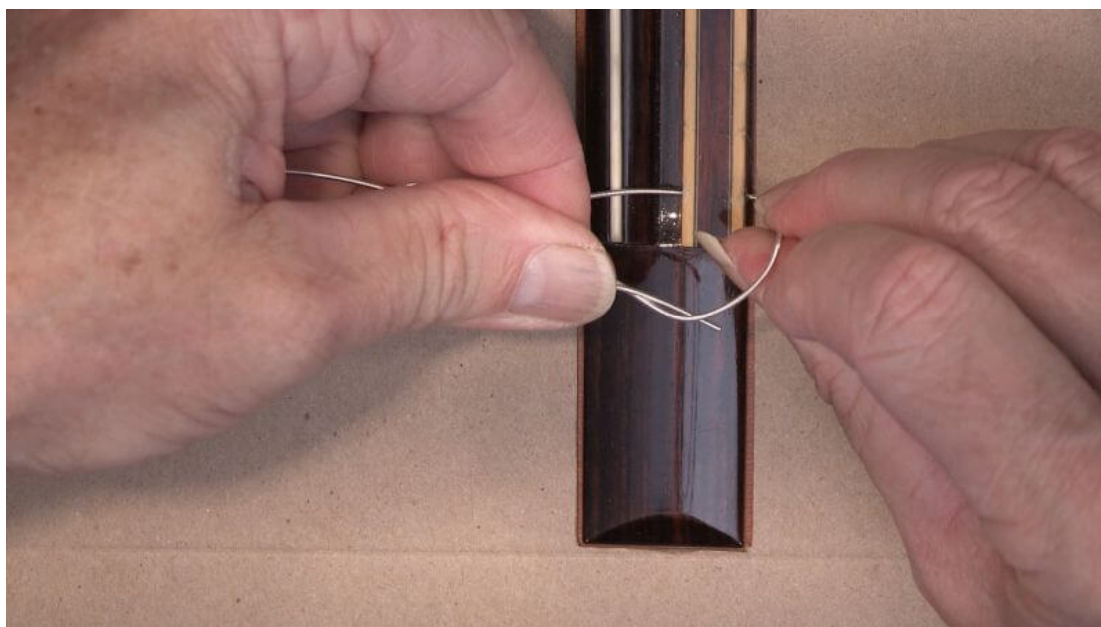


Step #6:

Bring the tip over the string:

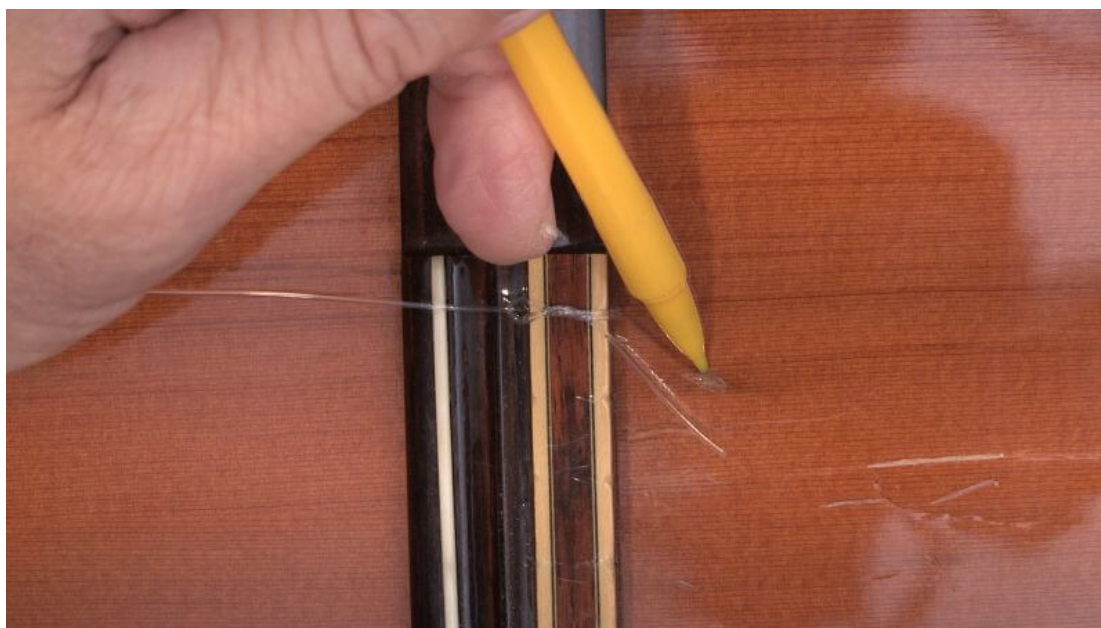


and through the loop again:



This movement requires a bit of finger dexterity, and you might need to switch back and forth between hands. Therefore, you have gone through the loop TWICE. Passing the string TWO times through the loop is best for the wound bass strings.

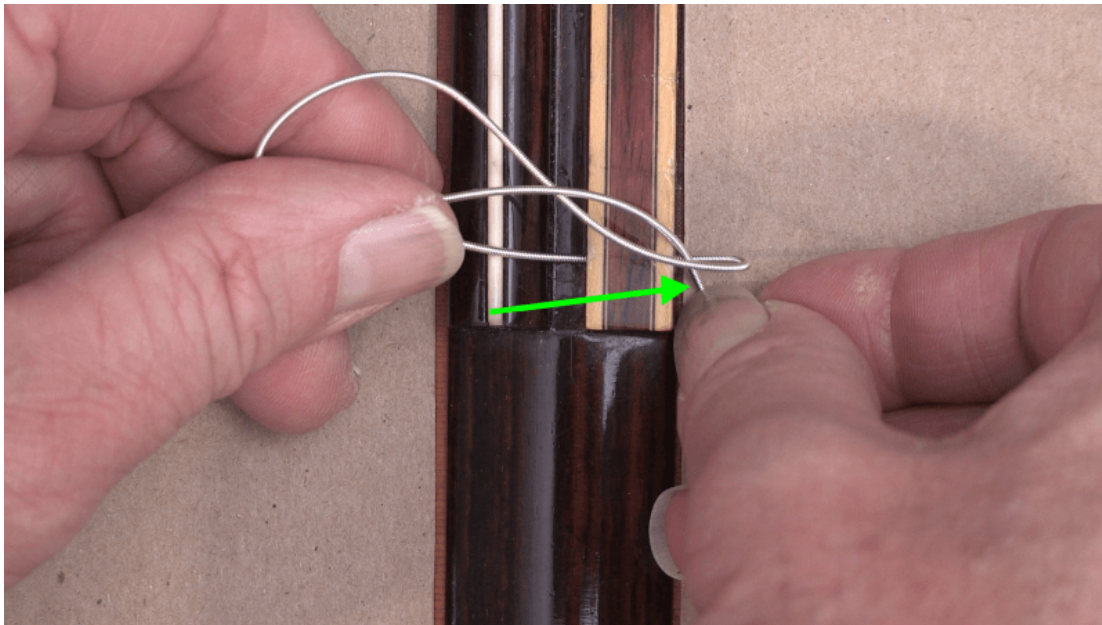
Some guitarists only go through the loop once. That is a bad idea. If the string slips at high tension as you are bringing the string up to pitch, the knot will fail and can leave a "whip mark" in the finish of your guitar behind the tie.



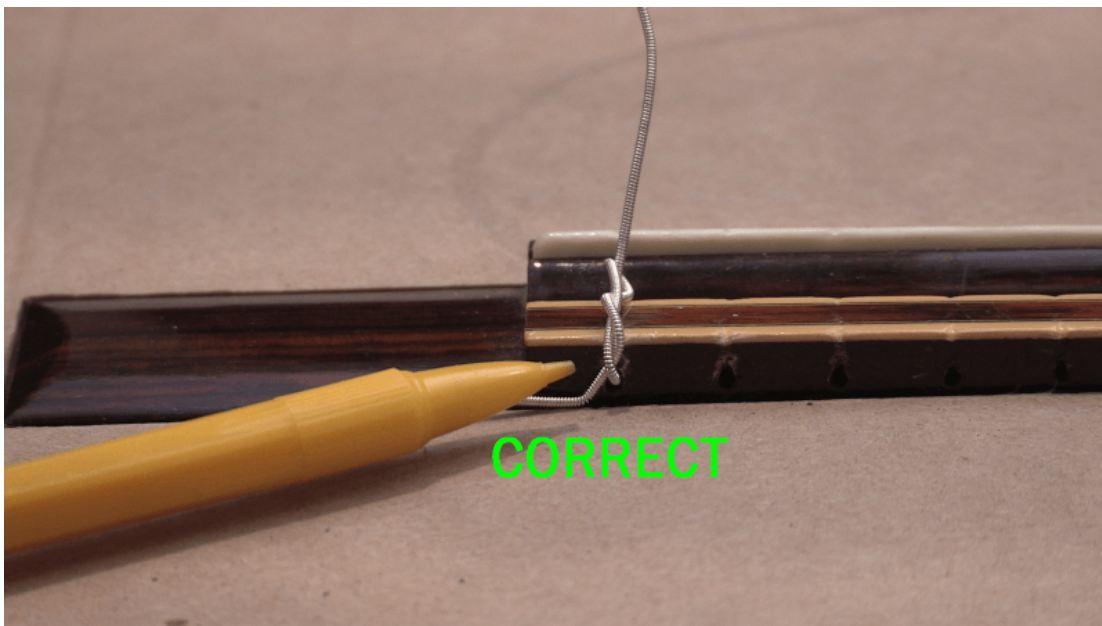
I know that many professional guitarists and experts only go through the loop once and have never had any problems doing it that way. But the extra security of going through the loop twice gives me confidence that nothing will go wrong with my strings. No worry about string problems gives me more confidence about my performance.

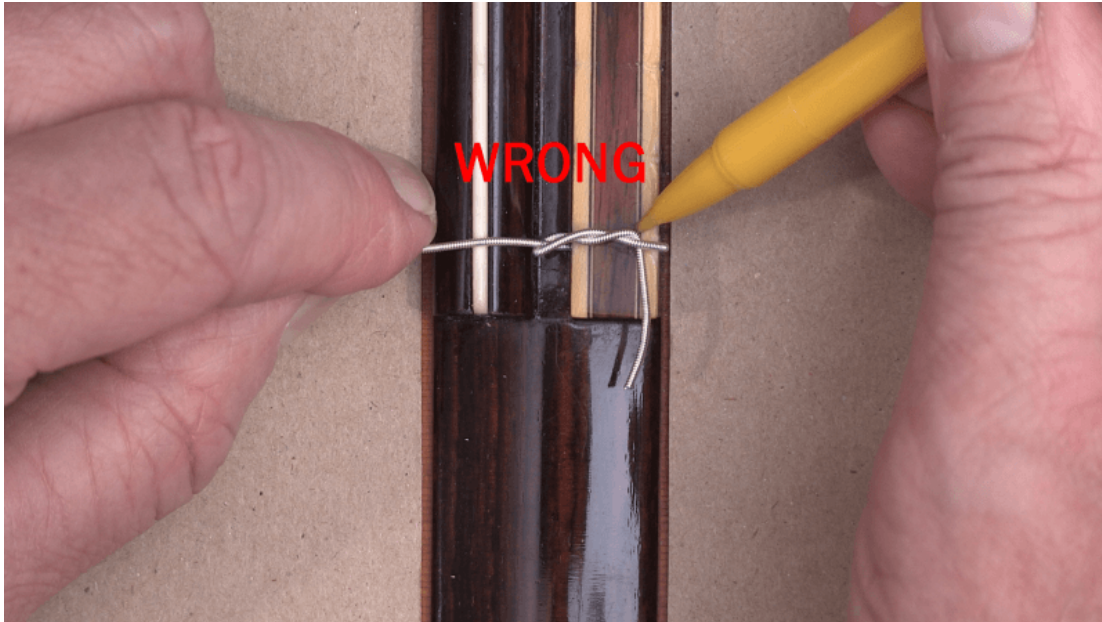
Step #7:

Grab the tip of the string with the thumb and index finger of your right hand. Hold down the tip of the string against the soundboard behind the tie block.



Doing this is crucial because it will ensure that the terminus of the knot is behind the tie block on the backside, not on top:



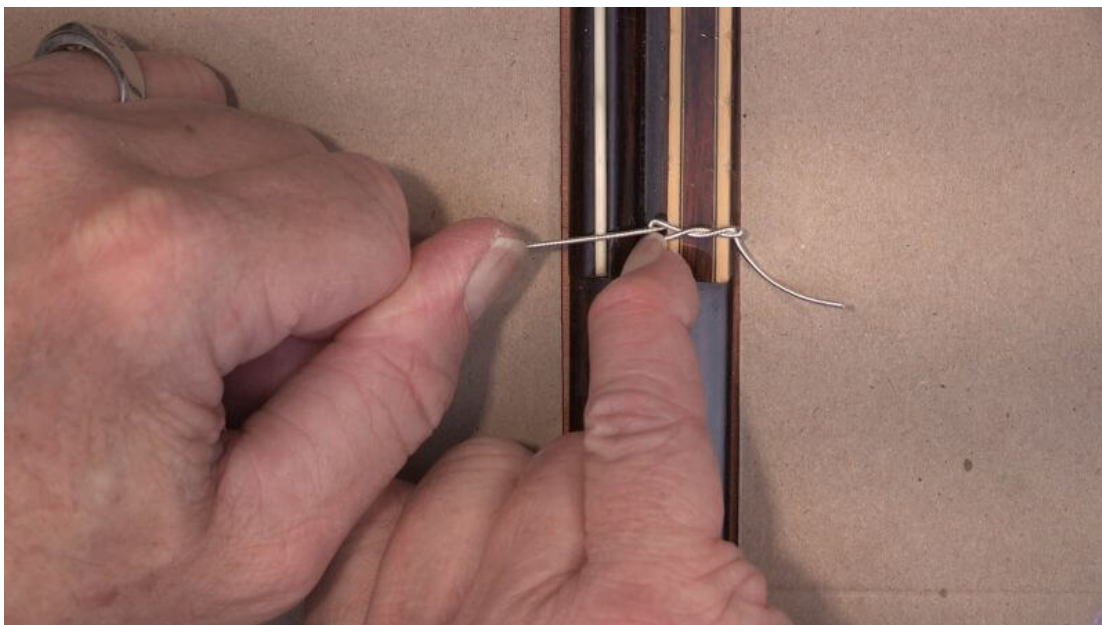


If the terminus is on top, there is a good chance the string will slip, producing the dreaded "whip mark" on your guitar.

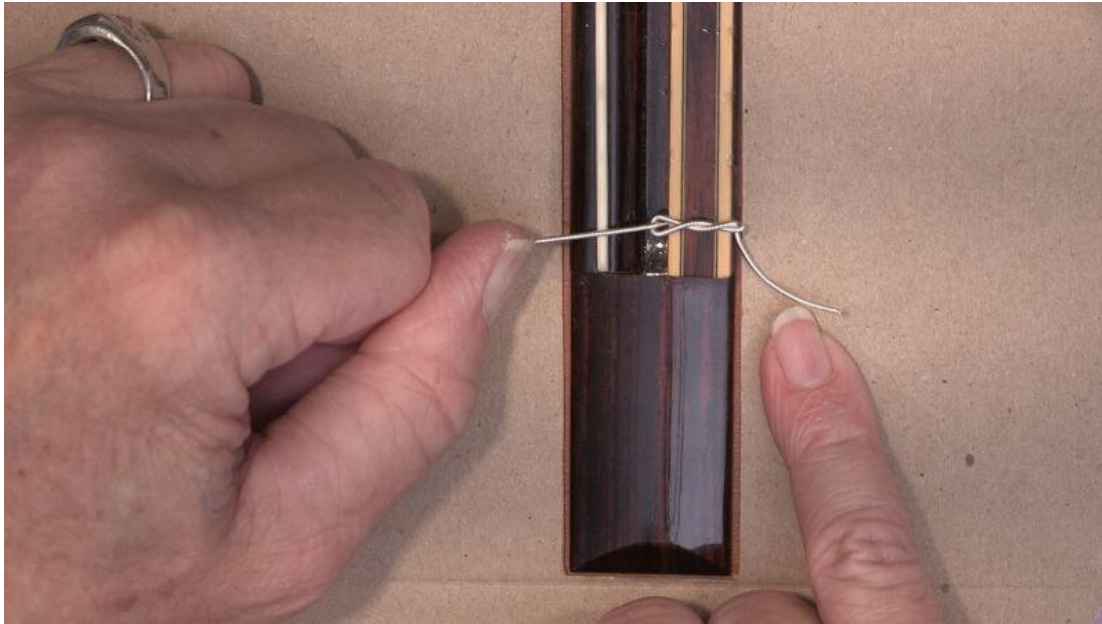
Step #8:

Continue holding the tip of the string against the soundboard behind the tie block. Pull the long length of string with your left hand to tighten the knot. When the knot is compact and almost tight, tug the string with both hands to set the knot. You can also place a finger on top of the knot and rock it back and forth to help take up slack in the knot as you pull on the long length of string with your left hand.

