Help Musicians

LIVERPOOL PHILHARMONIC

A Symphony of *Good Sense*

An Introduction for Physiotherapists Working with Orchestral Musicians

By **Sarah Upjohn** EdD MA MCSP HCPC Registered

'Here at the Royal Liverpool Philharmonic Orchestra we have enjoyed and benefited from partnering with a local physiotherapy provider for nearly a decade, making a positive contribution to our health and wellbeing. Sarah's new guidelines provide a superb introduction to the specialist work involved and we are delighted these are now available to share with orchestras and physios.'

Thelma Handy, Joint Leader & Peter Garden, Executive Director: Performance & Learning
Royal Liverpool Philharmonic

LIVERPOOL PHILHARMONIC

'Safeguarding musicians' health is at the heart of what we do at Help Musicians. That's why supporting the research behind A Symphony of Good Sense has been so crucial to our work to prevent issues which can derail careers. Helping to ensure that musicians have healthy, long lasting careers; bringing us all such joy from their creativity for many decades.'

Sarah Woods, Chief Executive
Help Musicians

Help Musicians

'Although the physical demands of professional playing cannot be completely avoided, these recommendations give orchestras practical tools to implement meaningful risk-reduction strategies and promote early identification of work-related musculoskeletal issues.'

Dr Finola Ryan, Executive Medical Director
British Association for Performing Arts Medicine

BAPAM
PERFORMING ARTS MEDICINE

Contents

First
Movement

This is a step-by-step, note-by-note guide to help physiotherapists who are new to treating orchestral musicians. It contains useful information about musicians, about the most common playing-related injuries, about what is different about working with musicians, and about different instruments. It will also direct you to useful resources about performing arts medicine. It is written using a similar structure to a Symphony, which is a piece of music written for an orchestra, comprising several different, but linked sections, to create a whole piece.

An Introduction to
Physiotherapy for Orchestral Musicians

Hello physios!

Musicians seem to have a Superpower.
They can captivate and hold their audience, as if spellbound. They produce music that can calm and soothe you, raise your heartrate and excite you, evoke the strongest memories and make you smile, give you goosepimples, or make your heart ache and move you to tears.

Just by playing their instruments...

But this does not 'just happen' or happen 'because of magic'. Professional musicians have worked for hours, every day, for years - usually since childhood - to perfect their particular skill-set through structured specialist education, practise and repetition. They are prone to playing-related neuromusculoskeletal disorders: as prone as any performer from any other genre of performance (i.e. sports / athletics, gymnastics, circus or dance). These are elite (musical) athletes, but their employment is often precarious meaning that injury which threatens their capacity to work, can have significant consequences for job and financial security.

When they do get injured (and 77-89% of professional orchestral musicians get injured during their working life), they need professional and timely help or support to:

- **Assess and treat acute playing-related injuries**
- **Understand the risk factors for acquiring playing-related injuries**
- **Work towards rehabilitation and injury prevention**
- **Recognise and manage the effect the psychological and emotional impact that injury can have on the body**
- **Allow realistic healing time**

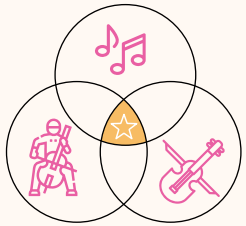
Domingo Hindoyan, Chief Conductor
Royal Liverpool Philharmonic Orchestra

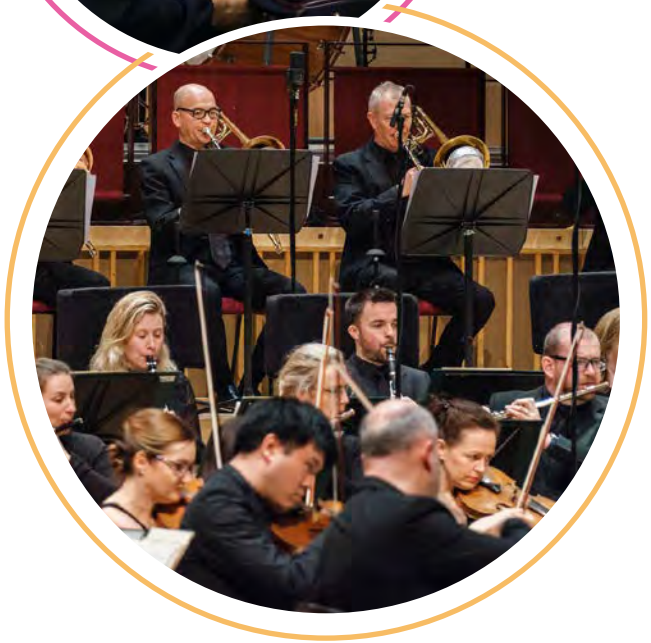
And this is where we come in.

Don't be daunted, because we also have Superpowers!

- The ability to understand the problem of the patient facing us
- The knowledge and skills to assess an acute injury
- The empathy to understand the impact it is having on that person and their performance
- The insight to understand the risk factors
- The creativity to problem-solve and help develop a rehabilitation programme
- The communication skills to guide the musician through the entire process

Before we start, here are some '**nuggets**' of useful information:

Nugget	Relevance to you
Throughout their training musicians are taught vast amounts about music, about their instrument, how it works, and how to play it, but typically, are taught very little about their body and how it works. Their health literacy is, typically, poor 	**Do not assume** • that they know any upper limb anatomy • that they accurately know where their lungs and diaphragm are • that they know the benefit of warming up before playing and stretching after playing • that they appreciate the necessity of rest and recovery time • that they have realistic expectations re recovery and healing times
Through no fault of their own, musicians may hold other pain beliefs, and think that it is OK to play through pain	**You may have to explain thoroughly, but with kindness** • about pain being a warning that something is wrong • about how much easier it is to recover from an acute injury than a chronic injury • what remedial and restorative work will off-load the injury
They may be reluctant to build-in or incorporate rest and recovery time	You may have to explain what happens to muscles, cardiovascular and neural systems during rest and recovery time
They may be freelance and be financially and emotionally vulnerable if they stop playing	You will need to be sensitive to this and try and find acceptable 'work arounds' or suggest reasonable adjustments to practise habits, and ways to off-load the injury, and promote relative rest when at all possible, while supporting them to maintain overall fitness and emotional wellbeing to promote both healing and health



