Chapter 17: Exercise and Psychological Well-Being
Session Outline

• Why exercise for psychological well-being?
• Exercise and the reduction of anxiety and depression
• Exercise and mood changes
• How exercise enhances psychological well-being

(continued)
Session Outline (continued)

• Exercise and changes in personality and cognitive functions and sleep
• Exercise and quality of life
• Special cases of exercise and psychological well-being
• Exercise as an adjunct to therapy
Why Exercise for Psychological Well-Being?

• The hectic pace of westernized technological society causes stress and increased demands; more people than ever are feeling their ill effects.

• Across their lifetimes, 25% of people will experience anxiety disorders and 20% depression.

• By the year 2020, depression will be second only to cardiovascular disease as the leading cause of death and disability.

(continued)
Why Exercise for Psychological Well-Being? (continued)

• Anxiety disorders and depression cost the public $45 billion a year.

• Exercise positively influences feelings of well-being and decreases anxiety and depression.

• Epidemiological data show that physical activity is positively associated with good mental health in the U.S. and Canadian populations.
Exercise and the Reduction of Anxiety and Depression

• Mental health problems account for 30% of the total days of hospitalization in the U.S. and 10% of the total medical cost.

• Although a cause–effect relationship has not been established, regular exercise is associated with reductions in anxiety and depression.

(continued)
Exercise and the Reduction of Anxiety and Depression *(continued)*

- High-intensity aerobic activity is not absolutely necessary in producing positive effects.
- Other activities (e.g., strength training, yoga) also have produced positive effects.
Anaerobic Versus Aerobic Exercise

- **Anaerobic**: Short-term, or burst, activities not involving the transportation of oxygen (e.g., weightlifting, baseball)

- **Aerobic**: Longer-term activities that increase pulmonary and cardiovascular system activity (e.g., cycling, running)
Acute Versus Chronic

- **Acute**: Short-term effects
- **Chronic**: Long-term effects
Reduction of Anxiety

• **Acute effects of exercise**
  – Aerobic exercise is associated with lower state anxiety and higher tranquility scores.
  – Postexercise reductions in state anxiety return to preexercise anxiety levels within 24 hours.

(continued)
Reduction of Anxiety (continued)

• Acute effects of exercise
  – Exercise intensities between 30% and 70% of maximal heart rate appear to be associated with the greatest reduction in postexercise state anxiety.
  – Moderate-intensity exercise produced the greatest positive effects in affective responses.
  – Even low-intensity exercise improved affect.
Reduction of Anxiety  *(continued)*

- **Acute effects of exercise**
  - For anaerobic exercise (e.g., weightlifting), mood-enhancing effects are evident at 30% to 50% maximum heart rate.
  - Although acute exercise is no more effective in reducing state anxiety than quiet rest or relaxation, the effects last longer.
Reduction of Anxiety (continued)

• Acute effects of exercise
  – Exercise training is particularly effective for people who have elevated levels of anxiety, but will reduce anxiety even for people with low levels of anxiety.
  – All durations of exercise significantly reduce anxiety, although larger effects have been found for periods of up to 30 minutes (especially under moderate intensity levels).
Acute effects of exercise

- State anxiety returns to preexercise anxiety levels within 24 hours (and maybe as quickly as 4 hours).
- Exercise is associated with reductions in muscle tension.
- Reductions in anxiety are not necessarily tied to the physiological gains resulting from exercise bouts.
- The anxiety reduction after exercise occurs regardless of intensity, duration, or type.
Reduction of Anxiety (continued)

- Acute effects of exercise
  - Aerobic exercise can produce anxiety reductions similar in magnitude to those with other commonly employed anxiety treatments.
  - Anxiety reduction after exercise occurs in all types of participants (e.g., male or female, fit or unfit, active or inactive, anxious or nonanxious, healthy or nonhealthy, younger or older, patients with or without anxiety disorders).

