ocean park natural therapies

SOLVING YOUR HEALTH PUZZLE

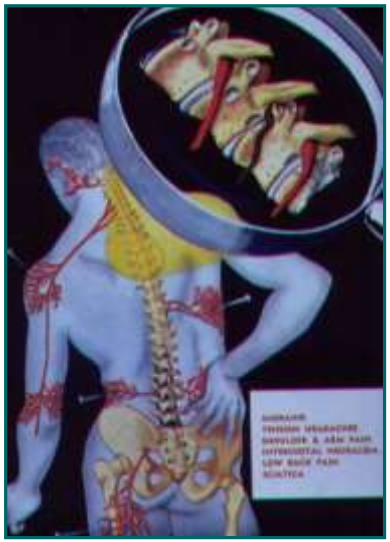
INJURIES ….

What You Need to Know….

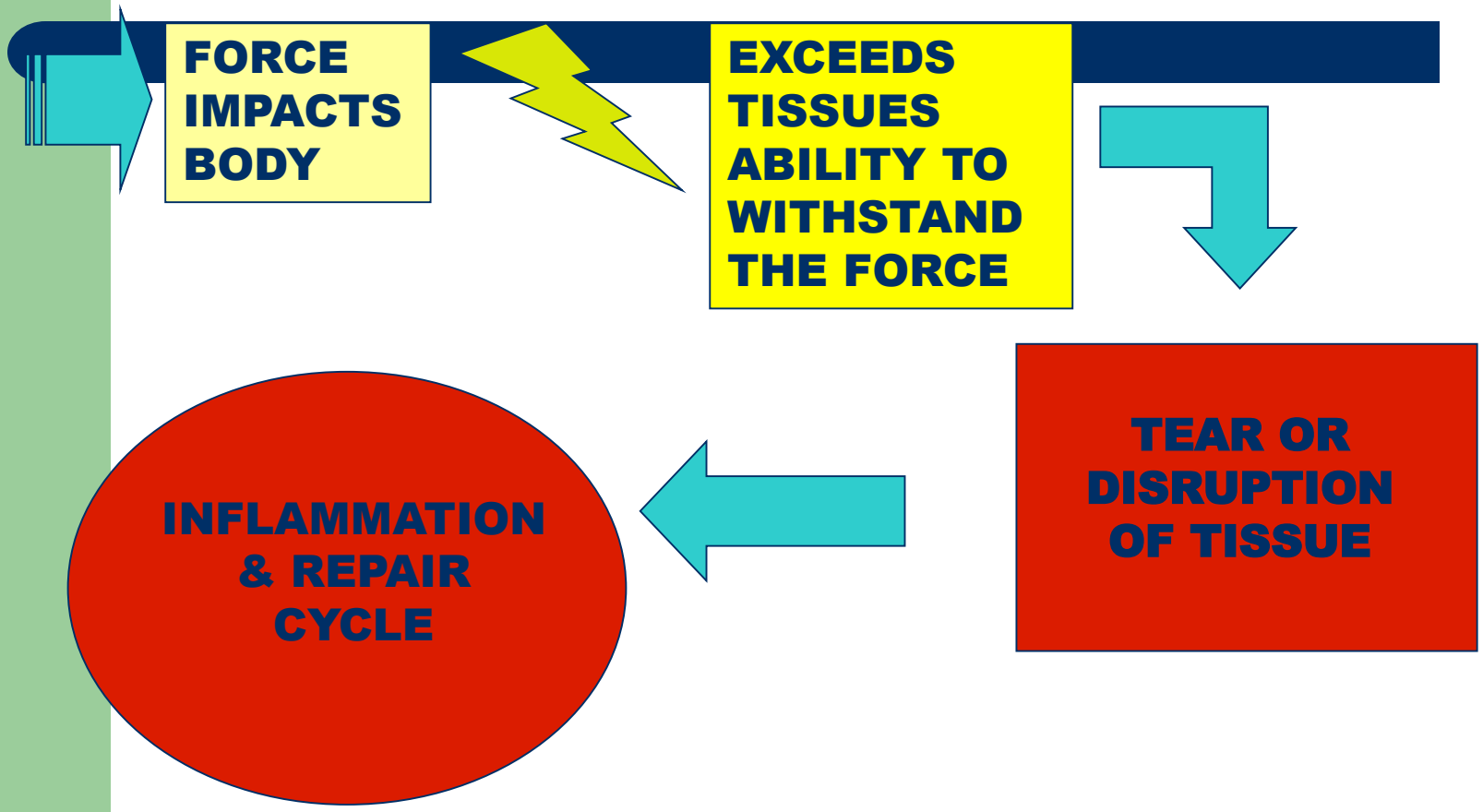
For Full Recovery

Injury

- When a Force impacts the Body or Body parts and creates change of tissue structure and function.
- The Force exceeds tissue ability to absorb, buffer, and dissipate the force.
- Tissues are torn, deformed, or compressed so that their structure and function is altered.



INJURY MECHANISM



TYPES OF FORCES

- Compression – Indents tissue
- Extension – Opens joint positions
- Flexion – Closes joint positions
- Side Bending – Lateral bending forces
- Rotational – Twisting forces
- Lateral Shearing – Tears tissues sideways
- Distraction – Pulls tissues apart lengthwise
- Repetitive – Wear and tear forces

Types of Forces

- Each type of force can cause different types of injury and tissue adaptations
- **Compression** – loss of height fractures, disc injuries
- **Rotational** – torque stretches, tears, fractures
- **Lateral Shearing** – fractures, disc hernia, collateral ligaments
- **Distraction** – elongation injuries with ligament and capsular tears, muscle tears.

Inflammation & Repair Cycle

- The consequence of tissue disruption is… Acute Injury ……
  - Inflammation – the natural response of the body to release of inflammatory substances from the tissues (eg. prostaglandin - Pg2) is redness, heat, swelling.
  - Inflammation initiates repair responses.
  - Repair responses involve a specific sequence of mechanisms.

Inflammation - Repair Cycle

- Inflammation initiates a number of biochemical, bioenergetic, and biophysical responses.
- Biochemical – enzymes, white blood cells, essential fatty acids, inflammatory prostaglandins
- Bioenergetic – acupuncture alarm points activation, autonomic nerve changes
- Biophysical – altered posture, gait, muscle response.

Phases of Injury

- Acute Phase- Acute Inflammation and repair processes are initiated – lots of pain, redness, heat, swelling.
- Intermediate Phase- repair processes are remodeling and strengthening injured areas
- Chronic Phase – ongoing pain and dysfunction due to ongoing altered structure or function of one or more parts of the injury complex.

