



THE UNIVERSITY OF
SYDNEY

Sound Practice

HEALTH

HANDBOOK

for

Orchestral Musicians

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MAY 2015



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Introduction

You Are Your Instrument!

This book is designed to help explain how the human body functions during musical performance. This will help musicians to better prevent performance-related health issues, as well as understand ways to help manage problems should they arise.

A musician's body and mind must operate at a highly sophisticated level to be able to achieve excellence in music performance. This has led to musicians being described as elite athletes, performing at the highest capacity of human function.

The musician's mind and body forms an integral part of their instrument. There should be a perfect synergy in the interface between the instrument and the performer's body. While most musicians ensure their musical instrument is kept in perfect condition, the same cannot always be said for the performers themselves! Tuning your body and mind is as **important as** tuning your instrument to enhance performance and avoid physical and mental health problems.

Physical and psychological wellbeing provides the foundation for all elite human performance. The professional orchestral workplace is demanding both physically and psychologically; accordingly, musicians require active strategies to optimally manage the occupational, musical, physical and psychological load.

The goal of this work health and safety handbook is to provide basic health information to assist professional orchestral musicians to better understand how to maintain health and well-being. It contains advice on posture, physical condition, psychological health, and playing-related movement (performance biomechanics). Tip sheets with various strategies on how to avoid and manage injuries are contained at the end of the handbook.



Best Health → Best Performance

Pain - What Does It Mean?

Orchestral musicians frequently experience pain due to the high physical demands of hours of daily repetitive playing actions. Pain is our body's way of telling us that something has gone wrong and needs to be addressed.

Don't play through pain!

While experiencing pain is common, it should NOT be considered 'normal' to be in pain. "Playing through pain" is a frequently occurring strategy of injury mismanagement that is a major cause of serious, difficult-to-resolve problems in musicians. A musician with chronic and significant physical or psychological damage resulting from such ill-advised coping techniques places his or her career at risk.

The risk of an injury increases in proportion to exposure to the number and type of risk factors. Commonly, injuries arise following a sudden increase in the volume or intensity of playing, often without adequate recovery periods. The muscle overload may also occur as a result of increased external activities such as manual labour or computer use. Sudden increases in playing load do not provide enough time for muscles to adapt and so they will fatigue and be at a higher risk of damage. Injuries tend to occur in predictable areas such as the neck in violinists or the face in a brass player. An episode of pain brought on by this overload should resolve quickly with immediate appropriate management.

In general, the area injured should be rested, and iced if swollen, for the first 1-2 days. If the injury is not settling, consult a medical practitioner or other health professional to diagnose the injury and advise more specific management.

Mild pain from injuries such as muscle strains that would resolve quickly with appropriate care can become more serious if they are not addressed early. Playing with torn muscles not only increases the likelihood of making the tears worse, but also leads to changes in how you play to avoid hurting these structures. This can be very detrimental to your playing and technique as these avoidance patterns typically become bad habits. Longstanding pain also causes changes in the nerves, with those at the muscle becoming hypersensitive (so it is easier to feel pain) and the brain develops an abnormal representation of that part of the body.

If pain persists – see a doctor or physiotherapist

For more information on managing pain refer to page 22

Warming Up

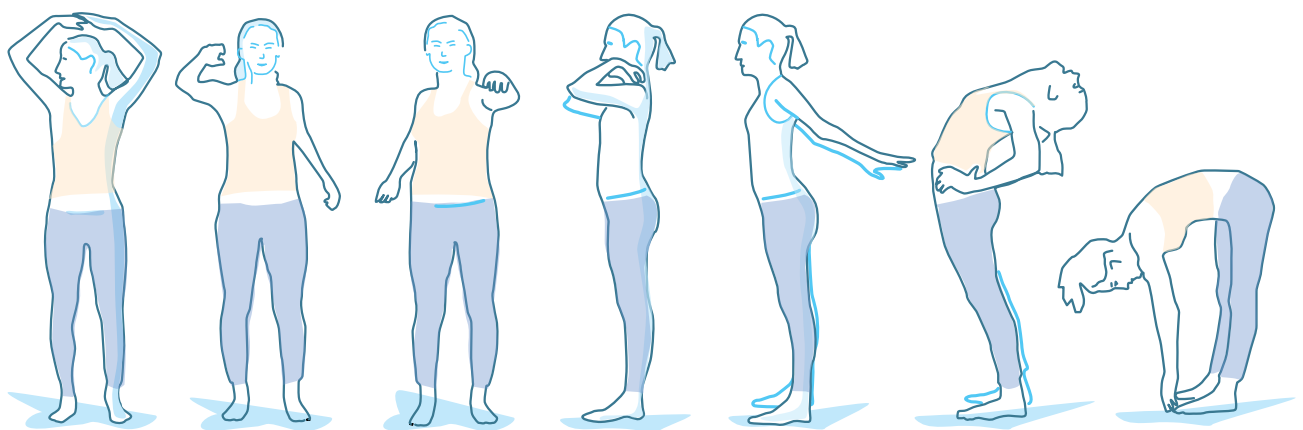
Warming up prepares the body for physical activity. It increases blood flow through the working muscles as well as limbering up the joints that will be moved during playing. Blood carries oxygen and nutrients to the muscles; it takes about 10 minutes to increase flow to more distant body parts like the hands. Muscles with inadequate blood perfusion will initially derive energy from limited local fuel stores within the muscle. However, these local muscle energy stores are best reserved for sudden increased playing loads during performance, such as particularly fast or loud passages. If the stores are used up early, they may not be available when increased demands occur during performance.

Ten to 15 minutes of large and gentle movements of the body, arms and legs half an hour before practice or performance is recommended, followed by a quick upper body warm-up before playing. A physical warm-up is also an ideal time to integrate mental preparation, such as slow rhythmic breathing, imagery and positive focus.

Cooling Down

Once a performance is finished, a cool down should occur. The preferred cooling down exercises comprise gentle, large scale movements, similar to those used in the warm-up, that allow blood to continue to flow through the fatigued muscles to remove waste products and replenish energy stores.

Immediately after the cool-down is the ideal time to drink water and eat foods high in protein and carbohydrates to replenish your energy reserves for the next practice session.



See the Tip Sheet at the back of this book for useful warm-up/cool down exercises.

Stretching & Flexibility

Use it or lose it!

Maintaining flexibility is important for musicians to ensure that the ability to move freely on the instrument is not impaired. If joints are stiff, your muscles may have to work much harder than necessary to move the body part in the desired way.

Try stretching twice a week after warm-up, but not before exercise, to maintain flexibility. There is no convincing research that stretching immediately before exercise prevents injury. Stretching immediately before a performance triggers a stretch reflex in the muscle fibres that causes them to relax, thereby inhibiting one's ability to move quickly and powerfully. This is not an ideal state for launching into the musical repertoire!

The stretch should be gradually taken into range and held for about 30 seconds. Slow breaths help you to regulate the stretch – breathe in for 4 seconds, out for 6 seconds, gently letting the muscle go further into the stretch position with each breath out. This way, a single muscle stretch equals 3 slow breaths per side. A stretch should be felt along the length of the relevant muscle, but should not induce pain. Pain is a signal that something is wrong – the stretch may have gone too far into range; stiff joints may be preventing movement; or the angle of the stretch may be wrong.

Stretching during injury healing helps restore the proper alignment in the recovering body part. Generally, you can stretch further as healing progresses, but a ligament, muscle or tendon that has had a significant tear should not be at full strain for at least 8 weeks. A good indication that you have moved the part too far is pain—if you feel pain, back off!

There are bodywork techniques, such as yoga, Tai Chi and Pilates that may help with flexibility. Many different kinds of yoga exist, with progressive levels within each type. It is important to take care when starting these programs so that you receive good supervision and advice on which variation may best suit your needs.



See the Tip Sheet at the back of this book
for useful stretching exercises

Fit to Play

It is important to be in good physical condition to maximize your body's capacity to provide energy and support for desired musical tasks.

The benefits of exercise training are numerous and include:

1. Improved co-ordination and mobility of joints
2. Reduced fat
3. Increased muscle size and strength or endurance
4. Improved mood
5. Higher energy levels

Cardiovascular fitness

The goal of performance movements is to allow the best sound to be produced with the least possible effort. Increasing cardiovascular fitness levels increases performance capacity by improving the rate of blood supply to a greater number of muscle fibres. Additionally, regular cardiovascular exercise improves mood in addition to enhancing physical capacity.

Resistance training

Resistance training specifically builds up the strength or endurance capacity of a muscle, or a group of muscles. This depends on; the type of exercise given, how much strain the exercise involves, and how many times in a row it is performed. For example, if you lift a weight by bending your elbow, you will strengthen the muscles at the front of your upper arm. They will become bigger and stronger if you lift heavier weights fewer times in a row before getting too tired to lift any more (e.g. 6 repeats), but they will become stronger over time, or have more endurance, if you lift slightly lighter weights more times (e.g. 15 repeats). Generally musicians show better benefits from the latter endurance type resistance training.

Resistance training has specific effects. For example, lifting heavy weights only a few times builds strong muscles for fast, powerful bursts of activity. To increase endurance, lighter weights are used and lifted with a greater number of repetitions until fatigue is experienced. Any weight training should be built up gradually and progressively to avoid straining muscles. For instrumentalists, it is best to focus on supporting or core trunk muscles, not those that are already being heavily used during full playing seasons. Exercises that strengthen the shoulder blade muscles, deep neck muscles and abdominal muscles are beneficial. It is a common error for gym or rehabilitation programs to focus too heavily on the over-worked muscles involved in instrumental performance, such as in the hand or forearm; avoiding this is important.

Exercise training guidelines

The consensus guidelines for exercise participation for normal healthy adults are:

1. Cardiovascular: moderately intense ("somewhat hard") exercise (e.g., swimming, running, fast walking) for 30 minutes a day, 5 days a week OR vigorously intense ("hard") exercise for 20 minutes a day, 3 days a week
2. Resistance: 8–10 strength-training exercises with 8–12 repetitions of each exercise twice a week focussing on underused or supporting muscles. Several shorter bouts of moderate intensity exercise can be done each day to achieve this target. Choose modes of exercise that you enjoy!

Fit to Play_{continued}

Neuromuscular exercises (coordination exercises)

Exercise training enhances muscle balance and physical condition in preparation for the work of musical performance, but other exercises are particularly useful for increasing fine motor control. Practicing very disciplined fine movements appears to be useful for musicians and may reduce tension by improving control. Examples of neuromuscular coordination exercises include the practice of independent and coordinated movements of the muscles in the hand and the face.

General bodywork

Yoga, Feldenkrais, Eutony, Flow, Alexander Technique, Tai Chi and Gyrotonics all use different approaches to work on core support of movements. They do this in a wide variety of ways by teaching techniques that use stretching, balance exercises, core strengthening exercises, relaxation of tense muscles, and movement guidance or a combination of these. There is not much evidence for how these techniques work, and it is not clear yet whether one technique is better than another, particularly as there is a common theme of central support that facilitates balance and freedom in the arms and legs. If the one you first try doesn't suit you, try another. They are quite different; so select the one you find most personally beneficial. Remember that practitioners who teach these techniques are often NOT health professionals. They and their programs are therefore not qualified to specifically manage injuries.

Regaining physical performance condition after a holiday

Muscles lose their condition very quickly over periods of inactivity. Thus, it is important to build up your musical practice in a graduated manner after a break. This is because the special cellular structures that produce muscle energy – mitochondria – increase or decrease in number in response to the demands on the muscle system. If there is not enough energy, or fuel supply, for performance you will cause damage to muscle structures. Some musicians develop compensatory (or abnormal) movements that use muscles that aren't tired and this can cause longer term problems to develop. You should resume practice before the performance season begins to avoid a sudden overload on your muscles at the start of your performance year. If you are away from your instrument at the end of your vacation, work on general cardiovascular fitness as well as specific exercises that condition the relevant muscle groups used in playing.

The Role of Rest

Resting during the day

At least 10–15 minutes rest is necessary to allow muscles to recover from practice, performance, or rehearsal. Practice sessions should not exceed 45 minutes without rest, as this is the endurance limit of most muscles. Shorter sessions are better for vigorous playing, as fatigue occurs more rapidly. Whenever resting between practice sessions, energy stores should be replenished by changing physical position, eating a snack, or having a drink of water.