(continued)
Reduction of Anxiety (continued)

• Chronic effects of exercise
  – Physical fitness is positively associated with mental health and well-being.
  – Exercise is associated with the reduction of stress emotions such as state anxiety.
Reduction of Anxiety (continued)

- Chronic effects of exercise
  - Anxiety and depression are common symptoms of failure to cope with mental stress, and exercise has been associated with a decreased level of mild to moderate depression and anxiety.
  - Long-term exercise is usually associated with reductions in traits such as neuroticism and anxiety.
  - Appropriate exercise results in reductions in various stress indicators, such as neuromuscular tension, resting heart rate, and some stress hormones.
Reduction of Anxiety *(continued)*

- **Chronic effects of exercise**
  - Current clinical opinion holds that exercise has beneficial emotional effects across ages and sexes.
  - Physically healthy people who require psychotropic (mood-altering) medication may safely exercise under close medical supervision.
Reduction of Depression

• A moderate relationship exists between exercise and depression.
• This is a correlation, not a cause—effect relationship.
• Exercise is as effective as psychotherapy in reducing depression.
• The positive effects are seen across age groups, health status, race, socioeconomic status, and sexes.

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Reduction of Depression (continued)

- Both aerobic and anaerobic exercise are associated with reductions in depression.
- Severe depression usually requires professional treatment, which may include medication, psychotherapy, electroconvulsive therapy, or a combination of these, with exercise as an adjunct.
- Exercise produces larger antidepressant effects when the training program is at least 9 weeks long.
Reduction of Depression (continued)

- Reductions in depression after exercise do not depend on fitness levels.
- Exercising three to five times per week produces significant reductions in depression compared to once-a-week exercise.
Exercise and Mood Changes

• Mood refers to a host of transient, fluctuating affective states that can be positive or negative (e.g., feelings of elation or happiness, sadness).
• Exercise is related to positive changes in mood state.
• Exercise improves positive mood regardless of the number of negative and positive affects experienced in a given day.
Exercise and Mood Changes (continued)

• Exercisers with choice of exercise mode scored lower on negative affect than exercisers having no choice.
• Perception of fitness may be responsible for part of the mood-enhancing effects of exercise (as opposed to the actual level of fitness itself).
How to Enhance Mood Via Exercise

- Use rhythmic abdominal breathing.
- Avoid interpersonal competition.
- Make it a closed predictable activity.
- Use rhythmic and repetitive exercise movements.
- Exercise 20 to 30 minutes in duration, moderate intensity, 2 or 3 times per week.
- Make it enjoyable.
How Exercise Enhances Psychological Well-Being

• Physiological explanation
  – Increases in cerebral blood flow
  – Changes in brain neurotransmitters (e.g., norepinephrine, endorphins, serotonin)
  – Increase in maximum oxygen consumption and delivery of oxygen to cerebral tissue
  – Reductions in muscle tension
  – Structural changes in the brain

(continued)
How Exercise Enhances Psychological Well-Being (continued)

• Psychological explanations
  – Enhanced feeling of control
  – Feeling of competency and self-efficacy
  – Positive social interactions
  – Improved self-concept and self-esteem
  – Opportunities for fun and enjoyment
Exercise and Changes in Personality and Cognitive Functioning

• Development of the self
  – Exercise is related to participants’ self-concept, self-esteem, and self-efficacy (Fox, 1997).
  – Regular exercise is related to increased self-esteem.
  – Esteem-enhancement effects of exercise are especially pronounced in people with low self-esteem.

(continued)
Exercise and Changes in Personality and Cognitive Functioning (continued)

• Development of the self
  – Positive changes in self-concept and self-esteem were associated with participation in physical education and directed play (Gruber, 1986).
  – Exercise programs designed to enhance self-esteem should emphasize experiences of success, feeling of increased physical competence, and attainment of goals.
Exercise and Hardiness

• Hardiness is a personality disposition that involves a sense of personal control, commitment and purpose, and the flexibility to adapt to unexpected changes.

• A hardy personality and exercise in combination are more effective in preserving health than either alone.
Exercise and Changes in Cognitive Functioning

- Exercise programs conducted over long periods are associated with moderate gains in cognitive functioning.