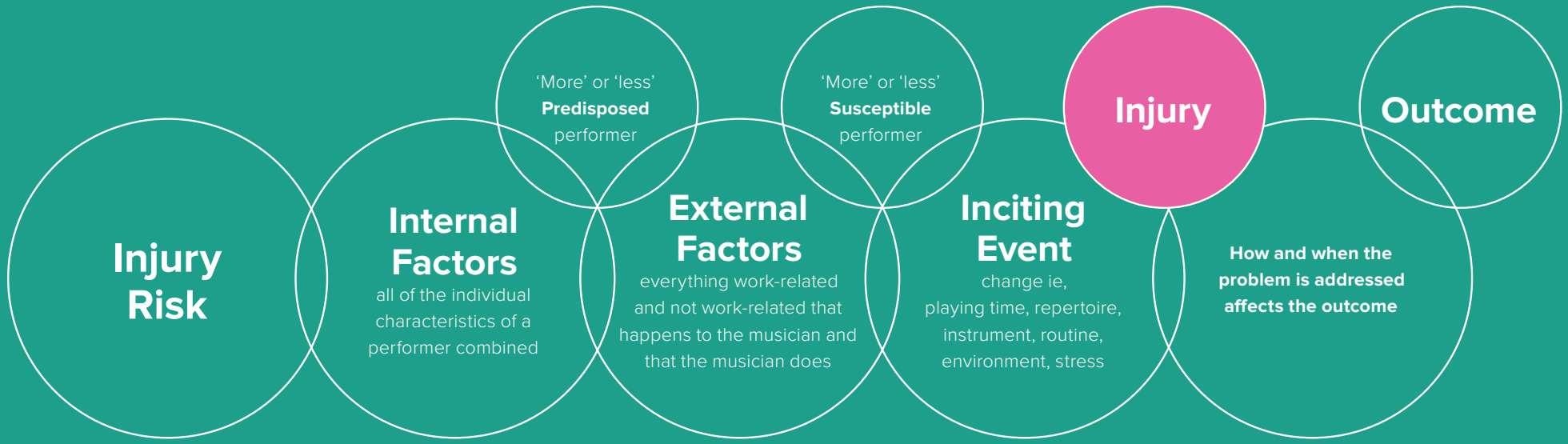
Nugget	Relevance to you
Talk their language 1	Classical western music routinely uses Italian language and terminology to describe what's going on in the music, and to give direction: • ie the number of players *(solo/duet/trio/tutti)* • the speed *(tempo)* • techniques *(pizzicato/arco)* • dynamics *(forte/piano)* • mood *(agitato, lacrymosa)* • direction *(con espressivo)* • role *(recitative, aria, chorus)* or expression of the music
Talk their language 2	Some instruments number the fingers 1 (thumb) to 5 (little finger), if the thumb is included in playing (piano, harpsichord, organ, woodwind and harp). Other instruments number the fingers 1 (index finger) to 4 (little finger), (stringed instruments and guitar)
Most musicians carry their instrument with them. Their instrument can be worth tens or hundreds of thousands of £££££s or $$$$$s	Look at the case: weight, straps, and how they carry their instrument in its case. • Does this have an impact on their posture? • Are adaptations available for transport from the point of leaving the practice room, through to the point of performance?
There are significant differences in the physical demands between individual practise, rehearsal, performance, and touring	It's important to understand: • the current demands on the player • what was the work schedule at the time of onset of injury • what is upcoming

Nugget	Relevance to you
Different repertoire places different demands on different sections of the orchestra	It is important to ask the player about the physical demands of recent, current, and upcoming repertoire
Musicians are very fearful of, and think they have, 'tendonitis' far more frequently than they do...	You may need to explain the anatomy, pathophysiology, and anticipated recovery pathway / timescale, for what is actually wrong
Some muscles will be working hard to provide stability, holding the instrument and / or the musician still, while other muscles (often very small ones) will be working hard to produce rapid and extremely accurate and nuanced movement	Look at how the musician plays their instrument, and NMSK test accordingly
Musicians vary hugely in size and shape but play instruments that are a similar (or the same) and fixed size	CHANGES are more likely to be made TO THE MUSICIAN (strengthening, flexibility, fitness etc) than to the instrument. Currently it's not like skiing, where boots, bindings, skis and ski poles are chosen to suit each skier. However, this is a changing field, and adaptations can be made via straps, stands, rests, etc, and innovations such as altering the keywork on woodwind instruments
Musicians also experience 'life' so you will also see NON-playing related injuries (falls from bikes, slips, trips and falls etc), and systemic or autoimmune illnesses, or idiopathic disorders such as Dupuytren's Contracture	Playing IMPACTING injuries: How is the injury or illness impacting on their playing, and how can you help?
Drumkit players, timpani players, organists and harpists have something fantastic and unexpected in common: they all use all four limbs when playing: using both hands and both feet	They benefit from having good core strength to provide central stability, so that they can move their limbs independently while maintaining trunk stability

Second
Movement

Most common Playing-related Injuries:

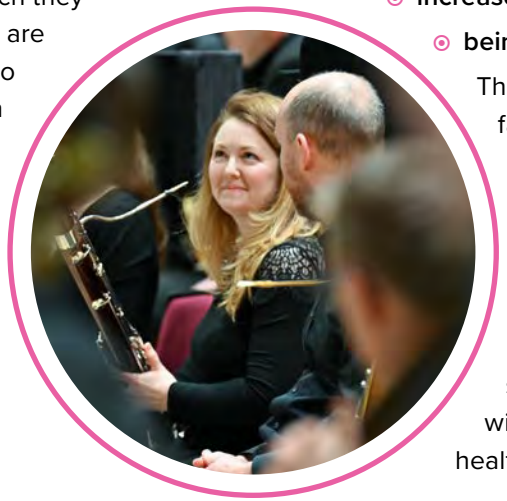
These are usually directly related to something biomechanical / ergonomic, or to 'overuse or misuse' and it is useful to understand the background to the 'overuse / misuse' scenario. In the absence of trauma, injuries never 'just come on' or 'appear from nowhere'. **There will always be a combination of highly relevant pre-existing factors that need to be considered, and the diagram shows these.**



Adapted from: Meeuwisse et al., 2007

The **internal factors** refer to all the individual characteristics of the musician: ie height, weight, age, hand dominance, gender, hormone profile, pre-existing or newly emerging systemic illness, previous NMSK injury or experience of trauma, morphology, level of fitness, smoking status, sleep quality, breathing pattern, level of nutrition and hydration, etc..... These combine to place the musician somewhere on a continuum between 'highly predisposed to get an injury.....and.....less predisposed to get an injury'.

