FITNESS & NUTRITION EXPERT PROGRAM

FITNESS SESSION 8:

Levels, Modifications and Injuries

What we are going to cover

TEACHING A MIXED LEVEL GROUP:
- How to offer level systems
- Positive Context

RPE CHART:
- What it is and how to effectively use this tool with clients

MODIFICATIONS:
- Setting clients up for success with injuries or specific requirements

INJURIES:
- Setting clients up for success
- Common injuries and modification options

What we are going to cover

INFLAMMATION

MUSCULO-SKELETAL INJURIES: SPRAINS VS STRAINS

MUSCULO-SKELETAL INJURIES: SPINE, BACK AND CORE

CARDIO – RESPIRATORY CONDITIONS

What you need before we start

1. Water
2. Put your finger tips together
3. Take 3 deep breaths

MIXED LEVEL PROGRAMMING

MIXED LEVEL PROGRAMMING

Number 1 question and how to answer it

MIXED LEVEL PROGRAMMING

Remove the word “can’t” from your vocabulary

MIXED LEVEL PROGRAMMING

Want to challenge but never overwhelm

MIXED LEVEL PROGRAMMING

Inclusive programming, language, cueing and demonstrating

MIXED LEVEL PROGRAMMING

Non competitive environment

MIXED LEVEL PROGRAMMING

Your vibe speaks volumes louder than any words could ever speak.

- Positive context ONLY
- Time vs Counts
- Group Reference
- United group effort and training
- Do your homework

MIXED LEVEL PROGRAMMING

Level 1

- Low impact
- Lower intensity
- RPE 9 out of 10 for this individual
- Stepping motions
- Body resistance training
- Light weights for upper body movements
- Rest options
- Beginning option / injury modification

MIXED LEVEL PROGRAMMING

Level 2

- Basic fundamental movements
- Mid level impact
- RPE still at 9 out of 10
- Addition of heavier weights to movements
- Impact options available
- No real injuries or issues

MIXED LEVEL PROGRAMMING

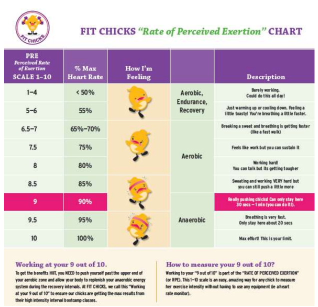
Level 3

- High Intensity throughout
- Plyometric movements
- Heavy weights
- Quick transitions with little to no rest periods
- RPE 9 out of 10
- No injuries
- Complete body awareness
- Push past physical and mental barriers

RPE CHART

RPE CHART

The RPE Chart is the rate of perceived exertion



FIT CHICKS "Rate of Perceived Exertion" CHART

PRE Perceived Rate of Exertion SCALE 1–10	% Max Heart Rate	How I'm Feeling		Description
1–4	< 50%		Aerobic, Endurance, Recovery	Barely working. Could do this all day!
5–6	55%			Just warming up or cooling down. Feeling a little toasty! You're breathing a little faster.
6.5–7	65%–70%		Aerobic	Breaking a sweat and breathing is getting faster (like a fast walk)
7.5	75%			Feels like work but you can sustain it
8	80%			Working hard! You can talk but its getting tougher
8.5	85%			Sweating and working VERY hard but you can still push a little more
9	90%		Anaerobic	Really pushing chicks! Can only stay here 30 secs – 1 min (you can do it!).
9.5	95%			Breathing is very fast. Only stay here about 20 secs
10	100%			Max effort! This is your limit.

Working at your 9 out of 10.
To get the benefits HIIT, you NEED to push yourself past the upper end of your aerobic zone and allow your body to replenish your anaerobic energy system during the recovery intervals. At FIT CHICKS, we call this "Working at your 9 out of 10" to ensure our chicks are getting the max results from their high intensity interval bootcamp classes.

How to measure your 9 out of 10?
Working to your "9 out of 10" is part of the "RATE OF PERCEIVED EXERTION" (or RPE). This 1–10 scale is an easy, amazing way for any chick to measure her exercise intensity without having to use any equipment (ie a heart rate monitor).

