# 8. Musculoskeletal

## 8.1 The musculoskeletal system

Together, the skeletal elements, joints and skeletal muscles make up the locomotor system. The body's supportive framework consists of bony and cartilaginous skeletal elements which are held together by connective tissue.

Skeletal muscles move parts of the skeleton or hold them in a certain position. The locomotor system is divided into active and passive structures. The bones, joints and cartilage of the skeletal system are classed as passive structures.

They fulfil the following main functions:

- Supporting and acting as levers for muscles
- Protecting other organs (e.g. ribcage protects the heart and lungs)
- Storing the minerals calcium and phosphate
- Producing blood cells in the bone marrow

**Bones**: An adult's skeleton is made up of approximately 200 bones. Its shape is determined genetically, while the inner structure is influenced by external factors (e.g. a healthy diet, a supply of calcium and vitamin D, and balanced weight bearing).

**Joints and cartilage**: Joints connect cartilaginous and/or bony skeletal structures and allow the individual parts of the trunk and the extremities to move. They also serve to transfer energy. Most articulating surfaces are covered with hyaline cartilage and surrounded by a cavity which is filled with synovial fluid and encased in a joint capsule. The cartilage receives an optimum supply of nutrients when it is regularly worked and relaxed by means of movement. High unilateral load carrying or a lack of exercise can prompt degenerative changes – also known as osteo-arthritis – especially in older people.

The active locomotor system consists of muscles, tendons and ligaments. They are primarily responsible for active movement and maintaining an upright posture via voluntary and involuntary contraction and relaxation of the muscles.

**Muscle**: There are more than 400 muscles in the human body; they make up approximately 45% of the body mass.

There are three basic types of muscle:

- skeletal muscle
- smooth muscle (e.g. walls of the gastrointestinal tract)
- cardiac muscle.

Unlike the other types, skeletal muscle is controlled by a voluntary nerve impulse. At rest, skeletal muscle accounts for 20-25% of energy expenditure. There are gender-specific differences too: men have a higher muscle mass than women (30 kg versus 24 kg on average). This means that women only have 65% as much physical strength as men.

**Tendons and additional structures**: When muscles contract, tendons joining the bone to the muscles transmit the force to the skeleton. They consist of tough, fibrous collagen tissue. Depending on the location, shape and architecture of the muscle, tendons are classed as tensile tendons, compressive tendons or aponeuroses. When muscles work, friction is generated. Additional structures such as muscle fascia, tendon sheaths, bursae and sesamoid bones are very important in minimizing the energy, which is expended as a result.

## 8.2 Musculoskeletal disorders (MSD)

The term “musculoskeletal disorders” covers a variety of degenerative and inflammatory injuries and conditions affecting the locomotor system. They affect both passive and active structures.

These disorders range from mild short-term symptoms (e.g. tight muscles resulting from overloading or incorrect loading) to irreversible, chronic conditions (e.g. osteo-arthritis).

Damage to the musculoskeletal system occurs when external mechanical loads exceed the maximum load-bearing capacity of the individual structures within the body.

Pain is the primary symptom of MSD.

There are two types of pain:

- acute
- chronic.

Acute pain acts as a biological warning to prevent further damage to the locomotor system.

Chronic pain has moved beyond this point and impedes the patient’s use of their locomotor system. This results in high, intangible costs for the patient, such as restricted physical function or a lower quality of life. Patients are also less able to work and less productive. The conditions and symptoms are heterogeneous; they vary considerably depending on their location and the tissue structure affected.

Musculoskeletal disorders are among the most widespread conditions within the population. Population surveys conducted worldwide show that between 13.5% and 47% of the general population is affected by chronic musculoskeletal pain.

A recent Europe-wide survey found that back pain (43%) and muscular pain in the arms (41%) were by far the most common complaints.

Women reported MSD significantly more frequently than men.

*Figure 1: MSD which can be caused by biomechanical factors*

## 8.3 Risk factors for MSD

Studies have sufficiently documented that there is an above-average occurrence of degenerative MSD in occupations where workers are exposed to considerable physical strains.

However, the ways in which MSD is explained and viewed have evolved substantially in recent years. Instead of focusing solely on biomechanically based causality theories, there has been a shift towards complex biopsychosocial disease models.

Along with occupational demands, these include genetic predispositions, social factors, levels of training and productivity, stress perception and resistance (see Figure 2).

However, not all of these are risk factors as such, i.e. factors which contribute towards causing MSD.

Reference is increasingly made to risk indicators which are frequently observed in association with the symptoms, such as work dissatisfaction or lack of gratification.

