Chapter 3

What Types of Interventions Do Physical Therapists Provide?

Physical therapists provide 2 general types of interventions:

- **Patient/client instruction/education.** The process of informing, educating, or training patients/clients, families, significant others, and caregivers is intended to promote and optimize patient/client function and occurs in every episode of care. Instruction may be related to the current condition; specific impairments in body function and structure, activity limitations, or participation restrictions; the plan of care; transition to a different role or setting; risk factors for developing a health condition or disability; or need for participation in a health, wellness, or fitness program.

- **Interventions to achieve patient/client goals and expected outcomes.** To meet the needs identified through the examination data, the evaluation, the diagnosis and the prognosis, and the goals and expected outcomes for the patient/client, the physical therapist selects, applies, and modifies interventions based on their known properties as demonstrated by scientific evidence and properties of interventions as demonstrated by the physical therapist’s expertise in delivering the interventions. Based on patient/client response to the interventions, the physical therapist may decide that an evaluation is again necessary. This decision may lead to a change in the plan of care, including a change in intervention or changes in frequency or duration or, alternatively, the discontinuation of care or a referral to another practitioner.
Data collection occurs at each visit to determine whether the response of the patient/client to the interventions is as expected.

**Interventions**

**Airway Clearance Techniques**

**Description**

*Airway clearance techniques* are a group of therapeutic activities intended to manage or prevent the consequences of impaired mucociliary transport or the inability to protect the airway (eg, impaired cough).

**Interventions**

Airway clearance techniques may include the following:

- **Breathing strategies**
  - Active cycle of breathing or forced expiratory techniques
  - Assisted cough/huff techniques
  - Autogenic drainage
  - Paced breathing
  - Pursed lip breathing
  - Techniques to maximize ventilation (eg, maximum inspiratory hold, staircase breathing, manual hyperinflation)

- **Manual/mechanical techniques**
  - Assistive devices
  - Chest percussion, vibration, and shaking maneuver (rib springing)
  - Chest wall manipulation
  - Incentive inspirometer
  - Suctioning
  - Ventilatory aids

- **Positioning**
  - Positioning to alter work of breathing
  - Positioning to maximize ventilation and perfusion
  - Pulmonary postural drainage
Scenarios

The following scenarios are not intended to fully describe the interventions that would be used for each patient/client. The scenarios are narrowly focused to illustrate the “Airway Clearance and Techniques” category and are not intended to be inclusive of all interventions that would be performed in clinical practice. Interventions from a number of categories would likely be used in actual practice.

- A 6-year-old girl with cystic fibrosis has been admitted to the pediatric unit with acute pseudomonas pneumonia. The physical therapist may use positioning for pulmonary drainage, chest percussion, vibration, shaking maneuver (rib springing), and assisted cough techniques. The caregivers and parents/guardians also are instructed in the techniques.

- A 12-month-old girl with spastic quadriparesis is being seen by an early intervention team at home. She lifts her head for 1 or 2 seconds in the prone position. Her parents also express concerns about stiffness and difficulty handling when feeding. She has had poor oral motor control since birth, has difficulty with thin liquids, and eats only pureed foods. Her parents are employed, and her mother works out of the home. The parents’ goals are for her to eat regular foods, walk, and attend nursery school. Based on the results of the evaluation, the physical therapist may educate the parents in suctioning and other manual techniques for airway clearance to help their daughter avoid aspiration.

- A 24-year-old man with tetraplegia at the C3 level, who is ventilator dependent, is preparing for discharge to a home environment. He needs an assessment of his home environment, recommendations for home modifications, assistive devices, and training for himself and his personal care assistant. The physical therapist may instruct the personal care assistant in positioning to alter work of breathing and in the use of suctioning equipment.

- A 55-year-old woman has chronic obstructive pulmonary disease (COPD) and a history of 2 hospitalizations in the past 2 or 3 years due to pulmonary infections. She quit smoking 2 days ago. She is referred to an outpatient pulmonary rehabilitation program to address activity limitations due to dyspnea. She is overweight and prefers to support her forearms on the thighs in sitting. The physical therapist may use autogenic drainage and active cycle of breathing techniques to assist in the clearance of mucus, which is one of the causes of airway obstruction in people with COPD, in addition to providing instruction in sitting posture to maximize the ease of breathing.
**Assistive Products and Technologies**

**Description**

*Assistive products and technologies* are products, instruments, equipment, and technologies adapted or specifically designed for improving the function of a disabled person.

