Exercise and Special Populations

Ch 14
Cardiovascular Disorders

• CVD leading cause of death
  • CAD
    • LDL cholesterol, elevated blood glucose, smoking
  • Other health concerns:
    • MIs, blood clotting, atherosclerosis, angina, claudication
Exercise and CAD

• Being inactive is a major risk factor for CAD
  • Moderate physical activity = 20% lower risk
  • Higher amount of physical activity = 30% lower risk

• Exercise training is an essential component of the therapeutic regimen for people with CAD

• They need to be evaluated by their physician
  • Especially if they have 2 or more risk factors
Exercise Guidelines

• ALL CAD clients need to have a **maximal graded exercise test** to determine their **functional capacity**

• MD should communicate with personal trainer about basic exercise program and parameters
  • Other resource ACSM

• Most clients will be low risk:
  • Low risk =
    • No evidence of resting or exercise induced ischemia
    • Functional capacity greater than 7 MET
    • Normal ventricular function with ejection fraction greater than 50%
    • No arrhythmias
Exercise Guidelines: con’t

• Teach clients proper breathing, NO Valsalva maneuver, and they should move through full ROM, heart rates should not exceed RPE of 11 to 14

• Always question clients and observe them for such signs and symptoms of angina, dyspnea, lightheadedness or dizziness, pallor, rapid heart rate
• TEACHER WEBSITE READING: Fit Facts: Exercising with Heart Disease

• Answer following questions from article
Hypertension

• 1 in 3 US adults have high BP
  • SBP ≥ 140mmHg or
  • DBP ≥90mmHg

• Approximately 55,000 hypertension-related deaths occur in the US each year

• Just over 37% of US population aged 20 years or older has prehypertension
  • SBP of 120 to 139mmHg or untreated DBP of 80-89mmHg
  • Prehypertension clients have twice the risk of developing high BP
Exercise and Hypertension

• To control hypertension:
  • Exercise
  • Lose weight
  • Reduce sodium
  • Reduce alcohol intake

• Performing 150 minutes of exercise per week has shown to reduce SBP by average or 2-6mmHg

• Can also drop Post exercise hypotension (PEH) by 15mmHg SBP and 4 mmHg DBP (this is good!)
Exercise Guidelines

• Should participate in 30 mins or more of regular exercise at least 5 days/week
  • Aerobic activities: walking, cycling, swimming
• Avoid isometric exercises and teacher proper breathing technique
• Circuit training is a safe choice
• Some medications (beta-blockers and calcium channel blockers) can alter heart rate response and cause othostatic hypotension
• Clients should use RPE to monitor exercise intensity
• Terminate exercise if S/S are observed before during or after exercise and notify MD
Hypertension prevalence

The prevalence of self-reported hypertension increased by nearly 4 percentage points in Ohio between 2005 and 2009, according to a new report.

PERCENTAGE-POINT CHANGE IN HYPERTENSION PREVALENCE, 2005-2009

-1.5 to 0  0.1 to 1.5  1.6 to 3.5  3.6 to 5  Greater than 5

Source: Centers for Disease Control and Prevention

THE COLUMBUS DISPATCH
Stroke

- Or brain attack affects 795,000 Americans each year resulting in more than 150,000 deaths.

- One of the leading causes of chronic disability
Risk Factors

• High BP
• Smoking
• Heart disease
• Previous stroke
• Physical inactivity
• TIA
Stroke S/S

• Sudden numbness of the face, arms or legs
• Sudden confusion or trouble speaking or understanding
• Sudden trouble seeing in one or both eyes
• Sudden walking problems, dizziness or loss of balance and coordination
• Sudden severe headache with no none cause
Why know the S/S?