The **external factors** can be thought of as 'everything else that impacts the musician', or metaphorically speaking, 'lands on their shoulders'. Simply put it is, everything they do, and everything that happens to them: the instrument they play, the environment within which they play it, the amount they are playing, something to do with posture or position when playing, or ergonomics. This can include the set-up of the kit, the 'action' of the instrument, use of stands / support / straps / spikes, etc, their commute, are they jetlagged, the amount of time they spend on a computer, phone, or other device, their level of stress, their home circumstances, any other employment (ie Bar Work) their hobbies or leisure pursuits, etc.

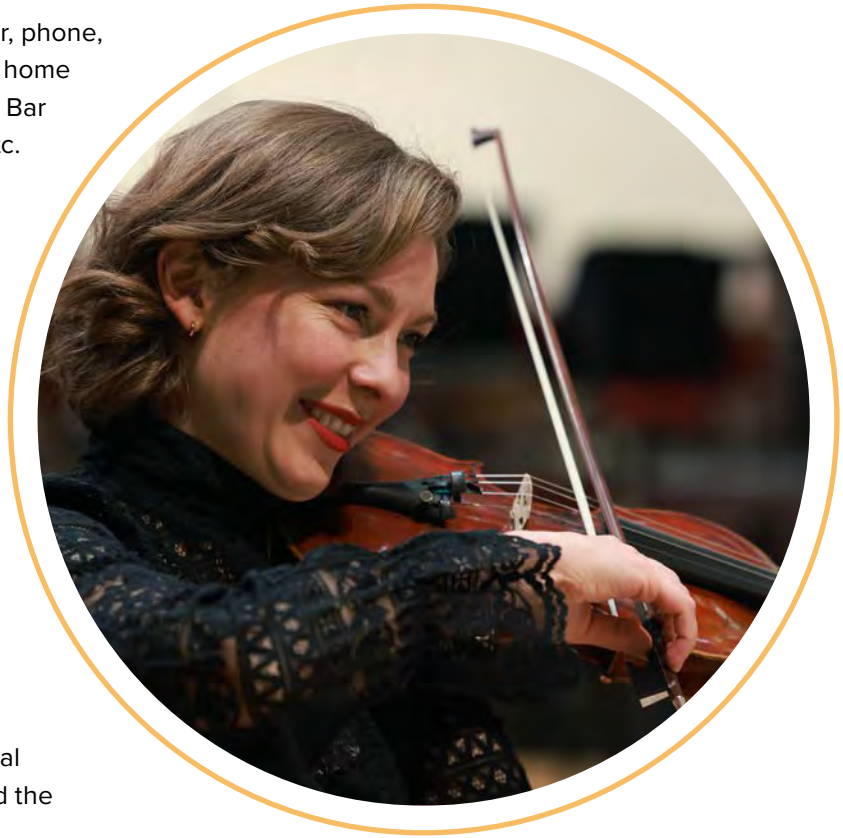


The internal and external factors combine to place the musician on a continuum between 'highly susceptible to developing an injury'..... to....'not susceptible at all to developing an injury'.

Then there is a trigger - which is usually a change from their 'usual' i.e.:

- **change in repertoire**
- **increase in playing time**
- **change in instrument or its' set up**
- **increase in stress**
- **being on tour**

The risk factors include the internal factors, the external factors, and the triggers.



Dr Céleste Rousseau developed a new model for looking at playing-related injury risk factors, as part of her PhD, when she combined narrative reviews of scientific literature alongside interviews with orchestral musicians and specialist health professionals.

This model by Rousseau et al., 2021 illustrates the wide context within which playing related injuries present.

Third
Movement

Approach the assessment and treatment of musicians, with the clinical skills of Neuromusculoskeletal Physiotherapy and through the workspace context of Occupational Health & Ergonomics.

soap

S Subjective Assessment

Do your usual subjective assessment:

- **past medical history?**
- **recent or distant accidents / operations / illnesses?**
- **general health?**
- **body composition?**
- **nutritional status?**
- **smoking status?**
- **what is their sleep pattern like?**
- **any recent viral illnesses?**
- **medication (prescribed/over the counter)?**
- **establish what hurts, how much, when, SIN etc, (usual pain behaviour questions), and the impact of this on the musician**

The following lists are not definitive.

But also:

1. Get a clear idea of the 'Internal Factors', to give you an idea of how predisposed the performer was, to this happening

- Are they cardio-vascularly conditioned?
- Are they strong (endurance strength)?
- Are they flexible?
- Are they well nourished?
- Are they rested?
- Do they warm up before they get the instrument out of the case?
- Do they do sustained stretches after playing?
- How old are they?
- What is their hormone profile (menstrual cycle / post-menopausal)?
- Look at the impact of their morphology?
- How is their eyesight?

2. Get a clear idea of the 'External Factors' – all things impacting or 'landing on' the musician

- What instrument do they play?
- What is the physical demand
  - of this instrument?
  - of recent / current / upcoming repertoire?
  - of recent / current / upcoming programming?
- What is their role within the orchestra?
  - Leader
  - Principal
  - Soloist
  - Tutti (section) player
- How 'busy' are they within the orchestra or band (% playing vs % rest) for recent or current programme?
- What environment are they working in?
  - recording studio?
  - modern concert hall?
  - theatre pit?
  - do they get on well with their colleagues?
- What is their typical schedule? (remember the different demands of individual practise vs rehearsal vs performance vs teaching)
- How do they manage eating / nutrition / rest / stress habits during busy schedules when touring?
- How much time do they spend each week on a computer or laptop or phone? (including composing / arranging / invoicing / emailing / social media / gaming)
- And what is the set-up of any devices?
- Do they do any teaching?
- What are their hobbies / how do they spend their leisure time?

Objective Assessment

The most important thing to remember is that you already have the skills to assess and treat an NMSK injury / dysfunction.

You probably already have several years of experience of thinking about functional anatomy, mechanisms of injury, inflammation and healing, and you may have experience with, for example, strength & conditioning, or taping.