RPE CHART

How to use the chart with your clients:

1. Use this as a measurement tool to ensure they are working within the range that you are requiring and or requesting they are working at
2. Gage which level clients should be working at
3. Explain to clients the levels at the start of every program so they are aware of what you mean when you use numbers as your tool to motivate them

MODIFICATIONS

MODIFICATIONS

Introduce modifications when required or requested.

These are different from your levels

They should be set up in advance with clients vs on the spot. (key to having that connection in your programming)

MODIFICATIONS

IMPORTANT

Offer alternative exercises for modifications that use same muscle group not just a simpler version of the movement.

Example:
Push up requires modification for someone with a wrist injury
Offer chest press instead still same muscle group working with limited pressure to injury

INJURIES

INJURIES

Best way to help avoid injury with clients

- Review PARQ and Waivers
- Discuss during assessment
- Prepare in advance to accommodate
- Know your options
- Doctor clearance when required
- Have incident reports on hand

Disclaimer

*This session is for your reference and awareness of various injuries and conditions that you may encounter as a Personal Trainer. Always remember, you are not a Regulated Health Care Professional and it is out of your Scope of Practice to diagnose any injury, disease, or condition. If you are ever unsure then always refer your client to a Health Care Professional.

Disease and Injury: Definitions

Pathophysiology
- Study of changes in body functions caused by disease

Pathology
- Greek for disease
- Study of structural and functional changes in cells, tissues, and organs of the body.

Disease
- Any deviation from or interruption of the normal structure or function of a part, organ, or system of the body

Disease and Injury: Definitions

When looking at the disease process, the following must be considered:

Etiology
- Causes of disease

Pathogenesis
- Refers to how the disease process develops and evolves

Morphological Changes
- Hypertrophy, atrophy, hyperplasia, metaplasia, dysplasia,

Clinical Manifestations
- Signs and Symptoms

Diagnosis
- Identifying the disease or injury

Clinical Course
- Evolution of a disease: acute, subacute, and chronic

Basic Concepts of Disease

Basic Concepts of Disease
- Cell adaptation
  - Cells have the ability to adapt when faced with stresses that endanger its normal structure and function; this adaption assists cells to survive and maintain function
- Cell injury
  - Can occur in many ways; reversible up to a point
  - Duration and intensity will determine if a cell will be injured or will die
- Mechanism of cells injury
  - Free radical injury
  - Hypoxia
- Cell death
  - Two types:
    i. Apoptosis - controlled (programmed) cell death
    ii. Necrosis - a pathologic form of cell death resulting from cell injury

Inflammation

Inflammation is the body's response to tissue injury caused by pressure, friction, repeated load or overload, and external trauma.

- The following combinations can lead to inflammation:
  - Normal load at high frequency
  - Heavy load at normal frequency
  - Heavy load at high frequency
- Part of the body`s second line of defense
- Brought on by various agents
  - Physical - trauma, ischemia, temperature extremes
  - Chemical - strong acid & bases, venom
  - Biological - bacteria, fungi etc.
- Suffix ``itis``` is used to indicate inflammation in a certain tissue (eg. tendinitis)

Inflammation

The Inflammatory response can follow two patterns:

1. Acute (self-limiting)
2. Chronic (self-perpetuating)

Acute inflammation shows characteristic signs and symptoms that are produced by **vascular** and **cellular** chemical mediators

- Starts immediately
- Swelling caused by accumulation of fluid
- Redness caused by increased blood flow
- Local rise of temperature, caused by blood flow around the injured area
- Tenderness on touching the affected area
- Impaired function of the affected part because of swelling and tenderness

Chronic Inflammation

- Lasts for weeks, months, or years
- Can develop as a result of recurring or progressive acute inflammatory responses or from low-grade responses that fail to evoke an acute response

Inflammation

Tissue repair and wound healing

- Inflammatory response begins at time of injury
- Reconstructive phase begins within 3-4 days and may last up to 2 weeks
- Maturation phase begins 2 weeks after injury and can continue for 6 months or longer, depending on the extent of injury

Most wounds/injuries do not regain full tensile strength of the original tissue

- ~ 2/3 of eventual maximum strength is achieved 2 to 3 weeks into the maturation phase
- Maximum strength achieved is ~ 80% of original strength

