Deep Tissue Techniques
METHOD OF DELIVERY:

Each session is of 3 hours duration and is a combination of theory and practical hands on work. Hand out notes and a session review workbook are provided and students are advised that some note taking is recommended. Two ways sharing of information and experience is encouraged in all classes.

*Not all the theory hand out notes will be discussed in class, so students should carefully study their notes at home and answer the review questions contained in their workbook.*

RESOURCES REQUIRED:

Students are required to bring their own stationary and dress casually to prevent damage to good clothes. Students are also required to bring 2-3 towels to each class. You may also like to bring a pillow for comfort. *Your Anatomy book*. All other required resources to facilitate learning will be supplied by MSQ.

METHODS OF ASSESSMENT

*Assessment of this unit will be conducted in 3 parts:*

1. **Written Assessment:** The written assessment will be conducted by students completing the questions in the relevant workbook, which at completion will be handed to the relevant trainer for marking.

2. **Practical Assessment:** The practical assessment will be conducted on each student upon completion following instruction from the trainer who will assess the student’s ability performing the correct massage techniques and body mechanics, communication with their patient, knowledge of muscle anatomy and to plan and provide a massage treatment within a deep tissue framework.

3. **Performance of clinic hours:** *Students are required to complete 10 hours in the student clinic* after successfully completing the written and practical assessment of the units in session 10. The clinical hours will be supervised and assessed and form part of the overall assessment of competency for the unit.

Pass marks in this framework contribute to a ‘Satisfactory or Not Satisfactory’ in the following units: HLTMSG001, HLTMSG004, CHCCOM006, BSBMED303

If you do not achieve a satisfactory pass mark, you will be required to re-sit the questions you did not pass. If you do not pass the practical sessions you will be required to do them again at a future date (this may incur a fee).
DEEP TISSUE 1 - SESSION PLAN

Session 1 General
- What is Deep Tissue Massage, Deep Tissue...Deep Issue?
- Benefits and objectives of Deep Tissue Massage
- Principles of Deep Tissue Massage
- Body-mechanics

Session 1 Anatomy
- Posterior Legs
- Action, origin-insertion
- Appropriate techniques/Stretches

Session 2 General
- Co-operating muscle groups
- Types of muscle contractions
- Major methods of treatment 1

Session 2 Anatomy
- Posterior Hips
- Action, origin-insertion
- Appropriate techniques/Stretches

Session 3 General
- The Process of Clinical Care-Practicalities
- Client Compliance/Adherence

Session 3 Anatomy
- Lumbar Spine
- Action, origin-insertion
- Appropriate techniques/Stretches

Session 4 General
- Biomechanics of different sports & jobs
- Phases of clinical care

Session 4 Anatomy
- Posterior Thoracic
- Action, origin-insertion
- Appropriate techniques/Stretches

Session 5 General
- Soft tissue Injuries - common cause
- Sites & types of injury
- Pathology & healing process
- Medical Terminology

Session 5 Anatomy
- Posterior Neck
- Action, origin-insertion
- Appropriate techniques/Stretches
Session 6 General
- Major methods of treatment
- Identification & description

Session 6 Anatomy
- Anterior Legs
- Action, origin-insertion
- Appropriate techniques/Stretches

Session 7 General
- Case scenarios - treatment planning

Session 7 Anatomy
- Anterior Thoracic
- Action, origin-insertion
- Appropriate techniques/Stretches

Session 8 General
- Discuss & overview of review questions

Session 8 Anatomy
- Anterior Neck, Anterior Shoulders and arms
- Action, origin-insertion
- Appropriate techniques/Stretches

Session 9
- Muscles Anatomy Test
- Final Full Body treatment

Session 10
- Final practical assessment
- Students to hand in their Workbook
LESSON 1.

What is Deep Tissue Massage?

Deep Tissue Massage Therapy is a highly effective method of soft tissue treatment. It is applied with greater pressure than Swedish massage and works on the deeper layers of muscles throughout the body. It is used to release chronic patterns of muscular tension and free restrictions, increase circulation and R.O.M. Deep tissue utilises slow deep strokes in a longitudinal and transverse direction, compression techniques, passive soft tissue movement and friction techniques. It is applied using the fingers, thumbs, hands, knuckles, forearm & elbow.

These specific techniques are used to locate lesions, break down, soften and break down fibrous tissues and adhesions, and scar tissue, realign muscle fibres, promote blood flow, removal of toxins, and promote healing. Deep tissue is a technique used in Sports Massage as well.

Deep doesn’t mean hard!

Deep tissue massage employs the principles of muscular restoration. It works along and across the muscles and tendons manipulating deep tissues, stimulating circulation and regenerating lymphatic flow. This promotes detoxification and oxygenation of stagnant tissues. It is designed to bring fluid into the cells, stimulating changes on a cellular level. Deep tissue massage releases adherent muscle conditions existing in deep layers of muscle and actually corrects damaged muscle tissue.

Deep tissue massage may relieve entrapment of nerves and also aids in moving out metabolic wastes and congestion that may have accumulated in damaged muscles and soft tissue, thereby reducing swelling and inflammation, as well as reducing pain. It softens hard fibrous muscle tissue, which restricts joint range of motion.

Deep tissue massage provides a form of passive exercise for those who have been injured or ill. Combining deep tissue massage with traditional treatments of disease offers an added edge that can speed recovery and promote maximum improvement where traditional treatments leave off.

By using the various techniques in deep tissue therapy we can help eliminate many different manifestations of restriction in the muscles and fascia and provide the means to return the body to a healthy, strong, and vital condition. Many varying styles of deep tissue therapy have been developed over the years, but there are similar characteristics to all of them. The primary function of deep tissue therapy is to reduce the level of stress imposed on the body by restricted muscles.
Circulation of blood and lymph is inhibited. Constricted muscles and their fascial components act as dams, blocking fluids from flowing freely throughout the body. Muscles rely on a steady intake of oxygen and nutrients to provide the necessary energy for muscular contraction and relaxation to occur. The waste products of muscle metabolism are released into the blood supply to be transported out of the muscles and processed for removal from the body. If this cycle is disrupted, the muscles become toxic from lack of nutrition and build-up of waste products and can no longer perform their job effectively. Toxicity within a muscle irritates nerve endings, resulting in weakness and possible pain. This toxicity taxes the immune system and creates an environment in which disease can more easily take hold.

Over-acid conditions caused by poor diet and stress can also cause the muscles to shrink, harden and become excessively fibrous.

Muscles that are chronically contracted disrupt the balancing forces on the skeleton, causing postural distortions that result in structural stress, this compromises the soft tissue causing imbalance in the skeleton, some muscles stay contracted while opposing muscles are stretched beyond their resting length and are weakened. This results in a lack of adaptability in movement, which makes the body more prone to injury.

Deep tissue therapy is designed to return the body to a state of ease and balance by eliminating the uneven pulls on the skeleton caused by contracted muscles and restricted fascia. Deep tissue therapy can ‘sculpt’ the skeletal system and return the natural postural alignment and full rotational movement to the joints. The body’s muscular systems are relaxed, separated and elongated while dissolving layers of excessive, tight, fibrous, contracted and spasmodic tissue. Improved circulation to all parts of the body is enhanced, providing blood, and better nutritional exchange. The body can heal itself only when proper circulation is restored to it.

**DEEP TISSUE...DEEP ISSUE?**

One of massage therapy’s primary values is its effectiveness at relieving tension in the body. Tension manifests physically as chronically contracted muscles causing pain, irritability and diminished function. Tension is what often prompts are person to seek massage therapy. However, the results of massage therapy can be short-lived because when the client is again confronted with stress-producing experiences, the tension and its ensuing problems often return. It may be necessary to explore the nature and sources of tension more fully with clients so that they are capable of neutralizing its effects when it invades the body.

Tension itself is a form of resistance. It is the body’s attempt to defend itself against a perceived threat. Stress causes tension and stress becomes a problem when it is overbearing and unyielding. Exposure to long-term stress produces chronic tension.
Psychological sources of stress can be as devastating as physical ones. Very often people are unaware that the condition of their mind forges a direct link to their body. When worry, fear, anger and other highly charged emotional states are unrelenting, they can have a devastating effect on the body through their tension-producing nature. As long as these emotional irritants are present the body can no longer maintain an environment of relaxation. We call this psychodynamic tension.

Areas of chronic physical tension lodged in the body may have been triggered by emotional stimuli that occurred years before. If a perceived threat is strong enough, is of a sustained duration, or is both, it can create an area of muscular tension that becomes locked in the body and is no longer responsive to a conscious directive by the mind to release. This type of muscular tension is called ‘armouring’. Armouring refers to the protective nature of the muscle block. It manifested to prevent the person from experiencing an unwanted or unacceptable feeling. There are many sources for these blocks, but the result is always the same—an area of deadened feeling due to muscular restriction. Much armouring occurs in childhood, before a person has acquired the necessary inner mechanisms that allow humans to effectively absorb or counter an intense emotional barrage.

The massage therapist must be aware that deep tissue therapy can uncover and unlock places of frozen or psychodynamic tension in the body. As muscular tension softens during deep tissue therapy sessions, the underlying feelings sometimes resurface. In some instances, the client may choose to explore these feelings and their source. If this is the case the therapist should recommend that the client talk to a qualified psychological counsellor.

As the muscle tissues are freed from their chronic gripping and the associated feelings surface, the client may experience a loosing of blocked emotions along with the muscular release. An emotional outpouring can manifest in a number of ways, including crying, laughing, a feeling of great relief, and/or insight into the nature of the physical-emotional blockage.

Using deep tissue massage techniques may allow the client to become more aware of holding patterns in the body and the emotional content that is stored there.

THEREFORE DEEP TISSUE CAN BE A DEEP ISSUE THAT REQUIRES DEEP THINKING, SO MASSAGE WITH AWARENESS!

Build your knowledge, skill and confidence to think creatively and allow the foundation of an integrated deep tissue system to grow within you. No two people ever perform massage the same way. There is always room for adaptation and exploration. The softening and lengthening of soft tissue in response to therapy is a very gratifying feeling to client and therapist.

THE ART OF DOING DEEP TISSUE MASSAGE LIES IN BEING ABLE TO REMAIN PRESENT AND ADJUST YOUR APPROACH AND TECHNIQUE TO EACH PERSON.
In conclusion, Deep Tissue Therapy is a therapeutic and curative massage process that deals with various health issues. It is a useful and integral part of the healing process. It uses a specific and systematic method of techniques to reducing tension, unlocking restrictions in the body, softening and elongating chronic areas of muscle shortness & tightness. It increases circulation of blood and lymph and helps to eliminate toxic wastes and break down fibrous tissue in the body therefore reducing pain and irritability in muscle tissue and can facilitate the release of negative emotional states that are locked and frozen within the body. This allows the muscles and joints to function optimally, and may also improve the functioning of the internal organs and helps to return the body/mind back to optimal health.

**Massage Philosophy:**

Massage therapists always touch with the greatest integrity and care. The way in which a therapist touches the client has a great power to influence how the client feels on virtually all levels. It is a way of communicating without words. We share our energy with them. We must realise that individuals can bring the totality of their lives to a massage treatment, we are an organic system, a complex of physical, emotional, mental, and social factors that interact with the social environment, the quality of a person is the result of the synergistic interaction of the parts of the whole system. A change in any one part of the system affects the organism as a whole. On a physical level all tissues and systems are affected by the health and activity of other tissues and systems, changes in the physical condition affect the mental and emotional state and visa versa. We also must consider the spiritual part of ourselves as well.

Our body, thoughts and emotions are intimately inter-connected, the tactile stimulus of massage can reduce feelings of anxiety, depression and social isolation. Therefore not only individuals, but society as a whole may benefit. It is likely given the profound effect of touch to emotional experience and behaviour, that the therapist may begin to solve some of the huge social problems besetting the world at present.

Each individual has a part to play in creating a better world, and massage therapists can do much to educate the community about the importance of therapeutic touch in shaping healthy, happy individuals.