*Figure 2: Potential influence factors for musculoskeletal impairment and conditions*

**Biomechanical risk factors**

Exposure to biomechanical risk factors at work such as:

- awkward forced postures
- heavy lifting and carrying
- frequent bending and twisting of the upper body
- manually handling loads
- repetitive work
- physical exertion or whole-body vibrations

contributes towards causing and/or exacerbating symptoms.

The combination, duration, frequency and intensity of these factors can cause considerable damage to anatomical structures such as muscles, tendons, joints and nerves. If adaptability is reduced and there is a lack of compensation mechanisms, this can give rise to excessive strain, which in turn results in pain and decreased productivity.

Accordingly, the consequences vary from person to person.

| | **Work-related risk factors with reasonable evidence of a causal relationship** | | |
|---|---|---|---|
| **Body region** | *biomechanical* | *psychosocial* | *individual* |
| **Neck** | ▪ awkward posture | ▪ low level of work satisfaction and support<br>▪ high level of distress | ▪ female gender<br>▪ co-morbidity<br>▪ smoking |
| **Lower back** | ▪ awkward posture<br>▪ heavy physical work<br>▪ lifting | ▪ negative affectivity<br>▪ low level of job control<br>▪ high psychological demands<br>▪ high work dissatisfaction | ▪ younger age<br>▪ high BMI |
| **Shoulder** | ▪ heavy physical work | ▪ high levels of distress<br>▪ performing monotonous work,<br>▪ low level of job control | |
| **Elbow** | ▪ awkward posture<br>▪ repetitive work | | ▪ co-morbidities<br>▪ older age |
| **Wrist/hand** | ▪ prolonged computer work<br>▪ heavy physical work<br>▪ awkward posture<br>▪ repetitive work | | ▪ high BMI<br>▪ older age<br>▪ female gender |
| **Hip** | ▪ lifting<br>▪ heavy physical work | | |
| **Knee** | ▪ awkward posture<br>▪ lifting<br>▪ repetitive work | | ▪ co- morbidities |

*Table 1: Reasonable evidence risk factors for MSD*

**Individual, lifestyle-related influential factors**

Like most chronic conditions, MSD are triggered by multiple risk factors. In addition to stress at work, aspects such as sport, lack of exercise, diet and substance use play a significant role in their development.

Furthermore, systemic diseases such as diabetes and rheumatoid arthritis can have a negative impact on the pathogenesis. The risks vary with age, gender and ethnicity or socio-economic status (SES).

A number of factors are listed here by way of example:

- **Age**: Aerobic and muscular performance decrease with age, which impairs the physical ability to work. Older employees are more prone to work-related MSD than younger ones due to their reduced functional capacity. However, the increase is less marked among 55 to 64-year-olds. This phenomenon is also known as the "healthy worker effect", i.e. employees who are unwell retire early.

- **Gender**: According to several studies, there is a higher overall prevalence of MSD among women than men. Gender-specific difference could also be explained by different exposures to occupational risk factors. A review indicates that men are at greater risk of back pain due to heavy lifting and carrying and for neck/shoulder complaints caused by hand or arm vibrations. Meanwhile, women have a higher risk of neck/shoulder complaints resulting from awkward static arm postures.

- **Socio-economic status**: A low SES (low level of education, low income or qualifications) correlates strongly with the prevalence and incidence of MSD. Absences from work due to back pain are more frequent among workers in low-qualified, manual jobs. This observation is virtually constant regardless of gender and age.

- **Lifestyle**:
  **Weight/diet**: Overweight and obese workers have a higher risk of suffering from MSD and take longer to recover than those whose weight is normal.
  **Smoking**: Bone atrophy and fractures have been observed more frequently among heavy smokers (including passive smokers). Smoking also delays healing and increases complications in connection with fractures and trauma. In addition, smoking has been linked to local inflammatory reactions by the musculoskeletal system (e.g. epicondylitis) and greater sensitivity to pain.
  **Exercise**: Inactivity is an independent risk factor for back problems. Decreased production of joint fluid (synovia), which serves to protect the surface of joints, can also exacerbate wear and tear to joints.

**Psychosocial and work-organizational influential factors**

Systematic reviews show links between psychosocial factors and MSD. These can have a negative effect on the condition's progression regarding behaviour and dealing with pain.

Psychological tension resulting from conflicts at work or within the family can manifest itself physically and impair the autonomic nervous system. The body reacts with increased muscle tone, which in turn can trigger muscle tightness. Mobility is severely limited by the pain, resulting in inactivity and compensatory postural adjustments. Possible long-term physical effects are muscle loss and joint misalignment.

Lengthy sickness-related absences caused by MSD have been observed more frequently in employees who face intense time pressure at work and have little job control.

