



OVERVIEW

BIG IDEA

Maintaining physical fitness provides immense benefits to our overall health.

OBJECTIVE

2.7 Identify the components of fitness and the FITT principle.

AGENDA

1. Graph Analysis
2. Liz's Story
3. Benefits + Discussion
4. Physical Fitness Principles

HOMEWORK

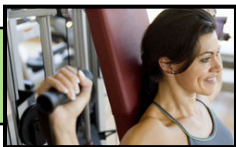
Create a FITT plan, complete at least one exercise, and reflect upon the experience.

LESSON 2.7

Exercise

SUMMARY:

This lesson focuses on physical activity principles for adolescents. Students will begin using their scientific reasoning skills to interpret a complex graph depicting calorie expenditures and intakes for various workout types. They will then read a story depicting the evolution of one young girls' fitness and physical health. Next, students will review the benefits of exercise and discuss why so many people do not exercise. After reviewing the FITT principle, the components of physical fitness, and the CDC's recommendations for physical activity for adolescents, students will take a short assessment and then come up with their own FITT plan.



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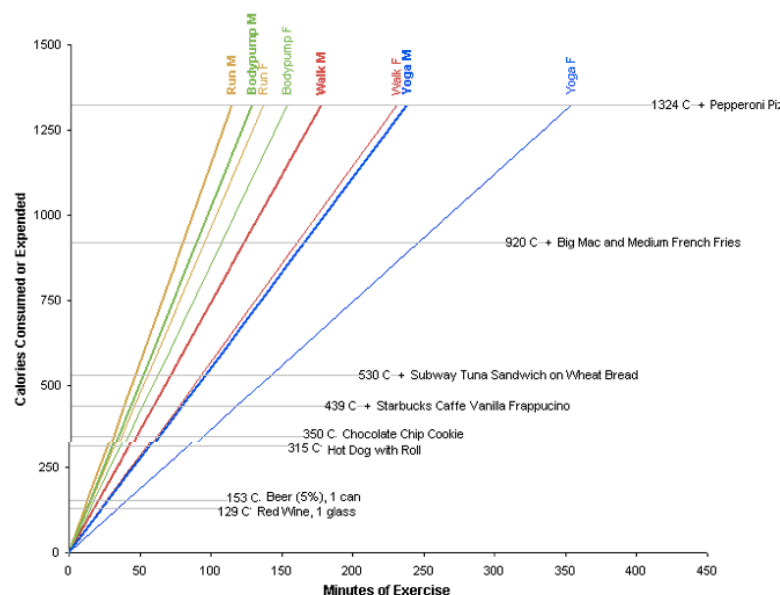
Exercise

PH2.7: Identify the components of fitness and the FITT principle



Use the following graph to answer the questions below:

Source: Peltier Tech Blog, <http://peltiertech.com/WordPress/chart-busters-calorie-chart/>

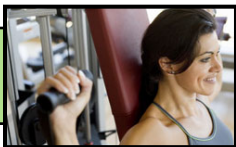


1. Approximately how many calories does a female expend doing 200 minutes of yoga? _____
2. How many calories are consumed by eating a Subway tuna sandwich and a vanilla frap combined? _____
3. How many calories are consumed by eating a Big Mac and medium fry and expended when a male runs for 1 hour, respectively? _____ ; _____
4. Approximately how many minutes of walking would a female need to do in order to burn off a pepperoni pizza? _____
5. Approximately how many minutes of body pump would a male need to do in order to burn off a hot dog and chocolate chip cookie? _____

DO NOW:

Answers:

1. Approx 650-700
2. $530 + 439 = 969$
3. 920, 600
4. Approx 225
5. $350 + 315 = 665$ cal, Approx 70min



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Liz's Story: (Source: KidsHealth, <http://kidshealth.org/>)

I have to admit that I wasn't always physically fit. I was a scrawny little kid who was always the shortest and most petite in my class. My mom had always feared that if I played competitive sports; I'd get hurt by aggressive players. So I wasn't very athletically involved during my childhood.

When I entered middle school, a lot of my friends were signing up for the school's sports teams. One of my friends convinced me to try out for the soccer team with her. I had played a little bit of soccer before, so I figured that it wouldn't be too bad since I already knew the rules and how to dribble, pass, and shoot. On the first day of tryouts, I entered the field feeling quite optimistic until the coach told us to run laps for warm-up.

Bells and whistles went off in my head because I knew that I could not run for very long without getting really tired. As I struggled to keep up with the team, I found myself falling farther and farther behind until I was the last one to finish. Before we could even get a water break, the coach then made us do sprints back and forth across the field! I was so exhausted that by the time we did dribbling and passing drills I barely had any strength left to kick the ball!

After tryouts were over, my name never made it on the list. I was disappointed, but at the same time, I expected it. It was at that moment that I knew I had to do something about my health and fitness. I didn't want to be humiliated like that again.

