

ACE Personal Trainer Exam Study Guide Part 2

By Sorta Healthy
(We are not affiliated with ACE)

ACE →TM



Risk Factors For CVD

Age: Men \geq 45 Women \geq 55

Family History: Brother or father heart attack, death or heart surgery before 55, or mother or sister before age 65.

Cigarette Smoking: Have they smoked within six months? Are they exposed to smoke?

Blood Pressure: \geq 130/80 or taking meds

Sedentary Lifestyle: Not doing moderate intensity

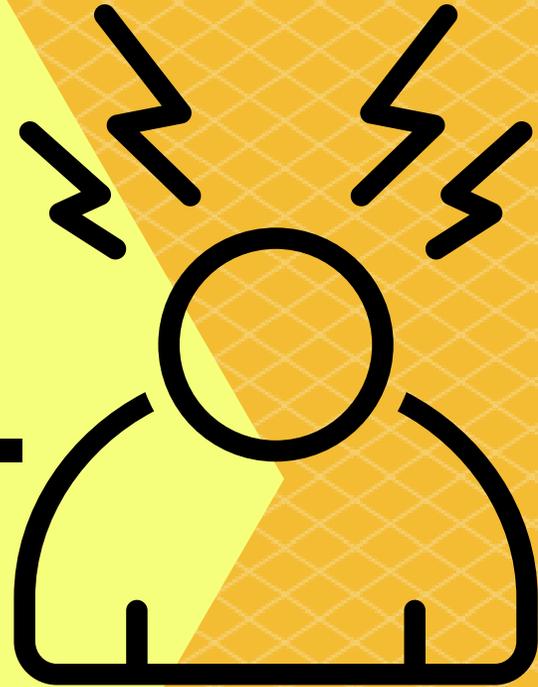
P.A. 3 days a week or more, for 3 months or more.

**Obesity: BMI \geq 30 or a waist circ. 35+ in. for female
or 39+ in. for males.**

**Dyslipidemia: LDL $>$ 130 HDL $<$ 40 or TC. $>$ 200 or
on meds.**

**Diabetes: If they have diabetes (type 1 or 2) or
pre- diabetes**

ACE may also consider high stress a risk factor as well.



They aren't clear on the matter.

**HDL (good cholesterol) over 60
is a negative risk factor.**

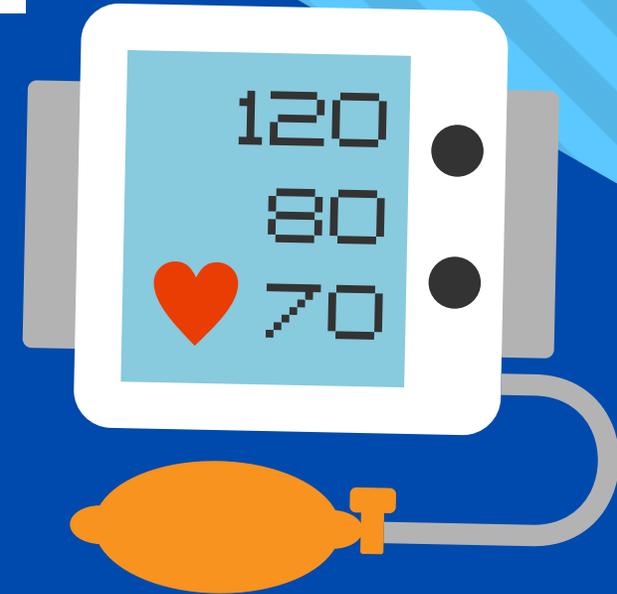
Blood Pressure In More Detail

Normal: <120 / <80

Elevated: 120-129 / <80

Stage 1: 130-139 or 80-89

Stage 2: ≥ 140 / ≥ 90



It's common to be asked about two kinds of blood pressure meds.

Beta blockers & Diuretics



Beta blockers: these lower your heart rate at rest and during exercise. A client's heart rate won't raise the same way during exercise when they're on a beta blocker.



Diuretics: increase the excretion of water from the body through the kidneys. This could increase the likelihood of dehydration.



Type 1 Diabetes: These people have to inject insulin, they are insulin dependent. People usually develop this early.



Type 2 Diabetes: These people are insulin resistant. This one usually comes from poor lifestyle choices. It's also more common.

You also have other conditions like asthma, osteoporosis, arthritis, metabolic syndrome, etc, and you could be asked questions on those. Consider reading through Chapter 13 to gain a general understanding of all this material. I would look at the exercise recommendations for each condition, but I wouldn't memorize the details.

**Example of something to look over but NOT
memorize concerning RT. with arthritis**

Frequency: 2-3 days a week

Intensity: 50-80% 1RM with low initial int.

Time: 2-4 sets for 8-12 reps

**Type: All major muscle groups, variety of
machines, free weights, etc.**

Progression: Use IFT model

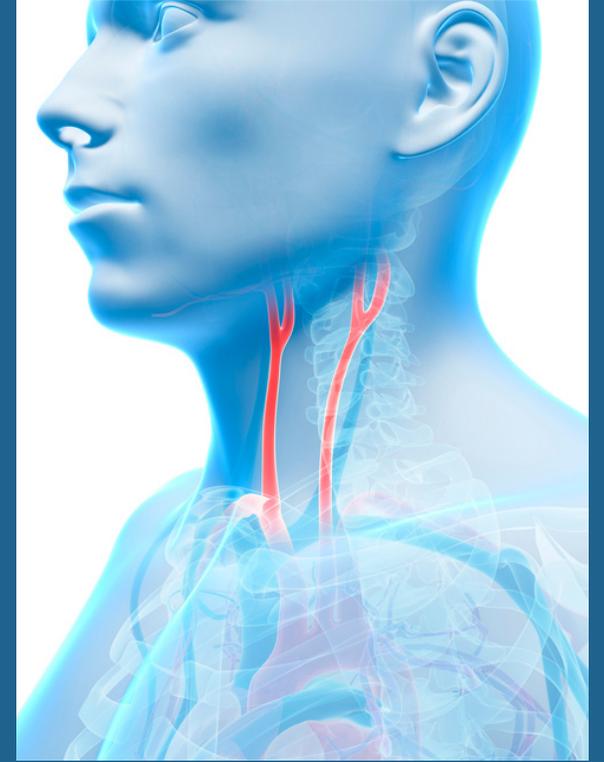
ASSESSMENTS



**GREATER EXPLANATIONS OF ALL OF THE
FOLLOWING ASSESSMENTS ARE
SHOWN IN THE VIDEO!**



For some of the upcoming assessments, you'll need to take a client's pulse. There are two spots you should consider while doing this, the carotid artery and the radial artery.



A normal male heart rate is between 60 and 70 BPM. For females, it's 72 to 80. If a client's heart rate is five beats higher than their typical resting heart rate for a period of a few days, they may be overtraining and that would be a reason to ease up on training.



