

PHYSICAL  
ACTIVITY AND  
EXERCISE

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# Discussion Topics

1. Meaning of Physical Activity, Exercise, and Fitness
2. Benefits of Aerobic Activity and Exercise
3. Health Benefits of Physical Activity
4. Well-Being Benefits of Physical Activity
5. Beginning an Exercise Program
6. Maintaining an Exercise Program
7. Eustress, Flow, and Physical Activity

MEANING OF  
PHYSICAL  
ACTIVITY,  
EXERCISE, AND  
FITNESS

# Meaning of Physical Activity, Exercise, and Fitness

- **Physical activity:** bodily movement that enhances health
- **Physical exercise:** planned physical activity designed to exert your body for health or fitness reasons
- **Cardiorespiratory fitness:** aerobic fitness; the heart, blood vessels, and lungs' ability to supply oxygen-rich blood to the muscles during sustained physical activity





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## Meaning of Physical Activity, Exercise, and Fitness

- Sprinting is a form of anaerobic activity; bodily systems will not be able to sustain oxygen supplies
- **FITT principle:** frequency, intensity, time, and type of physical activity
- Today, US government's recommendation is 150 minutes of moderate-intensity exercise a week

# BENEFITS OF AEROBIC ACTIVITY AND EXERCISE

A close-up, low-angle shot of a person's feet wearing red and black hiking shoes, stepping on a rocky trail. The ground is covered with dry, brown grass and small rocks. The background is a blurred, hilly landscape under a bright sky.

# BENEFITS OF AEROBIC ACTIVITY AND EXERCISE



# Benefits of Aerobic Activity and Exercise

- Benefits of maintaining aerobic exercise:
  - Strengthens heart and cardiovascular system
  - Reduces risk of cardiovascular disease
  - Reduces body fat and risk of Type 2 diabetes
  - Reduces risk of cancer
  - Boosts immune system
  - Combats bone mass loss
  - Increases life expectancy



# Benefits of Aerobic Activity and Exercise

- Buffers stress
- Reduces anxiety
- Reduces depression
- Enhances psychological well-being
- Improves sleep
- Improves cognitive performance
- Builds self-confidence, self-esteem, and self-efficacy

# HEALTH BENEFITS OF PHYSICAL ACTIVITY

# Health Benefits of Physical Activity

- After five decades of research, indisputable evidence that exercise reduces health risks and promotes longevity

