

chapter

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Rehabilitation and Reconditioning

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Chapter Objectives

- **Identify members of the sports medicine team and their responsibilities during injury rehabilitation and reconditioning**
- **Recognize types of injuries athletes sustain**
- **Comprehend timing and events of tissue healing**

(continued)

Chapter Objectives *(continued)*

- **Understand goals of each tissue healing phase**
- **Describe the strength and conditioning professional's role during injury rehabilitation and reconditioning**

Rehabilitation and Reconditioning

- **Principles of rehabilitation and reconditioning**
 - Healing tissues must not be overstressed.
 - The athlete must fulfill specific criteria to progress from one phase to another during the rehabilitative process.
 - The rehabilitation program must be based on current clinical and scientific research.

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Rehabilitation and Reconditioning *(continued)*

- **Principles of rehabilitation and reconditioning**
 - The program must be adaptable to each individual and his or her specific requirements and goals.
 - Rehabilitation is a team-oriented process requiring all the members of the sports medicine team to work together.

Sports Medicine Team

- **Sports medicine team members**
 - All members of the sports medicine team are responsible for educating coaches and athletes regarding injury risks, precautions, and treatments.
 - The sports medicine team also works to prevent injuries and rehabilitate injured athletes.
 - Several different professionals play important roles in assisting an injured athlete's return, so effective communication is necessary.

Key Terms

- **team physician:** A person who provides medical care to an organization, school, or team.
- **athletic trainer:** A person typically responsible for the day-to-day physical health of the athlete; certified by the National Athletic Trainers' Association Board of Certification as a *Certified Athletic Trainer* (ATC).

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Key Terms *(continued)*

- **physical therapist:** A person with a background in orthopedics or sports medicine who can play a valuable role in reducing pain and restoring function to the injured athlete.

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Key Terms *(continued)*

- **strength and conditioning professional:** A person who focuses on strength, power, and performance enhancement and is an integral part of the rehabilitation and reconditioning process. Ideally, this person should be certified by the National Strength and Conditioning Association (NSCA) as a *Certified Strength and Conditioning Specialist* (CSCS) to ensure that he or she has the knowledge and background to contribute to the rehabilitation process.

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Key Terms *(continued)*

- **exercise physiologist:** A person who has a formal background in the study of the exercise sciences and uses his or her expertise to assist with the design of a conditioning program that carefully considers the body's metabolic response to exercise, as well as the ways in which that reaction aids the healing process.

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Key Terms *(continued)*

- **nutritionist:** A person who has a background in sports nutrition and can provide guidelines regarding proper food choices to optimize tissue recovery. Ideally, the nutritionist has been formally trained in food and nutrition sciences and is a Registered Dietitian recognized by the American Dietetic Association.

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Key Terms *(continued)*

- **psychologist or psychiatrist:** A licensed professional with a background in sport may provide strategies that help the injured athlete better cope with the mental stress accompanying an injury.

Sports Medicine Team

- **Communication**

- Strength and conditioning professionals must understand the following:
 - The diagnosis of the injury
 - Indications—forms of treatment required
 - Contraindications—activity or practice prohibited due to the injury
- They must also inform the rest of the sports medicine team about the exercises performed by the athlete and the athlete's response to the exercise.

Key Point

- **The sports medicine team includes a large number of professionals working together to provide an optimal rehabilitation and reconditioning environment. The relationship between members requires thoughtful communication to ensure a safe, harmonious climate for the injured athlete.**

Types of Injury

- **Macrotrauma:** A specific, sudden episode of overload injury to a given tissue
- **Dislocation:** A complete displacement of the joint surfaces
- **Subluxation:** A partial displacement of the joint surfaces
- **Sprain:** Trauma to a ligament, classified as 1st, 2nd, or 3rd degree depending on severity

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Types of Injury *(continued)*

