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The Science of Dietary Fat

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Fat Burning in Response to Diet & Exercise



DFEND

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LEARNING OBJECTIVES

- Define functions of fat for humans
- Define types of dietary fat
- Identify Dietary Guidelines for fat intake
- Identify effects of exercise on fat metabolism
- Identify effects of meal timing on fat metabolism

FUNCTIONS OF FAT

- Insulation and protection
- Energy storage
- Hormone production
- Regulation and signaling
- Aiding digestion and absorption
- Flavor, satiety



TYPES OF FAT IN FOOD

- Saturated fat
- Unsaturated fat
 - Monounsaturated fats
 - Polyunsaturated fats
- Trans fat



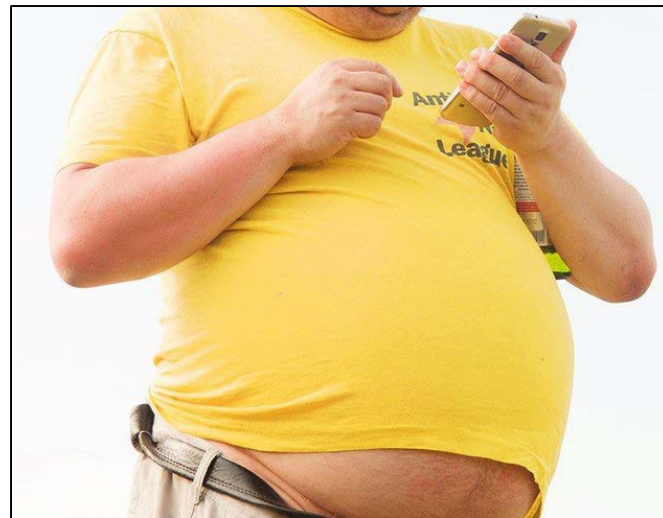
DIETARY GUIDELINES

- Replace saturated fat with healthier monounsaturated and polyunsaturated fats.
- Avoid trans fat.



OBESITY

- Our bodies store surplus of calories as fat.
- Excess weight is linked to metabolic disturbances and poor health (hypertension, CVD, diabetes, fatty liver etc.)
- ~19% of U.S. children and adolescents between 2-19 years and ~40% of adults presently defined as obese (CDC)



