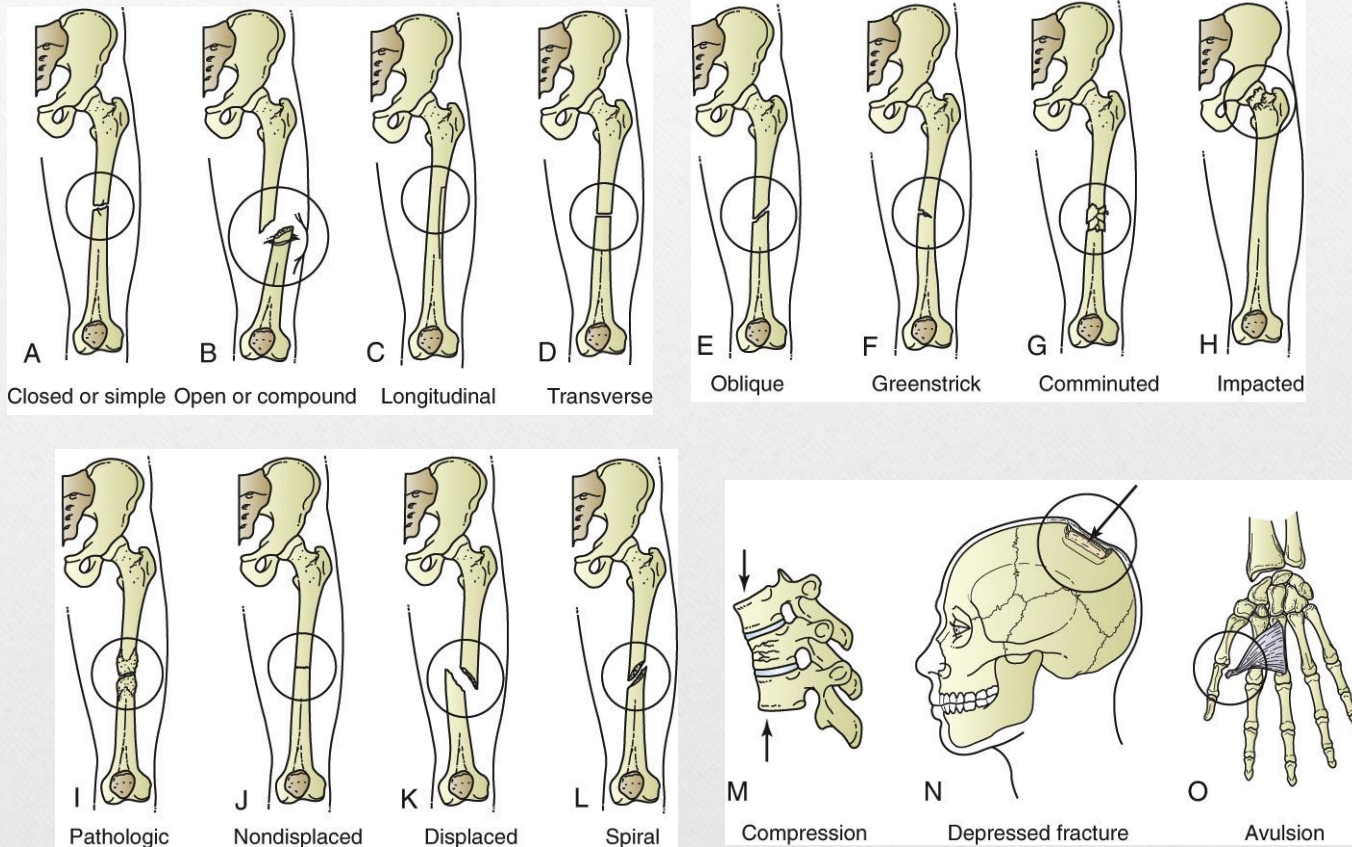


Skeletal System Pathology
and Related Massage
Indications/Contraindications

Disorders Caused By Trauma

Fractures



Severe force can fracture almost any bone. The term fracture means a break or rupture in a bone.