- **Contusion:** A musculotendinous injury caused by direct trauma
- **Strain:** Tears in the muscle fibers caused by indirect trauma that are classified into 1st, 2nd, or 3rd degree based on severity
- **Microtrauma:** An overuse injury caused by repeated, abnormal stress applied to a tissue by continuous training or training with too little recovery time

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Types of Injury *(continued)*

- **Stress fracture:** The most common type of overuse injury that occurs in bones
- **Tendinitis:** An overuse injury that results in inflammation of a tendon

Tissue Healing

- **All tissues follow the same basic pattern of healing:**
 - Inflammation
 - Repair
 - Remodeling

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Tissue Healing *(continued)*

- **The timing of events within each phase of tissue healing differs for each tissue type and is affected by a variety of factors:**
 - Age
 - Lifestyle
 - Degree of injury
 - The structure that has been damaged

Key Point

- **The process of returning to competition following injury involves**
 - Healing of the injured tissues
 - Preparation of these tissues for the return to function
 - Use of proper techniques to maximize rehabilitation and reconditioning

Tissue Healing

- **Inflammatory response phase**
 - Inflammation is the body's initial reaction to injury and is necessary for normal healing to occur.
 - The injured area will become red and swollen.
- **Fibroblastic repair phase**
 - Once the inflammatory phase has ended, tissue repair begins; this phase allows the replacement of tissues that are no longer viable following injury.
 - This phase of tissue healing begins as early as 2 days after injury and may last up to 2 months.

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Tissue Healing *(continued)*

- **Maturation–remodeling phase**
 - The weakened tissue produced during the repair phase is strengthened during the remodeling phase of healing.
 - Tissue remodeling can last up to 2 to 4 months after injury.

Key Point

- **Healing tissue must not be overstressed, but controlled therapeutic stress is necessary to optimize collagen matrix formation. The athlete must meet specific objectives to progress from one phase of healing to the next.**

Goals of Rehabilitation and Reconditioning

- **Inflammatory response phase**
 - Treatment goal
 - Preventing disruption of new tissue
 - Exercise strategies
 - General aerobic and anaerobic training and resistance training of uninjured extremities, with priority given to maximal protection of the injured area

(continued)

Goals of Rehabilitation and Reconditioning *(continued)*

- **Fibroblastic repair phase**
 - Treatment goal
 - Preventing excessive muscle atrophy and joint deterioration in the injured area; maintaining muscular and cardiovascular function in uninjured areas
 - Exercise strategies (after consultation with team physician, athletic trainer, or physical therapist)
 - Submaximal isometric exercise
 - Isokinetic exercise
 - Specific exercises to improve neuromuscular control

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Goals of Rehabilitation and Reconditioning *(continued)*

- **Maturation–remodeling phase**
 - Treatment goal
 - Optimizing tissue function by continuing and progressing the activities performed during the repair phase and adding more advanced, sport-specific exercises
 - Exercise strategies
 - Transition from general exercises to sport-specific exercises
 - Specificity of movement speed an important variable
 - Velocity-specific strengthening exercises (velocities must progress to those used in the athlete's sport)

Causes of Injuries

- **Muscle imbalance**
- **Structural imperfections**
- **Over-training/improper training**
- **Inappropriate equipment**
- **Lack of prerequisites**
 - **Poor flexibility**
 - **No warm-up**
 - **Too weak**
 - **Improper technique/form**
- **Trauma/accidents**

Physical Treatment of Injuries

- Generally speaking, injuries should be treated:
 - **R** – rest
 - **I** – ice
 - **C** – ompression
 - **E** – levation

*KNOW your body, and **listen to your body!***

How Much Fitness Is Lost During An Injury?

- **Fitness is lost twice as fast as it is gained**
 - 2 - 3 days of rehabilitation-type training for every day that was lost
- **Aerobic fitness tends to dissipate faster than musculo-skeletal strength**

Interview Each other

- **List of injuries**
- **Cause of injury**
- **Surgical?**
- **Emotional trauma**
- **Physical pain level**
- **Over coming the injury**

» 30sec to tell your partners story