**Interventions**

Assistive products and technologies may include the following:

- Aids for locomotion (eg, crutches, canes, walkers, rollators, manual wheelchairs, power wheelchairs, power-operated vehicles)
- Assistive products and technologies to improve safety, function, and independence (transfer technologies, such as transfer boards and mechanical lifts/hoists; bathroom technologies, such as raised toilet commode, adaptive commodes, transfer benches, sliders; activities of daily living [ADL] technologies, such as eating and dressing assists)
- Orthoses (eg, ankle-foot orthoses, knee-ankle-foot orthoses, body jackets, wrist cock-up splints, shoe inserts)
- Prostheses (eg, transtibial and transfemoral prostheses, upper-extremity prostheses)
- Seating and positioning technologies (eg, custom-molded seating, removable lateral trunk supports, and upper-extremity support trays for wheelchair; sidelyers; prone standers, manual or power recline systems for wheelchair)

**Scenarios**

Scenarios for the “Assisted Products and Technologies” category are incorporated into the scenarios for the “Functional Training” category.
Functional Control (Stability and Mobility)

Functional control and functional training are 2 categories of intervention promoting the performance of functional activities. Functional control refers to planned physical movements, postures, or activities intended to enable the patient/client to perform and enhance functional activities. Functional training, covered in the next section, uses functional control and activities in training for self-care; domestic life; work (job/school/play); and community, social, and civic life.

Interventions

Functional control interventions may include the following:

- Balance training
- Developmental activities training
- Gait and locomotion training
  - Developmental activities training
  - Gait training on various terrains and dual task
  - Implement and device training
  - Perceptual training
  - Standardized, programmatic, and complementary exercise approaches
  - Manual and power mobility training
- Motor function (motor control and motor learning) training or retraining
- Neuromuscular education or reeducation
- Perceptual training
- Sensory training or retraining
- Skeletal alignment/posture training
  - Body mechanics and postural stabilization
  - Body mechanics training
  - Postural control training
  - Postural stabilization activities
  - Posture awareness training
- Standardized, programmatic, and complementary exercise approaches
- Vestibular training, including canalith repositioning/habituation exercises

Scenarios

The following scenarios are not intended to fully describe the interventions that would be used for each patient/client. The scenarios are narrowly focused to illustrate the “Functional Control” category and
are not intended to be inclusive of all interventions that would be performed in clinical practice. Interventions from a number of categories would likely be used in actual practice.

- A 50-year-old man who had a left-sided cerebrovascular accident (CVA) after surgery for an aortic valve replacement 30 days ago is able to isolate movement against gravity and resistance but has difficulty moving quickly or changing direction of movement. He has difficulty balancing on one leg in order to put on his pants while standing and loses his balance when turning rapidly and when stepping over objects. He is able to walk independently on smooth, level surfaces; however, he loses his balance on elevations and uneven surfaces. He uses a cane when in the community. The physical therapist may use general and task-specific balance exercises for motor retaining to address his balance during mobility.

- A college football player has recurrent ankle injuries that he reports occur during backwards running. The physical therapist may use motor control and perceptual training in addition to task-specific performance training and may use injury prevention education to allow the patient/client to continue competing without ankle injuries.

- An 82-year-old man with a 10-year history of Parkinson disease has demonstrated a functional decline over the past 3 months, including decreased balance. His goal is to improve mobility in order to lessen the caregiver burden on his wife. The physical therapist may focus on posture and balance awareness training and balance training along with a plan for mobility.

- A 70-year-old woman sustained a right-sided CVA 12 weeks ago. Her gait is characterized by excessive weight shift to the left with prolonged stance time on the left lower extremity. When she advances her right lower extremity, she abducts and externally rotates the hip, with little hip flexion during swing. Her right step length is short. Initial contact is with the foot-flat phase. Knee recurvatum occurs during mid-stance with no trailing limb posture at the hip or pre-swing at the ankle during terminal stance. The physical therapist may include perceptual and gait training with the appropriate ambulatory device.
Functional Training

Description

Functional control and functional training are 2 categories of interventions promoting the performance of functional activities. Functional control, covered in the prior section, refers to planned physical movements, postures, or activities intended to enable the patient/client to perform and enhance functional activities.

Functional training includes functional control and activities in training for self-care; domestic life; work (job/school/play); and community, social, and civic life. Functional training is intended to improve the ability to perform physical actions, tasks, or activities in an efficient, typically expected, or competent manner.

