

Feature

Musicians & Hand Therapy

by Katherine Butler

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Musicians' Medicine: BAPAM

Over the last 20 years, musicians' medicine has become increasingly popular, with at least six text books relating to this topic published in English. Professional groups and organisations have been established in numerous countries. In Britain, a unique range of services and expertise is provided by BAPAM – the British Association for Performing Arts Medicine.

Founded in 1984 by Dr Ian James, a physician and musician, BAPAM is a registered charity, primarily funded by the Musicians Benevolent Fund, the MU and Equity. It aims to maintain and enhance the health of those engaged in performing arts, ensuring that free and rapid access is available to primary care doctors, consultants, therapists and other practitioners specialising in performing arts medicine. BAPAM (tel: 0845 602 0235, email: admin@bapam.org.uk, website: www.bapam.org.uk) operates a helpline, free clinics in London, Manchester and Glasgow, a specialist support service to orchestral musicians (the Association of Medical Advisors to British Orchestras – AMABO) and a directory of experts in performing arts diagnosis, treatment and therapy.

BAPAM can call on the following health practitioners: medical consultants (including rheumatologists, neurologists, orthopaedic surgeons); specialist GPs; physical therapists (occupational therapists, physiotherapists, hand therapists, Feldenkrais practitioners, Alexander teachers, osteopaths, chiropractors, Pilates teachers, Shiatsu practitioners and acupuncturists); dentists; voice coaches; Western herbalists; allergists; and psychological therapists (psychologists, psychoanalysts, counsellors, psychiatrists, hypnotherapists and psychotherapists).

While each country's specific circumstances (eg, health care system, available financial support and perceived medical need) influence the administrative structure of the various performing arts organisations, generally speaking they have similar goals. Additionally, alongside national initiatives, there is a growth in international cooperation, assisted by the development of international conferences.¹ An area of specialisation that has come to the fore in musicians' medicine is hand therapy

What is Hand Therapy?

The American Society of Hand Therapists² defines a hand therapist as: '... an occupational or physical therapist who, through advanced study, specializes in rehabilitating patients with conditions affecting the hand and upper extremity.'

Hand therapists work with patients who have had accidents or trauma that have left them with wounds, burns, scars, nerve or tendon injuries, fractures and amputations. They can also treat patients affected by cumulative trauma, for example tennis elbow or carpal tunnel syndrome, and other conditions such as rheumatoid arthritis. Hand function difficulties following neurological conditions can also be assessed and treated by hand therapists. The hand therapist is usually one person in a multi-disciplinary team, and can be found working closely with general practitioners, surgeons, neurologists, nurses and other health professionals.

Musicians & Their Hands

The vast majority of problems that musicians have with their hands and arms do not require surgical intervention. Wynn Parry³ published an analysis of 1,046 musicians he personally reviewed at BAPAM. Clear-cut pathologies, in which a specific diagnosis could be made, were evident in just over 48% of this group. Of the structural disorders, four broad bands were evident: old injuries (22%), tenosynovitis (12%), hypermobility (9%) and focal hand dystonia (5%). In the remaining 52%, few physical signs could be found, and the symptoms were seen as being very general and due to performance-related issues, such as incorrect practice or technique when playing their instrument. Non-trauma related conditions need careful analysis and consideration, and thus hand surgeons or therapists may be able to assist with providing an anatomical diagnosis for a painful condition in a musician's hand or arm.

Musicians can suffer trauma whilst performing sporting or DIY activities. These injuries need to be managed within the context of their instrument and the demands placed on their hands. If surgery is indicated, then modification to surgical techniques may be necessary. Four principles need to be considered before any surgery is undertaken on a musician: the exact location of the incisions; the anatomic repair/reconstruction; the adjustment of anatomic compromise to musical need; and the planned early return to playing.⁴



Katherine Butler

Issues In Hand Therapy Affecting Performers

Many performers are unaware of the effect that overworking the muscles in their arms will have on their hands. They do not know that the muscles in the forearm are largely responsible for controlling movements in the hand. Once this link is explained, musicians understand the importance of warming up, cooling down, and stretching these muscles to increase ease of performance and reduce pain levels. It is always important to explain appropriate stretches for individual patients, and to review regularly the way these are being performed. Some examples of stretches that can be helpful are outlined below and right; but it must be remembered that these may not be appropriate for every musician. These forearm and extensor flexor muscle stretches can be performed as a warm up and cool down exercise before and after playing, and can decrease the possibility of developing tight and strained muscles.



