



Pain Management in Musculoskeletal Conditions

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Musculoskeletal Pain Management

- *Physical Therapy:*
 - Thermal Therapy
 - Electrotherapy and Ultrasound
 - Laser Therapy
 - Exercise Therapy
- *Manual Therapy:*
 - Manipulation & Mobilization
 - Massage
 - Acupressure and Acupuncture
- *Postural Correction:*
 - Proper Body Mechanics
 - Custom-made Foot Orthotics

Physical Therapy

Thermal Therapy





Physical Therapy

Thermal Therapy

- Application of heat and/or cold
- Can relieve pain associated with:
 - Muscle spasm secondary to:
 - Underlying joint and skeletal pathology
 - Nerve root irritation
- Cold therapy may reduce:
 - Edema, hyperemia (excess blood in tissue) and pain
 - Due to its vasoconstrictive (constriction of blood vessels) effect



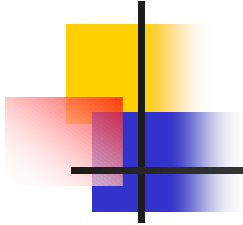
Physical Therapy

Thermal Therapy

- Cold therapy is the best modality for acute inflammatory reactions like:
 - Acute inflammation of the bursa (bursitis)
 - Epicondylitis (tennis elbow, golfer's elbow)
 - Acute trauma
- Heat therapy is the best modality for chronic inflammations like:
 - Joint stiffness
 - Osteoarthritis
 - Rheumatoid arthritis
- Abdominal or menstrual cramps respond well to superficial heat therapy

Physical Therapy

Electrotherapy & Ultrasound





Physical Therapy

Electrotherapy & Ultrasound

- *Electrotherapy:*
 - Application of electrical stimulation on muscles by electrodes
 - Can reduce pain by:
 - Blocking pain signals (nociceptive) transmission at the spinal cord
 - Increasing production of endorphins (body's natural pain-killer)
 - Can fatigue the muscle in situations of muscle spasticity:
 - Tension headache
 - Chronic torticollis (spasm of neck muscles)



Physical Therapy

Electrotherapy & Ultrasound

- *Ultrasound Therapy:*
 - Application of ultrasound waves
 - To produce deep tissue heat by molecular friction
 - It helps to:
 - Decrease the joint pain
 - Prepare the joint for mobilization/manipulation
 - It can break adhesions and calcification (e.g. calcific bursitis)
 - Combined with deep tissue massage (trigger point therapy) it is effective for treatment of myofascitis

Physical Therapy

Laser Therapy

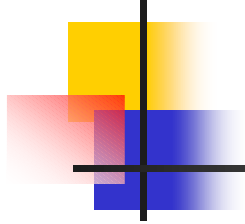




Physical Therapy

Laser Therapy

- Application of low power laser light
- It has therapeutic effect in:
 - Post-traumatic joint disorders
 - Myofascial (connective tissue of the muscle) pain
 - Rheumatoid arthritis
 - Osteoarthritis
 - Other inflammatory and non-inflammatory joint disorders
- It is also effective for tissue and wound healing



Physical Therapy

Exercise Therapy





Physical Therapy

Exercise Therapy

- For the management of:
 - Many chronic pain conditions
 - Especially those of musculoskeletal origin
- It also improves:
 - Mood, energy levels and self-esteem
- Also serves:
 - To reduce fear of re-injury
 - To reduce secondary overuse injuries

Manual Therapy

Manipulation & Mobilization





Manual Therapy

Manipulation & Mobilization

- Manipulation:
 - Application of a high-velocity, low-amplitude thrust to the joint that forces:
 - The joint beyond physiologic range of motion
 - To the anatomical limits of motion
 - Frees up joint restriction due to:
 - Scar tissue and synovial tissue block
 - Muscle tightness
 - Decreases pain by:
 - Stimulation of joint mechanical receptors, producing inhibitory effects at the spinal level
 - Causing increased release of endorphin and enkephalin



Manual Therapy

Manipulation & Mobilization

- *Mobilization:*
 - Manual procedures, which attempt to increase the range of motion of a joint
 - Beyond the resistance barrier
 - It increases range of motion
 - And enables patient to exercise