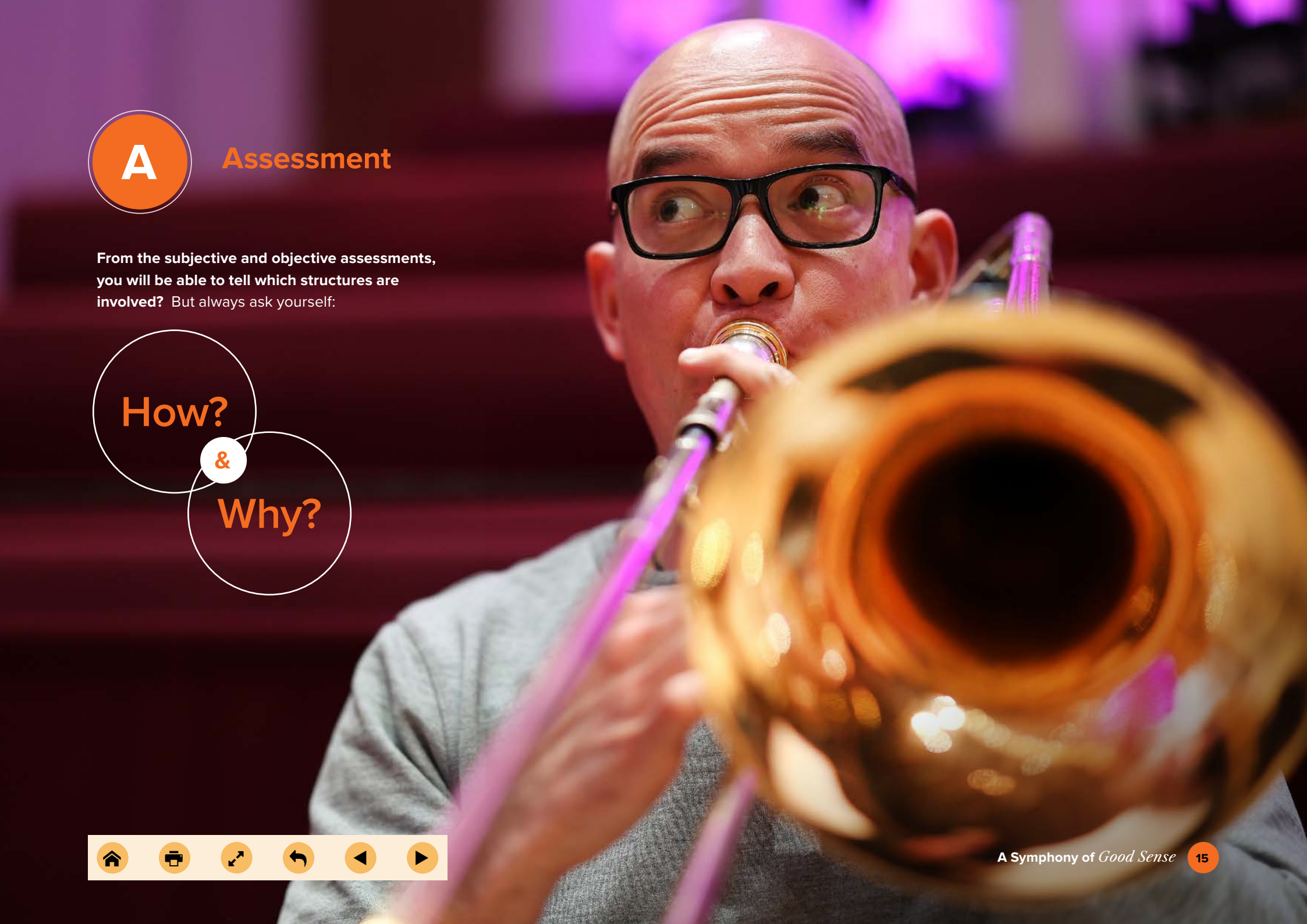
- **So, remember that you are not starting from scratch**
- **You already have the skills to perform an objective assessment**
- **So go ahead and do what you know how to do**

Just be sure to make it relevant to that musician's job and to the specific demands of their instrument.

Look at postures and positions that the instrument demands of them
- Which muscles are providing stability?
- Which are producing rapid accurate movement?

Think about which 'counter stretches' might be useful.
Ask them about playing their instrument.

Always watch the musician playing their instrument in their usual seated position, preferably within the orchestral setting.



A Assessment

From the subjective and objective assessments, you will be able to tell which structures are involved? But always ask yourself:

How? & Why?

P Plan

Treatment Plan

Formulate a treatment plan to help the injured structure and ease the symptoms.

You already know how to do this.

Remember the importance and power of therapeutic touch.

Hours at the 'Clinical Coalface' working with Musicians, have convinced me and several of my BAPAM colleagues, that manual techniques, therapeutic massage, soft tissue release, PNF / muscle energy techniques, and other 'hands-on' strategies, can without doubt, help to build that (Oh! SO important) Therapeutic Relationship. This can provide symptomatic relief and reduce stress for the patient, which can help the patient trust you, and can improve their compliance with advice that you give as you work towards recovery, rehabilitation and prevention of recurrence.

It can also provide valuable information to you about the condition / tone / resilience / reactivity / responsiveness of the patient and their soft tissues.

Be aware of the psychological impact on the musician of asking them to stop playing.
Talk to them about 'relative rest' rather than complete rest, and seek 'work-arounds' that allow them to play a modified way, or on modified repertoire, or using their 'kit' in a modified way.
Reassure them.

Rehabilitation Plan

Formulate a rehab plan to

- **Facilitate a successful, safe return to full playing capacity**
- **Help prevent the problem recurring, and**
- **Work towards prevention of other future injuries**

What can you improve about the musician's 'Internal Factors' to best prepare them for the physicality of their job, and make them less predisposed to developing an injury?

- work on instrument specific strengthening
- work on instrument specific flexibility
- encourage the musician to warm up and do dynamic stretching pre-playing, to prepare for the demands of playing
- do sustained stretching post-playing – to help muscles that have worked hard to relax
- Introduce instrument specific 'counter stretches'
- encourage rest and recovery time
- encourage increased 'cardio' conditioning

What advice can you give re 'External Factors', to reduce the musician's susceptibility to developing a playing related injury?

- discuss load management. This should involve considering:
  - how much time is being spent playing
  - what is being played: some repertoire is more demanding than others
  - what are the specifics of the overall current demands (internal factors plus external factors)
- discuss stress management

discuss the importance of adequate hydration on soft tissue function and brain function

We are part of a team around the musician.