The following additional factors stemming from the work environment and organization can also have a negative impact on workers' health:

- fast-paced work
- monotonous workflows
- insufficient breaks
- precarious employment
- unfavourable remuneration systems and working time models

## 8.4 Scoping review on musculoskeletal health of beauty therapists

Musculoskeletal disorders (MSD) are common in the working age population and are conditions that affect passive (bones, joints) and/or active structures of the body (muscles, tendons, ligaments, peripheral nerves).

Since MSD account for a high proportion of compensable occupational diseases worldwide many efforts have been undertaken to ascertain the potential risk factors in the development of MSD and its prevention in the workplace setting.

MSDs are highly prevalent in manual-intensive occupations such as manufacturing, construction or services. Beauty therapists are a group of workers whose working ability and health condition may be affected by specific occupational activities.

These activities required frequent sagittal or lateral bending and twisting of the back, static postures and long-standing periods. Repetitive tasks have been observed during all client related activities.

## 8.5 What are the potentially high-risk jobs in the workplace?

**Massage therapy:**
Massage therapy has been used in different cultures across the world for thousands of years. Massage has gradually become part of alternative medicine since the 1970s, but today it's considered as complementary and alternative medicine. It is used in the management of chronic pain syndromes and disease prevention, as well as for general well-being.

Massage therapy patrons often have a great expectancy and belief concerning the benefits of massage, these high expectations place a great burden on the therapists. Massage therapists are prone to sustaining overuse injuries due to the nature of the work.

Massage techniques involves the use of one's body to carry out repetitive movements often in non-neutral positions as well as varied amounts of force and strength of the upper extremity, injury occurs when the postural and physical demands exerted on the body are stressed beyond physiological limits.

Several other risk factors may play a role in increasing the risk of development of injury in therapists performing massage such as poor ergonomic setting (e.g. incorrect table height), inadequate work environments, performing excessive number of treatments and insufficient rest between treatments.

Massage can be categorised into manual and mechanical massage techniques: There are four common manual massage techniques, namely:

- **Swedish massage** which involves the rhythmical manipulation of the tissues of the body, thereby stimulating the deep muscles. It consists of four techniques: effleurage, petrissage, tapotement and vibration. These methods require repetitive movements of the hand and wrist often involving rapid rhythmical, slapping, pounding or chopping movements.

- **Aromatherapy** is another commonly used manual massage technique where massage is combined with essential oils to bring about healing, relaxation, physical and psychological effects such as stress relief and a reduction in anxiety. During this massage technique the oils utilised in the massage may have a therapeutic effect on the client.

- **Reflexology** is a form of therapy aimed at stimulation of specific reflexes. The therapist applies pressure and touch to certain parts of the body which are said to correspond to different areas of the body bringing about therapeutic effects.

- **Sports massage** incorporates the use of varied massage techniques such as petrissage, effleurage, trigger point or cross friction techniques and deep tissue body work and is very popular among sportsmen and women. It allows for improved physical performance and is relaxing with holistic benefits during and after participation in an aerobic sports event.

**Beauty and aesthetics:**
Beauty and aesthetics comprise facial therapy, electrical therapy, manicures and pedicures, hair removal techniques and the application of makeup, all of which are treatments commonly offered at most salons and spas.

Whilst performing treatments, the therapist adopts a hunched-over posture, tilted head or incorrect sitting ergonomics as well as repeated body twisting and flexion to reach for tools resulting in strain.

These awkward body positions and monotonous activities may lead to altered biomechanics and muscle imbalances as well as wear and tear. These activities result in injury to the MSK system structures.

**Electrical therapy:**
Electrical therapy treatments commonly used include galvanism, microcurrents, high frequency and vacuum suction.

There are various types of electrical equipment with functions ranging from reduction of signs of ageing and scars, treatment of skin conditions such as acne vulgaris, hair removal and treatment of the skin before and after surgery.

These activities involve repetitive movements of the upper limb as well as the concurrent support of the electrical equipment by the therapist. Therapists who perform physical activities using their hands are at a higher risk for developing work related injuries.

**Manicures and pedicures:**
Manicures and pedicures are treatments applied to the hands and feet such as nail filing, shaping, buffing, clipping, polishing, cuticle care, massage and the application of products to exfoliate, moisturise, hydrate and nourish the skin and nail.

Manicure and pedicure treatments typically range from between 30 to 60 minutes per treatment.

Therapists perform manicures and pedicures in seated positions without the use of a backrest, this increases the risk of slouching.

Pedicurists commonly sit on the floor or on a stool that's below their popliteal height.

Incorrect seating ergonomics leads to incorrect sitting postures and therefore may lead to the occurrence of MSK disorders. Some of their movements are rapid and repetitive (e.g. foot scrubs/filing) or minute and precise (e.g. nail treatments). Minute precise movements require focus and sustained postures which may lead to pain and stiffness.

