**Personal Fitness Final Exam Review Sheet (Here are the answers)**

**Lesson #1- Safety in the Gym and Beyond**

1. What are the basic principles of training and can you define each one?
   1. Overload- putting our bodies under additional stress
   2. Balance- it is important to include the cardiovascular and musculoskeletal system in your workout
   3. Specificity- when you work out it will be more beneficial to have a specific goal of what you want to attain through your workout
   4. Variation- mix up your workout
   5. Reversibility- If you stop working out, then all the results you made will not stay, instead you will lose them.
2. What is the difference between dynamic and static stretching and which should be used for warming up and which should be used for cooling down?
   1. Dynamic- this is used during the warm up. Helps their core temperature rise for a more effective workout. Movement while stretching.
   2. Static- this is used during the cool down. Helps to regulate temperature and it is more stationary.
3. What are the benefits of warming up and cooling down?
   1. Warm up- Be able to perform better during physical activity, blood flow to muscles, decreases muscle soreness, less chance of injury
   2. Cool Down- Delay DOMS, helps reduce chance of feeling dizzy or fainting, no shaking from adrenaline, will help return heart rate to resting heart rate
4. What is the purpose of a spotter and what are they keys to spotting?
   1. Safety! Better form and helps with confidence.
   2. Keys to spotting🡪 wide stance, check for proper form, communicate, don’t help unless to have to
5. What is DOMS? How should a person deal with DOMS?
   1. DOMS- Delayed Onset Muscle Soreness
   2. How to help deal with it- ice, rest, medication, massage, heat and stretching

**Lesson #2- Basic Muscle Anatomy and Human Movement**

1. Can you correctly label the following muscles?

Trapezius, Pectoralis Major, Deltoids, Latissimus Dorsi, Biceps, Triceps, Abdominals, Obliques, Erector Spinae, Adductors, Gluteus Maximus, Quadriceps, Hamstrings, Gastrocnemius (They should be able to do this with the graphic) At least they should tell the difference of the front muscles and the back.

2. Can you define the following movements that contract muscles in the body?

Flexion and Extension

* Flexion- The action of bending or the condition of being bent; especially the bending of a limb or joint
* Extension- the opposite of flexion, it is a straightening motion

Hyperextension- Excessive joint movement in which the angle formed by the bones of a particular joint is opened, or straightened, beyond its normal, healthy range of motion.

Abduction and Adduction

* Abduction- the movement of a limb or other part away from the midline of the body or from another part
* Adduction- the movement of a body part toward the body’s midline

Circumduction- It is a combination of flexion, extension, abduction and adduction. It is a circular movement of a joint.

Lateral Rotation and Medial Rotation

* Lateral- rotational movement away from the midline
* Medial- Rotational movement towards the midline

Pronation and Supination

* Pronation- inward movement or rotation of the forearm or foot
* Supination- outward movement or rotation of the forearm or foot

**Lesson #3- Terminology**

1. What are the five components of fitness? Can you define them?
   1. Cardiorespiratory (or cardiovascular) endurance- the ability of the heart and lungs to absorb, transport and utilize oxygen over an extended period of time during physical exertion
   2. Muscular Strength- refers to the amount of force a muscle can produce with a single maximal effort
   3. Muscular Endurance- the ability of a muscle or group of muscles to sustain repeated contraction against a resistance for an extended period of time.
   4. Flexibility- the range of motion your joints and the ability of your joint moving freely
   5. Body Composition- used to describe the percentages of fat, bone, water and muscle in human bodies.
2. What is the difference between aerobic and anaerobic fitness? Can you name examples of each?
   1. Aerobic- exercise that improves the efficiency of the body’s cardiovascular system in absorbing and transporting oxygen
      1. Spinning, running, swimming, dancing and kickboxing
   2. Anaerobic- exercise that does not improve the efficiency of the body’s cardiovascular system in absorbing and transporting oxygen
      1. Heavy weight training
3. What are the benefits of increasing muscle mass?
   1. Weight control- muscle mass is a calorie burning machine
   2. Increased strength- by having more strength you will have a more active lifestyle
   3. Reduced risk of injury- building muscle will help protect your joints around it from getting injured
   4. Increase your self-esteem- being toned and strong will help your appearance which in turn will make you feel better.
4. What is Body Mass Index (BMI)?
   1. A weight to height ratio calculated by dividing one’s weight in kilograms by the square of one’s height in meters and it is used as an indicator of obesity or being underweight.