Self-care includes activities of daily living (ADL) training, such as mobility, personal washing, caring for body parts, toileting, dressing, eating, drinking, and looking after personal health.

Domestic life training is intended to improve the ability to execute tasks or participate in life situations as independently as possible in a safe, efficient, and effective manner. Domestic life includes more complex instrumental activities of daily living (IADL), such as acquiring necessities (shopping), household tasks, caring for household objects and assisting others (eg, caring for dependents, maintaining a home, performing household chores and yard work), and structured play (for infants and children).

Work (job/school/play) involves complex IADL training for carrying out required actions and tasks. Training for community/social/civic life includes training for actions and tasks required to engage in organized social life outside the family and in the community, social, and civic areas of life. Injury
prevention or reduction interventions are training for integration or reintegration into community, social, and civic functioning.

**Interventions**

Functional training may include the following:

- **ADL training for self-care**
  - Accommodation to or modification of home barriers
  - Bathing
  - Bed mobility and transfer training
  - Developmental activities
  - Dressing
  - Eating/feeding
  - Grooming
  - Toileting
  - Wheelchair with external supports

- **IADL training for domestic life**
  - Accommodation to or modification of environmental and home barriers
  - Caring for dependents
  - Driving and public transportation
  - Home maintenance
  - Household chores
  - Meal preparation
  - Shopping
  - Structured play for infants and children
  - Yard work

- **IADL training for work (job/school/play)**
  - Accommodation to or modification of environmental and home barriers
  - Back schools
  - Community businesses and services work hardening or work conditioning programs
  - Driving and public transportation
  - Gaining access to transportation and the neighborhood
  - Job coaching
  - Navigating environmental barriers to walking or wheeling
  - Negotiating work or school environments
  - Simulated environments and tasks
  - Task analysis, modification, redesign or adaptation

- **IADL training for community/social/civic life**
  - Accommodation to or modification of environmental and home barriers;
  - Activities training including tools and instruments
  - Community service training involving instruments
Gaining access to transportation, the neighborhood, community, businesses and services
Leisure and play activities and training
Task analysis, modification, redesign or adaptation, navigating environmental barriers, walking or wheeling

- Injury prevention or reduction during integration or reintegration into community/social/civic/life
  - Injury prevention with use of devices and equipment
  - Postural support and skin integrity
  - Safety awareness training

Scenarios

The following scenarios are not intended to fully describe the interventions that would be used for each patient/client. The scenarios are narrowly focused to illustrate the “Functional Training” category and are not intended to be inclusive of all interventions that would be performed in clinical practice.

Interventions from a number of categories would likely be used in actual practice.

- A 37-year-old woman who had a right embolic stroke after childbirth is being seen in an outpatient physical therapy clinic for weakness in her left hand and ankle 4 months poststroke. She is scheduled for modification and reevaluation of her assistive device and ankle orthosis. In addition to gait training and orthotic modification as needed, the physical therapist may provide domestic life training to include simulated tasks and specific training and task adaptations for the care of her infant. When assessing her functional training needs, the physical therapist may consider her functional daily activities, roles, and responsibilities and the environments that she typically encounters. The physical therapist may consider task analysis, modification, and use of assistive technologies such as a manual wheelchair or power-operated vehicle that may assist this new mother in caring for her child and accomplishing her daily activities (eg, laundry, grocery shopping, carrying her child) in a safe, timely, and efficient manner.

- A 47-year-old man with a 10-year history of multiple sclerosis demonstrates a functional decline over the past 3 months. He has problems with bathing, dressing, and transferring; however, he is able to feed himself. His goal is to improve his mobility in order to lessen the caregiver burden on his wife. The physical therapist may instruct both the patient and wife in injury prevention techniques in addition to task training and task adaptation for bathing, dressing, and transferring.

- Eight weeks ago, a 58-year-old woman had a repair of a small tear of the supraspinatus tendon. She was immobilized with a sling and a small abduction pillow for 6 weeks and now is apprehensive about moving her arm, including the pendulum exercises given by her physician. She is unable to use the arm for ADL above chest level. Her goal is to return to work in a bakery. The physical therapist may include task training and injury prevention training and techniques to help prepare her to return to work.

- A 72-year-old woman has severe osteoarthritis and obesity. She is independent with self-care and domestic life with some modifications, but she is unable to negotiate stairs due to knee pain and limited joint mobility and strength, limiting her ability to access public transportation and community
services (eg, going to health visits, accessing other public services). The physical therapist may
identify community resources for transportation and consider potential assistive technology options to
increase her ability to use community services with adaptations.