The signs and symptoms of fractures include local swelling, pain, loss of function or abnormal movement of the affected part, and deformities such as angulation, shortening, or rotation.

Crepitation is a grating sound produced when bone fragments rub together.

Fractures, cont'd

First aid – prevent movement and summon help

Treatment – reduction

Healing – same phases as soft tissue healing, but more complex

Physicians treat fractures by reduction. This means that by manipulation or surgery, they align broken bones; then the bone regenerates.

Fractures, cont'd

Fracture hematoma formation

48-72 hours after injury

Reparative phase

Within 7 days hematoma becomes soft-tissue callus

Remodeling phase

New bone laid down

Remodeling or reshaping occurs.

When a bone fractures, there is trauma to the periosteum and surrounding soft tissue.

Acute inflammation usually lasts approximately 4 days.

Massage indications/contraindications for fractures

Massage and bodywork are contraindicated locally over a trauma area until healing is complete.

Very light, subtle methods of touch therapies may be beneficial in diminishing pain

E.g., a gentle laying on of hands

Bodywork methods are beneficial in supporting the rest of the body during the healing process.

Disorders Caused By Trauma

Shin splints

Plantar fasciitis

Massage indications/contraindications

Massage is beneficial for plantar fasciitis and shin splints as long as it does not cause an increase in pain and inflammation.

Tibial fractures are contraindicated and need to be ruled out before massage is.

Shin splints involve muscle strain and potential hairline fractures of the tibia.

Plantar fasciitis develops from strain or injury to the plantar fascia of the foot. The signs and symptoms include acute pain when resuming activity after a period of rest. The pain lessens as the tissue warms and then begins to hurt again with continued use. A deep sharp and bruised sensation is felt at the arch and at the attachment at the heel.

Developmental Conditions

Spina bifida

Instead of being protected by bone, the nerves of the dorsal spinal cord may be covered by a thin membrane, skin, muscle, or spinal meninges.

Cleft palate

Congenital deformity involving a gap in the roof of the mouth from behind the teeth to the back of the mouth

Newborns with cleft palate may have difficulty nursing or swallowing because their mouths are open to the nasal cavities above. Newborns suck in air rather than milk, or the milk may enter the nose instead of the throat.

Cleft palate is corrected surgically.

Osteogenesis imperfecta

Group of hereditary disorders

Bones are deformed and fragile as a result of demineralization and defective formation of connective tissue.

Clubfoot (talipes)