**Lesson #4- Nutrition**

1. Can you define the term Essential Nutrients?
   1. It is a nutrient that the body cannot synthesize on its own- or not to an adequate amount- and it must be provided by the diet
2. What are the essential nutrients and what do they do in the body?
   1. Carbohydrates- main source of energy
   2. Protein- builds, maintains and replaces the tissues in your body
   3. Fats- provides energy, insulates, supports and cushions the organs
   4. Vitamins- any group of organic compounds that are essential for normal growth and nutrition and are required in small quantities in the diet because they cannot be synthesized by the body
   5. Minerals- metabolic processes such as those that turn the food we eat into energy
   6. Water- makes up approximately 60% of your body weight; transports chemicals; regulates temperature; removes waste products
3. What is a calorie and what did you learn about calories?
   1. A heat unit referring to the energy available in food and the energy used by body activities.
      1. 1 pound of fat is 3500 calories
      2. Not all calories are created equal
4. What is energy balance and why is it important in terms of weight?
   1. It is the relationship between “energy in” and “energy out”
      1. Energy in- food calories taken into the body through food and drink
      2. Energy out- calories being used in the body for our daily energy requirements (working out)
   2. When your energy balance is equal it means that the amount of calories you eat in a day equals the amount of calories you use (burn) in a day, resulting in a healthy metabolism and aiding in weight control.
   3. Weight gain- means that you are consuming more than you are burning (more energy in than energy out).

**Lesson #5- Myths vs. Facts**

1. Read the 10 myths. Can you explain why each is a myth?

**Myth # 1- Crunches are the key to flat abs.**

*Fact:* Since they don’t burn off a lot of calories, they don’t help in a major way with fat loss. While crunches do tone a small portion of your abs, moves involving your distal trunk—which includes your shoulder and butt—more effectively engage your entire core, so you’ll whittle your waist far more dramatically by doing planks and bridges (and more of these fat-burning ab exercises). Additionally, your diet and what you put into your body also plays a huge role in the development of abdominals.

**Myth #2- The more you sweat, the more fat you lose.**

*Fact:* Sweat has nothing to do with intensity; it’s your body’s way of getting rid of heat. Although it is very healthy to sweat during a workout, fat is oxidized inside your body, and it is not going to vaporize because you’re sweating. It sounds counterintuitive, but the fitter you are, the sooner your body begins to sweat.

**Myth #3- High protein diets are bad for your kidneys.**

*Fact:* Protein taxes the kidney because they must work harder to process it. Healthy people without a preexisting kidney condition are fine to eat a lot protein as long as they drink a lot of water too.

**Myth #4- If you aren’t sore the next day, your workout wasn’t hard enough.**

*Fact:* Soreness is inflammation and the chemical response to inflammation. The only yardstick by which you need to measure progress is that of your goal. Judge your workout by what happens during that workout. Don’t forget that there is a difference between pain and soreness. If you are in pain, stop!

**Myth #5- Big muscles are strong muscles.**

*Fact:* There is a difference between training your muscles to be big and training your muscles to be strong. For physique athletes, size and shape- not strength- is the ultimate goal. For athletes, strength for maximum effort is most important. I’m not saying that bid muscles aren’t strong but put a body builder and an Olympic lifer in front of a loaded barbell and see who can clean the most weight. Either person is capable of being strong or built- its all a matter of training for a specific goal.

**Myth #6- For women, heavy lifting bulks you up.**

*Fact:* Actually, it can slim you down. Women who lift a challenging weight for eight reps burn nearly twice as many calories as women who do 15 reps with lighter dumbbell. Women have testosterone levels that are about 15-20 times lower than those of men- hormonally speaking, they are just not likely to get jacked.

**Myth #7- You can’t work out when you are sick.**

*Fact:* As long as you don’t have a fever and your symptoms are above the neck (think; stuffy nose or sore throat, not chest congestion or indigestion), you can totally hit the gym. Just listen to your body- or ask your doc if you’re unsure.

**Myth #8- Supplements are a must in order to see huge gains.**

*Fact:* The best way to receive all the vitamins, minerals and nutrients that the human body needs is through a knowledgeable and well-rounded eating strategy, not through excessive supplementation. The body is always better off eating well and receiving all it needs through food. Granted there are some vitamins, minerals and nutrients that may prove challenging to take in through food and some supplementation may be necessary, but you should not become a walking pill box.