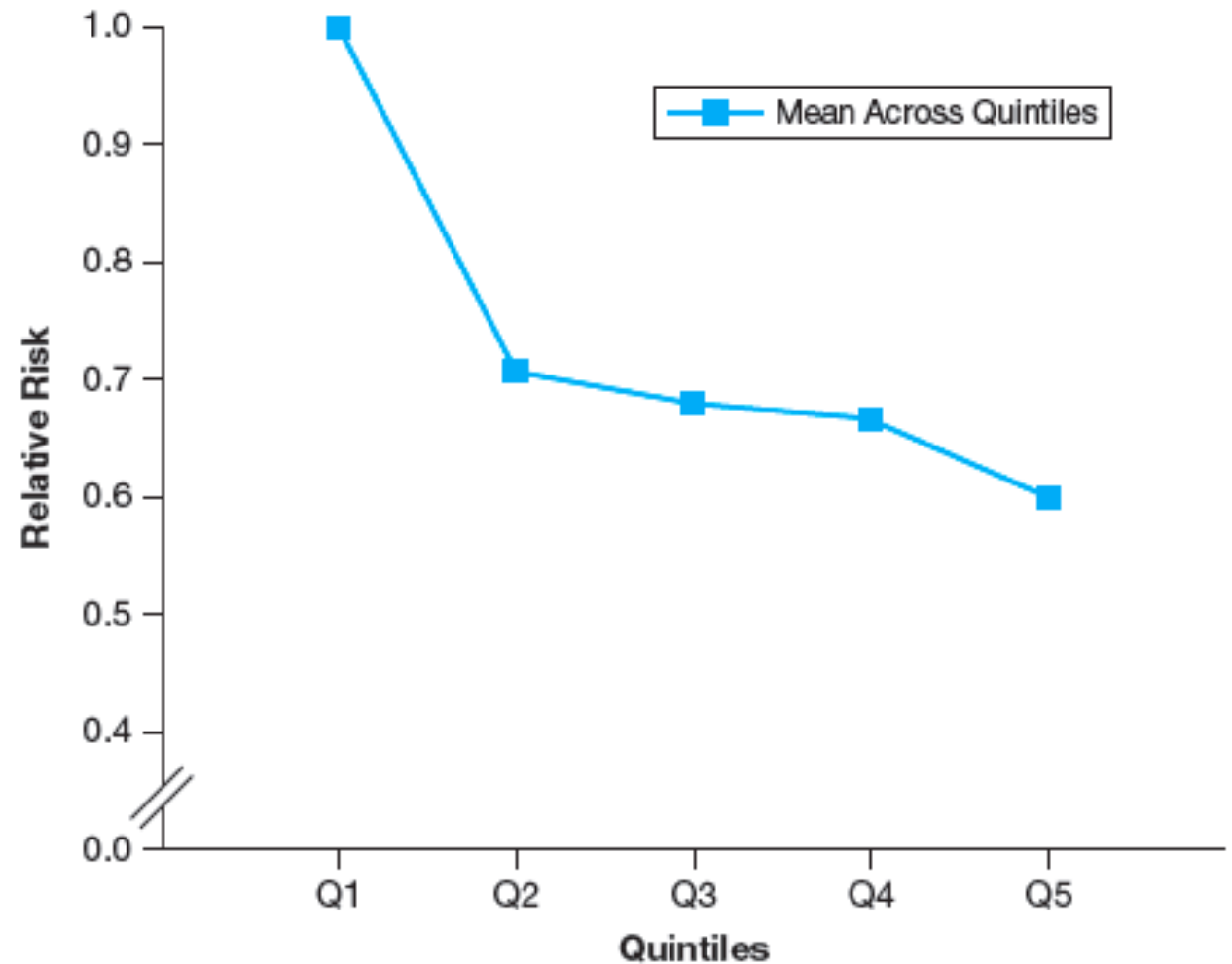


Summary of findings from Warburton et al. (2010) effects of physical exercise/ fitness on seven primary health outcomes

Type of Health Risk	Number of Studies That Met Inclusion Criteria	Quality of Research	Average Percentage Reduction from Physical Activity/ Fitness	Minimum Recommended Dosage of Moderate Activity	Dose-Response Relationship?
All-Cause Mortality	70	Level 2 A	31%	30 minutes most days of the week.	Yes
Cardiovascular Disease	49	Level 2 A	33%	30 minutes most days of the week. Even 1 hour of brisk walking per week confers benefits.	Yes
Stroke	25	Level 3 A	31%	30 minutes most days of the week. Brisk walking effective.	Yes
Hypertension	12	Level 3 A	32%	30 minutes most days of the week.	Yes
Breast and Colon Cancer	76	Level 2 A	30%	30 to 60 minutes most days of the week.	Yes
Type 2 Diabetes	20	Level 2 A	42%	30 minutes most days of the week.	Yes
Osteoporosis	2	Level 3 A	Reduces risk but further research is required to determine the percentage reduction	30 minutes most days of the week. Must be load-bearing exercise.	Yes

**Physical activity dose-response curve for all-cause mortality reported by Warburton et al. (2010).**

Notice that the most dramatic drop in risk occurs when moving from the bottom level of physical activity (sedentary level represented by the first quintile) to the next highest level (represented by the second quintile).



# Health Benefits of Physical Activity (cont'd.)

- Dose-response relationship for benefits of exercise: people show most beneficial effects when they begin a program, and then they start to level off
- Resistance exercise also has documented CHD prevention benefits
- Mechanisms for reducing CHD through exercise include reduction of body fat, blood pressure, and inflammation; raises HDL