**Hair removal:**
Hair removal has gained popularity in modern times in both males and females. The two methods by which hair can be removed are depilation (hair removal at the skin surface level) and epilation (hair removal at the level below the skins surface).

Incorrect technique, poor posture along with repetitive use of the hand and wrist may lead to stress and strain on the therapist.

## 8.6 Ergonomic factors

Ergonomics is the science that designs the work organisation, environment and equipment with the aim of adapting them to the worker.

The term 'ergonomic factors' generally refers to situations where there is misfit (physical and cognitive) between the worker and the working environment.

Lack of ergonomics in work design could result in physical discomfort, persistent pain in parts of the body or physical and mental exhaustion. The physical symptoms usually arise from constant and repetitive movements of various parts of the body or, alternatively, from holding awkward postures (sustained or constrained). These ergonomic problems may result in MSDs.

Lower back problems are usually caused when the therapist stands for prolonged periods of time. Such problems also occur from spinal twisting or bending. They are further aggravated when the employee is obliged to sit on stools without leg support or back rest.

Shoulder problems occur when the massage therapist constantly carries out repetitive movements for extended periods of time.

Neck problems occur as a result of bending the head in the forward position or when turning it constantly from side to side when carrying out treatments.

Awkward gripping of utensils accompanied by repetitive and forceful movements normally causes elbow, wrist and hand problems.

Standing for long periods of time can induce problems such as varicose veins, poor circulation and swelling in the feet and legs.

In this category of risks, manual handling of heavy goods or equipment can be implicated with lower back injuries.

Bad organisational procedures such as unclear distribution of responsibilities, extended working hours, especially under intense conditions, and absence of rest periods aggravate the above symptoms.

With the aim of preventing injuries or symptoms, it is important to take a number of measures. These can be divided into, first, a proper design of the work environment and, second, appropriate work practices.

In the first case the salon's layout and the location of equipment and materials are important in determining how the employer moves and positions him or herself in the workplace. The therapist must have sufficient space around him or herself to move freely and change body position so that he or she can reduce excessive reaching and bending.

All workbenches must be constructed at appropriate heights and chairs and beds must always be height adjustable.

Not only must equipment and materials be within easy reach, but considerations should also be taken for their weight and bulkiness. This can be facilitated by the use of trolleys with wheels.

With regard to work practices, it is important that the tasks vary as much as possible, so that the employee uses different muscles and allows muscles to recover (rotation of tasks). This can be accomplished by alternating between sitting and standing.

The purchase of ergonomic tools with bended or adjustable grip keeps the wrists straight. Ergonomic issues should also be considered when new equipment is purchased. The same applies for handheld tools.

Clearly defined responsibilities, equitable distribution of tasks, proper time allotments and rest breaks can help to diminish ergonomically induced symptoms.

The doctor's opinion with regard to whether a pregnant employee should be exempt from some tasks should always be followed. Provisions in legislation and collective agreements for the protection of maternity should be adhered to. Risk assessment in a beauty salon should take into account working conditions suitable for pregnant employees.

## 8.7 Lower limb disorders

Lower limb disorders (LLDs) affect the legs from hips to toes. The most common risk factors at work are:

- repetitive kneeling and/or squatting
- fixed postures such as standing for more than two hours without a break
- frequent jumping from a height

**What are lower limb disorders?**

Lower Limb Disorders (LLDs) at work affect the hips, knees and legs and usually happen because of overuse - workers may report lower limb pain, aching and numbness without a specific disease being identified.

Acute injury caused by a violent impact or extreme force is less common. However, athletes and military personnel are more prone to these injuries so workers who take part in these activities may report them at work.

Scientific evidence suggests that there are several recognised diseases of the lower limb which can be work related such as: hip and knee osteoarthritis; knee bursitis, meniscal lesions/tears; stress fracture/reaction injury and varicose veins of the lower legs.

**Osteoarthritis (OA)**

Osteoarthritis (OA) is a degenerative condition that affects the joints of the body (e.g. knees, hips and spine), and happens when the cartilage coating at these joints becomes damaged or worn away. Hip OA is more common among male than female workers and farmers have a significantly higher risk of suffering from it. There is a significantly increased risk of knee OA among miners, floor layers and cleaners.

**Knee bursitis**

Knee bursitis - also called coal miners, carpet layer's or housemaid's knee - is caused by repetitive kneeling or knee-straining activities. Workers who develop bursitis generally report tenderness and swelling, and a reduction in knee movement due to pain and tightening of the skin over the kneecap.

Beat knee or hyperkeratosis is the thickening of the skin over the knee due to pressure. It is an acute and extreme form of bursitis and is common among those regularly involved in knee-straining activities, such as kneeling and squatting.