**Myth #9- Longer workouts at a lower intensity burn more fat.**

*Fact:* Short and intense interval training sessions can improve whole body fat oxidation by 36% and may offer greater benefits than lengthy bouts of steady-state exercise. Interval training allows you to get more work done in the same amount of time because you can work at greater intensity levels than if you were doing steady state training. Your overall production (calories burned) will be greater despite the frequent breaks because you are able to work at a higher intensity. Interval training also improves your level of fitness very quickly, typically in a matter of just a few weeks and this improvement in fitness allows you to perform more work and burn more calories during an exercise session.

**Myth #10- A protein bar is a good substitution for a meal.**

*Fact:* Protein bars are highly processed, unless you make them yourself. Highly processed food requires fewer calories to digest, so that benefit is diminished.

**Lesson #6- Common Injuries and Illnesses from Training**

1. What is the difference between chronic and acute injuries?
   1. Chronic- any injury that results from overuse or training
   2. Acute- result from an accident that occurs while participating in an activity or just by coincidence
2. What are ligaments?
   1. Tissues that connect the bone together
3. What are tendons?
   1. Tissues that connect muscles to bone
4. What is tendinitis and where can it occur in the body?
   1. Inflammation or irritation of a tendon.
   2. It can occur ANYWHERE; but most common in the shoulder, elbow, wrist, hip, knee, foot or ankle.
5. What are sprains?
   1. A stretching or tearing of ligaments, the fibrous tissue that connects bones and joints.
6. What are strains?
   1. A stretching or tearing of muscle or a tissue connecting muscle to bone
7. What is the best known treatment of injuries?
   1. R.I.C.E (Rest, Ice, Compression, Elevation)
8. What are signs vs. symptoms of injuries?
   1. Signs- bruising, swelling, bleeding, tenderness, weakness
   2. Symptoms- pain and soreness
9. What is meant by muscle balance and why is it important in regards to injuries?
   1. Having an equal amount of muscle on each side of a joint is important to avoid the chance of an injury
   2. It will help reduce the chance of injuries
10. What are the three heat illnesses that may occur while training? Can you define them and which is most serious?
    1. Heat Cramps- muscle spasm that result from loss of large amount of salt and water through exercise. Heat cramps are associated with cramping in the abdomen, arms and calves. This can be caused by inadequate consumption of fluids or electrolytes.
    2. Heat Exhaustion- a condition whose symptoms may include heavy sweating and a rapid pulse, a result of you body overheating.
    3. Heat Stroke- the most severe; a condition marked by fever and often by unconsciousness, cause by failure of the body’s temperature-regulating mechanism when exposed to excessively high temperatures
11. What are the cold weather illnesses that may occur while training? Can you define them?
    1. Frostbite- a condition in which skin and the tissue just below the skin freeze
    2. Hypothermia- the condition of having an abnormally low body temperature, typically one that is dangerously low.
12. How can you prevent both heat and cold weather illnesses?
    1. Prevent heat- wear loose-fitting, lightweight clothing, protect against sunburn, drink plenty of fluids, take extra precaution with certain medication, never leave anyone in a parked car, take it easy during the hottest parts of the day, get acclimated, be cautious if you’re at increased risk.
    2. Prevent cold- cover, overexertion, layers and dry

**Lesson #7- The Importance of Living a Healthy Lifestyle**

1. What are the six benefits of being physically active?
   1. Better metabolic health
   2. Cancer risk is decreased
   3. Better bone strength
   4. Better mental health
   5. Longevity
   6. Boost in self-esteem
2. What does it mean to hit a plateau in training and what can you do if this happens while strength training? How about if it happens while on a weight loss program?
   1. When applied to an exercise program, the term plateau refers to a sudden and dramatic decrease in the noticeable results of your regular workout. This can manifest itself in both strength and cardiovascular, as well as in weight loss. It lasts for a period of time in which the body stops responding to the training and nutrition
   2. If it happens during strength training- consider switching things up, modify your sets and reps, change up the tempo of your exercises, experiment with different exercises, experiment with variable resistance, take time off and restart, make sure you are getting enough sleep
   3. If it happens during a weight loss program- reassess your habits, cut more calories, rev up your workout, pack more activity into your day
3. What are some of the proven ways to stick with a fitness program?
   1. Do it for yourself, take baby steps, hang tough, don’t be your own drill sergeant, bring a friend, put the time in (but it is okay if broken up), give yourself time to get used to it, live in the present, keep it realistic, change it up and track your progress.