Finally, massage is transformational, make it a goal that your clients, by having a deep tissue massage, acquire the means to improve their relationship with their body and find greater health and ease within their life.
BENEFITS AND OBJECTIVES OF DEEP TISSUE MASSAGE

- Increased local circulation to muscles and joints
- Increasing exchange of nutrients
- Increasing O2 and speeding removal of metabolic wastes/toxins
- Identifies potential areas of tightness in muscles
- Reduces & locates adhesions, lesions and fibrosis between various soft tissue
- Improving R.O.M, loosen joints
- Stretches soft tissue, improves flexibility
- Promotes healing of injured tissues
- May improve functioning of the internal organs
- Improves posture
- Releases myofascial restrictions
- Reduces tension in the body
- Is effective in working on injuries
- Assists with prevention of injury
- Increases communication between muscle and brain—makes for more effective functioning
- It is effective in releasing deeply held emotions that cause tension, thereby resolving many chronic pain patterns

KEY POINTS TO KEEP IN MIND WHEN MASSAGING:

Use the lunge and reach and lunge and lean posture, arms and back straight, feet placed more than shoulder width apart with feet pointed straight forward, knees bent, shifting weight from front leg to back leg. Power comes from the hips, use your whole body to move into and apply pressure. Many therapists will set their massage table slightly lower.

Support your joints at all times, and make sure they are properly aligned.

Keep your body as relaxed as possible

Minimise muscular effort—use your body weight. Too much muscular effort is felt as invasive by the client and they start to resist you’re your effort by tensing somewhere in the body.

Move your hands, forearm/elbow by moving your whole body, even if the stroke is only a few centimetres long, rock your body into that stroke. This moves the mass of your body into the area you are working on.

Your pelvis should face the area you are working on, the legs are the engines that drive the stroke, and your pelvis is the steering wheel.

Breathe from the belly, make sure your breathing is relaxed and that your body is comfortable.

Keep your hands soft and relaxed; imagine a stream of healing/positive energy moving through your hands. Smile!
EVENTUALLY YOUR MASSAGE WILL BECOME EFFORTLESS WORK; EFFORTLESS WORK IS BASED ON TWO PRINCIPLES:
1. PROPER BODY MECHANICS & ERGONOMICS.
2. USING CHI (INTERNAL ENERGY) IN MASSAGE.

**Therapist self-care:**
Exercise / stretch daily
Eat vitalized food & drink lots of good quality water
Take time for daily reflection
Receive regular body-work yourself

**PRINCIPLES OF DEEP TISSUE MASSAGE**

- Respect the client
- Work with breath (therapist & receiver)
- Be attentive/communicate
- The deeper you go, the slower you go
- Treat better side first
- Never force the tissues
- Deep is not hard! Keep touch as relaxed as possible
- Use proper body mechanics
- Warm up first before going deep
- Start with broader surfaces then get more specific
- Lengthen short & tight tissues (strengthen long & weak)
- Use pressure/pain scale
- Work on ‘the edge’ with your pressure (6.5-7) max!
- After cross frictions, use broad strokes to reduce discomfort experienced (relax receiver with feel good strokes)
- Always apply deep strokes on extremities (arms & legs) towards the heart
- Keep changing strokes (body loves contrast)
- Release blockages so that energy can flow
- Treat agonist & antagonist
- Seek to re-establish balance
- Work from a perspective of wholeness (to heal)
## Muscles of the Lower Posterior Leg

<table>
<thead>
<tr>
<th>Gastrocnemius</th>
<th>Soleus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Origin</strong>- two heads (medial and lateral condyles of femur)</td>
<td><strong>Origin</strong>- Superior tibia, fibula and interosseous membrane</td>
</tr>
<tr>
<td><strong>Insertion</strong>- Calcaneus via Achilles tendon</td>
<td><strong>Insertion</strong>- Calcaneus via Achilles tendon</td>
</tr>
<tr>
<td><strong>Action:</strong> Plantar Flexion</td>
<td><strong>Action:</strong> Plantar Flexion</td>
</tr>
<tr>
<td><strong>Stretches</strong> Passive wall stand with foot against wall at 45 degree angle</td>
<td><strong>Stretches</strong> Standing static stretch feet inline bending both knees slightly and push weight forwards</td>
</tr>
<tr>
<td><strong>Appropriate Techniques</strong> Rolling, kneading, petrissage deep and light.</td>
<td><strong>Appropriate Techniques</strong> Deep with knee flexed from 45 to 90 degrees. Medium pressure flushing, squeezing.</td>
</tr>
</tbody>
</table>
Notes
Notes
Muscles of posterior thigh

<table>
<thead>
<tr>
<th>Biceps femoris/semitendinosus/semimembranosus</th>
<th>biceps femoris</th>
<th>semitendinosus</th>
<th>semimembranosus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Origin</strong></td>
<td>Ischial tuberosity (long head)</td>
<td>Ischial tuberosity</td>
<td>Ischial tuberosity</td>
</tr>
<tr>
<td></td>
<td>Distal femur (short head)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Insertion</strong></td>
<td>Common tendon head of fibula and lateral condyle tibia</td>
<td>Pes anserinus tendon (anteromedial head of tibia)</td>
<td>Medial condyle tibia</td>
</tr>
</tbody>
</table>

**Action:**
Knee flexion and hip extension

**Stretches:**
Seated with legs extended
Standing with 10-15 degree knee flexion

**Appropriate Techniques**
Effleurage, kneading, longitudinal glides, deep and broad forearm, splitting the distal tendons, transverse friction (TF) for proximal tendons,
Notes
Notes
Figure 9-18  Compression of hamstring attachments against the ischial tuberosity (Draping option 10)

Notes

________________________________________________________________________________

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________________________________________________________________________________

________________________________________________________________________________
Lesson 2.

**Identify & describe co-operating muscle groups**

**What do we mean by co-operating muscle groups?**

Cooperating muscle groups are a group of muscles that act together to cause a limb to move through the joint’s range of motion, they usually act in the following cooperating groups:

**Agonists**
These muscles cause the movement to occur. They create the normal range of movement in a joint by contracting. Agonists are also referred to as *prime movers* since they are the muscles that are primarily responsible for generating the movement.

**Antagonists**
These muscles act in opposition to the movement generated by the agonists and are responsible for returning a limb to its initial position.

**Synergists**
These muscles perform, or assist in performing, the same set of joint motion as the agonists. Synergists are sometimes referred to as *neutralizers* because they help cancel out, or neutralize, extra motion from the agonists to make sure that the force generated works within the desired plane of motion.

**Stabilizers**
These muscles provide the necessary support to assist in holding the rest of the body in place while the movement occurs.

As an example during knee flexion, the hamstring serves as the agonist, or prime mover; the quadriceps serves as the antagonist; and the calf and lower gluteus maximus serve as the synergists. Agonists and antagonists are usually located on opposite sides of the same bone proximal to the articulation, while synergists are usually located on the same side of the joint near the agonists.

The following is a list of commonly used agonist/antagonist muscles:
- Pectorals/latissimus dorsi
- Anterior deltoids/posterior deltoids
- Abdominals/lumbar erecto spinal
- Gluteals/iliopsoas
- Quadriceps/hamstrings
- Biceps/triceps
- Calves/tibialis anterior
Identify & describe types of muscle contractions

Types of muscle contraction

The contraction of a muscle does not necessarily imply that the muscle shortens; it only means that tension has been generated. **Muscles can contract in the following ways:**

*Isometric contraction*
This is a contraction in which no movement takes place, because the load on the muscle exceeds the tension generated by the contracting muscle. This occurs when a muscle attempts to push or pull an immovable object.

*Isotonic contraction*
This is a contraction in which movement does take place, because the tension generated by the contracting muscle exceeds the load on the muscle. This occurs when you use your muscles to successfully push or pull an object.

Isotonic contractions are further divided into two types:

*Concentric contraction*
This is a contraction in which the muscle decreases in length (shortens) against an opposing load, such as lifting a weight up.

*Eccentric contraction*
This is a contraction in which the muscle increases in length (lengthens) as it resists a load, such as pushing something down.

During a concentric contraction, the muscles that are shortening serve as the agonists and hence do all of the work. During an eccentric contraction the muscles that are lengthening serve as the agonists (and does all of the work).
MAJOR METHODS OF TREATMENT 1

DEEP TISSUE 1 - Basic Skills

PRACTICE, PRACTICE, PRACTICE, At the beginning you must communicate with your client and vice versa, whether it be in class, in clinic or off campus, if you don’t you will feel like a blind artist! It can take up to 20-30 times of doing the technique before you feel truly confident, over time you will develop a greater awareness of tactile sense and intuition and you will truly feel what you are doing.

Develop your own unique style, use co-ordination – rhythm – flow – pressure. Go from soft to firm, firm to soft and soft to static pressure. Use creativity, adaptability, lots of contrast/techniques, the body loves this; it’s not what you do but the way that you do it! For the client it brings consciousness to the area.

ALWAYS:

FOCUS/CONCENTRATE/VISUALIZE
USE PROPER BODY-MECHANICS
WORK WITH THE BREATH
COMMUNICATE
ASK HOW IT’S FEELING
CHECK & ADJUST PRESSURE (6.5-7 max)

Feel free to adjust and adapt any technique if it doesn’t feel right to you, as long as you apply proper body-mechanics- remember, if it doesn’t feel good to you, it probably won’t feel good to the receiver.
Anatomy Session 2:

Muscles of the Posterior Hips

**Gluteus Maximus and Gluteus Medius**

<table>
<thead>
<tr>
<th>Gluteus Maximus</th>
<th>Gluteus Medius</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Origin</strong></td>
<td>Dorsal ilium, sacrum and coccyx</td>
</tr>
<tr>
<td><strong>Insertion</strong></td>
<td>ITB (90%) and gluteal tuberosity of femur</td>
</tr>
<tr>
<td><strong>Action</strong></td>
<td>Extends hip</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gluteus Medius</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Origin</strong></td>
<td>Between anterior and posterior gluteal lines of ilium</td>
</tr>
<tr>
<td><strong>Insertion</strong></td>
<td>Short tendon into great trochanter (lateral aspect)</td>
</tr>
<tr>
<td><strong>Action</strong></td>
<td>Abduction, lateral/medial rotation of femur, stabilise the pelvis during gait</td>
</tr>
</tbody>
</table>

**Stretches**
Lying supine with knee across body

**Appropriate Techniques**
Elbows, deep firm pressure, knuckling, longitudinal and cross fibre glides

**Gluteus Minimus**

<table>
<thead>
<tr>
<th>Gluteus minimus</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Origin</strong></td>
<td>Between anterior and posterior gluteal lines of ilium</td>
</tr>
<tr>
<td><strong>Insertion</strong></td>
<td>Great trochanter</td>
</tr>
<tr>
<td><strong>Action</strong></td>
<td>Abducts and medially rotates femur</td>
</tr>
</tbody>
</table>

**Stretches**
Static hip wall push

**Appropriate Techniques**
Pointed elbow medium pressure with client lateral recumbent
Figure 8-23  Stripping of gluteal muscles with the knuckles (Draping options 6, 8, 10, underwear or swimsuit)

Notes
Figure 8-25 Stripping of gluteal muscles with the thumb
(Draping options 6, 8, 10, underwear or swimsuit)

Notes
Lesson 3

The process of clinical care:

The art of healing is a two-way street.

A therapist and client must collaborate and communicate with each other; they are the central players in the process of clinical care. They engage in a clinical relationship, often referred to as the therapeutic relationship. Therapists bring their clinical knowledge, manual skills, and interpersonal style to the relationship. Clients bring their interpersonal style to the relationship, as well as their psychological and physical response to their condition and the treatment process. A good therapist-client relationship is a win-win situation.

Communication between therapist and client is the key- it allows the client to have some control in the treatment and allows the therapists to adjust their treatment according to the client’s needs.

Main areas of communication during treatment are important for:

- Maintaining correct pressure throughout treatment
- To encourage deep breathing and body awareness from client
- To monitor any unusual pain or pain referral symptoms
- To monitor emotional state of client during treatment

Factors to consider by the therapist before providing treatment are:-

- Type of activity (most common activities)
- What major muscle groups to treat
- Therapists knowledge of the client
- History of previous injuries and recovery rate
- Observation of clients emotional state-arousal / anxiety levels

PRESSURE

Pressure is not a constant, it must be adjusted according to many factors: - outcome/objective, breath, location, client’s threshold of pain and discomfort, contours of the body, position of client & emotional symptoms. Applying incorrect pressure can deliver the wrong outcome and increase client anxiety and compliance, and even cause tissue damage. Applying incorrect pressure on the wrong location will deliver the wrong outcome and can also cause damage. A good knowledge of muscular-skeletal anatomy is essential. Applying pressure the right way is essential to effective bodywork.
Utilise the lower body / hips to generate the power behind all massage techniques. But the muscles are not the only source of power available to the therapist. There is also bodyweight, which can be effortlessly added simply by leaning into the stroke.