**Meniscal lesions/ tear damage**

If the knee is bent or twisted while bearing a load, the force may cause meniscal lesions or damage to occur. Overuse trauma, for example repetitive squatting or kneeling, can also cause meniscus injury or damage. Such damage leans toward the injured knee being inclined to degenerative changes typical of OA.

**Stress fracture/stress reaction injuries**

Stress fracture and reaction injuries are the result of repeated micro-injuries to bone, typically found in those who regularly undertake marching or stamping of the feet. They are more common in people undergoing military training and in athletes, particularly long-distance runners.

**Varicose veins**

Varicose veins are any dilated subcutaneous veins of the leg. Employees may complain of feelings of heaviness and pain, a sensation of swelling of the legs, night time calf cramps and restless legs.

## 8.8 Lower limbs: Information for employers

LLDs are a major cause of sickness absence. By managing the risks, you can reduce the number of people taking sickness absence and also the average length of each absence.

**Preventing LLDs**

Because most injuries happen as a result of overuse, the most effective way to reduce risk is to design work to avoid overuse. This can be done by, for example:

- providing mechanical aids;
- using staff rotation to lessen the time spent carrying out 'risky' tasks;
- using regular breaks;
- providing seating, where possible;
- speak to the people carrying out these tasks – they understand what causes them problems. More effective results are usually achieved if employees are consulted first.

**Personal protective equipment**

Knee pads: These are useful for protection while kneeling on hard floor surfaces, but they do not mitigate the risks of extreme flexion of the knee. Their benefit is largely in respect of preventing lacerations and penetrating injuries, and improving comfort. It is not known whether they reduce the risk of osteoarthritis (OA).

Anti-fatigue matting: There is some evidence that anti-fatigue matting may be effective in reducing the risks from prolonged standing. However, the use of mats in the workplace requires careful consideration because of the increased risk from slips and trips.

## 8.9 Lower limbs: Information for employees

If you think you may be suffering from a lower limb disorder (LLD) that may be caused or aggravated by your work, there are things you can do to help yourself and assist your employer in helping you.

**What to look for**

The symptoms you should be particularly aware of are:

- pain and/or
- restricted joint movement

If you experience either of these symptoms, you should seek medical advice because some lower limb injuries, if recognised early, can be treated with minimal medical intervention, while others may require surgery (i.e. meniscal tears). Conditions like osteoarthritis may require regular clinical intervention.

**Report symptoms to your employer early**

It is important that you report any symptoms as soon as possible because help could be available and early intervention often prevents further damage. By reporting symptoms early, your employer can assess whether there is a problem and may want to observe your job. Other workers may be experiencing similar problems and, unless you tell someone, the problem may not be realised.

**What your employer can do**

Once your employer knows about problems in the workplace they should be able to do something to reduce the risk of it getting worse.

Adaptations may need to be made, for example to the tools/equipment you use or the way your work is organised. These changes may be permanent and apply to a group of workers, or temporary and specific to you as an individual when dealing with a current problem or recovering from your symptoms.

**Occupational health advice**

Your employer may be able to refer you to an occupational health service provider for some medical help. An occupational health service provider will:

- assess your symptoms and may diagnose a specific condition, if you have one
- ask about your work tasks to try and identify the things contributing to the problem

If your workplace does not have access to this type of support, you should see your GP to explain your symptoms and the type of work that you do. Although they may or may not be able to diagnose your condition, they can provide some help and advice or may refer you to a specialist health professional – especially if some form of clinical intervention is required.

**What law applies to LLDs?**

**Answer**: Employers have legal duties under:

- the Health and Safety at Work etc Act 1974; and
- the Management of Health and Safety at Work Regulations 1999.

These duties include ensuring the health, safety and wellbeing of employees at work, and assessing and reducing potential risks to their health, safety and wellbeing. Employers have a duty to do something if there is a problem which is causing or aggravating existing symptoms - this may include providing protective clothing or referral to an occupational health provider for some medical help.

## 8.10 Wearing the correct footwear

Beauticians are some of the most bubbly and fun people to be around. But under all the pep and lively personality, there are hidden pains. Majority of their day are spent standing or sitting on a regular basis, this can really take a toll on one's feet.

Finding the right shoes can make a difference. You will need footwear that provides you the stamina to stand the entire day with an equal measure of style to look sharp while you're at it.

**First Things First: What is the shape of your feet?**

It is a common sense that one should know the width and length or so-called the size of the feet before buying shoes. But what about the shape of the feet? It's often a consideration that

many buyers ignore but also matters, unless you want to force your feet to conform to a particular shape of shoes and deal with painful blisters and calluses.