- An 82-year-old man with a 10-year history of Parkinson disease demonstrates a functional decline
over the past 3 months. He has problems with bathing, dressing, and transferring; however, he is able
to feed himself. His goal is to improve his mobility in order to lessen the caregiver burden on his
wife. The physical therapist may instruct both the patient and wife in injury prevention techniques in
addition to task training and task adaptation for bathing, dressing, and transferring. Home
modification, especially for bathtub and toilets transfers, may be utilized. The physical therapist may
consider a wheeled mobility device (manual or power) to enable safe, efficient, and independent
mobility in the home and community. The physical therapist also may suggest a home emergency call
system and referral to community services such as a Parkinson exercise class or caregiver support
group and may recommend obtaining a handicap parking sticker.

- A 31-year-old man in a rehabilitation unit has no motor or sensory function below T4. His spine has
been stabilized with a thoracolumbosacral orthosis (TLSO). His goals are to live alone and to be able
to return to work and civic activities using a wheelchair. The physical therapist may include an
assessment of seating needs, including a wheelchair and cushion, other assistive technologies (eg,
transfer board), or environmental modifications and redesign of activities to maximize safety,
independence, and efficiency. Other devices to assist with IADL may be used to train the patient in
transportation access and community navigation and how to use them in attaining his goals.
Integumentary Repair and Protection

Description

Integumentary repair and protection techniques are techniques that involve the application of therapeutic procedures and modalities intended to enhance wound perfusion, manage the scar, promote an optimal wound environment, remove excess exudate from a wound complex, and eliminate nonviable tissue from a wound bed. Procedures and modalities may include debridement; dressings; orthotic, protective, and supportive devices; physical agents and mechanical and electrotherapeutic modalities; and topical agents.

Interventions

Integumentary repair and protection may include the following:

- Debridement - nonselective
  - Enzymatic debridement
  - Hydrotherapy
  - Pulsatile lavage
  - Low-frequency ultrasound
  - Set-to-dry dressings
  - Wet dressings
  - Wet-to-moist dressings

- Debridement – selective debridement with other agents (eg, autolysis)
  - Biological debridement (maggots)
  - Enzymatic debridement
  - Sharp debridement

- Dressings
  - Hydrogels
  - Vacuum-assisted closure
  - Wound coverings

- Electrical stimulation for tissue repair

- Oxygen therapy
  - Supplemental topical

- Topical agents
  - Cleansers
  - Creams
  - Moisturizers
  - Ointments
  - Sealants
Scenarios

The following scenarios are not intended to fully describe the interventions that would be used for each patient/client. The scenarios are narrowly focused to illustrate the “Integumentary Repair and Protection” category and are not intended to be inclusive of all interventions that would be performed in clinical practice. Interventions from a number of categories would likely be used in actual practice.

- A 25-year-old man has sustained a full-thickness burn to 30% of his total body surface area as a result of a house fire. The burn affects the anterior chest, neck, chin, and bilateral upper extremities, including the dorsal surface of his hands. He has no relevant social or medical history and no inhalation injury or associated trauma. The physical therapist may use topical agents to promote postoperative healing of skin grafts and donor site.

- A 34-year-old man has a plantar ulcer at the first metatarsal head of the right foot with undermining, tracts, and necrotic debris. The patient has a 5-year history of type 2 diabetes mellitus. His medical and social history is otherwise unremarkable. The physical therapist may consider debridement and instruction in self-care, focusing on foot care.

- A 58-year-old woman has an ulcer with irregular borders and an 80% yellow and 20% beefy red wound base on her right leg. The wound has a copious amount of seropurulent drainage and an odor. She has no other relevant medical or social history and is fully independent with community ambulation and ADL. The physical therapist may consider selective debridement to eliminate necrotic tissue and oxygen therapy to promote granulation and re-epithelialization.

- A 60-year-old man with motor and sensory complete T12 injury, which occurred 20 years ago, was admitted for surgical management of a nonhealing pressure ulcer on the right greater trochanter. Wound debridement and surgical closure were performed. He would like to understand the reasons for recurring skin breakdown in this area as well as receive prevention education to prevent future breakdown. The physical therapist may instruct him in the proper use of seating technologies and in proper movement and weight shifting. Detailed education about the impact of weight bearing and shear forces on skin health may be included.
Manual Therapy

Description

Manual therapy techniques are skilled hand movements and skilled passive movements of joints and soft tissue and are intended to improve tissue extensibility; increase range of motion; induce relaxation; mobilize or manipulate soft tissue and joints; modulate pain; and reduce soft tissue swelling, inflammation, or restriction.

