

Bowed string instruments and how to care for them

The bow

Let's take a good look at the cello bow and identify its main parts. Traditionally the sticks of bows have always been made of Pernambuco – a hard but very resonant tropical wood. The increasing scarcity of such woods has led bow makers to seek out alternative, cheaper materials, notably carbon fiber. Since synthetic materials are not affected by temperature and humidity like wood is, they are potentially more stable. But the difference in the way they feel and react to the instrument means that they are not liked by all players. Mother of pearl is traditionally used to decorate the frog of fine bows; silver tips are functional as well as decorative since they add weight. Whatever the materials used for their manufacture, the same basic rules of care apply:

Always loosen your bow when you put it back into its case after playing. Keeping tension on the bow will age both the hair and the stick. A fine bow can last a century or more, but releasing the tension when not in use is essential. Avoid touching the bow hair with your hands as grease from your fingers will attract dirt and stop the rosin from sticking to the bow hair.

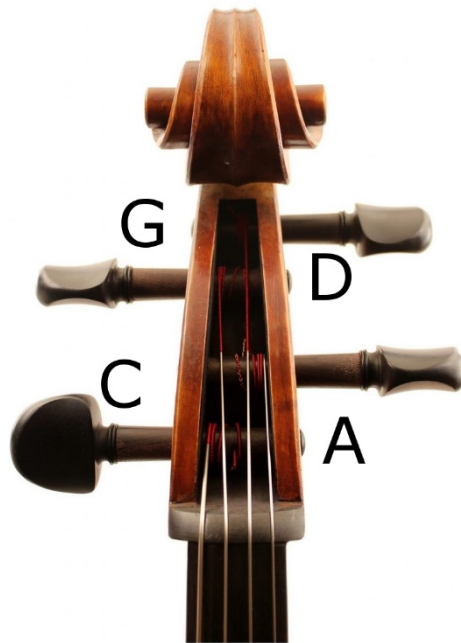
How tight the bow should be is partly a matter of personal taste, but the main principles are that the bow should not be so loose that you are playing on the wood when applying full weight in the middle, but you also need to respect the natural curve of the stick.

Bow hair (from the male horse) does wear out, sometimes in a matter of a few months for busy cellists. Good, fresh hair with an even coating of rosin will completely transform the sound of your cello. Allow time for your re-hair to play in. Fresh bow hair will not hold rosin properly at first and can sound very rough. Apply a balanced loading of rosin and prepare to spend an hour playing it in, though fifteen minutes of *fortissimo* open strings is usually enough to clear the worst of the roughness from a new re-hair. Note that bow specialists do rehairs, this is not usually done by instruments makers or repairers.

Some cellists get a leather flap fitted to the thumb grip to protect their thumb from the sharp edge of the frog. Others put a section of rubber tubing over the stick to increase comfort and cushion the thumb.

Use rosin regularly but moderately. Apply it *Adagio* and *Forte* – sliding the rosin up and down quickly will not allow the rosin to penetrate into the hairs of the bow and creates unnecessary dust. Too much rosin produces a rough, gritty sound and makes smooth bow changes difficult. Too little rosin makes it difficult to play into the string and use bouncing strokes, and good staccato, where a “biting” articulation at the start of the notes is required, becomes impossible. Clean your bow stick with a dry duster to remove rosin dust, which will otherwise build up on your bow.

Changing strings



Played-out strings do not project well. Replacing strings regularly is important because they are at their most powerful and pliant when new. This means once a year for students in their early stages, once every six months for advanced students. Some strings may tail off in tone quite quickly, while others may last for a long time. Different strings also take varying times to play in. If you are on a tight budget, consider replacing upper strings more frequently than lower. Some

players find it helpful to change just one or two strings at a time, to avoid a feeling of disorientation and to help check that no new string is defective. You can see that a string is in urgent need of replacing because the winding is starting to break away or split, typically near the nut or where it passes over the bridge. When rosin accumulates too thickly on the strings, wipe off using a clean cloth dabbed in a little alcohol.