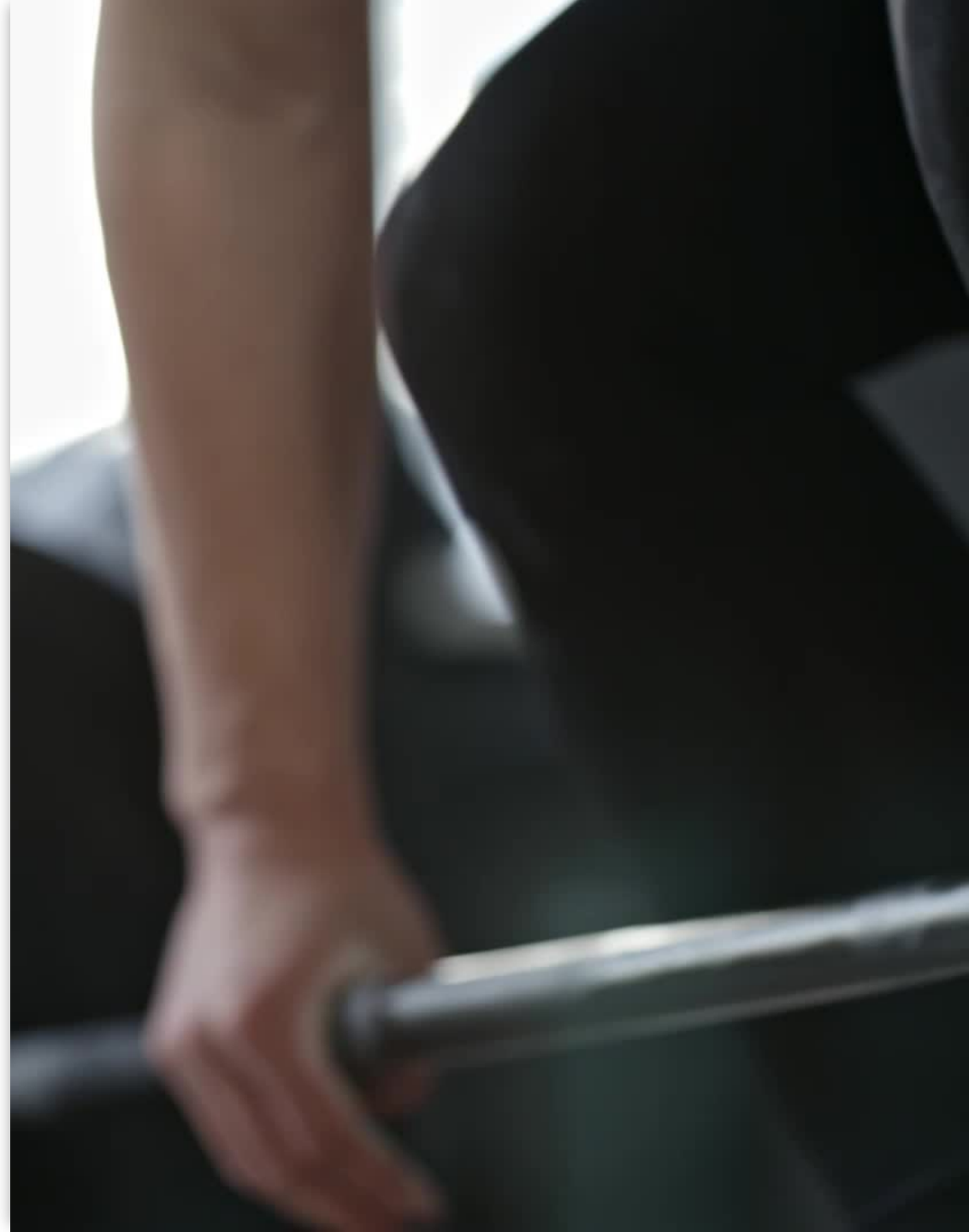
# Health Benefits of Physical Activity (cont'd.)

- Exercise associated with:
  - 20-30% decreased risk of breast cancer; 30-40% decreased risk of colon cancer
- Moderate exercise can boost immune system
  - Extreme exercise (i.e., marathons) temporarily weakens it
- Some research shows benefits for weight-bearing exercise reducing osteoporosis risk



# Health Benefits of Physical Activity (cont'd.)

- Physical activity effective in reducing visceral fat
- **Body mass index (BMI):** measure of the size of the body based on height and weight, estimated to measure body fat
  - Not entirely accurate because it does not differentiate weight from fat from weight from muscle
- Resistance training reduces health risk by increasing muscle mass