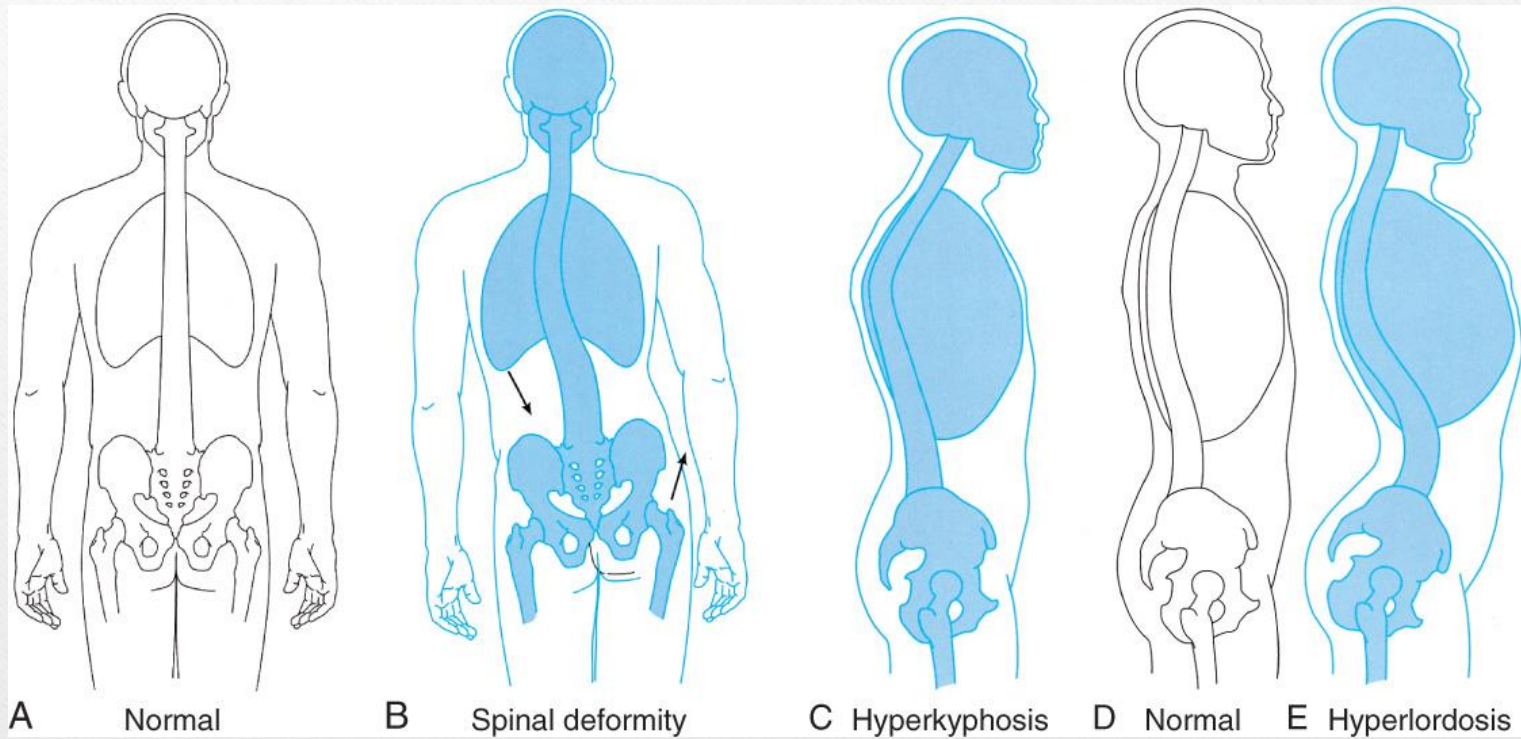
Both feet are bent downward and inverted, or

The feet are pointed upward and everted.

Clubfoot is the most common of the lower extremity congenital deformities.

Clubfoot is more prominent in boys and may be the result of genetic predisposition or of the position of the fetus in the uterus.

Spinal curve abnormalities



Why are extreme curves in the spine dangerous?

They can compress internal organs.

Massage indications/contraindications for spinal curve abnormalities

Aggressive compressive force or joint movement methods are contraindicated for a fragile skeletal structure.

Light, superficial methods might be indicated.

Physician consult required

Massage helpful for back pain

Back pain is one of the most common complaints. Most back pain is caused by soft-tissue problems and not skeletal changes, and massage can be indicated and very beneficial to the client.

Massage methods are helpful in managing compensatory muscle spasms and connective tissue changes when actual vertebral pathology is present.

Osgood-Schlatter disease

General growing pains

Massage indications/contraindications

Inflammation = local contraindication

Avoid stretching and frictioning (any methods that induce inflammation)

Methods that relax and lengthen the muscle and soften the connective tissue are appropriate.

Osgood-Schlatter disease, which affects the tibial tuberosity, most often occurs in boys between 10 and 15 years of age. The tuberosity becomes inflamed or separates from the tibia because of irritation caused when the patellar tendon pulls on the tuberosity during periods of rapid growth or overuse of the quadriceps femoris group.