As with any other patient group, think in terms of the MDT around the patient.

Seek advice from colleagues when you need to.

Refer back to a GP with an explanatory letter when necessary.

Finale

Sitting

Rather obviously, sitting posture can have a profound impact on a musician's comfort and their ability to play their instrument, yet many musicians have not yet found their own optimum sitting position.

Here are some considerations when you are looking at how your musician is sitting:
Upper strings (violin / viola), woodwind (flute / piccolo / clarinet / oboe / bassoon) and upper brass (trumpet) have usually stood up for lessons and while practising as a child, and now sit to play in an orchestra.

They may not have had any lessons in how to sit to play, and may not be aware of the impact of different sitting positions on
a) their body
b) their playing

Sitting should provide stability centrally, to enable the player to control their breathwork, and / or produce controlled accurate, nuanced movements distally.

The following tables describe the possible impact of three common sitting positions on the musician

Postural Feature	Impact
Their abdominal muscles will be ineffective (because of the length / tension ratio)	Will be unable to produce a strong contraction of their abdominal muscles, woodwind and brass players will be less able to support an out-breath
Typically, the Cx spine is extended so that the head is in the right position to look at the music and the conductor	• Short / tight Cx extensors and lengthened/weakened deep neck flexors • Risk of impinging posterior cervical structures, ie facet joints and nerve roots
The shoulder girdle will be protracted	• Short /tight pectoral muscles and serratus anterior, and lengthened/ weakened rhomboids and lower trapezius • May lead to restricted elevation of the humerus in abduction of the gleno humeral joint (the acromion process might be in the way) and eventual subacromial impingement
Sitting with lumbar spine flexion	May lead to adverse loading on the anterior of the lumbar discs, resulting in eventual posterior disc bulge

Postural Feature	Impact
• **Musician is sitting 'up and off' their ischial tuberosities, and weight is not transmitted through them to the chair** • **This musician is overusing back extensors and shoulder girdle elevators to hold themselves upright**	• Will get pain in back extensors • Will get pain in shoulder girdle elevators • Will have a restricted volume of in-breath • Will have short, tight hip flexors, hamstrings and calf muscles • May find it difficult to fully drop the weight of the bow onto the strings, to produce the 'biggest' sound that they want to – because their shoulder girdle is elevated

Postural Feature	Impact
Sitting with spine lengthened and weight passing through the Ischial Tuberosities (or sitting bones)	• Back extensors and shoulder girdle elevators are not overworking to hold the musician upright • Quadratus lumborum is not contracted, and fixing lower ribs: a larger 'in-breath' can be taken by woodwind and brass players
Feet: heels are in front of knees	The player will find it easier to stay sitting heavily on their sitting bones

Heavy on Sitting bones, with heels in front of knees: this position is optimal.

Touring and Travelling

Many orchestras tour throughout the UK and internationally, and there are specific stresses / demands / difficulties for musicians when on tour.

Ask your musicians about this.

For example, Jet lag and an extremely busy tour schedule, could be additional and contributary 'external loads' that increase their susceptibility to developing a playing-related disorder

Encourage them to

- try and maintain routines around exercising, eating, sleeping, etc. as much as they can
- stretch (arm / legs / spine) after long seated journeys (counter stretches)
- take their own pillow, if they are prone to Cx spine problems
- take EXTRA care with maintaining hydration, when spending time in air conditioned spaces (aeroplanes, hotel rooms, performance spaces, etc), or hotter climates
- try and spend some time outside in daylight / sunshine

This BAPAM factsheet has been designed for all genres of musicians, not just orchestral, and has more information that may give you food for thought:

Healthy Touring Checklist and Rider
Performing Arts, London, UK | BAPAM

'...Jet lag and an extremely busy tour schedule, could be additional and contributary 'external loads' that increase their susceptibility to developing a playing-related disorder.'

The Musical Athlete

Elite performers in sports and dance have several decades of research about injury prevention, treatment and rehabilitation to help them.

We can encourage our musicians to adopt some strategies that are routinely used in sport and dance, to best prepare the body for the physical demands of playing and performance

Benefits of a daily routine that incorporates:

1. **BEFORE:** Physical warm-up and then dynamic stretches, **before** opening the instrument case
2. **DURING:** Take regular breaks / reset posture / let go of accumulating tension when you can: keep everything moving (wiggle hips, shoulders etc – reducing stiffness in joints and improving blood supply to the muscles).
3. **AFTER:** Cool-down and sustained stretches **after** playing – particularly upper limb and back extensors. Get out of playing position, and incorporate 'counter stretches'

Benefits of a long-term strategy to improve or increase:

1. Cardio conditioning
2. Endurance strength
3. Soft tissue flexibility

Many musicians do not realise that these practices can help how their body copes with the physical demands of the job.

Musicians Focal Dystonia (MFD)

Musicians Focal Dystonia is variously described as a neurological disorder, or a learned habitual movement disorder that affects between 1-2% of professional musicians. It presents as an inability to accurately perform very specific, very well established, previously highly accomplished playing-related movements.

It most commonly affects

- movement in the hand / fingers of violinists / pianists / guitarists
- the control of the embouchure of brass or woodwind players

Accurate dexterity and motor control for all other tasks is preserved and normal.

Understanding of its aetiology and treatment strategies are rapidly changing.

Treatment is complex and long term and may vary depending on where in the world you live. Best results are gained from using a multidisciplinary team for medical treatment and rehabilitation.

If you suspect that a musician is presenting to you with MFD send them with a letter to their GP, suggesting referral to a neurologist with an interest in movement disorders / dystonia.

Further information is available from these two websites, and the BAPAM directory of practitioners lists some clinicians who are experienced in treating MFD.

Musician's Focal Dystonia | BAPAM factsheet

Hand dystonia | Dystonia UK

Performing Arts Practitioners | Professional Health Care, London, UK | BAPAM

Cadenza

Orchestras are organised into 'sections'

Within most sections are a family of instruments of different sizes, but with commonalities in how they are played. Generally, the smaller the instrument, the higher the pitch, and the larger the instrument, the lower the pitch.

String Section

Violin, Viola, Cello, Double Bass

Harp

Woodwind Section

Piccolo, Flute, Clarinet, Oboe, Cor Anglais, Bassoon

Brass Section

French Horn, Trumpet, Trombone, Tuba

Percussion Section

Anything that you can hit. Some is tuned, some is untuned.