Forearm Extensor Stretch: With the elbow straight, 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.



Forearm Flexor Stretch: With the elbow straight, 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.

'Correct' practice technique is another area of concern. Patients frequently 'over practise', which can have a negative effect on the individual's whole body, and particularly their hands and upper limbs. While practising for long periods, patients may begin to use sub-maximal body mechanics, which frequently most affects the hands and arms. Much time is spent with patients discussing 'graded return to play' programmes, and techniques of practising. Below are examples of a graded return to playing programme and a 'Healthy Practice Habits' handout that can be helpful when reintroducing a patient to their instrument after an injury or, indeed, time away for any reason. They can also be used as an educational tool to prevent injuries.⁵ After a period of not playing, musicians must return with slow graded progression – in duration, tempo and complexity of playing – and may also require psychological support.⁶

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Graded Return To Play Programme

| <i>Practice sessions per day</i> | <i>Minutes of playing</i> |
|----------------------------------|---------------------------|
| Two sessions shadow playing | 3-5 minutes |
| Two sessions on instrument | 3-5 minutes |
| Two sessions | 5-10 minutes |
| Two sessions | 15 minutes |
| Two sessions | 20 minutes |
| Three sessions | 15 minutes |
| Three sessions | 20 minutes |
| Four sessions | 20 minutes |
| Four sessions | 30 minutes |
| Three sessions | 45 minutes |
| Three sessions | 60 minutes |
| Two sessions | 90 minutes |
| Two sessions | 120 minutes |

 Start with **Simple, Slow and Soft** music.

 Double minutes of playing every few days.

 Drop back a level if pain is elicited.

 A five-minute break is encouraged every 20 minutes at the higher levels of playing.

HEALTHY PRACTICE HABITS

You can correct a problem without sacrificing performance.

1. Early recognition

 Take the first sign of an injury seriously, though it may not be necessary to stop playing completely.

2. Frequent breaks when practising

 Practise only as long as you can maintain concentration.

 Take a five-minute break every 20 minutes, so that your muscles are more responsive (and use the break well: for example, to have a drink of water or do some stretches).

3. Warm up before practising

 Warm up **AWAY FROM THE INSTRUMENT** – follow a short fitness regime before you play.

 Warm up **AT THE INSTRUMENT** with easy music, concentrating on slow perfection to find easy postures and positions.

4. Cool down

 Cool down **AT THE INSTRUMENT** and **AWAY FROM THE INSTRUMENT**.

 Stretches and using ice packs on overworked areas of the body may also be necessary.

5. Maximise playing time in good posture

 Adjust the seat and music stand for optimal posture.

 Use forearm rotation to keep wrists and thumbs in the neutral position as much as possible.

 Remember - good posture on stage communicates **COMMAND** and **PRESENCE**.

6. Technical awareness

 Often the technical solution to a problem is also its musical solution.

 Extreme fatigue can indicate something is wrong technically (for example, inappropriate fingering).

 Volume and resonance can be produced with muscle release and by using gravity rather than pressure.

7. Instrument supports

 Minimize extraneous loading via the right equipment: for example, neck straps, floor stands, customized chin rests, individualized thumb stops or keys, instrument posts, backpack style carrying cases or wheels on instrument cases.

8. Mental training

 Strive to **REDUCE** practice time and increase mental training prior to a performance.

 Score read **AWAY** from the instrument to analyse and memorise the music out of the habitual posture.

 Use 'visualization' to hear and see your performance.

9. Fitness/relaxation

 Balance relaxation with fitness activities that minimize the risk of injury and help to alleviate your particular muscle imbalances (and remember that you are likely to need professional advice here to get this right).

 A strong flexible muscle resists strain better than a strong inflexible one.



Strengthening exercises using therapeutic putty

When assessing and treating a musician, a 'whole body' approach must be emphasized. Treatments such as soft tissue massage, neural mobilisation, splintage, intrinsic muscle strengthening and sensory discrimination exercises may be useful. Other evaluations and treatments such as finding positions where the patient can perform the given task 'normally' (ie, without pain or without using alternative movement patterns), referring the patient to a teacher who is trained in working with injured musicians, and evaluating and making necessary recommendations/alterations to the workplace and instrument may also be helpful. Further recommendations may relate to the musician's general approach to life, for example: instruction in diaphragmatic breathing, ensuring the patient is well hydrated and has a healthy diet, and encouraging involvement in a cardiovascular conditioning programme.