When springtime rolled around, I made a big decision to sign up for the track and field team. People thought I was crazy because I ran a slow 11-minute mile in gym class, but I was determined to get into shape and improve my mile time. The first day of practice was one of the hardest workouts I've ever had. It was a lot of running for me, especially since I decided to participate in the long-distance events.

Fortunately, I wasn't the only slow runner trying to get into shape. A few others were on the same level as me with a similar goal. Day after day we supported and cheered each other on during practices and meets. As the season progressed, I found that I could run longer, faster, and without as much pain as I used to. One of the happiest days of my life was the last meet of the season when my mile time was 9 minutes. I could not believe that I had cut my time down by 2 minutes in just one season! It was painful and a lot of work, but the results were definitely worth it.

Eighth grade soon rolled around and I was feeling really confident about trying out for another fall sport. Instead of attempting soccer a second time, I decided to give field hockey a try. Again, the coach instructed us to run a lot of laps and sprints. This time, I was well prepared. After a week of tryouts, I was ecstatic to see that my name made it on the list.

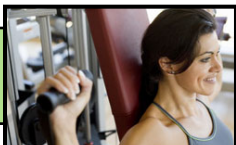
I was inspired. I even took up kung-fu lessons in addition to being on both the track and field and hockey teams. Being in shape helped me feel energized, flexible, and strong. I also felt accomplished: My best mile time ever was 6½ minutes — a long way from the 11 minutes that I started with.

After I got fit I learned another important lesson: Once you do get into shape, *don't stop or give up!* In high school, juggling all my athletic activities and schoolwork during my freshman and sophomore years was challenging but not impossible. But then junior year rolled around and I had the added responsibilities of planning for college, scholarships, ACTs, and finding a job so I could buy gas for my car.

It became almost impossible to manage my time. The job gave me gas money, but it wore me out so much that I would often come home at night exhausted. Halfway through the year, I gave up some of my commitments to focus on priorities: Since I want to go to art school, I decided to spend more time on my artwork and my academics and less time on sports. I quit taking kung-fu lessons after 3 years of training and I quit track early in my fifth season. I knew my fitness would suffer, but I pledged to run on weekends and whenever I had free time.

READ:

Some options for reading: Snake around the room in order, Toss a soft ball to the next reader, Independently read, Partner read-aloud (quietly), or even Read for homework.



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Unfortunately, I didn't keep my own promise. When I did have free time, I spent it going out with friends or catching up on sleep. I could feel my body getting more and more sluggish, but I kept telling myself that I would run the next day. I kept putting off exercising, and eventually I found myself stressed out and moody. My body kept sending signals that I wasn't healthy, but I ignored them. When it came to the point that going up the stairs in my house became tiring, I realized that — busy or not — exercise had to be a priority. Getting back into shape was extremely hard. When I was on the track team, I could run for miles. Now running for just 15 minutes left me really tired. It was slow and painful, and yet at the same time, I was feeling better and stronger again. Although I may never be able to get back into the tip-top shape I used to be in, I've found that even a little exercise makes a difference. Staying fit and healthy is one of the best things I can do for my body.



Post-Reading Questions:

1. What were some of the physical, mental & social effects of Liz's decision to get into shape?
2. Does being physically fit happen naturally or quickly? Why or why not? Use evidence from the story?
3. Can you relate to Liz's story at all? Why or why not?



Benefits of Physical Activity: According to the CDC, the following benefits can be achieved by getting the regular amount of recommended exercise:

- Control weight
- Reduce risk of cardiovascular disease
- Reduce risk for Type 2 diabetes and metabolic syndrome
- Reduce risk of some cancers
- Strengthen bones & muscles
- Improve mental health and mood
- Improve ability to do daily activities (and prevent falls), for older adult
- Increase chances of living longer



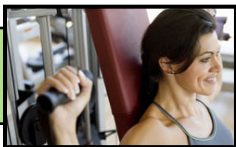
Talk with a partner about each of the questions below:

1. Given all of these health benefits, why does the average American still struggle to get in an adequate amount of exercise?
2. For adolescents, in particular, which of the health benefits above would be most important? Can you think of any other health benefits not listed that would appeal more to a younger person?
3. A friend argues that exercise doesn't matter and claims that the best way to lose weight is just to focus on a balanced and healthy diet that does not exceed your recommended number of daily calories. What would you say to this friend?

THINK: Answers will vary. The purpose of this story is to give students a personal connection so that they remember that the concepts they are studying (fitness & exercise) are a very direct and real part of their lives. This would be a great opportunity to ask a few students to share their own personal fitness histories or stories.

NEW INFO: Ask: Can you think of other benefits you have heard or read about that are not listed here? What are the possible negative effects of exercise? (injury, time commitment, danger if exercising in unsafe area or with unsafe equipment, etc.)

DISCUSS: Answers will vary! Question #3 can be addressed as a group, especially if there is disagreement among students or they cannot seem to find evidence for their answer. Explain that the very simple equation that governs weight loss is: $\text{Calories Burned} > \text{Calories Eaten} = \text{Weight Loss}$. Then ask students what the opposite of this equation would be. So in summary, what we eat is a bigger contributor for many people to their overall weight. However, the other benefits of exercise AS WELL as the accumulation of calorie burning from a very active lifestyle still do make exercise just as important as diet for overall health.