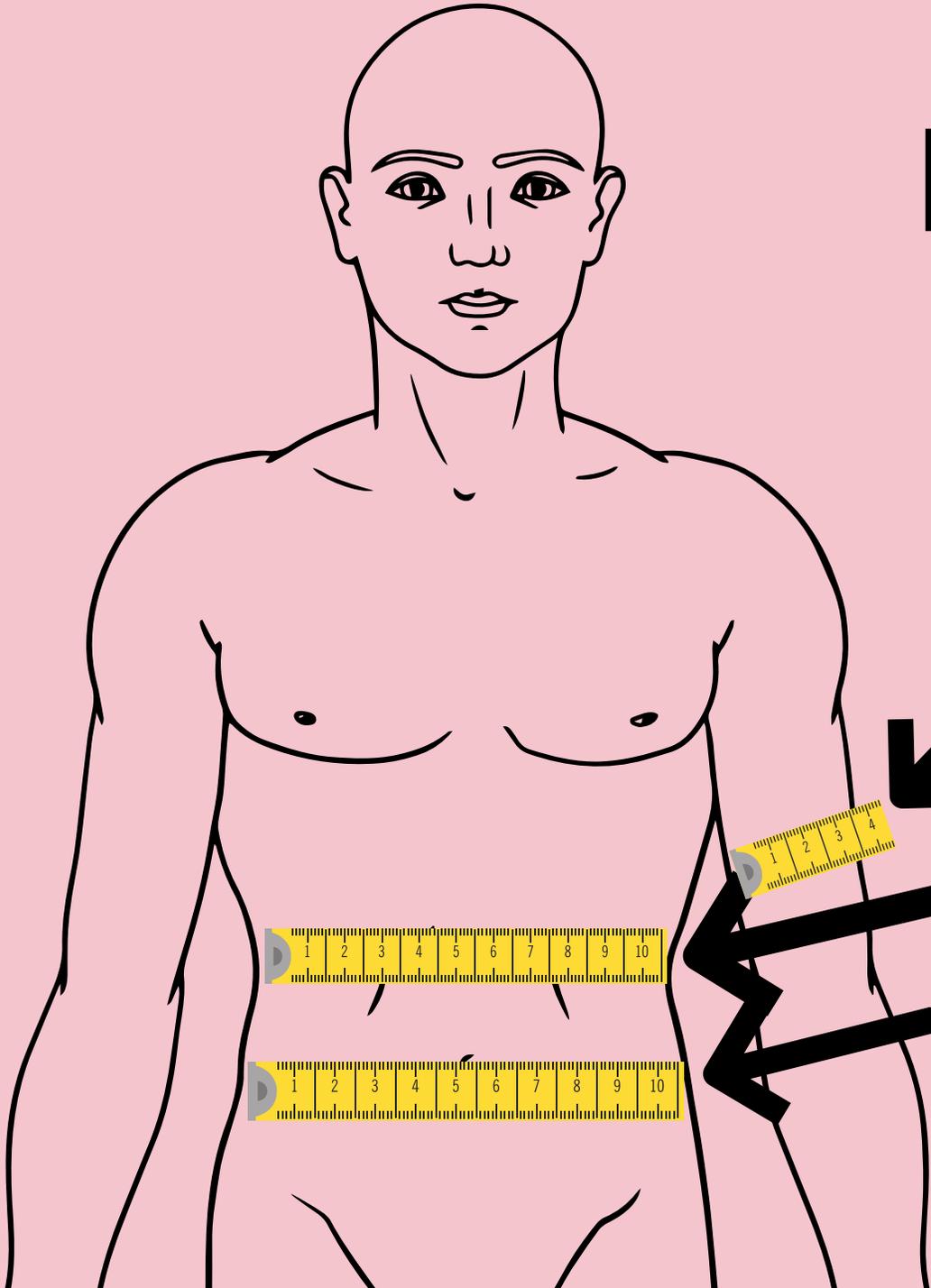
Sinus Tachycardia: A fast but steady resting HR that is over 100BPM.



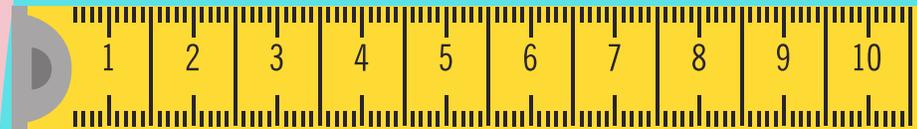
Sinus Bradycardia: A slow but steady resting HR that is under 60BPM.

**There are 5
sites that ACE
uses for
circumference
measurements.**

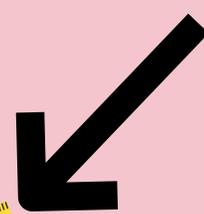
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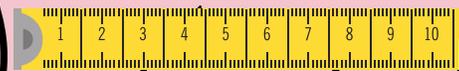
Hips →