- Acute exercise increased cognitive functioning in the form of working memory only for people low in working memory.
Cardiovascular Fitness and Cognitive Functioning in Older Adults

- Fitness training has beneficial effects on the cognitive functioning of older adults.
- These effects were largest for those tasks involving executive control (e.g., planning, scheduling, working memory, task coordination).

(continued)
Cardiovascular Fitness and Cognitive Functioning in Older Adults (continued)

- Fitness training combined with strength and flexibility programs have a greater positive effect on cognition than fitness training having only an aerobic component.

- Effects appear to occur more in females than in males.
Cardiovascular Fitness and Cognitive Functioning in Older Adults (continued)

• Effects on cognition were largest when exercise training exceeded 30 minutes per session.

• From a physiological perspective, cardiovascular exercise appears to protect the brain against the normal effects of aging and help repair or restore the aged brain.
Exercise and Changes in Sleep

• The effects of exercise on enhancing sleep are not as compelling or as large as commonly believed. The effects are small, but they are noteworthy.

• Exercise produces small increases in total sleep time.
Exercise and Quality of Life

• **Quality of life**: A person’s behavioral functioning ability—being able to do everyday stuff and living long enough to do it

• Physically active people report a better quality of life.
College students participating in an endurance-conditioning program report a significantly higher quality of life than do nonexercisers.

Older adults who are physically active report greater life satisfaction.
Psychological Benefits of Exercise

• **Exercise increases**: Self-esteem, feeling of enjoyment, self-confidence, and mood states

• **Exercise decreases**: Physical and psychological stress as well as anxiety and depression
Special Cases of Exercise and Psychological Well-Being

- Runner’s high
  - The runner’s high is a euphoric sensation, usually unexpected, of heightened well-being, an enhanced appreciation of nature, and transcendence of time and space.
  - Preliminary results out of Germany provide initial evidence that there is a chemical change (endorphins) in the brain related to the runner’s high.
Special Cases of Exercise and Psychological Well-Being (continued)

• Runner’s high
  – Characteristics conducive to the runner’s high are few distractions; cool, calm weather and low humidity; and a duration of at least 30 minutes.
  – Runners differ regarding whether and how often they experience the runner’s high and may require slightly different sets of conditions to get it.
Exercise as an Adjunct to Therapy

- Despite the psychological benefits of exercise, it should not be used in all cases of depression, stress, or other emotional disorders.
Mirrors or No Mirrors in Exercise Settings

• In exercise class with mirrors:
  – Women who are generally sedentary and have poor perceptions of self tend to focus more often on their own physique, which appears to result in increases in negative affect since this heightens the perceived discrepancy between the actual and the ideal physique.
  – There was not a negative effect on social physique anxiety with women who were generally more active and confident in their ability to exercise.
Guidelines for Using Exercise as Therapy

• Explore the clients’ exercise history (good and bad experiences).

• Provide a precise diagnosis of the psychological problem.

• Use an individualized exercise prescription for duration, intensity, and frequency of exercise.

(continued)
Guidelines for Using Exercise as Therapy (continued)

• Evaluate the influence of family and friends (to facilitate support).

• Develop a plan for any lack of adherence and irregular patterns of exercise.

• Make exercise practical and functional (e.g., bicycling to work, doing hard physical work).

(continued)
Guidelines for Using Exercise as Therapy (continued)

• Encourage exercise as an *adjunct* to other forms of therapy. A multimodal therapeutic approach is more effective than the use of a single intervention.

• Include a variety of activities, which enhance adherence to the exercise regimen.
Guidelines for Using Exercise as Therapy (continued)

• Exercise therapy should be done only by qualified professionals.

• No exact criteria for training have been established.

• Buffone (1984) suggests that formal training and practical experience in both the psychological and sport sciences are necessary because of the multidisciplinary approach to treatment.
Exercise and People with HIV, Cancer, and MS

• Exercise appears to be one therapeutic modality capable of enhancing components of subjective well-being in patients with HIV (human immunodeficiency virus).

• Exercise is beneficial in enhancing the quality of life in cancer survivors.

• Exercise appears to play a positive role in those with MS (multiple sclerosis).