You may need to use a finger on the right hand to push down on the loop on the left side of the tie block and tug the string with the left hand to take up extra slack in the knot. Doing so will also ensure that the loop is not cutting through the main length of the string.



Depending on your knot-tying skill, a tail of ½-2 inches will remain.



Do not cut off the extra string length at this time. You will do that later.

You may come across a recommendation not to make the knot too tight—that any tight bends in the knot can cause the string to break. I have never seen that happen. When a bass string breaks, the break sometimes occurs at the loop because the guitarist did not remember to push the loop down. But usually, the break is to the left of the loop or saddle, elsewhere along the length of the string, or at the nut.

There are Three Variations on the Bass-String Knot

We have three slightly different additional ways to tie this knot. These are difficult to explain in words, so be sure to watch the video, starting at 8:09.

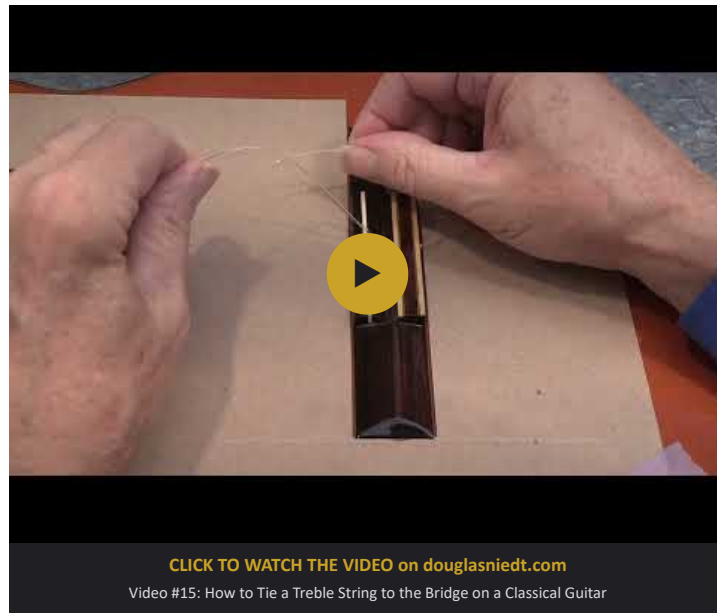
The knots end up being the same, except that the "overs-unders" of the knots are reversed. The difference in the final result is which direction the tail points. You can tie your knots so that you have all the tails pointing AWAY from you or all the tails pointing TOWARD you. Or, you can tie the knots so that the tails of the bass strings point one direction and the tails of the trebles the other direction. Knock yourself out!

How to Tie a TREBLE STRING to the Bridge on a Classical Guitar

Tying a treble string to the bridge is very similar to tying a bass string with a few crucial differences. Watch this video as I demonstrate how to tie a treble string to the bridge on a classical guitar. Watch Video #15.

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

Video #15: How to Tie a Treble String to the Bridge on a Classical Guitar



The steps to change a treble string are almost the same as changing a bass string. The major difference is that for the 1st and 2nd strings, for extra security, I recommend passing the string through the loop three times. Depending on how thick the 3rd string is, you can do two or three passes. If the string is relatively thick, two passes will be okay.

As you are trying to tie a treble string to the bridge, the rest of the string will tend to coil up and continuously be in the way. Tuck it in between and around the other strings to keep it out of the way. Or, tape the loose end to the neck with Delicate Surface painter's tape.

Here is the entire process:

Step #1:

Some string manufacturers tint one end of their treble strings with a color. We are going to tie the *clear end* to the bridge.



With your left hand, hold the non-colored end of the string about 1/2-1 inch from the tip. Going from the soundhole side of the bridge towards the end of the body, feed the non-colored end through the hole of the tie block.



If you bend the tip of the string to put a curve on it, it will be easier to fish it through the hole.

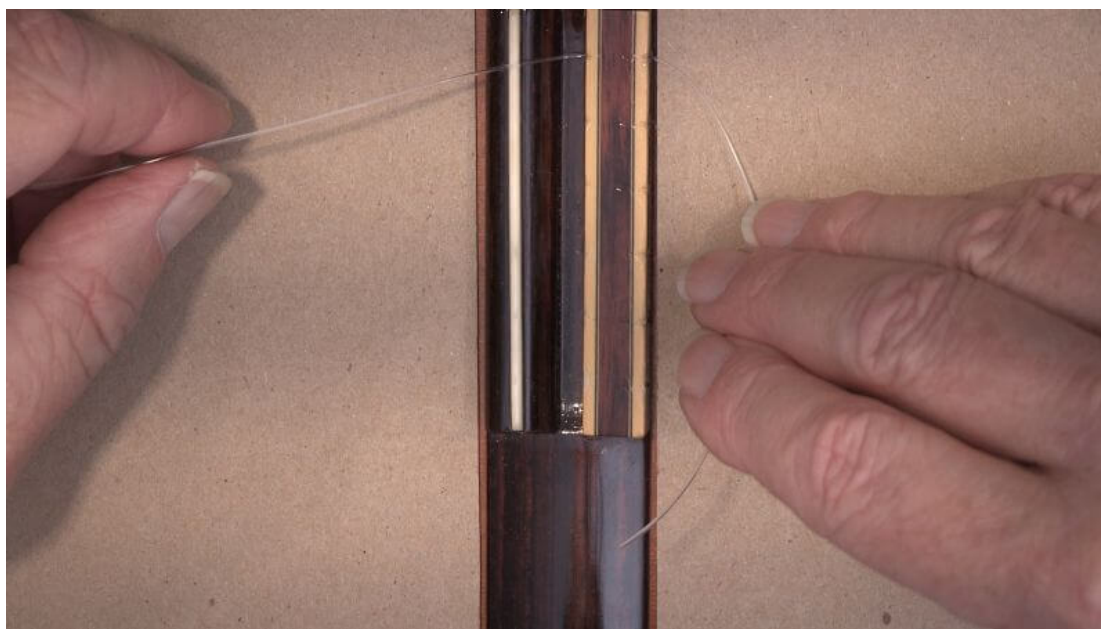


Feed enough string through the hole so you can work comfortably. That will be about 4-6 inches of string for someone with small hands and 7-8 inches for large hands.

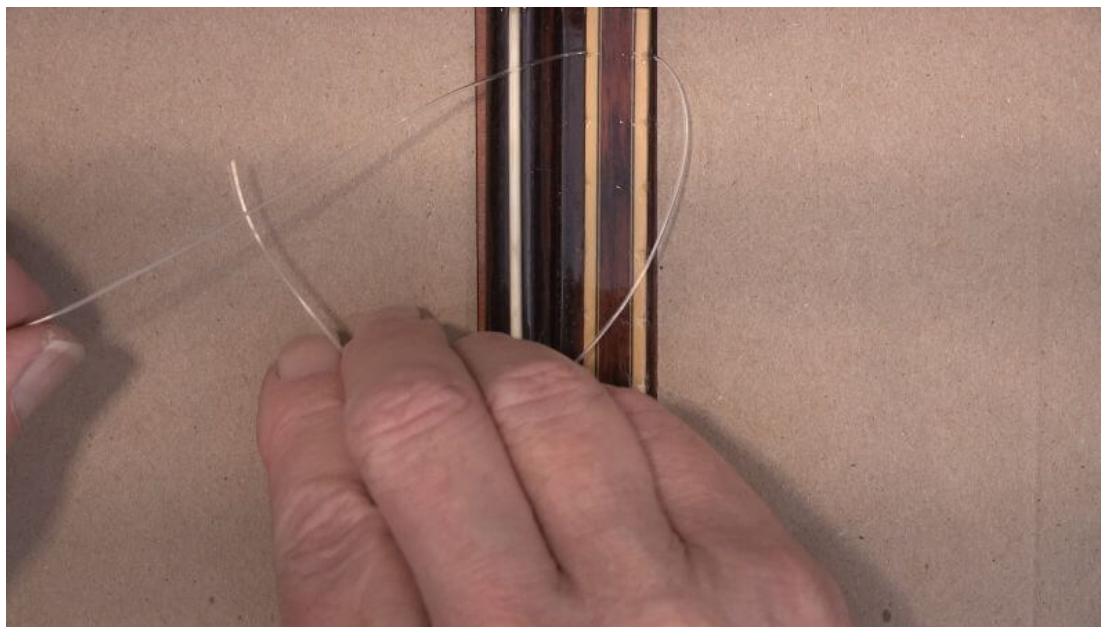


Step #2:

Hold the longer length of string with your left hand. With your right hand, bring the tip of the string toward you:

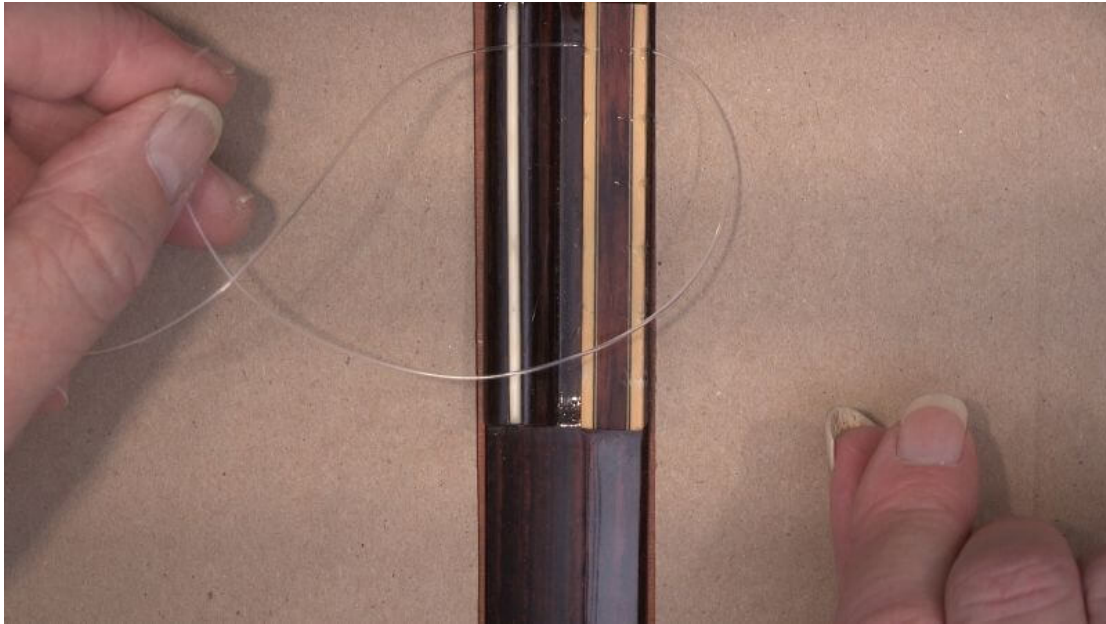


Pass it under the length of string you are holding with your left hand.



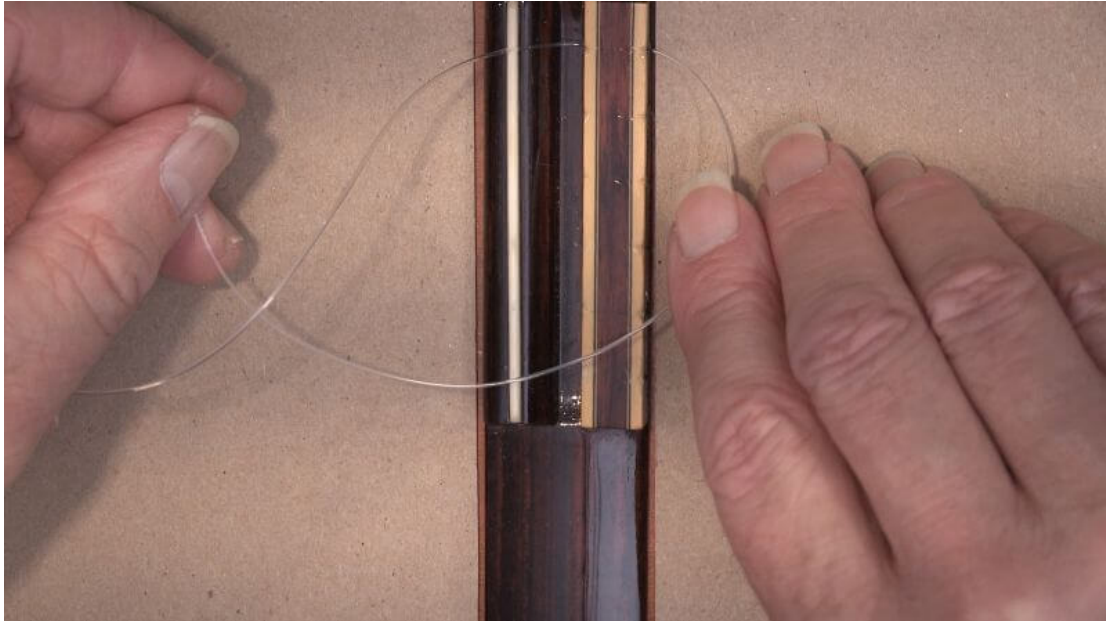
Step #3:

Grab the tip of the string with your left hand and let go of the string with your right hand. You now have a loop.



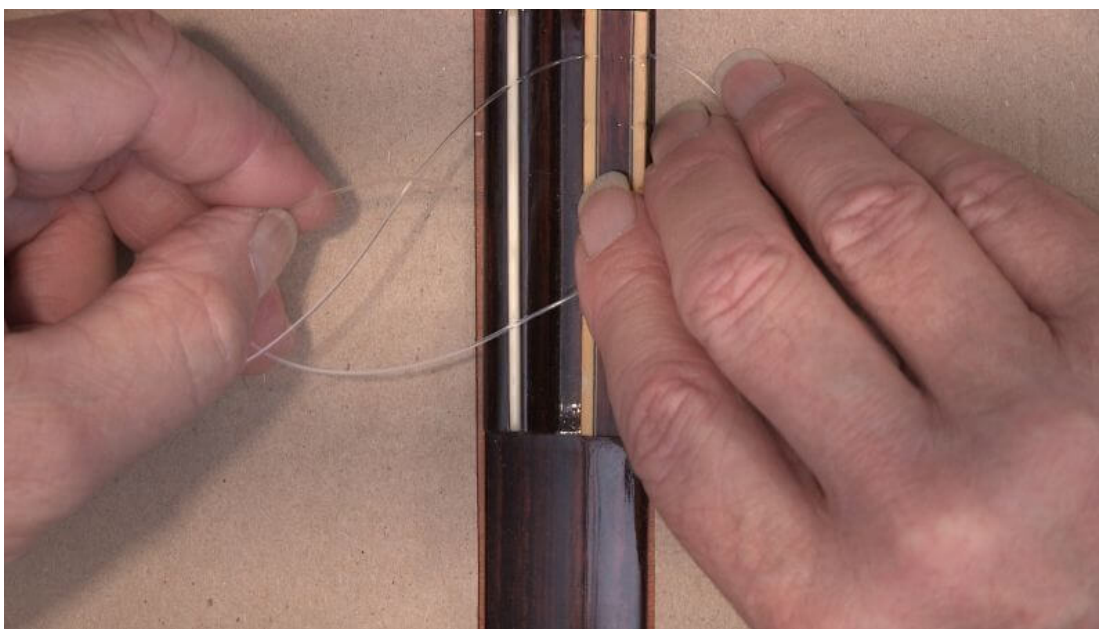
Step #4:

Still holding the tip of the string with your left hand, hold the loop with your right hand just below the bridge (towards the base of the guitar).

