Therapeutic Interventions and Resources
Objective 1

Describe the components of the arthritis self-management program in the management of rheumatic diseases and the benefits of participation.
Elements of Comprehensive Management

- Early intervention
- Individualized approach
- Team approach
- Continuity of care
- Patient education
- Family involvement
- Therapeutic Interventions
Therapeutic Interventions

- Patient Education
- Cognitive Behavioral Therapy
- Rest
- Exercise
- Modalities
Patient Education

- American College of Rheumatology guidelines recommend patient education as first line of treatment (American College of Rheumatology Ad Hoc Committee on Clinical Guidelines., Arthritis Rheum 1996)

- Interventions incorporating behavioral techniques produce greater changes in pain, functional disability, tender joints than interventions relying solely on transmitting information (Brady et. al., Arthritis Care Res 1996)

- Interactive methods may build confidence and skills such as decision making, problem solving, self monitoring, communication
Arthritis Self Management Program

- Patient education program developed at Stanford University (by Lorig and colleagues)

- Four year study demonstrated that participation in program resulted in 20% decrease in pain, 43% reduction in physician visits and savings of $648 per patient with RA (Lorig et al., Arthritis Rheum, 1993)
Arthritis Self-Management Program

• Course is 2 hours per week x 6 weeks in duration and covers the following topics:
  – Disease specifics
  – Joint protection
  – Exercise
  – Medications
  – Nutrition
  – Pain management
  – Communication
  – Relaxation techniques
  – Solving health related problems

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Arthritis Self-Management Program

• Focuses on interactive methods to foster self-efficacy

  – Knowledge alone is insufficient for behavioral changes
  – Change in behavior required to improve health outcomes
  – Enhancing self-efficacy is key to changing behavior
Arthritis Self-Management Program

- Enhances problem-solving skills
- Affordable and effective means of educating individuals with arthritis because group dynamics can reinforce learning
- Instructors are lay persons that have been properly trained
- Can help to emphasize that all chronic diseases should implement a self-management approach since people often have multiple medical issues
Objective 2

Distinguish between cognitive behavioral models and biomedical models of care in patients with rheumatic diseases.
Biomedical Models

• Attribute arthritis pain and disability to the disease process and disease activity
• Direct treatment to physiologic processes
Cognitive – Behavioral Approaches

• Recognize that responses to varying levels of disease severity differ based on the individual

• Perception of pain and degree of disability may be influenced by experiences, memories, thoughts and expectations, emotions, depression and anxiety
Components of Cognitive Behavioral Therapy

• Discussion of rationale for treatment
• Coping skills training
• Instruction in methods for maintaining use of coping skills to prevent setbacks
Coping Skills Training

• Relaxation training
• Imagery training
• Activity-Rest Cycling
• Cognitive Restructuring
  – Patients are instructed in how to identify, challenge, modify negative thoughts that may be contributing to pain and emotional distress.

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Cognitive Behavioral Therapy Effectiveness

• Studies in patients with RA have revealed reductions in:
  – Pain and pain behavior
  – Anxiety and depression
  – Disease progression (Keefe FJ, Caldwell DS, Tischner J, Aspnes A, Clinical Care in the Rheumatic Diseases, 2006)
Objective 3

Describe the benefits of participating in a rehabilitation program.
Therapeutic Management of the Rheumatic Diseases

• Physical therapy and occupational therapy are integral to the management of patients with rheumatic disease

• Rehabilitation strategies assist in:
  – Controlling inflammation
  – Relieving pain
  – Optimizing function
  – Preventing joint deformities
  – Increasing mobility, strength and cardiovascular fitness
  – Maintain or restore valued roles (employment, parenting, school etc)
Interventions

• Patient education (as discussed in objective 1)
• Rest – instruction in joint protection and energy conservation techniques
• Splinting
• Modalities – (see objective 4)
• Therapeutic exercise
REST

• Joint specific
  – Joint protection
  – Assistive technologies
  – Splinting

• Energy conservation
  - Maintain an appropriate balance between rest and activity
Research

- Systematic review of literature confirms effectiveness of instruction in joint protection, introduction to use of adaptive equipment, improvement in functional outcomes in patients with RA (Steutjens et al., Cochrane Database Syst Rev, 2004)

- 95% of subjects demonstrated increased ADL ability after participating in a 3 week joint protection course for women with RA (Nordenskioeld U et al., Arthritis Care Res, 1996)
Joint Protection