Known as the foot arch type, feet also come in different shapes and yours may fall in the following category. Also, some arch type have a special shoe that needs to be accommodated.

- **Low-arched or Flat Feet**: If the arch of your foot or the ligament that runs along the bottom of your foot sits low to the ground and is very flexible, it is in low-arched definition. Potential Problem: Since flat-feet are more flexible, they tend to roll inwards, contributing to muscle stress and joint problems: Look For: Shoes with a medial rear foot or a straight last and motion, this can help maintain the proper alignment of your feet, prevent injuries and related muscular pains.
- **Medium or Neutral-arched Feet:** Your feet fall into this category if it isn't flat nor overly-arched but just moderately flexible. Potential Problem: These type of feet are commonly susceptible to heel pain and tensions since it's hard to find shoes that properly fit with this type. Look for: You can benefit from sturdy midsoles or cushioning, one that is straight to semi-curved lasts for comfort and rear-foot stability.
- **High-arched Feet:** This type is characterized by a well-defined arch that sits higher from the ground. Potential Problem: Your feet can have a lesser surface to disperse shock with high arches. This can lead to excessive pressure on both rear foot and forefoot. Look for: A comfortable cushioning or pads can help compensate for the lack of surface area for shock absorption. You may also find shoes with a curved last helpful in giving your high arch the support it needed.
- **Bonus tip:** Still unsure about your arch type? A simple wet-test can help you examine how high or low your arches are. First, wet your foot and step on a piece of cardboard. If you can see a noticeable footprint, you likely have low arches. If you can only see the heel and toes of your foot without much in between, chances are, you fall under a high-arched type. On the other hand, you have medium arches if the arch of your footprint is just about half-way filled.

**Finding the Right Shoes**

Choosing the right shoes to wear in the salon can really be overwhelming. From crocs, jelly shoes, slip-ons, down to work boots — where do you start? The most important thing to consider, whatever type of shoes you are after, are the functional features and constructions to eliminate that foot pain and keep you gearing.

**Good Heel and Arch Support**

Do you know what your shoes are made of? When talking about the ergonomic design, it all comes down to a comfortable arch and shoe support. A good shoe support can work wonders to lift your arches, provide stability and pain-relief. If your shoes lack any of the following features, then you are bound to have those episodes of foot pains.

- **Upper Pad:** This feature serves to support the shoe on your foot. The construction is usually of mesh, synthetic material or leather.
- **Midsole pad:** This may come as a gel, foam or air midsole which basically functions as a cushion to reduce the impact as your feet land on the ground, making your muscles work less.
- **Insole Pad**: Your shoes may have built-in or removable sole pads that support the whole feet and arches. This also provides stability and cushioning.
- **Heel Collar**: Located on the top of the upper, just around the sides and back of the heel is the heel collar that serves as cushions to the ankles while ensuring a proper fit.
- **Toe Box:** The front of the shoe should have sufficient room for your toes, it should also be deep and roomy. This helps prevent calluses and painful blisters.

- **Outsole Pad**: Besides the interior cushions, good shoes to stand by are those that have grooves and treads. These kinds of outsoles, when making a contact with the ground, help keep up with tractions.
- **Achilles Tendon Protector:** This feature functions to reduce stress on the notch of the heel collar where the Achilles tendon is by making sure the shoe is locked around the heel.
- **Other Helpful Features**: Shoes that have Velcro straps gives you the opportunity to adjust the shoe to fit you more while stabilizing straps helps stabilize the foot.

**Breathable Panels**

Do your shoes have ventilated mesh panels and air vents that allow airflow? You are already dealing with foot-fatigue here; you certainly don't want sweaty feet adding up to your discomfort. This is why it is important to look for shoes constructed with breathable materials.

An example of these is a synthetic material, preferably a nylon mesh as well as open foams because they allow ventilation. Open knits and looser weaves also help your feet cool down and prevents foul odour

**Lightweight**

Ditch those thick and heavy shoes. They are not meant in a working environment as yours where you have to move around a lot. Heavyweight shoes will only contribute to fatigue. The material and cushioning are often the factors that contribute to the weight of the shoes.

Don't ditch the cushions as they are an important part of ergonomic features, but at least go for materials that are airy like those that are foam-based. Other lightweight shoe materials include blown rubber, nylon, and polyester.

**Flexes Right**

Shoes with a hard flexing point can additionally aggravate arch pain, shin splints, and numb toes. You can check the flexibility of the shoes by slightly bending the shoes through the heel and the tip. It should create a crease along the line just enough to let you have the comfortable and sturdy support. In contrary, it should not bend too much as shoes with too much flexibility may not provide structure and support for longer use.