Manual Therapy

Massage





Manual Therapy

Massage

- Massage is the practice of applying structured or unstructured pressure, tension, motion, or vibration — manually or with mechanical aids — to the soft tissues of the body
- Including muscles, connective tissue, tendons, ligaments, joints and lymphatic vessels
- To achieve a beneficial response
- Massage can be applied to parts of the body or successively to the whole body, to aid the process of injury healing, relieve psychological stress, manage pain, and improve circulation
- Where massage is used for its holistic benefits (physiological, mental, and mechanical) it may be termed "Myomassology"

Manual Therapy

Acupuncture and Acupressure





Manual Therapy

Acupuncture and Acupressure

- Acupuncture:

- From Latin *acus*, "needle" (noun), and *pungere*, "prick" (verb) is a technique of inserting and manipulating needles into "acupuncture points" or "meridians" on the body
- According to acupunctural teachings this will restore health and well-being, and is particularly good at treating pain
- The definition and characterization of these points is standardized by the World Health Organization
- Acupuncture is thought to have originated in China and is most commonly associated with Traditional Chinese Medicine (TCM)
- Other types of acupuncture (Japanese, Korean, and classical Chinese acupuncture) are practiced and taught throughout the world



Manual Therapy

Acupuncture and Acupressure

- Acupressure:
 - A blend of “acupuncture” and “pressure” is a Traditional Chinese Medicine (TCM) technique based on the same ideas as acupuncture
 - Acupressure involves placing physical pressure by hand, elbow, or with the aid of various devices on different acupuncture points on the surface of the body
 - Acupuncture points used in treatment may or may not be in the same area of the body as the targeted symptom
 - The TCM theory for the selection of such points and their effectiveness is that they work by stimulating the meridian system to bring about relief by rebalancing “yin”, “yang” and “qi” (also spelled “chi”)

Postural Correction

Proper Body Mechanics





Postural Correction

Proper Body Mechanics

- One of the most important ways to reduce the risks of work-related injuries is to improve body mechanics
- Body mechanics refers to how the body is used
- Good body mechanics is using the body in efficient and careful ways and includes good posture, balance, and using the largest muscles to do the heaviest work



Postural Correction

Proper Body Mechanics

- The goal of body mechanics is to learn how to move the body so as to prevent further injury
- Awareness of common mistakes and proper principles can only help to achieve this goal
- One such principle concerns posture. Poor posture is one of the main causes of Musculoskeletal disorders
- Forward head position and rounded shoulders contribute to poor posture



Postural Correction

Proper Body Mechanics

- Posture is the position in which you hold your body upright against gravity while standing, sitting or laying down
- Good posture involves training the body to stand, walk, sit and lie in positions where the least strain is placed on supporting muscles and ligaments
- Proper posture:
 - Keeps bones and joints in the correct alignment so that muscles are being used properly



Postural Correction

Proper Body Mechanics

- Helps decrease the abnormal wearing of joint surfaces
- Decreases the stress on the ligaments holding the joints of the spine together
- Prevents the spine from becoming fixed in abnormal positions
- Prevents fatigue because muscles are being used more efficiently, allowing the body to use less energy
- Prevents backache and muscular pain
- Contributes to a good appearance



Postural Correction

Proper Body Mechanics

- Proper posture requirements:
 - Good muscle flexibility
 - Normal motion in the joints
 - Strong postural muscles
 - A balance of muscles on both sides of the spine
 - Awareness of your own posture, plus awareness of proper posture which leads to conscious correction
- With much practice, the correct posture for standing, sitting, and lying down (as described below) will gradually replace your old posture



Postural Correction

Proper Body Mechanics

- What is the correct way to stand?
 - Hold your head up straight with your chin in
 - Do not tilt your head forward, backward or sideways
 - Make sure your earlobes are in line with the middle of your shoulders
 - Stretch the top of your head toward the ceiling
 - Keep your shoulders back, your knees straight and your back straight
 - Tuck your stomach in
 - Do not tilt your pelvis forward
 - The arches in your feet should be supported



