PED 105

**Developing a Health-related fitness program**

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Chronic diseases, such as diabetes, heart disease, stroke and cancer are responsible for the majority of deaths in the U.S. One important way we can prevent chronic disease and premature death is to engage in regular exercise that promotes health-related fitness, such as cardiorespiratory endurance, muscular strength, and body composition. This assignment has been designed to guide you toward the development of a fitness program that will improve the quality of your life now and for years to come.

**I.** *Identify and define the components of health-related fitness:*

**Cardiorespiratory Endurance**: the ability of the circulatory and respiratory systems to perform prolonged, large-muscle, dynamic exercise at different levels of intensity.

**Muscular Strength**: refers to the maximal amount of force that can be sustained in a single attempt

**Muscular Endurance**: refers to the amount of weight a muscle can exert over a period of time

**Flexibility**: refers to the range of motion that is available at the joint

**Body Composition**: relates to the amounts of muscle, fat and bone in the body (lean mass vs. fat mass)

**II.** **Developing cardiorespiratory endurance:** In the chart below, *fill in your chosen aerobic activities and then indicate the duration, intensity and frequency for each.* The American College of Sports Medicine (ACSM) recommends a frequency of 3-5 days per week, a duration of 20-60 minutes while sustaining an intensity of between 55-90% of your maximum heart rate.

# Aerobic/Cardio Program Frequency (check √ )

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Activity | \***Duration** (How long?) | \***Intensity** (How vigorous?) | **M** | **T** | **W** | **Th** | **F** | **Sa** | **Su** |
| **Power-walk on 3.0 incline** | **30 min.** | **65%** |  | **√** |  | **√** |  |  |  |
| **Outside jog (weather permitting)** | **30 min.** | **75%** |  |  |  |  | **√** | **√** |  |
| **Elliptical** | **15 min.** | **70%** | **√** |  | **√** |  |  |  |  |
| **Bike** | **15 min.** | **75%** | **√** |  | **√** |  |  |  |  |

**\* Duration and intensity should be represented by numerical values.**

**III. Calculate intensity:** Cardiorespiratory endurance can only be achieved through regular aerobic exercise. One of the principles of conditioning, intensity, determines how hard you need to work to increase your aerobic capacity. While engaging in an aerobic exercise monitoring your heart rate is one way of determining the intensity of your workout. When you **determine Target Heart Rate (THR) zone using the Karvonen Formula,** you can find out whether you are working intensely enough to improve your cardiorespiratory endurance:

220-20 x .55 + 84= 194

Use this formula to calculate your Target Heart Rate:

THR = (MHR – RHR) x TI% + RHR

To use the Karvonen formula you need to know the following components:

* Maximum heart rate (MHR): 220 - 20 (age) = 200 bpm
* Resting Heart Rate (RHR): 84 bpm; take your pulse @ rest for 10 seconds and then multiply by six.
* Training Intensity (TI%): 55 – 90 %

*Show your calculations using the Karvonen Formula for 55% and 90% Training Intensity in the space provided:*

**220-20 x .55 + 84= 194**

**220-20 x .90 + 84= 264**

**Target heart rate zone = 194 to 264 bpm;**

**\*10-second count = 32.3 (33)**  **to 44**

\*Calculate your 10 second count by dividing each target heart rate zone by 6.

**IV. Developing muscular strength & endurance:** Using the chart on the next page, create your own resistance/weight training program based on the equipment and facilities available to you.

*Exercises:* Your program should include a minimum of 10 exercises and include exercise for upper, lower and mid-section muscle groups. List the exercises and the muscles they develop in the program below.

*Intensity:* Experiment with different amounts of weights until you find a good starting weight, one that you can lift easily for 10-12 repetitions. Fill in the starting weight for each exercise in the program chart below.

*Duration:* Include at least 3 sets of 8-12 repetitions for each exercise. If your program is focusing on strength alone, your sets can contain fewer repetitions using a heavier load. If you are focusing on endurance or toning, your sets should contain more repetitions using a lighter resistance. Fill in the starting repetitions and sets for each exercise in the program below.

*Frequency:* Work out at least 2 days per week. Indicate the days you will train on your program plan; be sure to alternate days when working the same muscle groups.