Sleep

The body needs regular rest to replenish the body. Overall health, as well as specific structures such as muscles, will be negatively affected by lack of sleep. Rest is crucial to support performance demands by allowing for the replenishment of energy supplies within the muscles and the removal of waste products that are continually accumulating as a result of cellular metabolism.

Resting when injured

Rest following an injury has been defined the American College of Sports Medicine, (1997) in sports medicine as the process of:

Resuming

Exercise below

Soreness

Threshold

Once initial healing has occurred, careful and graduated active rehabilitation helps the injury recover faster, as long as the pain or injury is not aggravated by the task. An injured part of the body can still be relatively rested (e.g., with braces or modified playing/technique) while attention is paid to maintaining or improving overall fitness and strength to allow optimal return to performance.

Extended periods of rest should be avoided, unless specifically advised by an experienced medical practitioner. Extended rest results in poorer healing, deconditioning, loss of technical facility and negative psychological consequences. "Doing nothing does nothing!"

The Role of Rest continued

Return to play after injury

Returning to play should involve a graduated progression from “can’t do” to “can do”. Start by playing at a level that you can manage and slowly increase speed and difficulty as your injury improves to tackle more difficult tasks. It is counter-productive to risk re-injury as a result of pushing too hard. It is generally advisable to start with shorter playing sessions with plenty of rest/recovery time, rather than attempting to go straight back to extended playing periods. After a significant break due to injury, several weeks may be required before returning to full playing.

Exercise of the recovering body part in a way that most closely resembles the musical action (functional rehabilitation) is important. Start by strengthening parts of the body away from the instrument, then gradually re-integrate all the movements and exercises back into your playing.

To enhance healing, make sure you optimise your diet and hydration and take the opportunity to work on general fitness.

Model timetable for return to play after injury

The duration of sessions should be arranged such that your injury does not worsen, while aiming to continue a gradual improvement in playing capacity. Therefore, do shorter sessions more often to start with, to avoid further damage and allow an increase recovery time. It is also important to be working on overall physical condition, and maintaining the strength of the non-injured parts of the body used in playing. The table below shows an example of how such a timetable may look, although times and repertoire choice should vary depending on each individual and their injury.

STAGE	Warm-up	Play	Rest	Warm-up	Play	Rest	Warm-up	Play	Rest	Warm-up	Play	Rest
1	10 mins	10	60									
2	15 mins	15	60	15 mins	10	60						
3	15 mins	15	60	15 mins	15	60	15 mins	10	60			
4	15 mins	20	45	15 mins	15	60	15 mins	15	60			
5	15 mins	25	45	15 mins	20	45	15 mins	15	60			
6	15 mins	30	30	15 mins	25	45	15 mins	20	45	15 mins	15	60
7	15 mins	40	30	15 mins	30	30	15 mins	25	45	15 mins	20	45
8	15 mins	45	15+	15 mins	45	30	15 mins	30	30	15 mins	30	30
9	15 mins	45	15+	15 mins	45	15+	15 mins	45	30	15 mins	45	60

Muscle Fatigue and Tension

Australian professional orchestral musicians report that muscle fatigue and tension are major reasons for injury. Thus, understanding why these occur and how to recognise and manage these conditions is likely to be important for injury prevention.

What causes muscle fatigue?

Factors that influence time to fatigue include:

- i Cardiovascular efficiency; the fitter you are, the longer you can play.
- ii Hydration and nutrition; adequate water and carbohydrate intake gives your body more playing fuel
- iii Movement efficiency; using the right muscle for the job reduces effort
- iv Muscle strength; to play longer, use as little muscle effort as you need to for achieving the best sound results
- v Amount of force applied; oversqueezing or excessive impact should be avoided
- vi Duration of use; muscle endurance takes time to build up and there is usually a 45-60 minute limit of muscle endurance

What are the signs of muscle fatigue?

Fatigue is determined by both central (i.e. brain processes) and peripheral (i.e. at the muscle itself) mechanisms. When you start to think that you are getting fatigued, this is your brain's way of warning you that you are running out of energy and need to stop what you are doing to avoid harm. You may also experience mental fatigue signs such as being unable to focus on what you are doing properly. Mental fatigue can be exacerbated by poor lifestyle habits such as lack of sleep and too much alcohol. Once there is no fuel in the muscle itself (this causes muscle fatigue), there will be insufficient energy to be able to continue the task normally. Typical signs of this include shaking, limb heaviness, increased tension and altered movement patterns. This muscle fatigue will occur more rapidly if you are not managing your diet well or are dehydrated. Being fit helps you to more effectively get blood to working muscles and can increase how long you play before fatigue.

If I am fatigued, how should I best recover?

As a general rule, 45 minutes is as long as you are likely to be able to play without exhausting energy supplies within your muscles and becoming fatigued. This varies a bit according to how vigorously you are playing and your state of general health.

You should take a minimum break of 10–15 minutes to allow muscles to restore their energy supplies. Get up and move around to change the body's position, rehydrate yourself with water and have a protein and carbohydrate snack (e.g. fruit smoothie/yoghurt or cheese sandwich).



For more diet tips check out the Nutrition section page 43

Move Well, Play Well

The body is designed to allow particular movements to occur at each body part, and these movements normally start from central body movement and then flow along the arm or leg outwards to the hands and feet from the trunk. Performing movements with good trunk support reduces strain on the body and improves control of the hands, thereby directly influencing performance.

Professional musicians need to *check-in* on their movements regularly

In elite sports domains, athletes have long recognised the importance of maintaining regular technical analyses, often with the assistance of a coach. This is NOT because they can't play well, but is to ensure they keep at the top of their game. It is considered a fundamental part of training for elite sports professionals, and indeed at the Australian Institute of Sport motion analysis forms a large component of the sports medicine support of athlete training. Research on elite fine skill performance consistently reinforces that visual feedback is an essential component. This should occur with professional musicians as well, although it has not been a traditional discipline within practice habits. Video yourself from different angles regularly to ensure you are playing with correct posture and body movement; movements can easily change without your being aware of it and this may lead to injury.

What causes altered playing movements to happen?

There are a number of factors that can create a change in movements.

For example:

- 1.** When a muscle becomes fatigued, the body tries to help continue the task by recruiting additional different muscles. These will have slightly different actions and so the movement changes in a subtle but important way and this can lead to muscle misuse (i.e. the wrong muscle is used for the desired action).
- 2.** If you have pain the body will alter how it moves to try to avoid the pain, even if that movement is not ideal for the playing task.
- 3.** Adopting a non-ideal posture by using poor chairs for example, fundamentally changes how well the trunk or central body can support the arms, and this can lead to non-ideal movement.
- 4.** Playing in awkward positions or stage arrangements can result in players adapting their movements to be able to perform, but these adaptations need to be removed once the task is completed. This often occurs subconsciously, so it is only by 'checking-in' that the abnormal movements can be detected.

The sense of body position (proprioception) is most strongly influenced by vision, reinforcing the importance of maintaining a regular habit of observing playing actions.

Fuel for Performance

When performance demands are high correct nutritional and energy needs must be met. This is in order to provide adequate nutrition to power performance, and for building and repair of tissue. By consuming the right amount and types of fluid and food, you will be better able to maintain glucose (energy) levels for the duration of the activity. This will help to maximize performance capacity, as well as improve recovery. Your overall amount of exercise, your gender, your metabolic rate and intensity of performance demands (e.g. strenuous or light) will all alter your nutritional needs, so how much you need to eat can change from day to day. When correct nutritional intake is inadequate, you will have reduced energy for performance.

Glycogen and carbohydrates

The main source of energy for muscles, apart from oxygen, is glycogen - a substance that is derived from the metabolism of carbohydrates. Carbohydrates provide a major source of glycogen, and studies on endurance athletes show that adequate consumption of these is important in sustaining muscular endurance and reducing fatigue.

Glucose not needed for immediate use gets stored as glycogen in the liver and muscles. When glycogen stores are replenished, excess carbohydrate or sugars get stored as fat. Once glycogen supplies are used up, fat as well as protein (i.e. the muscle itself) will be used by the body as a substitute to provide the necessary fuel for performance. Excessive or increased intake of easy to absorb carbohydrates (or those with a high glycaemic index – high GI) may lead to increased fat deposition and weight gain.

Good carbohydrate sources include wholemeal breads and vegetables. These carbohydrates have a lower glycaemic index, which means the way the glycogen is formed and supplied gives you longer-lasting energy.

Protein

Since protein is important as a building block for muscle, failing to have enough protein in your diet can reduce the ability to build and maintain tissues. This can result in failure to achieve optimal performance and recovery. If the body is starved of fuel (i.e. low glycogen), direct damage to the working muscles can occur by the body breaking down these fibres to provide an energy source, thus preventing recovery and causing injury.

In music performance where high levels of muscle activity are involved, adequate protein needs to be included in the diet as this is critical for the building and repair of muscles that are being frequently used.

Fuel for Performance continued

Hydration

Water makes up 70% of blood volume, so it is important to maintain adequate hydration when performing. Keeping well hydrated is crucial for singers, as vocal cord function will be reduced if dehydration occurs. Extra care with hydration should occur if performing in conditions of low humidity.

Dehydration will decrease optimal performance as a result of decreased blood supply to deliver oxygen and nutrients to the working muscles. The amount of fluid intake needed also depends on the amount of fluid you are likely to be losing during performance. For example, you will be likely to need to drink more water during outdoor performances in the hot sun or those in crowded or warm venues under hot lighting, than during indoor performances in a cool venue.

Alcohol intake can increase these dehydrating effects and can delay recovery if consumed in excess directly after a performance. If you are having an alcoholic beverage after a performance, try to firstly eat a small meal or snack containing some protein and carbohydrate to replenish the body's needs. Remember to drink enough water.

A performance diet should include consideration of the nutrition and hydration that the body needs before, during and after the performance.



Other useful nutrition and hydration guides

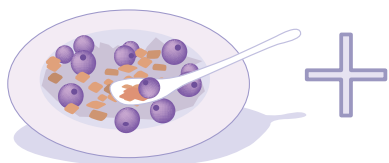
www.athletesandthearts.com/topics/nutrition-and-hydration

Performance Diet Example

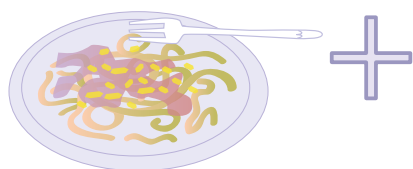
Before a performance

3 - 4 hours before a performance

Moderate sized carb & protein rich meal



At least 500ml - 1L of water with your meal



Half to 1 hour before a performance

Light snack - fruit or energy bars



Keep hydrating!

1. 3-4 hours before a performance you need to eat a meal containing carbohydrates and nutrients and drink a decent amount of water, e.g. 3-4 glasses, that will make sure your body is fuelled up and ready to go.
2. Food snacks prior to performance re-fuel the system BUT should not be too large or too heavy as this may result in too much blood being diverted to your stomach to help with digestion. This can make you lethargic and drowsy. The food consumed should be low in fat and fibre, contain moderate protein and relatively high levels of carbohydrates.
3. Eat familiar well-tolerated foods to avoid indigestion before a performance.
4. Try eating new foods and drinks before a practice session rather than a performance so you know how it will affect your playing and comfort.
5. Following your meal you should feel full but comfortable so you are not hungry during the performance.
6. Don't forget to drink enough water with your meals to keep up blood volume.

Examples:

- Lean meat hamburger
- Pasta with sauce and cheese
- Meat and cheese sandwich
- Cereal or oats with milk and fruit
- Stir fry meat and vegetables
- Yoghurt with muesli and fruit

About ½–1 hour before performance it is important to eat a snack and have a small amount to drink.

Examples:

- Fruit
- Energy bars
- Liquids such as a smoothie or sports drink.

The Effect of Alcohol on Performance

Guidelines for alcohol consumption suggest that men and women should not drink more than 2 standard drinks per day to reduce the risk of developing alcohol-related disease or injury.