To replace a string, lie the cello flat on its back on a soft surface so you can use both your hands. Fit the ball end of the string into the tailpiece or adjuster. Taking care not to twist the string, thread the string into the peg hole, allowing just a few millimeters of the tail end to emerge beyond the peg. Wind the string evenly until the string is tight enough to tune. The string should end up next to, but not squashed against, the inside of the peg box. Before tightening the strings completely, and as you tighten them, keep an eye on the bridge, making sure it is straight. Take care not to tune the string higher than its intended pitch as this can damage the string. It is a good idea to lubricate the string grooves on the bridge, on the nut as well as the micro-tuning screws with a graphite pencil whenever you change strings. Good pegs will turn easily without slipping or sticking. If the peg is really sticking, so much that it's hard to turn, take a regular bar of soap and apply a little to the peg, wiping off with a paper towel or clean cloth before reinserting into the peg box. Products also exist to stiffen the pegs if needed.

If you are replacing all of the strings, do so *one at a time*, never remove all of the strings at once: remember that the sound post is only held in place by friction, so can fall if you remove all the strings. If the sound post does fall down, slacken off all of the strings immediately since the unsupported front may crack or distort when under tension.

String types and prices

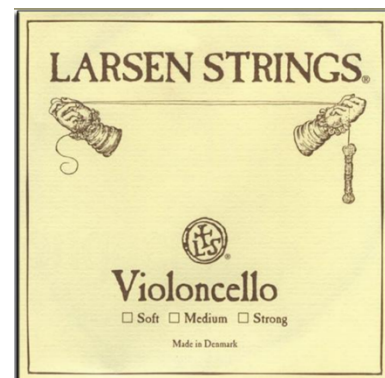
Cello strings typically cost about three times as much as violin strings. Make sure you buy the right size for your cello (4/4 size, i.e. full size; 3/4; 1/2; 1/4; 1/8). Medium gauge should suit most players.

Red Label is a very cheap brand of string, made in the U.S.A, and suitable for beginners up to intermediate players. A full set on sale over the internet, for example though Shar Music, will cost about \$65.



Jargar strings are suitable for more advanced students (e.g. serious, high-school level players or university undergraduates), and are made in Denmark. A full set on sale over the internet, for example though Shar Music, will cost about \$145.

Performance majors at university/conservatory or professionals will want to invest in top-quality European brands like Larsen (Denmark) or Thomastik Spirocore (Austria). A full set of this type of string on sale over the internet, for example though cello-strings.com, will cost about \$400.



Temperature and humidity

As common sense dictates, extreme temperatures are bad for a musical instrument: if you are too hot or cold, your cello probably is too. However, in the winter months especially, it is the *dryness* of the air that can cause seams to open, old cracks to open up, and in extreme cases, varnish can crackle and new cracks may even appear. Similar situations can occur with high levels of air conditioning, or in parts of the world that are naturally very dry. Openings of seams and cracks will affect the sound and eventually threaten the structural integrity of your

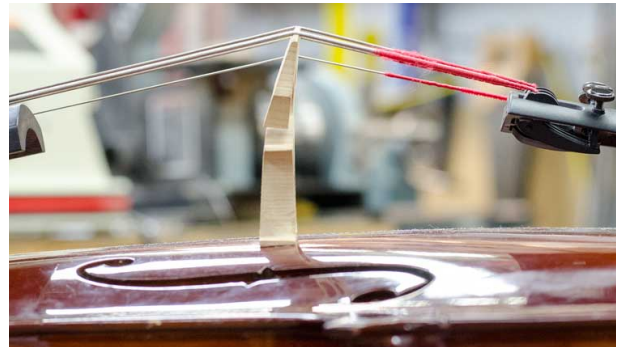
instrument. Cracks will also lower its value, especially if on the table. The best humidity level for a string instrument is between 40% and 60%. Keep a hygrometer in the room where your instrument is kept to monitor this. Below 30% humidity can be considered the danger zone.