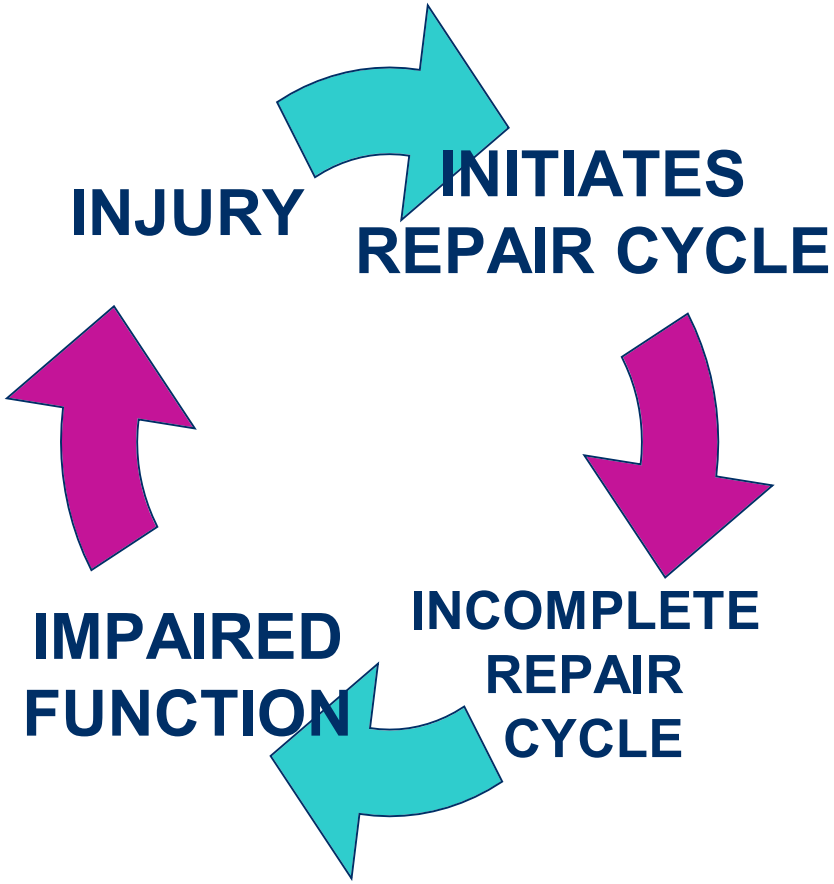
Disruption of Inflammation Repair Cycle

- Disruption or Incompletion of any phase of the inflammation and repair cycle leads to incomplete wound healing.
- Incomplete wound healing leads to ongoing impairment of normal physiological processes – altered structure and function…. Intermediate or Chronic Injury

Repair Cycle

- Initiates tissue repair to begin wound healing through stages to rebuild and restructure injured tissue and processes.
- If tissue concerns and needs are properly addressed then full healing and return to normal function is restored.
- If tissue concerns are not properly addressed then incomplete healing and inefficient function is maintained- chronic injury

INJURY – INCOMPLETE REPAIR



Necessary Repair Phases and Steps Are Missing or Stalled

Types of Tissues Injured

- Each tissue in the body has various properties and functions.
- As the force of injury moves into the body and exceeds the ability of each tissue to withstand the force … trauma ensues … with different consequences for each type of tissue injured.

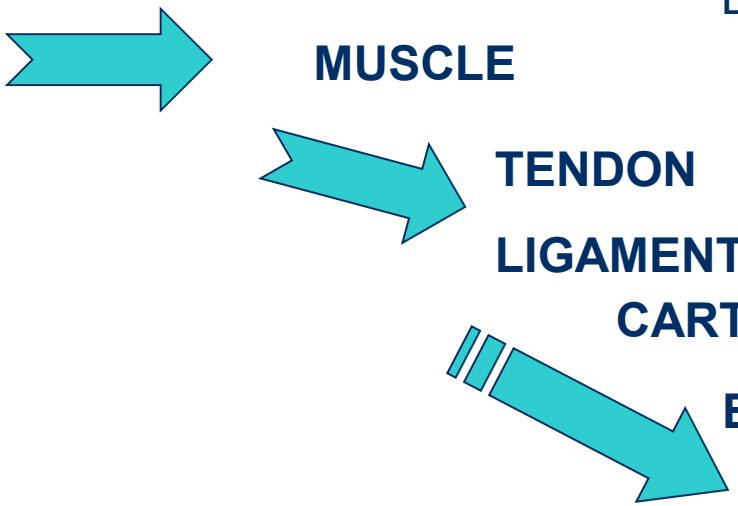
Acute Injury - Force of Injury

- Forces go into the body and need to be absorbed or dissipated – each tissue type has different susceptibility for injury.
- Forces penetrate through in the order of skin, fascia, muscle, tendon, ligament, bone, deep soft tissues.
- The body has a priority of repair sequence that goes – 1)Nervous system 2) Bone 3) Ligament 4)Tendon 5)Muscle 6) Fascia 7)Skin