Biceps



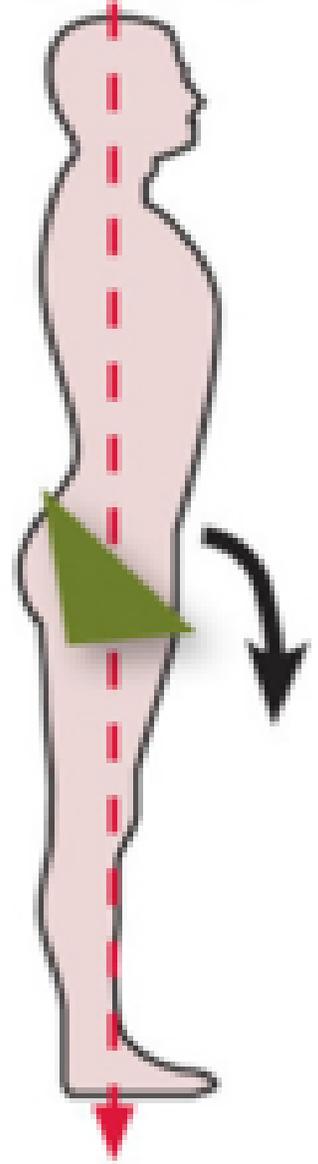
Waist
Abdominal



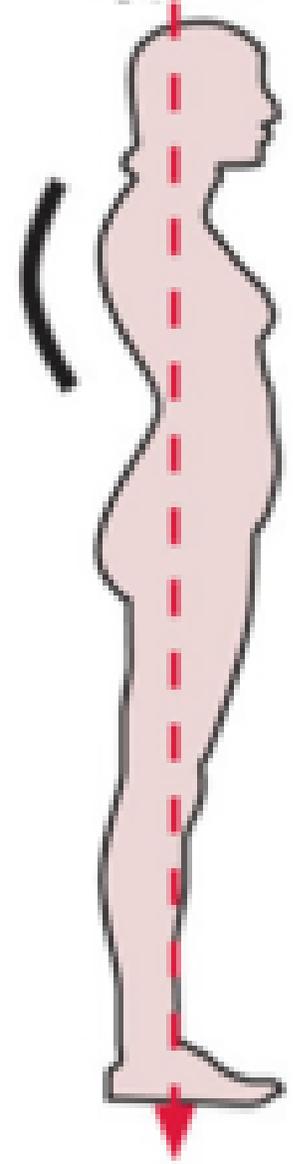
**Mid
thigh**



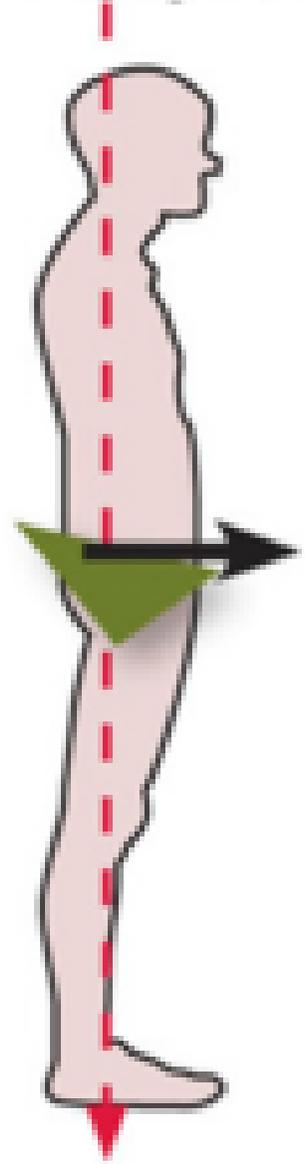
Lordotic



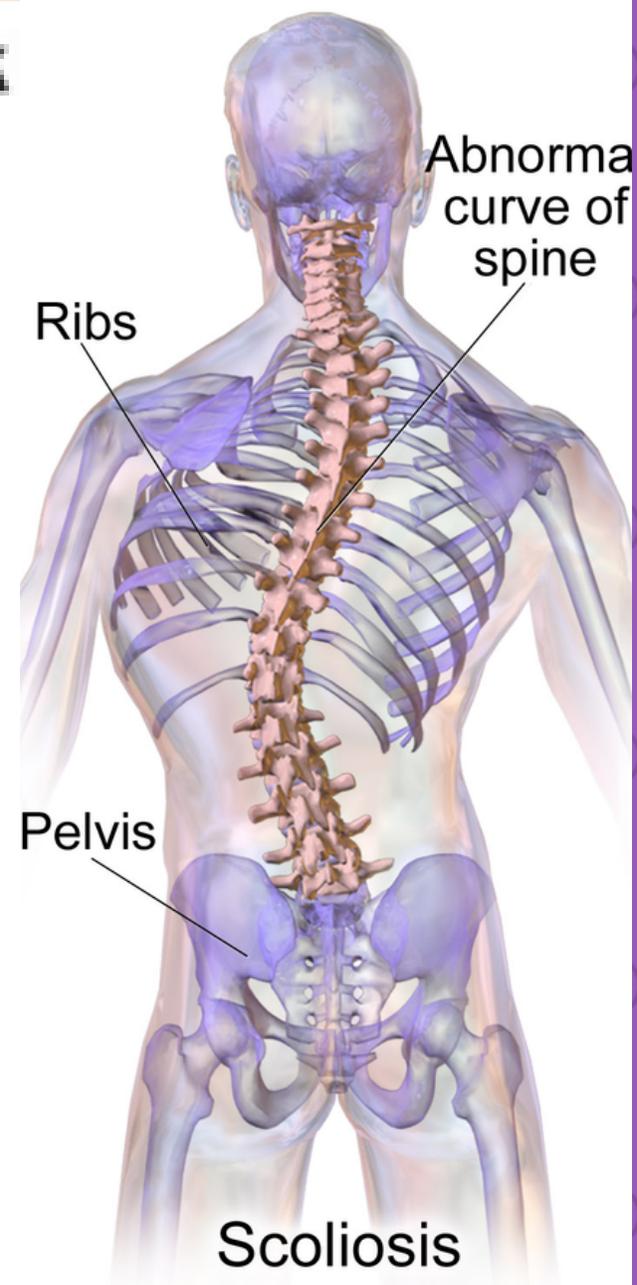
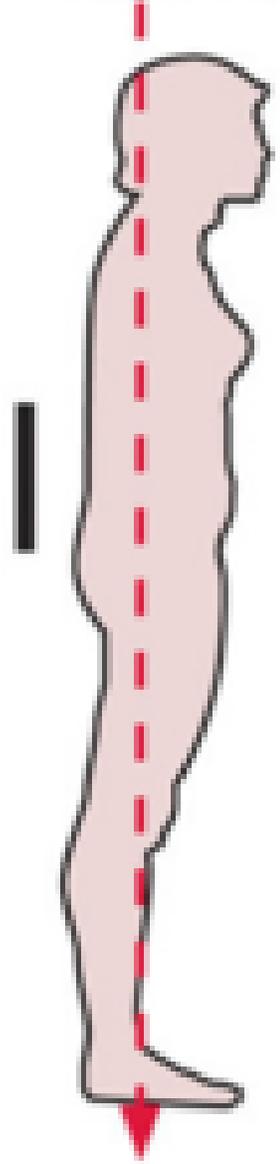
Kyphotic



Swayback



Flatback



**The hip flexors and lumbar
extensors are too tight,
and short and tight.**

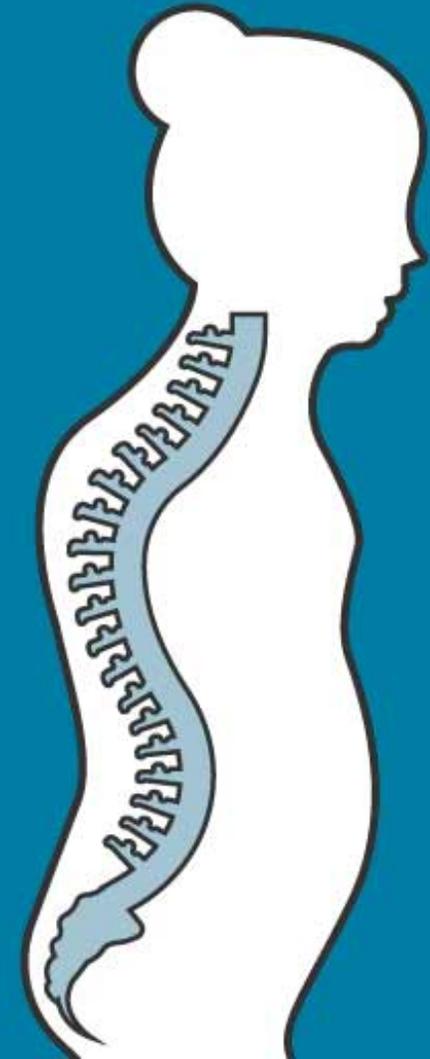
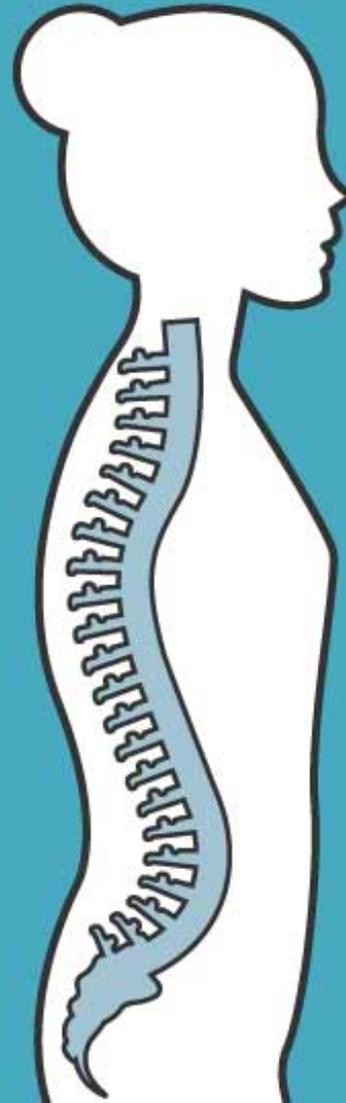
**Your hip extensors (glutes, hams),
and your core muscles are
lengthened and weakened.**



The anterior chest, shoulder muscles, lats and neck extensors are too tight and shortened.

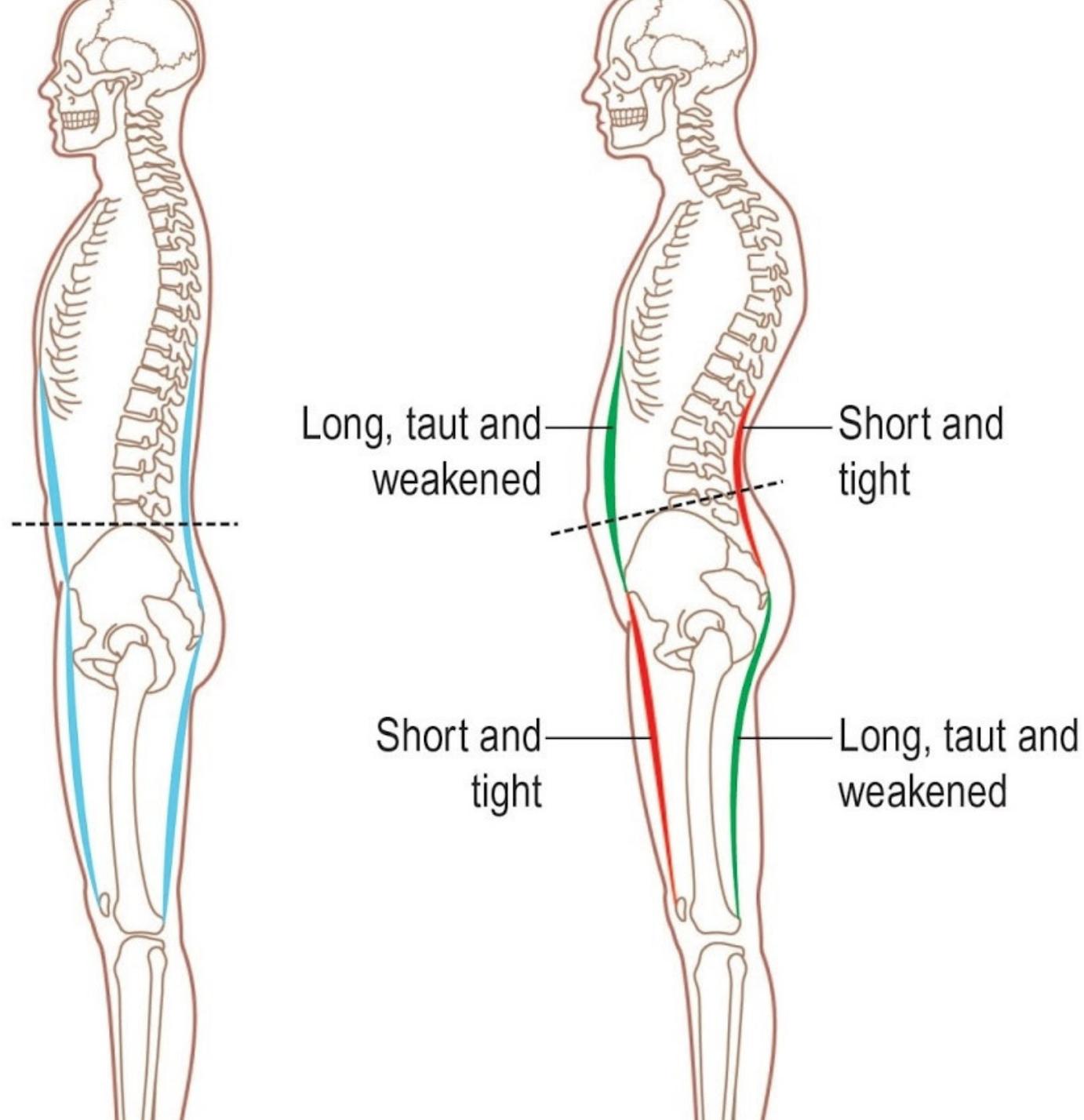
The rhomboids, lower and mid traps, and neck flexors are lengthened and weak.

