



Preventing Injuries In Guitarists - Part 1

As the conduit between the music in your head and the instrument, your hands are of vital importance. Katherine Butler offers guidance on how to take care of them.

Guitarists' hands are vital to their musical performance. They often have to perform to the limit of their abilities physically, emotionally and spiritually. Rapid, complex and coordinated movements are required and they frequently have to play in less than ideal environments, usually without the support of a medical team. Tours can be long with poor facilities. Noise, drug and alcohol levels and pressures can be high. Guitarists frequently injure themselves or acquire injuries that can lead to difficulties or an inability to play their instrument.

An area of specialization that has come to the fore in musicians' medicine is hand therapy. Specialist assessment and rehabilitation techniques are required when dealing with the guitarist. An understanding of the instrument and the type of music played is imperative.

Katherine has been working in the specialist area of Hand Therapy since 1995 and is one of a few fully Accredited Hand Therapists with The British Association of Hand Therapists. As a recipient of the highly prestigious Queen's Trust Award Australia, she came to London to study and work in the area of

performing arts medicine. She has lectured and published widely, established two hand therapy units, and is currently performing doctoral research in the area of Focal Hand Dystonia affecting musicians.

As a trained musician herself, Katherine enjoys combining her love for music and her love for the upper limb of our bodies. This gives invaluable insight into the life and pressures of being a musician. She established London Hand Therapy in 2006 with the aim of providing first class private assessment and treatment for musicians with hand and upper limb conditions.

Lucy Green and Katherine now work in London Hand Therapy clinics, which are based in the West End, The City, and Richmond. More information can be found on their website: www.londonhandtherapy.co.uk

When assessing a musician a holistic approach is adopted. The musician is assessed on and off their instrument and, once a diagnosis has been made, a short and long-term treatment plan can be established. The focus of performing arts medicine is to prevent injury. Whilst musicians can have underlying medical conditions that affect them and their ability to play, most musicians acquire their injuries due to performance-related issues such as incorrect practice or technique when playing their instrument¹.

Performance Related Issues

Non-trauma related conditions need careful analysis. A diagnosis for a painful condition in a guitarist's hand or arm can provide both peace of mind and reassurance².

Issues can develop from:

- Excessive training
- Change of instrument
- Quality of instrument

Excessive Training

Abrupt increase in practice or performance time is perhaps the most common risk factor³. This can occur while at a summer academy, preparing for a recital or competition, during holiday seasons when performers may be in increased demand, or when an amateur decides to intensify study. Musicians should view themselves as athletes, be more attentive to their physical limitations, condition their bodies, work at preventing over-use injuries and implement a carefully planned increase in playing time⁴.

'Correct' practice technique is imperative. Musicians frequently over practice and this can have a negative affect on the individual's whole body - particularly their hands and upper limbs. Whilst practising for long periods, the instrumentalist may begin to use incorrect body mechanics, which frequently affect the hands, and arms². Training errors often include failure to take at least a 5 or 10-minute break per hour of practice. Practice of physically difficult or awkward passages should be limited to short segments of 2 to 3 minutes each within a practice session.

A physical warm-up and cool down before and after playing is essential and the focus should be on the neck, shoulders and arms. This might include slow rolling of the head and neck, shoulder shrugs, side bends, and torso twists⁵. Some examples of forearm stretches that can be used by guitarists to warm up and cool down can be seen in Figure 1 A and B. It is important that the individual does not over straighten their elbow, if they are hypermobile, as this may increase joint instability and pain.

Change of Instrument

A change in the weight of the instrument, tension, weight or number of strings and the size of the neck all alter the way the musician holds, supports, relates to and plays their instrument(s). This is called the 'interface'. Changes to the interface may predispose the musician to injury, especially if combined with an abrupt increase in playing time. The solution is to decrease the intensity of practice when such a change is made, and then to gradually build to the desired level of play. A change in teacher or style of music performed may result in a change in technique, which may also require a similar modification to the intensity of practice.



Quality of Instrument

It is important to maintain instruments in top playing condition, with the hope of decreasing the amount of energy required to get the desired level

of performance⁶. Highly repetitive motor movements can contribute to disorganization in the brain, that can in turn lead to involuntary hand movements and an inability to play⁷. However, when speed and force of the repetitive movements



Exercises

 These simple stretches will help protect your wrists.

Figure 1A Forearm flexor stretch.

With the elbow straight or slightly bent, and palm facing upwards, gently take your wrist backwards using your own muscle strength, until you feel a stretch. Then, with the other hand gently pull the wrist further backwards by placing light pressure in the palm. Hold this stretch for 10 seconds



Figure 1B Forearm extensor stretch.

With the elbow straight or slightly bent, and palm facing downwards, gently bring the wrist and fingers in towards yourself using your own muscle strength until you feel a stretch. Then with the other hand, lightly push on the back of your wrist, bringing it further towards yourself. Hold this stretch for 10 seconds.

are varied and interspersed with other activities, the disorganization in the brain and loss of control of movement can be minimised⁷. Guitarists must mix up practice and playing with other activities in order to decrease the chances of developing medical conditions⁸.