Total Daily Energy Expenditure

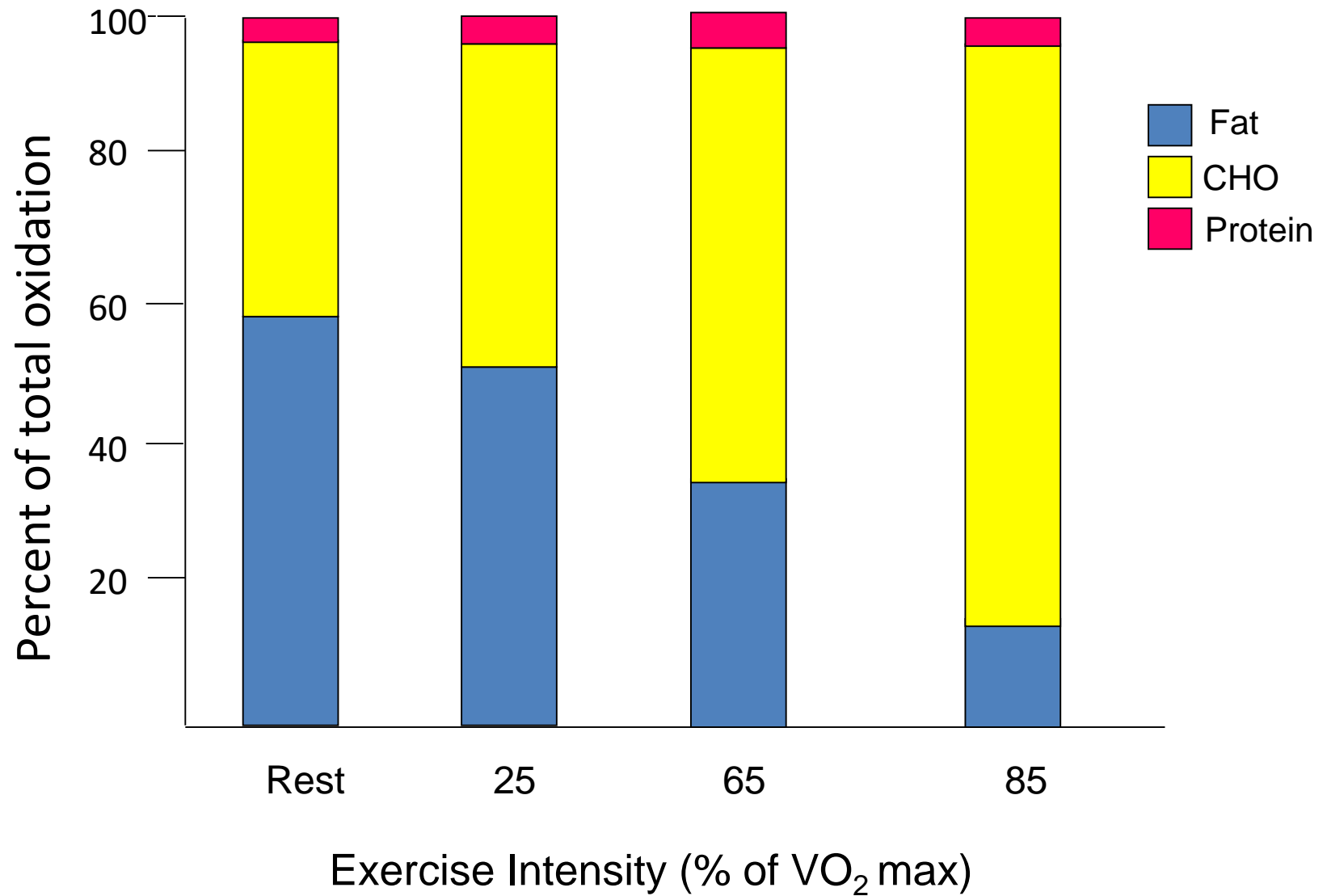
Resting Metabolic Rate (60-75%)

Thermic Effect of Physical Activity (15-30%)