• Respect Pain
• Avoid undue stress when joints are “hot”
• Unload joint as needed
• Modify activities to avoid overuse or deforming joint forces
• Use strongest and/or largest joint for tasks
• Limit repetitive activities
• Use the whole body to move heavy objects
• Cushion joints from shock and vibration
Joint Protection-Hands

• Both palms upward for lifting
• Slide objects when possible
• Add leverage to appliances to reduce force
• Avoid static positions, tight grip and staying in one position for prolonged periods of time
• Avoid pressure against radial side and backs of fingers
• Avoid excessive and constant pressure against pad of thumb
• Hold handles straight across palm
• Use large grips/handles when possible
Use the entire surface of hand rather than just the fingers.
Use larger grips and a neutral posture or position
Use larger and stronger joints when possible to perform the task.
Assistive Technologies

• Defined as “any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve, functional capabilities of individuals with disabilities”

• Includes assistive devices, adaptive equipment
Assistive Technologies - Success

• Use may be enhanced when the following conditions are met:
  – Device is useful, durable, dependable and safe
  – User values independence in the activity for which it is intended
  – User has confidence in the device and his or her ability to use it
  – Training occurs in the context of where it will be used
Assistive Technologies - Classification

- General Daily Living
- Self-Care: Personal Hygiene
- Self-Care: Dressing
- Self-Care: Eating
- Transfers and Mobility
- Home Management
- Work/School Activities
- Leisure Activities
Use long handled devices to increase ease with activity and follow any post surgical restrictions and limitations
Arm rests assist with the ability to get up from low surfaces
Use leverage or equipment to assist with activities of daily living to decrease stress on the joints.
Continue leisure activities but some modifications may need to be made with other equipment or tools
Assistive Devices

• Increase safety
• Decrease stress on lower extremities
• Reduce pain in weight-bearing joints
• Increase independence
Proper Use of a Cane

• Top of cane should be level with crease in wrist or ASIS (anterior superior iliac spine) of pelvis when arm is resting at side
• Elbow should be bent to ~ 30° when hand is on top of cane to decrease stress on upper extremity
• Cane should be used on opposite side of affected limb
• Move cane with affected limb to unload that limb
• Use of equipment prevents stress on other joints if used properly and adjusted correctly to maintain normal gait pattern
Splinting
Purposes of Splinting

• Reducing pain
• Decreasing inflammation
• Preventing joint deformity
• Correcting deformity
• Supporting function
• Postoperative management

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Types of Splints

• Resting splints
  – Used to reduce joint inflammation/pain, to reduce symptoms of nerve entrapment and tendon irritation
  – May be worn at night and intermittently through day alternating with gentle ROM and light functional activities

• Functional splints
  – Worn to improve hand function
  – Support or immobilize minimum number of joints allowing other joints to move freely
General Rest/Energy Conservation

• Total Body Rest
  – During periods of acute inflammatory disease: 8-10 hours of sleep per night with a 30-60 minute rest period during the day
  – Sleep management techniques
    • Regular sleep and wake schedule
    • Relaxing activities prior to bed
    • Avoidance of caffeine
  – Positioning
    • Firm mattress
    • Supportive or contoured pillow
General Rest (continued)

- Energy Conservation
  - Prioritizing
    - Weekly schedule of activities (work, home, play)
    - Use ABCs to prioritize daily activities
      - B = Should do
      - A = Must do
      - C = Could do
  - Pacing
    - Alternate periods of activity and rest
    - Two hour rule
    - Anticipate fatigue before it ensues
  - Planning
    - Develop daily, weekly, monthly schedule
    - Plan ahead for activities
  - Posture
    - Correct body position to conserve energy efficiency (Belza, B, Clinical Care in the Rheumatic Diseases, 2006)
The proper standing posture includes having feet about 6 inches from the wall, knees slightly bent, pelvis is in neutral alignment, shoulders and scapular are back and head is upright.
Exercise
Benefits

• Increased flexibility
• Increased muscle strength and endurance
• Improved cardiovascular health
• Enhanced joint nutrition
• Reduced body fat
• Improved sleep, relaxation
• Decreased fatigue
• Decreased pain
• Improved mood
• Increased bone health

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Risks of Inactivity

• Osteoporosis
• Reduced muscle mass, weakness
• Poor posture
• Decreased stamina
• Loss of joint range of motion
• Loss of functional ability
• Weight gain with increased joint stress
• Greater risk for other diseases
• Increased joint pain
Recommendations for Health and Fitness in the Apparently Healthy Population