Maximum power with minimum effort, combine the efficient use of breath, muscle power & body weight- Proper body mechanics. A master of massage can apply pressure by a shift in body weight instead of muscle strength.

Use your intuition, check for verbal clues (communicate) or non-verbal clues to recognize when a client is becoming over anxious-breathing changes, shifting on the table, sighs, holding their breath.

Work according to a pain/pressure scale, say... 0 is no pain/pressure, 5 is moderate, 10 is excruciating! The maximum we achieve as students at Cert IV Deep Tissue 1 level is 6.5-7, ‘pleasurable discomfort!’ A good pain as they say!

DRAPING

Towels should be used to keep the client covered, with only the area being treated left exposed. This has physical and psychological benefits; it keeps the body warm, so aiding relaxation, which is particularly important after an area has been treated. This will maintain heat generated by the massage and prevent the chilling effect of any evaporating oils.

Movement should be businesslike and the therapist should insure the client they are capable and has a professional interest in their problems. Proper draping gives the client the feeling of comfort and security that will further help general relaxation. When working closely in the groin or chest areas (for women), a towel can create a psychological security barrier, putting the client more at ease. The student needs to use common sense and practice to develop a good, confident draping procedure.

INTERPERSONAL CARE IN A CLINIC ENVIRONMENT - USE OF RELEVANT MATERIALS / PRODUCTS & SERVICES

The use of extra materials and products can add to the therapists’ plan of care and can help with client comfort and pain levels for example:-

- **Bolsters and extra pillows** can be useful in helping to achieve the proper position of the client on the table, support a limb, and for client comfort to help relax limbs and the spine.

- **The use of special purpose lubricants, balms & ointments** to help with local inflammation/swelling, to warm or cool the muscles and joints and for an analgesic effect after deep work like cross frictions. Essential oils for special therapeutic purposes such as calming, relaxing, invigorating, energising and as antiseptics. Only use natural products of high quality and always get consent first from client before applying.

Recommended products for your clinic or kit bag are:-

- Zen – ointment or gel for muscular aches & pain, inflammation, warming effect on tissues
- Arnica - for bruises, swelling, inflammation
- Emu Fire Muscular & Arthritic Balm - for swelling & inflammation
- Sunspirit Joint Relief - for arthritic symptoms, pain relief due to inflammation, swelling
- Rescue Remedy - for emotional needs

- **The use of special massage tools** such as thumb savers, knobbblers to protect your fingers/thumbs and wrists (although this can feel unnatural and you can lose your tactile sense, nothing beats your own hands!)

- **Relevant information handouts to give to your clients to take home**, such as stretching diagrams and instructions to maintain flexibility and body awareness, special exercises to develop muscle strength, maintaining proper posture, and correct ways to lift and carry heavy equipment, how to redesign their workstation so it has correct ergonomics. Correct breathing techniques, how to apply the R.I.C.E regimen, even how to sit properly in a chair. Flyers or handouts on yoga or ti-chi, meditation classes etc.

    **All written instructions must be clearly written, demonstrated and understood by client before leaving the clinic. Therapists must only give advice on things they are qualified in and is within their scope of practice.**

A therapist might be qualified in other complimentary therapies can that be helpful in the interpersonal aspects of clinical care, examples could be:

- Reiki Healing,
- Shiatsu,
- Breathwork,
- Crystal healing,
- Bowen therapy,
- Kinesiology,
- Dry needling,
- Cupping,
- Tuina
- **Acupressure** *(Look these up on the Internet for more info.)*

**CONTRA-INDICATIONS FOR DEEP TISSUE MASSAGE.**

Standard contra-indications apply as in all massage, especially no Deep Tissue on inflamed, swollen areas, open wounds or cuts, nerves, bony prominences and in serious medical conditions. **If unsure about any medical condition, don’t treat, unless consent is provided by a medical practitioner.**

**CLIENT COMPLIANCE/ADHERENCE**

The client’s compliance or adherence to the plan of care is the final component of the interpersonal aspects of the process of clinical care. Compliance/adherence has been defined as responsibility of the client to follow instructions for care that they negotiate with their health care providers. Compliance/adherence can also be viewed as being influenced by the therapist when it is defined as a positive behaviour that occurs when a client is motivated by the therapist to adhere to the negotiated plan of care because of a positive outcome or benefit.
However it is defined, compliance/adherence to a prescribed plan is necessary for the attainment of a positive outcome.

**Strategies for increasing client compliance/adherence are:**

- **Clients ability to understand the regimen and follow instructions that were provided.**
- **The type of instructions provided by the therapist.**
- **The extent to which the therapist tailors the regimen to the client’s needs.**

Compliance/adherence decreases when therapists give unclear instructions, for this reason simple, direct and repetitive instructions are the most effective. For example, “You must do this stretch 3 times a day for each day of the week” will be recalled more readily than “Do this stretch several times a week” Furthermore, clients have difficulty complying when they are unclear why the various aspects of the regimen are important, even if the regimen is relatively simple. For example, “You must do this stretch 3 times a day, each day of the week, which will increase your flexibility and range of movement therefore reducing your pain and chance of injury.”

Complying with instructions is also important while they are being treated, for example, what clothes they need to take off, how to lay on the table, were to position there limbs, how to deep breathe during Deep Tissue treatment, to communicate any pain symptoms and to let the therapist know if the pressure is inadequate or too hard, if they feel uncomfortable about something.

Compliance can also cover issues such as asking the client to bring relevant data to the session to help the therapist form a plan of care.

**EFFECTS OF DRUGS ON THE INDIVIDUAL**

A professional therapist must have a good understanding of the effects of drugs on a client. Any client that you suspect is under the influence of alcohol or illegal drugs you must not treat.

It can be quite easy to see or suspect that the client is under the influence of alcohol, by smelling the breath, slurred speech or even an unusual gait. With some illegal drugs such as marijuana, heroin, amphetamines, it might not be that obvious if you don’t understand the signs and symptoms of these drugs. Things to look out for are blurry eyes, slow, fast or incoherent speech, nervous, scattery, agitated behaviour or difficulty in complying with instructions. Mostly though your intuition will tell you if something is not quite right, as a therapist you have a right to refuse treatment.

With legal prescription drugs, (and these can be abused as well) we must make sure that the client has told us that they are currently on
a prescription medication, this must be stated on their client form and verbally clarified before treatment. Anyone who has a medical condition that requires medication and is not on that medication, you cannot treat unless you have written consent from their health care provider.

The important thing to remember is that many types of drugs such as pain killers, analgesic/calmatives and even anti-inflammatory drugs can mask the pain; therefore the client will not be able to correctly tell the therapist if the treatment is causing them pain or the pressure is too hard. The therapist will not be able to properly adjust the pressure or move off an area if possible damage is being caused. This can be a serious concern and the therapist should definitely not treat with deep tissue massage if the client is on these types of drugs.
Anatomy Session 3:

Muscles of the Lumbar spine

<table>
<thead>
<tr>
<th>Quadratus Lumborum and Lumbar erectors (erector spinae)</th>
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<table>
<thead>
<tr>
<th>Quadratus Lumborum</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Origin</strong></td>
<td>Iliac crest and lumbar fascia</td>
</tr>
<tr>
<td><strong>Insertion</strong></td>
<td>Transverse processes L1-L4 and lower margin 12th rib</td>
</tr>
<tr>
<td><strong>Action</strong></td>
<td>Lateral flexion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Erector spinae</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Origin</strong></td>
<td>Muscles are iliocostalis, longissumus, spinalis and multifidus</td>
</tr>
<tr>
<td><strong>Insertion</strong></td>
<td>Muscles are iliocostalis, longissumus, spinalis and multifidus</td>
</tr>
<tr>
<td><strong>Action</strong></td>
<td>Back extension</td>
</tr>
</tbody>
</table>

**Stretches**

Cat stretch

**Appropriate Techniques**

Broad forearm, petrissage, effleurage, digital ischemic pressure, rocking, shaking and supported fingers

**Notes**

________________________________________________________________________________

________________________________________________________________________________

________________________________________________________________________________

________________________________________________________________________________

________________________________________________________________________________

________________________________________________________________________________
Figure 1-18  Using the forearm
Notes
Lesson 4

BIOMECHANICS OF DIFFERENT SPORTS AND JOB
What is biomechanics? The ability to achieve an outcome through work and action of levers. In the human body we have 3 types of levers.

Information provided to us can give us an understanding of the biomechanical influences of a particular sport or job, which can help us determine which muscle groups to focus on during treatment.

What are the greatest areas of stress (muscle groups) in the following sports and jobs -
Write the answers in your workbook – Question 22
- Swimmer
- Surfer
- Runner/long distance and sprinter
- Hurdler
- Tennis player
- Gymnast
- Office Worker
- Construction worker
- Gardener
- Truck driver

PHASES OF CLINICAL CARE

1. EVALUATION PHASE
2. TREATMENT PLANNING PHASE
3. TREATMENT PHASE
4. DISCHARGE PHASE

THE EVALUATION PHASE
The Evaluation phase provides the foundation of the clinical treatment process. A collection of information regarding client’s health status. The more information you can compile, the better the treatment. This collection of information is provided by the client and therapist, information given by the client should be accurate verbal information, the client may also bring written information such as a referral from another health care provider, this referral could contain a specific diagnosis or a referral without a diagnosis.

Types of relevant data the client could bring could be medical imaging such as, X-RAYS, CAT-SCANS, MRIs, ULTRASOUNDS, and their accompanying written reports and diagnosis.

The steps in this phase are:

- Client presents with clinical condition.
• Therapist engages client in clinical process.
• Therapist informs client about process and rights.
• Therapist gains consent to evaluate.
• Therapist asks client’s perception of illness and desired treatment outcomes.
• Client provides accurate information.
• Therapist completes and documents appropriate client examination (determined by therapists scope of practice)
• Therapist establishes clinical boundaries for examination through appropriate disrobing, draping, and communication with client.

TREATMENT PLANNING PHASE
The steps in the Treatment Planning phase are the identification of impairments that are appropriate for treatment and the selection of treatment techniques that are most likely to improve the client’s impairments.

The steps in this phase are:

• Therapist develops an appropriate plan of care to achieve specific outcomes, based on clinical findings.
• Therapist reviews findings and plan of care with client.
• Therapist informs client about risks, benefits, side effects, alternatives to treatment and consequences of not treating.
• Therapist documents final plan of care.
• Therapist obtains consent to treat.
• Client agrees to participate in plan of care.

TREATMENT PHASE
The Therapist is ready to initiate treatment. The treatment phase is best described as an ongoing cycle of treatment, re-examination, and treatment progression.

The steps to this phase are:

• Therapist adheres to guidelines for ethical treatment.
• Therapist maintains clinical boundaries during the treatment through appropriate draping and communication with client.
• Therapist performs appropriate preparations of materials for treatment.
• Therapist uses appropriate physical and psychological self-care during course of treatment.
• Therapist uses appropriate body mechanics and manual techniques and delivers treatment in a safe manner.
• Therapist demonstrates responsible caring and concern for client.
• Therapist appropriately to clients’ emotional reaction to treatment.
• Therapist facilitates client participation in and compliance to treatment.
• Therapist elicits clients’ ongoing feedback on progress with clinical outcomes.
• Therapist provides client with appropriate education.
• Therapist maintains updated documentation on the treatment provided and the client’s response.
• Therapist maintains communication with referring Therapist as appropriate.
• Client participates in care in a responsible manner or accepts the consequences of refusing to participate.

**DISCHARGE PHASE**

Discharge involves the transition of the client from the care of the therapist to care by another therapist or Clinician or to self-care. This process is also called referring on.

There is, unfortunately, no exact formula to use to determine when to initiate the discharge process; discharge planning may be as early as the first session or much later in the treatment process. The discharge phase usually begins before the date on which the client is discharged; it spans the period from the initiation of discharge planning to the actual discharge date.
Clients Rights

- Accessible and impartial access to care
- Autonomy: Freedom of choice of practitioner; right to participate in decision-making during treatment; right to refuse or leave treatment regardless of the therapist’s opinion; right to a consultation with another practitioner
- Care in a safe health-care environment
- Confidentiality, specifically no disclosure of any information about the client without his/her written consent
- Continuity of care
- Dignity, including the right not to remain disrobed longer than necessary
- Privacy, both visual and auditory; this includes not having to disclose any information that is not relevant to the care being received
- Respect for his/her values and cultural beliefs
- Right to be informed of his/her rights
- Timely and accurate information on the status or background of therapist providing care, the treatment provided, and any perceived risks, side effects, alternatives, whether research is being conducted, post-discharge treatment needs and consequences of not treating.