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Read about the essential fitness concepts below:

1) FITT PRINCIPLE:

Frequency	Intensity	Time	Type of Activity
How often is exercise done? Exercise should take place on a daily basis.	How intense is exercise? Moderate exercise will get you breathing hard enough so that you could not sing.	How long does the exercise last? Over time, endurance builds to allow longer workout periods.	Why type of exercises are done? Varying the type of exercise is important to target the various components of fitness.

5 Components of Physical Fitness:

Component	Definition	Examples
Cardiopulmonary Endurance	Cardiovascular endurance refers to the ability of your heart and lungs to work together to fuel your body with oxygen.	Aerobic conditioning, like jogging, swimming and cycling
Muscle Strength	Muscle strength refers to the amount of force a muscle can exert, in a single effort.	Weight training exercises (bench press, bicep curl)
Muscle Endurance	Muscle endurance refers to the ability of a muscle to perform a continuous effort without fatiguing.	Cycling, step machines, and sit ups
Flexibility	Flexibility refers to the ability of each joint to express its full range of motion.	Yoga, stretching individual muscles
Body Composition	Body composition refers to the amount of body fat you have, versus the amount of lean muscles, bones and organs.	Any exercises can influence body composition

Adapted from www.fitday.com

Physical Activity Recommendations for Adolescents:

Aerobic, Muscle-strengthening, and Bone-strengthening Activities

Every day children and adolescents should do 1 hour or more of physical activity.

Aerobic activities. Most of the 1 hour a day should be either moderate or vigorous-intensity aerobic physical activity, and include and include vigorous-intensity physical activity at least 3 days a week.

As a part of the 1 hour a day of physical activity, the following should be included:

- Muscle-strengthening on at least 3 days a week.** These activities make muscles do more work than usual during daily life. They should involve a moderate to high level of effort and work the major muscle groups of the body: legs, hips, back, abdomen, chest, shoulders, and arms.
- Bone-strengthening on at least 3 days of the week.** These activities produce a force on the bones that promotes bone growth and strength through impact with the ground.

Youth should be encouraged to engage in physical activities that are appropriate for their age, enjoyable, and offer variety.

No period of activity is too short to count toward the Guidelines.

Source: CDC

NEW INFO: FITT PRINCIPLE

A good resource to expand a bit on this is at: www.ode.state.or.us/teachlearn/subjects/pe/curriculum/fittprinciple.pdf

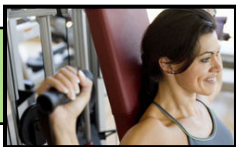
NEW INFO: 5 COMPONENTS

The information at the URL listed here provides a guide for someone who may be going to a gym to join as a member or starting a training period with a new personal trainer and gets these components measured in their initial evaluation.

<http://www.fitday.com/fitness-articles/fitness/body-building/the-5-components-of-physical-fitness.html#b>

NEW INFO: RECOMMENDATIONS

For more information go to: <http://www.cdc.gov/physicalactivity/everyone/health/index.html>



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Answer the questions below to check your understanding:

- What are the 5 components of physical fitness?
 - Cardiorespiratory endurance, muscle strength, muscle endurance, flexibility, body composition
 - Cardiorespiratory endurance, muscle composition, flexibility, body fat, frequency
 - Muscle strength, muscle endurance, frequency, time, type
 - Cardiorespiratory intensity, muscle strength, muscle endurance, flexibility, body fat
- What does muscle endurance mean?
 - How often your muscles work
 - How much strain your muscles can take for a short time
 - Your muscles' ability over time
 - The length of time you work out for
- In the FITT principle, what does Intensity mean?
 - How often you work out
 - The activity you do
 - The amount of time you workout for
 - The degree of difficulty of your exercise
- Which of the following is **not** a benefit of physical activity?
 - Reduction of fat
 - Increased blood pressure
 - Better sleep
 - Increased immune system



On a separate paper, create a Moderate and Vigorous FITT plan for one week. If you are already exercising, record your current FITT plan with at least one adjustment to make it more vigorous.

Your FITT Plan

	F	I	T	T
Low (example)	Once per week	20 mins per mile	10 mins	Walking
Moderate				
Vigorous				

Do the exercises outlined in your FITT plan at least once, then answer the following questions:

- How did you feel before working out? Physically, mentally, and socially?
- How did you feel after working out? Physically, mentally, and socially?
- What were the immediate benefits of working out? Eventual benefits?
- What were the immediate challenges of working out? Eventual challenges?
- Why might it be a challenge to keep up your FITT plan daily?

ASSESS Answers:

- A**
- C**
- D**
- B**

HOMEWORK:

The purpose of this homework is to take the principles of physical activity and apply them to their own life. This assignment will be easy for the active students in the class and may pose slight challenges for inactive students. Encourage students to find a “workout buddy” if they need someone to help them stay motivated and accountable. Additionally, this may make the assignment more fun.