Normal Spine Kyphosis



Anterior Pelvic Tilt

**It usually occurs
alongside a
lordotic posture,
as well
as kyphosis.**



**At one point during the practice tests
ACE asks "Which of the following
clients would most likely experience
anterior tilting of the pelvis?"**



**A. An accountant who was sitting for
12 hour shifts.**



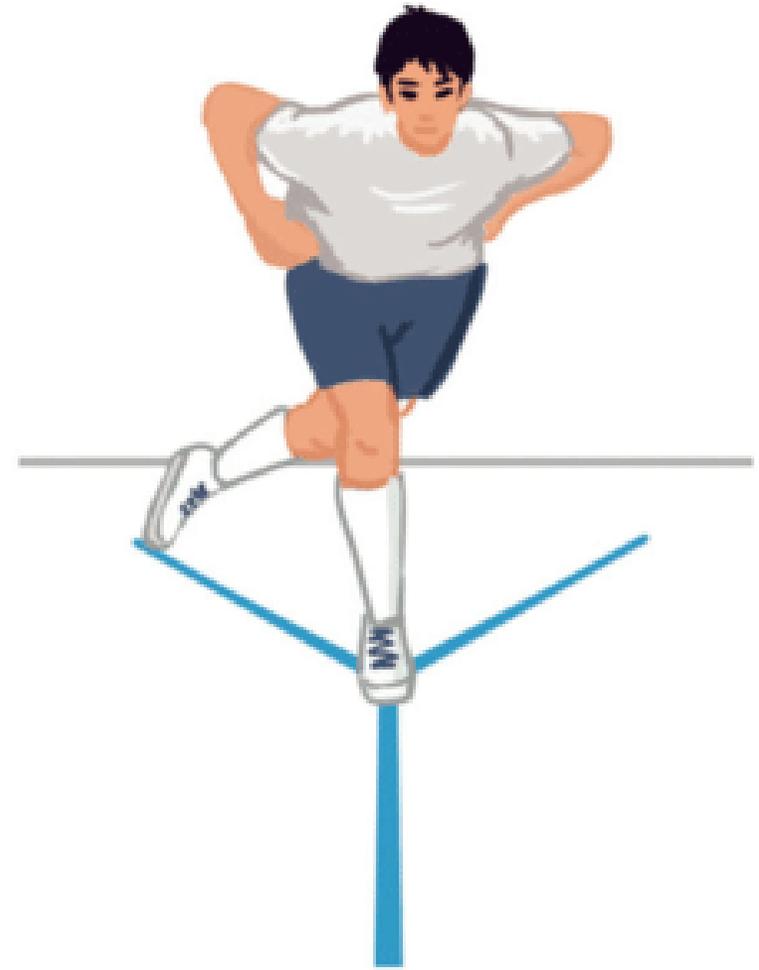
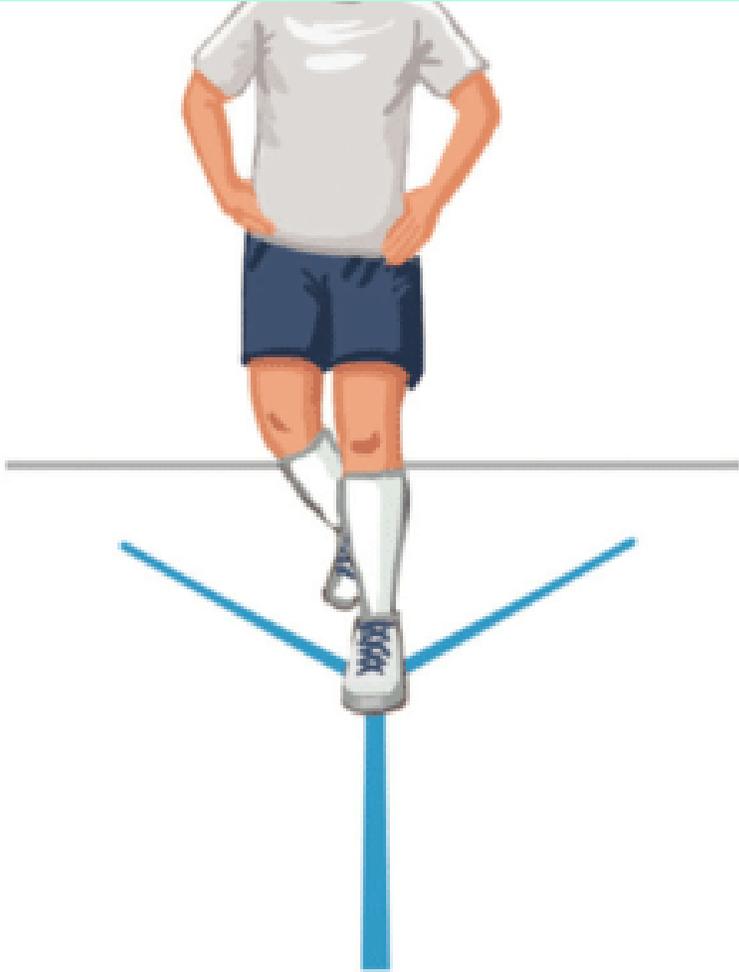
Forward Head Posture

The overactive muscles here are the cervical spine extensors, the upper traps, and the levator scapula.

Unipedal Stance Test

It provides trainers with information regarding their client's likelihood of a risk of falling. It also could help determine abilities to do tasks of daily living. Basically, a client stands on one leg, with eyes open and then they do the same thing again with eyes closed, and you time both trials.

Dynamic Y Balance Test (explained in video)



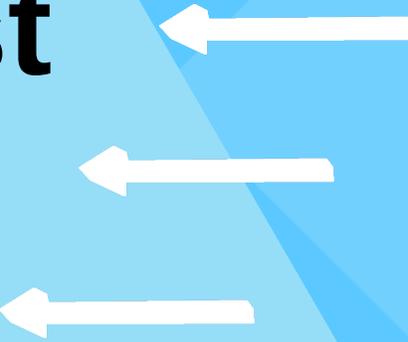
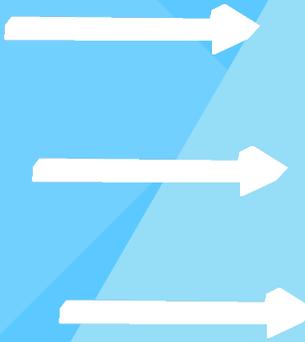
McGill Torso Muscular Endurance Test Battery

**3 tests that assess the muscular
endurance of the Trunk Flexors, Lateral
Core Muscles & the Torso Extensor
Muscles**



They are timed & scored
separately





Trunk Flexor Endurance Test

Lateral Endurance Test

Trunk Extensor Test

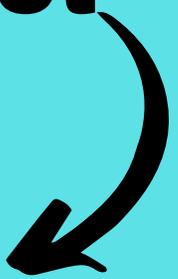
Help evaluate a clients core
endurance & stability

Can help determine how likely a client is
to experience back problems.