Clients Responsibilities

- Accept the consequences of refusing care, altering care, or choosing an alternative option to care
- Act with consideration and respect for therapists and others in that setting
- Adhere to instructions provided by the therapist
- Ensure that financial obligations to the therapist or facility are met
- Follow rules of conduct of the health care setting
- Provide accurate information to the therapist

Therapist’s responsibilities to the client (issues related to interactions with client)

- Demonstrate responsible caring and concern for the client
- Do not guarantee a cure or misrepresent the potential effects of the treatment
- Do not treat clients when under the influence of any substance that would impair the ability to treat safely
- Listen to and respect client’s values, beliefs and needs
- Maintain appropriate clinical boundaries and avoid sexual interaction of any sort with clients
- Provide client-entered, preventative care
- Provide the client with the opportunity to give voluntary and informed consent
- Respond appropriately to client’s emotional reaction to treatment
- Use draping to maintain the client’s privacy and appropriate clinical boundaries

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- Respond appropriately to client’s emotional reaction to treatment
- Use draping to maintain the client’s privacy and appropriate clinical boundaries
Therapist’s responsibilities to the client (general issues)

- Act in the client’s best interests
- Act without conflict of interest
- Assume responsibility for and provide appropriate examination, treatment, progression of care and discharge planning
- Communicate information on the client’s care to the referring therapist (within restraints of maintaining confidentiality)
- Delegate care to and supervise adjunct staff or students appropriately and take responsibility for the care they provide
- Document all of the client’s findings accurately and appropriately
- Ensure and maintain a high level of competence
- Maintain confidentiality of records and information and obtain a signed release prior to disclosure
- Not refuse a client care on the basis of rate etc.
- Not treat unless the client’s clinical condition (prevention, curative, maintenance, wellness) warrants it and thus avoid the overutilization of services
- Provide client-centred, preventative care
- Provide services to meet the client’s needs, rather than for financial gain.
- Provide the highest standard of care possible
- Request consultation from other therapist as appropriate
- Take responsibility for the care provided to a client
- Transfer the client to another therapist as appropriate when the client-therapist relationship is ended or the client is discharged
- Use sound judgement
- Work within his or her scope of practice and refer to another therapist when the client’s condition requires treatment that is beyond his or her legal scope of practice or level of competence

Therapist’s rights

- To make independent clinical judgements
- To decline to treat a client if it would compromise his or her ethics, dignity or values
- To work in an environment in which he or she can practice without coercion, conflict of interest, or undue influence, including being pressured into overutilization of services for the facility’s financial gain
- To be treated with respect and consideration by the client and colleagues

It is important for the Massage Therapist to develop referral networks so that you can give the client the best possible treatment. If a clinical finding is beyond your scope of treatment you must refer the client on to the appropriate therapist.

Other health care professionals can provide alternative sources of information and advice that can help you with your plan of care. Also you might be working as part of a multi-disciplined team as in elite sport environments or Holistic Health Centres.
These might be:–

- Medical practitioner/GP/
- Specialist e.g. Orthopaedic Surgeon
- Sports medicine Dr.
- Physiotherapist
- Chiropractor
- Osteopath
- Dietician/Naturopath
- Acupuncturist
- Podiatrist
- Psychologist/ Counsellor
- Personal Trainer
- Sports Coach (the boss, in a sports environment!)
- Other professional practitioners in complimentary or therapeutic bodywork
- *(Look up on the Internet for more info.)*
Anatomy Session 4:

Muscles of Thoracic Posterior

Trapezius/Deltoid/Rhomboids/Latissimus Dorsi

<table>
<thead>
<tr>
<th></th>
<th>Trapezius</th>
<th>Rhomboids</th>
<th>Latissimus Dorsi</th>
<th>Deltoid</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Origin</strong></td>
<td>Occipital bone, ligamentum nuchae, spinous process of c7 and all thoracic vertebrae</td>
<td>Spinous processes of c7-t1 (minor) and t2-t5 (major)</td>
<td>Thoracolumbar fascia, lower 3-4 ribs and iliac crest</td>
<td>Lateral 3rd clavicle, acromion and spine of scapula</td>
</tr>
<tr>
<td><strong>Insertion</strong></td>
<td>Acromion, spine of scapula and lateral third clavicle</td>
<td>Medial-border scapula</td>
<td>Spirals around teres minor and intertubercular sulcus of humerus</td>
<td>Deltoid tuberosity of humerus</td>
</tr>
<tr>
<td><strong>Action</strong></td>
<td>Stabilises, elevates, retracts and rotates scapula</td>
<td>Stabilises scapula</td>
<td>Humerous extension, adduction and medially rotates</td>
<td>Abduction</td>
</tr>
</tbody>
</table>

**Stretches**
Refer to a stretch book for recommended techniques (see appendix for recommendations)

**Appropriate Techniques**
Rolling, kneading, shaking, petrissage deep and light, supported fingers and thumbs, digital ischemic pressure, deep frictions longitudinal, cross fibre and circular
Lesson 5.

Assessment of Soft Tissue Injuries

It is may be necessary for the massage therapist to play a role in the overall objectives of the Multi Disciplined Medicine team, such as injury prevention, so we need to be aware of how those injuries occur.

Of particular interest to the massage therapist is the soft tissue injury, the most common we treat. Fractures, dislocations, concussions and other serious injuries are the responsibility of others in the Sports Medicine team and our involvement is restricted to a First Aid role if we are working as a trainer.

TYPES OF INJURIES AND MEDICAL TERMINOLOGY

All injuries may be typed according to the short or long term cause of the injury. There are important qualities of each type, which should be noted.

ACUTE:
- Where injury occurs suddenly through a specific event
- The observed signs and player-reported symptoms manifest themselves quickly
- Immediate care is necessary
- Inflammation and muscle spasm are frequently observed.

CHRONIC:
- Develop over a time period, not obviously related to a single, isolated event; and often seem to have an insidious onset.
- Signs and symptoms may develop slowly, gradually worsening “overuse injuries”.
- Poor treatment or incomplete rehabilitation of acute injuries may lead to chronic injuries.

NOTE: Determining the acute or chronic nature of any injury requires awareness of the immediate or long term history of the injury status of clients. This awareness will be aided by reports from clients and onlookers plus, any information form well maintained injury records.

The classification of the causes of these injuries are summarised under the following categories. Each classification will indicate likely type of damage:

- DIRECT- Contact with an opponent, equipment or the ground
- INDIRECT- Caused by sudden acute overload of soft tissues
- OVERUSE- Excessive and repetitive use affecting the soft tissue
Sites at which the Injuries Most Commonly Occur:-

a) Muscle belly
b) Musculo tendonious or musculo-
   Periosteal junction
c) Tendon, tendon sheath
d) Tendo periosteal junction
e) Ligament attachment or mid fibres
f) Fascia

Injuries are then graded according to severity
The grading is dependent on the amount of damage to soft tissue, degree of effect on mobility of
the athlete and ability to bear weight.

- **Grade One - Mild** 10-15% fibers torn
  - Pain following injury but could continue however should cease activity to prevent further
    injury, relatively fewer fibres affected. Pain limits increasing after activity; p.m. or
    following day (a.m.)

- **Grade Two - Moderate injury** 15-30% fibers torn
  - Painful enough to stop activity; involving more tissue fibres

- **Grade Three - Severe injury** 30-80% fibers torn
  - Intense pain for the instant of the injury often followed by little or no pain. Complete tear
    through the soft tissue with separation or ends. E.g. rupture of Achilles tendon.

- **Avulsion**
  - Soft tissue is torn off the bone with a fragment of bone
Overview of the Pathology of Soft Tissue Injury and Healing Process

ACUTE INFLAMMATORY PHASE (0-72 hours approx.)

The acute inflammatory stage is the first phase that follows an acute overload injury.

It is seen in increasing degrees from grade 1 to grade 3 injuries.

Along with muscle, ligament or tendon fibre tearing; there will also be rupture of the small blood vessels called capillaries.

If many fibres are ruptured, as in grade 3 injuries, many capillaries will also be ruptured and this may cause extensive bleeding between the muscle, ligament or tendon fibres.

Following the RICE regime can control this bleeding.

Associated with the tissue damage is the release of chemical stimulants from cells, which cause the damaged vessels or capillaries to become enlarged or dilated and cause even more bleeding.

This is the cause of the swelling after an acute sprain.

Although this acute inflammatory phase is important in stimulating the second or repair phase, it is often excessive.

If not minimised or modified it can cause a bulky, painful scar that is too weak for acute load bearing such as sprinting or sudden turning.

This phase is the most painful.

Correct treatment as early as possible after the injury will have significant effect on the recovery rate.

Remember that acute injuries (sprains, strains, corks etc.) should not be massaged within 48 – 72 hours of occurring. Use RICE treatment for these instead

REPAIR PHASE (72 hours - 6 weeks +)

The repair phase overlaps with the acute inflammatory phase.

Essentially, the blood vessels that have been ruptured regrow into the damaged or torn area.
After the cells that clean up the “tissue debris” from the sprain or strain injury have done their job cells called fibroblasts move into the damaged area.

The fibroblasts or fibre-forming cells are the key to adequate repair in most sprains or strains.

These cells, which form the fibres of tendons and ligaments, also repair the torn ends of muscle strains or tears. They do their job quite rapidly, but it has been demonstrated that it is approximately six weeks before the fibres are large enough and before there are enough of them to allow the repair to withstand explosive loading.

Great care must be taken by the athlete not to overload this delicate repair during the repair phase.

After two weeks most grade 2 and 3 injuries are not necessarily very painful.

This does not mean the injury has healed adequately

**REMODELLING PHASE** (6 weeks - 6 months+)

The remodelling phase is associated with remodelling of scar tissue

If little stretching and controlled exercise is done by the athlete following a muscle strain, the fibrous scar which forms tends not to be orientated in the direction of loading. Hence it tends to “give” under stress.

This weak bulky scar tissue - which is often painful - tends to tear again when the athlete attempts to return to moderate activity.

However, if the athlete does gentle stretching, the fibres in the muscle and ligament tear will remodel themselves in the direction of loading.

Once the fibres are orientated in the direction of loading gradual increases in loading will ensure properly orientated large diameter fibres similar to the previously normal fibres.

Maximal loading without fear or re-rupture can be achieved provided the athlete and coach use a gradual loading regime.
Most Common Causes of Soft Tissue Injuries

1. Direct blow
2. Excessive duration and/or intensity of an activity without sufficient preparation
3. Inadequate strength of tissue to withstand the stress of an activity
   - Overstretching the musculotendinous junction.
   - Slipping on wet ground
   - Excessive forceful contraction of an agonist can strain antagonist
4. Excessive forceful contraction
5. Biomechanical stress
   - Poor technique
   - Genetic unsuitability to a particular sport
6. Improper support
   - Inadequate footwear
   - Too hard playing surface
7. Overuse (most common)
8. Fatigue
   - Lead to poor technique
   - Lack of concentration
   - Insufficient muscle energy
   - Inadequate nutrition
   - Insufficient training
9. Insufficient preparation. Warm up inadequate

THE FOUR HYPOTHESIS OF MUSCLE SORENESS:

Currently, there are four basic hypotheses that attempt to explain the nature of muscle soreness. There may be other causes.

1. Torn or damaged Tissue: Soreness results from microscopic tearing of muscle fibres or connective tissue. More recently this has been expanded to the connective tissue damage hypothesis, which suggests that the soreness is due to irritation or damage of connective tissue- the result of exercise or training that uses eccentric contractions.

2. Metabolic Accumulation, Pressure & Swelling: Soreness results from accumulation of muscle by-products, leading to retained excess water (oedema). In turn, the pressure on the sensory nerves creates pain.

3. Lactic-Acid: Soreness is caused by an accumulation of waste by-product of metabolism (lactic-acid), which can only form from a lack of oxygen. Therefore, lactic-acid accumulates only when there is insufficient blood supply to the muscles.

4. Muscle Spasms: Soreness caused by localized spasm of muscle motor units. Exercise above a minimal level causes decreased blood flow to the muscle (ischemia), which in turn causes pain that result in a protective reflex muscle contraction. This contraction brings about more ischemia, and a vicious cycle is born. Some degree of soreness is often experienced by those who have not previously exercised or stretched - this is the penalty for having been inactive!
CONNECTIVE TISSUE
Connective Tissue binds together to support the various structures of the body, is the body’s most abundant tissue.