Excess alcohol can affect your body in many different ways:

- Alcohol acts as a diuretic. It stimulates your kidneys to produce urine causing your body to lose fluids and become dehydrated. This can affect your blood volume and the ability to get oxygen and nutrients to working muscles.
- Alcohol acts to suppress the body's ability to use fat during activity. It can also decrease the absorption of minerals and vitamins such as B12, Folate and Zinc.
- Alcohol acts as a depressant – it can lead to decreased concentration and impaired ability to make decisions.
- Alcohol affects the body's sleep patterns. This can lead to sleep deprivation, overall fatigue, negative mood states and loss of concentration.
- Alcohol also has negative effects on healing of muscles or other structures that may have been strained during the performance. It increases inflammatory responses as well as reducing the absorption of nutrients into the tissues. Excess alcohol consumption the night before a performance can lead to impaired performance and early fatigue.

To avoid these effects, make sure that before you drink alcohol, you rehydrate with water and have a small meal containing both protein and carbohydrate. If you are having a glass of wine, try to have a glass of water as well.



For detailed information on alcohol consumption

www.alcohol.gov.au

Breathe Well/Play Well

Oxygen is used to produce energy for the working muscles and so breath holding will lead to earlier muscle fatigue. If this is a problem, use strategies such as notating breathing to remind you where to breathe in your practice sessions. Oxygen is used to produce energy for the working muscles so breath holding will lead to earlier muscle fatigue. If this is a problem, use strategies such as notating breathing or singing to remind you where to breathe in your practice sessions.

Breathing to sing and play

Breathing against resistance requires different muscle strategies from normal breathing, and so musicians need to use their accessory breathing muscles, particularly rib cage and abdominal muscles, optimally to refine and control airflow. Good control of airflow reduces unnecessary strain on the embouchure and upper respiratory system of the neck and soft palate. Breath amount should be phrase dependant, and this should be focussed on as part of practice sessions. Air flows from high pressure to low pressure, so while hyperinflation (too much air in the lungs) may provide some added pressure behind the outbreath, it is not controlled and hence less effective than air supply supported by muscles, and it also greatly increases the work of breathing in.

At the end of the outbreath lungs should be close to empty, and the first step is to quickly relax the abdominal muscles a split second before breathing in. This makes the in breath much faster and easier. There should be no noise on the in breath as this indicates glottis closure, again unnecessarily increasing the work of breathing. This problem is largely fixed by relaxing abdominal muscles and letting air come in naturally prior to actively breathing in, but you can also imagine you are making an “oh” sound to help you open your vocal cords. Once you have inhaled enough air for that phrase, engage your pelvic floor muscles (and lowest abdominal muscles) a split second prior to breathing out. This will ensure that the squeezing of the abdominal muscles will cause the air to flow upwards and out the mouth; otherwise there will also be downward pressure on the pelvic floor. Lastly, ensure your rib cage is mobile and warm up before playing, as movement here is an important part of the breathing action.

Breathing and relaxation

In normal breathing, controlled automatically by the central nervous system, adults take about 12–15 breaths per minute. In situations of stress, this rate typically rises as a result of stimulation of the sympathetic nervous system (the “fight or flight” part of our autonomic nervous system that reacts to stressors). Slow breathing techniques, such as those commonly used in meditation, yoga (pranayama) or asthma treatment (Buteyko method), have been found to help reduce sympathetic nervous system activity (e.g. racing heart rate, hyperventilation and sweaty hands), and manage anxiety. Most of these breathing exercises focus on reducing the breathing rate to a maximum of 6 breaths per minute and minimising activation of the breathing muscles, particularly by trying to keep neck, chest and abdominal muscles relaxed during breathing.

Sound Practice

While professional orchestral musicians become better at organising their practice through experience, there are a few useful things to remember that may help further refine practice techniques.

Don't panic practice - if you start every practice session in good physical and mental condition you will produce effective results in much less practice time.

For elite performers, practice recommendations use the **S.M.A.R.T** acronym:

- **S = Specific** goals for each practice session.
- **M = Measure** goals to know if you've improved (e.g. video/audio recordings)
- **A = Achievable** goals. E.g. don't rush into a full practice load after inactivity. Break it into shorter sessions and gradually build up; use mental practice.
- **R = Realistic** goals. This may even include acknowledging that, in a period of sudden increased playing, teaching may involve off-instrument lessons.
- **T = Timely** practice sessions to avoid fatigue and injury. Practising vigorous repertoire can work muscles much harder than normal, therefore these sessions may need to be shorter in duration.

Simple tips include

1. Be mentally and physically prepared before you start practising. If you are exhausted, ask yourself if you will really improve by practising in this state.
2. Plan and organise practice sessions according to energy levels, physical condition, and repertoire demands.
3. Make sure you have eaten and are adequately hydrated before starting.
4. Warm up your mind and body before playing to make the most of your session.
5. Incorporate specific off-instrument exercises first if necessary (e.g. when returning from injury).
6. Practice over an appropriate time frame.
7. Re-evaluate whether you achieved your goal(s).
8. Recover and replenish your system with food and water. Resting less than 15 minutes between practice sessions is **NOT** enough time for muscle recovery or recovery from mental fatigue.

Posture

What is the best posture for musicians?

Posture must provide balance and support to the body, allowing the player to make subtle adjustments to body position and orientation. These adjustments are necessary to support instrument weight or movements involved in playing. For wind and brass players, some degree of backrest support may assist with instrument load bearing. Overload of the arms results in stiffening of the rib cage to help support and stabilize, negatively affecting breathing patterns.

An optimal music performance posture should allow muscles and joints to move in the best way possible to achieve musical expression with the least amount of strain on the body. Both musicians and music health experts believe that postural faults contribute to problems with technique and an increased likelihood of injury.

Standing while playing enhances abdominal muscle support in breathing for wind and brass players. In sitting, seat inclines make minimal difference to abdominal muscle activation levels - it is probably best to choose the level of incline where you feel the most comfortable and in control during playing.

The traditional medical view of standing posture is that the body is aligned so that the pull of gravity is balanced down through the curvatures of your spine, passing through the knee and hip joints then into your feet. The feet allow weight shifting back and forth and side to side into the balls and heels by simple swaying actions that require little work from body muscles. This swaying allows the gravity forces to continue to travel through the body in a way that reduces muscle effort in holding the musician or instrument upright. This weight transference should logically follow the movements and instrument support requirements of performance.



Chair adjustments

To help maintain a comfortable and supportive sitting posture, a good, adjustable chair needs to be set up in a way that provides postural support while still allowing musicians to move freely during playing.

In sitting, the general rule of thumb is that the hips should be level with or slightly higher than the knees. At the front of the hip joint, the cartilage can become compressed and degenerate early if the hip is bent more than 90 degrees. Instrument positioning and playing demands, as well as the physical characteristics of the individual, will also influence the optimum seat height.

Slouching should be avoided, as it tends to bring the head forwards, create tension and strain in the neck, restrict tongue and jaw movements, impair breathing, and place strain on the discs in the spine.

Posture continued

Ergonomic devices

The term 'ergonomics' describes the process of person-task-environment fit, in the case of musicians, fitting a player to their instrument. This can include chair adjustments to properly support both your body and instrument, or the use of a special device to help hold up your instrument (e.g. a neck strap or a chin rest).

Ergonomic supports such as chair wedge cushions, chair leg raisers, or even a spare jacket behind your back or on the chair seat can be used as temporary solutions to help optimise your chair and better support your posture. Make sure that your regular practice chair set-up is ideal—it is worth the investment.

Your instrument set-up should allow you to perform in your optimal posture and position of playing. This will need to occasionally be modified as events occur that alter our body shape and condition. The thing to remember is that ergonomic devices allow you to be as comfortable and “unloaded” from your instrument demands as possible. They **SHOULD NOT** be a crutch to support bad postural habits.

Postural supports

As well as taking care to use the best chair you can, adjusted well, and to wear supportive and balanced footwear, there are a multitude of external instrument devices that aim to assist in maintaining the best posture and instrument support. There are many devices including thumb rests, neck straps, shoulder rests, chin rests and bent spikes. However, the most important factor with these support devices is that they should best fit the instrument to the musician in the most ideal performance posture. They should **NOT** be used as a crutch to support bad postural habits. Use a video or mirror to ensure that your posture and movements have improved and not worsened as a result of using the device.



See the Tip Sheet for useful posture examples page 56

Managing Injuries

Injury definition

The term “injury” may be used to describe pain or impairment occurring as a result of inappropriate levels of exposure to physical, psychological or environmental stressors. Essentially, these occur as a result of the body part being unable to cope with the loads placed on them. In all cases it is better to prevent the occurrence of physical and psychological damage than to try to manage them once they have happened.

Musicians’ performance-related injuries result from exposure to at least one physical, environmental or psychological demand at levels that exceeds the body’s ability to cope within the task of musical performance. These injuries commonly occur as the result of the player being exposed to several interacting risks - for example, long hours will not necessarily cause an injury to a professional musician until another factor, such as increased stress, is added.

Acute injury management

Managing injuries well from the beginning allows the best repair of injury and hence avoids the added burden of fear and psychological distress that arise from longerterm (chronic) injuries.

The general rule of thumb is to follow the **R.I.C.E.D** acronym:

Rest. First 1-2 days—this may be relative rest such as using a brace.

Ice. Ice is better than heat to reduce swelling in the first 1-2 days.

Compression. If there is swelling, using a compression bandage can help.

Elevation. If there is swelling, elevating the injured area will reduce this.

Diagnosis. If the injury isn’t settling in the first 2-7 days, get medical advice.

Chronic Injury Management

The term 'chronic injury' refers to injuries that have been present over extended time periods (e.g. for longer than a month). These injuries are more complicated to treat, as by this stage the injury may have had an impact on technique, confidence, participation in physical activity, and so on. In addition, extended periods of pain make nerves hypersensitive; thus pain is more readily aggravated. Often these injuries progress from an acute injury that wasn't managed well.

Effective management of these conditions often requires the involvement of a few health professionals (e.g. physiotherapist and psychologist) and an in-depth assessment of potential avenues to restoring health, such as: modifying playing schedule; movement analysis (chronic injuries usually change the playing action); posture analysis; specific exercises to restore strength, flexibility, balance and control; appropriate treatment and/or medications as required.



Get help early for playing-related pain

Psychological Health for Musicians

As a professional performer, there will inevitably be times when you are anxious about an upcoming performance, or perhaps have an issue with a co-worker and so on. To manage everyday sources of stress, there are many useful techniques taught by psychologists to help you manage such conditions. These include meditation, slow breathing exercises, imagery and combinations of these techniques such as practiced during mindfulness approaches.

Some of the benefits of performance psychology can be found at the website of the Australian Psychological Society at: <http://www.psychology.org.au/community/specialist/sport/>

This website also contains many useful tip sheets to help manage a variety of psychological conditions at: http://www.psychology.org.au/publications/tip_sheets/

However, while it is useful to undertake regular exercise and other activities that can help manage stress and anxiety, it is also important to accept and recognise that sometimes it is too difficult for us to manage on our own. There is nothing wrong with this, and it is completely normal for athletes to seek out performance psychologists to optimise their performance as well as help manage unwanted emotions or feelings. Similarly, musicians can greatly benefit from learning proactive and positive strategies from performance psychologists to facilitate an optimal mental state during musical rehearsals and performances.

If there are strong or recurrent emotions or feelings occurring, professional advice should be sought. There are many different conditions that can affect mental health, and these need to be diagnosed correctly by qualified mental health professionals to ensure the correct approaches to management are taken. On no account should performers take medications not specifically prescribed for them, as this can have detrimental effects. For example, if you are suffering symptoms that are a consequence of depression rather than anxiety, beta blockers are not necessarily the correct way to manage this, and may in fact make the symptoms worse.

How do psychological therapies work?

All forms of anxiety are responses to real or perceived danger. We learn about danger through personal experience, the reactions of our parents, and the outcome of events on others. So, we may learn to be anxious about our own feelings because some families are uncomfortable with or anxious about the expression of feelings. They may react with indifference, sarcasm, humour or anger to situations, or conversely learn not to show a range of emotions including anger, love, jealousy, excitement and interest.

Other feelings of anxiety may be based on past experiences of yourself or your family. For example, you may have been attacked by a dog as a young person and from that experience, develop a fear of all dogs. Conversely, your mother may have been afraid of dogs and reacted anxiously every time she saw a dog. Even though you may never have had a bad experience with a dog, you may start to act anxiously around dogs simply by observing your mother do so.

When people become anxious about their feelings they avoid the feelings and try to avoid the situations where they

Psychological Health for Musicians

How do psychological therapies work? continued

fear that they may be judged or criticised. We will often try to talk ourselves out of our feelings without realising that the intensity of the emotional response may relate to past times and situations in our lives, rather than the current situation in which we now feel anxious.