Instrument specific information

The BBC has some really useful ‘beginners guides’ to orchestral instruments which, if you need them, will give you an overview of the instrument, and how it’s played.

String Section

Learn about the stringed instruments of the orchestra - BBC Teach

Upper Strings (Violin and Viola)

Violin

Perhaps the 'busiest' section of the orchestra in terms of notes per concert.

1st Violins play higher notes. The role of leader of the Orchestra is always the leader of the 1st Violins.

2nd Violins play lower notes: so bowing arm is generally held higher to reach the lower strings.

Viola

Violas are bigger and heavier than violins, but are not a standardised size.

Does your musician have an instrument that is too big and / or heavy for THEM?

Common Presentations

Pain in mid back, shoulder girdle, left side of neck with left shoulder girdle, and forearms.

Where to start looking / what to start thinking:

- Sitting posture
- Do they 'sit up straight', up and off ischial tuberosities, and using back extensors to hold themselves up?
- Shoulder girdle and Cx spine posture when playing
  - rotated
  - side flexed
  - elevated shoulder girdle
- Do they elevate the left shoulder girdle when they raise the violin to playing position, and / or 'clamp down' with their chin to secure the instrument, which will generate tension in shoulder girdle / Cx musculature?

Check chin rest | shoulder rest combined height.

- Which counter stretches might relieve tension, generated by how THEY play?
- Which muscles might benefit from strength and conditioning?

Lower Strings (Cello and Double Bass)

Cello

Common presentation

Pain in mid back, shoulder girdle, left side of neck, right shoulder girdle.

Where to start looking / what to start thinking:

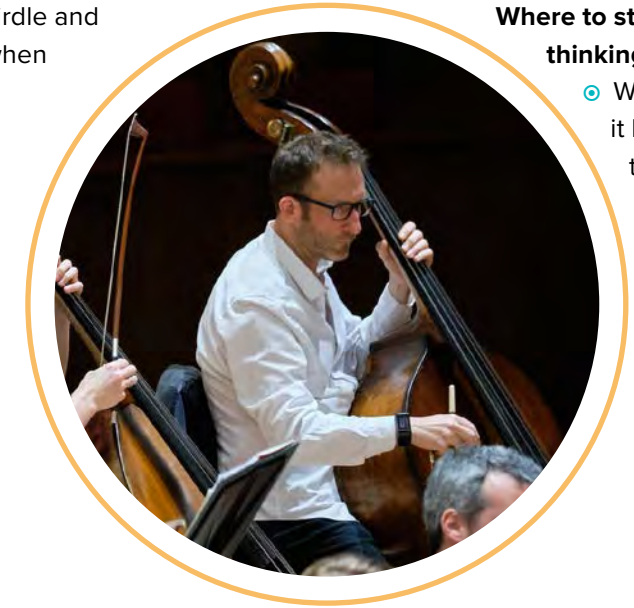
- Sitting posture
- Do they 'sit up straight', up and off ischial tuberosities, and using back extensors to hold themselves up?
- Look at shoulder girdle and Cx spine posture when playing
  - rotated
  - side flexed
  - elevated shoulder girdle (right or left)

Double Bass

Common Presentations

I have seen relatively few double bass players with playing related injuries.

Although the instrument is large and physically demanding, the sitting position is fairly symmetrical, and the weight of the instrument is not held up by the player.



Where to start looking / what to start thinking:

- Where does it hurt? When does it hurt? What aggravates or eases the pain?
- What has recent or current workload been like?

Woodwind Section

Flute and Piccolo

These are some of the most asymmetrical of all orchestral instruments.

They require endurance strength in shoulder girdle stabilisers, and the ability to hold the right glenohumeral joint into abduction for long periods of time.

Common Presentations

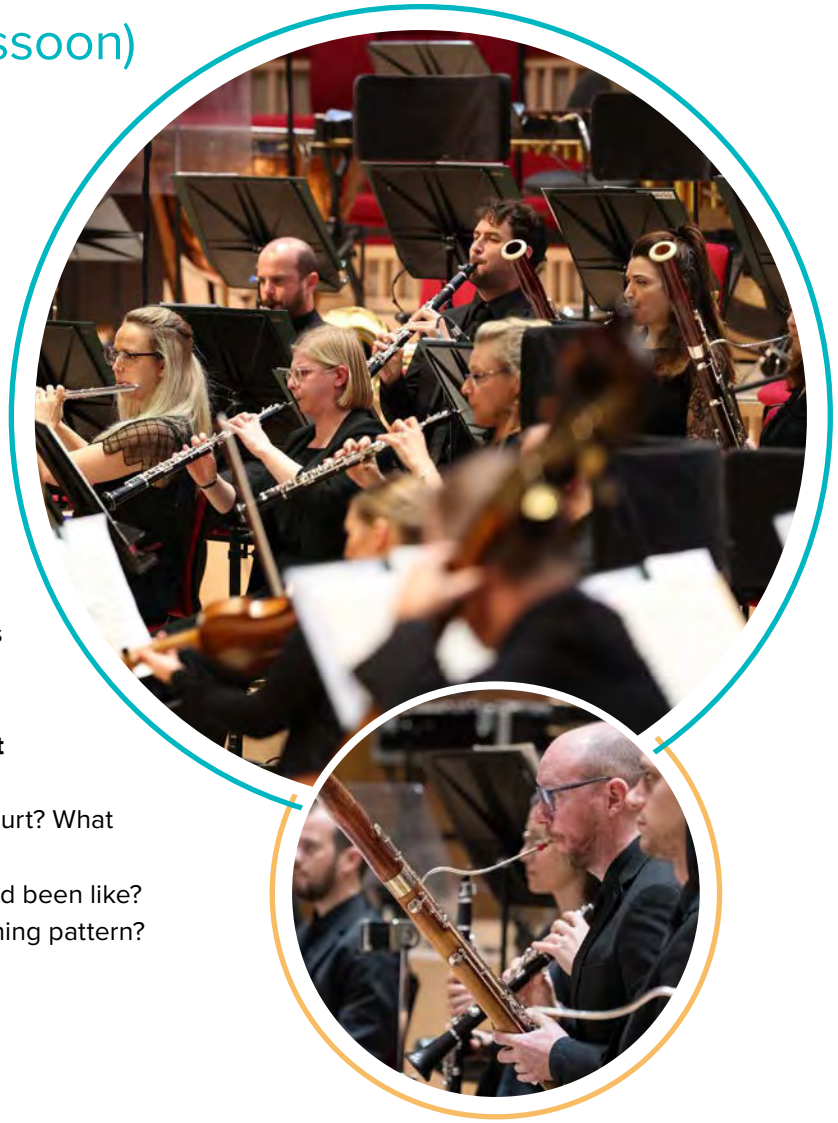
Neck and shoulder girdle pain and asymmetry, MCP joint of first finger left hand.