Factors that affect wound healing

- Malnutrition
- Blood flow and oxygen delivery
- Impaired inflammatory and immune response
- Infection
- Wound separation
- Foreign bodies (ie. Bacteria)
- Age

Musculo-Skeletal Injuries: Sprains vs Strains

Sprains
- The stretching or tearing of a ligament
- Partial tear – involves only part of the ligament fibers, DOES NOT affect joint stability
- Complete tear – involves most, or all, of the ligament fibers, DOES affect joint stability
- Most common in the ankle, knee, elbow, wrist, and shoulder

Signs and symptoms
- Bleeding, bruising, swelling, tenderness, pain with movement, instability (depending on extent of tear)

Rehab time
- Healing the ligament can take usually 6 weeks or longer
- May require taping, bracing

Training Considerations
- Active muscular exercise and mobility training
- Key to protect the ligament from further damage

Musculo-Skeletal Injuries: Sprain

Musculo-Skeletal Injuries: Sprains vs Strains

Strains
- The stretching or tearing of a muscle or tendon
- Frist degree or mild strain
  - Overstretching of the muscle, no great loss of strength or restriction of movement
  - Active movement or passive stretching will cause pain around the area of damage
- Second degree or moderate strain
  - More significant but less than a total tear to the muscle
  - Pain went attempting to contract the muscle
- Third degree or severe strain
  - Total disruption of the muscle
- Most common in lower body, hamstrings, quadriceps, groin, calves

Musculo-Skeletal Injuries: Sprains vs Strains

Strains continued…

Signs and Symptoms
- Sharp stabbing pain at the moment of injury
- Pain can inhibit muscle contraction (total ruptures = no contraction)
- In partial ruptures – feel a defect in the muscle
- In total rupture – feel defect across muscle belly, muscle may "bunch up"
- Bruising and discoloration may occur
- Spams may occur

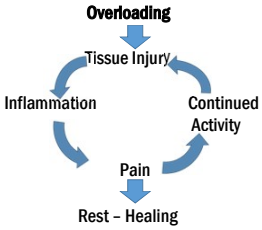
Rehab Time
- Healing depends on the extent of the tear, muscle fiber has a high capacity for regeneration but fibers will be shorter and have inelastic scar tissue

Training Considerations
- Gradual return to activity with a lower volume and load
- Work within your clients comfort levels
- Avoid aggressive stretching

Musculo-Skeletal Injuries: Muscle Strains

Musculo-Skeletal: Overuse Injuries

The Pain Cycle



Musculo-Skeletal: Overuse Injuries

Tendinitis
- Inflammation of the tendon
- Most common in the Achilles, long head of the biceps, supraspinatus tendon, extensor tendons of the wrist and ankle

Signs and Symptoms
- Acute phase – pain and occasionally crepitus during and after exercise
- Chronic phase – initial pain will often disappear during warm-up
- Impaired function and swelling

Rehab
- Acute phase – cold
- Active rest until the pain resolves
- Heat or contrast after initial acute phase is over

Training Consideration
- Isometric without load initially
- Eccentric exercises and light stretching
- Gradual return to activity

Musculo-Skeletal: Overuse Injuries

Frictional Bursitis
- Inflammation of the bursa caused by a tendon moving repeatedly over a bursa
- Most common in the shoulder, elbow, hip, knee, and heel

Signs and Symptoms
- Irritation stimulates inflammation which causes fluid to be secreted into the bursa which results in swelling and tenderness
- Overlying skin can be red and hot

Rehab
- RICE – Rest, Ice, Compress, Elevate

Training Consideration
- Gradual return to activity
- Avoid movements initially that create repetitive friction on the bursa

Musculo-Skeletal: Overuse Injuries

Plantar Fasciitis (Tenoperiostitis)
- Inflammation and pain at the attachment site of the plantar fascia into the calcaneus

Signs and Symptoms
- Pain at the attaching site
- Swelling and impaired function
- Pain is common after rest and with first few steps in the morning

Rehab
- Rest and Ice
- Can use heat after acute phase
- Soft tissue work on plantar fascia and calves

Training Consideration
- Avoid plyometrics, they can exacerbate the condition
- Thorough warm-up before any activity and stretching calves and plantar fascia
- Foot strengthening and balance

Musculo-Skeletal: Overuse Injuries

ITB Syndrome (Runner's Knee)