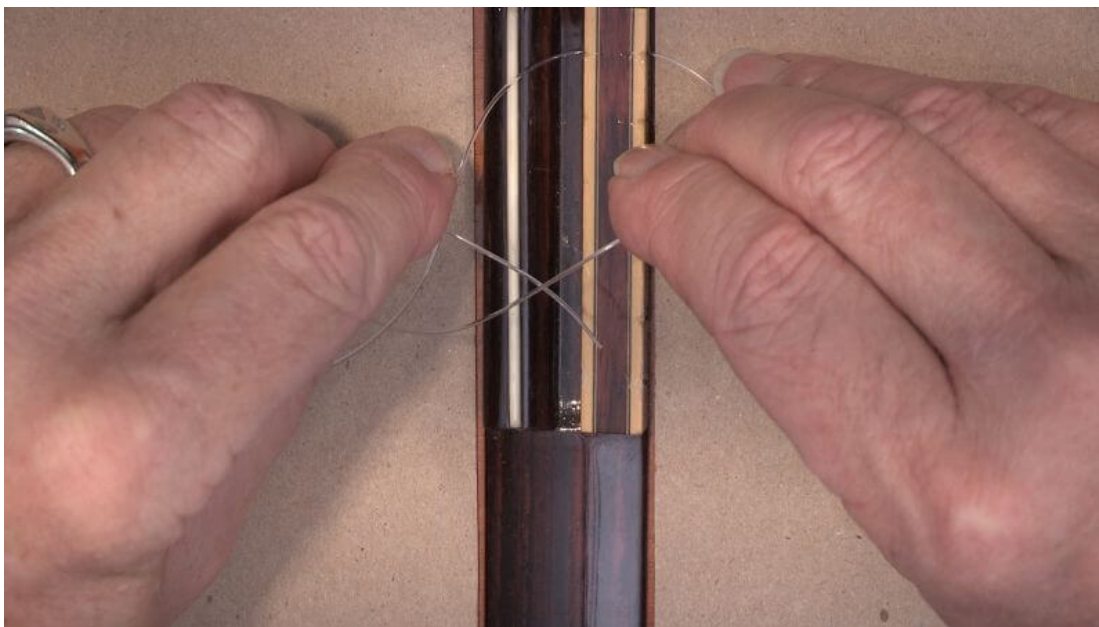


Step #5:

Point the tip of the string toward the base of the guitar.

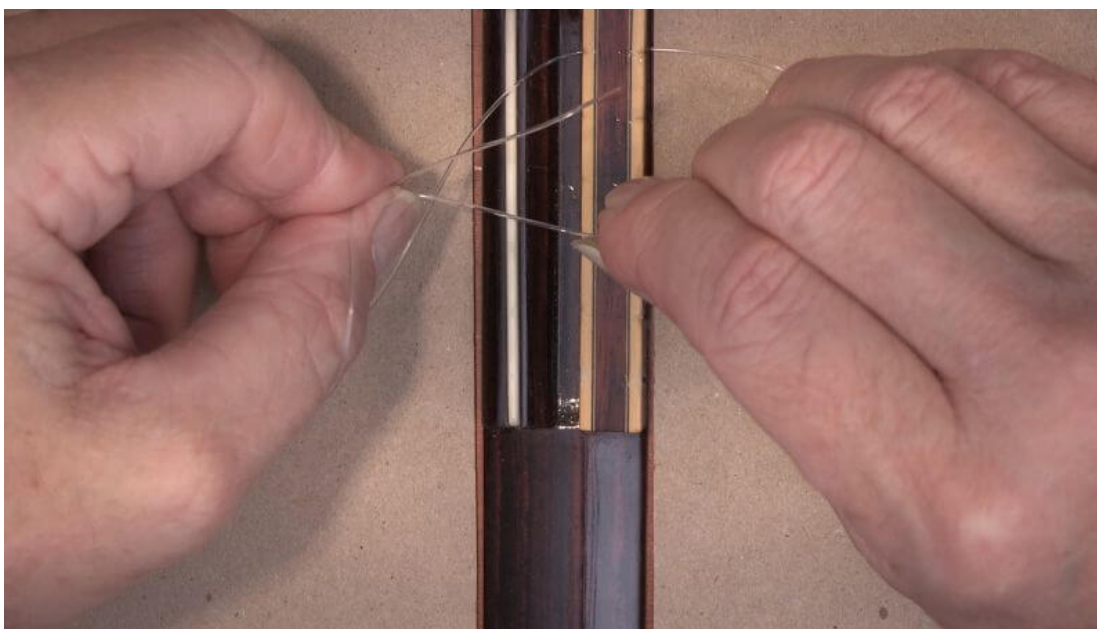


Pass the tip of the string through the loop.

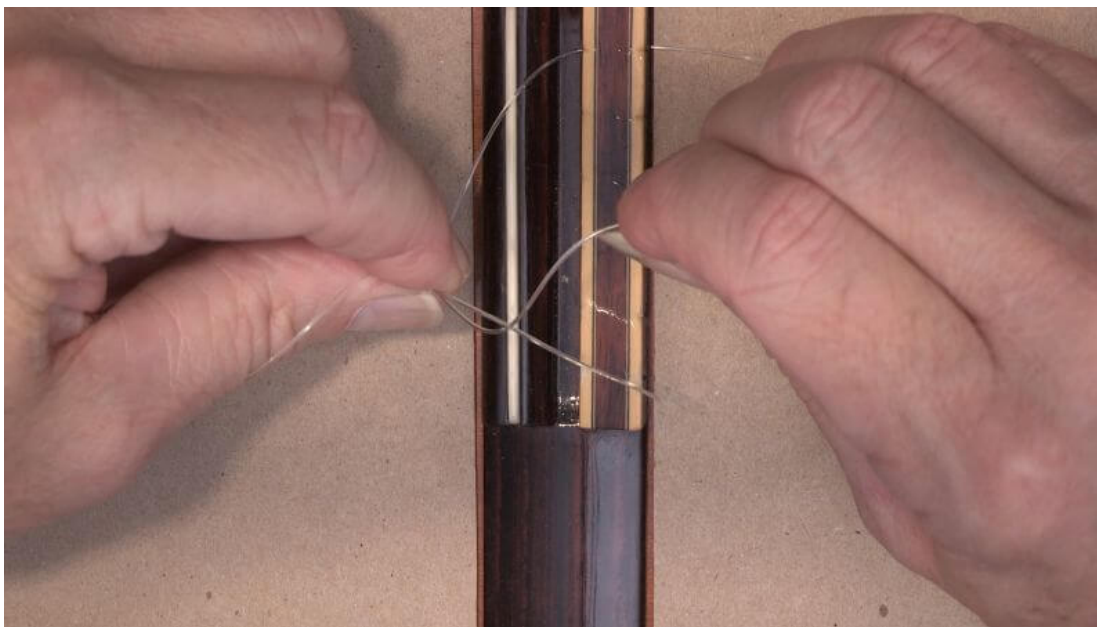


Step #6:

Bring the tip over the string.



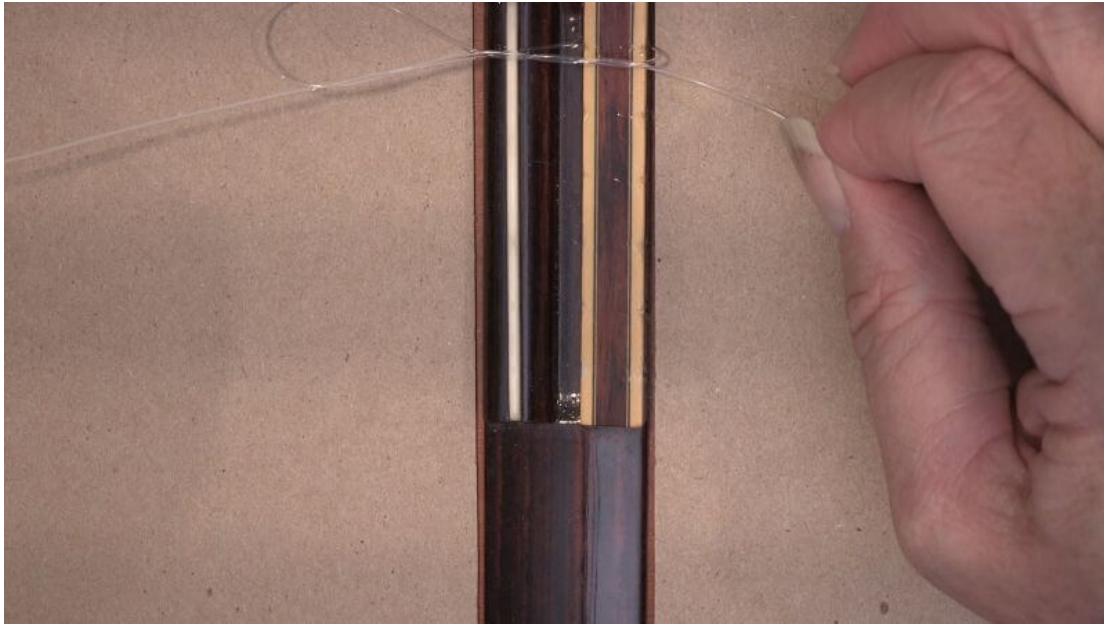
Pass the tip through the loop again.



This movement requires a bit of finger dexterity, and you might need to switch back and forth between hands.

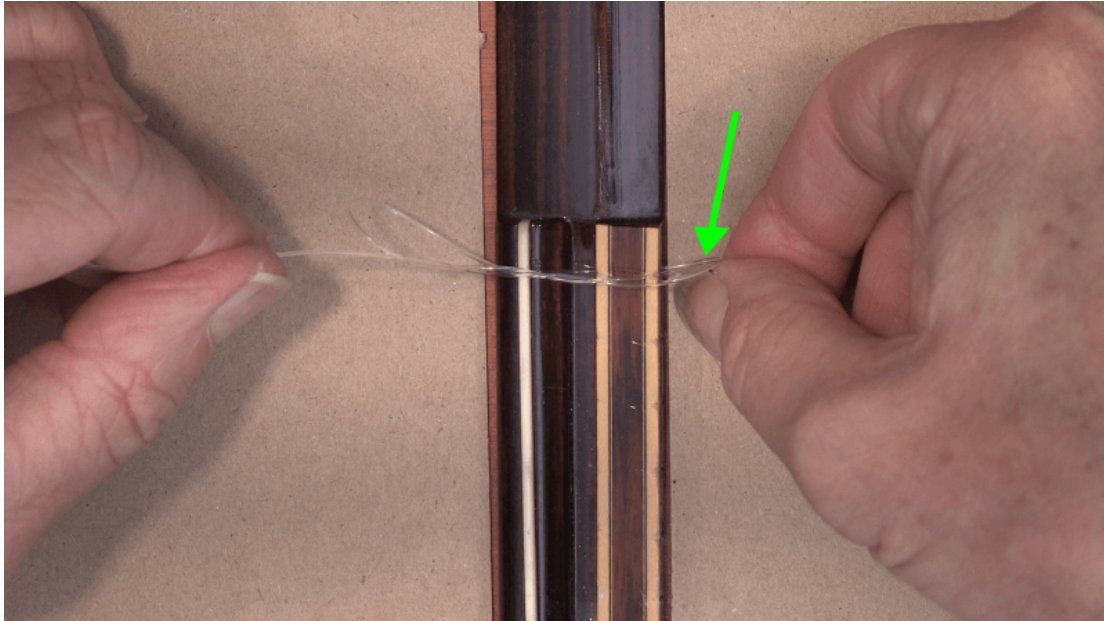
Step #7:

Bring the tip over the string and through the loop one more time. You have now gone through the loop THREE times.

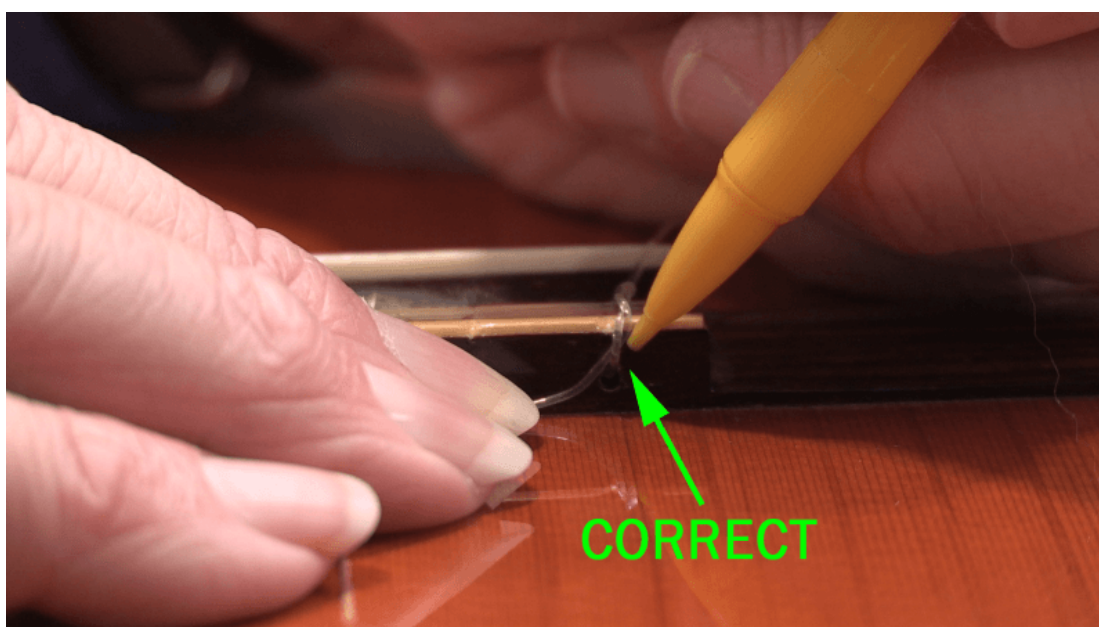
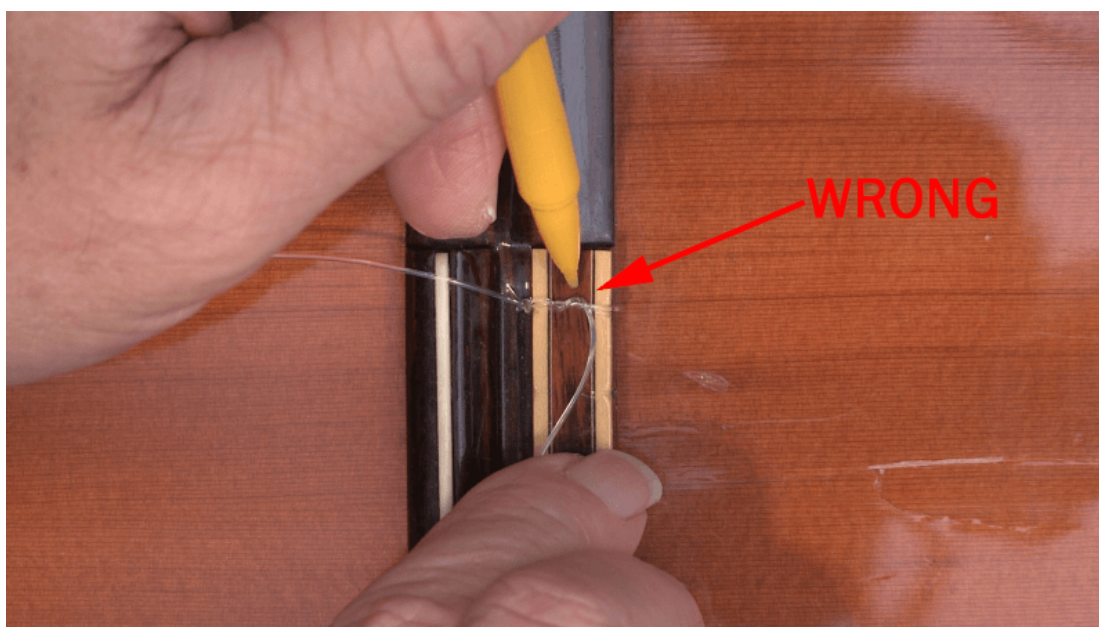


Step #8:

Grab the tip of the string with the thumb and index finger of your right hand. Hold down the tip of the string against the soundboard behind the tie block.



Doing this is crucial because it will ensure that the terminus of the knot is behind the tie block on the backside, not on top.



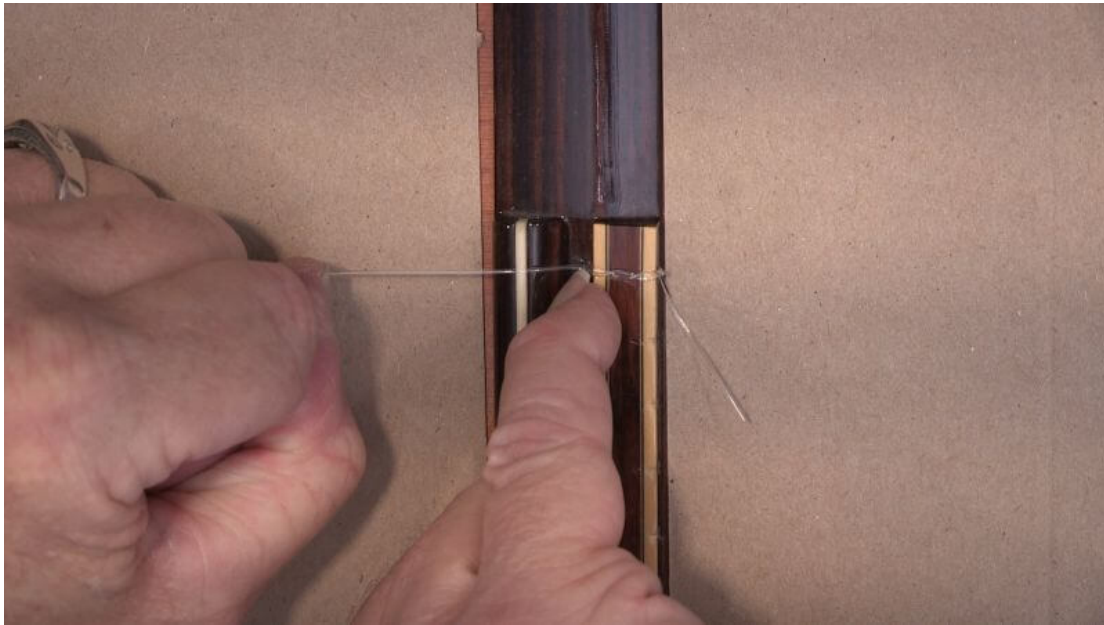
If the terminus is on top, there is a good chance the string will slip, producing the dreaded "whip mark" on your guitar.