• 80% of strokes are ischemic and can be treated with the drug t-PA (tissue plasminogen activator)
  • must be administered within the initial three hours of a stroke
Exercise and Stroke

• focuses on ADLs, regaining balance, coordination, functional independence
  • These do not improve deconditioning of your client
• Improved functional capacity has been shown with:
  • Bicycle ergometer
  • Water exercise
  • Weight supported treadmill
  • Balance and coordination exercises
Exercise Guideline

• Follow same guidelines as CAD and hypertension
• Client’s physical and/or clinical therapist can dictate balance and coordination exercises.
TEACHER WEBSITE READING: Fit facts: Exercising with Stroke
Peripheral Vascular Disease

• Caused by atherosclerotic lesions in one or more peripheral arterial and/or venous blood vessels

• Most common form of PVD is
  • Peripheral artery occlusive disease (PAOD)
    • Atherosclerosis of the arteries of the lower extremities.
    • Blood flow distal to the lesion is reduced impacting ambulation
  • Peripheral vascular occlusive disease (PVOD)
    • Muscular pain caused by ischemia which leads to spasms (claudication)

• Client will complain of dull aching cramping pain and is reproducible
Risk Factors

- Hyperlipidemia
- Smoking
- Hypertension
- Diabetes
- Family predisposition
- Physical inactivity
- Obesity
- Stress
  - The most prominent are smoking and diabetes
Exercise and PVD

• Shown to be effective in improving ambulation distances
• Improvement on walking mechanics and pain perception also influence exercise
Exercise Guidelines

• Complete a medical evaluation
• The MD should provide exercise clearance and guidelines
• Goal is to improve arterial flow, increase oxygen extraction and improve walking

• Walking is the exercise of choice
  • They walk to the point of intense pain before stopping
  • Rest until pain subsides
  • Repeat
  • Duration should be 20-30 min, gradual progression to 30-60 min
  • Upper body strength training can take place, be aware of other cardiovascular S/S, RPE of 9 to 13, get clearance from MD

• Pay close attention to their feet and encourage proper foot wear
Sample Exercise

• MODE: non-impact: swimming, walking for short duration
• INTENSITY: low to moderate depending on medical status
• DURATION: longer and more gradual warm up and cool down (longer than 10 min)
• FREQUENCY: daily exercise is recommended, as functional capacity improves frequency
PERSONAL TRAINER CERTIFICATION

There are hundreds of personal trainer certification options on the market, but only one rooted in 30 years of science-based research from ACE, the world's largest nonprofit health and fitness certification organization. Only one is built on the foundation of our ACE Integrated Fitness Training® Model, created to help health and fitness professionals deliver the type of individualized programs people need to adopt long-term, healthy behaviors. Becoming an ACE Certified Personal Trainer will give you a career advantage at thousands of facilities nationwide and the expertise you need to stand out among your peers with a certification accredited by the National Commission for Certifying Agencies (NCCA).

WHY CHOOSE ACE?

Earning an ACE certification means meeting a standard accepted by other leaders in the healthcare industry. In addition to holding NCCA accreditation for all four certification programs, ACE also goes above and beyond when it comes to taking care of our professionals. We advocate on your behalf every day—among policymakers, among partners who share our vision of eliminating the obesity epidemic, and among employers exploring workplace wellness solutions.
PERSONAL TRAINER

Compare Study Programs

STANDARD = $599
Learn More

PREMIUM = $699
Learn More

PREMIUM PLUS = $799
Learn More

http://www.acefitness.org/fitness-certifications/personal-trainer-certification/default.aspx
FITNESS AS A CAREER

A NEW OPPORTUNITY TO THRIVE

ACE professionals work at gyms, hospitals, workplace wellness departments and universities in 83 countries worldwide. To help you begin or continue your career, ACE has secured agreements from a number of health and fitness companies, which have all guaranteed interviews for ACE Certified Personal Trainers and Group Fitness Instructors who apply for qualifying positions at facilities nationwide. No matter where you decide to work, you'll feel good about the job growth your profession is projected to experience. The latest U.S. Department of Labor statistics state employment opportunities for personal trainers and group fitness instructors are expected to increase 13% through 2022.

http://www.acefitness.org/profiles/239/ewunike-akpan
BE AN EXPERT IN LONG-TERM WEIGHT CONTROL

As a Weight Management Specialist, you’ll increase your market value to the 67 percent of U.S. adults classified as either overweight or obese, and the thousands of athletes who need help managing their weight for performance reasons. Building your expertise in proper nutrition and hydration strategies will help you connect with people who want to lose weight, build muscle, decrease their body fat, improve their overall health and achieve long-term success, no matter where they are on their fitness journey.

https://vimeo.com/111764000
Who is It Designed For?