Postural Correction

Proper Body Mechanics

- What is the correct way to sit?
 - Sit up with your back straight and your shoulders back
 - Your buttocks should touch the back of your chair
 - All three normal back curves should be present while sitting
 - A small, rolled-up towel or a lumbar roll can be used to help you maintain the normal curves in your back
 - Here's how to find a good sitting position when you're not using a back support or lumbar roll:
 - Sit at the end of your chair and slouch completely
 - Draw yourself up and accentuate the curve of your back as far as possible
 - Hold for a few seconds
 - Release the position slightly (about 10 degrees)
 - This is a good sitting posture



Postural Correction

Proper Body Mechanics

- Distribute your body weight evenly on both hips
- Bend your knees at a right angle
- Do not sit with your knees crossed
- Keep your knees even with or slightly higher than your hips
- Keep your feet flat on the floor
- Try to avoid sitting in the same position for more than 30 minutes
- At work, adjust your chair height and work station so you can sit up close to your work and tilt it up at you
- Rest your elbows and arms on your chair or desk, keeping your shoulders relaxed



Postural Correction

Proper Body Mechanics

- When sitting in a chair that rolls and pivots, don't twist at the waist while sitting
- Instead, turn your whole body
- When standing up from the sitting position, move to the front of the seat of your chair
- Stand up by straightening your legs
- Avoid bending forward at your waist
- Immediately stretch your back by doing 10 standing backbends
- It is ok to assume other sitting positions for short periods of time, but most of your sitting time should be spent as described above so there is minimal stress on your spine



Postural Correction

Proper Body Mechanics

- What is the correct way to sit while driving?
 - Use a back support (lumbar roll) at the curve of your back
 - Your knees should be at the same level or higher than your hips
 - Move the seat close to the steering wheel to support the curve of your back
 - The seat should be close enough to allow your knees to bend and your feet to reach the pedals



Postural Correction

Proper Body Mechanics

- What is the best position for sleeping and lying down?
 - The best lying or sleeping position may vary, depending on your symptoms
 - No matter what position you lie in, the pillow should be under your head, but not your shoulders, and should be a thickness that allows your head to be in a normal position
 - Try to sleep in a position which helps you maintain the curve in your back (such as on your back with a pillow under your knees or a lumbar roll under your lower back; or on your side with your knees slightly bent)



Postural Correction

Proper Body Mechanics

- Do not sleep on your side with your knees drawn up to your chest
- You may want to avoid sleeping on your stomach, especially on a saggy mattress, since this can cause back strain and can be uncomfortable for your neck
- Select a firm mattress and box spring set that does not sag
- If necessary, place a board under your mattress You can also place the mattress on the floor temporarily if necessary
- If you've always slept on a soft surface, it may be more painful to change to a hard surface
- Try to do what's most comfortable for you



Postural Correction

Proper Body Mechanics

- Try using a back support (lumbar support) at night to make you more comfortable
- A rolled sheet or towel tied around your waist may be helpful
- When standing up from the lying position, turn on your side, draw up both knees and swing your legs on the side of the bed
- Sit up by pushing yourself up with your hands
- Avoid bending forward at your waist

Postural Correction

Custom-made Foot Orthotics





Postural Correction

Custom-made Foot Orthotics

- Your feet are the foundation of your body
- They support you when you stand, walk, or run
- And they help protect your spine, bones, and soft tissues from damaging stress as you move around
- Your feet perform better when all their muscles, arches, and bones are in their ideal stable positions
- The foot is constructed with three arches which, when properly maintained, give exceptional supportive strength
- These three arches form a supporting vault that distributes the weight of the entire body
- If there is compromise of one arch in the foot, the other arches must compensate and are subject to additional stresses, which usually leads to further compromise



Postural Correction

Custom-made Foot Orthotics

- Alleviating pain in one part of your body often requires treating a different part
- The pain you feel in your neck could be caused by a misalignment in your spine that is caused by unbalanced positioning in your feet
- It's a chain reaction
- By stabilizing and balancing your feet, custom-made foot orthotics enhance your body's performance and efficiency, reduce pain, and contribute to your total body wellness
- Our orthotics complement your treatment when you stand, walk, and live your active life