A Dampit (or two) placed inside the cello through the F-holes will help combat dryness, but it must be kept damp and checked daily (remember to wipe off the Dampit after moistening, water damage is serious too). By using a moistened Dampit, with the cello kept in its case, you are effectively creating a healthy microclimate for your instrument. The ideal situation though is to have a cold-air humidifier in the room where the instrument is kept so you are controlling the whole environment. A warm-air humidifier is much cheaper but less efficient.

Bridge care

Depending on how you tune your cello, the bridge will get dragged towards the pegs or the adjusters as the strings slide over their grooves. If the bridge does not sit evenly on its feet, there will be an immediate change in the response of the cello and the bridge may begin to warp (an extreme case can be seen here). Straighten the

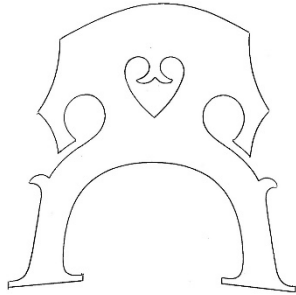


bridge if necessary: lie the cello flat on its back, release the tension of the strings slightly, firmly grip the bridge with your fingers and thumbs just beneath the strings to straighten. Lubricate the string grooves at the bridge and the nut by rubbing pencil lead whenever you change a string.

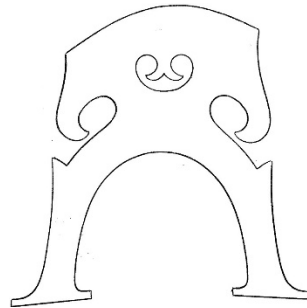
There are essentially two kinds of bridge on a cello: Belgian and French. Many professionals opt for the Belgian bridge since it gives more power thanks to the higher arch, but some prefer the

warmer tone of the French bridge. The choice of bridge will have no effect on the string clearances, string spacing, bowing curve or the string tension on the cello. Their shape can easily identify them:

French:



Belgian:



The instrument case

The ideal cello case has a strong outer shell and internal padding, which fits the cello snugly and will cushion and restrain the cello if the case is bumped or falls over. Always lie your cello on its side across the floor, whether inside its case or out. Retract the endpin so no one can trip over it. Cello cases are unstable when left standing and cello necks can easily get broken inside closed cases if they fall over. Soft cases, although far cheaper and lighter than hard ones, give minimal protection from bumps and the elements.

String height

On average, the low edge of your A string should sit 6 to 6.5 mm from the end of the fingerboard, and the low edge of your C string should sit at 8.5mm above the end of the fingerboard. This is somewhat personal, but the advanced or professional cellist will not want the strings to be set below these levels or the strings will rattle against the fingerboard when played with maximum power. If the strings are too high, the left hand will get over tired, possibly leading to injury.

We discussed the dangers of dryness for a string instrument. Humidity also affects string height – especially for cellos and basses, since they are larger and so changes are more noticeable. Specifically, as the air dries, the table and the neck contract. The peg box may contract too, causing the pegs to get stuck. This contraction of the instrument causes the strings to sink down towards the fingerboard and eventually the instrument can become unplayable due to the rattling of the strings against it. Maintain a healthy humidity level by using a Dampit or humidifier, although in extreme climates, such as in some parts of North America, some professionals will even have two bridges – one for the winter, one for the summer. A bridge needs to be carved precisely to fit each cello. A new bridge will cost in the region of \$300 to make and fit.

Important accessories for the cellist

- Rosin
- Tuner – ideally an app which can also create drones to help intonation practice
- Metronome (or app)
- Pencil and eraser
- Soft cloth for cleaning
- Rockstop or endpin anchor *

* It is not acceptable to make holes in the floor wherever you go, which apart from creating unsightly damage, can cause great expense to concert halls and institutions. In addition, YouTube is full of fine performances ruined by cellists' slipping endpins! The round rubber type is much less reliable than the strap design, which attaches to the cello leg and so cannot slip:

