

Do instruments harm their players?

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An immediate answer to that question is often Yes, and especially so for many of our orchestral instruments. Sometimes it is simply the weight of the instruments. Timpani are heavy things to heave around, from home to car, from car to hall and to platform up on to risers, and in theatres down into the pit. Harps, too, are heavy and equally difficult to move around; what is more, they are inherently unstable and can easily fall. Tubas are hefty to heave up off the floor on to the knees, and cramping to the legs if you keep them on the knees all the time, and tiring to carry and play in marching bands. Bass drum players on the march suffer from perpetual back strain. Results are back pains, slipped discs, and a variety of other ailments, including strained ligaments, tripping on steps, and damage to the instruments. In contrast, piccolos are light, but so small and the keys so close together that they are cramping to the fingers and to the wrists whilst you play them, resulting sometimes in repetitive strain injuries. But on the other hand, players of the normal flute were often described as wry-necked because either the arms, especially the left arm, are stretched out too far or the head is painfully twisted to the left to reach the embouchure comfortably. And alto and bass flutes make the arm stretch even worse, and are heavy to hold, even if the flute's head is bent back 180 degrees to make it more accessible.

Even heavier instruments are tower bells, and a bell falling from its place in the tower can slaughter anyone below it – even a clapper falling from its fixing, as very recently happened in Britain, can maim the ringer below it. And as for the bell ropes that our change ringers pull, we have many stories of novice or careless ringers being caught up and swung to the ceiling with resulting falls, sprains, and even hangings. To go up into the bell chamber as the bells are rung can lead to insanity or death, as in a well-known detective story by Dorothy Sayers. Ringers, even when separated from the bells by a solid floor, sometimes suffer from hearing loss and have been known to wear earplugs or pads. This is

common also in other cultures with ringers who sit among their bells, chiming them with trackers, as in Russia and South America, and to some extent with carilloneurs.

Oboists, and to a slightly lesser extent bassoonists, use very fragile reeds and are perpetually trying to fold and scrape a good one and, when they succeed, are incessantly worrying how long it will last, almost leading to nervous breakdowns. They sometimes suffer, too, from high-pressure problems and also from too much stale air in the lungs. There is often no time to expel all the air while hastily breathing in a new supply. Clarinetists have somewhat less worries about the reed, and breathe more freely for both mouthpiece and bore are wider and less restrictive, but they seem to suffer more from tooth problems and also from getting sore patches on the lower lip, between the teeth and the mouthpiece. All brass players, too, worry about their teeth – losing or breaking a front tooth can ruin the embouchure and lead to ending a career.

Breathing and breath-control can be a problem for all wind players, as can the postures necessary for good control, and neophytes, particularly on brass instruments, can suffer dizziness from breathing in too much air. Even experienced players, especially those of high pressure instruments such as the oboists mentioned above, shawm players, and bagpipers, are liable to this. String players suffer from this more rarely, but some are prone to holding a breath or breathing too deeply with a phrase, and can therefore be affected. A gadget, the aerophore, was invented in the late nineteenth century, with a pedal bellows and a tube to the mouth, to solve some breathing problems, but it led to sores in the mouth and had to be abandoned.

Violinists and viola players always acquire a callus on their neck that can become painful and sore due to gripping the violin under the chin (baroque players could be spared this, if they were willing to support the instrument in more traditional styles, but many do grip with the chin in a more modern manner). Viola players, more than violinists, suffer from arm strain, especially if their instrument is a large one – one that I knew, who played a tenor size, told me that he spent a fortune on osteopaths. And while a double bass or even a cello is lighter than a tuba, it is still a strain to carry it to and fro from home to gig, even

though their playing posture is more natural. Most string players, both bowed and plucked, also acquire hardened skin on the left-hand finger tips, and even grooves on that skin, from the continual pressure on the strings to stop them against the fingerboard. This can be exacerbated by steel strings and with any roughness on covered strings.

Almost all players suffer physical strains while playing their instruments (hence the popularity among musicians of relaxation exercise such as the Alexander Technique), because most instruments require some contortion of the body or arms in order to hold them, often for considerable lengths of time, in the proper position to play them correctly.

At least in legend or myth, one eighteenth-century instrument was reputed to send its players mad. This was the musical glasses and its more refined successor, the glass harmonica. It was said that it was the continual friction against the tips of the fingers that caused the problem. An alternative theory is that the high lead content of glass-ware at that period was the cause, but when one considers the amount of wine held in glass bottles, and drunk from glass goblets in those days of the 'three-bottle man', lead would surely have affected them even more, and while we have records of drunken rashness, we have little for insanity.

Hearing loss is a more modern problem, especially for those sitting in front of the heavy brass and the percussion, and while there is a growing tendency towards ear-plugs, this can cause performance problems when a player has to listen to another player, as we all constantly have to do, and also from properly appreciating their own tone quality, especially if the ear-plugs have a capacity to reduce the higher frequencies. Any resulting deafness affects the higher frequencies, and it is these frequencies that create tone colour, and therefore loss of perception of these frequencies means that you cannot hear your own tone colour properly. Pop groups not only risk severe hearing loss for themselves, but they also inflict it on their audience, so that many lovers of such music also become deaf at an early age.

Guitarists and vibraphone players are constantly at risk of electrocution, with cables getting trodden on and breaking up their insulation as they snake

across the studio floor and the concert platform. Presumably this must apply also to the numerous electronic keyboard players as well, though one does not hear so much about them, but any instrument can become 'live' if insulation breaks down.

Pianos, too, can be dangerous instruments. Uprights, especially the older high uprights, could tip and fall on their players. Even something as solid as a grand can snap one of its legs, massive as those appear to be, and has been known to fall and crush a player. And as for having to move one, accidents can easily happen, especially when stairs are involved and even more when trying to manoeuvre one through a window with a crane. Even playing the thing, especially if one overdoes it as Robert Schumann did, can cause hand injuries or bleeding finger tips, and at the very least cause our old friend repetitive strain injury (from which so many of us writers also suffer) and tendon problems.

It is not only the players who can be harmed by their instruments, for those who tune, maintain, and repair them can also suffer. A piano string breaking and whipping back on the tuner can lead to serious harm, as can the presence of noxious substances in badly maintained casework. Bending over the piano for long hours to tune it and adjust the mechanism can cause back problems. Organ tuners face even greater dangers, both from corroding lead-alloy pipework, the presence of rodents and insects and their faeces, and from the dangers of working high in the casework and falling due to worm-ridden or insecurely fastened ladders, planks, and walkways. Many instrument makers have suffered poisoning from the sawdust of some tropical hardwoods, and some musicians have also had to change instruments because they were allergic to a particular wood. Even modern metals can cause problems; I had one trombone pupil who turned a silver-plated mouthpiece jet black in a fortnight; some allergen must have been involved, but fortunately gold-plated mouthpieces were available and that solved that particular problem. Non-plated (i.e. plain brass) mouthpieces are notorious for lip-sores, and any mouthpiece used outdoors by marching bands in winter can severely damage the lip, leading to several weeks of suspension while the skin heals. Hence the adoption, today, of silicone rims, and in earlier times of the numerous patents for rubber rims, and the use of materials other than metals for mouthpieces. Wood was a common mouthpiece material

for alphorns, and wood, horn, and ivory common for serpents and other instruments.

Individual instruments can sometimes bite their players, just as a dog can sometimes turn on its owner. Moulds and spores can grow inside an instrument unless it is regularly cleaned, or even within a case that has not been opened for a while, and these can cause lethal damage to health. Bagpipes are a notorious problem here, for bags are seldom cleaned out and almost anything can grow in them (a dram of whisky poured into the bag has often been recommended). The bags are normally of animal skin, and while new skins from reputable dealers may well be safe, imported skins may be infected by anthrax, a normally fatal disease. This is a greater risk for makers of African and other native drums (and animal horns) but it can cause problems anywhere.

Such problems are also common worldwide in musics of all types and ethnicities. Here playing postures may be the most serious problems, particularly as players get older and joints stiffen up. I used to be able to sit cross-legged on the floor to play in a Javanese gamelan but I am no longer able to do this. While this may be a chair-born elderly European's difficulty, I would assume that it could also be a problem for locals too, as they age. Looking around the world, one would say that most musicians sit on the floor, with a minority standing to play, and some sitting on chairs as they emulate a 'Western' concert-platform posture.