- Pain located along the lateral side of the knee joint over the epicondyle of the femur where the ITB slides across during flexion and extension of the knee. This repetitive movement causes local inflammation
- Affects long distance runners with excessive pronation of their feet or runners who run on cambered roads

Signs and Symptoms

- Pain starts after a certain distance and becomes impossible to continue
- Local tenderness

Rehab

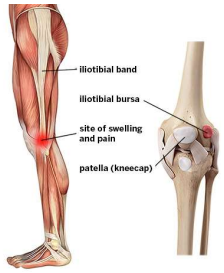
- Rest actively and ice during the acute phase
- Heat after acute phase
- Avoid running downhill or on cambered surfaces

Training Considerations

- Strengthening the feet and hips
- Stretching the hips

Musculo-Skeletal: Overuse Injuries

ITB Syndrome (Runner's Knee)



Musculo-Skeletal: Overuse Injuries

Patellar-Femoral Pain

- Local inflammation of tendon and muscle attachments around the patella
- Caused by overuse

Signs and Symptoms

- Pain in the knee during and after exercise
- Stiffness the day after a training period or competition
- Local tenderness in the tendon or muscle attachment

Rehab

- Rest actively, can take up to a few weeks for symptoms to subside
- Apply local heat after acute phase

Training Considerations

- Gradual return to activity
- Proper warm-up and cool-down
- Strengthening the hips and feet

Musculo-Skeletal: Overuse Injuries

Muscle Cramps and Spasms

- Can occur during or after strenuous exertion (spasms can occur anytime)
- Caused by
  - Prolonged exercise in hot conditions where lots of fluid can be lost,
  - Changes in musculature ie. Small muscle ruptures, muscular bleeding, poor general health and/or conditioning
  - Electrolyte imbalances

Signs and Symptoms

- A tight/achy feeling in the muscle during a cramp and a sudden contraction/tightening in the muscle during a spasm. Both can be painful

Rehab

- At the time of the cramp make sure fluid intake is adequate and clothing isn't too restrictive
- For a spasm, try to release the spasm by applying pressure and stretching

Training Considerations

- Adequate warm-up and fluid intake during training sessions

Musculo-Skeletal: Overuse Injuries

Muscle Cramps and Spasms

Musculo-Skeletal: Fractures

Types of Fractures

- Classified as transverse, oblique, spiral, comminuted, impacted, or greenstick
- If the bone pierces the skin it is knows as an open or compound fracture
- When the skin remains undamaged it is knows as a closed or simple fracture
- An avulsion fracture is when the bone attached to a muscle or ligament has been torn away

Signs and Symptoms

- Swelling and progressive bruising
- Tenderness and pain with movement and loading
- Deformity and abnormal mobility

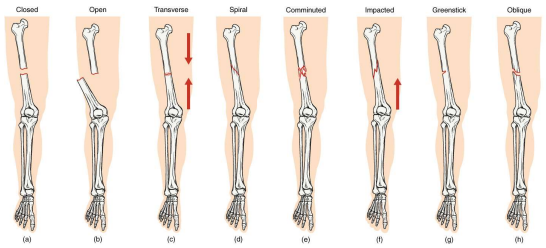
Rehab

- Immobilization in a cast for 4-6 weeks, can be up to 3 months
- Isometric muscular contraction to the muscles inside the cast

Training Considerations

- Gradual return to activity
- Focus on muscle imbalances, proprioception, and regaining strength

Musculo-Skeletal: Fractures



Musculo-Skeletal: Osteoarthritis

Osteoarthritis ("Worn Joints")

- The degeneration and excessive wear of articular cartilages (gradual changes in underlying bone tissue also occur)
- Cartilage softens, surface become uneven, the cartilage 'frays' and develops cracks, the cartilage is eventually worn away to reveal bone

Signs and Symptoms

- Pain – can vary greatly with each person and situation
- Joint abnormalities
- Morning stiffness or after rest

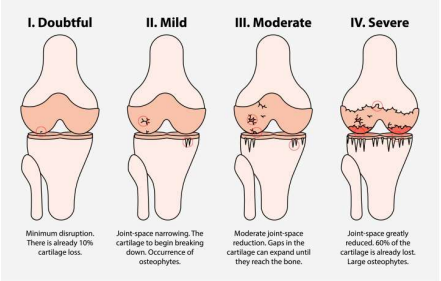
Rehab

- Reduce load, active mobility and muscular strengthening

Training Considerations

- Proper warm-up and cool-down
- Work within your clients pain tolerance, movement is key
- Avoid high impact activities