Nonmusical Activities

Guitarists can have excellent technique and practice habits, but may sustain hand or arm injuries from nonmusical pursuits such as sporting or home hobby activities. These injuries need to be managed within the context of their instrument and the demands placed on their hands. Sports such as volleyball and martial arts have a particularly high incidence of hand injuries^{9,10}. Other hand-intensive activities that may cause problems include knitting, needlepoint, woodworking, fly tying and fishing, writing and computer use.

Conclusion

It is important that guitarists view themselves as athletes and warm up and cool down adequately before and after playing and performing. Any modifications to their instrument that may make playing easier should be made. Instruments must always be well maintained and serviced. Changes to technique, instrument or repertoire should be implemented gently and in a controlled and graded way where possible.

Guitarists use their hands in such a specialist and extraordinary way, and every effort must be made to prevent injuries from occurring. If injuries do occur then they must be assessed and treated

quickly after a careful examination has revealed an accurate diagnosis. When rehabilitating an instrumentalist the instrument should be used as the rehabilitative tool, and the musician should continue to play or return to some level of playing as soon as possible. Hand Therapy is a specialist area that can assist the performer, student, music teacher and instrument maker in getting the instrumentalist to play in a 'healthy' way, aiding in preventing injuries as much as possible, and assisting as early return to play if an injury has occurred.

Katherine Butler

A Player's Perspective

For many years people asked me whether my hands suffered in any form from my constant playing and sometimes extravagant left hand postures. I always said that my hands were fine, adding that after a long session either practising or performing I would only get dizzy or mentally exhausted, but nothing more. I always thought that my hands would never let me down and I based this presumption on a few life conditions of mine: healthy food, regular exercise, an almost teetotal drinking attitude and extensive warm ups before playing.

One day I felt that my right hand ring finger was not responding when it was required to attack quickly but I promptly blamed my then current lack of practice. Later I noticed that sometimes as I attacked a string with my ring finger the middle finger would accidentally touch the same string. I considered this to be a major flaw in coordination and control and somehow I was eventually forced to think that something else must have been happening to me. Gradually I started losing the strength in my fingers and it was when I realised this that I had to seek professional advice. It wasn't until I searched for descriptions of my symptoms on the Internet that for the first time the term Focal Dystonia appeared. At this moment I felt disappointed with life, scared, angry and above all these betrayed by my own body. I just didn't see it coming. I couldn't point at anything that I could identify as the cause of it all. Playing the guitar had been the most important part of my life but also my main source of income; it was my job, my career and my chosen way to communicate with others. I felt devastated by the idea of having to consider giving it all up.

With my current treatment I feel that the deteriorating process has been halted. The control over my hands is gradually coming back and I have been able to carry on performing and even touring after having changed my repertoire and also playing slowly is a rule now.

It is still an excruciating exercise in patience. Part of my current routine includes fiddling with very small objects with the ring and little finger of both hands. I try to stick to slowing down exercises on a daily basis (something which I found hard to commit to in the beginning) and to the use of splints and cow bands when practising.

I strongly believe that this injury or condition or illness or disability may well have been the result of a very long and sustained period of stress. I say this because at times I feel injured, at times ill, at times disabled. The reason I use all the above descriptions is because I am still unsure how to think of it. The most important thing is that now I am moving forward and hopefully recovering from what has been a traumatic period in my life, both emotionally and professionally.

References

1. Wynn Parry, C.B. Managing the physical demands of musical performance. In: Williamon, A (Ed.), *Musical Excellence Strategies and techniques to enhance performance*, 2004: 41-60.
2. Butler, K Musicians and Hand Therapy, *ISM Music Journal*, September 2005, 142-146.
3. Norris RN: Overuse injuries, *Strings*, 4:45, 1989.
4. Newmark J and Lederman RJ 1987 practice doesn't necessarily make perfect: Incidence of overuse syndromes in amateur instrumentalists *Medical Problems of Performing Artists* 2: 142-144.
5. Norris RN: Therapeutic exercise for musicians (video), St Louis, 1991, MMB Music.
6. Hoppman RA, 2001 'Instrumental musicians' hazards' *Occupational Medicine* 16(4): 619-631.
7. Byl, NN, Merzenich MM, Cheung S, Bedenbaugh P, Nagarajan SS and Jenkins WM 1997. 'A primate model for studying focal dystonia and repetitive strain injury: Effects on the primary somatosensory cortex' *Physical Therapy* 77(3): 269-284.
8. Butler, K & Rosenkranz, K, 2006, Focal Hand Dystonia affecting musicians. Part 1: An overview of epidemiology, pathophysiology and medical treatments. *The British Journal of Hand Therapy* Autumn 2006 Vol 11 No 3.
9. Amadio PC: Epidemiology of hand and wrist injuries in sports, *Hand Clinics* 6:379, 1990.
10. Dawson WJ: Hand and wrist injuries. In Grabois M, editor. *Physical medicine and rehabilitation*, Malden, Mass, 2000, Blackwell Science.