Force of Injury

- Forces can came from outside into the body tissues -

OUTSIDE FORCES



SKIN **FASCIA**

MUSCLE

TENDON

LIGAMENT

CARTILAGE

BONE

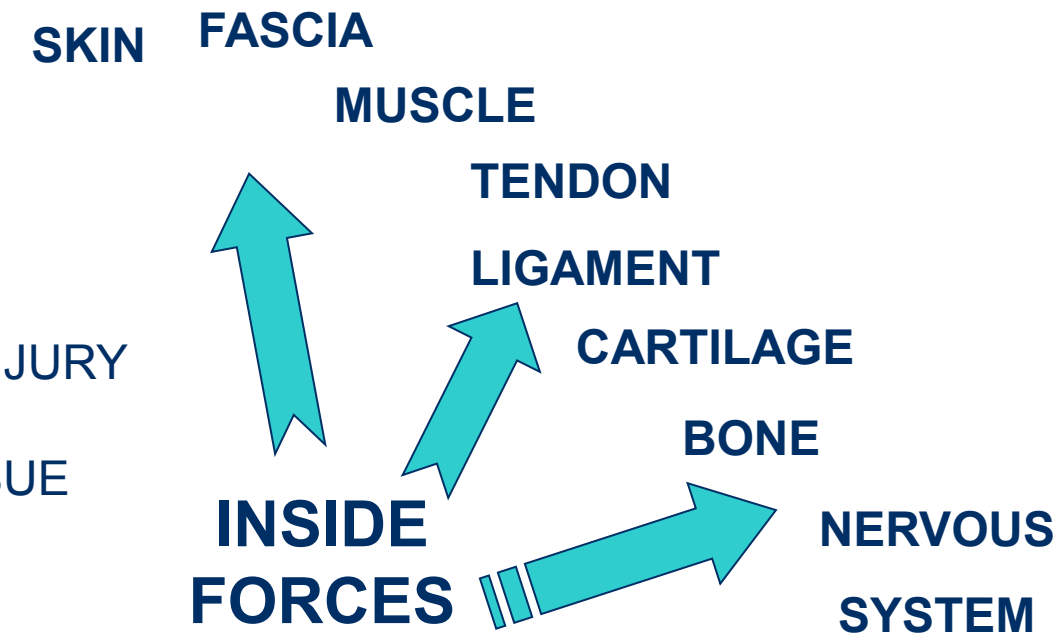
NERVOUS SYSTEM

CAN CREATE INJURY INTO VARIOUS LEVELS OF TISSUE IN ORDER OF IMPACT

Force of Injury

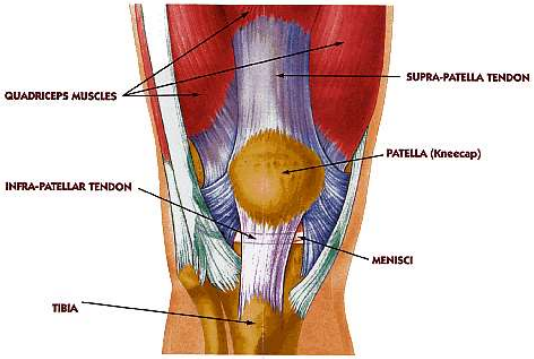
- Internal Forces – can create impact from within the body to the outside

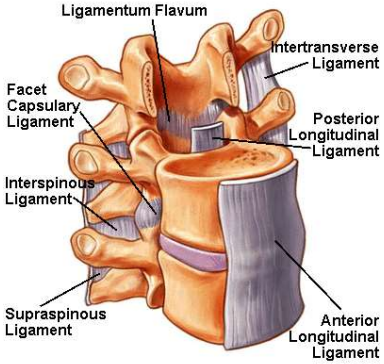
CAN CREATE INJURY INTO VARIOUS LEVELS OF TISSUE IN ORDER OF IMPACT

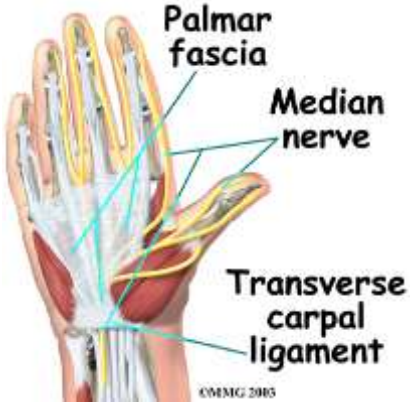


Types of Tissues Typically Injured

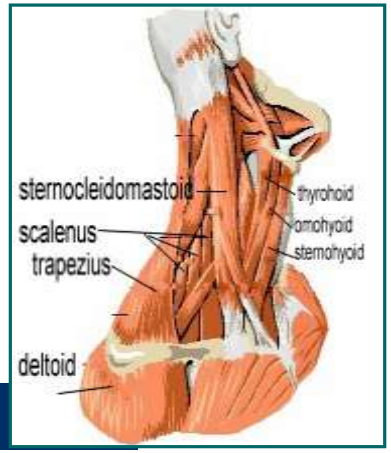
- Muscle
- Tendons
- Ligaments
- Skin/Fascia
- Bone
- Cartilage
- Nerve/Blood Tissues







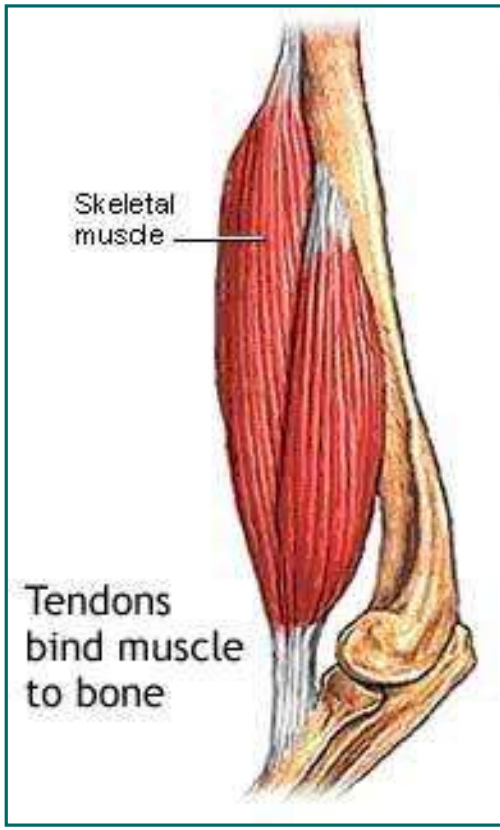
Muscle



- Muscle is a major shock absorber in the body.
- Muscle acts like rubber bands … as it is stretched it contracts to move back to its original length. Overstretched muscles can tear.
- Muscles work in specific directions and work in synergistic, reciprocal, or antagonistic groups. Contusion forces can break muscle fibres apart leading to injury repair mechanisms

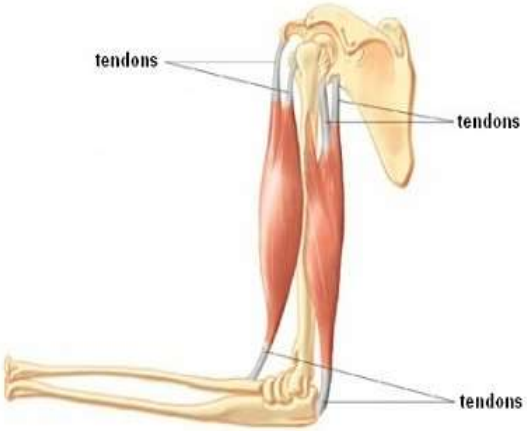
Muscle

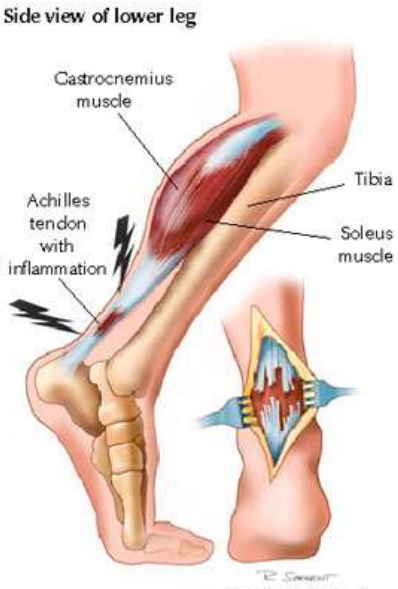
- Attach to bones at fibro-osseous junctions via tendons or fibrous connective tissues.
- Are susceptible to injury at muscle belly fibers (torn, strained muscle – grade 1, 2, or 3), at muscle-tendon junctions, or at fibro-osseous junctions (muscle to bone)