MUSCLE
Muscle tone- Muscle resting tension, the firmness of a muscle at rest

Hypertonia- Muscle tone that is above normal resting levels.

Muscles governing postural balance such as the erector spinae, sternocleidomastoid, abdominals, ilopsoas, gluteus maximus, rectus femoris, hamstrings and calf muscles have a higher level of muscle tone and are more prone to tension and stress leading to postural imbalance.

Common postural imbalances:-
Cervical lordosis- tight upper erector spinae
Thoracic kyphosis- tight abdominals & sternocleidomastoid, weak- erector spinae
Lumber lordosis- tight lower erector spinae, weak-abdominals
Anterior pelvic tilt- tight thoracolumbar extensors and rectus femoris, weak gluteus maximus and abdominals & tight ilopsoas
Posterior pelvic tilt-tight hip extensors, abdominals, ilopsoas, & hamstrings, weak- rectus femoris
Sway-back knees- tight calf muscles & rectus femoris, weak-hamstrings

None of these will occur in isolation as an imbalance in one area will generally lead to imbalances developing in adjacent areas as they compensate.

Lesions- A zone of tissue with impaired function as a result of damage by disease or wounding.

Adhesion-The union of two normally separate surfaces, fibrous connective tissue forming from scar tissue in an inflamed or damaged region. Scar tissue- when damage occurs, some bleeding will take place and will form scar tissue, the more bleeding and inflammation the more scar tissue is formed. Scar tissue hardens over time and can eventually, in extreme cases, calcify and become just as hard as bone.

Muscle spasm – involuntary contraction of a muscle that cannot be released voluntarily

Muscle knot- Large fibrous compacted tissue.

Fibrosis- thickening & scarring of connective tissue.

Trigger Point
Are defined as a focus of hyperirritability in a tissue, that when compressed is locally tender and, if sufficiently hypersensitive, gives rise to referred pain and tenderness. Feels like a taut band or spot of tissue distinguishable from surrounding tissue.
FASCIA
Fascia designates all fibrous connective tissue not otherwise named. It is a continuous sheet of fibrous membrane located beneath the skin and around muscles, muscle fibres and organs, Muscle fascia (sheaths) envelop and bind muscle fibres into separate groups. Fascia is found both superficial & deep.

GROUND SUBSTANCE
Is a transparent, viscous fluid, that is 70% water, it surrounds all the cells in the body, it is a source of nutrition, a medium to disperse waste products and acts as a lubricant and spacer between collagen fibers.

Compression – a blow to the muscle produces internal bleeding at the site of the compression (contusion). A bruise or haematoma occurs. Both tears and contusions may result in:
- Pain
- Swelling
- Reduced range of movement

Muscular-Tendinous Tears – can occur in the muscle belly or at the musculo-tendinous junction (strains). Bleeding typically occurs in the tissue may be seen as swelling and bruising. External forces, poor timing or imbalance of muscle strength may cause tearing.

Strain – is any degree of tearing of Muscle /tendon fibres. Strains most often occur at the muscle-tendon junction. A complete separation of tendon from muscle (rupture) is a “third degree strain”, producing severe tissue damage.

First and second-degree strains cause mild and moderate degrees of damage in the form of over-stretching and tearing of fibres.

TENDON
Tendinopathy – degradation and randomization of fibres, yellowing, fluid and vascularisation. inflammation of the tendon tissue itself. Typically this is a “chronic” injury often caused by over-use.
Inflammation of the sheath that surrounds the tendon. In many instances the tendon also is inflamed. Movement produces pain.
Micro tears in tendon fibres, also can be thickening & hardening of tendons rather than inflammation.

LIGAMENTS
Sprain – is any degree of overstretch or, tearing of ligament fibres. Extreme forces acting on joints may produce excessive or unusual movements, which exceed the strength of ligament tissue (or the bone to which it attaches). Like strains, there are three degrees of damage; mild, moderate and severe sprain.

JOINTS
Dislocation – a complete separation of a bone from its normal joint position. Obvious deformity results along with pain. Bone fracture is possible.
Subluxation – a partial displacement of a bone from its joint. “Pinching” of other joint tissue is likely. In both dislocation and Subluxation, damage to joint ligaments, tendons, nerves and the joint capsule can occur.

**INTERVERTEBRAL DISCS**

*Compressed disc:* relates to disc degeneration due to compressive or downward forces, causing pressure and frictions between vertebral bodies.

*Herniated / “Slipped” disc:* occurs when pressure in the nucleus pulposus is great enough to rupture the annulus fibrosis posteriorly - causing pressure on the spinal cord or nerves.

*Protruded disc:* occurs when the intervertebral disc is not in alignment with the vertebral bodies and can impinge on the spinal cord or nerves

**BONE**

*Fracture* – any break of bony tissue. Numerous forms of breaks can occur, some of which are...
- Simple – a clean, uncomplicated fracture
- Compound – an external wound is associated with the fracture
- Complicated – where the break has injured an internal organ
- Greenstick – an incomplete break, often associated with the immature bones of children

*Avulsion* – where a tendon or ligament is detached from a bone, pulling bone tissue away with it. It is more common in children

*Stress* – are unusual since they are a chronic injury, often related to increased and often highly repetitive muscle activity.

*Bruise* – despite the relative hardness of bone, a forceful, compressive blow can damage the outer layer of bone tissue and produce bruising.

**NERVE**

May be pinched, bruised, compressed or ruptured due to the unusual rigors of contact sport. Reduced nerve function restricts muscle function. An extreme case is spinal cord damage where the nerve messages can no longer get through to the muscle to stimulate it to work, remember nerves hate sustained pressure!

**SKIN**

*Abrasion* – wearing of skin by friction contact with another surface.

*Laceration* – cut or tears in the skin with possible deeper tissue damage.

*Blisters* – a bubbling of the outer skin layer due to underlying collection of tissue fluid. Results from mild, repeated rubbing against skin.

*Callous* – a hardening and thickening of skin, usually due to a combination of pressure and friction such as on the palms of the hands, and the balls and soles of the feet. Cracking of calluses can occur, and bleeding may result. Blisters may also develop beneath calluses (ouch!).
COMMON CHRONIC (OVERUSE) INJURIES

Chronic injuries affecting the Spine

BACK PAIN - Important contributory factors to back pain are hard, physical work, lifting and poor posture. Most people experience back pain at some time.

LUMBAGO - is a general, non-specific term for a dull, aching pain in the lumbar region of the back. It can occur in most sports, but its precise cause is unknown. The patient feels stiffness in the back and their posture may appear asymmetrical with the back bent to one side. This is a result of muscle spasm that prevents movement of the back that trigger pain.

DISC HERNIATION OR PROLAPSE - disc herniation is due to the core of the intervertebral disc (nucleus pulposus) rupturing the outer fibrous part (annulus fibrosus), causing pressure on the spinal cord or spinal nerves. Disc herniation is often due to compressive, twisting forces, and it can shows signs of change due to age (disc degeneration).

Chronic injuries affecting the Upper Extremity

SUPRASPINATUS TENDINITIS - relates to inflammation of the supraspinatus tendon. It is caused by overuse in contact sports and also amongst, throwers, weight lifters, swimmers, racquet sports and wrestlers. The reason for this is because the tendon actually passes under the acromion process, and therefore can be irritated in repetitive action. It is one of the most frequent causes of shoulder pain. It is caused by internal rotation of the arm at or above the shoulder level in sports using overarm hitting or throwing action. Pain is present in active movements and in abduction of the arm at the shoulder joint between 80 to 120 degrees. Tenderness is present over the upper aspects of the greater tubercle of the humerus where the tendon inserts.

MEDIAL EPICONDYLITIS (Golfer’s/ Throwers Elbow) - is a chronic condition affecting the medial prominence of the elbow. It relates to inflammation of the medial epicondyle of the humerus, which is the common origin of the forearm flexor muscles. There is often pain and tenderness over this are, and the main cause of the injury is pitching or throwing too hard, too long and too often. Sports that may cause it are: - baseball, softball, golf, javelin and gymnastics.

LATERAL EPICONDYLITIS (Tennis Elbow) - relates to inflammation of the tendons attaching to the lateral epicondyle (prominence) of the humerus, which is the common origin of the forearm extensor muscles. The main cause of this injury is a braking, or bracing action to prevent movement of the elbow and wrist joints. Sports that may cause it are: tennis, gymnastics, cricket, weight lifting, rowing.
CARPAL TUNNEL SYNDROME - is a chronic condition affecting the palmar surface of the wrist. Constant pressure or impact to the flexor retinaculum in this area can cause congestion within the tunnel. Constriction of the forearm flexor muscles and compression of the medial nerve running through this area would result in pain and dysfunction of the hand and fingers. Carpal tunnel syndrome may be caused in activities involving rapid flicking movements of the wrist. Sports that may cause it are: racquet sports, archery, gymnastics, bowling, baseball and softball.

Chronic injuries affecting the Lower Extremities

HAMSTRING Tendinitis - is a chronic condition affecting the posterior thigh muscles, resulting in inflammation at the musculo-tendinous junctions and distal attachments. This condition leads to impaired function of the hamstring muscles compromising the individual’s flexibility and strength, as well as causing pain on the posterior aspect of the thigh. The cause of the injury is constant or repetitive forceful acceleration of the lower limb. Sports that may cause it are: running, long and triple jump, football, weight lifting and diving.

JUMPERS KNEE - is a condition in which there is inflammation of the tendon that connects the kneecap to the leg. Pain and local tenderness are usually felt at the lowest point of the kneecap i.e. at the tendon attachment to the apex of the patella. As the name suggest, this injury is caused by overuse in jumping. Sports that may cause it are: netball, volleyball, long and triple jump, gymnastics, basketball, weight lifters.

ILIOTIBIAL BAND FRICTION SYNDROME (Runners Knee) - is chronic condition affection the lateral aspect of the thigh. Affected individuals are often unable to put any weight on the affected leg, which tends to be tender in the above-mentioned area. As the name suggests it affects the iliotibial band (ITB) and is caused by the ITB sliding back and forth over the lateral epicondyle of the femur. This action usually occurs when running on uneven surfaces. Sports that may cause it are: running, particularly on slopes surfaces and skiing.

SHIN SPINTS - Is a painful inflammatory condition affecting the medial or lateral border of the tibia. Constant use of the muscles in this area causes pressure on the periosteum (bone) that in turn “splints” the tibia when the muscles contract. The cause of this overuse injury may be due to repeated take-off from a hard surface, a change in training techniques, over-running, inadequate warm-up and/ or inadequate stretching. Sports that may cause it are: sprinting, basketball, tennis, & field sports s.a. football, soccer hockey.

POSTERIOR COMPARTMENT SYNDROME - is a chronic condition affecting the muscles within the posterior compartment of the lower leg. The main cause of the condition is pressure on the compartment sheath, by the posterior leg muscles, due to prolonged, intensive training - particularly in activities involving running actions on hard surfaces and/ or when going uphill. Sports that may cause it are running and aerobics.
ACHILLES TENDONITIS - is a chronic condition affecting the large tendon on the posterior surface of the lower leg towards the ankle. Affected individuals usually have difficulty putting weight on the affected leg. Formation of scar tissue from an overuse injury may cause crepitus (a creaking sound), which is caused by this scarring tissue moving between the tendon and its surrounding sheath. Achilles tendonitis often occurs in activities that involve rapid take-off movements such as sprinting, running, high jump, basketball, volleyball, squash, soccer, cycling.

PLANTAR FASCIITIS (Heel spurs) - is a chronic condition affecting the plantar surface of the foot. It results in inflammation of the plantar aponeurosis, which covers the muscles along the sole of the foot, and is mainly felt at the calcaneus (heel). Often the athlete feels tenderness on pressure on the plantar surface of the foot; due to formation of adhesion and eventually bony spurs. It is caused by fast take-offs or rapid leaping movements, and changes in running surfaces. Sports that may cause it are: running, soccer, high jump, and basketball.