WELL-BEING  
BENEFITS OF  
PHYSICAL  
ACTIVITY

# Well-Being Benefits of Physical Activity

- Research shows that exercise lessens negative mood states and increases positive moods
- If exercise program discontinued, effects not sustained
- Sedentary lifestyle is a risk factor for developing depression
- There are methodology issues in exercise research
- **Expectancy effects:** people expect good effect

# Well-Being Benefits of Physical Activity (cont'd.)

- Need control groups to control for expectancy effects
- Adequate prospective design with good experimental controls are necessary to study effectiveness
- Placebo pills or groups that use stretching rather than exercise are ways to control for expectancy effects
- Studies with good experimental design show that exercise protects against depression



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## Well-Being Benefits of Physical Activity

- Aerobic exercise also linked to decreased insomnia
- Appears that exercisers must maintain a minimal threshold of activity to see well-being benefits
- **Endorphins:** body's natural opiates that are elevated in blood stream during intense exercise; reduce pain sensations and produce feelings of euphoria



# Well-Being Benefits of Physical Activity

- Psychological hypotheses for exercise boosting mood states:
  - Increases self-efficacy and self-esteem
  - Facilitates social interaction
  - Exercise usually done with others and social rewards play a role in mood enhancement
    - Conflicting evidence for this
- Exercise shows increases in cognitive functioning, especially executive functioning

# BEGINNING AN EXERCISE PROGRAM

# Beginning an Exercise Program

- **Physical Activity Readiness Questionnaire (PAR-Q):** a good screening tool to determine if you are ready for physical activity
- High risk individuals are those with cardiovascular, pulmonary, or metabolic disease
- Moderate risk: men over 45 and women over 55
- Low risk: men under 45 and women under 55

# Beginning an Exercise Program (cont'd.)

- Walking, especially brisk walking, is a good, cheap, accessible form of moderate exercise
- For moderate intensity, one should reach 60% of their maximum heart rate based on age
- Pedometers and step counters effective for measuring walking distance and steps
- Should strive for a minimum of 10,000 steps per day
- Both aerobic and strength training important



# MAINTAINING AN EXERCISE PROGRAM



# MAINTAINING AN EXERCISE PROGRAM

# Maintaining an Exercise Program

- Drop-out rates for exercise programs are high
- **Abstinence violation effect:** person experiences a relapse back to their previous lifestyle and uses all-or-nothing thinking to justify abandonment
- Keys to maintaining a successful exercise program:
  - Avoid overdoing exercise
  - Challenge negative thinking

# Maintaining an Exercise Program (cont'd.)

1

Look for  
intrinsic  
rewards

2

Maintain a  
regular  
schedule

3

Find a workout  
partner

4

Avoid the  
abstinence  
violation effect

Positive predictors and negative predictors/barriers to maintaining regular physical exercise

Positive Predictors	Negative Predictors and Barriers
Normal weight	Overweight or obese
History of physical activity	No history of physical activity
High self-efficacy for physical activity	Low self-efficacy for physical activity
Time for exercise/good time management	No time for exercise/poor time management
Perception of having sufficient strength and energy for exercise	Perception of having insufficient strength and lack of energy for exercise
No tobacco smoking	Tobacco smoking
Social support for exercise	No social support for exercise
Good physical environment for physical activity (safe, good facilities, pleasant environment)	Poor physical environment for physical activity (unsafe, poor facilities, unpleasant environment)
Not self-conscious about appearance	Self-conscious about appearance (female)

EUSTRESS,  
FLOW, AND  
PHYSICAL  
ACTIVITY



# EUSTRESS, FLOW, AND PHYSICAL ACTIVITY

# Eustress, Flow, and Physical Activity

- Engaging in sports and other physical activity is sometimes associated with flow
- Sometimes people get lost while engaging in the activity
- Can be seen as an example of eustress, positive stress we find rewarding and challenging



# Summary

- Cardiorespiratory fitness is the type primarily responsible for preventing health risk, enhancing psychological well-being, and increasing longevity
- Regular exercise reduces risk for cause-all mortality
- Especially effective in reducing visceral fat
- Regular aerobic activity prevents against depression

# Summary (cont'd.)

- Regular aerobic activity reduces insomnia, buffers psychological effects of stress, improves cognitive performance and well-being
- Should assess risk level before starting an exercise program
- Resistance training, flexibility, and balance programs are also important in components of fitness
- Physical activity linked to flow and eustress