Step #9:

Continue holding the tip of the string against the soundboard behind the tie block. Pull the long length of string with your left hand to tighten the knot. When the knot is compact and almost tight, tug the string with both hands to set the knot.

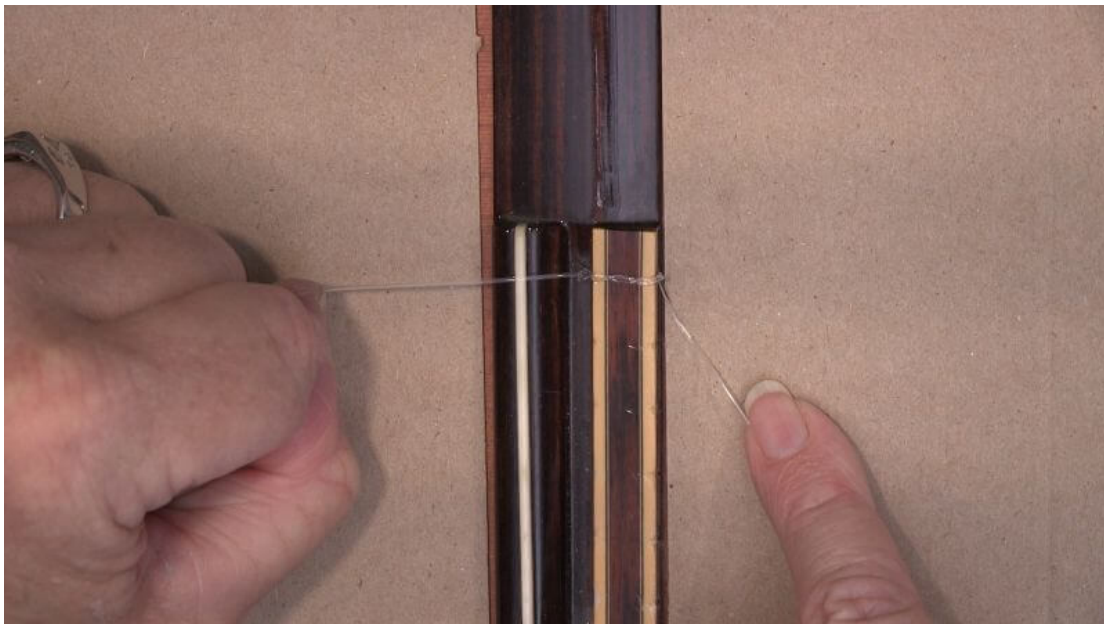
As you pull on the long length of string with your left hand, you can also place a finger on top of the knot and rock it back and forth to help take up slack in the knot.

You may need to use a finger on the right hand to push down on the loop on the left side of the tie block and tug the string with the left hand to take up extra slack in the knot.



Although it is not as much a problem with the treble strings as it is with the basses, doing so will ensure that the loop is not cutting through the main length of the string.

Depending on your knot-tying skill, a tail of $\frac{1}{2}$ -2 inches will remain. You will clip this off later.



I know that many professional guitarists and experts only go through the loop twice and have never had any problems doing it that way. And that may be fine with string materials such as nylon.

But if your trebles are carbon strings (carbon fiber or fluorocarbon), which are a dense material with a thin diameter, I strongly recommend that you go through the loop three times.

For me, the extra security of going through the loop three times gives me confidence that nothing will go wrong with my strings. Knowing I will have no problems with my strings is one less thing to worry about in a live performance.

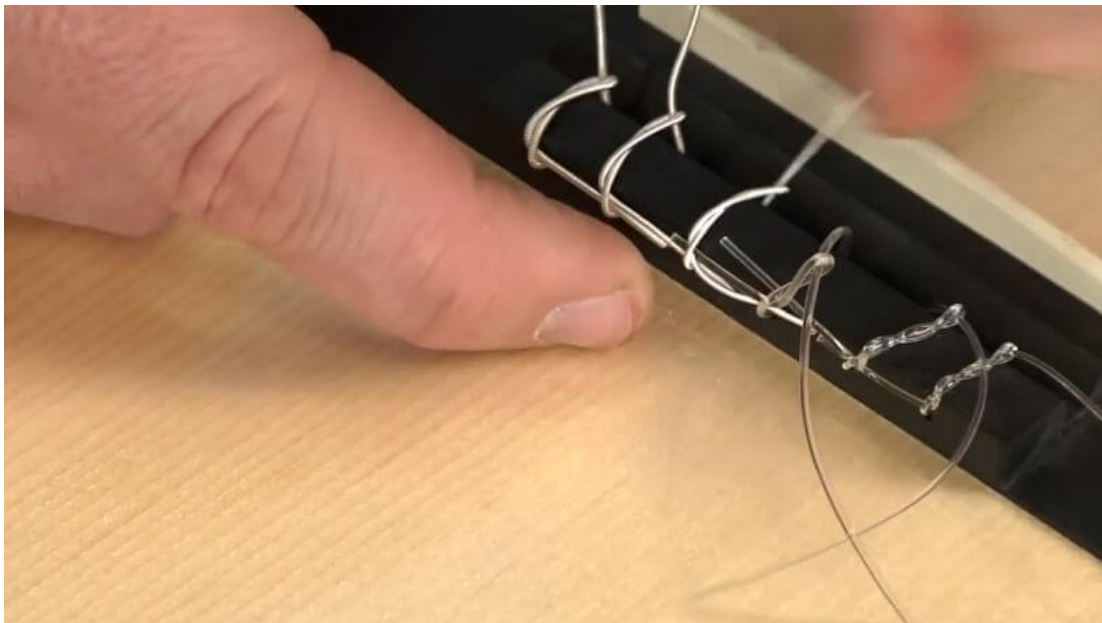
There are Three Variations on the Treble-String Knot

As on the bass strings, we have three slightly different additional ways to tie this knot. These are difficult to explain in words, so be sure to watch the video, starting at 7:42.

The knots end up being the same, except that the "overs-unders" of the knots are reversed. The difference in the final result is which direction the tail points. You can tie your knots so that you have all the tails pointing AWAY from you or all the tails pointing TOWARD you. Or, you can tie the knots so that the tails of the bass strings point one direction and the tails of the trebles the other direction. Knock yourself out!

Interlacing the Tails of the Strings: A horrible idea

Here is a terrible idea from a Martin guitars video: "To keep your work looking tidy, as you tie each string, tuck the tail of the string into the loop of the previous string."



I guess interlacing the strings looks cool and all, but you will have a big problem when the time comes when you need to replace one string. For example, after you put on a new set of strings, you may have overlooked that one of the string's intonation is off. Or, a string may go dead prematurely. What then?

If your strings are interlaced, it is hard to undo the knot of only one string at the bridge. You cannot untie it. You must dig at the knot with the tip of a pair of wire cutters and cut it. You must be extremely careful not to nick the tie block. Interlacing strings to look cool? It is a bad idea.

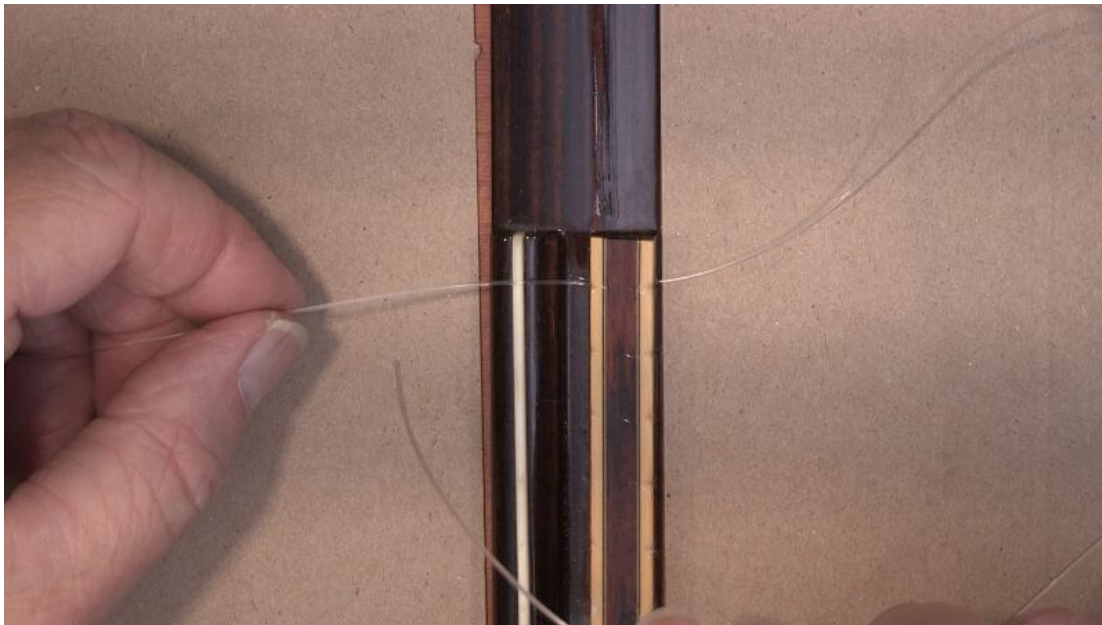
The Double-Loop Knot for the Treble Strings

Or, for even more security on the 1st or even 2nd string, you can go through the tie-block hole twice to make a double loop and then tie your knot.

You can read how to do it below, but it is much easier to understand by watching me demonstrate in Video #15 above, beginning at 10:42.

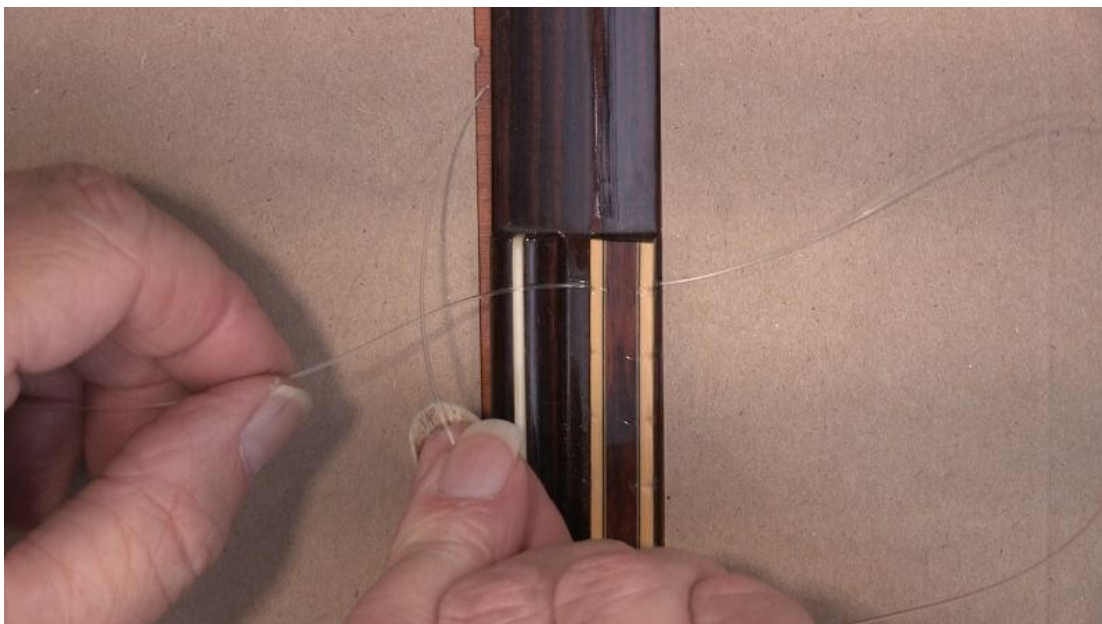
Step #1:

As with the standard knot, feed the string through the tie block hole from the soundhole side of the bridge towards the end of the body. But this time, feed about 8-12 inches of string through the hole.



Step #2:

Hold the longer length of string with your left hand. With your right hand, bring the tip of the string toward you and pass it under the length of string you are holding with your left hand.

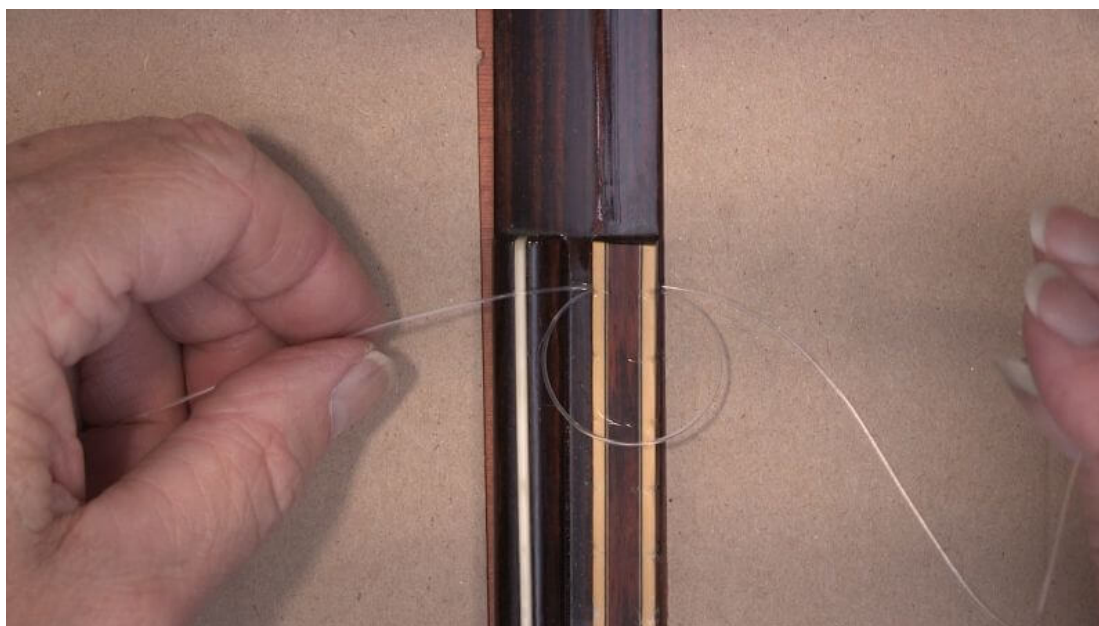


Step 3:

With your left hand, grab the string about an inch from the tip and **pass it through the tie block hole again**. Feed it through 6 inches.

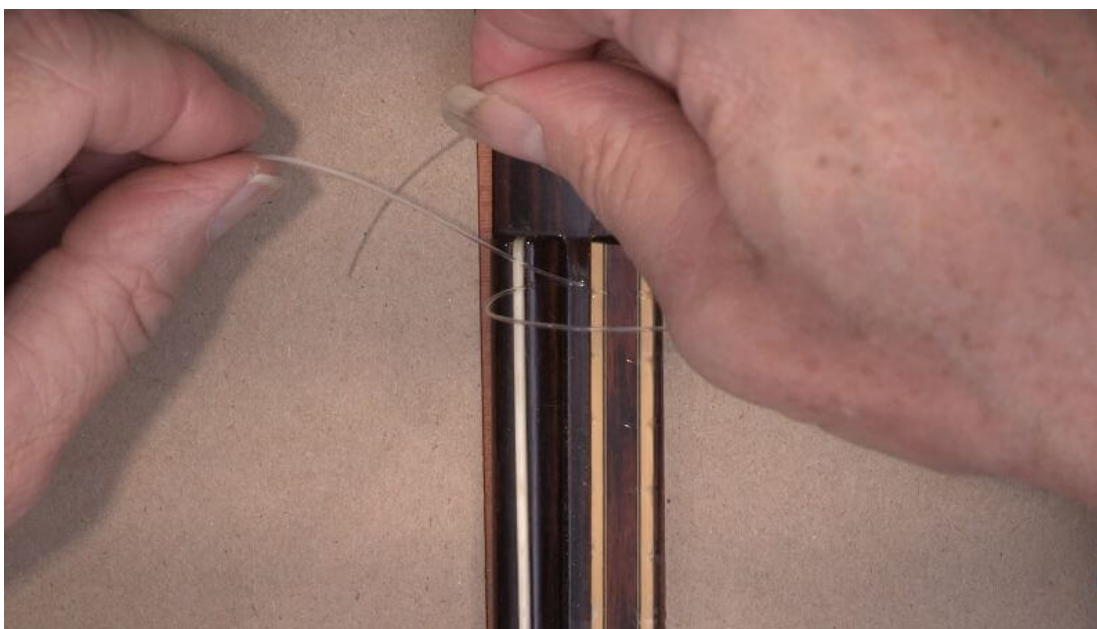


You will have a circle of string floating above the tie block.