DISCUSSION & TREATMENT OF THESE INJURIES IS COVERED IN GREATER DETAIL IN DIPLOMA OF REMEDIAL MASSAGE.
Anatomy Session 5:

Muscles of the Posterior neck

### Splenius capitis and upper trapezius

<table>
<thead>
<tr>
<th>Splenius capitis</th>
<th>Upper trapezius</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Origin</strong></td>
<td>Occipital bone, ligamentum nuchae, spinous process of c7 and all thoracic vertebrae</td>
</tr>
<tr>
<td><strong>Insertion</strong></td>
<td>Acromion, spine of scapula and lateral third clavicle</td>
</tr>
<tr>
<td><strong>Action</strong></td>
<td>Stabilises, elevates, retracts and rotates scapula</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Splenius capitis</strong></th>
<th><strong>Upper trapezius</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Origin</strong></td>
<td>Spinous processes of c7-t6 and ligamentum nuchae</td>
</tr>
<tr>
<td><strong>Insertion</strong></td>
<td>Mastoid process of temporal and occipital bones, tranverse processes of c2-c4</td>
</tr>
<tr>
<td><strong>Action</strong></td>
<td>Extend head</td>
</tr>
</tbody>
</table>

**Stretches**

In prone position cervical lateral flexion and lateral rotation

**Appropriate Techniques**

Rolling, kneading, petrissage deep and light supported thumb and fingers, cross fibre and longitudinal frictions
**Levator scapula**

**Notes**

________________________________________________________________________

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________________________________________________________________________
LESSON 6

MAJOR METHODS OF TREATMENT 2

There are other therapies and techniques that are powerful in their effects that work well within a deep tissue therapy program.

TEMPERATURE THERAPY

A treatment used to promote healing of soft-tissue injury and dysfunction, and help speed up recovery. Temperature Therapy is divided into two therapies: Cryotherapy (cold therapy) and Thermotherapy (heat therapy).

Procedures for the management of acute soft tissue injuries
Application of ice to the region of the damaged tissue begins as quickly as possible after the injury. Although there is continuing debate on the precise physiological effects of ice therapy, it is generally believed that application of ice over an injured area causes vasoconstriction of the blood vessels, which decreases circulation and therefore bleeding to the area. Ice also helps to decrease swelling and inflammation as well as reducing muscle spasm and pain.

Some people react adversely to ice and in such cases cold can be substituted. Ice should not be used where there are known circulation problems in the extremities. In addition, ice should not be applied over open wounds or to areas of the skin which have decreased sensation or numbness.

Where possible the ice should be applied over the whole area around the injury and not only where the pain is most severe. Variations in the recommended timing in ice application will occur, and periods of about 15 minutes have been recommended according to the depth of the injury from the surface. The desired affect is numbness.

During the treatment the person will usually experience 4 stages of sensation:
1. Cold
2. Warming sensation (short time)
3. Aching in the injured area – may last for 1 or 2 minutes sometimes more, varies between individuals
4. Numbness

Ice therapy is generally useful over a 7-10 day period. However, depending on the patient’s response, this time frame may be shortened or extended. Usually on any given day, ice can be applied 2 or 3 times or as regularly as every hour. This may vary with the injured person’s motivation towards quick and effective rehabilitation and the therapist’s capacity to continue the procedure.
It’s important to remember that while there is a response to ice therapy and signs of recovery of the injury, then ice therapy should be continued irrespective of the interval of time because no harm should result.

In the acute phase of injury, rest of the injured tissue is recommended to avoid further damage. However, it is accepted that early mobilisation of the tissue within the limits of pain will accelerate the healing process. Therefore, depending on the severity of the injury, mobilisation should begin as early as possible.

**Advantages of using cold therapy**

- Reduce pain: breaks the pain muscle spasm cycle
- Inexpensive, easily carried out
- Once the muscle temperature has been lowered, the sub cutaneous fat causes the muscle to remain cold
- Constricts (reduces) blood flow through vasoconstriction
- Reduces swelling
- Lowers body’s metabolism in that area therefore reducing the secretion of the inflammation producing substances: plasma kinins, prostaglandins, serotonin and histamine
- Decreases local muscle fatigue and combats the build-up of histamine.

There are a number of different methods of application of cryotherapy. Cold packs may be placed against the skin over the injured area.

These may consist of crushed ice wrapped in a moist cloth or towel, reusable gel packs or chemical ice packs. The crushed ice method is the cheapest and most effective. The difference methods are summarised in Table 2. Ice should be applied for 15 minutes every 1-2 hours if necessary.

Ice massage is used in the treatment of specific superficial conditions such as tendinopathy or tenoperiostitis. **Ice massage may be performed with ice blocks or more commonly by water frozen in a polystyrene cub and rubbed directly on the affected area.** The massage is usually performed in a circular motion for 5-10 minutes.

**Ice slush or a bucket of ice containing a mixture of ice and cold water may be used for the treatment of injured extremities, such as the ankle. **Cold sprays are used to provide rapid skin cooling. They are used mainly as temporary anaesthesia.

**Heat Treatment – Thermotherapy**

Heat has a beneficial effect on pain arising from inflammation, which is the body’s defence mechanism in cases of injury, accident or to over-use. Injuries caused by trauma or over-sue such as ligament injuries and muscle ruptures are often treated during the acute phase by cooling and bandaging to that the bleeding in the injured area is limited. **After ice therapy has ceased heat treatment can be introduced to help the healing process.** This should only be done once the risk of haemorrhage is over.
Perhaps the most important effect of head treatment is its influence on collagen fibres. Heat increases elasticity and plasticity, so after its application the collagen fibres become more extensible and more capable of rehabilitation. Joint stiffness and muscle spasm are also decreased due to heat. This reduces the risk of injury. Heat can be used in both the prevention and rehabilitation of over-use injuries and to combat the after effects of torn muscles and ligaments.

**Advantages of using heat**

- Once an injury has stabilised heat can be applied
- Heat increases the extensibility for collagen fibres
- Decreases joint stiffness
- Reduces pain by improving blood flow, therefore inhibiting ischaemia
- Reduces muscle spasm therefore reducing pain – muscle spasm cycle
- Increases local circulation improving nutrition to the area. Moist heat penetrates more effectively than dry heat.

Table 1 – Features of electrotherapeutic and thermal modalities

<table>
<thead>
<tr>
<th>Modality</th>
<th>Effects</th>
<th>Clinical indications</th>
<th>Contraindications</th>
<th>Danger</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cryotherapy (ice)</strong></td>
<td>• Decreases pain</td>
<td>• Muscle spasm</td>
<td>• Cold hypersensitivity</td>
<td>• Ice burns</td>
</tr>
<tr>
<td></td>
<td>• Decreases swelling/bleeding (vaso-constriction)</td>
<td>• Trigger point pain</td>
<td>• Raynaud's disease</td>
<td>• Anaesthesia (masks pain)</td>
</tr>
<tr>
<td></td>
<td>• Decreases cellular metabolism</td>
<td>• Acute swelling/edema</td>
<td>• Circulatory insufficiency</td>
<td>• Increased edema</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inflammation</td>
<td></td>
<td>after prolonged use</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Heat illness</td>
<td></td>
<td>• Superficial nerve</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contusion (e.g. cork thigh)</td>
<td></td>
<td>damage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Acute injuries pre and post-massage</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Superficial heat</strong></td>
<td>• Pain relief</td>
<td>• Pain</td>
<td>• Sensory changes</td>
<td>• Increased bleeding</td>
</tr>
<tr>
<td></td>
<td>• Increases local blood flow</td>
<td>• Muscle spasm</td>
<td>• Circulatory problems</td>
<td>and swelling (if used in first 48 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cervical pain</td>
<td>• Heat injury</td>
<td>after acute injury</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Chronic pain and swelling</td>
<td>• Hyper-or hyposensitivity to heat</td>
<td>• Burns</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2 – Superficial cold modalities used for treating sports-related injuries

<table>
<thead>
<tr>
<th>Modality</th>
<th>Description</th>
<th>Special Concerns</th>
<th>Temperature</th>
<th>Duration</th>
<th>Exercise during application</th>
<th>Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reusable cold packs</td>
<td>Durable plastic packs containing silica gel that are available in many sizes and shapes</td>
<td>Apply a towel between the pack and skin to avoid nerve damage or frostbite</td>
<td>&lt;15°C (59°F)</td>
<td>20-30 minutes</td>
<td>No</td>
<td>Inexpensive</td>
</tr>
<tr>
<td>Endothermal cold packs</td>
<td>Packets are squeezed or crushed to activate: convenient for emergency use</td>
<td>Single use only</td>
<td>20°C (68°F)</td>
<td>15-20 minutes</td>
<td>No</td>
<td>Expensive</td>
</tr>
<tr>
<td>Crushed ice bags</td>
<td>Crushed ice moulds easily to body parts</td>
<td>Apply a towel between the bag and skin to avoid nerve damage or frostbite</td>
<td>0°C (32°F)</td>
<td>5-15 minutes</td>
<td>No</td>
<td>Inexpensive</td>
</tr>
<tr>
<td>Vapulocoolant spray</td>
<td>Easily portable therapy for regional myofascial pain syndrome, acute injuries, pain relief and in rehabilitation of spray and stretch techniques</td>
<td>Intermittently spray the area for &lt;6 seconds to avoid frostbite, spray products can harm the Earth’s ozone layer</td>
<td>Varies depending on duration of treatment</td>
<td>Multiple brief sprays</td>
<td>Spray &lt;6 sec and stretch to increase range of motion</td>
<td>Expensive</td>
</tr>
<tr>
<td>Ice water immersion</td>
<td>Whenever uniform cold application to an extremity is desired</td>
<td>Carries the most risk of hypersensitivity reactions; restrict amount of extremity immersion</td>
<td>0°C (32°F)</td>
<td>5-10 minutes</td>
<td>Allows motion of the extremity during treatment</td>
<td>Inexpensive</td>
</tr>
<tr>
<td>Ice massage</td>
<td>Used to produce analgesia: freeze water in a foam cup, then peel back cup to expose the ice; massage area as often as needed</td>
<td>Apply for short intervals to avoid frostbite; avoid excess pressure</td>
<td>0°C (32°F)</td>
<td>5-10 minutes</td>
<td>Can allow supervised, gentle stretching during analgesia</td>
<td>Inexpensive</td>
</tr>
</tbody>
</table>
Table 3 – Heat modalities used for treating sports-related injuries

<table>
<thead>
<tr>
<th>Modality</th>
<th>Description</th>
<th>Special Concerns</th>
<th>Temperature</th>
<th>Duration</th>
<th>Exercise During Application</th>
<th>Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat packs</td>
<td>Vigorous heating for superficial injuries; mild</td>
<td>Layers of towel must be placed between hot pack and skin to avoid burns; size</td>
<td>65°C (149°F)</td>
<td>5 min, then check for</td>
<td>No</td>
<td>Requires physical therapy</td>
</tr>
<tr>
<td></td>
<td>effects reduce muscle spasm in deeper tissues</td>
<td>precludes use for superficial joints.</td>
<td></td>
<td>mottled erythema</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiant heat</td>
<td>Heat from infra-red lamp; no discomfort of</td>
<td>Only penetrates a few millimetres</td>
<td>Depends on</td>
<td>Up to 20 minutes</td>
<td>Yes</td>
<td>Required physical therapy</td>
</tr>
<tr>
<td></td>
<td>weight, good for treating large areas</td>
<td>intensity, distance from source</td>
<td></td>
<td>minutes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reactions to R.I.C.E.

Cold minimises oedema, as it causes vasoconstriction of the blood vessels (as long as it is not applied for too long). If no ice is applied to an acute injury as soon as possible, contractures and complications may occur.

**Hunting Response**

Hunting Response is an autonomic response whereby the body ensures that vasoconstriction, and therefore lack of blood flow, does not continue for any length of time to an injured area. After an initial period (between 10-15 minutes), the hunting response then begins to set in. It is a protective mechanism by the body to prevent any part of the body being deprived of blood for a long period of time.

This response is contradictory to what the therapist is trying to achieve when applying ice, ie. Huntington response encourages more blood into the area, ultimately causing even more swelling / inflammation. The therapist should not ice an acute injury for more than 10-15 minutes at any one time to prevent the initiation of the Hunting response.

**H.A.R.M. – full** Once the injury has been diagnosed and treated, avoid the H.A.R.M - full factors for 72 hours:
Heat

Heat increases the bleeding in the injured tissues. Avoid hot baths and showers, saunas, hot water bottles, heat packs and liniments.

Alcohol

Alcohol must be avoided as it increases the bleeding and swelling around soft tissue injuries and delays healing. It can also mask the injury’s pain and possible severity, which may delay treatment.

Running

Running or any form of exercise will cause further damage. A medical provider’s assessment and approval should be given before resuming activity within 72 hours of the injury.

Massage

Massage done within 72 hrs of injury will cause more swelling and bleeding and will prolong the rehabilitation program.

Students please note that the following techniques will be covered in much greater detail in the Diploma of Remedial Massage.