# A. Resistance/Weight Training Program (muscular strength/endurance)

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| \*Exercise | Muscle(s) developed  (Provide specific muscle terms, i.e. biceps) | Intensity:  Weight/ Resistance (i.e., lb.) | Duration:  Reps Sets | | Frequency  M T W Th F Sa Su | | | | | | |
| Crunches | Upper Abdominals | No added resistance | 20 | 3 | x | x | x | x | x |  |  |
| V-ups | Rectus Adominis (abs) | No added resistance | 20 | 3 | x | x | x | x | x |  |  |
| Seated Row | Back | 55 pounds | 12 | 4 | x |  |  |  |  |  |  |
| Lat Pull Down | Latissimus Dorsi | 60 pounds | 12 | 4 | x |  |  |  |  |  |  |
| Lower back Extensions | Lower Back | 25 pounds | 12 | 4 | x |  |  |  |  |  |  |
| Leg Extensions | Quads | 120 pounds | 12 | 4 |  | x |  | x |  |  |  |
| Hamstring Curl | Hamstrings | 90 pounds | 12 | 4 |  | x |  | x |  |  |  |
| Calf Raises w/ Barbell | Gastrocnemius (calves) | Barbell + 30 pounds | 12 | 4 |  | x |  | x |  |  |  |
| Squats w/ Barbell | Quads and glutes | Barbell +50 pounds | 12 | 4 |  | x |  | x |  |  |  |
| Bicep Curl w/ dumbbells | Biceps | 15 pounds each arm | 12 | 4 |  |  | x |  | x |  |  |
| Hammer Curl | Biceps | 15 pounds each arm | 12 | 4 |  |  | x |  | x |  |  |
| Triceps Extensions | Triceps | 30 pounds | 8 | 5 |  |  | x |  | x |  |  |
| Triceps Kickbacks | Triceps | 20 pounds each arm | 8 | 5 |  |  | x |  | x |  |  |
| Lateral Raise | Deltoids (side shoulder) | 8 pounds each arm | 12 | 4 | x |  |  |  |  |  |  |
| Upright Row | Deltoids (side shoulder) | 30 pounds | 12 | 4 | x |  |  |  |  |  |  |
| Dumbbell Flyes | Pectoralis Major (chest) | 12 pounds | 8 | 5 |  |  | x |  |  |  |  |
| Bench-press w/ Barbell | Pectoralis Major (chest) | Barbell + 5 pounds | 8 | 5 |  |  | x |  |  |  |  |

\*Exercise descriptions may be necessary.

**B. Compare and contrast dynamic and static resistance training.**

Dynamic (isotonic) training involves movement whereas static training (isometric) is very still. Dynamic training keeps the muscles and joints moving with exercises such as squatting, walking, swimming, etc. Static training exerts muscles at high intensities without movement of the joints with activities such as weighted wall sits or planks.

**V. Exercise goals:** *Create specific, measurable goals that you can use to track the progress of your fitness program*. Your goals should relate to one aerobic and one anaerobic activity you have indicated in your program. Before you can set specific and realistic goals you must assess your current level of fitness.

1. *Methods used to assess current fitness level (include results):*
2. Aerobic:
3. Muscular strength:
4. Muscular endurance:
5. Flexibility:
6. Body composition: bodpods

*Specific fitness goals:*

1. Aerobic: Jog 2 miles under 13 minutes
2. Muscular strength: Be able to squat 135 pounds 3 times.
3. Muscular endurance: Bench press with 5 pounds 12x4
4. Flexibility: Be able to reach my heels without bending my knees
5. Body composition:

**VI. Before you begin:** All physical activity should begin with a well-designed **Warm-up.** *Describe an appropriate warm-up routine for one of your aerobic exercises you have chosen. Also describe how you would warm-up for your resistance/weight training exercise session.*

**Aerobic**: Before jogging outside, I power walk first as quickly as I can. After about five minutes, I stretch out my legs slightly and begin my jog at 75% intensity.

**Weight training (Leg Day):** Before I begin lifting heavy that session, I do some lighter exercises to warm up. Before I do my squats with weight, I begin with just the barbell. I do about 15 reps without weight, and then I put 5 pounds on each side and do 15 reps with weight. I then lightly stretch and begin squatting with heavier weights. Before doing calf raises, I use the smith machine and do raises with just the bar several of times. I add 5 pounds to each side and do several more raises before I am ready to perform with heavier weight. Before doing leg extensions and hamstring curls at the weight listed above, I begin with reps of 12 with a lighter weight. For extensions, I usually begin with reps of 90. For hamstring curls, I usually begin with reps of 60. I do a couple sets of low weight and then I begin with heavier weight.