Tendons

- Tendons are like “white nylon rope”- they are continuations of muscle fibres and are flexible, bend around corners, and are strong but relatively in-elastic.
- With boney architecture and muscles they create a pulley system to increase muscle leverage on joint levers.
- Examples of major tendons in the body are the Achilles, Patellar, Bicipital

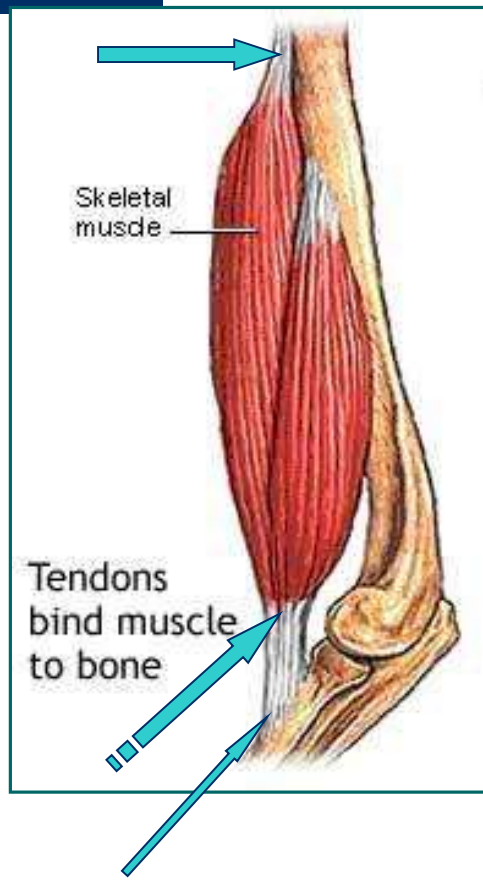




Surgical view of torn achilles tendon

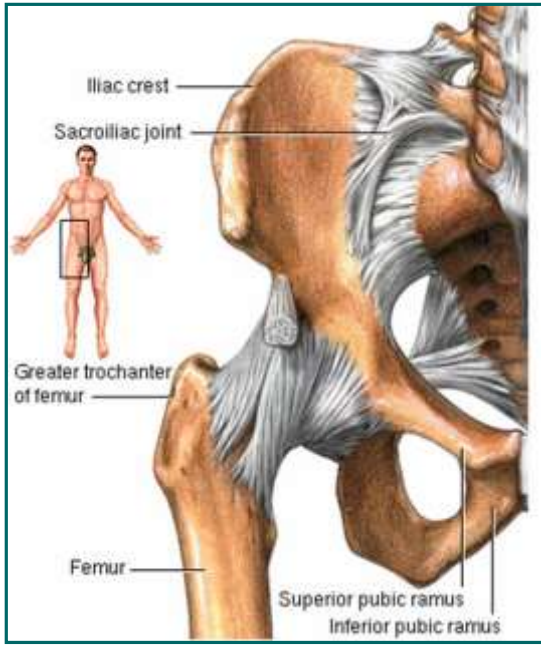
Tendon Injuries

- Tendons connect muscles to bone.
- They are suseptible to tears at the muscle tendon junctions, tendon-bone junctions, or within the tendon fibres themselves.
- Because tendons have poor blood supply within them they take longer to heal.
- Tendon inflammation is termed tendonitis.



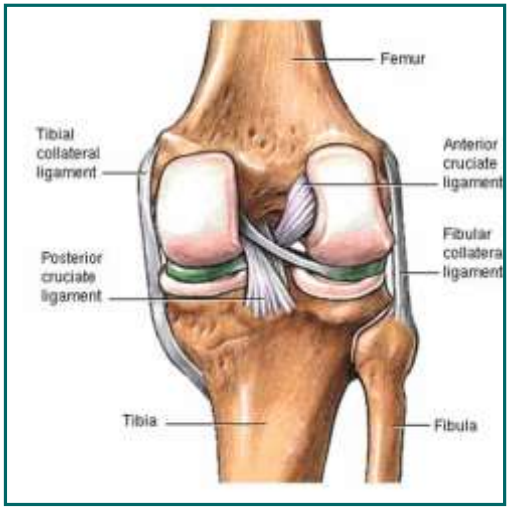
Ligaments

- Are composed of fibrocartilage and elastic fibres
- Act to hold two bones together
- Attach to bone at fibro-osseous junctions
- Are tight fibrous connective tissue that has some stretch but mainly flexible and strong
- Have limited blood flow and slow wound healing potential although faster than tendons



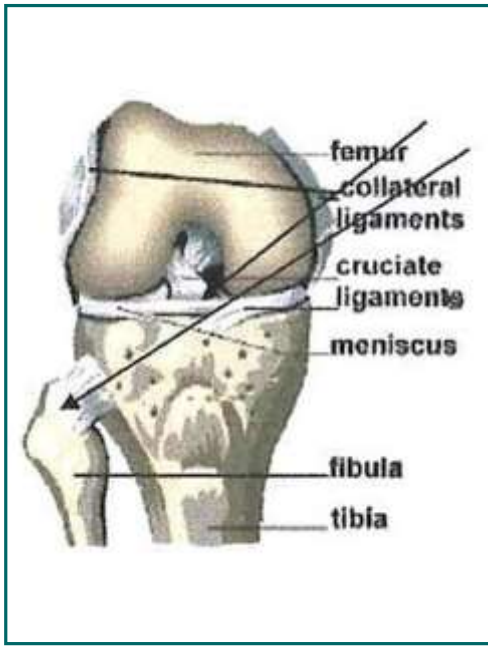
Ligament Injury

- Can be stretched (grade1 sprain), partially torn & stretched (grade 2 sprain), or completely torn (grade 3 sprain.
- Any stretching of ligament tissue leads to pain and weakness on stressing the joint in the direction the ligament controls joint stability.
- Ligaments give significant pain when injured



Bone

- Forms the skeletal system
- Composed of cartilage matrix which is flexible to which mineral salts are added to harden it or create more rigidity.
- Is a major reservoir of minerals in the body – mineral depletion is osteomalacia, protein-collagen depletion is osteoporosis.
- Forms lines of stress to counter forces of stress that are applied to it on an every day basis.