**Trunk extensor
endurance test**



**Trunk flexor
endurance test**

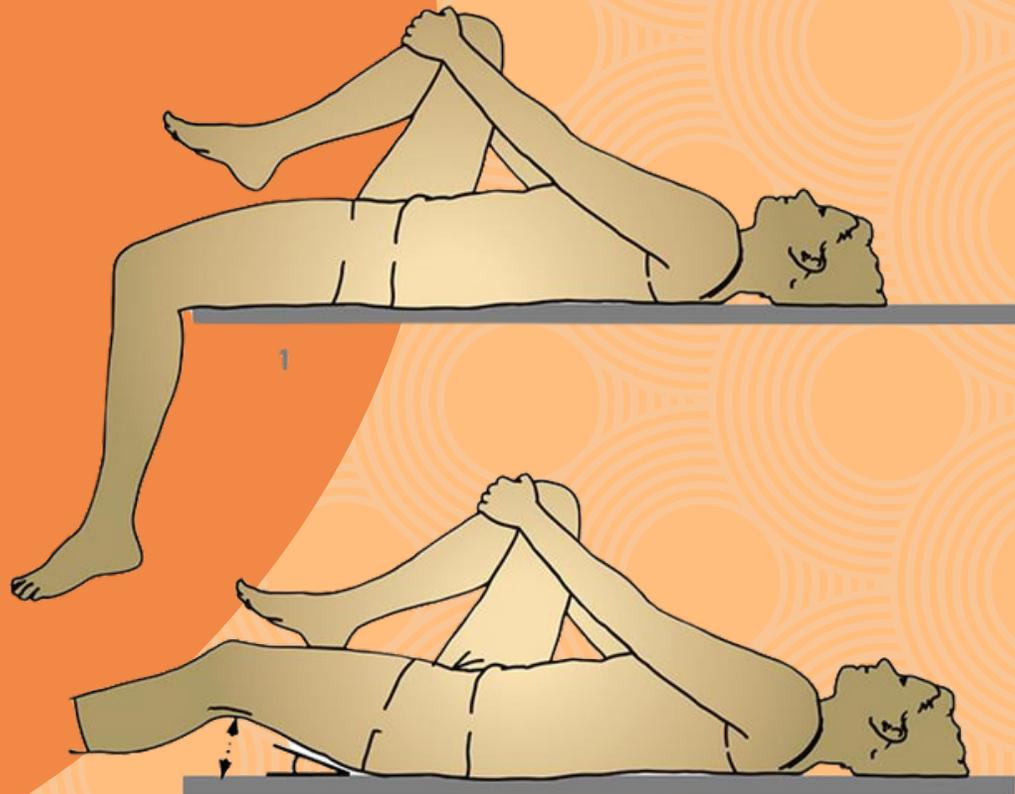


**Trunk
lateral
endurance
test**

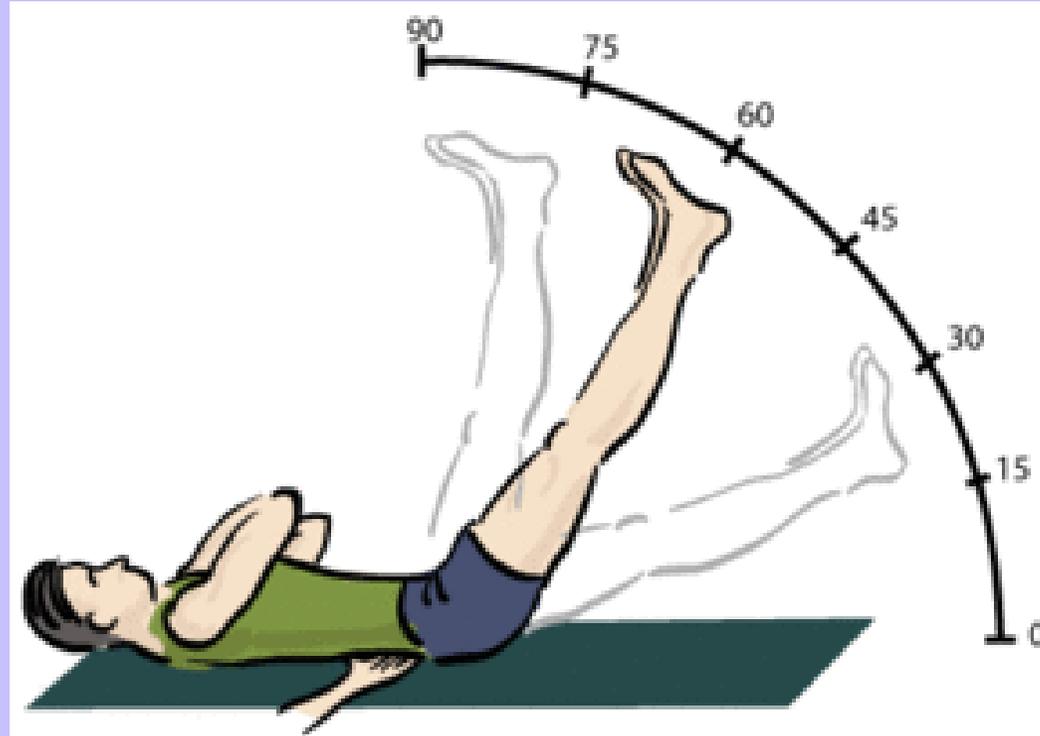


The Thomas Test

**ASSESS CLIENTS HIP
FLEXOR LENGTH OR
TIGHTNESS**



Passive Straight Leg Raise

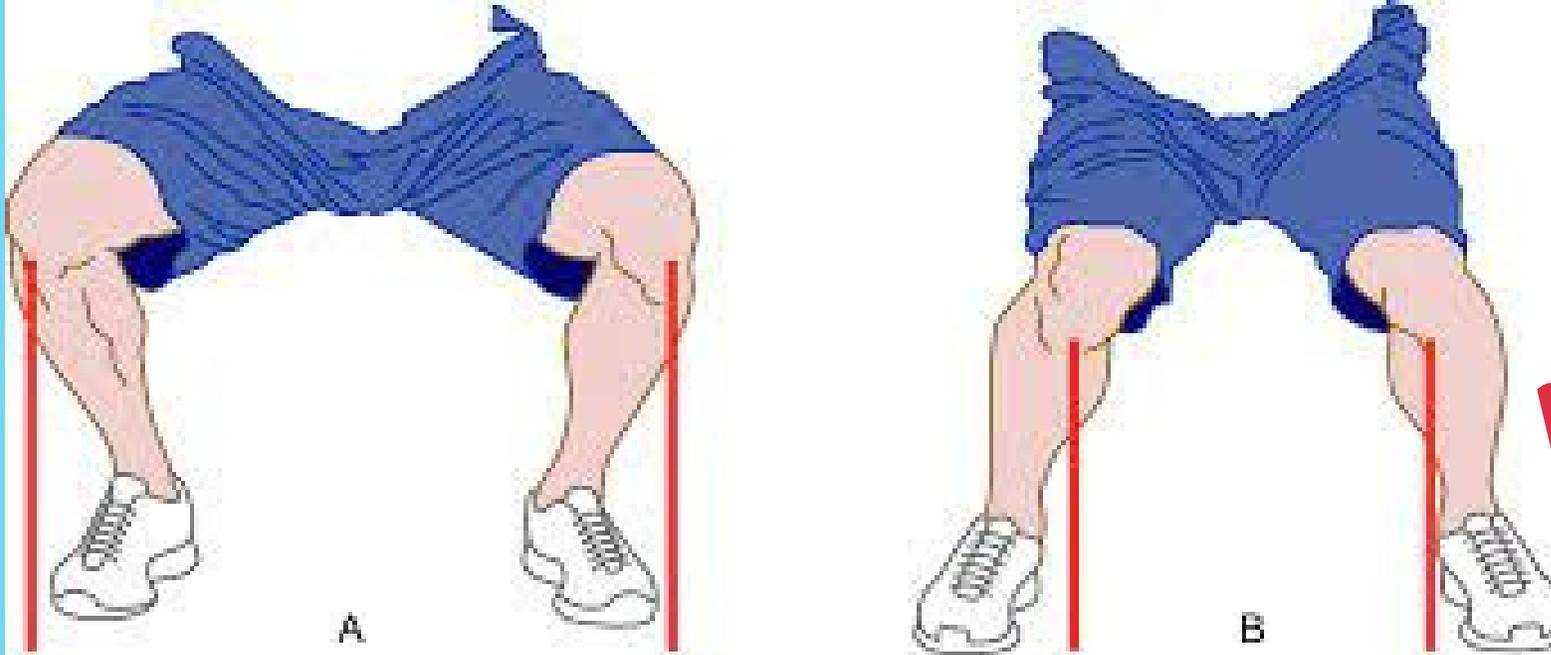


Assesses length of clients hamstrings.

BEND & LIFT ASSESSMENT

Observing client
movement
patterns during
a squat





GOOD SQUAT

ADDUCTORS TOO STRONG AND TIGHT RELATIVE TO ABDUCTORS. GLUTES TOO WEAK.

Push Assessment

ASSESSES STABILIZATION OF THE SCAPULOTHORACIC JOINT & CORE CONTROL. THE TEST CAN BE DONE KNEELING.