Musculo-Skeletal: Osteoarthritis



Musculo-Skeletal: Osteoporosis

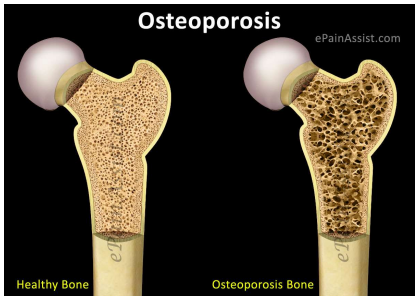
Osteoporosis
- Pathological condition where bones are extremely fragile and soft
- Bone become more 'porous' and more likely to fracture
- Fractures are most commonly seen in the hips, spine, and wrist

Signs and Symptoms
- Chronic back pain
- Loss of height with time
- Stooped posture
- Frequent fractures of bones

Rehab
- Rehab post fractures

Training Considerations
- Weight bearing exercises are important to maintain bone strength
- Balance to help prevent falls
- General muscle strengthening and conditioning

Musculo-Skeletal: Osteoporosis



Musculo-Skeletal: Spine, Back, and Core

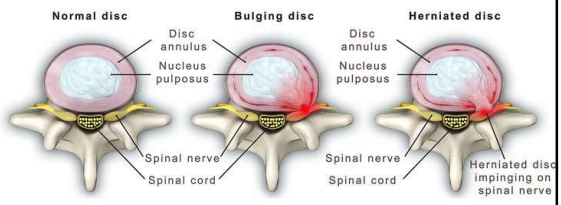
Disc Injuries
- Disc bulge – the nucleus leaks fluid out through the damaged layers of the annulus fibrosus causing a bulge or protrusion
- Disc herniation – the very outer layer of the disc (annulus fibrosus) has been broken and fluid (nucleus pulposus) is leaking out

Signs and Symptoms
- KEY – not everyone with low back pain will have a disc issue and not everyone with a disc issue will have low back pain
- Pain can radiate down the leg and cause sciatic pain

Rehab
- Can vary from individual to individual
- Usually involve extension exercises like sloppy push-ups to ease the disc back in
- Avoid flexion type movements which can bulge or herniate the disc even further

Training Considerations
- Form is crucial, so is core strength
- Same principles as rehab

Musculo-Skeletal: Spine, Back, and Core



Musculo-Skeletal: Spine, Back, and Core

Low back pain

- A number of factors can contribute to LBP
  - Can be mechanical or structural, muscular or neurological

Signs and Symptoms

- Degree and type of pain can vary
- Pain be present at rest, with activity, or both

Rehab

- Depend of what's causing the LBP

Training Considerations

- Work within clients pain tolerance
- Posture and form is crucial
- Try to even out muscle imbalances
- Maintain adequate core strength

Musculo-Skeletal: Spine, Back, and Core

Piriformis vs Sciatica

- Piriformis Syndrome – also known as pseudo-sciatica is when the piriformis muscle irritates the sciatic nerve sending pain, tingling, and numbness down the leg
- Sciatica – also know as lumbar radiculopathy is pain, tingling, numbness felt along the sciatic nerve. True sciatica is when the nerve is compromised in the lumbar spine

Signs and Symptoms

- Pain, tingling, numbness doing down the leg
- Sciatica can have pain down any part of the leg where as piriformis syndrome will only radiate down the posterior leg

Rehab

- Will vary depending on which condition it is

Training Considerations

- Soft tissue work – foam rolling glutes will help release the piriformis muscle
- Stretching the glutes, especially the piriformis
- Evening out muscle imbalances
- Core and hip strengthening

Musculo-Skeletal: Sciatica vs Piriformis Syndrome

Musculo-Skeletal: Joint Injuries

Meniscal Tears

- Shear stress on the meniscus can cause flaking of the tissues where the tissue strength is exceeded
- This shear stress is caused by forceful twisting or hyperflexion of the knee