Step 4:

With the right hand, hold the tip of the string with the tip pointing away from you. Pass it on the far side and under the long length of the string.



Step 5:

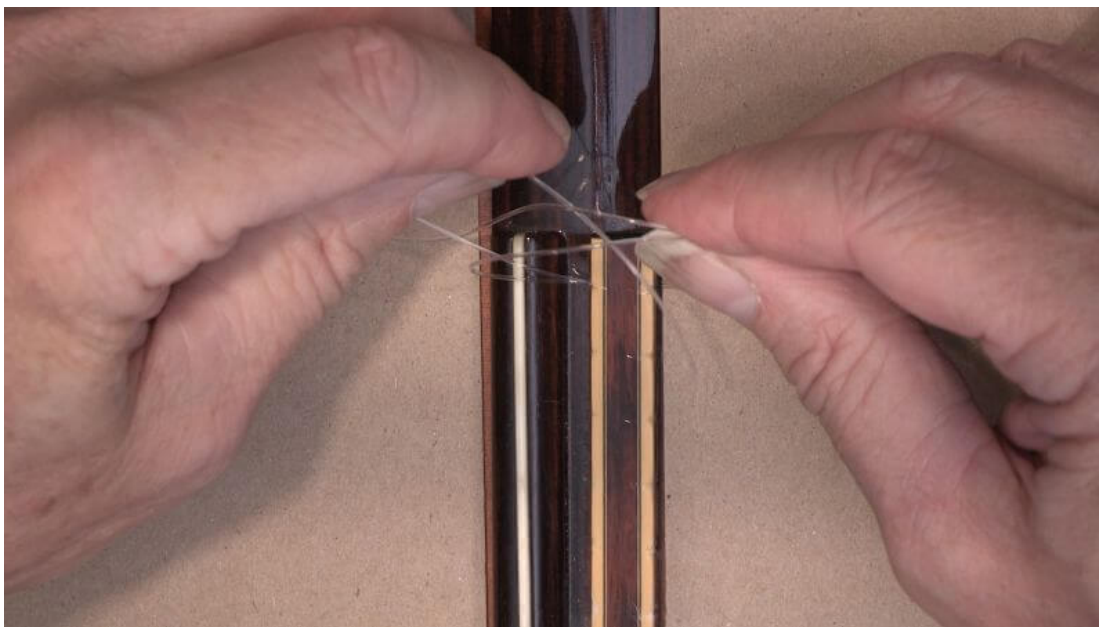
Grab the tip of the string with your left hand about two inches from the tip. Pinch the double loop behind the bridge with your right-hand thumb and index finger.



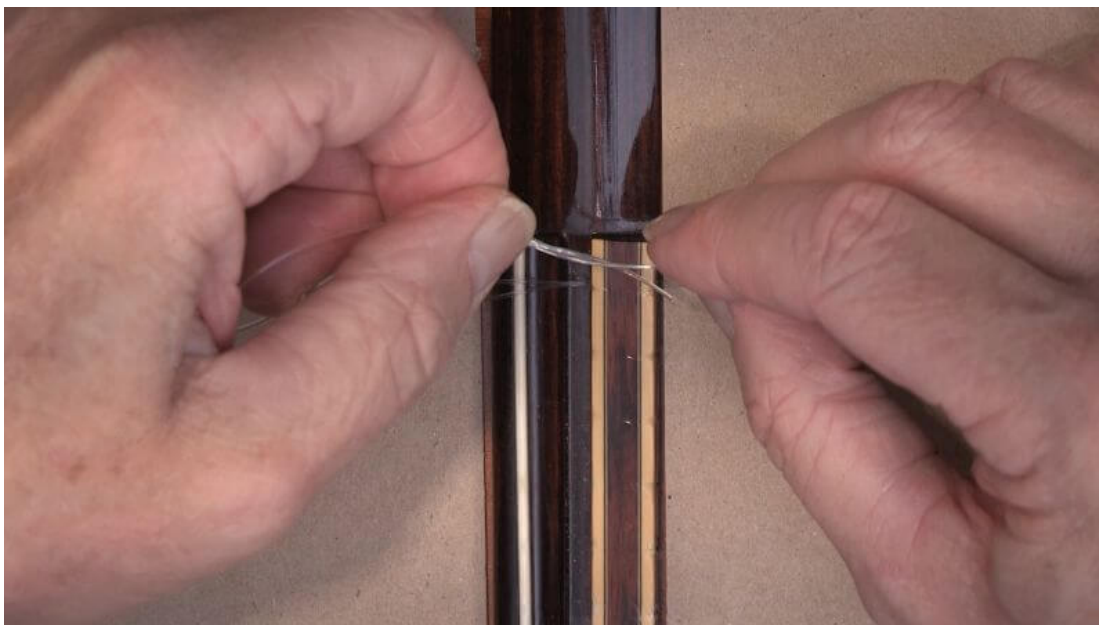
Step 6:

Using the left hand, guide the tip over and through the double loop twice.

Once:

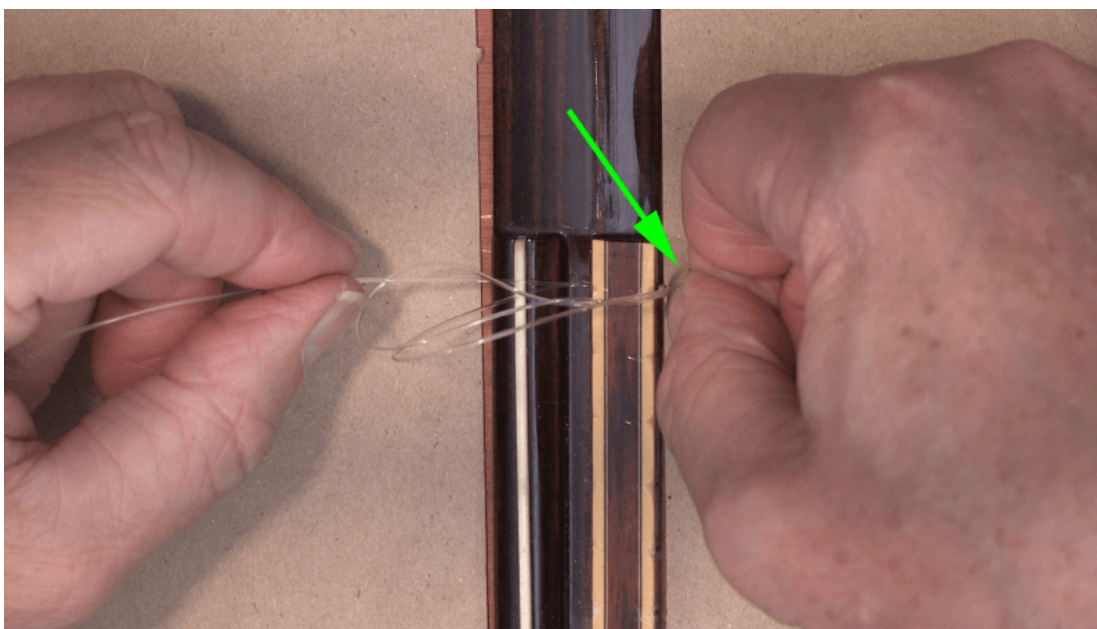


Twice:

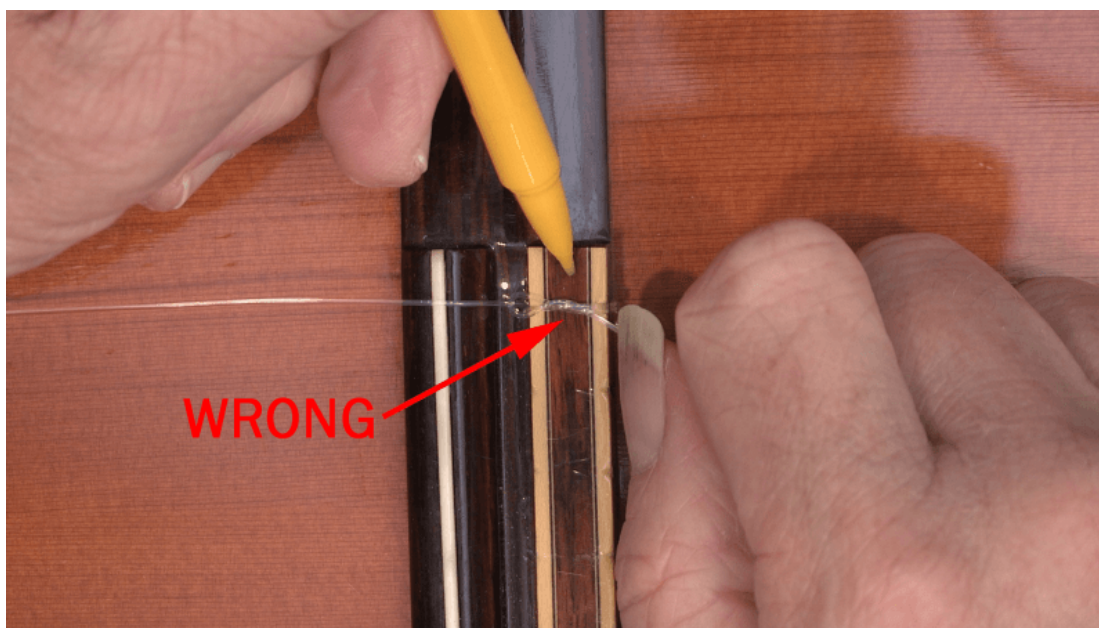


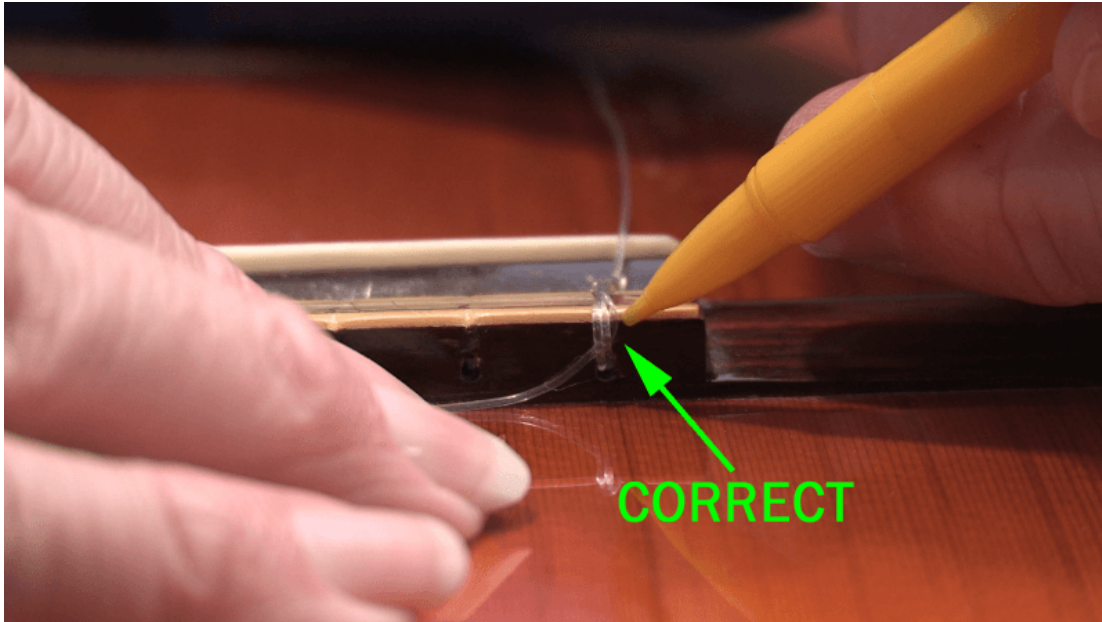
Step 7:

Grab the tip of the string with the thumb and index finger of the right hand and hold it down tight on the soundboard behind the tie block.



Doing this is crucial because it will ensure that the terminus of the knot is behind the tie block on the backside, not on top.

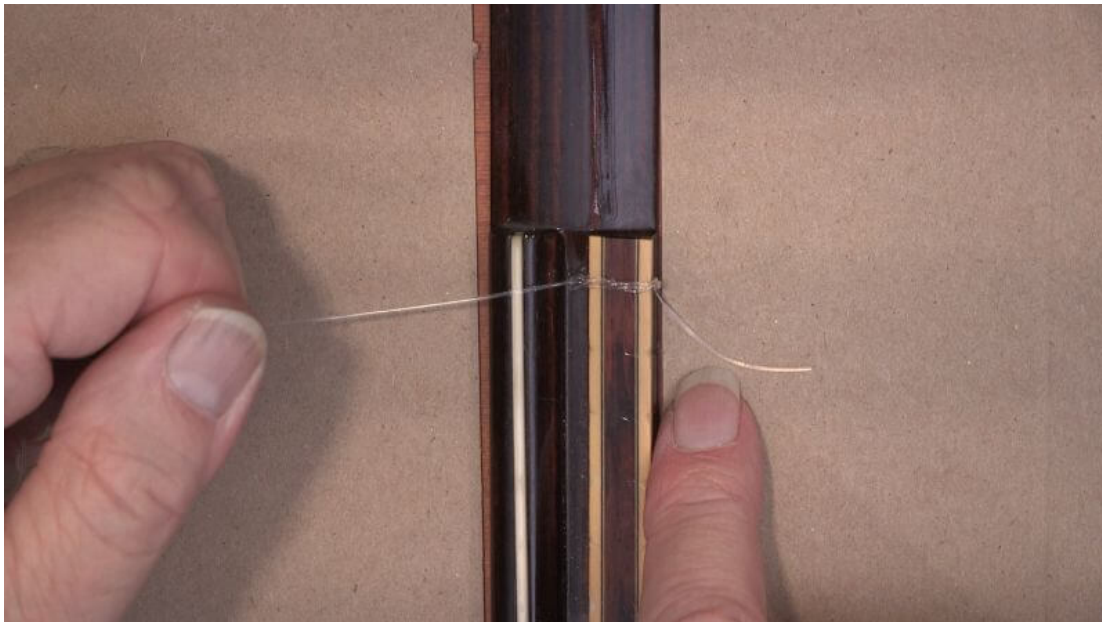




Step 8:

Hold the long length of the string in your left hand and pull the knot tight. When the knot is compact and almost tight, tug the string with both hands to set the knot. You may need to use a finger on the right hand to push down on the loop on the left side of the tie block and tug the string with the left hand to take up extra slack in the knot. Doing so will also ensure that the loop is not cutting through the main length of the string.

Depending on your knot-tying skill, a tail of $\frac{1}{2}$ -2 inches will remain. You will clip this off later.



No matter what type of knot you tie, you may come across a recommendation not to make the knot too tight—that any tight bends in the knot can cause the string to break. I have never seen that happen. Treble strings usually break to the left of the saddle, elsewhere on the length of the string, or at the nut.

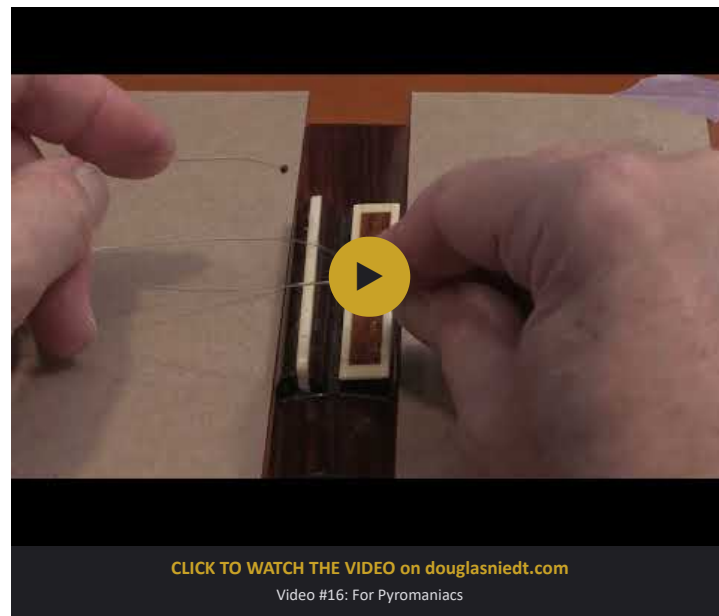
For Pyromaniacs

Some guitarists enjoy setting the ends of their treble strings on fire. The molten nylon forms a ball on the end of the string. If the string begins to slip, the ball is a final fail-safe to prevent the knot from coming undone. Just be sure to light the ends on fire **BEFORE you put the strings on the guitar!**

Please watch me demonstrate how to do this the right way so that you do not set your guitar on fire! Watch Video #16.