Interventions

Manual therapy interventions may include the following:

- Manual lymphatic drainage
- Manual traction
- Massage
  - Connective tissue massage
  - Therapeutic massage
- Mobilization/manipulation
  - Dry needling
  - Soft tissue
  - Spinal and peripheral joints
  - Neural tissue mobilization
- Passive range of motion

Scenarios

The scenarios are not intended to fully describe the interventions that would be used for each patient/client. The scenarios are narrowly focused to illustrate the “Manual Therapy” category and are not intended to be inclusive of all the interventions that would be performed in clinical practice. Interventions from a number of categories would likely be used in actual practice.

- A 52-year-old woman has intermittent swelling of her left arm that varies with activity. Four years ago, she was diagnosed with breast cancer that was treated with left modified radical mastectomy and auxiliary lymph node dissection. She also received chemotherapy and radiation. She has been in remission since her treatment. The physical therapist may include manual lymphatic drainage in the intervention program, along with flexibility and strengthening exercises for the left shoulder complex.

- A 45-year-old factory worker reports anterolateral right shoulder pain with overhead activities and when sleeping on his right side. Pain has been present for 1 year and has been worse during the past month after a change in job activities. Manual joint mobility testing reveals a limitation of the posterior glide of the right shoulder joint compared with the left shoulder joint. The physical therapist may use manual therapy techniques to improve joint mobility and decrease pain to allow the patient to successfully perform new job duties.
• A 14-year-old boy describes a history of low back pain over the past 3 months that is worse when wearing a backpack to school. Pain is generalized across the low back and buttock region. He has poor lower abdominal strength and decreased flexibility of the hamstring and hip flexor muscles. The physical therapist may include instruct him in flexibility exercises for hip flexors.

• A 47-year-old woman has acute low back pain. She is examined by the physical therapist, who may use spinal manipulation to address the pain.
**Therapeutic Exercises**

**Description**

Therapeutic exercise is the systematic performance or execution of planned physical movements, postures, or activities intended to enable the patient/client to remediate or prevent impairments, enhance function, reduce risk, optimize overall health, and enhance fitness and well-being.

**Interventions**

Therapeutic exercises may include the following:

- **Aerobic/endurance exercises**
  - Aquatic programs
  - Gait and locomotor training
  - Increased workload over time
  - Movement efficiency and energy conservation training
  - Walking and wheelchair propulsion programs

- **Coordination/agility exercises**

- **Developmental activities training**
  - Motor function (motor control and motor learning) training or retraining
  - Neuromuscular education or reeducation
  - Perceptual training
  - Posture awareness training
  - Sensory training or retraining
  - Standardized, programmatic, or complementary exercise approaches
  - Task-specific performance training

- **Flexibility exercises**
  - Muscle lengthening
  - Range of motion
  - Stretching

- **Neurodevelopmental training**
  - Developmental activities training
  - Motor training
  - Movement pattern training
  - Neuromuscular education or reeducation

- **Relaxation techniques**
  - Breathing strategies
  - Movement strategies
  - Relaxation techniques
  - Standardized, programmatic, or complementary exercise approaches
Strengthening exercises
  - Active assistive, active, and resistive exercises (including concentric, dynamic/isotonic, eccentric, isokinetic, isometric, plyometric)
  - Aquatic programs
  - Standardized, programmatic, complementary exercise approaches
  - Task-specific performance training

Vestibular training
  - Visual-vestibular habituation

Scenarios

The scenarios are not intended to fully describe the interventions that would be used for each patient/client. The scenarios are narrowly focused to illustrate the “Therapeutic Exercises” category and are not intended to be inclusive of all interventions that would be performed in clinical practice. Interventions from a number of categories would likely be used in actual practice.

A 24-month-old boy with spastic diplegia recently began to stand, by primarily using his upper extremities to pull himself up. He now cruises along furniture. He stands primarily on his toes with his legs very stiff. He prefers the W-sitting position and bunny-hops on hands and knees for mobility. His parents report difficulty with dressing his lower extremity and positioning him in a car seat because of leg stiffness (spasticity). He appears to be motivated to move, he communicates verbally, and his cognitive level seems to be age appropriate. Both parents are employed; however, his parents and the staff at the childcare facility incorporate suggested activities throughout the day. The parents’ goal for him is independent ambulation. The physical therapist may use various developmental training techniques in addition to neuromuscular education to improve his movement patterns and change his preferred movement strategies.