Where to start looking / what to start thinking:

- Sitting posture
- There is always a conflict of some sort between the sight line of the player, their music, and the conductor vs the position / direction of the end of the flute / piccolo where the sound emerges
- What 'counter stretches' might be useful?
- What has recent or current workload been like?
- How is their resting / playing breathing pattern?

Learn about the woodwind instruments of the orchestra - BBC Teach

Woodwind (Clarinet, Oboe, Cor Anglais and Bassoon)



Clarinet, Oboe and Cor Anglais

These are held centrally, and the weight of the instrument (made of very heavy wood with metal keywork) is taken on the right thumb.

The thumb support is optimally positioned for the balance of the instrument, rather than for optimum hand function / strength (remember that our pinch grip is strongest when the thumb, and the pad of the index finger appose each other. The further the thumb moves across the palm of the hand (adduction / flexion), the weaker the thumb becomes.

Common Presentations

Extensor / dorsal aspect of right thumb and radial side of wrist.

Where to start looking / what to start thinking:

- Where does it hurt? When does it hurt? What aggravates or eases the pain?
- What has recent or current workload been like?
- Can any modifications or adjustments be made to the instrument or thumb support?
- How is their resting / playing breathing pattern?

Bassoon

This is the only woodwind instrument where all fingers and both thumbs operate keys.

The thumbs are particularly busy. There are 4 keys for the right thumb, and 9 or 10 keys for the left thumb (depending on model).

Common Presentations

I have seen relatively few Bassoonists with playing related injuries.

Where to start looking / what to start thinking:

- Where does it hurt? When does it hurt? What aggravates or eases the pain?
- What has recent or current workload been like?
- How is their resting / playing breathing pattern?

Brass Section

I see relatively few brass players with playing related injuries. I suspect that this is partly because the amount that they can play / practise, is self-limiting, because their embouchure muscles tire before their arm or back muscles do.

It is also probably because of their role within orchestral music: they often have sections of music (often long) when they are not playing and can put their instrument down.

Learn about the brass instruments of the orchestra - BBC Teach

Common Presentations

There is not a single common presentation of injury / dysfunction with brass players.

Be aware of shoulder, neck and elbow problems in trombone players, and back pain in tuba players.

Where to start looking / what to start thinking:

- Where does it hurt? When does it hurt? What aggravates or eases the pain?
- What has recent or current workload been like?
- How is their resting / playing breathing pattern?
- Is altered abdominal tone due to a breathing pattern disorder, altering posture and predisposing for injury?
- Would they benefit from using a support / stand to offload or help specific structures temporarily or permanently (www.ergobrass.com)?

Percussion Section

Percussionists hit things, usually with a variety of sticks and beaters of different sizes and materials (wood, metal, felt, rubber), sometimes with their hands (tom toms) sometimes crashing things together (cymbals), or shaking things (tambourine).

If they are playing marimba / glockenspiel or xylophone, they may be holding, using and manipulating 2 beaters in each hand.

Common Presentations

I see very few percussionists with playing related injuries. I think this is because they move around between instruments, and they often have sections within orchestral music when they are not playing. I have seen percussionists who have injured themselves moving their instruments around, within, and between venues.

Where to start looking / what to start thinking:

- Where does it hurt? When does it hurt? What aggravates or eases the pain?
- What has recent or current workload been like?

Learn about the percussion instruments of the orchestra - BBC Teach

Harp

Concert Harps are huge instruments comprising 47 vertical strings that are plucked, and seven pedals, controlled by the left and the right foot. Each pedal has three possible positions, altering the pitch of the strings, by shortening or lengthening them.

Common Presentations

I have seen more harp players injured when they are working outside of orchestras, as soloists (for weddings, etc). Playing solo, they are likely to take fewer breaks.
Some harpists develop painful osteoarthritis in the first metatarso-phalangeal joint, probably linked to using the pedals.

Where to start looking / what to start thinking:

- Where does it hurt? When does it hurt? What aggravates or eases the pain?
- What has recent or current workload been like?

Coda

Approach the assessment and treatment of musicians, with the clinical skills of Neuromusculoskeletal Physiotherapy and through the workspace context of Occupational Health & Ergonomics.

Never be afraid to talk to your musician about their instrument and their work, and try and find a professional mentor or buddy, to help you.

The BAPAM directory of practitioners has a list of clinicians, including Physiotherapists, who have extensive experience working with performing artists – some of them specialise in working with musicians. This is a supportive network of likeminded people. You might consider joining the directory: contact BAPAM directly for details about this. Members of the directory may also be happy to take on a professional mentor or buddy role.

Specialist Performing Arts Healthcare Practitioner - BAPAM

Resources

Dr. Bronwen Ackermann, Associate Professor, is a specialist in physiotherapy for musicians, musculoskeletal anatomist, and researcher in musician health at the University of Sydney. Entering her name into an academic search engine or data base will help you find over 90 (at time of writing), peer reviewed publications on a wide variety of relevant topics.

ASPAH
- Australian Society of Performing Arts Healthcare: www.aspah.org.au

BAPAM
- British Association of Performing Arts Medicine: www.bapam.org.uk
- BAPAM is a British Charity. It can provide rapid access to a variety of health practitioners experienced in working with performing artists. Initial consultations are either face to face or online, and are free. This initial consultation can signpost a player to what is needed next. BAPAM's website has extensive resources for musicians and clinicians, including training, CPD, factsheets, etc.

The DIVA screening Tool
- The Dancer, Instrumentalists, Vocalists and Actors Pre-participation Screening Tool. Ackermann, B. J., Guptill, C., Miller, C., Dick, R., (2022) Assessing Performing Artists in Medical and Health Practice — The Dancers, Instrumentalists, Vocalists, and Actors Screening Protocol. 1537-890X/2112/460–462 Current Sports Medicine Reports.