Our Weight Management Specialty Certification is designed for fitness professionals or members of allied health who want to address weight management by going beyond exercise programming. The curriculum will help a wide range of professionals - from current and aspiring health coaches to nurses - understand how to motivate people to change behaviors that have kept them from reaching their weight-related goals.
Weight Management

• Has become a public health crises in the US.
• Adult rates have doubled from 15-30% since 1980
• Child rates have tripled from 6.5% to 16.3

• Consequences:
  • 20 chronic diseases
    • Type 2 diabetes
    • Hypertension
    • CAD
    • Some cancers
    • Arthritis
    • Alzheimer’s disease
    • Dementia

• BMI = Weight (kg) / Height \(^2\) (m)
  • Adults with BMI of 25.0 to 29.9 are considered overweight
  • BMI ≥ 30 are considered obese
Contributions to Weight Gain

• Lifestyle habits and cultural changes
  • Caloric intake increased by 300 calories per day from 1985 to 2002
  • Increase in microwaveable and ready to eat high fat foods
  • People do less in-home cooking
  • Marketing entices people to choose foods that are higher in calories and fat
  • 60% of Americans do not meet the recommended amount of physical activity
  • Sedentary activities including jobs
  • People no longer walk or ride bike to work
Exercise and Weight Management

• Studies have shown that 150 min of aerobic exercise is associated with modest weight loss (4.4 to 6.6 lbs)
• 225 - 420 min per week results in 11 to 16.5 lb loss
  • Study duration is 12 – 18 weeks
• The exact amount of physical activity required to reduce or maintain weight remains unclear
Exercise Guidelines

• Combination of exercise and sensible eating plan produces the best long-term weight loss maintenance results

• Clients who are non-medically supervised should reduce energy intake by 500 to 1000 kcal per day (weight loss of 1 to 2 lb per week)

• Both strength training and aerobic exercise have been shown to make the greatest contribution to a weight management program
TEACHER WEBSITE: Fit Fact: exercise and weight management

• Paraphrase the 5 steps to success
Diabetes

• Causes abnormalities in the metabolism of carbohydrate, protein and fat

• Clients with diabetes are at greater risk for developing chronic health problems:
  • Heart disease
  • Stroke
  • Kidney failure
  • Nerve disorders
  • Eye problems

• Approximately 23.6 million children and adults (7.8% of population) have diabetes
  • DX: fasting blood sugar. Level ≥ 126 mg/dL indicates diabetes
Type 1 Diabetes

• Immune system destroys pancreatic beta cells (they are responsible for producing insulin)
• They need regular injection shots
• S/S of insulin deficiency (higher than normal levels of glucose in the blood)
  • Extreme thirst
  • Polyuria
  • Reduced appetite
  • Weight loss
Benefits of Exercise of Type 1 Diabetics

• They can improve their functional capacity
• Reduce their risk of CAD
• Improve insulin receptor sensitivity
Type 2 diabetes

- Accounts for 90-95% of all diagnosed cases
- As the demand for insulin rises the pancreas gradually loses its ability to produce it
- About 75% of people with type 2 diabetes are obese
Benefits of exercise for Type 2 Diabetics

• Prevention of CAD, stroke, PVD
• Improve lipid profiles and reduce body weight
• Positively affect lipid levels
Gestational Diabetes

• Form of glucose intolerance that occurs during pregnancy
• About 7% of all pregnancies
• Those who experience gestational diabetes have a 40-60% chance of developing diabetes over the subsequent 5 to 10 years
Exercise Guidelines