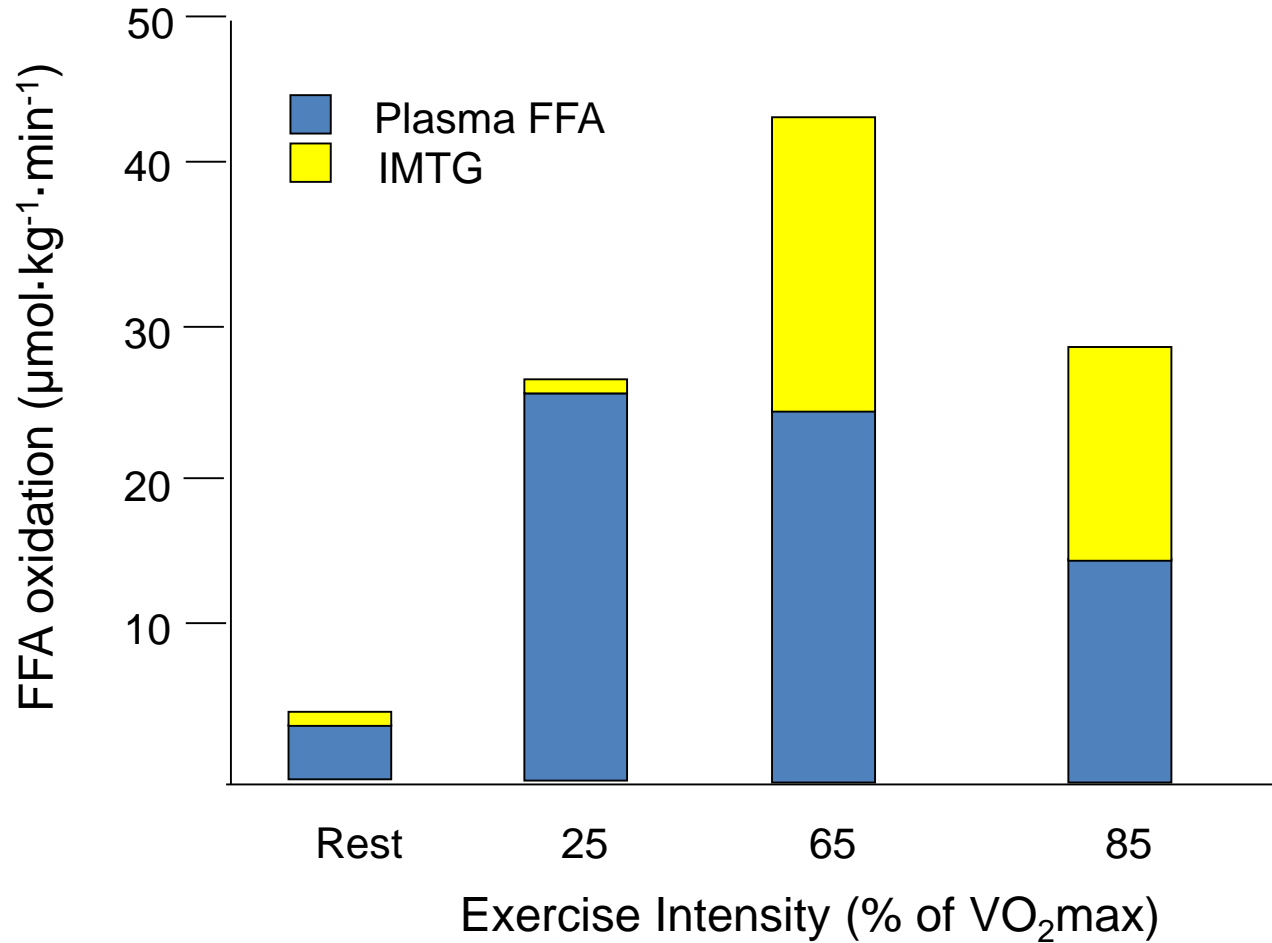
Thermic Effect of Feeding (10%)



EFFECT OF EXERCISE ON FAT USAGE

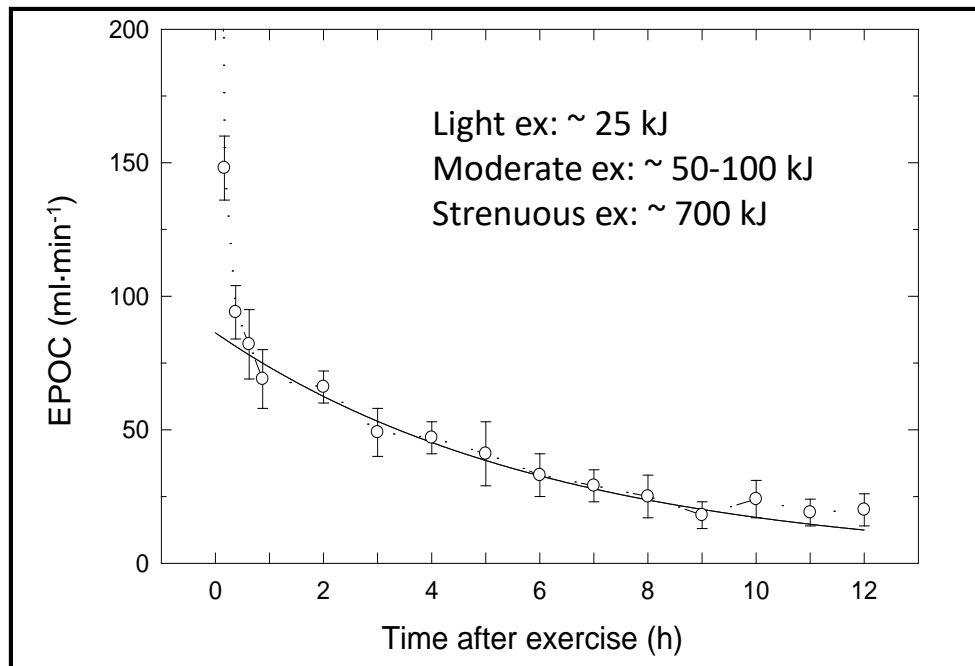


FAT USAGE DURING EXERCISE



RECOVERY PERIOD AFTER EXERCISE

- Excess Post-exercise Oxygen Consumption
- Shift from carbohydrate to fat usage for energy
- Intake of carbohydrates before exercise may lower fat usage during and after exercise