In treatment for music performance anxiety, psychologists explore not only the presenting anxiety but also the underlying feelings and the ways you have been thinking and behaving to try to manage your anxiety. There is a focus on the experience of the feelings in the body, and the thoughts and memories attached to those feelings. This allows the feelings behind the anxiety to come into focus, thus allowing them to be processed. This may feel distressing for a while but eventually you will experience relief from the intense anxiety that you feel. As you gradually allow yourself to be exposed to your feelings in the safe environment of the therapist's office, anxiety decreases as your understanding increases about the relationship between the past and present. You become more able to be fully present in your performances without past issues interfering with your immersion in the music.

Psychological treatments

There are a number of psychological treatments available to assist anxious musicians. It is important that treatment type is matched to the type and severity of the music performance anxiety experienced and whether there are other conditions present, such as another anxiety disorder (e.g., social anxiety or panic), and whether depression is also a feature of the clinical presentation.

Many people with anxiety conditions respond well to cognitive behaviour therapy (CBT), which offers a range of interventions including the identification of stress and triggers, breathing and relaxation, thought management, called cognitive restructuring, which involves exposing and challenging unhelpful beliefs and thoughts, and lifestyle changes. The psychological tip sheets provide more detailed information on all of these interventions.

In the case of severe performance anxiety the treatment of choice is dynamic psychotherapy, including psychoanalytic psychotherapy, attachment-informed psychotherapy, and Intensive Short Term Dynamic Psychotherapy (ISTDP). These address the source of the anxiety rather than the responses or symptoms alone. The aim is to focus on the experience of the feelings behind the anxiety and the thoughts and memories attached to those feelings, which, once identified, can be processed and resolved.

There is research supporting the effectiveness of these therapies when patients are carefully selected. They should be delivered only by suitably qualified psychiatrists or psychoanalytic psychotherapists who have had additional training in psychoanalysis (and are members of the Australian Psychoanalytic Association) and psychologists who are registered to practice with the Australian Health Practitioners' Registration Board of Australia (AHPRA) and who belong to the clinical or counselling colleges of the Australian Psychological Society (APS - www.psychology.org.au), which offers a *Find a Psychologist* service to the public in all Australian states.

Hearing Health

Hearing loss through exposure to sound is cumulative and permanent - the ears eventually 'wear out' after repeated exposure to moderately loud sounds. Potentially damaging sound levels are often found in many parts of the orchestra and even occur during private practice for the louder instruments.

Damage to the hearing may lead to reduced hearing levels, hyper-sensitivity to some sounds, permanent ringing or buzzing in the ears and pitch discrimination problems. For continued music making at the professional level, it is well worth investing some time and thought into how to protect your ears and to develop healthy hearing habits in all aspects of your life, not just while playing.

Preserving your hearing is the responsibility of both your employer and yourself. In an orchestra this is especially true, as protecting hearing while maintaining a musically meaningful connection to those around you can be challenging. Thankfully, approaches to hearing conservation for orchestral musicians have come a long way in the last decade or two, both from technological and workplace health and safety points of view.

Given knowledge of the sound levels to which you are exposed, clear warnings about when risk levels are going to increase, and guidance on options for personal hearing protection to suit you and your instrument, you should be able to develop your own effective approach to looking after your ears throughout your career.

You have a right to ask what your sound exposure is or is likely to be at any concert or rehearsal, and your orchestra should have a range of measures in place for dealing with high sound levels. These may include acoustic screens (both large and smaller individual screens), the use of risers to separate instrument sections, appropriate orchestral set-up, rotation of the rear desks of string sections, rostering according to exposure for extended high-level seasons, appropriate panning of repertoire and rehearsal time to avoid 'heavy' days and an ongoing management of sound exposure using a range of administrative and engineered controls.

Personal acoustic screens made from Perspex have been shown to significantly increase sound levels to those musicians 'upstream' and need to be set very close to the ear to have any real effect and as such the use of these screens is not recommended. Laboratory testing has shown that this problem can be remedied using absorptive wrap-around personal screens, which have been shown to reduce sound levels to the rear by up to 8 dB.

When control measures such as those mentioned above are either not sufficient to reduce sound to safe levels or start to impact on things like ensemble, acoustics and performance standards it is essential that you have a set of ear plugs that still allow you to play your instrument effectively and clearly hear those around you. Unfortunately all ear plugs - even the most expensive - are not alike.

Hearing Health continued

The 'industry standard' custom moulded musicians' plugs can be excellent, but poorly made custom earplugs with inferior filters can be as challenging as using industrial earmuffs. Good custom plugs should use high quality 'musicians' filters rather than the cheaper generic filters, which have a very poor sound quality. Your earplugs must be 'tuned' by the manufacturer and should be made of soft, clear silicone, which maintains its shape over time. If you have yellowing/cracking or shrinking plugs with a narrow parallel sound bore, chances are you need to get some new ones.

If your instrument connects with your head in any way, it is also essential that you have your custom earplugs made so they fit quite deeply into the ear canal to improve sound quality and reduce occlusion (a predominance of your own sound (voice or instrument) in your ears). Audiologists are able to do this upon request and are trained in this type of fitting. In orchestral situations, players often wear earplugs that 'over attenuate' or block out too much sound. For many, a 9dB reduction is more than enough to stay 'safe,' and any more than this may risk a feeling of isolation or disconnectedness just when we need exactly the opposite.

Level-dependent electronic earplugs are available now and are being used in some of the professional orchestras. Although they don't suit everyone, the players who like them tend to love them, with several Australian musicians now using these plugs exclusively. These plugs run on a hearing aid battery and are switchable between 9dB and 15dB attenuation — a custom moulded sleeve is also necessary to reduce occlusion while you have them in.

Earplugs obviously aren't ideal and even the best are far from perfect, but the compromises we are forced to make wearing them are a small price to pay for avoiding permanent hearing problems. Like other aspects of playing, using earplugs is an acquired skill that takes practice to develop. There are many examples of players of all instruments who are able to successfully adapt to earplug use, even in the most stressful situations. The gold standard of course remains the open ear, but a properly fitted (and tuned!) earplug is a tool of the trade.

There is a lot that can be done to manage your exposure over your career and it is entirely possible to play in a high-risk position for many years without damaging your ears, but early-formed habits are easier to maintain, even in very challenging situations. If your ears ring for an hour or two after concerts, rehearsals or practice sessions and things sound a little 'dull,' this usually means temporary hearing loss has occurred. While this situation recovers after a period of time, repeated episodes of temporary hearing loss will inevitably lead to permanent damage. If you suffer a temporary hearing loss, make sure you give your ears at least twenty-four hours of rest (preferably forty-eight). You should also work out ways to avoid similar situations in the future, and talk to your management about ways that you can manage your exposure.

Hearing Health continued

The risk of damage to hearing from sound occurs either when instantaneous peaks exceed safe levels or when moderate levels of exposure occurs over long periods. 85 decibels sustained for 8 hours is the maximum daily limit before hearing loss is risked. As the decibel scale is exponential, a 3 dB increase doubles exposure and as such halves safe exposure time, so 88 dB is safe for 4 hrs, 91 dB for 2 hrs and so on. This table gives some orchestral examples:

Instrument	Median peak levels*	Sustained exposure range*	% of daily exposure limit after one 2.5hr orchestral call (based on upper limit of range)
Trumpet	125 dBC	82-95 dB LAeq	310%
Clarinet	123 dBC	80-94 dB LAeq	248%
Violin 1	120 dBC	77-91 dB LAeq	124%
Percussion	136 dBC	82-96 dB LAeq	393%

*based on levels measured over three years in a professional orchestra as reported in O'Brien I, Wilson W, Bradley A. Nature of orchestral noise. J Acoust Soc Am. 2008;124:926-39.



See the Tip Sheet for ways to keep your ears in great shape page 60

Hearing Health continued

Now, some myth busting

- 1.** "It isn't that loud...." An orchestral trumpeter playing concert A at fortissimo in a practice room can risk hearing damage after about three and a half minutes. Sound levels measured at the ear of a 1st trumpet playing a Mahler Symphony indicate the trumpeter would be at risk of hearing damage after about twenty minutes of rehearsal or performance. Different instruments and different repertoire carry different risks, but conclusive studies confirm it can be 'that loud' for most instruments at least some of the time.
- 2.** "This is a pit orchestra problem..." Comprehensive studies show sound levels on the concert hall platform are regularly as intense as those in the orchestra pit, although the quality of the sound may be very different and duration/regularity of exposure is often greater during opera/ballet seasons.
- 3.** "There is no evidence of classical musicians losing their hearing..." There are now many studies that confirm that classical musicians exhibit significantly greater incidence of noise-related hearing pathologies than the general population, particularly in those under forty years of age. Such pathologies include tinnitus, diplacusis (pitch distortion), hyper-sensitivity to sound and permanent threshold shift.
- 4.** "I'll lose my hearing when I get older anyway..." Everyone's hearing does deteriorate with age, however those with noise induced hearing loss tend to suffer Instrument Median peak levels.
- 5.** "My ears have a built-in protective mechanism..." There is a physiological mechanism that reduces sound exposure when sound levels get moderately high known as the acoustic reflex or the acoustic middle ear reflex. This reflex involves a contraction of the muscles in the middle ear, which in turn tightens the ear drum. While this does result in a slight lessening of incoming levels (by around 3 dB) the acoustic reflex has a very short duration - between 25 and 100 milliseconds - before the muscles in the middle ear begin to relax and hearing levels return to normal.



Healthy Hearing Tips

1. Obtain custom-fitted earplugs from an audiologist who understands the needs of musicians are a tool of the trade - always carry your plugs with you.
2. Do not over-attenuate – plugs that are too strong tend to be used less than they should. If you find your current plugs impossible discuss the possibility of weaker filters or better moulds with your audiologist.
3. Practice with your plugs at least once every session – both to reduce your exposure and to get used to the different sound and feel.
5. Hearing damage is cumulative – reducing your exposure time is as important as reducing your exposure level.
5. Give the ears twenty-four hours to recover after a heavy gig.
6. Use risers, distance and/or absorbent wrap-around screens to reduce exposure from sound to the rear.
7. Remember your own instrument is the source of your highest noise exposure (unless you play cello, bass or harp).
8. See an audiologist every twelve months (sooner if you notice any change in your hearing).
9. Remember all sound contributes to your exposure – from circular saws to a heavy-metal concert. Keep track of your exposure with a personal dosimeter or smart-phone app.
10. Make sure your practice room is appropriate. Avoid practicing in highly reverberant rooms.



See the Tip Sheet for a useful hearing protection guide page 59

Health Professionals

Where Should I go for help?

Specialized music medicine practitioners do not yet exist in Australia, but within each of the following disciplines there are some practitioners who have become more experienced in working with musicians. The relevant associations listed below should be able to help direct you to these individuals.

Medical practitioner/physician/doctor

These health professionals usually oversee the management of any major injury because they are trained to diagnose and treat physical illness, disease, and injury. They are also trained to promote good health and assist in the prevention of disease or injury. A General Practitioner is the doctor trained to give a general evaluation of many illnesses and injuries and make decisions about whether further care is necessary, as well as recommendations regarding the appropriate medical professional to provide further evaluation and management. There are also many specialists within medicine who focus on a particular disease or part of the body.

Physiotherapist

Physiotherapists are trained to assess and treat musculoskeletal disorders and movement problems. Treatment can involve movement and biomechanical analysis, exercise prescription, manual therapy, and advice. Some physiotherapists choose to specialize in a particular area and have post graduate qualifications in their area of interest (e.g. sports physiotherapy).

Psychological treatment

Psychologists are experts in human behaviour, having studied the brain, memory, learning, human development and the processes determining how people think, feel, behave and react. Psychologists apply their expertise using reliable and scientifically supported methods. Psychological treatments are widely used to assist individuals and families and can also help groups and organisations. (www.psychology.org.au/public/what-is-psychology)

Health Professionals continued

Audiologist

If you experience problems with your hearing such as ongoing ringing or a noticeable change in your hearing levels you should see your GP and/or your audiologist. Most audiologists will happily test your hearing without a referral and if you have a regular audiologist they will have your previous hearing tests on file for comparison. If a problem is found they will send a report to your doctor and if the GP decides any further medical investigation is necessary - such as consultation with an Ear Nose and Throat specialist - you will need a referral from your GP at that stage. For infections, discharge or pain in the ears your first stop should be your GP.