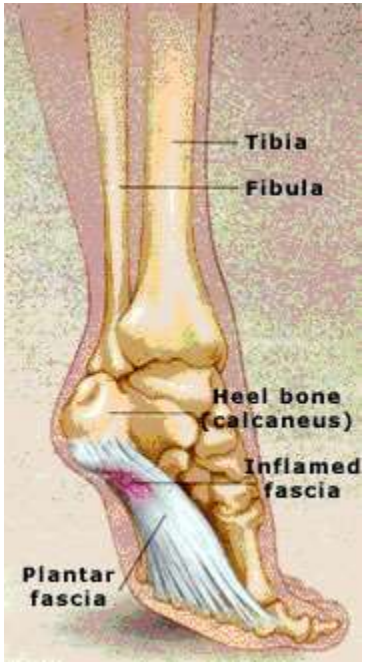


Bone Injury

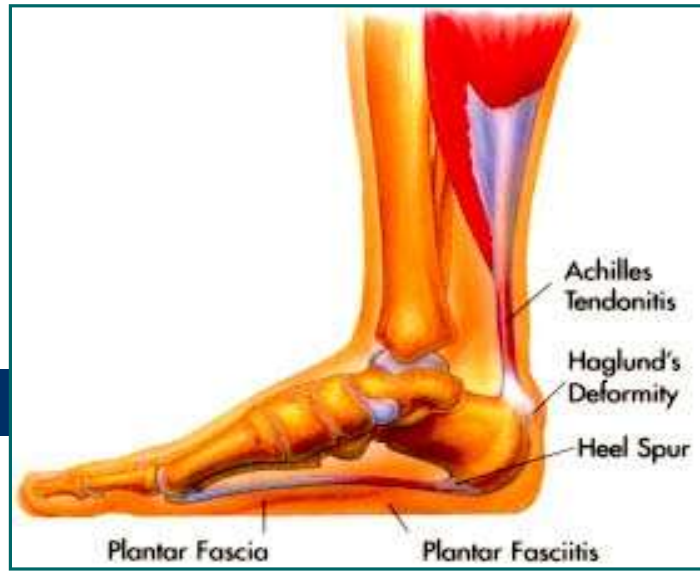
- Depends on the type of force that acted on it….
- Compression fracture…compressive force
- Avulsion fracture…tendon or muscle pulled fragment of bone
- Stress fracture …. fascial membrane of bone
- Compound fracture – multiple directions
- Bone spur – ligament or fascia pull on bone

Fascia

- Fascia is tough sheath-like tissue that like saran wrap forms strong sheets to wrap around muscle and connect divergent areas of the body together.
- Fascia encases muscle and converges into tendon structures.
- Fascia forms a contiguous set of connections that connect and allow movement and holding patterns throughout the whole body.
- Examples of fascia – iliotibial band, lumbar aponeurosis, dural membrane of spine and brain

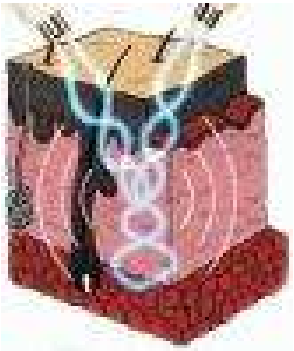


Fascia Injury



- Injury to the fascia results in scar repair and disrupts functioning throughout the body.
- Suseptible to cutting, tearing and pulling at junctions with other tissues.
- Fascial tears cause a burning or stabbing pain in the tissues – e.g. plantar fascitis and achilles tendonitis.
- Fascial is hard to repair and tends to form scar – like tissue as it repairs.

Skin

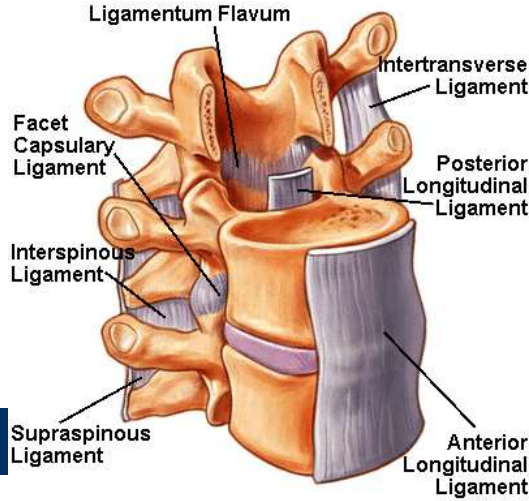


- Skin is a type of fascia that contains lots of nerve supply and blood vessels to its tissues.
- Embryonically it is linked to the nervous system
- It is the site of major acupuncture points and has a major effect on the communication systems of the body

Skin Injury

- Injury to the skin results in changes to innervation, acupuncture system, and blood supply to superficial as well as deep structures. This alters physiology and results in pain and dysfunction of the tissues.
- Skin injury can include cuts, contusions (bruising), burns, & abrasions. Scars can be a consequence of skin injury repair.

Proprioception



- The junctions of tissues joining to other tissues are proprioception feedback areas to the brain and spinal cord.
- This means that they have –
  - Lots of nerve supply
  - Inhibitory signals if injured
  - Alter feedback and function if injured
  - Send signals that can alter brain or autonomic functions – (regulation of body processes)

Proprioception & Pain

- Certain tissues have lots of pain receptors – nerve sheaths
  - Bone – periosteum, fibro-osseous junctions
  - Ligaments – at fibro-osseous junctions
  - Tendons – at fibro-osseous junctions, muscle tendon junctions.
  - Muscle – at muscle belly, muscle-tendon junctions
  - Fascia – at bone or muscle attachments
  - Skin – at first 2 mm. of skin tissue

- THEY CAUSE A LOT OF PAIN & IMPAIRMENT WHEN INJURED – Sending messages to the brain

Proper Evaluation of Injuries

- Should include:
  - **Mechanism of Injury – types of forces involved, likely tissues involved, state of the individual at time of impact.**

Assessments

- Mechanisms of Injury
- Condition of person at the time
- Physical examination to determine effects of injury – to include –
  - Neurological function
  - Blood flow
  - Bone, Ligament, Tendons, Muscle, Fascia, Skin

Assessment

- Each tissue requires different methods to assess its function –
  - **For example – bone is visualized by xrays but soft tissues are not**
  - **Nerves are assessed differently than muscles.**
- Functional repair may not be restored to all injured tissues if they are not properly diagnosed and treated.