*Discuss at least two reasons why warm-up is important for any exercise session:*

Warm up increases blood circulation through muscles, tendons and ligaments which helps prevents muscle injuries. Warm up exercises also increase your heart rate before performing an exercise of higher intensity. Warm up exercises allow the body to prepare for the upcoming exercise.

**VII. Progression & Overload:** Once you begin your exercise program, it is recommended that you monitor your progress and apply overload when necessary. *Discuss how you will know when it is time to increase your workload (progression) and also how you would increase your workload (overload) to increase your fitness level. Provide a specific example from your program to demonstrate your understanding of these principles of conditioning.*

Progression: I will know it is time to increase my workload when the exercise I am doing becomes too easy. I can add more repetitions and sets to make it more challenging on my muscles.

Overload: To increase my workload, I can add heavier weights as well as reduce my rest period between sets. The body adapts to any rigors we place on it, therefore, changing your routines up and adding heavier weights will challenge the muscles and allow them to grow.

**VIII. Cool down:** Every exercise session should end with cool down activities. *Describe an appropriate cool down for aerobic exercise and for resistance/weight training. Identify at least one reason why it is important to cool down after any exercise session.*

Cool down reduces heart rate and blood pressure as well as body temperature. It allows the body to return to pre-exercise state. Cool down can also help reduce the risk of dizziness or fainting caused by the strenuous flow of blood.

After a 30 minute jog outside, I would cool down by walking for about 10 minutes and performing a few static stretches. This would allow for the body to return to its original state.

After weight training (legs), I would cool down by doing a couple lower weighted sets. I would finish by performing a few static stretches such as a seated hamstring stretch, standing quad stretch, and a standing calf stretch against a wall.

**IX. Increasing flexibility:** *Stretching* can and should be a part of everyone’s daily physical activity plan. Stretching exercises can be used to relieve or prevent low back pain or decrease muscle tension. A flexibility program is an important part of any type of aerobic or resistance/weight training program.

Use the chart on the next page to design a flexibility program that fits your needs and ability. An important consideration should be the inclusion of exercises for all major muscle groups. Your program should include a minimum of ten (10) exercises. Your stretching exercises should be based on the muscles used in your fitness program.

*Frequency:* A minimum frequency of 2-3 days per week is recommended. You are encouraged to do your stretching exercises the same days you plan to do cardiorespiratory endurance exercise or weight training, because muscles stretch better following exercise, when they are warm.

*Intensity:* All stretches should be done to the point of mild discomfort, not pain.

*Time/duration:* All stretches should be held for 10-30 seconds. All stretches should be performed at least 3-4 times.

1. Discuss 3 guidelines that you would use for safe and effective stretching.

**Your response should be original, not copied from another source.**

1. Stretch when muscles are warm
2. Do not bounce when stretching; hold the stretch
3. Perform the stretch correctly

# B. Stretching/Flexibility Program

|  |  |
| --- | --- |
| \*Exercise | Muscles/Joint Area Stretched |
| Standing quadriceps stretch | Quads, thighs |
| Seated hamstring stretch | Hamstrings and lower back |
| Wall straight leg calf stretch | Gastrocnemius (calves) |
| Doorway chest stretch | Pectoralis major (chest) |
| Overhead triceps stretch | Triceps |
| Doorway front deltoid stretch | Deltoid (shoulder) |
| Seated biceps stretch | Biceps |
| Seated glute stretch | Gluteus maximus (butt) |
| Seated groin stretch (butterfly) | Adductors (inner thighs), hip |
| Lying abdominal stretch (prone) | Rectus abdominis (abs) |

\*Exercise descriptions may be necessary.

**X.** Finally, discuss how your program will help you improve or maintain a healthy body composition.

If I follow this program strictly for a couple of weeks, it can help me improve my body in several of ways. I think that my cardio endurance will be a lot stronger as will my body as a whole. I have been working on toning up however, I would currently like to focus on gaining strength and that is what I would like to achieve most out of this fitness program. I would also like to see less body fat and more muscle.

Important note: If you use any sources, including your textbook, to help you complete this assignment you must make it clear how and where they were used. Provide sufficient information to allow your instructor to be able to locate the source.

Exercise & Muscle Directory. (n.d.). *Exercise &Muscle Directory.* Retrieved April 11, 2014, from <http://www.exrx.net/Lists/Directory.html>