• Need proper screening and education
• With their MD or diabetes educator they should develop a program of diet, exercise and medication
• Blood glucose levels should be measured before and after each exercise session
• Session should be delayed or postponed if the pre-exercise blood glucose is below 100 mg/dL or above 300 mg/dL
TEACHER WEBSITE:

- Type 1
- Type 2
• TYPE 1

• What is the main purpose of insulin
• If a Type 1 diabetic does not regulate their blood sugars: what health concerns could develop
• How does exercise help with controlling blood sugars
• Will exercise increase or decrease sugar levels

• TYPE 2

• What is the best prevention method for Type 2
• What precautions should your client take before/during and after exercise?
Exercise and Older Adults

http://www.acefitness.org/profiles/114/ajia-cherry
Exercise and Older Adults

• Regular exercise is essential for older adults ≥ 65 years
• Many older people suffer from one or more chronic conditions that limit activity
  • Cardiovascular System:
    • MHR decreases or is affected by medication (use the talk test or RPE to monitor)
    • Resting stroke volume declines
    • Reduction in VO$_2$ max
    • There is evidence that aerobic capacity can be improved via exercise training at any age
Exercise and Older Adults

• Musculoskeletal System:
  • Mass declines with age
  • For each decade after the age of 25, 3-5% of muscle mass is lost
  • Affects bones as well
    • Fractures become more common and many will die of fracture complication
  • BF% usually increases:
    • Decreased muscle mass, BMR, lack of physical activity

• Sensory Systems:
  • Balance and coordination tend to decline, increase fall risks
  • Also affected is the CNS, visual & vestibular senses, SNS
  • Physical activity has been shown to improve balance and coordination
    • Tai chi, yoga, pilates

• Mental health:
  • Depression and anxiety disorders

• Activity has been shown to be beneficial (social aspect)
Exercise Guidelines

• Get MD clearance
• Perform moderate intensity aerobic activity for minimum of 30 min or vigorous intensity aerobic activity for minimum of 20 min
• Twice a week perform activities that maintain muscle strength and endurance
  • 8-10 exercises performed at least 2 non consecutive days per week
  • 10-15 rep for each
• Be aware of health conditions and follow MD guidelines
• Perform a gradual approach
INCREASE LONGEVITY AND BOOST QUALITY OF LIFE

Becoming a Senior Fitness Specialist will give you the tools to safely and effectively train the millions of Americans currently over the age of 55. Aside from exploring how to connect with older adults, the expertise you’ll gain will help you incorporate appropriate modifications and techniques to prevent muscle deterioration, improve bone strength, and boost quality of life.

$399
PAYMENT PLAN AVAILABLE

PLEASE CHOOSE:

- Single payment - $399.00

*Includes all courses below.
WHO IS IT DESIGNED FOR?

Our Senior Fitness Specialty Certification is designed for fitness and health professionals who want to help people over 55 increase their longevity and boost their quality of life. Instructors of adult fitness programs at colleges and community centers, as well as personal trainers, health coaches, nurses, social workers and physical therapists can all use the expertise to deliver appropriate exercise programs that combat the effects of osteoporosis, arthritis and other age-specific conditions.

HOW DO I EARN ONE?

To earn a Senior Fitness Specialty Certification, you must review all of the components listed below and take the quizzes associated with the material. Although you may complete courses for any Specialty Certification, ACE will not recognize you as a Specialist unless you also hold a current NCCA-accredited certification or an equivalent professional credential. For a list of accepted pre-requisite credentials, click here.

After you complete all courses and quizzes, an ACE Specialty Certification and continuing education credits (CECs) will be uploaded into your My ACE account. Specialty Certifications do not expire, and the purchase price includes all materials and fees necessary to become a Specialist.

Have other questions about ACE Specialty Certifications? Check out our list of FAQs.