IDENTIFICATION & DESCRIPTION OF OTHER MAJOR METHODS OF TREATMENT 2

TEMPERATURE THERAPY

A treatment used to promote healing of soft-tissue injury and dysfunction, and help speed up recovery. Temperature Therapy is divided into two therapies: Cryotherapy (cold therapy) and Thermotherapy (heat therapy).

PASSIVE JOINT MOVEMENT

A technique where the client’s muscles stay relaxed and the therapist moves the joint with no assistance from the client.

Controlled stimulation of joint receptors.

JOINT MOBILIZATION

A passive movement technique applied to a spinal or peripheral joint. An oscillatory movement is performed within the control of the client.

Aims to restore full range of motion.
MANUAL LYMPHATIC DRAINAGE
Comprehensive massage systems designed enhance lymphatic return. These systems may incorporate various massage techniques, but often rely extensively on what is termed superficial lymph drainage technique.

MYOFASCIAL RELEASE
A connective tissue technique that combines non-gliding fascial traction with varying amounts of stretch that results in lengthening of fascia. Light to moderate passive stretch technique parallel with muscle fibres to the point of tautness, on the fascia of the body, for 90secs or 5mins.

TRIGGER POINT THERAPY
Designed to deactivate Trigger Points. All the basic neuromuscular techniques & muscle energy techniques deal effectively with trigger points. Direct sustained specific pressure, lengthening, softening & stretching the area, dry needling & ice massage also can be used.

P.N.F (Proprioceptive Neuromuscular Facilitation)
Is a type of Facilitated Stretching. An effective stretching technique to increase muscle length/change muscle tone, it can also help to strengthen and break down fibrous tissue. It involves doing a passive (assisted by the therapist) mild stretch to a client’s muscles followed by an moderate isometric contraction of the muscles for about 10secs against a resistance. Another type of PNF stretching technique is called contract-relax, it is used to increase R.O.M.

STRETCHING
Active stretching - done by the person themselves
Passive stretching - done with assistance from another person

Stretching affects flexibility & R.O.M. by increasing & improving the ability of the muscle to extend and stretch to its optimal length.

A stretch reflex is a nervous system / proprioceptive (muscle spindles) response to a stretch that is happening to quickly, it helps to protect muscles and joints from injury, because a stretch reflex causes a muscle to contract, we must be careful not to stimulate it during stretching procedures.

Reciprocal inhibition.

The muscular system works through opposing patters of activity and when one muscle (or group) contracts, its opposing muscles automatically relax through reciprocal inhibition.

When a muscle contracts, its opposing muscle automatically relaxes. Immediately the contraction is released and before the opposing muscle has time to return to its normal tone it can be stretched.
Skeletal muscles possess two types of nerve–fibre receptors:

Golgi Tendon Organs (GTOs), and Muscle Spindles.

These receptors sense tension & stretch, GTOs are located in the tendon sheaths, near the musculo-tendinous junction, and they monitor muscle tension, especially tension generated by muscle contraction.

Muscle spindles are miniature muscle fibres and nerve endings in a spindle shaped sheath that runs parallel to a muscle fibre, these receptors sense stretch or lengthening of muscle fibres.

See muscle anatomy & stretching workbook for diagrams on stretching techniques.

Anatomy Session 6:

Muscles of the Anterior Legs

| Psoas- only treat above the inguinal ligament |

![Diagram of skeletal muscles and psoas]
**Figure 8-4** Compression of psoas major (Draping option 5)
**Rectus femoris/vastus lateralis, intermedius and medialis**

<table>
<thead>
<tr>
<th></th>
<th>Rectus femoris</th>
<th>Vastus lateralis</th>
<th>Vastus medialis</th>
<th>Vastus intermedius</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Origin</strong></td>
<td>Anterior inferior iliac spine and superior margin acetabulum</td>
<td>Greater trochanter</td>
<td>Intertrochanthic and-medial supracondylar lines</td>
<td>Anterior and lateral surfaces of proximal femur shaft</td>
</tr>
<tr>
<td><strong>Insertion</strong></td>
<td>Patella and tibial tuberosity</td>
<td>Patella and tibial tuberosity</td>
<td>Patella and tibial tuberosity</td>
<td>Patella and tibial tuberosity</td>
</tr>
<tr>
<td><strong>Action</strong></td>
<td>Hip extension and knee extension</td>
<td>Knee extension</td>
<td>Knee extension</td>
<td>Knee extension</td>
</tr>
</tbody>
</table>

**Stretches**
Lying or standing quadriceps stretch (flex knee towards gluteal complex)

**Appropriate Techniques**
Rolling, kneading, petrissage deep and light, broad forearm, shaking, Digital ischemic pressure
### Tibialis Anterior

<table>
<thead>
<tr>
<th><strong>Origin</strong></th>
<th>Lateral condyle and upper 2/3 tibial shaft</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insertion</strong></td>
<td>Base of first metatarsal</td>
</tr>
<tr>
<td><strong>Action</strong></td>
<td>dorsiflexion</td>
</tr>
</tbody>
</table>

**Stretches**
Sitting on feet

**Appropriate Techniques**
petrissage deep and light, supported thumb

Figure 10-12  Stripping of tibialis anterior with supported thumb
Lesson 7

CASE SERNARIOS / TREATMENT PLANNING

Work with another student and design a basic treatment plan for each of the following scenarios. Things to consider are information gathering, basic physical assessment, identifying muscle groups, techniques used & time management.

Stiff, aching, tight & painful - general back, lower back, shoulders, arms & neck, front of legs, hip and back of legs.

Put answers in your workbook – Question 48

- General back
- Lower back
- Shoulders
- Arms and neck
- Front of legs
- Hips and back of legs

Anatomy Session 7:
Muscles of Thoracic Anterior

<table>
<thead>
<tr>
<th>Pectoralis major and pectoralis minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pectoralis major</td>
</tr>
<tr>
<td>Pectoralis minor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Origin</th>
<th>Pectoralis major</th>
<th>Pectoralis minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sternal end of clavicle, sternum and ribs 1-6</td>
<td>Anterior surfaces of ribs 3-5</td>
<td></td>
</tr>
<tr>
<td>Bicipital groove of the humerus</td>
<td>Coracoid process of scapula</td>
<td></td>
</tr>
</tbody>
</table>

| Action                  | Flexion, medial rotation and adduction | Draws scapula anterior and inferior |

<table>
<thead>
<tr>
<th>Stretches</th>
<th>Passive wall stand with arm at 90 degrees to door. Light stretching only</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Appropriate Techniques</th>
<th>Knuckling, kneading and digital ischemic pressure</th>
</tr>
</thead>
</table>
LESSON 8

Overview and discussion of the workbook.

Overview of Muscular Anatomy

Overview of Practical Techniques Practice and Principles

Anatomy Session 8:

Muscles of the Anterior Neck:

<table>
<thead>
<tr>
<th>Sternocleidomastoid and anterior scalenes</th>
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<tr>
<td><strong>Origin</strong></td>
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<td>Manubrium of sternum and medial clavicle</td>
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<td><strong>Insertion</strong></td>
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<td>Mastoid process of temporal bone</td>
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<td><strong>Action</strong></td>
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<td>Flexion and lateral rotation of head</td>
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<tr>
<td><strong>Sternocleidomastoid</strong></td>
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<td><strong>anterior scalenes</strong></td>
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<td>Transverse processes of cervical vertebrae</td>
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<td>Anterolaterally on first 2 ribs</td>
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<td>Elevates ribs 1-2</td>
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**Stretches**
Light resisted lateral head flexion

**Appropriate Techniques**
Supported thumbs, kneading
Notes

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LEsson 9

Muscles Anatomy Exam
Review Questions

Lesson 10
Full Body deep tissue exam

Students to perform a full body deep tissue massage, demonstrating appropriately to the assessor, the following:

- Correctly locating & identifying muscles, their origin/insertion & fibre direction.
- Correctly massaging identified muscles.
- Correctly targeting muscle groups.
- Correct execution of techniques according to treatment plan.
- Correct body mechanics.
- Appropriate communication with receiver.
- Adjustment or modification of treatment according to receiver’s needs and reactions and the presence of complicating factors.
- Time management.
Appendix 1

TECHNIQUES – Deep Tissue and passive soft tissue

Kneading (petrissage)
This is performed with both hands working together in a smooth, rhythmical way. Each hand in turn is opened fully to grasp across the muscle, then squeezes and lifts the tissues. As one hand releases its grip, the other takes up a grip adjacent to it, very much like kneading dough. A steady rhythm should be maintained with the two hands, and the technique should slowly travel up and down the specific part of the body. This is particularly easy on areas like the legs and top of the shoulders, but with practice it can also become a satisfying technique to apply to all area. As skill develops, it becomes possible to isolate and treat quite small muscles using the tips of the thumb and fingers.

This technique stimulates the circulation, generally loosens and softens the tissues and has a great warming effect. If, however, the tissues are excessively tense through minor injury or fatigue, petrissage may feel unpleasant and irritating. If this is the case, more superficial stroking should be used first before attempting to knead again.

Longitudinal and transverse – deep
Longitudinal stroking is a basic yet effective technique administered with a lubricant in the direction of venous blood flow. The contact may be broad, for example, palmar or forearm, or specific, for example, with contact of several braced digits, pisiform or elbow.

These deep stroking techniques are the most effective way to identify deep lesions and should be performed slowly to enable good observation. Where lesions are located, a combination of longitudinal and transverse strokes can be used. Transverse strokes will break the bonds (adhesions) between the fibres and longitudinal strokes will stretch and realign them. They also stimulate the local circulation.

The aim of this technique is to mechanically aid fluid flow from tissue and increase the reabsorption of inflammatory exudate and metabolites. The relaxation effect of longitudinal stroking is useful in an athlete with tight muscles that are difficult to assess and treat.

Progressively smaller contact points can be used to move deeper into the tissues. For this the pad or tip of the thumb, fingers or even the elbow can be used. As these strokes are deep they will stretch the tissues so they become shorter (down to just a few inches/centimetres) the deeper they go, to prevent local over-stretching.

Transverse gliding/stokes
Transverse gliding is a technique using oscillating pressure perpendicular to the direction of muscle fibres with greater amplitude than used in transverse friction. There is relative movement between the practitioner’s contact and the underlying skin. Therefore, use of lubricant will aid patient comfort and prevent hair follicle irritation.

The aim of this treatment is to reduce the tone of focal regions of intramuscular thickening associated with repetitive muscular contraction. This tissue is often palpated as ‘knots’ or taut,
rope-like bands of hardened muscle tissue. Although the lesion may not be symptomatic, it may predispose the tissue to injury. This technique aids the recovery of optimum tissue function. It allows muscles to contract and relax quickly and stretch as required. The depth of application required for this purpose means that it should not be performed immediately before or directly after completion.

Great care must be taken not to cause excessive pain and also to protect the finger or thumb of the therapist. The working digit should be used as a passive tool with the power coming from the other hand which presses on it as close to the tip as possible. Because the digit in contact with the client is relaxed, it is much more sensitive and better able to feel and work the tissues.

**Friction**

This is the deepest technique used in massage and is targeted at specific areas of soft tissue damage, such as scar tissue and adhesions. The digit or elbow is used in a similar way as with deep effleurage, but even greater pressure is applied. It is first applied passively until sufficient depth has been reached and any lesions can then be located and treated by using a friction, rotation or short rocking movement while maintaining the same deep pressure. The depth of friction can change with the angle between the working digit and the surface of the skin. Applying friction directly into the tissues at 90 degrees penetrates the most deeply, but care must be taken not to bruise the tissues by squashing them against bone.

Great sensitivity is required to use as much pressure as possible but staying just within pain tolerance. Friction is a very powerful technique, which can damage the tissues if used too forcefully. It should never be applied to acute conditions and only with caution in the early recovery stage.

Even with correct use, friction is a painful technique that may sometimes cause bruising and it is worth advising the patient of this at the time.

When working on areas of scar tissue, friction should be applied for only short periods of time (about one minute), otherwise the tissues may become irritated and a local reflex muscle contraction may occur. The same area can be returned to again for further friction treatment several times during a single session and frequently a noticeable change in the tissues appears to take place during those short rest periods in between.

When treating large knotted areas of compacted fibrous tissue, the fingers of the skilled therapist can feel its shape. By concentrating friction into the narrow parts and indentations, it may be possible to break it into smaller and looser lumps. The blood will then be able to flow more freely through the area, stimulating the healing process and continuing the breakdown process naturally.