Signs and Symptoms

- Pain, swelling, popping, giving away

Rehab

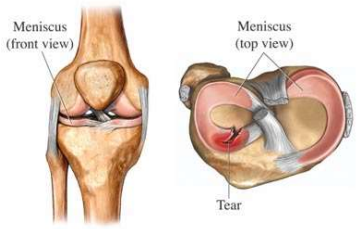
- May require surgery depending on the extent of the tear
- Ice in acute phase
- Active rest

Training Considerations

- Gradual return to activity
- Strengthen muscles around the knee, hip
- Avoid jumping, twisting exercises, quick changes of direction

Musculo-Skeletal: Joint Injuries

Meniscal Tear



Musculo-Skeletal: Joint Injuries

Dislocations

- Total dislocation (luxation) – the opposing articular surfaces have become separated and are no longer in contact with each
  - Most common in the shoulder, elbow, finger joints, and patella
- Partial dislocation (subluxation) – the articular surfaces remain in partial contact with each other but are no longer correctly aligned.
  Most common in the knee, ankle, and acromioclavicular joint
- For a dislocation to occur, part of the joint capsule and its ligament are torn

Signs and Symptoms

- Visual and palpable deformity
- Pain, swelling, tenderness

Rehab

- Focus is on restoring stability and function
- Immobilization if needed – can last 1- 6 weeks

Training Considerations

- Strengthen the muscles around the joint to improve joint stability

Musculo-Skeletal: Joint Injuries: Dislocations

Musculo-Skeletal: Joint Injuries

Shoulder Impingement

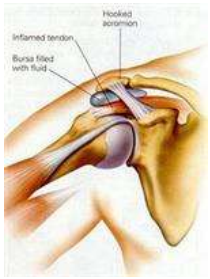
- Trapping of soft tissues leading to painful inflammation
- Most common in the shoulder as a result of repetitive movements of the arms in or above the horizontal plane. Ie. Swimmers, tennis players, throwers, weight lifters
- The space between the head of the humerus, the vault formed by the acromion process of the scapula and the coraco-acromial ligament is small and can be restricted further if the ligament is thickened or calcified
- When the humerus is moved forwards and upwards (usual position) to 90° and then rotated inwards, the soft tissues are compressed against the sharp edge of the coraco-acromial ligament. This repetitive movement can irritate the tendons and the bursa causing painful inflammation

Signs and Symptoms

- Pain around 90° with forward and inward movements
- Tenderness around the lateral head of the humerus
- Impaired mobility
- If conditions becomes chronic, pain could become nagging and present at rest

Musculo-Skeletal: Joint Injuries

Shoulder Impingement continued…



Musculo-Skeletal: Joint Injuries

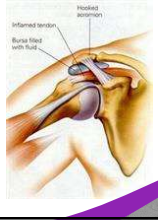
Shoulder Impingement continued…

Rehab

- Active shoulder joint movements with proper scapular movement patterns
- Continue with conditioning exercises
- Resume sports gradually when pain is resolves

Training Considerations

- Proper warm-up and flexibility program to prevent condition from occurring and recurring
- Strength training with proper form
- Adequate shoulder mobility and stability



Cardio-Respiratory Conditions

High Blood pressure vs Low blood pressure

- Review: Blood pressure is the pressure the blood in the blood vessels
- Systolic pressure (top number) is the pressure of the blood in the vessels when the heart beats
- Diastolic pressure (bottom number) is the pressure of the bloods in the vessels when the heart relaxes
- High blood pressure – 140/90 mmHg
- Prehypertension - Between 120-139 mmHg systolic and/or 80-89mmHg diastolic
- Low blood pressure – less than 120/80 mmHg

Training Considerations

- Make sure your client is cleared for exercise and being monitored by their Doctor
- Gradual exercise progression is extremely important to not stress the cardiovascular system beyond its abilities
- A client with low blood pressure may experience dizziness with exercises involving getting up and down off the ground

Cardio-Respiratory Conditions

Heart Conditions

- Common conditions include:
  - Coronary artery disease – atherosclerosis of coronary arteries
  - Angina – decreased blood flow to the heart
  - Cardiac arrhythmias – alterations in the cardiac rate or rhythm