• Physical activity for general health
  – Mode: Whole body repetitive activities
  – Frequency: On most days of the week
  – Intensity: Moderate; 55-75% of age predicted maximal heart rate; Rate Perceived Exertion (RPE) 2-4
  – Duration: 30 minutes accumulation (3 ten minute bouts) per day

• Exercise for cardiovascular fitness
  – Mode: Rhythmic, aerobic exercise
  – Frequency: 3-5 days per week
  – Intensity: 70-85% age predicted max. heart rate; RPE 4-7
  – Duration: 20-30 minutes continuous per day
Recommendations for General Health and Fitness

• Exercise training for muscular fitness
  – Mode: Dynamic, resistance exercise for major muscle groups
  – Frequency: 2-3 days a week on alternate days
  – Repetitions: 8-10 exercises with resistance adequate to induce fatigue after 8-12 repetitions to build strength. If over 50-60 years old or frail, 10-15 repetitions is sufficient.

• Exercises for muscular flexibility
  – Mode: Gentle stretching
  – Frequency: 2-3 days a week minimum
  – Intensity: Lengthen to position of mild tension with prolonged, static stretch
  – Duration: 20-30 seconds for each repetition
  – Repetitions: 3-4 repetitions each
Types of Exercises to be Included for Patients with Arthritis

- ROM/stretching
- Strengthening
- Cardiovascular/Aerobic conditioning exercise
Range of Motion/Flexibility Exercise Recommendations

• Exercise daily when stiffness and pain are least

• Take a warm shower or apply heat before exercise and cold after exercise

• Perform gentle range of motion exercises in the evening to reduce morning stiffness and in the morning to increase mobility prior to rising

• Modify exercise by decreasing frequency or adapting movement to avoid increasing joint pain
Range of Motion/Flexibility
Exercise Recommendations

• Use self assisted techniques (wand or pulley) to perform gentle stretching

• Reduce repetitions when joints are actively inflamed and avoid overstretching

• Joint motion may be maintained by performing one complete range of motion exercise through the entire range daily (acute inflammation)
Stretching is an integral part of the exercise program-stretches should be held for 30 seconds and held within a pain free range.
Loss of Muscle Strength in Arthritis - Contributing Factors

- Intraarticular and extraarticular inflammatory disease processes
- Side affects of medications
- Disuse
- Reflex inhibition in response to pain and joint effusion
- Impaired proprioception leading to decreased protective muscular reflexes
- Loss of mechanical integrity around the joint
Purpose of Isometric vs. Dynamic Muscle Strengthening

• Isometric
  – Minimize atrophy
  – Improve tone
  – Maintain/increase static strength/endurance
  – Prepare for dynamic and weightbearing activity

• Dynamic
  – Maintain/increase dynamic strength/endurance
  – Increase muscle power
  – Improve function
  – Enhance synovial blood flow
  – Promote strength of bone and cartilage

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Recommendations - Strengthening

• Isometric
  – Perform at functional joint angles
  – Breathe normally without holding breath
  – Intensity: \(< \text{or} \leq 70\% \text{ one MVC}
  – Duration: 6 seconds
  – Frequency: 5-10 repetitions daily

• Dynamic
  – Able to perform 8-10 repetitions against gravity before additional resistance
  – Use functional movements
  – Progressive resistance regimen
  – Modify ACSM guidelines as needed
Theraband exercise is an effective means of strengthening. Joint protection techniques should be employed with all exercises.
Precautions

• Isometric
  – Decreased muscle blood flow
  – May increase intraarticular pressure
  – May increase blood pressure

• Dynamic
  – May increase biomechanical stress on unstable or malaligned joint
  – Need for power grip

• Isometric/Dynamic
  – Adjust activity level to accommodate disease exacerbations/remissions
  – Avoid increasing joint pain/inflammation
  – Avoid excessive loads
Exercises can be adapted to protect joints to allow for strengthening of the muscle.
Aerobic Conditioning - Issues

• People with arthritis report that one of first adaptations they make is to give up leisure and recreational activities (primary source of physical activity for adults).

• People with arthritis are less fit than non-affected peers.

• Inactivity produces many of same symptoms, impairments, disabilities as arthritis disease process.