For preventative help - such as earplugs and advice on sound exposure - your audiologist is usually the most knowledgeable. Although not all audiologists are experienced with the needs of musicians, more and more are becoming knowledgeable in the field or are able to recommend specialist audiologists.

Chiropractor

Chiropractors have an alternative training approach covering human physiology and biology, with an emphasis on the spinal column. Chiropractors believe that the vertebrae of the spine can be pulled out of alignment by everyday stressors, and that these misalignments (termed "subluxations") are the cause of a myriad physical and mental ailments. Treatment usually involves manipulating individual vertebrae or readjusting the entire spine, to attempt to correct these subluxations.

Osteopath

Osteopaths have training that focuses on how the skeleton, joints, muscles, nerves, circulation, connective tissue and internal organs function as a holistic unit. Osteopaths may use a range of manual therapy techniques and exercises to help manage musculoskeletal disorders.

Health Professionals continued

Acupuncturist

Acupuncture uses fine needles to stimulate the body to relieve pain, activate an immune response, and promote healing. Training, style of acupuncture, and experience varies widely amongst practitioners. Check with your acupuncturist to establish their training credentials. Non-medical acupuncturists need accreditation with the Australian Traditional Medicine Society, which requires a minimum standard of education for members in order for their patients to be able to claim reimbursement from their health funds for their services.

Massage therapist

Massage therapy comes in many styles (remedial, rolfing, shiatsu, myotherapy, Swedish, sports, etc.) and can be effective for relieving muscular spasms and stiffness. Training and expertise varies widely, so it is probably useful to find a good massage therapist by word of mouth, or via a referral by your doctor or another health professional. Minimum training standards are required for membership of accrediting bodies and for rebate coverage by the health insurance companies—check with your health insurer to see if the therapist is part of a recognized provider association.

Helpful information sites

There are an increasing number of performing arts medicine organisations around the world, most of which have links to experienced health providers as well as providing some free health care resources online.

A few of these are listed below:

Australian Psychological Society www.psychology.org.au

Australian Association of Cognitive-Behavioural Therapists www.aacbt.org

Australian Psychoanalytic Association www.psychanalysis.asn.au

NSW Institute of Psychoanalytic Psychotherapy www.nswipp.org

Australian Government Department of Health www.alcohol.gov.au

Australian Society for Performing Arts Healthcare www.aspah.org.au

British Association of Performing Arts Medicine www.bapam.org.uk

USA Performing Arts Medicine Association www.artsmed.org

American College of Sports Medicine www.athletesandthearts.com

Care of the Voice from the Texas Voice Centre www.texasvoicecenter.com

Non-health Professionals

Bodywork teaching techniques

There are many different forms of bodywork, which variously aim to increase body awareness and use of central body support to reduce strain and support the actions of the arms and legs during many different activities. These teachers may run group classes or one on one lessons. Many working with musicians are also musicians themselves and can apply their technique into musical actions. In some cases, allied health professionals such as physiotherapists are trained in these teaching techniques, and can incorporate specific injury modifications.

Feldenkrais

The Feldenkrais Technique aims to reduce pain and dysfunction by enhancing the body/mind connection. Practitioners train their patients to become more aware of how they are moving their body (especially the injured part in relation to the rest of the body) through mind/body exercises and gentle manual assistance whilst performing specific movements. These two techniques are referred to as Awareness through Movement and Functional Integration.

Yoga

Yoga is a system of exercise in which the body is put through a series of poses (asanas), with each one stretching some muscle groups and contracting others. Its goal is to improve balance in the body by restoring flexibility and strength to under or over-used tissue, and, as such, can be effective in resolving musculoskeletal pain and stiffness. It should be taught and practised carefully as injuries can occur in individuals who progress too quickly to advanced moves. There are many different styles taught, with the gentler forms (Iyengar, Hatha, Ashtanga, Oki, Bikram) being more appropriate for beginners.

Pilates

The Pilates method is a system of exercise that focuses on building a strong and stable trunk or “core”. A series of movements that emphasise use of the deepest layer of trunk and pelvic stabilizing muscles (deep abdominals, gluteals, back extensors) are performed on both specialized equipment (the “reformer”) and floor mats. Teachers emphasise concentration on control of movement, awareness of position, and reintegration of the strengthened muscle groups into more demanding movements as pupils progress. This method can be effective for managing pain and stiffness resulting from postural habits associated with performing. Many physiotherapists are also trained to teach Pilates.

Non-health Professionals continued

Alexander technique

The Alexander technique is an education/guidance system used to improve posture, movement, and muscle efficiency. It can be used to help rehabilitate from a playing related injury or as a preventive strategy. The Alexander teacher will observe and use verbal and manual correction to retrain movements that may be contributing to unnecessary tension or strain. Some home exercises may be given along with encouragement to continue to focus on what has been practised in class.

Gyrotonics

Gyrotonics is an exercise system originally designed for injured dancers that aims to produce balanced conditioning of the body by focusing on strength and flexibility. It is similar to yoga, but, like Pilates, uses specialized equipment (the pulley tower unit) to provide resistance to movement for strength training. As a relatively new modality, there is no administrative body; however gyrotonics is offered in some Pilates studios.

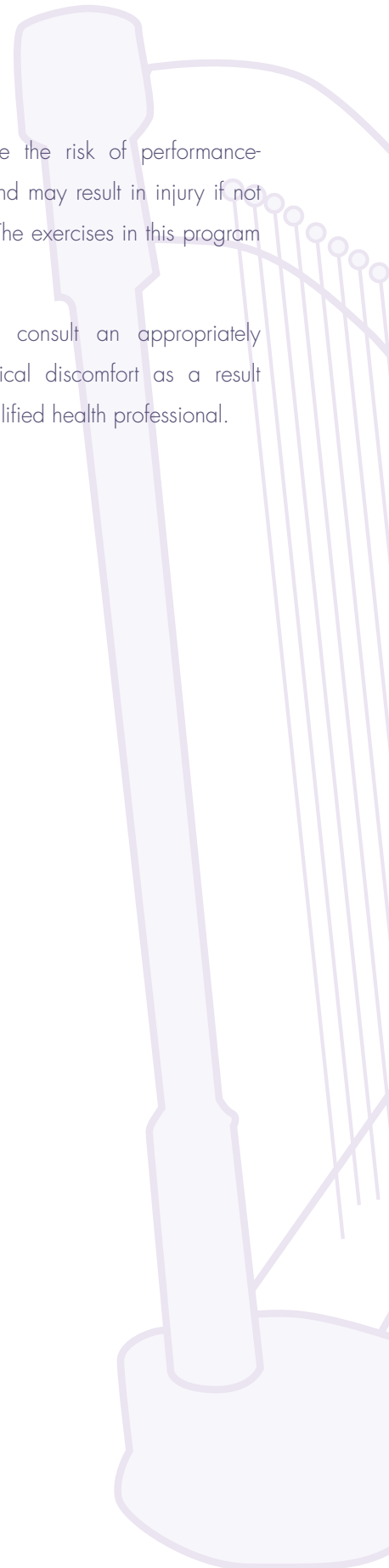


Tip Sheets

Medical precautions

The exercises included in this program have been developed to prevent or reduce the risk of performance-related occupational health injuries. However exercise of any kind is not without risks and may result in injury if not done properly, or if done by any person with a pre-existing injury or medical condition. The exercises in this program are intended to be carried out in accordance with the instructions.

However if you have any pre-existing injury or medical condition, you should consult an appropriately qualified health professional before starting the program. If you develop any physical discomfort as a result of performing any exercise, you should stop immediately and consult an appropriately qualified health professional.



Warm ups

Warm up before you play and cool down afterwards to keep your muscles in tip-top condition

When should I warm up?

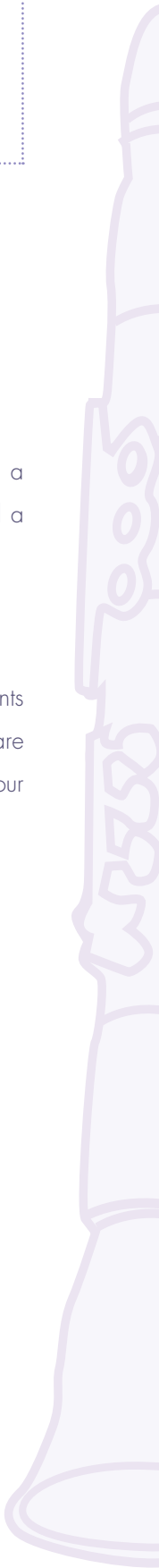
You should warm-up before you play both off and on your instrument to get your blood to your working muscles.

How do we think warm up works?

Warm-up is thought to function by dilating the blood vessels in and around working muscles. This allows for a greater volume of oxygen and nutrient rich blood to reach these muscles, facilitating optimum muscle function and a greater ease of playing.

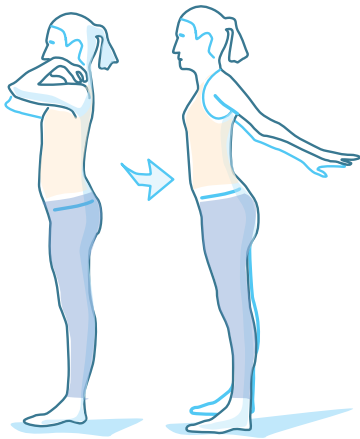
How should I warm up?

Varying approaches to warm-up are currently advocated, such as taking a walk, performing large, gentle movements using performance relevant muscles, or simply warming up on your instrument. Two general principles, however, are the subject of consensus: warm up should be pain free and performed at a non-fatiguing intensity. If you find that your warm up is causing pain or fatigue, try slowing your warm up down or changing your routine altogether!

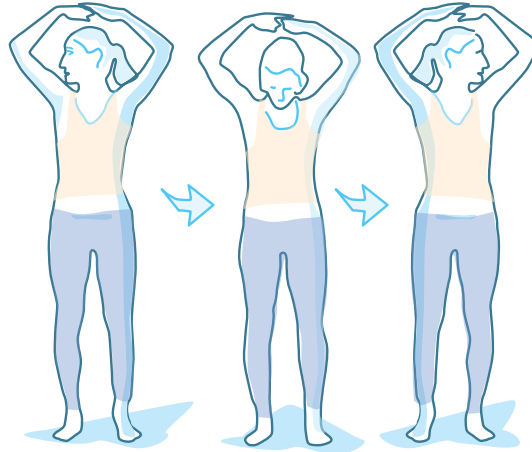


Warm ups continued

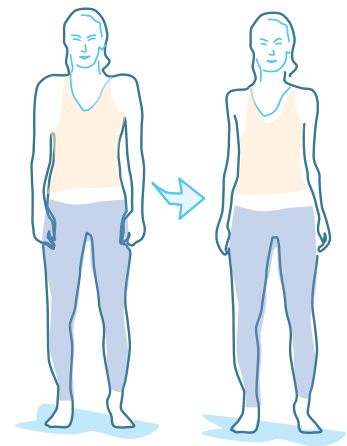
Shoulder Arms Neck



Arm Swings

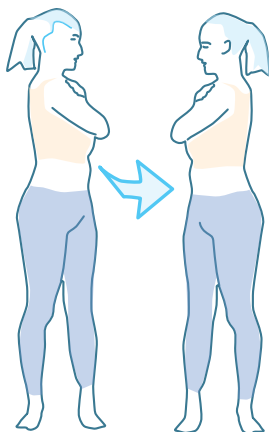


Neck Rolls

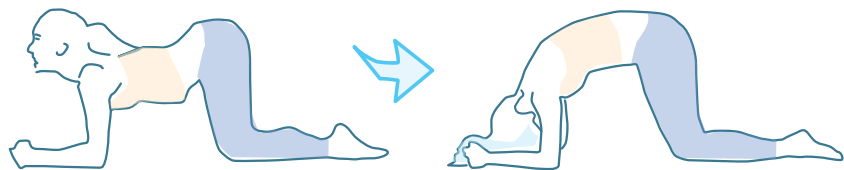


Shoulder Rolls

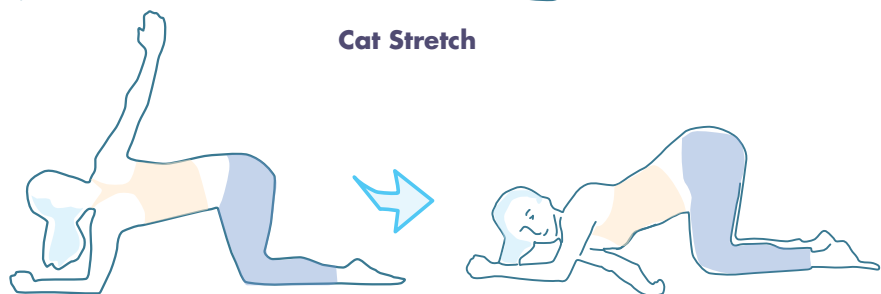
Spinal



Mid Back Twist



Cat Stretch



Thread the Needle



All warm up movements should take you through the largest range of motion possible while maintaining gentle, pain-free motion.