Pull Assessment

**TO ASSESS MOVEMENT QUALITY &
ANY MUSCLE IMBALANCES**



**WHAT IS OVERACTIVE
IF THE SHOULDER IS
ELEVATED AND HEAD
IS FORWARD?**



**WHAT IS OVERACTIVE IF
THE SHOULDER IS ELEVATED
AND HEAD IS FORWARD?**



- A. THE LOWER TRAPS & LATS**
- B. THE LEVATOR SCAPULA & CERVICAL SPINE
EXTENSORS**
- C. THE RHOMBOIDS & THE PECS**
- D. THE UPPER TRAPS AND RHOMBOIDS**

**WHAT IS OVERACTIVE IF
THE SHOULDER IS ELEVATED
AND HEAD IS FORWARD?**



A. THE LOWER TRAPS & LATS

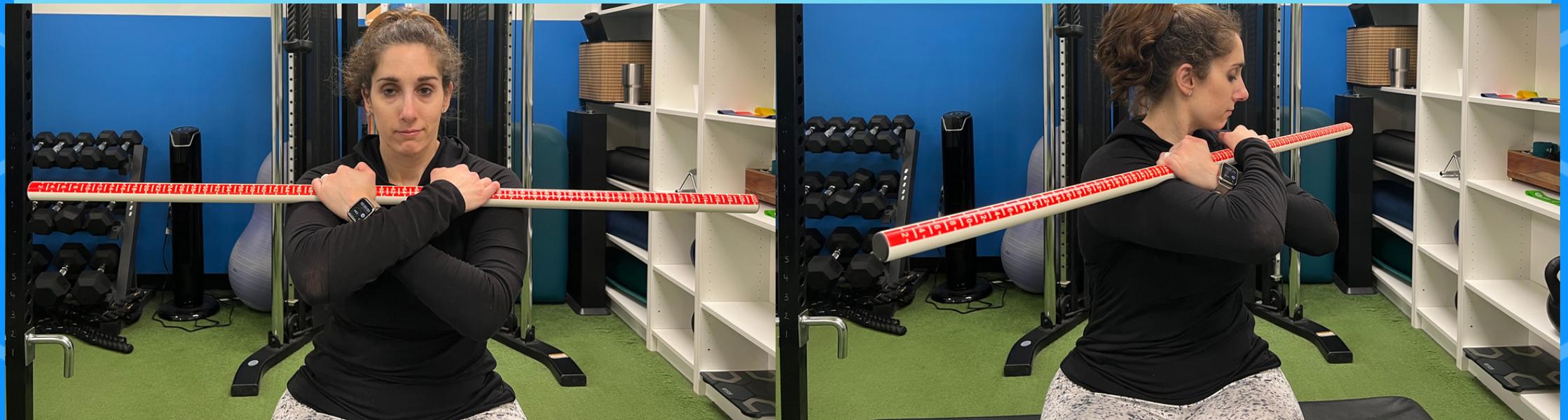
**B. THE LEVATOR SCAPULA & CERVICAL SPINE
EXTENSORS**

C. THE RHOMBOIDS & THE PECS

D. THE UPPER TRAPS AND RHOMBOIDS

Rotation Assessment

LOOKING AT RANGE OF MOTION
IN THE THORACIC SPINE AS
CLIENT ROTATES



MUSCULAR ENDURANCE TESTS

**DON'T PERFORM IF CLIENT HAS ANY
ORTHOPEDIC ISSUES THAT WOULD
AFFECT THE TEST.**

IF A CLIENT HAS PAIN, REFER OUT.



Max Push-up Assessment



**Do as many push-ups as possible.
Men perform full, women perform kneeling.
The assessment is over when they can no longer perform more reps or do more than 2 with poor form.**

Max Squat Assessment (the muscular endurance version)

**DO AS MANY SQUATS AS A CLIENT
CAN PERFORM WITH GOOD FORM.**



Strength Assessments

**TESTING CLIENTS ONE-
REP MAX ON A BENCH
PRESS AND A SQUAT**

**AVOID WITH CLIENTS WHO
HAVE ORTHOPEDIC ISSUES,
HYPERTENSION OR
VASCULAR DISEASE.**



When in doubt don't do these assessments with people. Don't have clients do the valsalva maneuver.

Breathe out strongly through your mouth while holding your nose tightly closed. This creates a forceful strain that can trigger your heart to react and go back into normal rhythm.

**START WITH WARM-UP SET
OR 10 EASY REPS.**

**ESTIMATE 3-5 REP MAX BASED
ON WARM-UP EFFORT DISPLAYED.**

**ADD 5-10% OF WEIGHT UNTIL ONE
REP MAX IS FOUND**

***GIVE BREAKS IN BETWEEN SETS**



Vertical Jump Test

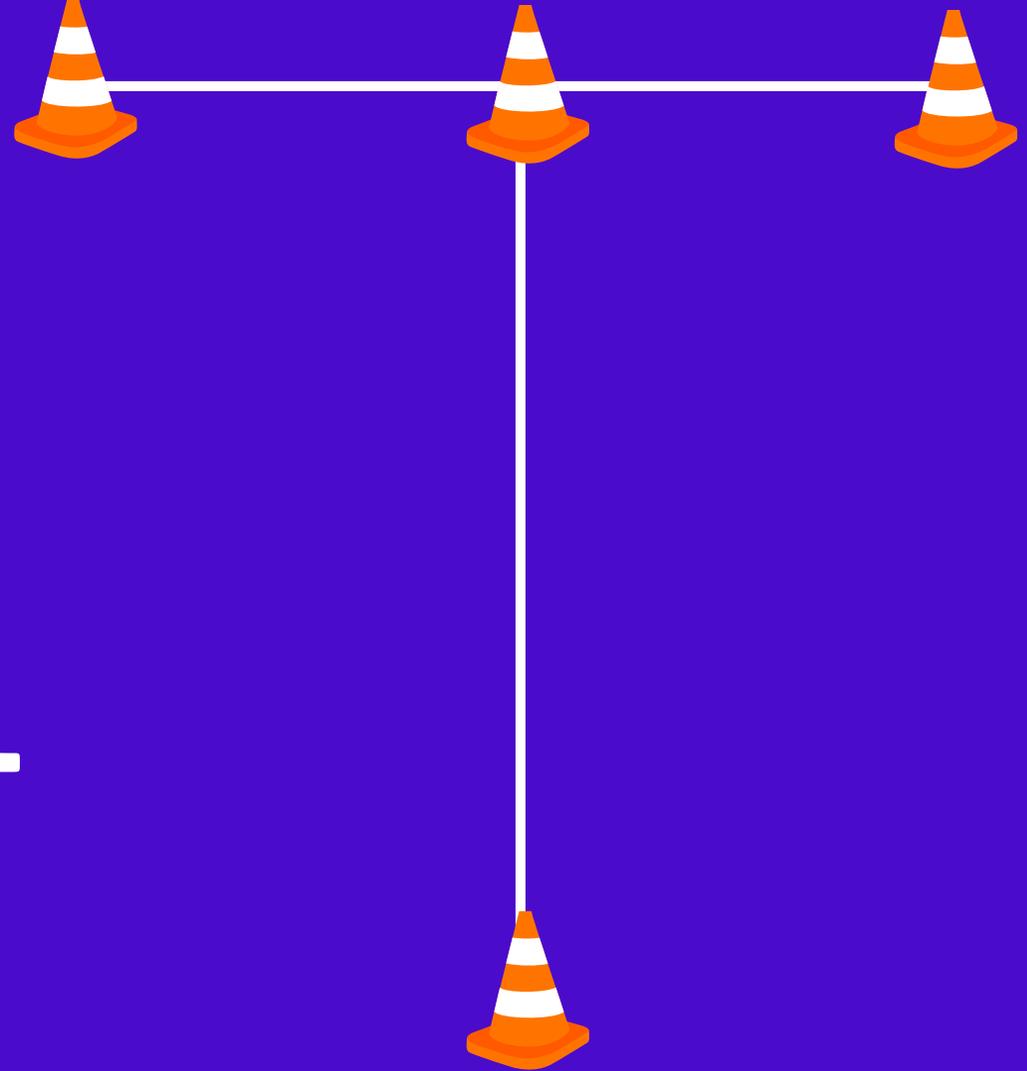
ASSESSES VERTICAL
JUMP HEIGHT. USEFUL
WITH ATHLETES WHO
WILL BE JUMPING.



T-Test

- A SPEED AGILITY
AND QUICKNESS DRILL

- TO ASSESS
MULTIDIRECTIONAL
MOVEMENT ABILITY.