Healthy Conservatoires Network (HCN)
www.healthyconservatoires.org/network/

Help Musicians
- Help Musicians is a charity that for over 100 years has been supporting musicians to thrive in their careers and lives. Through their support musicians can access health services, business upskilling, and help to unlock new opportunities. www.helpmusicians.org.uk

Music Minds Matter
- Music Minds Matter is a charity dedicated to supporting the mental health of everyone working in music in the UK. It connects people in music to vital information, expert support, and a community that understands, helping them care for their mental wellbeing and those around them. www.musicmindsmatter.org.uk

PAMA
- Performing Arts Medicine Association: https://artsmed.org/
- PAMA publishes the Peer Reviewed Journal: Medical Problems of performing Artists www.ingentaconnect.com/content/scimed/mppa
- PAMA also runs the PAMA Symposium, every two years.

PhD in Injury Prevention in Orchestra Musicians
- Rousseau, C., Barton, G., Garden, P., & Baltzopoulos, V. (2021) *Development of an injury prevention model for playing-related musculoskeletal disorders in orchestra musicians based on predisposing risk factors.* International Journal of Industrial Ergonomics, 81, 103026.

UCL MSc in Performing Arts Medicine.
www.ucl.ac.uk/prospective-students/graduate/taught-degrees/performing-arts-medicine-msc

Generic Resources to Support general Health and Wellbeing and to Speed recovery (primary and secondary prevention)

Department of Health recommendations for Physical activity
- Physical activity guidelines www.gov.uk/government/collections/physical-activity-guidelines
- Infographic: Physical activity guidelines: adults and older adults - GOV.UK (www.gov.uk)

Sleep Hygiene
- Fall asleep faster and sleep better - Every Mind Matters - NHS www.nhs.uk/every-mind-matters/mental-wellbeing-tips/how-to-fall-asleep-faster-and-sleep-better/

Nutrition for Health - Eat Well Guidance
- Nutrition for training and recovery: www.bda.uk.com/resource/sport-exercise-nutrition.html
- The Eatwell Guide: www.gov.uk/government/publications/the-eatwell-guide
- Infographic: Eatwell Guide: https://assets.publishing.service.gov.uk/media/5bbb790de5274a22415d7fee/Eatwell_guide_colour_edition.pdf
- Your Health - The Association of UK Dietitians: www.bda.uk.com/food-health/your-health.html

Breathing Pattern Disorders
- Physiotherapy for breathing pattern disorders resources for physiotherapists: www.physiotherapyforbpd.org.uk/

Smoke stop
- Quit smoking - NHS: www.nhs.uk/live-well/quit-smoking/

CLINICAL EXPERTS DELIVERING HEALTH & WELLBEING SERVICES
BAPAM
PERFORMING ARTS MEDICINE

'Bringing together occupational health principles and performing arts medicine, I strongly support these guidelines as part of orchestras' health risk management strategy. Although the physical demands of professional playing cannot be completely avoided, these recommendations give orchestras practical tools to implement meaningful risk-reduction strategies and promote early identification of work-related musculoskeletal issues. By combining detailed guidance for physiotherapists working with orchestral musicians, with practical implementation support for orchestra managers, this toolkit offers valuable resources in supporting musicians' occupational health and sustainable careers.'

Dr Finola Ryan, Executive Medical Director
British Association for Performing Arts Medicine

How this came about

In 2018, Royal Liverpool Philharmonic joined forces with the charity Help Musicians and Liverpool John Moores' University Research Institute for Sport and Exercise Science with a common vision of preventing physical injuries in musicians to encourage long, healthy careers. Together, they facilitated Dr Céleste Rousseau to complete a PhD in Injury Prevention in Orchestral Musicians. Through this work - and the extensive existing research and practice in the UK and internationally by organisations such as BAPAM and the performing arts medicine community - the partners identified a gap in information to help enable positive partnerships between orchestras and physiotherapists.

This led to the commissioning of Sarah Upjohn, one of the UK's leading physiotherapists working with both professional and student musicians, to author this guidance toolkit for physios new, or relatively new, to working with professional musicians – **A Symphony of *Good Sense*.**

The initial seeds of this idea were planted in 2015, when Liverpool Philharmonic introduced a Musicians' Performance and Wellbeing programme for its musicians. This followed consultation with musicians regarding their lived experience as professional orchestral musicians and was informed by their views on how the organisation could better support the orchestra to thrive – as individuals and collectively. The programme is musician-centred, initially launched with physical health provision, and since expanding to include hearing health, mental health, training, professional development and many other elements.

Liverpool Philharmonic

Help Musicians

'It is like having a parachute that can always open.'

Musician
Royal Liverpool Philharmonic Orchestra

Dr Sarah Upjohn EdD MA MCSP HCPC Registered

Sarah is a Performing Arts Medicine Physiotherapy Practitioner, Researcher and Educator, working mainly with instrumental musicians. She has extensive clinical experience in assessing & treating playing-related musculoskeletal injuries in instrumental musicians, and she is passionate about injury prevention, and promoting musculoskeletal well-being in musicians.

Sarah is the physiotherapist at The Purcell School for Young Musicians and well-being lead for the National Children's Orchestra of Great Britain. She is an assessing clinician and educator for BAPAM and is a member of the Steering Group of the Healthy Conservatoires Network.

Additionally, Sarah regularly contributes to teaching within a variety of UK music education (pre-conservatoire and conservatoire) settings.

She has a Doctorate of Education from the University of Cambridge, and has had her research findings accepted for presentation at National, International and World Conferences (UK National Physiotherapy Conferences - 2012, 2017 and 2019, International Conference on Performing Arts Medicine - The Hague 2018, International Society of Music Education World Conference - Baku, Azerbaijan 2018, Musicians Health and Wellbeing Conference - Oslo 2022, Performing Arts Medicine Association International Symposium - New Orleans 2020, London 2024, Washington DC 2025).

Feedback

We hope that you have found this resource helpful and welcome all feedback

If you have any feedback or comments, please email **orchestra@liverpoolphil.com**

Advice on finding a physio for musicians & orchestras

The first point of call should always be to find out if there is an experienced physio near you.

Specialist Performing Arts Healthcare Practitioner - BAPAM

If there is not a specialist physio close by, please share these guidelines with your local provider.

Images courtesy of Royal Liverpool Philharmonic Orchestra.
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