Stretching

Stretching can facilitate improvements in muscle elasticity and joint range of motion, but only if performed properly! Below are answers to common stretching questions that will help you get the most out of each stretch.

When should I stretch?

Stretch about ½ an hour AFTER playing, or at other times during the week when you are warmed-up. Stretching right before physical activity doesn't prevent injury and may be detrimental to performance as it "turns off" muscles.

How long should I hold each stretch?

Hold each stretch for three slow breaths, easing gently further into each stretch as you breathe out.

Should I feel pain when I stretch?

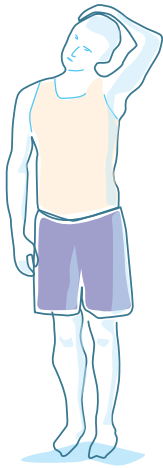
NO! You should feel a pull in the muscle, but NOT pain. Pain is likely an indicator of improper technique or taking the stretch too far – ouch!

How often should I stretch?

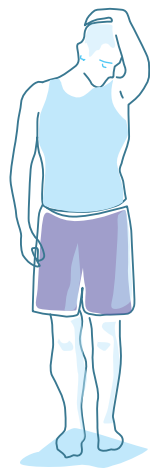
Current guidelines suggest that you should stretch twice per week to maintain range of motion in your joints. If you are feeling particularly tight in one or multiple areas, however, feel free to stretch more often, but be sure to keep the above advice in mind!

Stretches

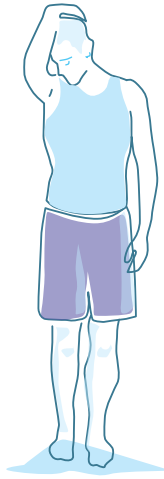
Neck & Shoulders



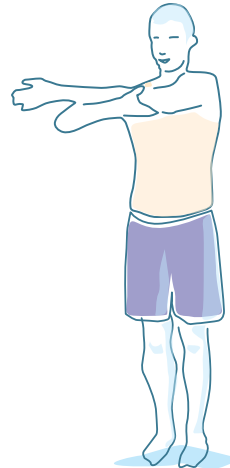
**Side of neck
& shoulder**



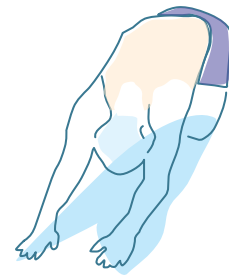
**Side back
of neck**



**Central back
of neck**

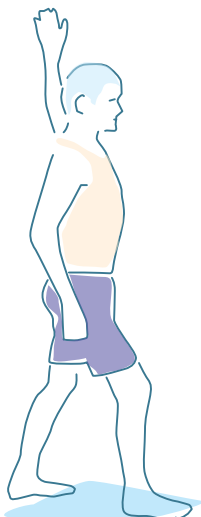


**Back of
shoulder**



**Lower
back**

Spinal



**Chest
Stretch**



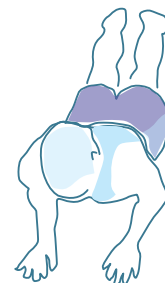
Side trunk



**Hip &
mid back**



**Lower back
& hip**



**Hip
flexors**

Exercise

Regular cardiovascular and twice weekly resistance exercise have been shown to improve both physical and mental health. Furthermore, recent research suggests that exercise in musicians prevents injuries, so get moving!

Define regular cardiovascular exercise?

Current guidelines recommend at least 150 minutes of weekly moderate intensity exercise, through sessions lasting at least 10 minutes. Frequent short bursts of regular exercise are still beneficial, not only long sessions.

Does intensity matter?

This depends on your exercise goals. Higher intensity exercise is necessary to increase fitness, but has not been consistently shown to have any physical or mental health advantages over moderate intensity exercise.

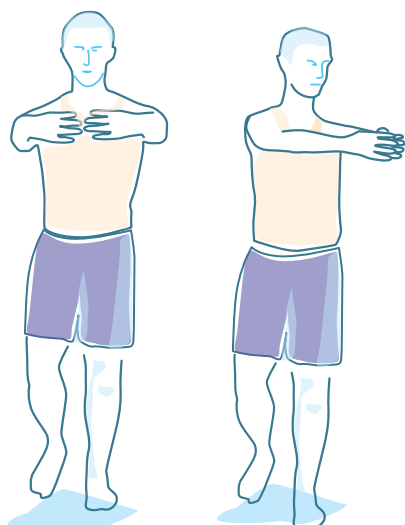
Do I really need to do resistance exercise?

YES! Musicians spend long periods of time in asymmetric postures when playing, and this causes muscle imbalances that can place stress on the body. Resistance exercise can help mitigate the effects of these playing postures by strengthening muscles that support and balance playing.

Any resistance exercise principles I should know?

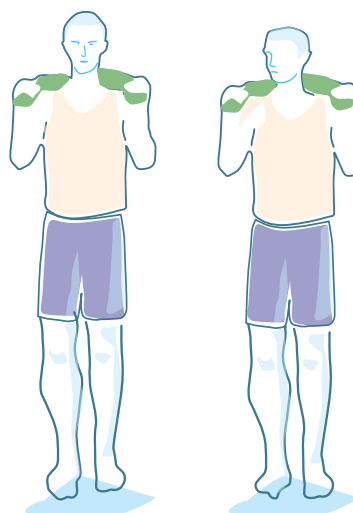
Glad you asked! A good general guideline is 2–4 sets of 10–15 low to moderate-intensity repetitions of exercises for each of the body's major muscle groups. BUT, avoid further loading on muscles already used extensively in performance. Also, space out your resistance workouts - 48 or more hours between workouts is necessary for better muscle recovery.

Resistance Exercises



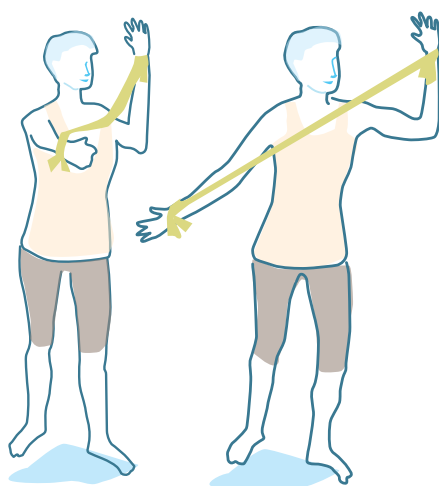
Hip

You can strengthen your hips by balancing on one leg, then bend the other leg up and maintain the pelvis/hip position as you turn your body one way, then the other.



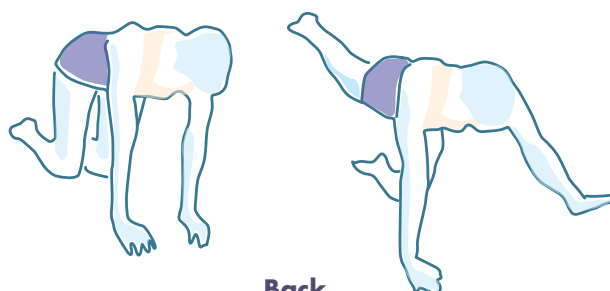
Neck

Standing with your back & head flat against a wall, feet a bit forwards, put a towel behind your neck & gently take your neck back as you nod down a little.



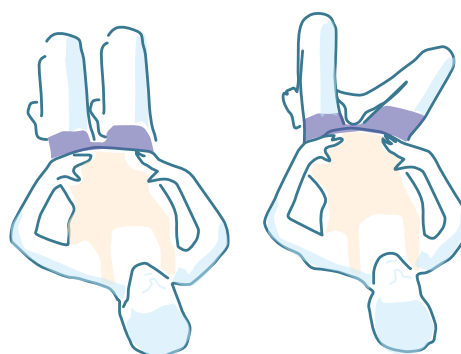
Shoulder

Use a resistance band to strengthen the muscles between your shoulder blades by moving arms outwards & chest forwards.



Back

Keep your abdominal muscles firm and back straight as you lift opposite arm & leg.



Abdominals

Gently draw your bellybutton towards your back. Breathe out and lower one knee out to the side without letting pelvis roll. Repeat to other side.

Nutrition

Taking care of your body by eating and drinking properly will allow you to gain the maximum from your practice and performance in addition to preventing injury

Healthy eating

- Tailor your eating plan to your practice and performance schedule - each individual is different!
- Don't skip breakfast! It helps with focus, concentration, metabolism, and your mood
- Try to eat from all 5 food groups (vegetables, fruit, grain, protein, dairy)
- Don't forget dairy! At least 2 daily servings of dairy helps prevent the development of brittle bones and osteoporosis

Hydration

- Proper hydration will help prevent early declines in concentration and performance due to fatigue
- Make sure you keep yourself hydrated at all times throughout the day. By the time you're thirsty it's too late - you've already lost 2% of your total body water!

Tips for practice and performance

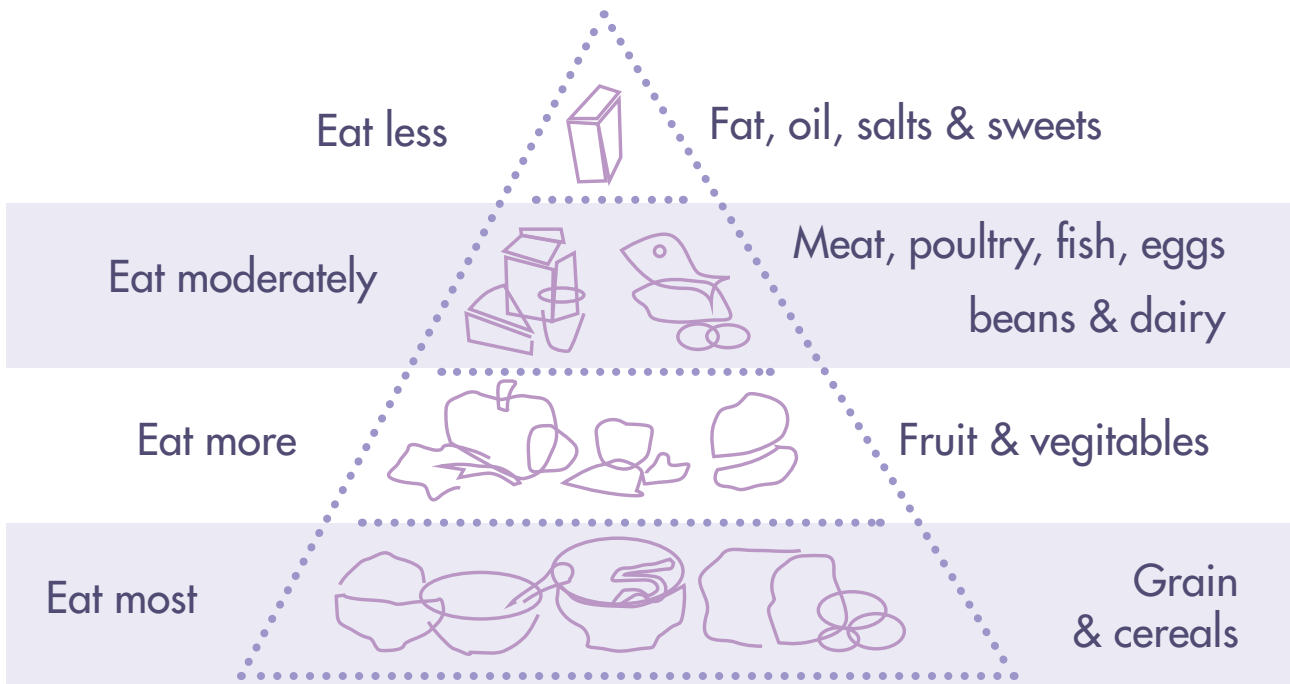
- Practice
 - Drink some water whenever you take a break from playing
- Pre-Performance
 - Drink ~400–500mls with your meal 3-4 hours before performance
 - Drink ~200–300mls ½ hour before performance to remain hydrated without needing the toilet during performance
- Post-Performance
 - Rehydrate with at least 500mls of fluid



Water is the best option unless you're sweating a lot or in a very warm environment - sports drinks are best for these situations.

