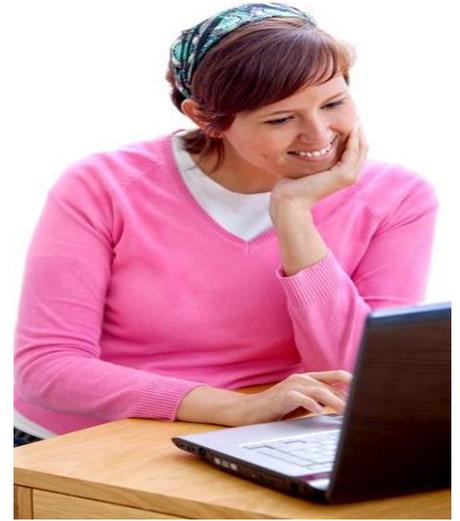


Heather Case Study

Heather is a 33-year-old part time sociology major who does research at her desk job most of the day. You notice that her shoulders are rounded (kyphosis). In addition, Heather reports that sometimes she has muscle spasms in her upper back when she sits too long at her desk. She is 5'6" tall and weighs 165 lbs, with a waist circumference of 35 inches. Results from her last physical revealed the following values: resting blood pressure 130/85 mmHg, total cholesterol 175 mg/dL, LDL 121 mg/dL, HDL 39 mg/dL, fasting blood glucose 95 mg/dL, and triglycerides 75 mg/dL. Her resting heart rate is 80 beats/min and regular. She is a social smoker and has 1-2 cigarettes a day. Her mother passed away at the age of 64 due to a myocardial infarction. She plays basketball for 30 minutes once a week. She eats out most days she is at work and her doctor expressed concern about her weight and health. She consumes 3 alcoholic drinks per week. She has received some nutritional counseling and plans to adopt a healthier diet. Heather has signed up with a trainer to get in 30 minutes of resistance training 2 days per week. She has a total of 6 hours per week to exercise.



Coronary Risk Factors

1. What is Heather's body mass index (BMI) and body weight category?

2. List Heather's major coronary risk factors (if any):

3. What other factors that contribute to coronary artery disease risk does Heather currently have?

Physical Fitness Assessments



After ensuring that Heather was fully cleared for exercise, assessments were performed and her results are listed in the chart below.

- Body composition measurements: Triceps 23 mm, Suprailiac 20 mm, Thigh 21 mm
- 1 Mile Walk measurements include: Heart rate = 143 beats/minute and Time = 16:34 minutes.

4. Using the Body Composition and Waist Circumference section of your PHF textbook, determine Heather's percent body fat. Determine her estimated VO_{2max} for the 1 mile walk test by using the formula in the Physical Fitness Assessment section of your textbook. Using the table below, as well as the Normative Data and Fitness Categories section of your textbook, indicate her current fitness category for each test, and create a short-term goal for each test by using the percentage increases listed in the Goal Setting section of your textbook. Heather is a novice exerciser (improvements are greater in unfit individuals and become more difficult as fitness level increases), very motivated and can dedicate 6 hours per week to her exercise program. Note that Heather was unable to do a full body push up, so she performed the modified push up test.

	Current Raw Score	Current Fitness Category	Goal Raw Score*	Goal Fitness Category**
Percent Body Fat				
Sit & Reach (inches)	19.5"	High Fair		
1 Minute Sit Up	25	Low Fair		
1 Minute Push Up (modified)	20	Mid Fair		
1 Mile Walk (ml/kg/min)				

Cardiovascular Training and Prescription



5. Based on the above information, using the Heart Rate Reserve formula in the Cardiovascular Training and Prescription section of your textbook, calculate Heather's target HR. Remember that the intensity should be based on her current cardiovascular fitness level from the 1 Mile Walk test.

- a. Estimate Max Heart Rate:
- b. Calculate Heart Rate Reserve (HRR):
- c. Multiply HRR by Lower Range of Intensity:
Multiply HRR by Upper Range of Intensity:
- d. Add back in resting heart rate.
Determine Low End of Target HR:
Determine High End of Target HR:
- e. Target HR Range =
- f. Target HR Range (10 second count):

6. Design a progressive 8 week cardiovascular program for Heather based on her current level of cardiorespiratory fitness to help improve her $VO_{2\max}$ score on her next fitness assessment.

	Mode	Frequency	Intensity	Duration	Weekly Volume
Week 1					
Week 2					
Week 3					
Week 4					
Week 5					
Week 6					
Week 7					
Week 8					

Resistance Training and Prescription

7. Based on Heather’s fitness assessment results and occupation, what would be appropriate recommendations for resistance training? She would like to perform resistance training workouts with her trainer 2 days/week for 30 minutes. What are some areas you would like to target for resistance training?



8. Select a strength goal for Heather from the Resistance Training and Prescription section of the PHF textbook.

Intensity	Sets	Reps

9. List six resistance training exercises (2 upper body, 2 lower body, and 2 core) that you would include in her program along with the muscles worked.

Muscle(s) Worked	Exercise

10. How would you determine the amount of resistance Heather should use for the Seated Cable Low Row and Dumbbell Chest Press?



Flexibility Training and Prescription

11. Given that Heather spends much of her day sitting and plays basketball once a week, list five static stretches that Heather should be doing. A review of her score on the Sit & Reach Test shows she scored in the High Fair category. This suggests that her hamstring flexibility has room for improvement. List the muscle stretched, joint action to stretch each muscle, and provide suggestions for the length of the stretch and repetitions. List some additional stretching exercises she could perform. Use the Flexibility Training and Prescription section of your PHF textbook.



Name of Stretch	Muscle Stretched	Joint Action to Stretch Selected Muscle	Duration	Repetitions

Nutrition

A first step for Heather would be to track her current dietary intake using an App or the SuperTracker to develop a baseline for her eating habits and nutrient intake. Have her log at least two days during the week and one day of the weekend.

The dietician recommended 1900 calories per day for Heather to lose weight safely along with increased fruit and vegetable intake.



SuperTracker



12. Using the current RDA range for dietary fat, how many grams of fat should Heather be consuming each day?

13. Using the recommended dietary guideline of 0.36 grams of protein per pound of body weight, how many calories per day of protein should Heather consume?

14. To help Heather achieve this goal, what type of general recommendations would you make for her, especially since she mentioned earlier that she finds herself eating out of vending machines at school?

Behavior Change

15. Thinking about all of the information provided about Heather, what stage of change would you classify her in regards to physical activity and healthy eating?

16. How might you incorporate some of the concepts in the behavior change action steps to help keep her motivated?

