General Principles of Exercise Prescription

Basic Principles of Exercise Training

Overload
Progression
Specificity

Training principles

- Overload principle - stimulating the involved muscles or organs at an increased level, causing adaptation
  - Intensity
  - Frequency
  - Duration
- Progression - overload should be increased gradually during the course of a fitness program
  - Ten percent rule
**Progression Principle**

![Graph showing progression principle]

In order to increase the ability to perform a task, one must train the specific muscles or organ systems involved in the task. Identification of organ system involved and use sport-specific modalities.

**Training principles**

- **Specificity** - in order to increase the ability to perform a task, one must train the specific muscles or organ systems involved in the task.
  - Identification of organ system involved
  - Use sport-specific modalities

**Is VO₂ pk specific?**

![Graph showing VO₂ for different activities]

*Figure 12.2* The max VO₂ of three different groups of athletes—rowers, cyclists, and skiers—was determined while they ran on a treadmill and while they performed their specific sport activity. The max VO₂ was higher when performing the specific sport activity than when running.
Related Fitness Concepts

“Recuperation” and Overtraining

Symptoms of Overtraining

- Decreased in performance
- Chronic fatigue
- Loss of body weight
- Increased heart rate and elevated blood pressure during exercise

Figure 2.1.6, p. 404, Powers and Howley.

Reversibility

“don’t use it, you’ll lose it!”

Where did those muscles go?

Muscular Strength
Muscular Endurance

Initial Level

Weeks

Strength Training
No Training

Endurance Training
No Training

Initial Level

Weeks

The Exercise “Science Artist”

“...exercise prescription is the successful integration of exercise science with behavioral techniques that result in long-term program compliance and attainment of the individual’s goals.”

**Step One: Goal Setting**

- Set a few basic goals for activity
- Open-ended, yet specific
  - Short-term w/ long-term in mind
  - Use confidence levels to help set intended goals (0–100%)
  - Recognize obstacles to achieving goals

**Ask yourself a few basic questions**

- Do I want to be physically active or physically fit?
- How ready am I to make this change?
  - Motivation—willingness to change is important here
  - You can rate yourself on intention to change from 0 to 10
- What types of activities do I like?
- Do I like to exercise by myself, with someone, or both?

**Basics: The Exercise Session**

- Decide on the mode of activity you like
- The exercise session (Figure 3.5 and 3.6)
  - Warm-up
  - Endurance phase
  - Recreational activities (optional)
  - Cool-down
The “Cool-down”

Goals of a Cool-down

- Return Blood to Normal
- Reduce Muscle Soreness

Lower Body Temperature

Threshold for Benefits of Exercise

Figure 3.7

- Threshold for Improvement of Performance
- Threshold for Health Benefits

Amount of Exercise

Intensity and Duration of Exercise

- Low-intensity Activities (e.g., gardening)
- Moderate-intensity Activities (e.g., running)

Summary

- Progressive overload principle is most important.
- Recovery periods are required.
- Physical fitness can be reversed.
- Exercise prescription: mode, warm-up, intensity, frequency, duration, and cool-down.
- Training programs must be individualized.
- A threshold exists for achieving health benefits.