

LECTURE OUTLINE, Chapter 10
Nutrients, Physical Activity and the Body's Responses

“Given what we know about the health benefits of physical activity, it should be mandatory to get a doctor’s permission not to exercise.” –Dr. P-O Astrand

I *Benefits of exercise:*

<ul style="list-style-type: none"> ▪ improved mental outlook ▪ feeling of vigor 	<ul style="list-style-type: none"> ▪ sound sleep ▪ reduced body fat 	<ul style="list-style-type: none"> ▪ greater bone density ▪ reduced risk of heart disease & some cancers ▪ improved diabetes, etc.
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Why might focusing only on the benefit of reduced body fat be counterproductive to exercise?

True or False. Starting an exercise program usually leads to a reduction in body fat?

II 4 Components of fitness

1. _____
2. _____
3. _____ endurance
4. _____ endurance

III *Benefits of regular AEROBIC activity* like jogging or brisk walking:

1. _____ muscles get stronger so you can breathe in more _____
2. _____ muscles are stronger so more _____ rich blood is pumped per beat (cardiac output increases).
3. Increased blood _____ & more _____ cells to carry _____. What effect do all 3 of these have on an **athlete's resting heart rate**?
4. Raises __DL

IV Benefits of ANAEROBIC activity:

All-out exertion lasting less than ____ seconds. For example: _____

1. Increases muscle _____.
2. Increases muscle _____ if lighter weight and more repetitions.

Which of the 4 components of fitness would NOT be achieved if on a regular basis you jogged one day and lifted weights the next? _____

V Energy Use FIGURE 10-4 in text

What does the purple arrow represent? _____

What does the blue to green to yellow spiraled arrow represent? _____

VI Fuel use during aerobic activity.

1. Beginning: glycogen & _____, but more _____
 2. As time goes on, use more _____ than glycogen
 3. When does glycogen run out for the bike rider shown in Lecture 10A _____?
- List **two** ways you can manipulate what you do to make glycogen last as long as possible.

VII Fuel use during anaerobic activity

Almost entirely _____ because burning fat requires _____.

Lactic acid is produced when there's not enough _____ in cells.

Ketones are produced when there's not enough _____ in cells.

VIII Protein as fuel during activity

Protein supplies ____% of the fuel used during rest & activity.

What is the rule of thumb to determine someone's protein needs who is regularly exercising?

If you are an athlete, what is the extra protein you need mainly needed for?

What do humans do with excess protein?

COMMON QUESTIONS REGARDING PROTEIN

1. What’s the concern of too much protein?

2. Do I need to eat as soon as I finish exercising?

3. Do I need to eat protein every 3 to 4 hours to support muscle growth?

4. Are protein supplements better than real food?

IX Fluids and Temperature Regulation During Activity

Why does sweat help protect you from overheating?

2 forms of dehydration:

<p>HEAT EXHAUSTION</p> <ul style="list-style-type: none"> ▪ cool, clammy & pale skin ▪ normal to slightly high temperature 	<p>HEAT STROKE</p> <ul style="list-style-type: none"> ▪ dry, hot, red skin ▪ <u>high</u> temperature ▪ headache, nausea, dizzy
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Which is more dangerous, heat EXHAUSTION or heat STROKE? _____

X Sports Drinks

Water is all you need if exercising less than ____ hour.

What sports drinks offer besides fluid:

1. **Electrolytes** like sodium- may accelerate _____ & _____ absorption from digestive tract. About 225 mg per 12 oz. (150 mg per cup) is enough
2. **Glucose**: no more than 7%, which is about **23 grams** per 12 oz. (15 grams per 1 cup)

3. Psychological edge
4. Taste

Homemade sports drink: 1 qt. water, 1 cup sugar-sweetened fruit juice, 1/3 tsp. salt