Nutrition continued

Eating before performance



Post performance meals

- Within 30 minutes to 4 hours after performance you should eat a snack or meal containing both protein and carbohydrates—the sooner the better!
 - Carbohydrates replenish the glycogen stores in your liver and muscles
 - Protein allows for the re-synthesis of muscle protein
- EXAMPLES:
 - Bottle or cup of flavoured milk
 - Fruit smoothie
 - Yogurt and fruit
 - A sandwich with meat, chicken, or cheese
 - Nuts, raisins, trail mix, etc.
 - Baked beans on toast

Optimal Performance

Every musician wants to perform at his/her best. However, consistently reaching optimal performance can be elusive. Read on for tips on how to achieve your optimal performance.

What is optimal performance?

Performance quality is determined by a complex interaction between person characteristics (traits, physiological arousal, cognitions, emotions) task characteristics (task complexity and mastery), and performance demands/setting. When all of these characteristics occur at an optimally manageable level, the performer is said to be 'in the zone' or to have achieved a state of 'flow' – i.e., an optimal performance.

What is the ideal level of arousal in optimal performance?

The relationship between arousal and performance is complex but these general rules of thumb are helpful.

1. A high level of arousal is essential for optimal performance in gross motor activities requiring strength, speed, and endurance.
2. A high level of arousal impairs performances requiring a complex series of movements, coordination, fine muscle movement and concentration, as in musical performance.
3. A slightly increased level of arousal over baseline (i.e. resting) is preferable for all motor tasks, including the activities of daily living, practice and rehearsal.

There is not a single level of optimal arousal for performance – rather, we aim to achieve arousal congruence, a concept that considers the ecology of each specific performance based on person, task and setting characteristics.

Optimal Performance continued

How do I achieve peak physical and mental condition?

The body of a performing artist is an integral part of their instrument. Just as you keep your instrument in top working order, it is necessary to keep your body fit and healthy.

What are you doing, eating, drinking, and thinking?

- Limit caffeine, alcohol, tobacco, sugar, and sweeteners (CATSS)
- Add protein—it builds neurotransmitters
- Eat green vegetables—they build new brain cells
- Eat regular meals
- Do not rely on multivitamins if diet is deficient; they produce expensive urine, and few other benefits
- Get enough sleep (at least seven hours per night is recommended)
- Enjoy intellectual stimulation away from musical activities. Certain practices built into one's regular routine provide a firm foundation for the achievement of optimal performance. These include:

Diaphragmatic breathing

- Activates parasympathetic nervous system – generates a feeling of calm
- Stops hyperventilation
- Practise daily for one minute blocks when needed (e.g., days leading up to performance)

Mindfulness

- Close eyes, inhale, notice each sensation, turn attention inwards
- Shift awareness to external world as you exhale

Relaxation and stretching

- Progressive muscle relaxation
- Cued relaxation for use in critical situations – activate the parasympathetic nervous system to counter the stress response
- Stretching is also protective and relaxing for bodies held in stressful and static positions

Exercise

- Keeps the body supple and strong and combats muscle fatigue
- Decreases impact of stress on body, uses fat and glucose released by the stress response, dissipates adrenalin, reduces circulating cortisol

Optimal Performance continued

How do I prepare for optimal performance?

Systematic practice that is deliberate, concentrated but spaced (shorter bursts with regular breaks) achieves the best results.

At a *mechanistic level*, to achieve task mastery, practice has three main goals:

1. Maximizing correct responses from the outset
2. Eliminating incorrect responses immediately, and
3. Encouraging maximal transfer from practice to performance

At a *psychological level*, practice must achieve:

1. Removal of external cues that interfere with attention. Management of psychological barriers.
2. Extinction of conditioned emotional responses to extraneous cues, such as emotional reactivity or rumination where errors occur.
3. Conditioning new responses to such cues (e.g., direct use of relaxation under conditions of arousal in conjunction with cognitive restructuring to deal with problematic thoughts).
4. Transfer to performance - not only are the skills learnt to automaticity, but the emotional responses attached to the performance of those skills are embedded in the skill itself.

At a *musical/aesthetic level*, practice must achieve:

1. Maintenance of a clear link between technique development and interpretative goals
2. A coherent personalized musical understanding of the work
3. Intrinsic enjoyment of and absorption in the music

Stress Management

As a musician, dealing with job-related stress is an occupational requirement. Below are some tips on how to effectively manage stress by defeating it at the source!

Are you thinking straight?

Managing a stressful event or situation requires a total body-environment approach. This involves 3 major components:

1. Accurately appraising the situation in which we feel stress
2. Managing the physical arousal that we experience when facing a stressful situation
3. Managing the thoughts (cognitions) that accompany our appraisal of the environment as stressful

This tip sheet focuses on the third component—our thoughts. Some thought processes help us to manage anxiety, while others increase our anxiety. These types of thoughts are called cognitive distortions, cognitive biases, and cognitive or logical errors.

What can I do about my cognitive distortions & thinking errors?

Recognize and challenge them. Ask, “Is this actually true?” Dysfunctional cognitive processes can be identified when an individual reports feelings of helplessness, hopelessness, anxiety, or a pervading sense of danger. Below are six common examples. Do any of these sound familiar?

I. Arbitrary interference

Impulsively draw conclusions when there is insufficient evidence to support the conclusion and even in the face of evidence to the contrary.

Example: A musician notices that the conductor looked in her direction with a frown on his face during rehearsal. She concludes that the conductor is critical of her playing and will report his dissatisfaction about her playing to the orchestra management.

II. Selective abstraction

Focus on a detail taken out of context, ignoring other, more salient features of the situation, and conceptualizing the entire experience on the basis of this one element.

Example: A concert pianist denigrated his whole two-hour recital because he made one mistake. For him, that one mistake had wiped out his entire performance and any merit that it may have had.

Stress Management continued

III. Overgeneralisation

Common logical error—a statement of belief in a general rule or principle that the person has derived from a set of very limited examples. Example: “I never play well under pressure or I always forget the words”.

IV. Magnification and Minimization

Magnification refers to the tendency to assign greater significance to negative events, evaluations or assessments than to positive events, which are simultaneously minimized. This pattern represents a systematic bias in thinking style that ensures that you can never feel happy with your achievements.

Example: A musician who auditions for a number of orchestras receives word that he has been accepted into one orchestra to which he has applied but rejected by two others for which he has auditioned. He becomes preoccupied with the rejections and ruminates as to the reasons that he has been rejected without taking time to celebrate his successful audition for an equally prestigious orchestra.

V. Dichotomous “all-or-none” thinking

Reducing our assessments of complex situations to “either-or” or “black versus white” algorithms. Example: This passage can only be played in the way I specify. There is no other way.

VI. Diminished ability to engage in perspective thinking

We need to develop the capacity to assess a problem from a number of different angles or from the point of view of other people, who might hold contrary views to our own. To do this, we need to be able to think about our own thinking processes, e.g., “I wonder why I thought that?”



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Psychological First Aid

In some cases, psychological treatment may be appropriate to help with the various stressors of life as a musician - read on for more information.

Do I need psychological help? If so, what sort of help do I need?

The stress in the professional musicians' work environment far exceeds that observed in other professions. Like elite athletes, performing artists must maintain their skills at peak form, endure many hours of solitary, repetitive practice, constantly self-evaluate their performances and subject their public performances to close scrutiny. Individuals vary in their capacity to cope with occupational, physical and psychological stressors and some people are more resilient than others. Difficulty in coping may be compounded for those who are generally highly anxious, who lack confidence in their abilities and who engage in unhelpful strategies to deal with their anxieties, such as the regular consumption of alcohol, and licit (e.g. beta blockers) or illicit (e.g. marijuana) drugs. Since music performance anxiety (MPA) is one of the most commonly reported psychological stressors in musicians, MPA will be the focus of this tip sheet.

Are there different types of MPA?

It is helpful to think of MPA as three related but different conditions that vary in severity and that include other psychological processes that must be attended to if treatment is to be successful and sustainable. Each type requires a different treatment approach.

1. Focal MPA

If possible, perform the repertoire for small groups of family and friends prior to the actual performance, and have sufficient rest and nutrition preceding the performance. Self-application of some cognitive-behavioural therapy techniques once taught by a qualified psychologist can also assist. These include relaxation/breath awareness/mindfulness, realistic self-appraisal and identification and challenge to cognitive distortions and thinking errors (see tip sheet – Are you thinking straight?)

II. MPA as part of a more general social anxiety

Some musicians feel anxious, not only in "focal" situations, but more generally, across most performance situations and in some social situations. Added to the strategies described for focal MPA, treatment may also involve several sessions with a suitably qualified psychologist who can assist with both the music performance and social anxiety simultaneously using primarily a cognitive behavioural approach (CBT).

Psychological First Aid continued

III. MPA as part of a Vulnerable Personality

A small group of musicians will experience more severe forms of MPA in the context of a vulnerable personality where depression and panic may also form part of the clinical picture. This group would benefit from more intensive psychotherapy which provides a reflective space in which one can make sense of one's experience, thereby gaining mastery over its detrimental effects on performance. CBT for specific MPA symptoms may be helpful after a period of intensive psychotherapy.

Manifestations of MPA

MPA presents in different ways; therapy interventions must address all its aspects.

1. *Somatic symptoms*¹ ➔ somatic strategies (reduction of sympathetic hyperarousal, including anxiety sensitivity reduction training)
2. *Cognitive symptoms*² ➔ cognitive strategies (reduction of cognitive biases and maladaptive perfectionism)
3. *Both somatic and cognitive*³ ➔ both somatic and cognitive strategies
4. Underlying psychological vulnerabilities (poor sense of self, low self-esteem, low self-efficacy, identity diffusion, depression) → dynamic psychotherapy

¹ *Somatic strategies*: Preparation (spaced practice), pre-performance routines, breathing, relaxation, physical fitness, adequate rest and nutrition, mindfulness; and medication, as an adjunct, in extreme circumstances.

² *Cognitive strategies*: Cognitive restructuring, cognitive challenges to dysfunctional thoughts.

³ *Dynamic psychotherapy*: Working within a therapeutic relationship to uncover and resolve early conflicts and traumas that are affecting music performance. Depression may also be a factor in MPA, which the therapy will also need to address.



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Performance Anxiety:

Beta (β) Blockers

30% of musicians suffer moderate to severe performance anxiety. In some cases, β -blockers may be an appropriate remedy - read on for more information

Medication for Music Performance Anxiety (MPA) what works, when, for whom?

Many musicians take medication, so it is important that you understand how and when medications work. This tip sheet will assist you with information about your options, but you should consult a medical specialist before commencing any medication for your MPA. You should also consider psychological therapies as the effects of medication are short term and do not teach you new skills or resolve underlying issues.

What are β -blockers?

β -blockers are prescribed for high blood pressure, cardiac problems or following heart attacks to reduce or block the effects of sympathetic arousal of the heart, including lowering blood pressure.

Why do performing artists use β -blockers?

Because many of the somatic symptoms of performance anxiety are mediated through the activation of the sympathetic nervous system, which β -blockers suppress, β -blockers have become increasingly popular among performers. β -blockers block the physical effects of the "fight/flight" response i.e., tremor, increased heart rate, sweating, flushing.

Will β -blockers benefit me?

β -blockers are most effective for reducing severe somatic anxiety such as palpitations, hyperventilation, tremor, shaking bow arm, trembling lips, sweating palms, and dry mouth. They are NOT effective for sleep disturbance, cognitive anxiety (worry, rumination, negative self-talk) or "free floating" or general anxiety. If you have a combination of both somatic and cognitive anxiety, β -blockers will assist with the somatic symptoms only.

How do I know which β -blocker to take, how much to take and when?