**Stylish**

Finding shoes that have the equal measure of style and comfort can be tricky. But if you search enough, there are an array of shoes in the market you can choose from according to your style without compromising your level of comfort.

## 8.11 Risks with wearing the wrong footwear

Salon H&S says shoes should be non-slip soles, closed in toes and heels. Flat pump shoes, kept for indoor wear only, seem to be very popular with therapists at the moment

For obvious reasons, high heels and sandals are usually no-nos. No matter how sweltering the weather, you should stay away from sandals to avoid on-the-job hazards: puncture wounds from falling instruments.

## 8.12 Best Types of Shoes To Wear in the Salon All Day

## 8.13 Worst Types of Shoes To Wear in the Salon All Day

## 8.14 Upper limb disorders (ULD)

**What are upper limb disorders?**

The phrase ‘upper limb disorders’ is a general label which is used to refer to a range of medical conditions which can be caused or made worse by work.

There are a number of common terms which are also in use to describe the same conditions, of which the most well known is ‘repetitive strain injury’. Other lesser known terms are ‘cumulative trauma disorder’, or ‘occupational overuse syndrome’.

The term upper limb refers to:

- The part of the body: the arm and hand, covering a region extending from the tips of the fingers to the shoulder and extending into the neck;
- The tissues: the soft-tissues, muscles and connective tissues (tendons and ligaments) and the bony structures, as well as the skin, along with the circulatory and nerve supply to the limb.

An awkward working posture has been considered a risk factor related to musculoskeletal disorders in many workplaces.

A few studies have been found concerning risk factors due to working postures in the beauty industry.

These working postures and motions can increase the risk of exposure to hazards and continually increase discomfort felt in different body regions.

**Common types of work-related disorders of the upper limb**

- **Carpal tunnel syndrome** is characterised by pain and/or altered sensation in the hands and fingers caused by the median nerve being compressed or trapped within the carpal tunnel at the wrist.
- **Non-specific arm pain**, generally in the forearm, is pain without obvious cause or particular defined symptoms. This type of pain is the most common work-related upper limb complaint.
- **Tenosynovitis** is the inflammation of the tendons in the wrist which cause pain when the wrist is moved. The condition also causes tenderness, swelling and redness and also a grinding or 'popping' feeing in the joint.
- **Lateral epicondylitis** is better known as tennis elbow, but most sufferers are not actually players of racket sports. Recent research shows that this is a condition of the dominant arm, most commonly experienced in middle age. Most patients recover in 12 months without any treatment. Where needed, treatment includes rest from aggravating activities (such as tennis, repetitive twisting and gripping), acupuncture, splinting and non-steroid anti-inflammatory drugs. However, if symptoms persist, surgery is an option.

## 8.15 Reducing the risk of upper limb disorders (ULD's)

Changes do not necessarily need to be expensive. Simple and low cost changes can often be effective:

- Consider the risks when setting up new workstations. It is cheaper than redesigning them or purchasing more suitable tools at a later stage
- Tackle the serious risks or those that affect a large number of workers first
- Try to make the task and workstation suitable for each worker, rather than make the worker adapt to fit the task and workstation
- Test any changes on one or two workers before making changes for everyone

**Reduce the impact of risk factors**

Firstly, establish if it is possible to mechanise any of the tasks that pose a significant ULD risk.

**Reduce repetition**

- Break up work periods involving a lot of repetition with several short breaks instead of one break at lunchtime or mid-shift
- Allow for short, frequent pauses for very intensive work

**Find the right working position**

- Design workplaces and equipment for workers of different sizes, build, strength and for left-handed workers
- Provide platforms, adjustable chairs and footrests, and tools with a suitable size grip
- Arrange the position and height and layout of the workstation so that it is appropriate for the work

**Reduce the amount of force**

- Reduce the weight of items, or the distance moved or slide them instead of lifting
- Ensure any handles and/or controls that are used are well maintained and easy to manipulate without requiring the application of unnecessary force
- Provide lightweight tools and, if not, a support, jig or counterbalance will help
- Ensure all tools are well maintained and implement a regular maintenance policy.