An ACE Senior Fitness Specialty Certification is approved for 2.5 ACE CECs. The program is also approved by the following organizations for continuing education hours:
Exercise and Youth

• Millions of American youth do not get the recommended amount of physical activity and are at risk developing degenerative diseases in their adult years

• Bad physical activity and eating habits have increased child obesity
  • These continue on into adulthood
Exercise Guidelines

• Aerobic conditioning, muscle strengthening, bone strengthening
• 60 – plus minutes a day
• Muscle strengthening at least 3 days per week, incorporated into play and games (climbing trees, tug-of-war)
• Supervise!
• Never have children perform single max lifts, sudden explosive movements, or try to compete with other children

Exercise Guidelines

• Teach proper breathing technique
• REST! 2 min in-between each exercise or longer, scheduled rest days
• Tell children to communicate when they are tired or have been injured
• Bone Strengthening:
  • Stimulated by activities that produce a force on the bones such as:
• Running, skipping, jumping rope, basketball, tennis

Overuse injuries in youth

• The volume of overuse injuries has been steadily increasing in children and adolescents
• Remember, children are not just small versions of adults, training needs to be age appropriate
• Children are being pushed to “win” resulting in injury
• Slowing increase volume over time
• Children and adolescents who exceed the guidelines should maintain their activity level BUT vary the activity they do to reduce the risk of overtraining or injury
• TEACHER SITE: Fit Facts: Sports training for youth athletes
Sports Training for Youth Athletes

1. What is the general rule of thumb
2. List some overuse injuries that were documented between 2010-13
3. If youth athletes spend too much time with an activity what % are they more likely to acquire an overuse injury
MAKE TODAY'S CHILDREN TOMORROW'S HEALTHY ADULTS

In the past 30 years, obesity rates have doubled among children and tripled among adolescents, and the amount of physical activity in schools has drastically decreased. Our Youth Fitness Specialty Certification gives parents, coaches, and fitness and health care professionals the knowledge and skills to develop age-appropriate exercise programs, improve the overall health and well-being of children and teens, and help instill the value of physical activity at an early age.

$399
PAYMENT PLAN AVAILABLE

PLEASE CHOOSE:
Single payment - $399.00

ADD TO CART

*Includes all courses below.

http://www.acefitness.org/profiles/223/brett-klika
WHO IS IT DESIGNED FOR?

Becoming a Youth Fitness Specialist will help parents, youth sports coaches and other professionals in fitness, health care, recreation or education gain the knowledge and skills they need to create customized and organized fitness programs for children and teens. The curriculum addresses motor development, pediatric exercise physiology, growth-related differences in abilities, youth resistance and cardiorespiratory training, and integration of health- and skill-related activities into fitness programs.

HOW DO I EARN ONE?

To earn a Youth Fitness Specialty Certification, you must review all of the components listed below and take the quizzes associated with the material. Although you may complete courses for any Specialty Certification, ACE will not recognize you as a Specialist unless you also hold a current NCCA-accredited certification or an equivalent professional credential. For a list of accepted pre-requisite credentials, click here.

After you complete all courses and quizzes, an ACE Specialty Certification and continuing education credits (CECs) will be uploaded into your My ACE account. Specialty Certifications do not expire, and the purchase price includes all materials and fees necessary to become a Specialist.

Have other questions about ACE Specialty Certifications? Check out our list of FAQs.

An ACE Youth Fitness Specialty Certification is approved for 2.5 ACE CECs. The program is also approved by the following organizations for continuing education hours:
Pre- and Postnatal Exercise

• In the past, women were told to decrease physical activity during pregnancy
• Recently research shows:
  • Reduce risk of preeclampsia
  • Treats or prevents gestational diabetes
  • Helps manage musculoskeletal issues such as low back pain
  • Positively affects mood and mental health
Pre- and Postnatal Exercise

• Women undergo a variety of physical changes during pregnancy that can limit ability to exercise:
  • Weight gain 25-40 pounds
  • COG moves upward and out
  • Increase hormones leads to increase flexibility related to joint laxity (relaxin)
  • Changes in heart rate: early pregnancy heart is stimulated to increase which make high intensity exercise later on in pregnancy dangerous
  • Thermoregulatory system is also affected
Exercise guidelines for Pregnant women

• A moderate level of exercise on a regular basis during low risk pregnancy has minimal risk for fetus

• Get clearance!