Growing pains occur when bones grow faster than the muscles that attach to them. The pain comes from the muscle pulling on the periosteum.

Bone Demineralization Disorders

Osteoporosis

Disorder of the bone in which calcium and other minerals are lacking and bone protein is diminished

Bones become soft, fragile, and more likely to break.

Treatments include:

- Hormone therapy

- Increasing exercise

- Diet modification

Osteoporosis primarily affects the spine and pelvis.

Postmenopausal women form the segment of the population most affected by osteoporosis. This occurs as a result of a decrease in hormone levels.

Paget disease

Marked by normal periods of calcium loss followed by periods of excessive new cell growth

Bones harden, deform, and become susceptible to fracture.

Osteitis fibrosis cystica

Bone tissue is replaced by fibrous tissue and cysts.

Bones become weak and prone to fracture.

Disorders caused by radiation therapy

Bone may become brittle and fragile.`

No cause or cure is known for Paget disease. It mainly affects men over age 40.

Osteitis fibrosis cystica is seen in long-standing hyperparathyroidism.

Massage indications/contraindications

Caution when using compressive force

Fragile skeletal structure = contraindication for compressive force or joint movement methods unless carefully supervised by physician

Light, superficial methods might be indicated.

Local contraindications – bodywork methods may be used in unaffected areas.

Necrosis (Tissue Death)

Osteonecrosis (ischemic necrosis)

Common cause of hip pain and disability

Legg-Calvé-Perthes disease

Degeneration and necrosis at head of femur, followed by recalcification

Lasts approx 3 years; leads to arthritis, hip pain, and gait abnormalities

Various pathologic changes occur in the bone when its blood supply is diminished or cut off, or when infection, malignancy, or trauma occur, leading to tissue death or necrosis.

Scheuermann disease

Caused by necrosis or inflammation in bone or in a thoracic disk

Back pain and hyperkyphosis

Osteochondritis dissecans

Cartilage and adjacent bone separate from the bone itself.

Caused by inflammation and necrosis of the particular area

In Osteocondritis dissecans, at the affected joint, portions of dead tissue may break away and lodge in the joint capsule, restricting movement and causing pain.

- Massage indications/contraindications
 - Regional avoidance of the involved bone area
 - Indirect benefits might occur with careful use of massage (enhanced local circulation).
 - Massage must be done with the permission and supervision of the primary health care physician.

Infectious Diseases

Osteomyelitis

Inflammation in the bone, bone marrow, or periosteum usually caused by pyogenic bacteria

Tuberculosis

Systemic disease causing destruction of bone and necrosis

Massage indications/contraindications

Contraindicated unless supervised by medical personnel

Always refer when vague pain symptoms present

Osteomyelitis is most often seen in children, near the joints in the upper or lower extremities.

When osteomyelitis is promptly treated medically, the chance of a full recovery is excellent.

The onset of skeletal tuberculosis is insidious, usually marked by vague complaints of pain.

Tumors

Primary or secondary

Can also be found in cartilage

Massage indications/contraindications

Prompt referral for diagnosis is a must for any sign that may indicate the growth of a tumor.

Benign tumors = local contraindication

Massage contraindicated for malignant tumors unless direct medical supervision

Tumors may be benign or malignant.

Secondary tumors develop from primary sites, most often in the breast, lungs, or prostate.

Nutritional Disorders

Rickets

Vitamin D deficiency causing bone deformities

Scurvy

Vitamin C deficiency

Massage indications/contraindications

Compressive force and joint movement methods contraindicated for fragile skeletal structure

Light, superficial methods might be indicated with medical supervision.

Both rickets and scurvy are rarely seen in the Western world, but may be seen in conjunction with some eating disorders.

To Test

Access Code: **H9T3YXH**

Please write down code. You will be asked for it

Once you have successfully passed the test (70% correct), please email Kim Jackson at **kim_hotschool@yahoo.com**. We will email you your CE certificate within 7 business days.