Treatment Methods

- Different methods are required depending on the phase of injury and the type of tissues involved.

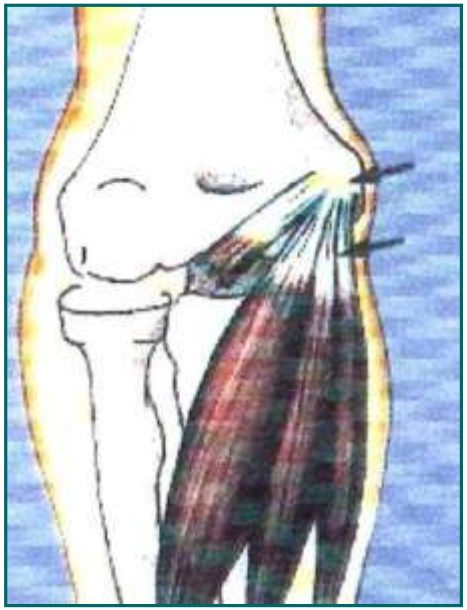
Phase of Injury

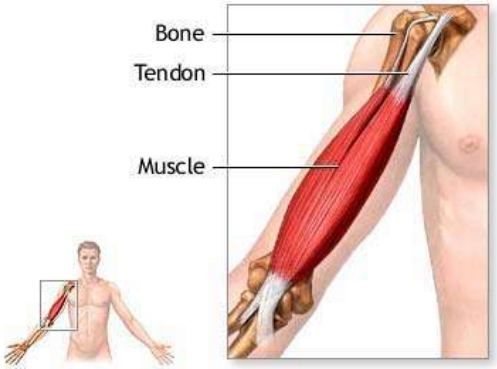
- CHRONIC - INCOMPLETE REPAIR PROCESS OR IMPAIRED PROCESS IN ONE OR MORE of these AREAS….
- Nervous System
- Bone
- Cartilage
- Ligament
- Tendons
- Muscles
- Fascia/Skin
- Muscle

If Treatment Hasn’t Worked

- Something else is wrong!!!
- Look to the model and get tested to figure out what has been missed or overlooked.

Putting It All Together





ADAM.

Diagnosis

- You can’t fix what you can’t identify!
- It is important to know what tissues are still causing problems and why…
- The body has a hierarchy of function
- The functional hierarchy must be considered in diagnosis and treatment or the system will not be able to self-correct – resulting in ongoing dysfunction

Hierarchy of Diagnosis

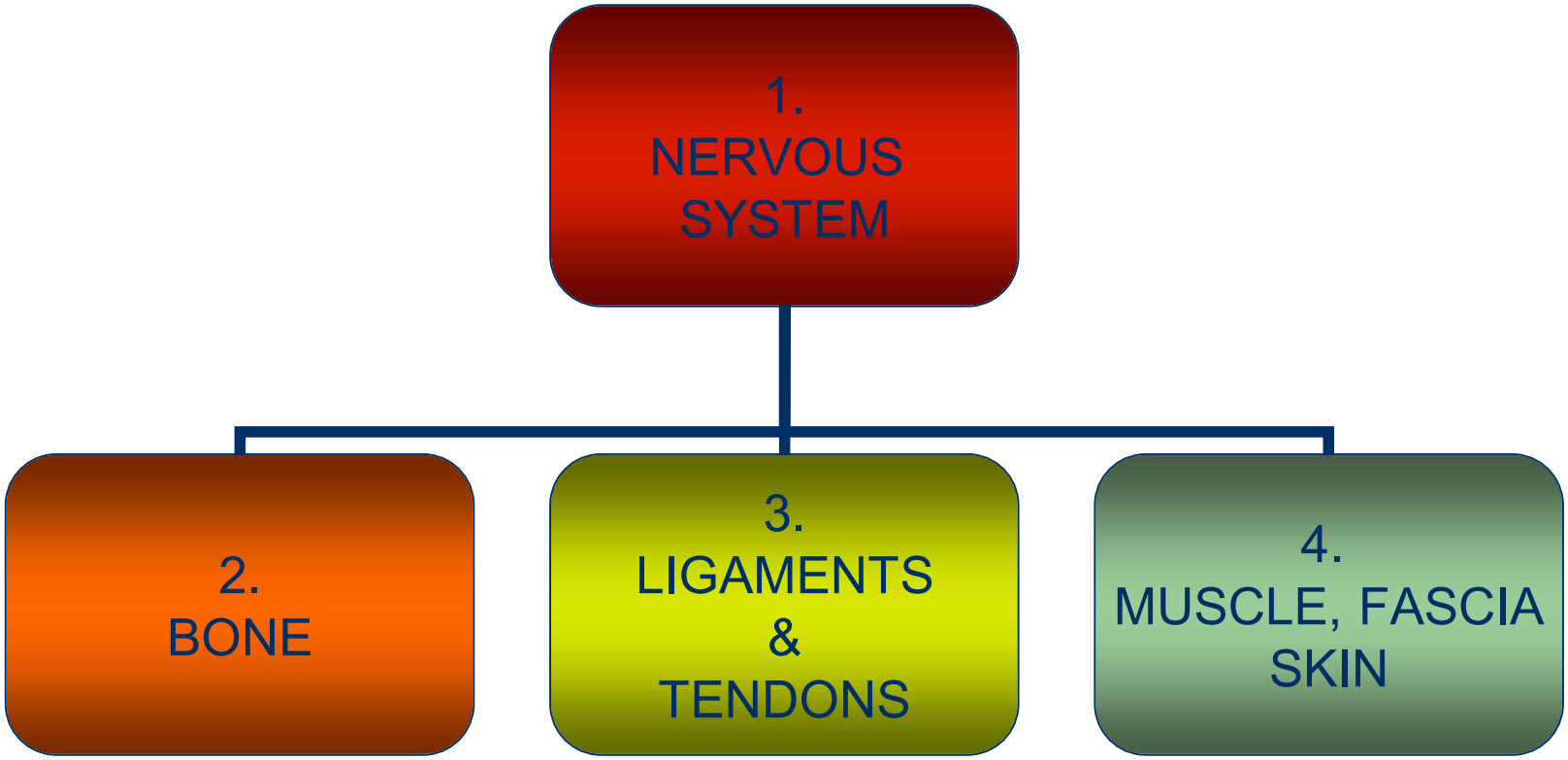
- Its important to get an overview of the problem
- Mechanism of injury – what forces and what tissues are likely affected?
- Challenge of the function of the tissues in the involved sequence, with forces, and positions of injury recreated!
- (This is easily done with functional muscle testing procedures.)