We are personal trainers, not dietitians. We don't develop meal plans for clients, and we don't do medical nutrition therapy. That being said, we can do things like helping our clients to understand food labels, what certain nutrients do in the body, etc.

We can however use the dietary guidelines developed by the government and the recommendations from myplate.gov. If there is a question about what you can legally do as a personal trainer, nutrition wise, the answer most often will have to do with the US Dietary Guidelines or myplate.gov.

It won't be uncommon for a question to come up where the best thing for you to do would be to refer the client to a registered dietitian. For example, if a client has diabetes and they want to lose weight, even if it's something that you could help them with, the correct thing to do would be to refer them to a dietitian.

One thing you need to memorize is...



1 gram of protein = 4 calories

1 gram of carbohydrate = 4 calories

1 gram of fat = 9 calories

Ingredients: Cheese crackers (enriched flour [wheat flour, niacin, reduced iron, vitamin B₁ (thiamin mononitrate), vitamin B₂ (riboflavin), folic acid], soybean oil and palm oil with TBHQ for freshness, cheese made with skim milk [skim milk, whey protein, salt, cheese cultures, enzymes, annatto extract color], white cheddar cheese [milk, cheese cultures, salt, enzymes], salt, whey, cheddar cheese [milk, cheese cultures, salt, enzymes], paprika, maltodextrin, monosodium glutamate, yeast, whey protein concentrate, butter [cream, salt], baking soda, natural and artificial flavors, lactic acid, calcium lactate, paprika extract color, disodium phosphate, citric acid, turmeric extract color, annatto extract color, soy lecithin), **pretzels** (enriched flour [wheat flour, niacin, reduced iron, vitamin B₁ (thiamin mononitrate), vitamin B₂ (riboflavin), folic acid], salt, canola and/or soybean oil, corn syrup, barley malt extract, leavening [yeast, baking soda, ammonium bicarbonate]), **cheese curls** (degerminated yellow corn meal, vegetable oil [corn, canola, cottonseed, and/or soybean oil], whey, salt, maltodextrin, cheddar cheese [milk, cheese culture, salt, enzymes], monosodium glutamate, yeast, disodium phosphate, sour cream [cream, nonfat milk, cultures], autolyzed yeast extract, yellow 6, sunflower oil, natural and artificial flavors, yellow 5, disodium inosinate, disodium guanylate and butterfat), **bread slices** (enriched flour [wheat flour, niacin, reduced iron, vitamin B₁ (thiamin mononitrate), vitamin B₂ (riboflavin), folic acid], enriched bleached flour [wheat flour, niacin, reduced iron, vitamin B₁ (thiamin mononitrate), vitamin B₂ (riboflavin), folic acid], canola and/or soybean oil, salt, corn syrup, nonfat milk, whey, leavening [yeast, baking soda and/or ammonium bicarbonate], citric acid, calcium citrate), **soybean oil** (with TBHQ for freshness). **Contains 2% or less of** cheddar cheese (milk, cheese cultures, salt, enzymes), salt, whey, butter (cream, salt), buttermilk, onion powder, monosodium glutamate, maltodextrin, nonfat milk, disodium phosphate, garlic powder, citric acid, natural and artificial flavors, sunflower oil, disodium inosinate, disodium guanylate, yeast, soy lecithin, yellow 5, yellow 6. **CONTAINS WHEAT, MILK AND SOY INGREDIENTS.**

Nutrition Facts

About 10 servings per container

Serving size 1/2 Cup (26g)

Amount per serving

Calories 120

% Daily Value*

Total Fat 5g 6%

Saturated Fat 1g 5%

Trans Fat 0g

Polyunsaturated Fat 2.5g

Monounsaturated Fat 1.5g

Cholesterol 0mg 0%

Sodium 360mg 16%

Total Carbohydrate 17g 6%

Dietary Fiber <1g 2%

Total Sugars <1g

Includes <1g Added Sugars 1%

Protein 2g

Vitamin D 0mcg 0% • Calcium 20mg 0%

Iron 0.9mg 4% • Potassium 25mg 0%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

How many calories would I get from protein in one cup of this product?

ACE advises an everything in moderation approach that is high in veggies and to some extent fruit.

There's a chart on pg. 169 that shows recommended dietary intakes for things like protein, fats and carbs. Don't memorize it but get a general understanding of what people should be consuming.

There is 3,500 calories in a pound of fat.

A 500 calorie daily deficit would get you roughly a pound of fat loss every week.



Hydration

Before Exercise: 5-7 ml. at least four hours before exercise for an average size person.

During Exercise: Monitor sweat loss. Replenish fluid and sodium potassium and carbs.

After Exercise: Drink 1.5l/kg of body weight lost. Consume sodium.

Random Stuff Worth Knowing!



The DASH diet includes foods that are rich in potassium, calcium and magnesium. These nutrients help control blood pressure. The diet limits foods that are high in sodium, saturated fat and added sugars.



BMI or Body Mass Index

Metric Units	$\text{BMI} = \text{Weight}(\text{kg}) / [\text{Height}(\text{m})]^2$
English Units	$\text{BMI} = 703 \times \text{Weight}(\text{lbs}) / [\text{Height}(\text{in})]^2$
Conversion factor for lbs/in ² to kg/m ²	
Vertex42.com	

A BMI over 25 means you're overweight and one over 30 means you're obese.

**Bioelectrical Impedance or BIA
Determines body composition based on
the rate at which an electrical current
travels through the body. Body fat (adipose
tissue) causes greater resistance
(impedance) than fat-free mass and slows
the rate at which the current travels. It
requires specific testing arrangements.**

The nervous system has two main components: the somatic nervous system and the autonomous nervous system. The somatic nervous system is mostly under our control. It mostly involves skeletal muscles and things like that. The autonomous nervous system is automatic as the name would imply meaning it is not under our control.

The autonomous nervous system is split into two parts.

The sympathetic nervous system which controls our fight and flight response, and the parasympathetic nervous system, which has to do with resting and digesting.



Type one muscle fibers are slow twitch meaning they have better endurance but produce lower power. Type two muscle fibers are fast twitch they generate more power but have less than deterrence capabilities.



What is the primary purpose of the ACE personal trainer certification program?



Answer: To protect the public from harm

When we're talking about scope of practice the least aggressive answer will usually be the correct one.

Ex. You have an injured tennis player client, what should you do?

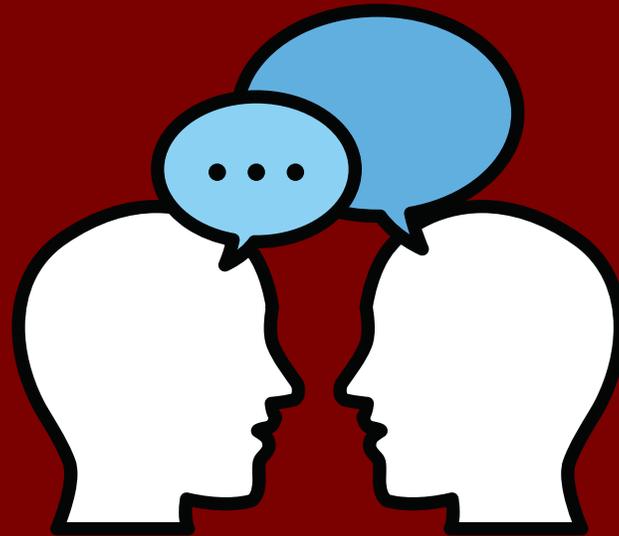
Answer: Show the client some stretches

Static Stretching: Holding a stretch for roughly 30s

Dynamic Stretching: Movement pattern designed to mimic the workout

**Ballistic Stretching: Repeated bouncing or swinging to stretch muscle group.
Avoid this one.**

If something questionable comes up in a session, like your client sharing too much information about their divorce, the correct thing to do would be to redirect the focus of the conversation back to the workout.