Propanolol (Inderal) is frequently prescribed for MPA but you should consult a physician to determine which type of β -blocker will be best for you. **β -blockers should NOT be used except under medical supervision.** Use is not advised for people with heart conditions, asthma, diabetes, and Raynaud's syndrome. Beta-blockers are most effective when taken 1.0-1.5 hours before performing.

Performance Anxiety:

Beta (β) Blockers continued

Are there any side effects of β -blockers?

Known side effects of regular use of β -blockers include low blood pressure, cold extremities, fainting, rapid heartbeat, dizziness, fatigue, headache, depression, sleep disturbance, short term memory loss, joint pain, and muscle cramps.

Are there any disadvantages of taking β -blockers?

β -blockers may have adverse effects on rhythmic control, emotional connection to the music, and overall performance quality. β -blockers do not enhance musical performance. β -blockers for wind instrumentalists and singers are not advised because the required respiratory exertion is "sapped" by β -blockers resulting in performance impairment.

Are there any other drug therapies that have been used for the treatment of MPA?

Anti-depressant medications should only be prescribed if there is comorbid depression, but NOT for MPA without depression. Benzodiazepines (i.e., anti-anxiety medication) are NOT recommended for MPA. All medications in these two classes of drugs may have significant side effects.



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Panic & Panic Disorder

Panic before or during a performance can be unsettling, but it doesn't have to be - read on for strategies to successfully manage panic and panic disorder.

What causes panic and panic disorder?

Four main causes:

- Trauma ➔ hypersensitivity to threat
- Disruptions in attachment to parents/caregivers ➔ insecurity
- Psychological conflicts ➔ unable to solve tensions between competing needs
- Neurobiological causes ➔ imbalance in neurotransmitters (genetic or physical causes)
 - Some children are born with a stress response that acts too quickly and too intensely
 - Children model anxious parents

What should I do if I experience panic?

Immediately:

- Sit down
- Think: "This is a panic attack; it is not a heart attack and I am not going crazy".
- Breathe: breathe out (do NOT breathe deeply)
- Take slower breaths (not deeper breaths)
- Wait five minutes—panic attack will burn out

Manage physiological panic triggers:

- Caffeine, alcohol, tobacco
- Sweeteners containing aspartame
- Low blood sugar
- Physical sensations—oversensitivity to bodily sensations (shortness of breath, dizziness, faintness, palpitations, sweating, flushing, numbness, tingling)
- Environmental factors (e.g. agoraphobia)
- Low serotonin (smiling, laughing and having fun increases serotonin levels)

Panic & Panic Disorder continued

Address cognitive panic triggers

- Common thoughts of people experiencing panic attacks:
 - I am having a heart attack
 - I am going crazy
 - I will lose control
 - I am going to die
- Change cognitions "I am having a panic attack. I will use my management strategies and it will pass in five minutes".
 - "Fear is unpleasant, but not lethal"
- Control excessive thinking
 - Excessive thinking results in decreased serotonin in the right brain, which generates unhelpful "thought loops" that prevent problem solving
 - Control worries - often related to:
- Unrealistic perfectionism
- Excessive need to be in control
- Fear of the unexpected

Address underlying emotions & psychological vulnerabilities

- Work through:
 - Damaged attachment relationships
 - Past traumas
 - Psychological conflicts



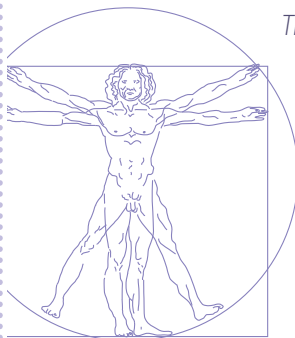
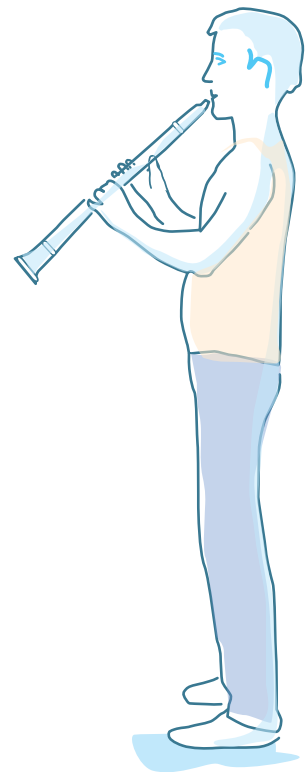
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Standing Posture

Standing Posture Playing with “good posture” is often advised but rarely defined. This tip sheet outlines key postural principles to help perfect your standing posture and solidify the physical foundation for your playing!

Checklist for performance standing posture

- ✓ Feet hip width apart, toes pointing out slightly
- ✓ Head should be balanced above the shoulders
- ✓ Bring the weight of the instrument to you, unlock knees and make sure your hips have not swayed forwards.
- ✓ Wear supportive shoes that help you maintain your best posture
- ✓ Check that your weight bearing is fairly even through both the left and right feet, and feel how the weight can be transferred between the balls and arches of your feet.
- ✓ The weight off the instrument (where applicable) should feel that it travels down through the body to the arches of the feet



The traditional medical view of standing posture is that the body is aligned so that the pull of gravity is balanced down through the curvatures of your spine, passing through the knee and hip joints then into your feet. The feet allow weight shifting back and forth and side to side into the balls and heels by simple swaying actions that require little work from body muscles. This swaying allows the gravity forces to continue to travel through the body in a way that reduces muscle effort in holding the musician or instrument upright. This weight transference should logically follow the movements and instrument support requirements of performance.

Standing Posture continued

Tips to help with standing alignment

1. Standing with each foot on a set of scales can help you get the feel of even weight bearing.
2. Stand on an uneven surface before practicing (such as a trampoline, pool noodle, foam roller, air discs, cushions or similar) to help in unlocking the lower limbs and back. This can help relax tension.
3. If you are not sure about your head and shoulder alignment, before you play stand with your back against the wall, feet about a foot length out from the wall and knees bent. Then step away from the wall and try to increase your awareness of this position by trying to feel the support of your upper body weight by your lower body.
4. Sway in different directions while standing in playing position to feel the weight travelling to each ball and heel of both feet.
5. Check alignment in a mirror (and/or take a photo from side view too).
6. When you start warming up your playing, spend a little time focusing on letting your body weight shift a little to support your playing action. Consciously allowing weight shift initially helps to maintain it during practice.



Sitting Posture

Orchestral musicians frequently experience pain due to the high physical demands of hours of daily repetitive playing actions. Pain is our body's way of telling us that something has gone wrong and needs to be addressed.

Having "good performance posture" is about adopting a position that requires the least effort to keep you upright and best provides a base for all necessary playing movements.

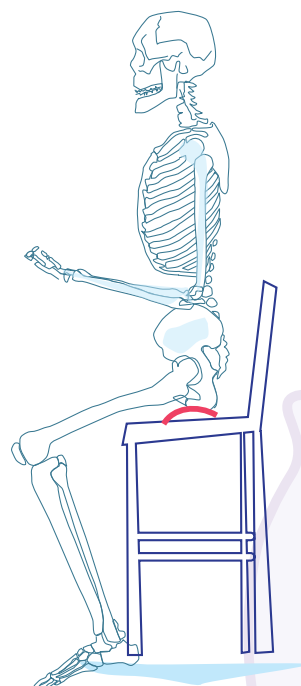
Postural Basics

In general, for good posture:

- head above the shoulders
- shoulders above hips, but this may need to slightly adapt by a weight sway forwards or backwards from your postural base of support to counterbalance arm movements and/or instrument weight.
- Sitting on the bones along the base of your pelvis reduces postural muscle effort. The so-called 'sitz' bones in the buttock crease are at the back of what is essentially a supportive bony cross.



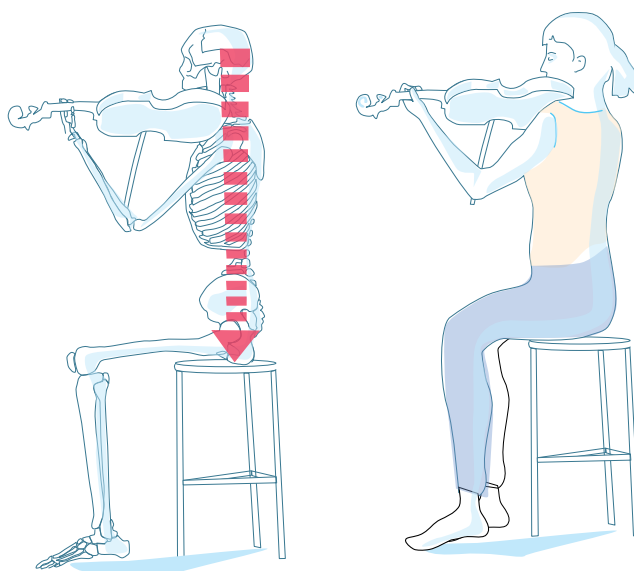
x marks the spot for good sitting posture!



Sitting Posture continued

Tips to help with alignment when seated

1. Stick your bottom out when you sit down. You should land between the buttock crease at the back and the pubic symphysis at the front.
2. Weight should be evenly balanced between sides.
3. Position your feet where you could stand up straight away if needed.
This reassures your body that your feet will be able to help support your weight when you move to play.
4. Try to slouch—if you are sitting on the right parts of your pelvis, it should be hard to slouch even if you try to do so.
5. Bend forwards and check that movement automatically happens at the hips.



Checklist for performance sitting posture

- ✓ Use the best supportive chair that helps you maintain your ideal posture
- ✓ Adjust the chair to allow for the effortless movements required for performance
- ✓ You should feel your pelvis bones on the seat and be able to shift weight from them into the thighs and back without bending your back



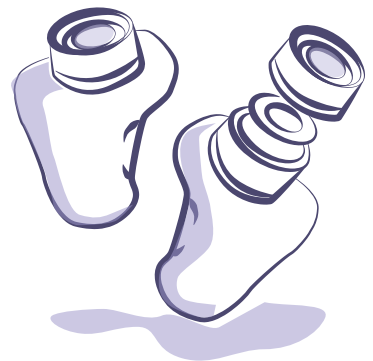
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Hearing Health

Proper care of your ears will keep you enjoying beautiful music for years to come! To maximize your long-term auditory health, keep the following tips in mind

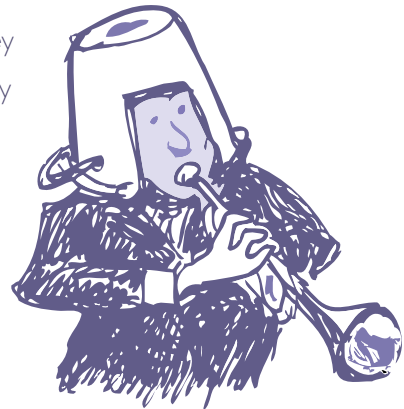
Earplugs

- Custom-fit musician's earplugs from an audiologist who understands the needs of musicians are a tool of the trade.
- Practice with your plugs in, both to reduce your exposure and get used to the different sound and feel.
- Always carry your plugs with you – you never know!



Earplug Adjustment

- Plugs that are too strong (over-attenuated) tend to be used less than they should. If you find your current plugs impossible to use discuss the possibility of weaker filters with your audiologist.
- Occlusion – or too much of your own sound in your head while you are playing – is a common problem with earplugs, but it can be overcome with deeper fitting earplugs or special non-occluding filters.



Hearing Health continued

Practice/Performance

- Make sure your practice room is appropriate. Avoid practicing in highly reverberant rooms.
- Risers, increased distance from the sound source and/or absorbent wraparound screens are all effective ways to reduce exposure from sound to the rear.
- Try to avoid the use of Perspex sheeting – it can cause problems for those ‘upstream’ and typically has only a limited on your sound exposure.
- Give the ears twenty-four hours to recover after a heavy gig.
- Remember (unless you play cello, bass or harp) your own instrument is often the source of your highest sound exposure over the course of a rehearsal or a concert.

General Tips

1. Hearing damage is cumulative – reducing your exposure time is as important as reducing your exposure level.
2. Remember all sound contributes to your exposure – from circular saws to a heavy-metal concert. Keep track of your exposure with a personal dosimeter or smart-phone app.
3. See an audiologist every twelve months or sooner if you notice any change in your hearing sensitivity or level.



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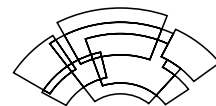
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