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

Video #16: For Pyromaniacs



Here are the steps as shown and described in the video:

Step #1:

Be sure you are in a ventilated area away from any flammable materials or objects.

Step #2:

On some brands of strings, the tip of one end of the string may have a colored tint, and the other will be clear. Hold the string 3-4 inches from the *clear-tip* end. We will set this clear, non-tinted end on fire.

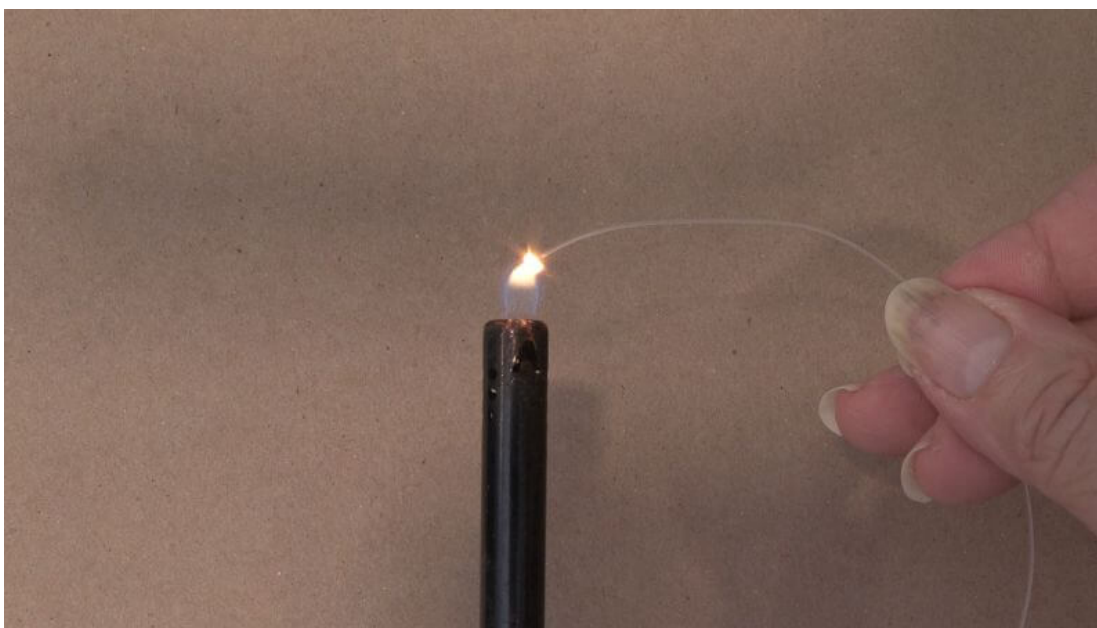
Step #3:

Hold the string horizontally. **Caution: Do NOT hold it vertically or molten nylon may fall on your hand.**



Step #4:

Hold the string horizontally with the tip of the string in the flame of a lighter or match. Allow it to burn for 3-5 seconds.



Caution: Do NOT leave the string in the flame for more than five seconds, or molten nylon might drip to the floor or on your table surface.

Step #5:

Blow out the flame, and allow the string to cool for 20 seconds.

Step #6:

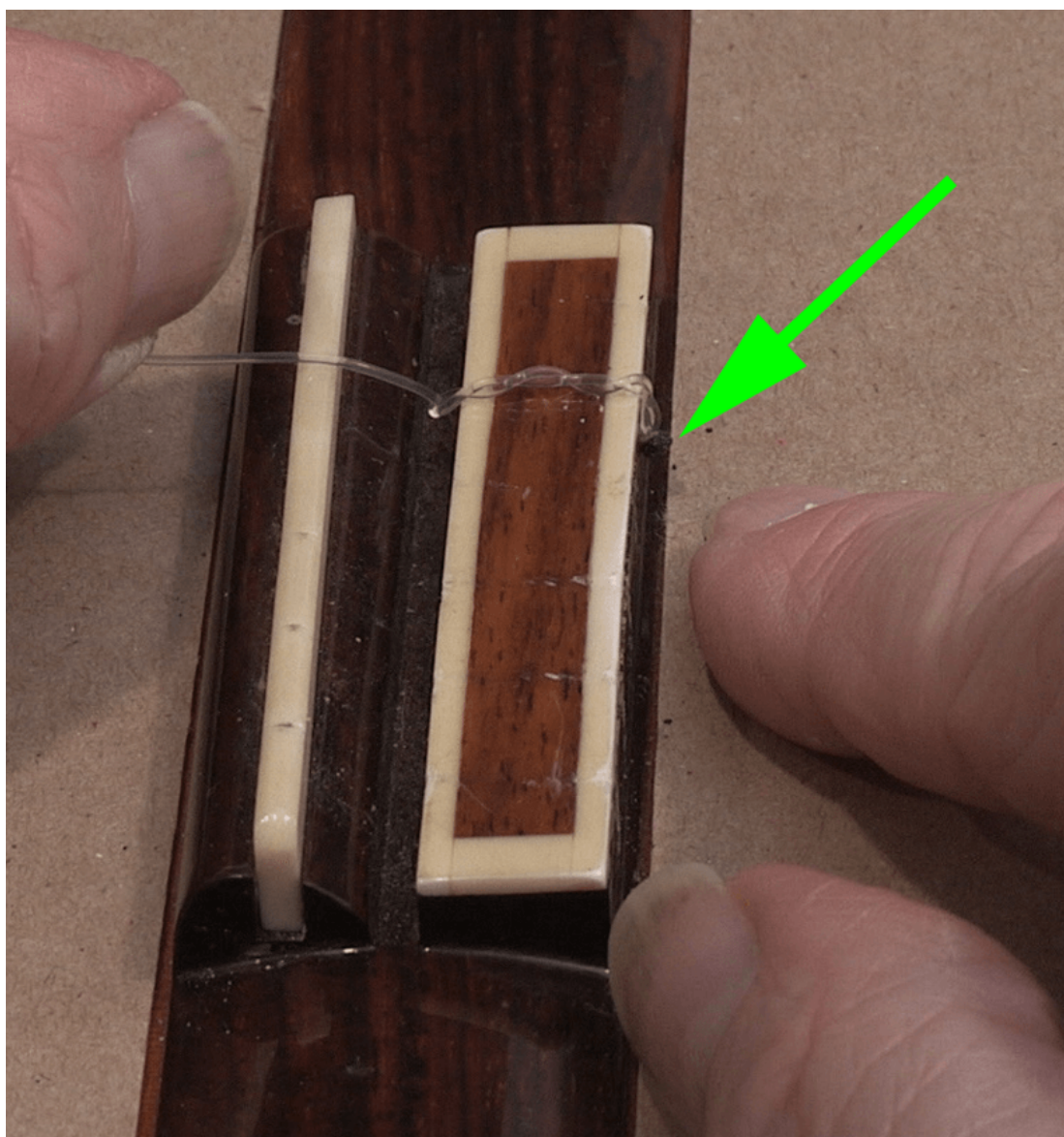
To tie the string knot on the bridge, grab the non-ball end (or the end with the colored tint). Pass it through the tie block hole from the base-of-the-body side of the bridge toward the soundhole.



Proceed to tie the knot as before.

Step #7:

After the final step, you are not going to cut off the tail that has the ball. Therefore, leave very little tail extending from the knot. We do not want the ball to touch the soundboard. If it touches the soundboard, it might rattle or buzz.



How to Tie a String to the String Roller (post, barrel, or capstan) on a Classical Guitar

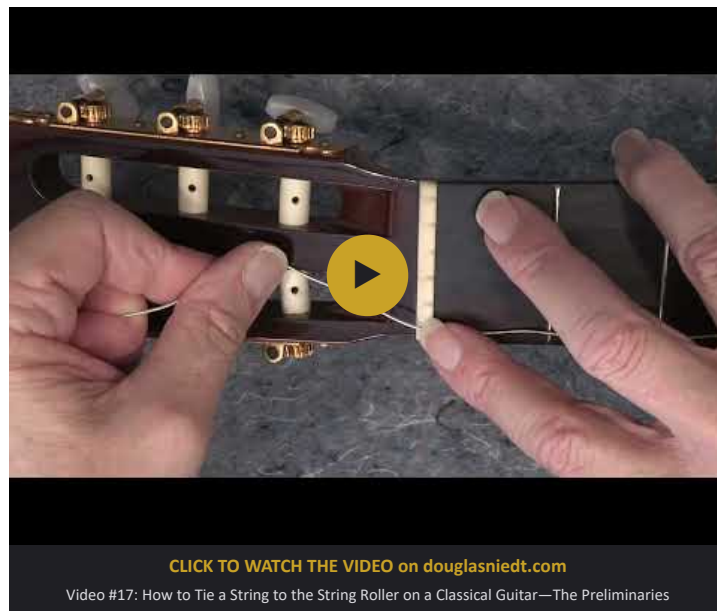
The Preliminaries: Before you begin tying the knot:

There are several initial steps to take before tying the string to the string roller (post, barrel, or capstan). These steps will make the process faster and more efficient. The final result will also look better.

Watch me demonstrate in Video #17.

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

**Video #17: How to Tie a String to the String Roller
on a Classical Guitar—The Preliminaries**



Step #1:

First, turn the tuning knob (also called the button or key) to position the roller holes.

Line them up like this:

- 6th and 1st strings: right hole slightly higher than the left hole
- 5th and 2nd strings: both holes level
- 4th and 3rd strings: left hole slightly higher than the right hole.



Step #2:

Bend the tip of the string to put a curve on it.



If you do this, when you pass the string through the string roller hole, the string will point upwards, and you can easily grab it to begin tying the knot.

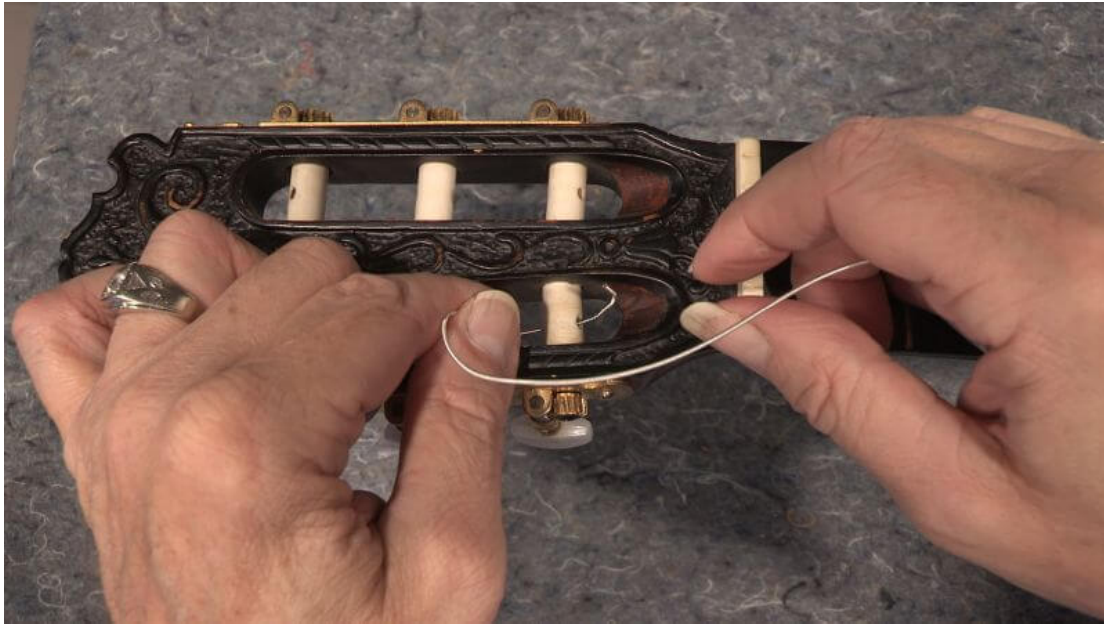


Otherwise, you may find yourself trying to fish out the string from under the roller.



Step #3:

Hold the long length of the string with your right hand. Hold the string near the tip with your left hand. Feed the string through the hole in the string roller from left to right.



Step #4:

Continue holding the tip of the string with your left hand but hold the long length of string with your right hand at the 12th fret. Pull up on the string with the right hand so that it is hovering 6-8 inches above the fretboard.



Step #5:

With the left hand, pull the string through the roller hole until you reduce the string slack to about 2-3 inches above the 12th fret.



The amount of slack will vary with the string and the scale length of your guitar.

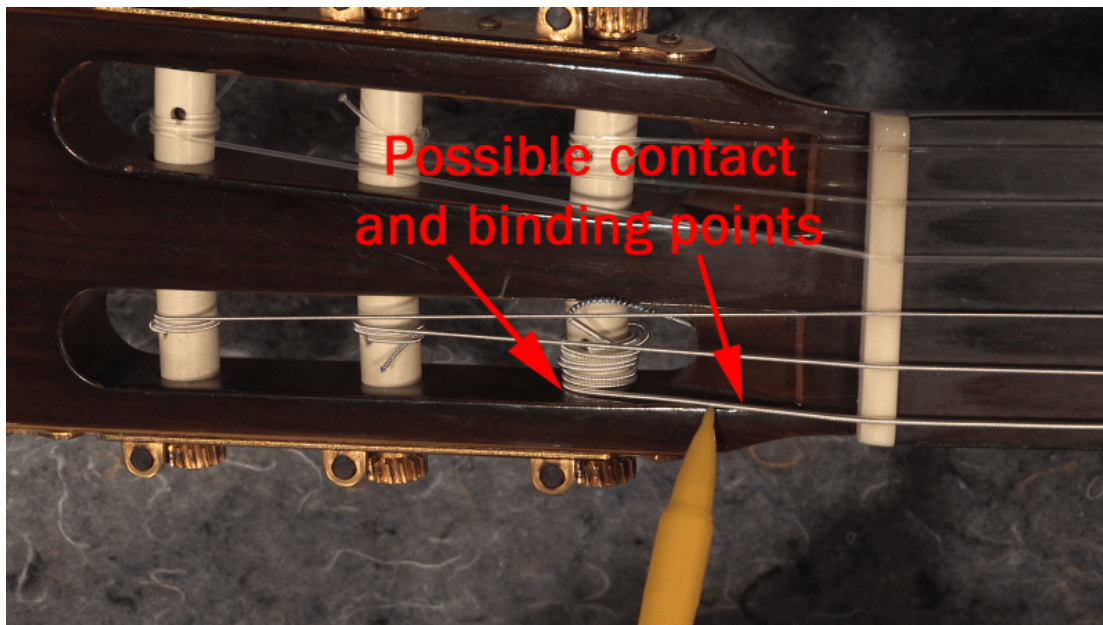
When you tighten the string, this amount of slack will allow the string to wind around the string roller 3 to 5 times, which will help the string grip the roller and avoid slippage. It will also look nice. We want this:



Not this:



Also, if you have too many windings, the string could bind against the wood of the peghead.