• Participation in a regular exercise program can help prevent or reduce number of functional declines associated with aging.
Evidence – Short and Long Term Benefits of Aerobic Exercise for Patients with Arthritis

• Improved cardiovascular function
• Increased muscular strength and flexibility
• Improved physical (14-39%) and social activity levels
• Reduced fatigue
• Decreased depression (18-46%) and anxiety
• Decreased pain (12-30%)
• Decreased or unchanged disease activity (10-40%)
Considerations for Exercise Prescription

- Type of arthritis
- Stage of joint involvement
- Bone integrity
- Age of patient
- Patient goals, preferences, skill
- Sequencing of exercise
- Patient resources and accessibility
- Enhancing adherence
- Disease activity
- Joint integrity
- Origin of pain
- Medications
Cardiorespiratory Exercise Program Components

• Warm Up
• Aerobic Exercise
• Cool Down
Warm Up

- ROM, flexibility, strengthening exercises (may be home exercise program)
- Incorporate pelvic stabilization and trunk rotation exercises
- Goal = 15 minutes of continuous low intensity exercise – indicates readiness to proceed to and aerobic activity
Aerobic Exercise

• Low to moderate intensity aerobic activity performed at least 3-4 times per week for 30 minutes (cumulative)
• Designed to meet individual needs and variations in disease activity
• Flexible prescription of intensity, duration, frequency that patient may adjust to meet daily needs promotes self management skills and appropriate activity levels.
• Use time rather than distance
• Use alternate forms of exercise that vary weightbearing and involved joints
Cool Down

• Once patient is performing 10 minutes or more of aerobic activity at an intensity of 70% or more of age predicted heart rate - 3-5 minute cool down is necessary

• Goal is to allow cardiovascular system to safely adjust to less demand and to gently stretch muscle to minimize delayed onset muscle soreness
Exercise Parameters

• Intensity
  – For individuals who have not exercised in over 3 months or who are deconditioned-start at 50-60% Maximum Heart Rate (MHR)
  – For patients at average levels of fitness -60-80% MHR will be appropriate
  – Monitoring techniques
    • Heart rate
    • Perceived exertion
    • Talk test
Exercise Parameters

• Duration
  – 30 minutes at intensity level above normal daily activity to increase fitness level
  – Modifications
    • Interval training
    • Additive bouts of exercise

• Frequency
  – 3-4 times per week for aerobic exercise produces optimal results with minimal risk of injury/fatigue
  – Frequency of 5 days per week is safe and effective when intensity is low
Examples of Aerobic Conditioning Exercise

- Walking
- Bicycling
- Swimming or aquatic therapy
- Low impact aerobics
- Nordic skiing
It is not necessary for a person to participate in a highly regimented exercise program or attain a high level of athletic fitness to improve health status.

Marian Minor, PhD, PT
Objective 4

Describe the benefits of physical modalities in managing symptoms associated with rheumatic diseases.
Physical Modalities

• Heat, cold and TENS are often used to alleviate symptoms of rheumatic disease
• Goals may include decreasing pain, increasing flexibility, decreasing swelling
Heat

- Analgesic
- Promotes muscle relaxation
- Reduces muscle spasm
- Enhances flexibility of muscles and periarticular structures
- May be applied as moist heat pack, paraffin bath, warm bath/shower
- Contraindicated with acutely inflamed joints

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Aquatic Therapy

• Physical therapy performed in warm water including:
  – Mobility exercises
  – Strengthening
  – Aerobic conditioning

• Aquatic fitness programs for patients with RA may result in:
  – Improved functional status and activity level
  – Increased strength and endurance
  – Improved mood
Ultrasound

• Therapeutic ultrasound is described as a form of ‘deep heat’ to generate regional heating in biological tissues
• Studies have not confirmed effectiveness for pain relief or increased mobility in the treatment of arthritis
• Numerous visits & prolonged therapeutic intervention make it impractical for long term management
Cold

• Local analgesic
• Reduces inflammation
• Decreases muscle spasm
• Most commonly applied via cold pack or ice massage
Heat vs. Cold

• Shown to be equally effective in pain reduction, and in functional improvement when used in combination with exercise program

• Cold most indicated for acute inflammatory pain and heat for subacute or chronic pain
Transcutaneous Electrical Nerve Stimulation (TENS)