Training Considerations

- Medically cleared by their Doctor to perform an exercise program and ask if there are any restrictions (Par-medx)
- Most clients with heart conditions will be monitored by their Doctor
- You can always refer to another trainer or professional if you are unsure about working with a client and their condition
- Follow your training principles, gradual exercise progression

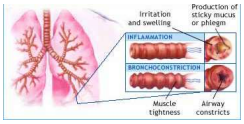
Cardio-Respiratory Conditions

Asthma

- Chronic inflammatory disease of the airway that causes shortness of breath, chest tightness, coughing, wheezing

Training Considerations

- Make sure your client has clearance from their Doctor for physical activity
- Best options are those with short, intermittent bursts
  - Ex. Volleyball, baseball, gymnastics
- Endurance activities might prove challenging (swimming can be an exception, due to the warm, moist air)
- Cold weather cardio should be avoided
- Make sure your client brings their inhaler with them to all training sessions



Other Conditions: Endocrine

Diabetes Mellitus

- Means "siphon" "honey"
- Chronic disorder of carbohydrate, fat and protein metabolism
- A deficiency in the secretion of insulin impairs carbohydrate use and increases the catabolism of fats and proteins to meet the cells need for energy
- Type I – insulin dependent, onset before the age of 20, body does not produce enough insulin
- Type II – non-insulin depending, onset after the age of 30, insulin resistance occurs
- Gestational diabetes – happens during pregnancy, may reverse post-partum

Training Considerations

- Make sure you client is cleared by their Doctor for a gradual exercise program
- Always have a juice box or something sweet just incase your client blood glucose drops too low

Other Conditions: Endocrine

Thyroid
- Body's major metabolic organ
- Secretes Tyroxine = T_4 and Triiodothyronine = T_3 – work at almost every cell in the body except the adult brain, spleen, testes, and uterus
  - Increase basal metabolic rate and body heat production
  - Promote breakdown of glucose by cells
  - Regulation of tissue growth and development
  - Promotes normal adult function of nervous, CV, and muscular systems

Hyperthyroidism – thyroid makes too much hormone
Hypothyroidism – thyroid makes too little
Training Considerations
- Make sure your clients obtain medical clearance for a exercise program
- Client will more than likely be medicated to control hormone levels

Other Conditions: Neurological

Seizures
- Sudden, explosive, and disorderly electrical activity of neurons which produces transient changes in brain function
- Altered brain function may include motor, sensory, autonomic as well as changes in consciousness (altered brain function depends on area of brain affected by seizure)

Epilepsy
- Condition of recurrent seizures that occurs without an identifiable cause (idiopathic) or that cannot be corrected (symptomatic)

Signs and Symptoms
- Not all seizures are noticeable
- Signs can vary from no loss of consciousness to impaired consciousness, facial movements or grimaces, jerking movement of one part of the body, tingling, sensory experiences of smell or sounds, automatisms and mild twitching, sudden loss of muscle tone, localized brief involuntary muscle contractions (what most people think of)

Training Considerations
- Discuss with your client the type of seizures they experience, the signs, and what you should do if they have a seizure while training
- Make sure they are being monitored by a Doctor and are cleared for activity

Other Conditions: Neurological

Concussion
- Momentary interruption of brain function with or without loss of consciousness
- Microscopic changes are usually evident without hours of injury
- Recovery usually within 24 hours
- Different grades of concussion are described based on severity: grade I, II, III, and IV

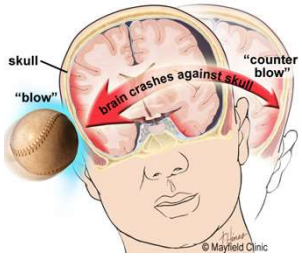
Signs and Symptoms
- Confusion, disorientation, and amnesia are possible
- Post-concussion syndrome (PCS) – headache, irritability, insomnia, poor concentration and memory that may persist for months

Rehab
- Will vary depending the severity of the concussion and post-concussion symptoms
- May be working with a concussion specialist

Training Considerations
- Clearance from their Doctor
- Gradual return to activity, work below the level of reproducing PCS symptoms unless directed otherwise by Doctor or concussion specialist