A 45-year-old woman reports urine leakage upon coughing, laughing, sneezing, lifting, and pushing. The leaking gradually increased in frequency and intensity until 2 months ago when a virus with a severe cough suddenly increased her symptoms. The physical therapist may use task-specific exercise techniques and performance training to strengthen the pelvic floor musculature.

A 74-year-old woman with a long history of type 2 diabetes mellitus, hyperlipidemia, and hypertension wants to be able to walk to the church in her neighborhood. She uses a single-point cane for ambulation. She is overweight and hypertensive with a high resting heart rate. The physical therapist may address the patient’s aerobic needs with a walking program or an aquatic program. The physical therapist also may add strengthening exercises using a variety of techniques.

A 67-year-old man, who is a former college football player and recreational jogger, has bilateral knee pain secondary to osteoarthritis. He recently retired and hopes to be able to enjoy a healthy leisure lifestyle. In addition, he hopes to put off knee replacement for 10 years. Since retiring, he has gained 10 pounds because of limited activity. He cannot pick his toddler-aged grandchildren up from the floor without feeling “unsteady in the knees.” He has tight hamstrings and hip flexor muscles.
bilaterally. The physical therapist may choose a program that includes hip flexor stretching exercises, lower-extremity strengthening, and an aerobic exercise program.
Therapeutic Technologies

Description

*Therapeutic technologies* comprise procedures and devices using various forms of energy and the use of force (e.g., approximation, compression, distraction) to assist muscle force production and contraction; decrease unwanted muscle activity; improve circulation and increase the rate of healing of open wounds and soft tissue; eliminate soft tissue swelling, inflammation, or restriction; modulate or decrease pain; increase range of motion and maintain strength after injury or surgery; stabilize an area that requires temporary support; and assist in functional training.

Interventions

Therapeutic technologies may include the following:

- **Athermal agents**
  - Pulsed electromagnetic fields
- **Biofeedback**
  - Ultrasound
- **Compression therapies**
  - Compression bandaging
  - Compression garments
  - Taping
  - Vasopneumatic compression devices
- **Cryotherapy**
  - Cold packs
  - Ice massage
  - Vapocoolant spray
- **Electrical stimulation**
  - Electrical muscle stimulation (EMS)
  - Electrical stimulation for tissue repair (ESTR)
  - Functional electrical stimulation (FES)
  - High-voltage pulsed current (HVPC)
  - Neuromuscular electrical stimulation (NMES)
  - Transcutaneous electrical nerve stimulation (TENS)
- **Electrotherapeutic delivery of medications**
  - Iontophoresis
Scenarios

The scenarios are not intended to fully describe the interventions that would be used for each patient/client. The scenarios are narrowly focused to illustrate the “Therapeutic Technologies” category and are not intended to be inclusive of all interventions that would be performed in clinical practice. Interventions from a number of categories would likely be used in actual practice.

Eight weeks ago, a 58-year-old woman had a repair of a small tear of the supraspinatus tendon. She was immobilized with a sling and a small abduction pillow for 6 weeks and now is apprehensive about moving her arm. She also has concerns about performing the pendulum exercises prescribed by her physician. There are firm end-feels at all end-ranges of shoulder movement. When actively moving her arm, she substitutes with scapular motion. She is unable to use the arm for ADL above chest level. Her goal is to return to work in a bakery. The physical therapist instructs her in active shoulder/scapula exercises for range of motion (ROM) and strengthening and in the application of cold packs after exercise.
• A 35-year-old female recreational triathlete reports a 3-month history of lateral knee pain with running and cycling. Since the onset of pain, she has had to reduce the intensity of her training. She has full knee ROM with no swelling. Knee strength is within normal limits, but hip abductor muscle weakness is apparent. Localized tenderness over the lateral femoral epicondyle with a subtle clicking is present with repetitive active knee flexion and extension. Her goal is to compete in a local triathlon in 2 months. The physical therapist may instruct her in the use of cryotherapy after exercise.

• A 25-year-old man sustained a full-thickness burn to 30% of his total body surface area as a result of a house fire. The burns affect the anterior chest, neck, chin, and bilateral upper extremities, including the dorsal surface of his hands. The physical therapist may consider the use of compression garments during the course of his care to manage scar formation.