• Do not begin a vigorous exercise program shortly before or during pregnancy
  • If client has already been exercising, continue what you have been doing in moderation
  • If client has not been exercising begin slowly with 15 min of low intensity and increase to 30 min
  • Gradually reduce F,I,T during 2\textsuperscript{nd} and 3\textsuperscript{rd} trimesters

• Use RPE not heart rate to monitor
Exercise guidelines for Pregnant women

• AVOID:
  • Jumping, hopping, skipping, bouncing
  • Deep knee bends, full sit-ups, double leg raises
  • Contact sports
  • Activity where falling is likely (downhill skiing, horseback riding)
  • Client should not be supine for more than 5 minutes

• Watch for:
  • Vaginal bleeding or fluid
  • Dizziness
  • Increased shortness of breath
  • Chest pain
  • Calf pain
  • Uterine contraction
Postnatal Exercise Guidelines

• They need to recover
• Goal during the initial 6 weeks following delivery is gradually increase physical activity
• Caesarean delivery may require additional recovery time
• Get CLEARANCE
• Begins slow, start with walking
• Avoid dehydration
• Stop if there is unusual pain, bleeding
• Drink plenty of water

http://www.acefitness.org/acefit/fitness-programs-article/2501/ACEFit-workout-advice-and-exercise-tips/
Discover how the physiological changes associated with pregnancy may influence the design and effectiveness of exercise programming for this special population. Using *Pre- and Post-Natal Fitness* and *ACE's Guide to Pre-Natal Fitness*, you'll explore the benefits and risks of exercising during pregnancy as well as workout recommendations and the most popular exercise regimens.

You will learn:

- To understand benefits and risks of exercise during pregnancy
- To develop exercise programs based on specific needs of pre- and post-natal women
- Fetal risks associated with pre-natal exercise
- The role exercise plays in recovery from the birth process

*This course is included in our Therapeutic Exercise Specialty Certification.* Learn more about how you can become a specialist. »
Osteoporosis

• One of the most prevalent public health issues in America
• Affects more women than men
• Estimated 8 million women and 2 million men have BMD values of 2.5 s.d. or below
  • Low BMD can result in structural weakness and increased risk for fracture
  • Most common fracture sites are the proximal femur, vertebrae, distal forearm
  • Mortality post hip fracture in people over 50 is an average of 24% one year after hip fracture
• 33.6 million have osteopenia (BMD between 1.0-2.5 s.d.)
Bone formation

- Early growth years, the rate of bone formation is greater than the rate of bone resorption
- Resulting in overall gain in bone mineral (remodeling)
- Remodeling is disrupted as people age and bone formation can no longer keep up with bone resorption
- Lifestyle can play a role in bone health (lack of physical activity, poor nutrition, smoking)
Exercise and Osteoporosis

- Exercise, adequate nutrition (calcium and vitamin D), pharmacologic intervention and possibly surgery all play a part in the prevention and treatment.
- The primary goal is to retain/prevent bone mineral loss.
Exercise Guidelines

• WOLFs law

• Weight bearing exercises: jogging, hopping, skipping, jumping, plyometrics
  • Depends on the physical condition of client!!

• Bone loading is an important factor:
  • Should be above those with ADLs
    • High Intensity, low volume
    • Short cycles have been shown to be more effective
      • Loading cycles from 5 – 50 impacts per session separated by a few hours rest

• Resistance training is an important component in the prevention (8 RM)

• Also will decrease the risk of falling
Exercises to Avoid if they have Fracture

- Spinal flexion, crunches and rowing machines (if vertebra fx)
- Jumping and high impact aerobics
- Trampolines and step aerobics
- Abduction/adduction of the legs against resistance
- Pulling on the next with hands
Arthritis