For a hypermobile joint, a thermoplastic splint can be utilised to retrain joint positioning whilst allowing full function on the instrument



A thermoplastic thumb splint which can be used to decrease excessive joint movement, maintain a more neutral position and subsequently decrease joint strain. Note the position of the unsplinted thumb and the possible strain on this joint, compared with the neutral position of the splinted thumb.

Prevention is Better than Cure

The key to treatment is prevention^{7,8}. Consequently, to decrease the risk of a musician developing an injury, they should try to avoid intense practice and performance, changes in instrument or technique, new repertoire, unrelated activity, or trauma and emotional stress. Musicians should instigate sensible practice technique, with regular breaks and a reasonable total playing time; utilise strong but flexible bodies that are well conditioned; perform warm up and cool down exercises; and gradually increase the intensity and duration of playing. A holistic approach must be adopted, whereby locomotor problems are corrected; playing technique, lifestyle, psychosocial and emotional factors are carefully assessed and re-instructed; and any modifications are made as necessary.⁹ Stress and anxiety before a performance, the temporal-spatial constraints of the instrument and playing, overuse, and hours practised should all be controlled. It is also important that musical instruments are kept in top playing condition and regularly overhauled, as this is likely to limit excessive energy outlay for the desired level of performance.¹⁰

An interesting piece of research on musicians was conducted by Newmark and Lederman¹¹ at a conference. They found that 73% of the players (79 out of 109, with only two being professional) did not usually perform routine practice, had a rapid increase in playing time, and were

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predisposed to overuse injuries; 81% (48 out of 79) of those with a significant practice increase developed new playing related complaints; while 63% (27 out of 79) experienced problems, even without a significant increase in playing time. The authors comment that to try to prevent overuse injuries, musicians should view themselves as athletes, be more attentive to their physical limitations, and condition their bodies accordingly.

Future Research

There is limited evidence of the effectiveness of treatments such as hydrotherapy, acupuncture, chiropractics, dietary changes, and magnetic devices for the treatment of musicians. There is a distinct need for scientific research projects to be conducted into the effectiveness and long-term benefits of these modalities for both injury prevention and treatment.

Conclusion

The increased focus on performing arts health issues in recent years has shown that many musicians require retraining in either practice regimes or technical aspects of playing, or both, rather than surgical intervention. Hand therapists can offer a thorough assessment, which can often provide a diagnosis, and a treatment programme can then be planned. Home exercise is frequently used, as it is an important part of the rehabilitation process. The use of splints, mechanical aids, technical retraining, graded return to play programmes, home exercise programmes, counselling and education may prevent musicians from developing damaging conditions, or assist in their rehabilitation if they do get injured.

In addition, there needs to be open and intensive dialogue between health care professionals, teachers and performers, to facilitate effective preventative measures and treatment. Prevention is the primary aim of performing arts medicine. Mutual education is imperative for informing and overcoming communication barriers among musicians and those who come into contact with them. Encouragingly, recent investigations in performing arts medicine are more scientific in nature, rather than the descriptive 'case-study' methods of the past. Collaboration and a multi-disciplinary team approach to prevention, treatment and research are imperative and will be of benefit to all.

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Born in Australia, Katherine Butler studied flute with Louise Dellit at the Elder Conservatorium, Adelaide. She still performs with orchestras and chamber groups and plays duets with her sister Miriam, a professional bassoonist.

Katherine first trained as an occupational therapist, then decided to specialise in hand therapy, in part because of her interest in musicians' hand problems. Receiving the Queens Trust Australia Award in 1988 meant she was able to come to London and study performing arts medicine with leading practitioner, rheumatologist Dr Christopher Wynn Parry, honorary physician to the British Association of Performing Arts Medicine (BAPAM). She has been working at BAPAM ever since, and also more recently with the hand surgeon Ian Winspur at the Hand Therapy Clinic, 30 Devonshire Street, London W1, in association with the Princess Grace Hospital. She is now a clinical specialist in hand therapy, having been accredited by the British Association of Hand Therapy in 2003.

Over the past 10 years, Katherine's clinical experience has focused on plastic surgery and orthopaedic outpatients with hand and upper limb injuries, burns and rheumatological conditions. She has lectured widely and had established hand therapy units in Brighton and Egypt. She also worked as a research therapist for some years and has a particular interest in outcome measures. Her special interest remains performing arts medicine, which gives her the opportunity to combine her love for music and her medical expertise.