Therapy Considerations-

- What tissue is still not corrected?
- Which therapy is needed for that tissue?
- Order of correction?
- Duration of corrective procedure?

- Retest to verify correction
- Determine if correction is maintained over time.

Tissue Repair Hierarchy



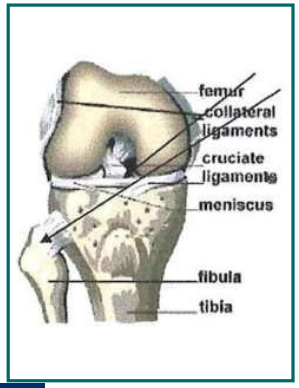
Therapy Considerations ….

- 1) Structural integrity of tissues needs to be restored as a first consideration…..
  - Torn or damaged tissues need to be restored close to their normal integrity & position in order for them to heal and restore functioning….
  - Bones need to be positioned and stabilized
  - Joints need to be positioned and stabilized
  - Soft tissues need to be repositioned to heal

Therapy considerations….

- 2. Toxins and waste products need to be removed
- 3. Repair and rebuilding of injured tissues needs to occur…. To optimal levels
- 4. Communication and integration of cellular processes needs to be re-established

Bone



- Framework for support of locomotor system, source of trace minerals, within a collagen (protein matrix).
- Instability or toxicity of bone matrix will result in pain either sharp along bone (like a fracture) or deep dull achy feeling in the bone.

Bone: Diagnosis

- Xrays, CT Scan, MRI, with contrast media, or bone density scan.
- Autonomic Response Reaction to tuning fork over bone, or stress challenge of bone tissue .
- Tear of periosteum, feels like sharp fracture like pain on movement.
- Bone bruise – deep ache or sharp pain to localized pressure.

Bone: Treatment Options

- Fracture: rest with support
- Bone bruise: Frequency Specific Microcurrent, Ice and Moist Heat.
- Micronutrient Deficiencies: supply needed nutrients
- Periosteum Pull or Tear – same as fracture, healing light laser therapy (increases ATP) or prolotherapy at micro avulsion using pumice solution to help knit bone layer.

Cartilage

- Protein collagen connective tissue that provides a smooth “shaped contour” surface at joints for the bones to more easily hold together or move over.
- Cartilage cushions bone but does not have the same ability to withstand compressive forces so it can more easily be torn or deformed by impacts.

Cartilage: Diagnosis

- Generally with xray or imaging techniques
- Compression of joints with change of autonomic response can is a strong indicator of cartilage disturbance – i.e. discs in spinal region, menisci of knee joint

Cartilage: Treatment Options

- Avoid weight bearing that compresses cartilage until it repairs
- Synvisc or Neovisc– Intra-articular injection for knees helps to protect and repair cartilage surface
- Chondroitin/glucosamine Sulfate- nutrient matrix for building connective tissue

Cartilage: Treatment Options

- Infrared low level laser therapy or frequency specific microcurrent to stimulate cartilage repair.

- Note: Damaged cartilage is hard to repair and may require surgical reshaping of tissues to restore more normal functioning.

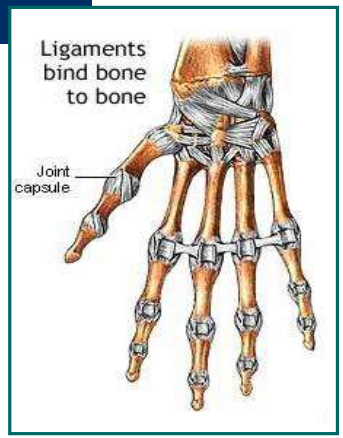
Ligaments

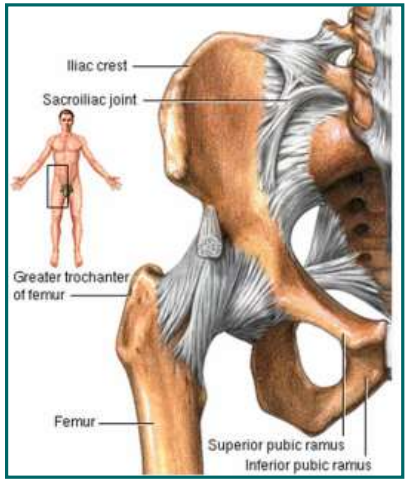
Stabilize joints by holding bones together.

Made of collagen fibres arranged in specific formations to allow flexibility but limit specific types of stretch.

Generally poor blood supply for healing

Attach to bone at fibro-osseous junctions



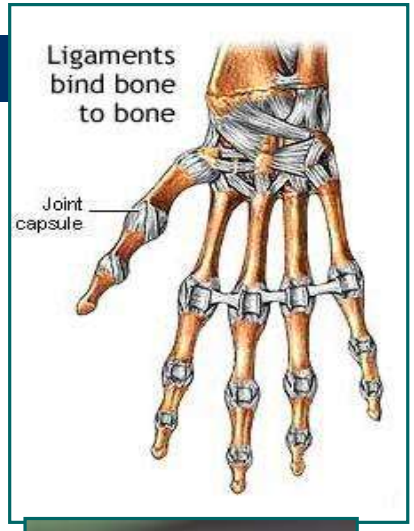


Ligaments: Diagnosis

- Pain directly over middle of joint surface
- Unstable muscle tests especially if joint or ligament is challenged by stretch or distraction of the joint itself.
- MRI or motion study Xrays

Ligaments: Treatment Options

- Initial stages: Ice, rest and supportive strapping, Frequency specific microcurrent
- Intermediate or Chronic: Frequency specific microcurrent, low level laser therapy, prolotherapy injections, mild stretching.
- Glucosamine/chondroitin sulfate supplementation
- Resistence exercise modules once tissues are stable.



Tendons

Cordlike structures that attach muscles to bone at fibro-osseous junction.