• More than 21% (46 million) American Adults have arthritis or some form
• 2 main forms:
  • Osteoarthritis
    • Most common type of arthritis
    • Affecting nearly 27 million
    • Etiology: overuse, trauma, obesity, degeneration of cartilage that comes with age

• Rheumatoid arthritis
  • 294,000 children under the age of 18 have some form of arthritis or rheumatic condition
  • Most crippling form, affected 1.3 million in 2005
  • It is diagnosed as an autoimmune disease but the exact etiology is unknown
Exercise and Arthritis

• People who experience chronic pain tend to shy away from exercise
  • Inactivity causes deconditioning which results in diminished muscular strength which can accelerate the effects of arthritis pain
• You want to develop a program with cardiovascular exercise, muscle strength and endurance and joint mobility.
• Primary goal is to improve CV fitness and lower CAD risk, increase muscle strength/endurance and mobility
Exercise Guidelines

• Complete a medical exam
• Variety of low impact aerobic activities (walking, elliptical, cycling, rowing, water exercise)
• Focus on duration rather than intensity, gradually progress to 30 min 3-5 days per week
• RPE range of 9 to 13
• Emphasize proper body alignment
• Joints through full ROM
• Strength training should focus on number of reps rather than increase in weight
• Encourage to take an extra day or two of rest, exercise will increase inflammation in the joint....
• ALWAYS consider what joint they have “itis” in
Arthritis Reading

• Teacher Website: Fit Facts: Exercise and Arthritis

• Discussion Questions:
  1. What joints are usually most affected by Arthritis
  2. Name the most important components of your Exercising with Arthritis Program Design
  3. If your client is just starting out, how many minutes could your program be for that day. How could you progress it?
WHO IS IT DESIGNED FOR?

Our Orthopedic Exercise Specialty Certification is designed for a wide range of professionals - from those within the fitness industry to athletic trainers, occupational therapists, physical therapists, chiropractors and doctors. The curriculum will provide a better understanding of the structure and function of major joints, common musculoskeletal conditions, and general treatment clients will receive from orthopedic specialists. Upon completion, professionals will be able to develop exercise programs and incorporate progressions that address muscle imbalances, prevent injury, and improve movement patterns, muscular strength and endurance.
Low Back Pain

• LBP is an extremely common source of medical cost and disability
• Affects almost every person at some point
• Estimated that Americans spend more than $50 billion each year on LBP therapy
• Most common form of workers’ compensation
• More likely to report symptoms of depression, anxiety and sleep deprivation
• S/S vary from client to client: muscle ache to shooting or stabbing pain. They can last a few days, months, years
• Look for spinal deviations
• It mostly affects ages 30-50 but LBP in pre-teen children has increased in part due to overloaded school backpacks and improper lifting techniques
Exercise Guidelines

• Get clearance!
• Some may have just completed their sessions with a physical therapist, you need to incorporate what they learned from those sessions
• There is no cookie cutter program design
• Primary components: CR training, resistance training, core exercises
• Do not have them work through pain
AVOID

• Unsupported forward flexion
• Twisting at waist
• Lifting both legs at the same time when in prone or supine position
• Rapid movements
• Avoid lifting with straight legs
• Hyperextension
• Slouching

• Muscular endurance has been shown to help more than muscular strength
• TEACHER WEBSITE: Daily Routine for Enhancing Low Back Health

• Read and be able to instruct your client in a few minutes
Classroom activity: Promote workplace activity at RMHS

• Teacher posture evaluation/Plumb line
Classroom activity: Promote workplace activity: Read these articles

• Fit fact: fostering a workplace culture of physical activity
• Fit life: How to be more active during your work day
• Fabio comana, 3 desk moves to stretch you out
• Get rid of that pain in the neck
• Fit Life  5 Ways to Incorporate Activity Into Your Workday
Mini-program for your RMHS client

Analyze their plumb line:
1. Correct deviation with 3 stretches they could do at work
2. 3 exercises they could do at work to be more active.
3. Fix computer/chair instructions

4. Put together in a word document:
   1. You need name/description/pic of stretch/activity