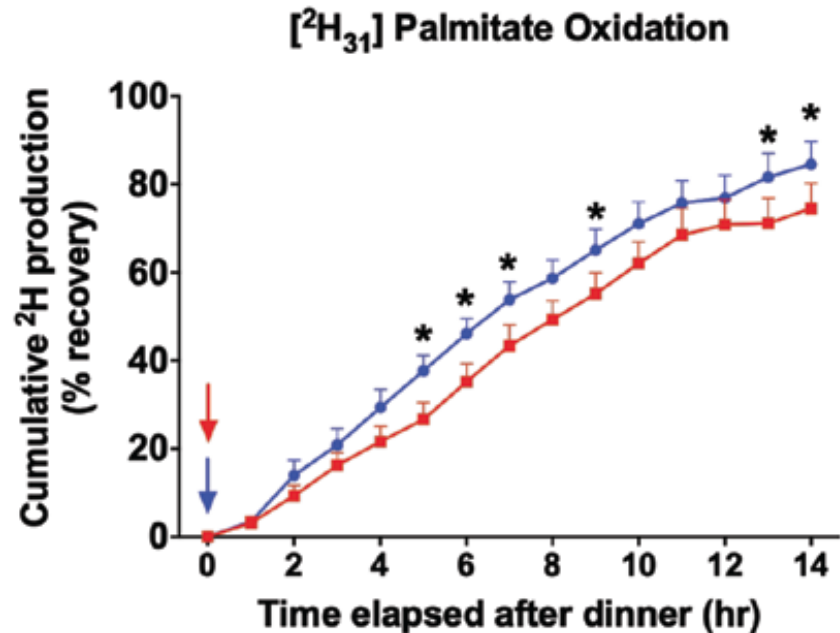
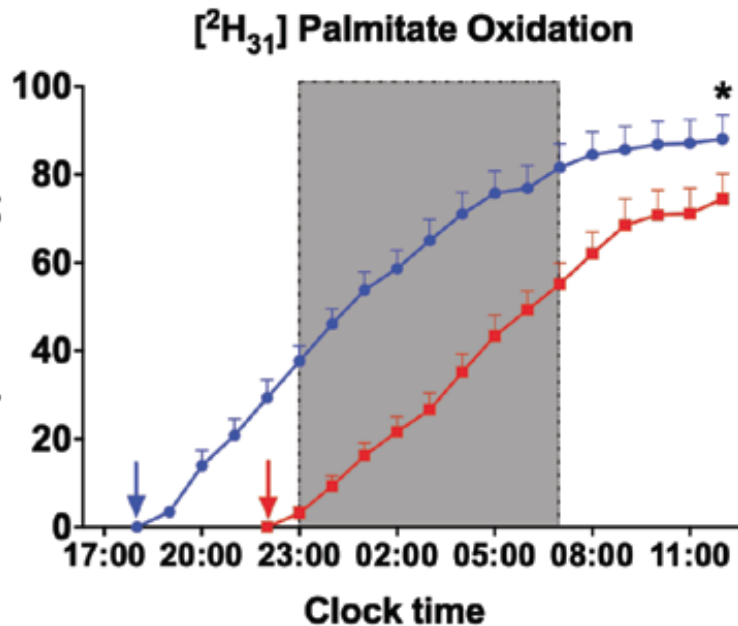
EXERCISE AND FAT USAGE

- The body's use of fat for energy depends on availability.
- People with obesity have impaired ability to adjust the body's fat usage for energy.
- Exercise can restore the ability to respond appropriately to availability.



MEAL TIMING

- Frequent meals/snacks can suppress fat usage.
- Late dinner can lower fat usage during the night vs. an earlier dinner.



THANK YOU!



Exercise Intensity, Duration and EPOC