Can be torn or stretched at various sites – tendon/bone, tendon/muscle, intra-tendon to various degrees

Hard to repair due to poor blood supply and repetitive strain from use

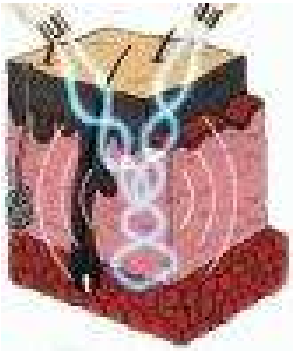
Tendons: Diagnosis

- Pain and tenderness directly over tendon or tendon attachment
- Pain on squeezing tendon or applying pressure to it – especially pain on active movement vs. passive movement.
- Change of muscle testing function on challenge or pressure on a tendon structure.
- Xray, MRI, or ultrasound evidence.

Tendons: Treatment Options

- Severe tendon injuries require surgical repair
- Partial tendon injuries may respond to appropriate care using ultrasound, low level laser frequently, frequency specific microcurrent, prolotherapy injections.
- They are slower to heal than other tissues and require support, stabilization, and diligence of care.

Fascia/Skin/Nerves



- Has rich blood and nerve supply as well as repair rate so it heals rapidly
- Healing response can result in scar tissue that impairs functions both biomechanically or bio-energetically – via autonomic nervous system and acupuncture system.

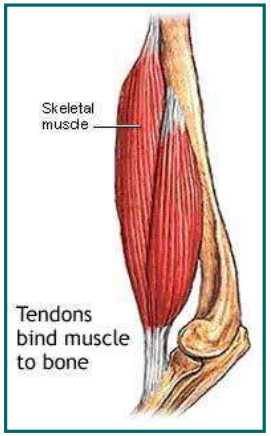
Fascia/Skin: Diagnosis

- History & Examination
- Stretching of fascia in specific directions causes weakness on muscle response or acupuncture testing
- Injection of fascia/scar area with local anesthetic negates weakness

Fascia/Skin: Treatment Options

- Neural scar therapy
- Fascial flushing massage techniques – cross friction rubbing, Rolfing, cranio-sacral techniques for fascia and organ positioning, yoga techniques for stretching.
- Low level laser therapy
- Liniments or essential oils

Muscle



- Muscle is one of the easiest tissues to diagnose and treat
- Is a good reflection of functional problems in the system because it has complex innervation and blood supply and interconnects with many parts of connective tissue and locomotor system.
- Can be tested using manual muscle testing methods to determine strength, flexibility, and response to activity.

Muscle: Diagnosis

- Physical Examination – bruising or deformity of muscle tissue, impaired usage.
- Specific Manual muscle testing examination
- Strength testing or performance testing.
- MRI
- EMG testing

Muscle: Treatment Options

- Frequency specific microcurrent – acute or chronic protocols
- Applied kinesiology procedures for muscle origin-insertion, spindle cell.
- Specific exercise options – stretch, contract, resistence training
- Active release techniques
- Acupuncture techniques
- Physical therapy – laser, ultrasound, hydrotherapy

Nervous System

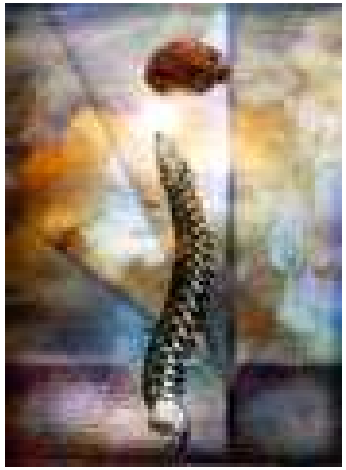
- Fast acting Control and Feedback system for the body
- Operates on many levels – local, spinal, neuro-endocrine, autonomic, central nervous system – and can be impaired or injured on any level.
- Injury leads to adaptation and impaired functioning on one or more levels

Nervous System - continued

- Difficult to fully diagnose due to its complex nature and adaptability
- Slower to repair than many other types of tissue
- Nerve fibres do not tolerate being torn or compressed – create burning pain or throbbing pain.
- Central pain can cause “sympathetic windup” of entire nervous system

Nervous System: Diagnosis

- Neurological examination
- Nerve conduction studies
- Autonomic Response Testing – Heart Rate Variability, Electroacupuncture testing, Thermography.
- Manual muscle testing



Nervous System: Treatment Options

- Cranial-Sacral therapy, Chiropractic treatment, Neural therapy
- Rest and support of injured tissue to prevent further stretching while tissue repairs
- Low level laser therapy with frequency specific protocols
- Frequency Specific Microcurrent
- Nutraceuticals and Botanicals

Autonomic Response Assessment

- Because every tissue is innervated by the autonomic nervous system which regulates nerve and blood flow to all tissues --- Autonomic Response Testing is an excellent way to evaluate and assess injuries to many different types of tissues.

A.R.T. Assessment

- **Nervous System** – Pupil response, temperature regulation, heart response variability testing
- **Bone** – Tuning fork, compression testing
- **Ligament**- Muscle testing with ligament challenge
- **Tendon** – Muscle testing with tendon challenge,
- **Fascia/skin** – Muscle testing with fascial directional challenge or stretch challenge
- **Muscle** – Muscle response testing of specific muscle
- **Skin** – Scar challenge, Acupuncture testing.

A.R.T. – Autonomic Response Testing

- Can help with assessment of acute injury
- Can help with assessment of chronic injury.
- Can monitor progress and effectiveness of therapy
- Soft tissue injuries are the hardest to diagnose and quantify.
- ART is an excellent way to evaluate or assess functional disturbances related to the soft tissues

Putting It All Together

- If an injury is chronic or not healing….figure out the following aspects….
- Mechanism of injury – inside or outside forces
- Tissues likely injured – type of pain or impairment
- Get proper (full) evaluation for not just one but …all factors contributing to ongoing impairment& get appropriate treatment

Chronic Injury – What's Missing?

- Bone?
- Ligament?
- Tendon?
- Muscles?
- Fascia?
- Nerves?

Ocean Park Natural Therapies

- Assessments:
  - History taking, Functional Muscle Testing, Autonomic Response Testing, HRV, ETA-Scan,
- Treatments:
  - Joint and Soft Tissue Manipulation
  - Neural Therapy & Prolotherapy Injections
  - Acupuncture Treatment with needle or soft laser
  - Frequency Specific Microcurrent
  - Nutraceuticals

Injury Assessment & Treatment

Solving Your Health Puzzle
With Integrated Medicine

OCEAN PARK NATURAL THERAPIES

#200 12761-16TH Ave.

Surrey, B.C. V4A 1N2

604-538-3017