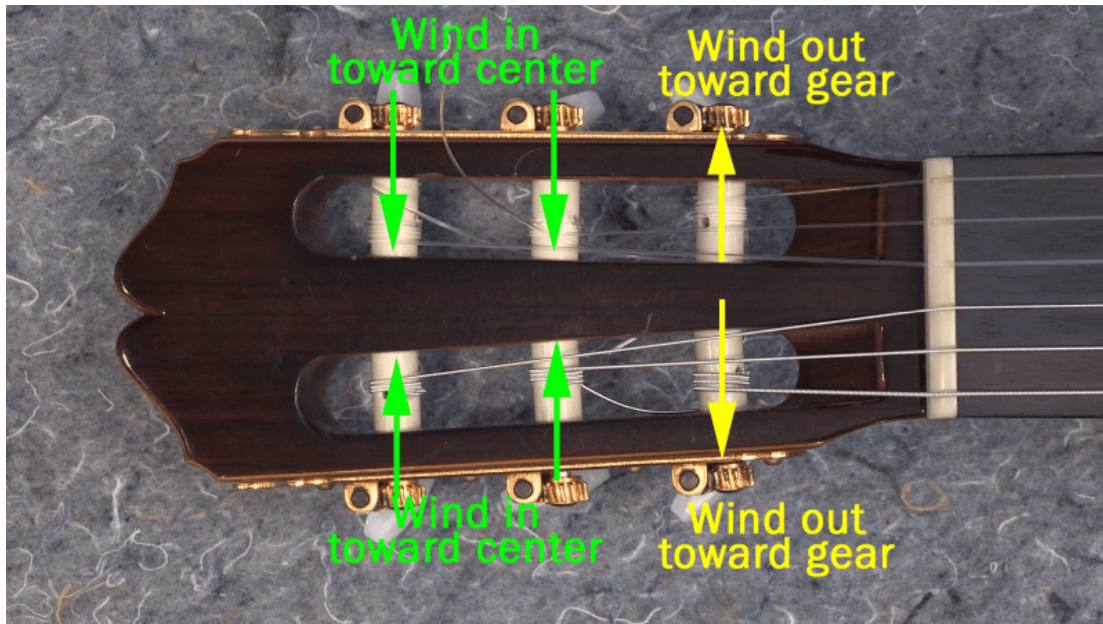


Just remember, the more slack you have in the string, the more times you will wind the string around the roller. And, looking ahead, the more windings you put around the roller, the longer it will take to unwind the string when the time comes to change it again.

Another viewpoint is that the strings should be wound as little as possible around the string roller to allow for better tuning. This school of thought says that the string stretches from where it is tied, not from the point from which it leaves the roller. Every unnecessary revolution around the roller will add up to its stretching length, making tuning more difficult. I have not experienced that, but you are welcome to test out the theory.

Step #6:

Before tying the knot, we need to decide which direction we want the windings to go on the string roller. Do we want the windings to go outward toward the gear on the machine head, or inwards towards the center of the headstock (away from the gear of the machine head)?



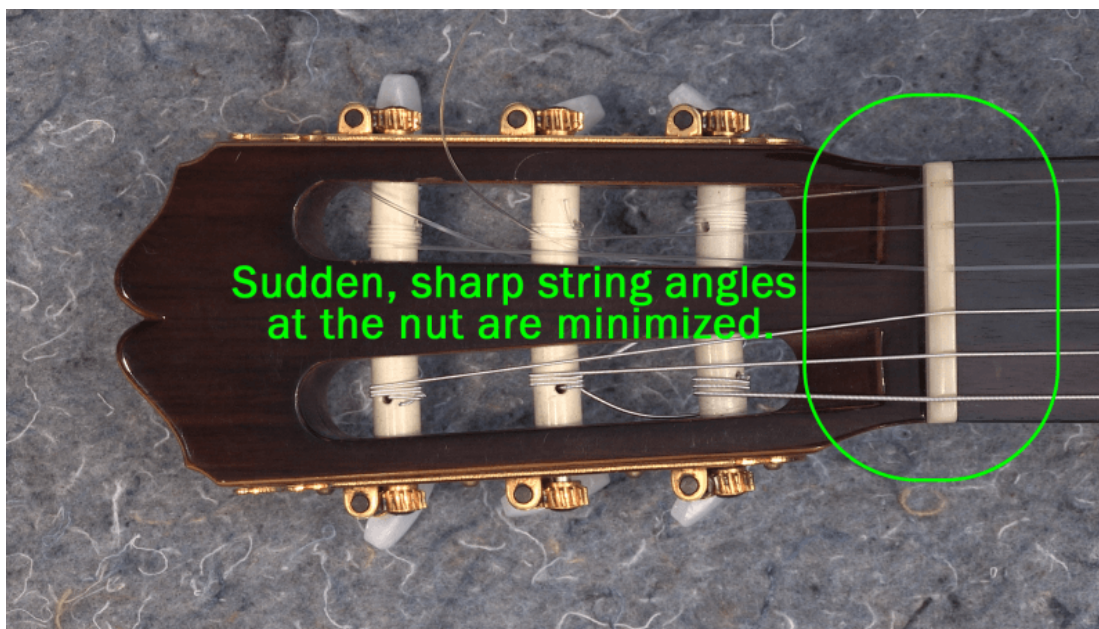
It is a good idea to keep the string path as straight as possible as it passes from the nut to the string roller.



Winding the string the wrong direction on the roller will create a sudden turn of the string path at the nut. A sharper angle causes wear on the nut, the string, and possible binding of the string.



Which direction you decide to wind the string around the roller will vary with the design of the headstock, the position of the hole in the roller, and personal preference as to appearance. I usually wind the 1st and 6th strings outward toward the tuning gears and the rest of the strings inward toward the center. On my guitars, this maintains the straightest path of the string from the fretboard to the roller.



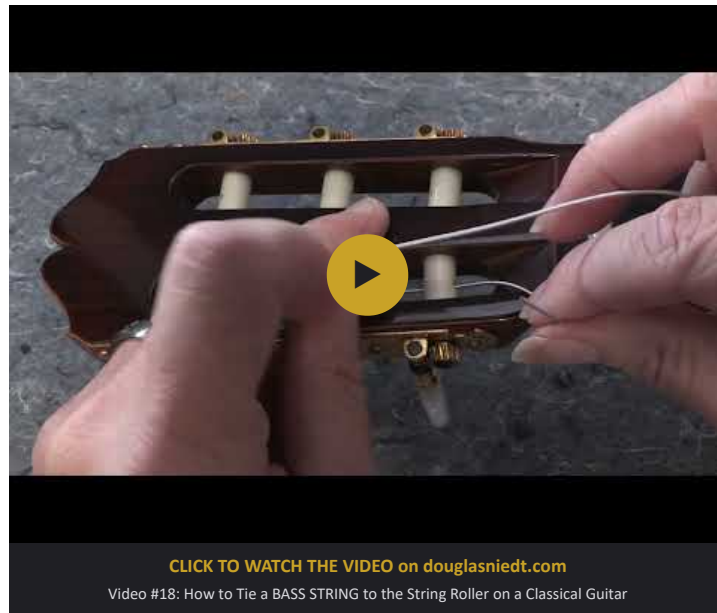
TYING THE KNOT

Now that you have done the preliminary steps, it is time to tie the strings to the string rollers. The procedure to tie the bass strings is a little different from the treble strings, so I have made separate videos for each procedure.

Watch me demonstrate how to tie a bass string to the string roller in Video #18.

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

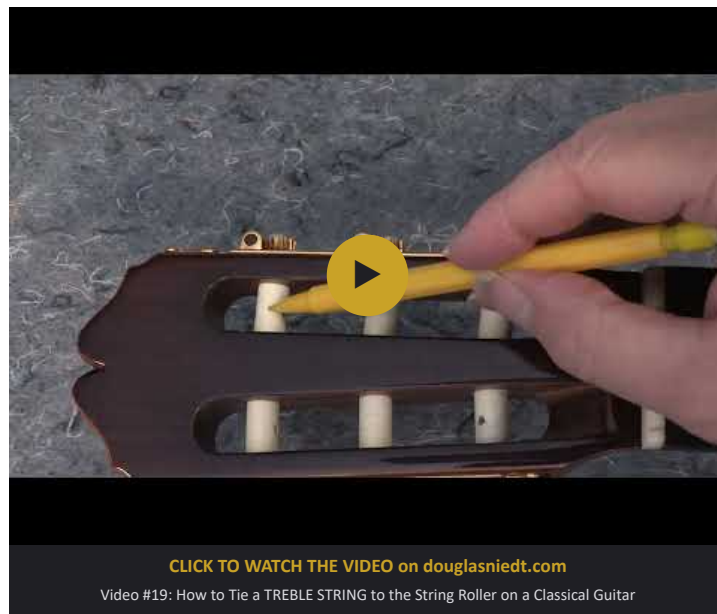
**Video #18: How to Tie a BASS STRING to the String Roller
on a Classical Guitar**



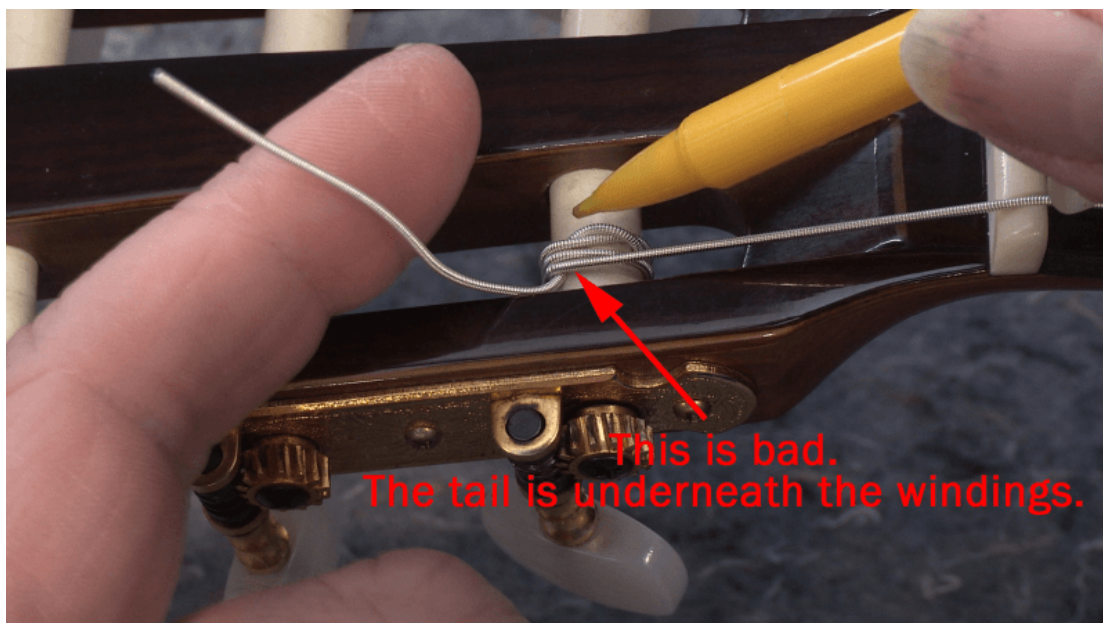
Now, I will show you the difference in how to tie a treble string to a string roller in Video #19.

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

Video #19: How to Tie a TREBLE STRING to the String Roller on a Classical Guitar



When you wind the string on the string roller, we do not want to wind over the loose end of the string (the tail) that will be sticking out from the knot.



Instead, we want to keep the tail off to the side.



Some guitarists say that winding over the tail will help keep the string from slipping. That is true, but over time, especially on the wound bass strings, the tail can also cut through the portion of string on top of it, causing it to break.

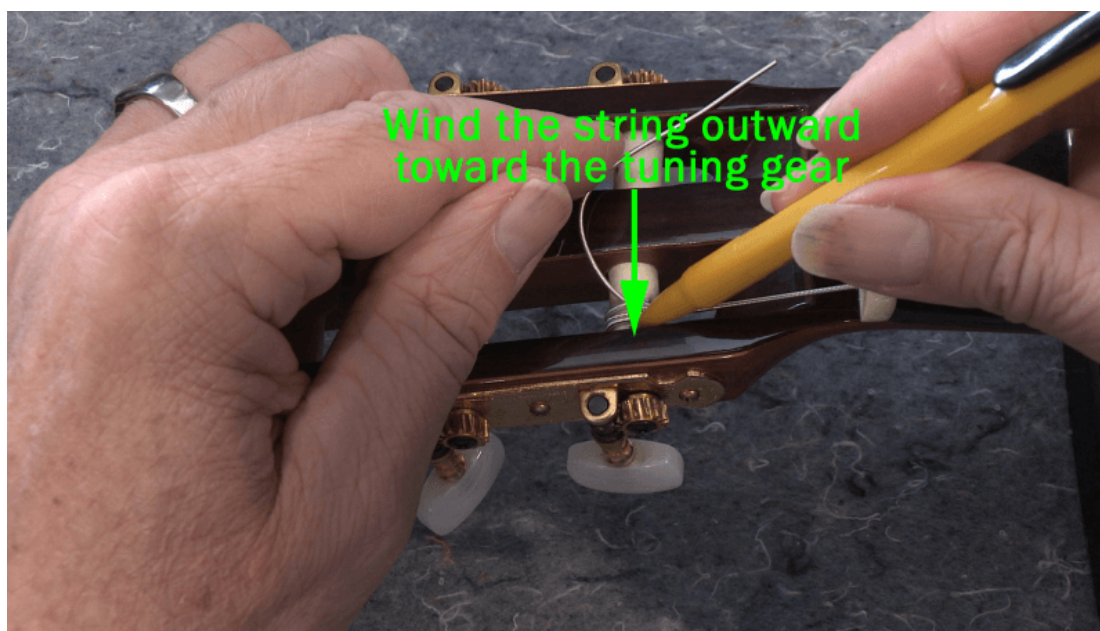


Besides, if you tie the knot correctly, it will not slip.

To avoid winding over a tail, decide which direction you intend to wind the string and follow the instructions for "A" or "B" below.

OPTION A:

A. If you intend to wind the string outward toward the tuning gear (as I do on the 1st and 6th strings):



Do this:

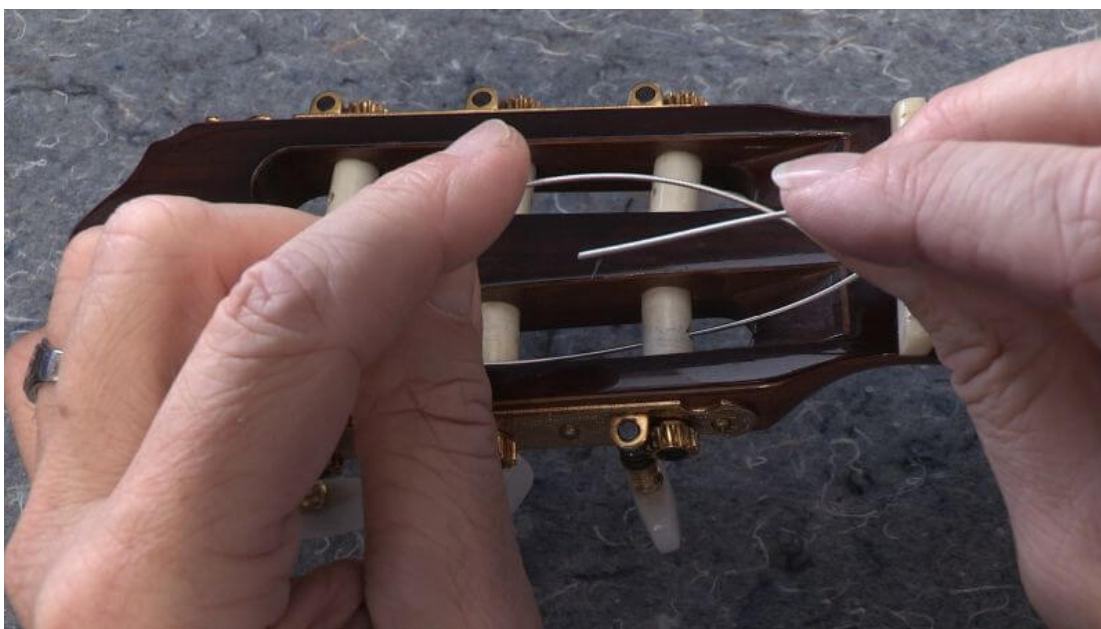
Step #1:

After fishing the tip of the string through the hole of the string roller from left to right, and setting the amount of string slack you desire, hold the tip on the inner side (the side near the center of the headstock) of the long length of string.



Step #2:

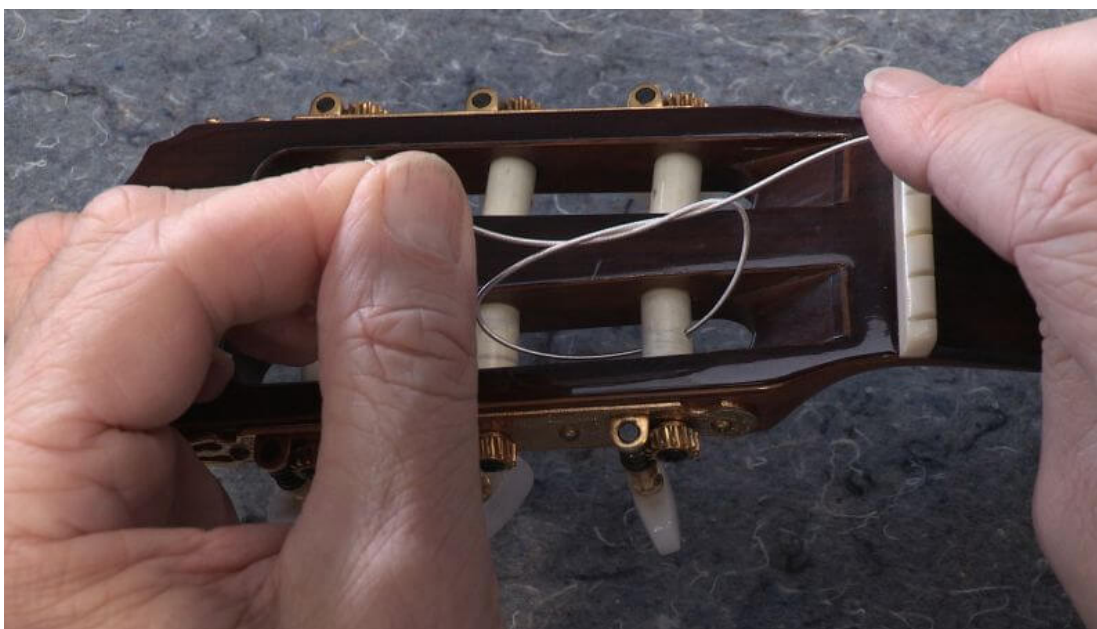
Pass the tip of the string over the long length of string to make a loop.