Other Conditions: Neurological

Concussion



Injury Prevention

The best form of injury prevention is

- A proper warm-up
- Well rounded training program that includes cardio, strength, flexibility, mobility, and soft tissue work (foam rolling!!)
- A proper cool-down
- Gradual progressive exercise prescription
- Gradual progressive overload – follow your training principles

FITT for Cardio

Frequency
- 3-5 x per week

Intensity
- 50-85% of HR Max

Time
- 20 – 45 mins

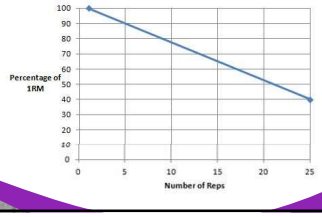
Type
- LISS (50-75%) for cardiovascular endurance adaptations
- HIIT (75-90%) for fat loss and to train for certain sports

FITT for Strength Training

Frequency

- 2 to 4 days a week
- Rest is critical (most of the gains happen during your recovery day!)
- Approximately 48 hours needed before you train that body part again
- More rest is better than not enough rest!

Intensity



FITT for Strength Training Continued…

Time

- Rest
  - Between 30 secs (beginner) - 2 mins (Power lifter)
- Tempo
  - 2:0:2:0 or more
  - The more time under tension, the harder it is

Type

- Beginners
  - Free weights, Machines, Bodyweight, Bands, Resistance Balls
- Intermediate-Advance
  - Free weights, TRX, Kettlebells, etc

FITT for Flexibility Training

Frequency

- It's recommended that you perform flexibility training once a day for 3-7 days a week
- Ideally, flexibility training should be performed AFTER the workout, as the muscles are warm and most pliable

Intensity

- Your flexibility program should feel like slight tension with NO PAIN. It should never hurt!

Time

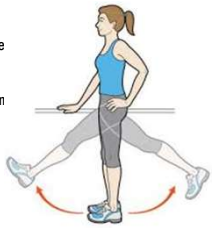
- Hold each stretch for a minimum of 30 seconds (or 6 deep breaths)

Type

- Static stretching
- Mobility/Dynamic stretching
- It is recommended that everyone does flexibility training as part of their daily routine
- Athletes may choose to incorporate some mobility training prior to their workout.

What is Dynamic Stretching?

- Also known as "moving stretches".
- Typically performed in a warm up to warm up the muscles and stretch them to prepare for the exercise ahead
- Reduce injuries
- Great to improve functional range of motion



Examples Include:
Arm circles
Light jog
Side to side lunges
Hip circles
90/90 rotations
Squat to stand

Treatment

Most soft tissue injuries will follow the RICE protocol (rest, ice, compress, elevate) during the acute phase.

When unsure about an injury always refer to a Health Care Professional that can diagnose a condition. Ie. Doctor, physiotherapist, chiropractor

Don't be afraid to reach out to your clients Health Care Provider for more information. Always make sure your client gives permission to both parties to share information. (This may be written consent depending on where you live)

Work within your scope of practice, your comfort level and your clients

Your best resource is your peers!!!!

Resources

- Instagram accounts to follow
  - @moveu_official
  - @vinnierehab
  - @mobilitywod
  - @thefootcollective
  - @theprehabguys
  - @optimize.physiotherapy
  - @myodetox
  - @thegirlsgonestrong
  - @jamessmithpt (he's a little crude but if you can tolerate it, he does have really good advice)
- Becoming a Supple Leopard by Dr. Kelly Starrett
- Sports Injuries, Their Prevention and Treatment by Lars Peterson and Per Renstrom
- Stuart McGill
- https://www.runnersworld.com/health-injuries/a20812623/how-to-use-a-foam-roller-0/

Recap

TEACHING A MIXED LEVEL GROUP:
- How to offer level systems
- Positive Context

RPE CHART:
- What it is and how to effectively use this tool with clients

MODIFICATIONS:
- Setting clients up for success with injuries or specific requirements

INJURIES:
- Setting clients up for success
- Common injuries and modification options

Recap

PATHOLOGY AND INJURY

MUSCULO-SKELETAL INJURIES

CARDIO-RESPIRATORY CONDITIONS

ENDOCRINE CONDITIONS

NEUROLOGICAL CONDITIONS

INJURY PREVENTION AND TREATMENT

RESOURCES

BEGIN ASSIGNMENT #1

Any questions or inquiries, please email:

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