**Goals need to be
positive!**

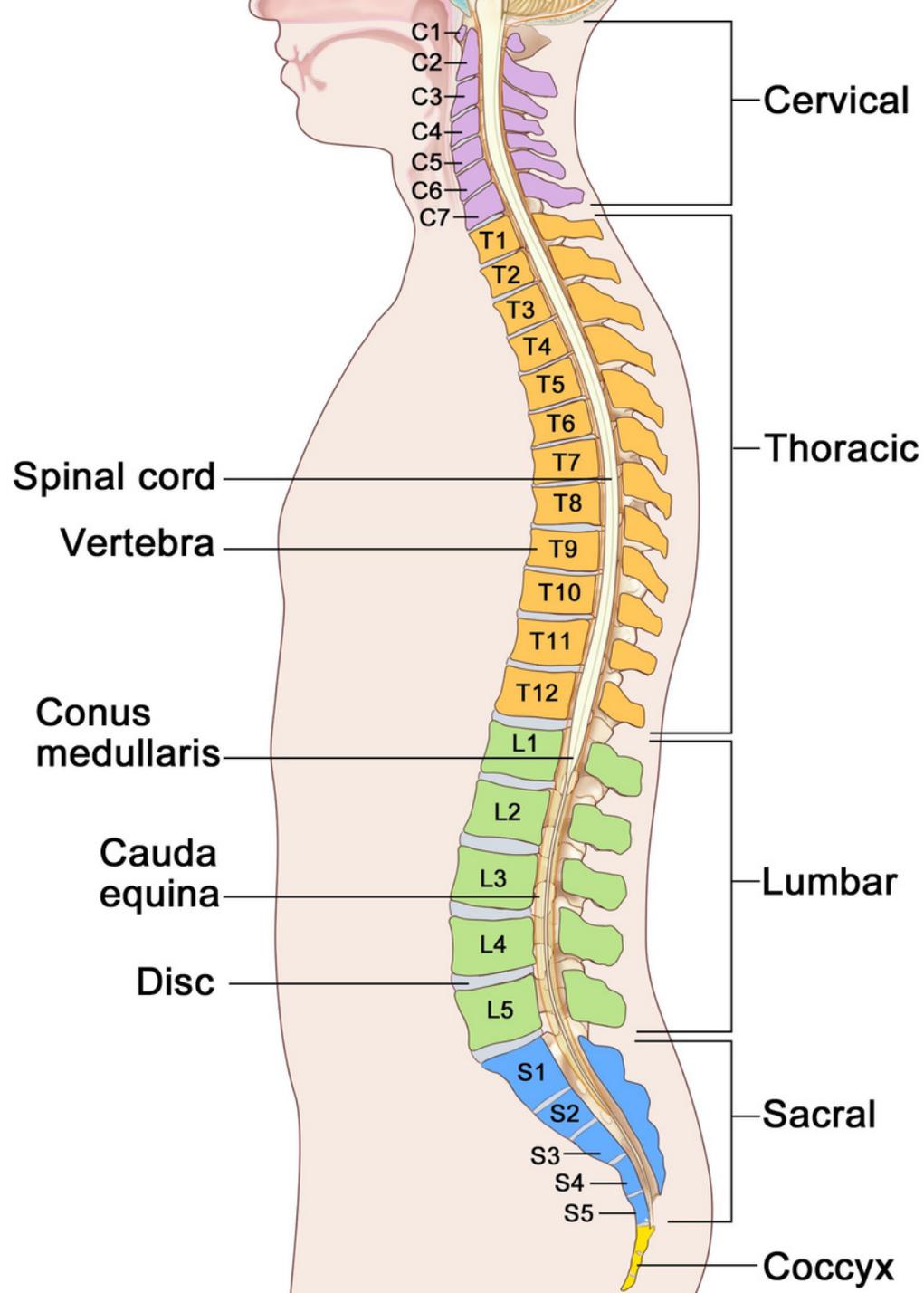


**Cueing also needs to
be positive or at the
very least not negative.**

Dyspnea: difficult or labored breathing.

Syncope: fainting

**Orthopnea: the sensation of
breathlessness in the recumbent
position, relieved by sitting or standing.**



Remember breakfast (7 cervical) lunch (12 thoracic) and dinner (5 lumbar) for vertebrae. You also have 5 fused sacral vertebrae.

Double Progression Training Protocol

Able to do 10 reps at 100 pounds

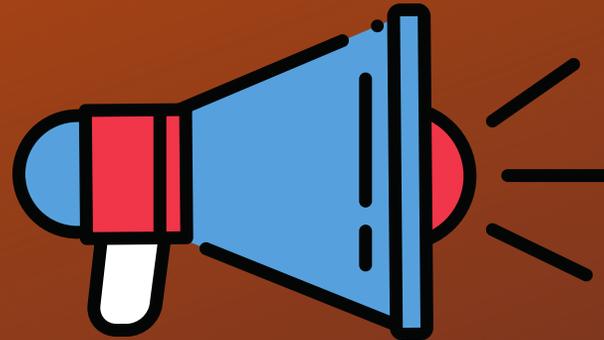


Once you can do 15 reps at 100 pounds



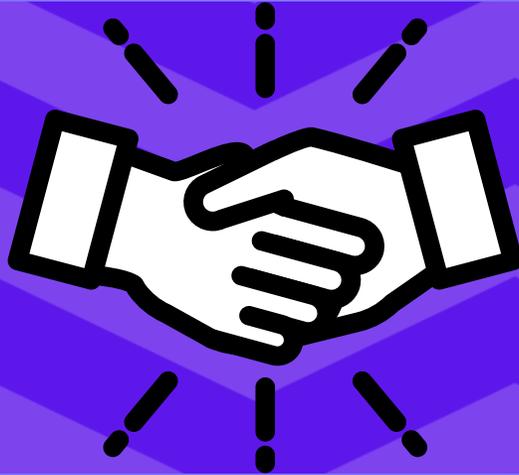
**Increase weight by 5% to 105 and go
back to 10 reps**

The talk test is a diagnostic tool. At an intensity level above VT1, but below VT2, an exerciser will still be able to speak, but not comfortably.



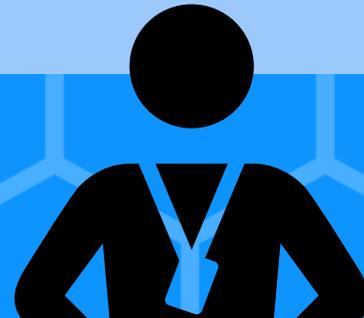
VT2 represents the point at which high-intensity exercise can no longer be sustained due to the accumulation of lactic acid.

Sole proprietorship: Business is owned by an individual. No protection for the owner.

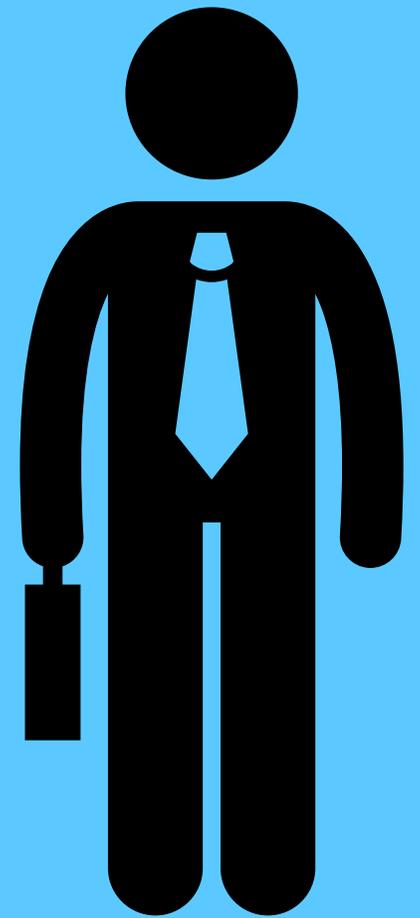


LLC: Provides protection. Forms are required but they are relatively simple (compared to S-Corp)

Independent contractor: a self-employed person or entity contracted to perform work for—or provide services to—another entity as a non-employee. As a result, independent contractors must pay their own social security and medicare taxes.



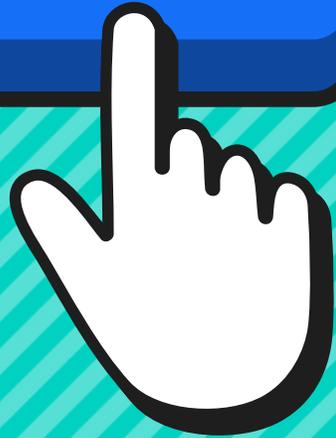
A worker is an employee when the business has the right to direct and control the work performed by the worker. This includes hours worked, uniforms, etc.



Make sure to read over the material in the ACE text book.

Also, use the videos and quizzes to help you study the material. The ACE quizzes are a good diagnostic tool!

TAKE QUIZ



In my opinion, the pocket prep. app is pretty bad for reviewing the ACE material. Very little, if any, of the questions asked on the app were on the test. It may enforce some other knowledge, and it is convenient though.