Pass the tip of the string through the loop once to make the knot.



It will look like this:



For the treble strings, especially the 1st and 2nd strings, go through the loop twice. It will look like this:



Step #3:

Hold the long length of string firmly with the right hand resting immobile on the fretboard, close to the nut, and pull the knot tight with the left hand.

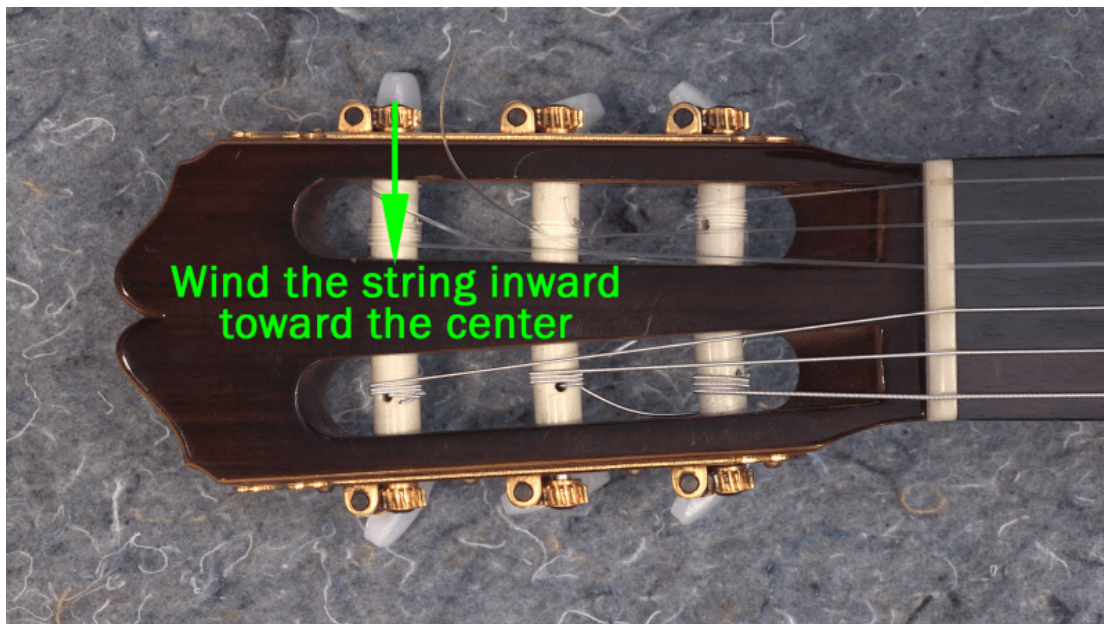


Step #4:

Finally, pull firmly with both hands to set the knot.

OPTION B:

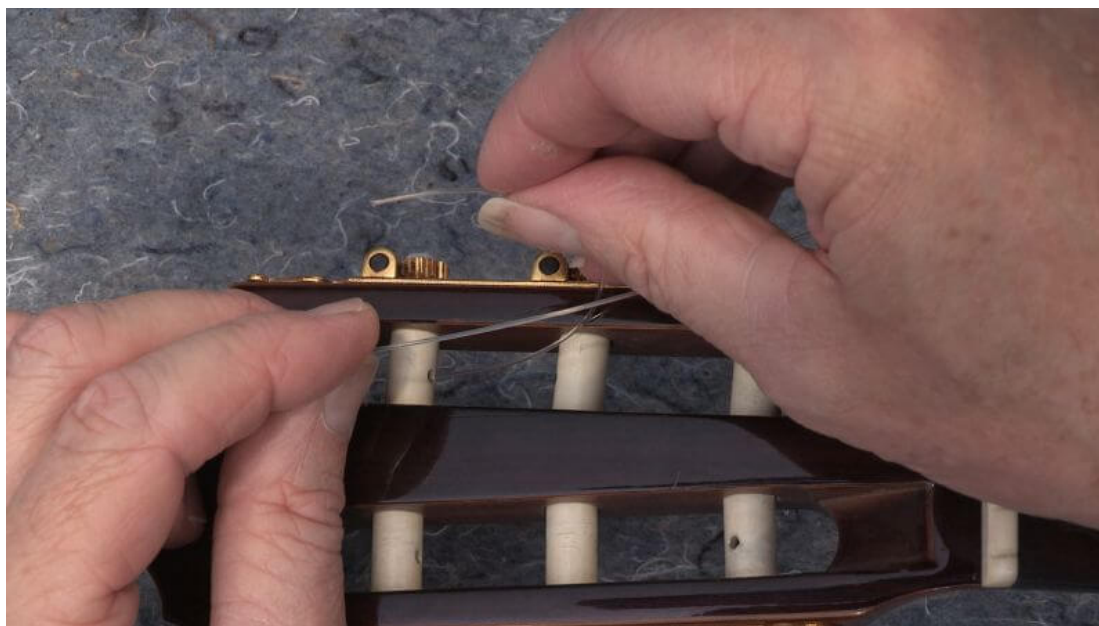
B. If you intend to wind the string inward toward the center of the headstock (away from the tuning gear):



Do this:

Step #1:

After fishing the tip of the string through the hole of the string roller from left to right, and setting the amount of string slack you desire, hold the tip on the outer side (the tuning gear side) of the long length of string.



Step #2:

Pass the tip of the string over the long length of string to make a loop.



Then pass the tip under the long length of the string and through the loop once to make the knot.



For the treble strings, especially the 1st and 2nd strings, go through the loop twice. It will look like this:



Step #3:

Hold the long length of string firmly with the right hand resting immobile on the fretboard, close to the nut, and pull the knot tight with the left hand.



Step #4:

Finally, pull firmly with both hands to set the knot.

There are several other methods of attaching the strings to the roller heads. However, they all have faults:

- A. The tie or knot does not lock immediately into place before tightening the string. If the string does not lock, it can come undone or need additional adjustment as you begin to tighten the string. That is inconvenient.
- B. As you bring them to pitch, the strings do not hold as well. Sometimes they slip an inch or two before the tie takes hold. It can be a little alarming when this happens.
- C. They do not look as clean and neat.
- D. They require much more hand-finger dexterity and are best suited to people with three hands to tie them.

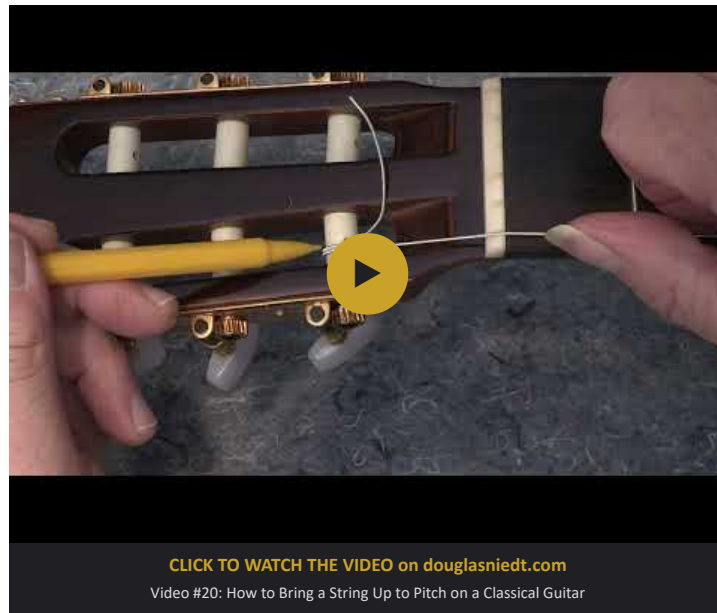
Does that mean other methods of securing the strings to the roller are terrible? No. Under normal playing conditions, they may work fine. But the bottom line is I know that the method I showed you will not fail. As a pro, I want to go with the sure thing.

How to bring a string up to pitch

There is a heck of a lot more to bringing a string up to pitch than just spinning the tuning knob, button, or key with a string winder. Watch Video #20 to learn some essential details.

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

Video #20: How to Bring a String Up to Pitch on a Classical Guitar



As you tighten the string with your left hand, hold it with your right hand to maintain constant tension on both the bridge knot and the string roller knot.



Make sure you turn the tuning knob in the correct direction so that the string winds over, not under the string roller.

Keep the windings tight against each other

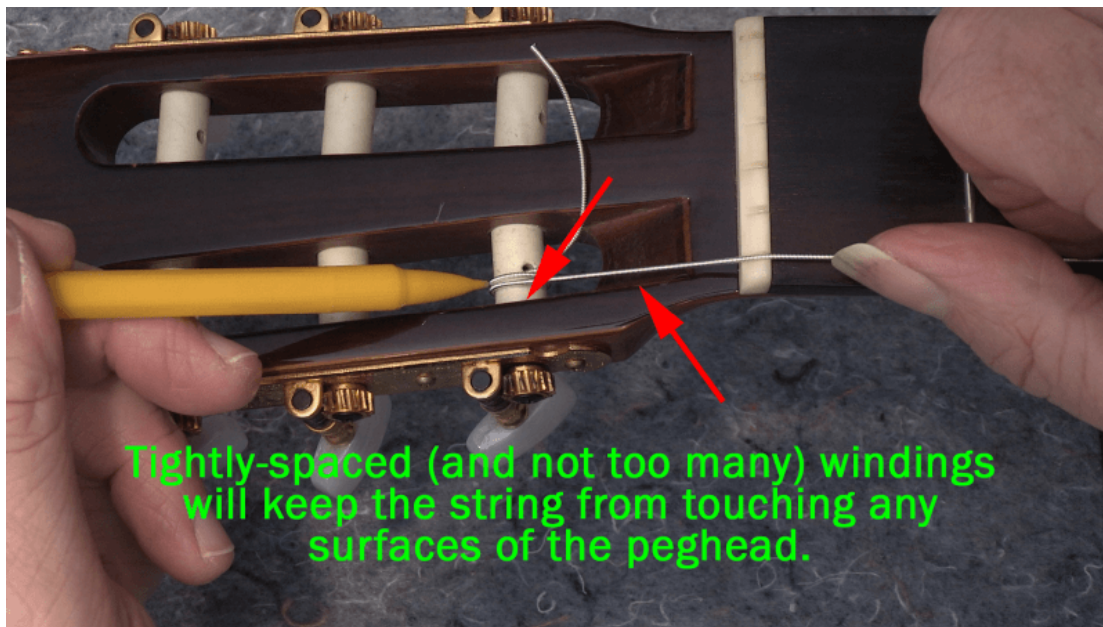
As you wind the string around the string roller, be sure the windings are tight, right up against one another like this.



Not like this:



If the windings are tight, the string is less likely to slip. Tight windings will also keep the string from touching the surface of the peghead.



Not only might the string rub on the finish, but it may produce noises from sympathetic vibrations when you pluck certain pitches. And, it looks messy if there is space between the windings.

For the professional, the guitar will look better in a photo or video shoot if the strings are correctly wound.



Check the knot at the bridge

Wind the string until the slack is gone, and then set it in place in the groove of the nut. Check the knot at the bridge to be sure it is still tight and locked. Do not cut off the extra string length. You will do that later.

Be sure the string is seated correctly on the bridge saddle

The bridge saddle rests in a slot on the bridge. It is the white piece of plastic or bone that all six strings pass over. On older guitars, it is common for each bass string to wear a very shallow groove at the point where it contacts the saddle.



Be sure each bass string is seated in that groove as you bring the string up to pitch. Otherwise, you will have irregular spacing between the strings.

Do not bring the strings immediately up to pitch!

As I mentioned before, many guitarists will go ahead and bring the string immediately up to pitch. You can certainly do that if you wish. But remember, you risk ruining the string.

If you skipped over it before, watch this video on how to ruin a new string. Video #4.

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

Video #4-How to Ruin a String



I prefer to bring it up to pitch very gradually. As I proceed to change the other strings, I give the tuning knob 3-4 turns every 3-5 minutes. Loosen a string, tighten the other strings a few turns. Undo a knot, tighten the other strings a few turns. Tie a knot, tighten the other strings a few turns.

Over the next hour or so, I bring the strings slowly and carefully up to pitch, again, giving the tuning knobs no more than 3-4 turns every 3-5 minutes. I cannot prove it, but I believe this process helps ensure that the strings stretch evenly so that the string gauge remains perfectly even along the length of the string. That means perfect intonation.

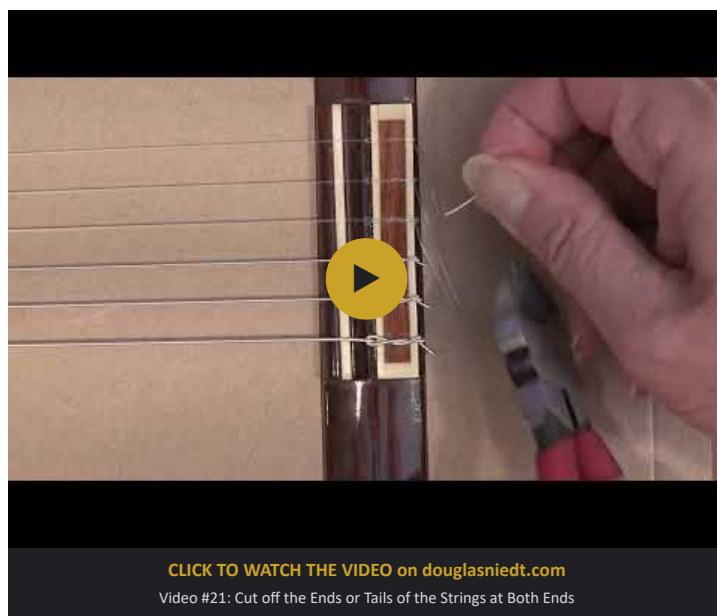
Cut off the ends or tails of the strings at both ends

It is essential to clip off the extra tails of the strings at the tie block and the peghead. Loose ends will vibrate against the wood, producing rattles and buzzes. It also looks much better if you cut them off. I usually wait until the next day to clip off the tails. You can use wire cutters or even nail clippers to clip them. Clip the tails at the bridge so that the tips are not contacting the top of the guitar.

Watch Video #21 as I demonstrate the procedure to cut off the tails. **Note: no puppies were harmed in the filming of this video.**

★ BE SURE TO WATCH ON FULL SCREEN. Click on the icon with the arrows at the bottom on the far right:

Video #21: Cut off the Ends or Tails of the Strings at Both Ends



How do I cope with keeping new strings in tune?

I must emphasize again, do NOT tug on the middle of the strings to help them "settle in." There is a good chance the string will stretch unevenly, and you will ruin it.

My routine is to begin changing the strings a few hours before bedtime. Then, I take an hour to bring them up to their approximate final pitch. They will stretch overnight. The first thing next morning, I bring them SLOWLY back up to pitch. Then, I retune them every half hour or so until I am ready to begin playing. For the casual player, tune them before and after every meal, before you go to work and after you return, and before bedtime.

But make no mistake. You will have to keep tuning—a lot. But that is a good thing. Fresh strings are very "dynamic." They are "alive" with a beautiful tone. The longer they are on the guitar, the less they stretch—and the easier they are to keep in tune. But as they stretch less and less, they are also losing the dynamic qualities that make them sound so good and alive when they are new. It is amusing to me that for these reasons, for a professional, a guitar needs to be restrung when it begins to stay in tune!

For pros doing nightly back-to-back evening performances, change them immediately after a performance. Again, bring them up to their approximate final pitch before going to bed. The next day, you have the entire day to keep bringing them up to pitch. They will hold their tuning very well for the evening performance.

If you are not a pro but have a gig coming up, you can use the same general strategy, but change the strings two to three days before the gig. How many days ahead of time will vary with your comfort zone with tuning and available time to keep retuning the strings so that they stabilize. This approach will allow them to settle in, yet they will still sound fresh for your gig.