- Ensure the right tools are used for the job which can reduce the amount of force required to perform tasks

**Reduce duration**

- Share a high-risk task among a team by rotating workers between tasks (each task needs to be sufficiently different to benefit the worker)
- Allow workers to carry out more than one step of a process (job enlargement) this can reduce ULD risk exposure to one specific task (provided the steps do not have the same risks)
- Introduce short frequent breaks in the more risky activities (but not necessarily a rest)

**Improve the working environment:**

- Purchase low-vibration tools to reduce potential hand-arm vibration (HAV) risks
- Make sure that the temperature is comfortable, and avoid putting workstations too near air vents
- Make sure that the lighting is good or provide a personal lamp
- Avoid reflections and glare by moving lights, providing blinds on windows, or moving workstations

**Tackle the underlying effects of work or conditions**

- Encourage teamwork, and ensure good communication between workers and management
- Rotate workers between tasks to reduce boredom
- Watch the production speed to keep the workload reasonable
- Train workers so that they feel able to do the task
- Get the right balance for bonus schemes as such schemes could encourage workers to work beyond their natural limits
- Involve workers in decisions about them and their work

## 8.16 Improving body ergonomics

Posture and position are important, whether you are sitting at the nail table or in front of your client giving a pedicure. Paying attention to how you perform these tasks can prevent many injuries, e.g. lower back, neck, wrist and shoulder pain.

- Keep both the task and tools directly in front, do not favour or lean to one side.
- Avoid reaching more than 12 inches and keep forearms parallel with the floor (neutral position) at the side.
- Choose a high quality, swivel chair with a seat at least one inch wider on each side than hips/thighs and properly padded so that it doesn't create a pressure point, e.g. behind the knees.
- When sitting always keep the spine (back) in a neutral position e.g. a 90 degree angle, not leaning forward or backward. The head, neck, and body should face forward without twisting or hunching. The back rest should provide support for lower back.
- Avoid twisting the neck, e.g. holding phone with the head. The head should be kept upright and shoulders relaxed.
- Avoid leaning too far forward while performing manicures or pedicures. Do not bend the back forward more than 30 degrees or the neck more than 45 degrees.
- Raise and position the client's hands or legs/feet to prevent bending/stretching forward or supporting feet with your own body. A recliner chair works well and supports the client's legs in the best position for servicing.
- Adjust chair height so your thighs are parallel to the floor with your feet flat. If necessary, use a footrest to keep the feet flat and don't cross the legs or sit sideways in the chair.
- Wrist and hands should be kept straight, not bent or twisted sideways.

- When holding a clients hand or finger, position it so that the pressure from grasping is minimized; a relaxed, minimal hold will lessen the strain.
- Gently move your client's hand rather than tilting your head. In order to prevent neck strain, consider placing a client's hand on a rest that elevates the hand to prevent forward tilt of the head and neck.
- Minimize pressure points, avoid placing arms on the edge of the table and use a foam tube/padding on the sharp edge of the nail table or as an arm/elbow rest.

## 8.17 Preventing lifting and motion injury

Understanding how to lift and move correctly are important keys to preventing injury. Repetitive motion or cumulative trauma disorders can be caused by using the same motions over and over, placing strain on the body, joint, muscles, nerves, tendons, ligaments, or soft tissue. Problems can also result from incorrect twisting.

- To prevent back injury, salon professionals should avoid lifting anything heavy, e.g. more than 15 lbs (7 kg)
- When lifting, tuck in the stomach and use abdominal muscles and legs, instead of the back muscles.
- Avoid overextending arms, e.g. reaching over your head to put something on a shelf. Use a step stool or ladder.
- Sit with the client's foot directly in front of you and keep it close to the body when lifting.
- Use an adjustable pedi-chair or place the client's foot on a pillow raised to just above elbow level.
- While performing a manicure or pedicure, minimal force should be used. If more force is needed, it should only be done for short time periods and then rest.
- When using tools, minimize strong gripping or pinching and take rest breaks. Use padded files and tools to decrease the need to use a hard pinch or grip.
- Equipment should properly fit the hand and kept in optimal condition, e.g. sharpen nippers.
- Keep repetitive motions to a minimum, e.g. filing. Take short rest breaks to prevent a repetitive motion disorder.
- Avoid repetitive flexing of the wrist by holding it straight. Bend elbows and shoulders rather than your wrist.
- Avoid using electric files for extended periods without rest breaks since even this minimum vibration can contribute to injury.

## 8.18 Risk Assessments

As part of managing the health and safety of your business, you must control the risks in your workplace. To do this you need to think about what might cause harm to people and decide whether you are taking reasonable steps to prevent that harm.

This is known as risk assessment and it is something you are required by law to carry out.

**If you have fewer than five employees you don't have to write anything down.**

**A risk assessment is not about creating huge amounts of paperwork, but rather about identifying sensible measures to control the risks in your workplace.**

You are probably already taking steps to protect your employees, but your risk assessment will help you decide whether you have covered all you need to.

Think about how accidents and ill health could happen and concentrate on real risks – those that are most likely and which will cause the most harm.

For some risks, other regulations require particular control measures. Your assessment can help you identify where you need to look at certain risks and these particular control measures in more detail. These control measures do not have to be assessed separately but can be considered as part of, or an extension of, your overall risk assessment.