Most worldwide bowed-string players hold their instruments *a gamba* rather than *a braccio*, and this can ease some arm strain and avoids the neck callus, but stopping strings can still damage the fingertips or even the nails if the strings are stopped from the side. Sitar and vina players continually harden the fingers as they play, often dipping them into a paste, to avoid cutting the fingers as they pull on the steel strings to deflect the pitch.

Woodwind instruments may also cause difficulties, for without the keywork of 'Western' instruments, the finger-stretch to cover widely spaced fingerholes can be a distinct problem.

Percussion players may have fewer problems (unless they have to pick up and move heavy instruments), though there can be extreme arm-stretches to reach the further kettles of a Javanese bonang or the extreme drums and kettles of the Burmese circular drum and gong frames and the vertical horseshoe frames of some other South-East Asian cultures.

Players of the long trumpets among the Hausa and allied peoples suffer arm strain from holding these instruments with one hand, for the holding position is much closer to the mouthpiece than the point of balance, and the weight of the turning motion of gravity needs considerable strength to maintain the playing posture for any length of time. At least the far ends of Swiss alphorns and Tibetan long trumpets rest on the ground, and when on the move the Tibetans have an acolyte to support the bell as they walk, but woe betide the boy who stumbles and forces the mouthpiece against the player's lips and teeth.

Shawm and other reed players can suffer from permanently distended cheeks due to their use of continuous breathing, using the cheeks as air reservoirs while breathing in through the nose. Nigerian players seem to suffer from this more than most, for some that I have seen have acquired dewlaps like those of a bloodhound, and many illustrations of players show their cheeks far more distended than those of other nations – why this should be, I have no idea; it would seem unlikely that their buccinator muscles, those that run across the cheeks, are weaker than those of other peoples. Perhaps they use higher air pressure than others do. But this was why the ancient Greeks used the phorbeia, a strap across their cheeks, to support the muscles and prevent such distortion, and probably also why the bagpipe was invented, to replace continuous breathing. Any shawm players who move as they play, or even dance while playing as a number do, take the risk of having the shawm knocked back towards them and even back into the mouth, causing painful injuries to the throat. This is one of the reasons that many players use a pirouette or lip disk which will rest against the lips and teeth and prevent the instrument being knocked down their gullet.

Instruments can cause harm in other ways, too. Musicians have been murdered by the Taliban and other extremists simply for playing their instruments. Behaviour police roam the streets in some such afflicted areas, and if music,

other than liturgical chanting, is heard coming from a house, especially instrumental music, trouble ensues. In other cultures, those who were uninitiated and who have inadvertently seen a sacred instrument have been killed, lest the instrument should lose its magic; women have been particularly affected in this respect, for while there are some female secret societies, the vast majority are male. Others have been exiled or banned for lesser offences in such ways. We were asked, when compiling the recent edition of the *Grove Dictionary of Musical Instruments*, to refrain from describing some instruments in any detail for the same reasons – we and our readers were not initiates and to have described the instruments would have removed their sanctity and their powers. Whether describing them would have harmed us we do not know, but certainly some people are, and have been in the past, susceptible to such influences. Certainly I suffered no harm from describing one of Tutankhamon's trumpets in print, but there are such legends attached to the discovery of that Pharaoh's tomb, and equally to revealing secret elements of sacred instruments.

A short survey like this can only scratch the surface, and I am sure that any physiotherapist, osteopath, etc, could go into much more detail. Certainly my one-time dentist, Maurice Porter, wrote a whole book, and many journal articles, on embouchure problems with the teeth for wind players that he had treated. But despite all these problems to our health, we nevertheless persevere with playing, believing that the pleasure and benefit outweighs the harm. We do have to be particularly careful with children as they learn to play our instruments, forbidding some instruments until the child grows sufficiently to handle it, and watching especially for lung and teeth progress. And we encourage them to play, not only to instil the love and pleasure of making music, for we know that playing an instrument enhances the brain and encourages communal activities and is beneficial to their whole development.

[This paper was inspired by a request from Laurence Libin and to some extent influenced by his own entry of 'Occupational Hazards' in the *Grove Dictionary of Musical Instruments*, of which he was the General Editor.]