Friction is an excellent diagnostic technique, which has several therapeutic effects. As well as breaking down scar tissue and adhesions, it loosens and re-aligns tangled fibres and stimulates local circulation. It is used not only on specific target areas within the larger soft tissue areas but also generally around joints to stimulate circulation and release fibrous adhesions there too.
Areas that have been treated with deep friction should be stretched afterwards, either with deep and superficial longitudinal strokes and/or passive and functional stretches.

**Broadening**
The sliding-movement technique referred to a broadening has its primary effect on broadening the muscle belly, but may also be applied to tendons and fascial tissue. Broadening refers to any sliding technique that involves a compression of muscle and fascial tissue followed by a sliding motion in a direction that broadens the tissue.

For larger muscles or groups of muscles, place your hands on the body part in full palmar position, with the heels of the hands meeting in the centre of the muscle being massaged. Apply sufficient pressure to compress the tissues, while moving the palms out and away from one another in a direction transverse to the length of the muscle fibres. The focus of the pressure is to the heel of the hands. Repeat the process along the body part until the entire part has been massaged. For smaller muscles the thumbs move in a similar fashion.

This application of broadening techniques enhances the ability of the muscle to broaden, which may enhance the contractibility of that muscle and perhaps even enhance muscle strength.

**D.I.P.S (Digital Ischemic Pressure)**
This is a compression technique using thumb pressure 4 to 5 either side of the muscle or down lines within the muscle belly, apply perpendicular to the skin towards the centre of the muscle. The effect is to invoke a temporary ischemic reaction. The aim is to stimulate the nociceptors (tension monitoring receptors with in a muscle) to induce a relaxation response. It provides an analgesic response in soft tissue, done prior to an activity it can also reduce muscle tone and facilitate muscle activity.

Apply thumb pressure, hold for 5-10 seconds, then release, then apply pressure again and release, repeat 3 times. This induces a flushing effect of blood from the area being treated (pressure on – blood flows out, pressure relieved – blood flows in).

**Manual Compression**
Manual compression refers to techniques that employ a compression of tissues followed by a reduction of pressure. The most common types of compression used in sports massage are palmar compression and digital compression. Compression techniques affect local circulation, and specific type of compression also has its own unique purpose.

**Palmar Compression**
Palmar compression is applied with the hands placed on the body part in palmar-overlay position. Use your own body weight to repeatedly compress and reduce the tissue beneath the heel of the hand. The motion is to pump straight up and down and press the muscle into the underlying bone. Perform palmar compression slowly and with greater pressure to reduce muscle tension or spasm, to create a site-specific stretch, or to positively affect muscle elongation potential. Apply palmer compression with faster paced movement using a medium amount of pressure to warm and invigorate an athlete prior to activity.
**Digital Compression**

Digital compression is a simple technique performed with the thumb, fingertips or elbow with sufficient pressure to compress the tissues underneath. It may be applied repeatedly along a body part or as one prolonged application to a specific site.

**PASSIVE SOFT-TISSUE TECHNIQUES**

Passive soft-tissue movement techniques are those massage techniques that primarily palpitate the movement of tissues and other structures and use passive motion to treat restrictions in tissue and other structures. These techniques include shaking, jostling, vibration and rocking.

**Rocking**

Other names used for this technique are pelvic rocking and rocking vibration. A gentle, repetitive oscillation of the pelvis or torso that is achieved by pushing the pelvis or torso from a midline resting position into lateral deviation and then allowing it to return to resting position. This repetitive movement results in waves of motion that are propagated along the body. Rocking is a form of rhythmical mobilization that results in a lateral motion of the body, especially of the pelvis and lumbar spine.

**Shaking**

Other names for this technique are muscle shaking, course vibration, rolling friction and jostling. A soft tissue – primarily muscle – is repetitively moved back and forth over the underlying bone with minimal joint movement.

Shaking is sometimes classified as a form of petrissage since both techniques focus force on skeletal muscle.

Traditionally the literature has stated that shaking may alter resting muscle tone through the stimulation of complex proprioceptive reflexes. Shaking was thought to have a relaxing effect on skeletal muscle.

Shaking has a variety of clinical applications. It can be an effective approach to reducing ‘holding’, or psychodynamic tension, either as a goal in itself or to prepare for the use of techniques such as high-grade joint play, in which increased muscular tension may interfere with the execution of the technique. Shaking can be regarded by clients as pleasurable and is useful when the therapist is seeking to achieve fully relaxed skeletal muscle. Shaking is commonly used in pre-competition and inter-competition sports massage because of its effect of systemic arousal and enhanced awareness and its possible temporary effect on resting muscle tension.

**Vibration**

Vibration techniques apply a trembling motion with the hand or finger-tips. Vibration is most commonly applied with a very light touch, but considerable pressure may also be used.

A light touch affects the superficial neuroreceptors. The fingertips assume a multiple-digit position or the hand assumes a full palmer position and rest lightly on the skin. Create a small tremulous vibration movement that starts at your elbow or shoulder.
SUMMARY OF 6 MAJOR DEEP TISSUE AND PASSIVE SOFT TISSUE TECHNIQUES:

KNEADING & WRINGING (PETRISSAGE)
Steady rhythm of squeezing, lifting, rolling, sculpting using whole hands to fully grasp the tissue, can use tips of thumbs & fingers to isolate a smaller area.

Stimulates relaxation & circulation, softens & warms muscle & fascial tissue.

DEEP LONGITUDINAL STROKES
Slow steady movement in the direction of venous flow, along the length of the muscle fibres. May be broad using palmer of forearm or specific using several braced digits, thumb (thumb glide) or elbow.

Stimulates circulation & relaxation, stretches and realigns the muscle fibres & fascia, promotes removal of toxins, good for identify deep lesions within muscle tissue.

DEEP TRANSVERSE STROKES/GLIDES
Using a slow or fast oscillating pressure across the muscle fibres with relative movement between the therapist’s digits and underlying skin.

Separates muscle fibres, breaks the bonds of (adhesions) between muscle fibres, muscle groups & muscle & fascia, reduces muscle tone in areas of muscle thickening, aids in the recovery of tissue function.

FRICTIONS
The digit, thumb or elbow is used with great pressure (apply passively until sufficient pressure has been reached) use a quick oscillating cross friction or short rocking movement while maintaining deep pressure. Skin should not move underneath therapist’s digits, tissue underneath should move. Use on the origin & insertion of muscle to stretch musculo-tendinous unit. Can be used on Ligaments, in joint spaces and areas of hard, fibrous muscle / scar tissue.

Breaks down scar tissue and fibrous adhesions between the skin and the tissue beneath it. Losens and re-aligns tangled muscle fibres, stimulates circulation around joints. Excellent diagnostic technique to locate lesions.

COMPRESSIONS:
Techniques used to apply a compression of muscle tissues followed by a reduction of pressure.

Palmer Compressions:
Applied with the hands and use your body-weight to repeatedly compress the tissue. Use a pumping motion.

Stimulates circulation, reduces spasm & muscle tension, can reduce muscle thickening, warms & invigorates.
**Digital Compressions:**
Use thumbs, fingertips or elbow/forearm with sufficient pressure to compress muscle tissues underneath.

May be applied repeatedly or as one prolonged application for 15-30-60secs to a specific site.

Deactivates trigger points, produces temporary relaxation response, relieves stress points, stimulates acupressure & shiatsu (energy) points.

**D.I.P.S. (Digital Ischemic Pressure)**
Similar to Digital Compressions but pressure is applied on and off the specific area (10sec on, release & repeat 3-6 times)

Creates a flushing effect in muscle tissue, blood flows out on pressure, blood flows in when pressure released. Improves local circulation, helps to remove toxins, good for small areas of thickness in muscle tissue, and softens the specific area.

**BROADENING:**
A sliding movement technique used by placing the heel of your hands in the centre of the muscle, compress the tissues, while moving the palms out and away from one another in a direction transverse to the length of the muscle fibres. Use thumbs for smaller muscles.

Assists in restoring the muscle to its natural broadening potential. May enhance contractibility & muscle strength.

**PASSIVE SOFT TISSUE TECHNIQUES:**

**Jostling / Shaking:**
Grasp the muscle with a broad contact and shake across the lines of the fibres.
We want the muscle to “wobble & shake” Repetitively moving soft tissue back & forth over the bone with minimal joint movement.

**Vibrations:**
Very light to considerable pressure can be used, a trembling motion with the hand and fingertips-can also use in combination with an elbow compression.

Reduces muscle tone, (relaxes the muscle). Reduces “holding” (psychodynamic tension) in muscle tissue. Enhances stimulation & muscle awareness.

**Rocking:**
Similar to shaking but used in a rocking fashion. A repetitive oscillation or wave of motion on the pelvis or torso from midline resting position into lateral deviation, and then allowing it to return to a resting position.

Reduces tension, enhances relaxation & body awareness, improves joint movement in hip & spine
Endangerment Sites

An endangerment site is a region of the body in which nerves, arteries, or veins lay close to the body’s surface. These areas are not well protected by muscle or connective tissue, and have the potentially to be damaged. Deep pressure or friction techniques sustained would be contraindicated for vessels and nerves in these areas. These areas may contain bony projections that are fragile and may be broken. Massage therapists should exercise extreme caution when working in or close to these endangerment areas.

Endangerment sites of the face and neck

Anterior Triangle of the Neck- consists of the medial border of the sternocleidomastoid (SCM) muscle, the inferior border of the mandible and the trachea. It contains the jugular vein the carotid artery, and the vagus nerve, which are located deep to the SCM.

Posterior Triangle of the Neck- consists of the posterior border of the SCM, the superior border of the clavicle, and the anterior border of the upper trapezius. This area contains the brachiocephalic artery and vein superior the clavicle. The sub-cephalic vein and the nerves of the brachial plexus.

Sternal Notch and Anterior Throat- consists of the medial heads of the right and left clavicle, and their attachment at the superior edge of the sternum. This contains the vagus nerve, and nerves and vessels to the thyroid gland.

Endangerment Sites of the Shoulder

Axillary Triangle of the underarm- consists of the anterior edge of the pectoralis major, the posterior edge of the lattissimus dorsi, the superior head and medial shaft of the humerus, the upper ribs and the medial aspect of the serratus anterior. This area contains the nerves of the distal brachial plexus, and the brachial artery, the axillary nerve, vein and artery, and the cephalic vein.

Deltoid – Pectoral Triangle- is a narrow area between the medial aspect of the pectoralis major, the lateral aspect of the anterior deltid, and the superior border of the clavicle. This area contains the cephalic vein.

Endangerment Sites of the Elbow

Medial Elbow- the area between the medial epicondyle of the humerus and olecranon process of the ulna. This area contains the ulna nerve.

Lateral Elbow- The area between the lateral epicondyle of the humerus and the olecranon process of the ulna. This area contains the radial nerve.

Endangerment Sites of the Abdomen

Umbililcus Area- contains the descending aorta and the abdominal aorta.

Dorsal Body Area, 12th Rib- this is where the Kidneys are.
Endangerment Sites of the Lower Extremities

Femoral (inguinal) Triangle- consists of the lateral aspect of the Sartorius muscle, the superior aspect of the inguinal ligament, and the medial aspect of adductor longus muscle. This area contains the femoral nerve, the femoral artery and vein, the great saphenous vein, external iliac artery, and the inguinal lymph nodes.

Sciatic Notch- this is the area which the sciatic nerve passes out of the pelvis through the greater sciatic foramen, under the piriformis muscle.

Popiteal Fossa- Diamond shaped area at the posterior knee. The superior area consists of the lateral tendon of the biceps femoris, and the medial tendons of the semitendinosus, semimembranosus, and the Sartorius muscles. The inferior area consists of the two heads of the gastrocnemius muscle. This area contains the popliteal artery and vein and the tibial and common peroneal nerves.

Deep Calf- This region of the lower extremity can be located between the two heads of the gastrocnemius muscle. This area contains the posterior tibial artery and vein.

Tarsal Tunnel- This is located in a groove on the medial aspect of the calcaneus and inferior to and posterior to the medial malleolus. This area contains the posterior tibial artery and vein.
Recommended reading and references:

- Introduction to Massage Therapy 2nd Ed. – Mary Beth Braun & Stephanie Simonson 2008
- The Balanced body - A guide to Deep Tissue & Neuromuscular Therapy-Donald W Scheumann-2002-
  ISBN: 0781735750
- Outcome Based Massage - Carla-Krystin Andrade & Paul Clifford-2001-ISBN: 0781717434
- Sport and Remedial Massage Therapy.- Mel Cash-1996- ISBN: 0091809568
- www.thebodyworker.com
- www.softtissuetherapy.com.au