- TENS is a highly effective treatment for pain. Soothing pulses are sent via the pads through the skin and along the nerve fibers. The pulses suppress pain signals to the brain and encourages the body to produce higher levels of its own natural pain killing chemicals called Endorphins and Encephalins.
- May decrease pain and stiffness in rheumatic disease
- 3 most common modes
  - High frequency
  - Low frequency
  - Burst
- High frequency or burst modes provide longer lasting relief; low frequency does not appear to be useful with arthritis
Objective 5

Describe reasons for and how to make referrals to physical therapists and occupational therapists for commonly occurring problems for people with rheumatic diseases.
Referrals to PT and OT

• As discussed in objective 3, people with rheumatic diseases may be referred to physical therapy or occupational therapy for:
  – Patient education
  – Instruction in joint protection/energy conservation techniques
  – Assistive devices
  – Splinting
  – Pain relieving modalities
  – Therapeutic Exercise
  – Aquatic therapy
  – Functional tasks to allow continued participation in work, school, home, leisure, and socialization to engage in lifestyle activities
Writing Referrals

• Requirements differ by state
• Some states have “direct access” and don’t require a referral while others require referral from a health care professional who is licensed to diagnose:
  – Physician
  – Chiropractor
  – Podiatrist
  – Physician Assistant
  – Nurse practitioner
• Insurance plans differ, therefore, patients are advised to check with their insurance companies before initiating therapy
Therapy Referrals

• Should include a diagnosis and recommendations for treatment
• Orders requesting “evaluate and treat” will allow the therapist to perform a complete evaluation and to treat according to that patient’s specific needs
• Add as much detail as possible i.e. problems or limitations in performing one’s job, difficulty with activities of daily living, post-op issues etc.
Objective 6

Describe the role of the following health care team members in the care of persons with rheumatic diseases:

- Psychologists
- Physical therapists
- Occupational therapists
- Orthopedic surgeons
- Podiatrists
- Social workers
- Psychiatrists
- Counselors
- Educators
- Dieticians

There may be overlap between disciplines but the overall goal is comprehensive care.
Roles of Team Members

- Psychologists and counselors
  - Assist patient and family in managing emotional, physical and psychological distress associated with rheumatic disease
  - Interventions are designed to enhance coping skills for managing pain and stress, to treat depression and anxiety, and to address sexual and relationship issues

- Physical Therapists and Occupational Therapists (see objective 3 on rehabilitation)
Team Members (continued)

• Orthopedic Surgeons
  – Specialize in bone and joint surgery

• Podiatrists
  – Specialize in the care of the foot
  – May recommend specific orthotics, supports, footwear and assist with managing foot pain

• Social Workers
  – Provide emotional support and make referrals to community resources
  – Assess past coping behaviors, support systems, living arrangements, employment, leisure interests, current financial situation, patient’s emotional response and reaction to illness, impact of the disease on family, and other personal social problems
  – Guide patients in negotiating the health care system and direct them to community resources
Team Members (continued)

• Physiatrists
  – Doctors specializing in physical medicine and rehabilitation
  – Focus on rehabilitation and pain management especially related to strength, independence and function

• Dieticians
  – Complete dietary assessments and make recommendations to assure that patients are getting proper nourishment
  – Resource for questions about vitamins, supplements, ‘natural’ products or special diets
Objective 7

Identify community resources for rheumatology health professionals and children, adults, and families dealing with rheumatic diseases.
Resources

- Arthritis Foundation- www.arthritis.org
- Arthritis Society of Canada- www.arthritis.ca
- American College of Rheumatology/ Association of Rheumatology Health Professionals - www.rheumatology.org
Patient Education

- WebMD: www.webmd.com
- National Institute of Health: www.nih.gov/
- MayoClinic.com: www.mayoclinic.com
- Johns Hopkins Arthritis Center: www.hopkins-arthritis.org/corner/corner.html
- Stanford SOM Self-Management Programs: patienteducation.stanford.edu
Patient Advocacy Web Sites

- Scleroderma Foundation:  www.scleroderma.org
- Lupus Foundation of America:  www.lupus.org
- Arthritis Foundation:  www.arthritis.org
- Spondylitis Association of America:  www.spondylitis.org
- Myositis Association:  www.myositis.org
- National Psoriasis Foundation:  www.psoriasis.org
Conclusion

• Teach individuals to become ACTIVE participants in the management of their disease
• Patients will most benefit from staying active and performing a daily routine of exercise to maintain or achieve a higher functional level to improve quality of life
• Learning to be a “self-manager” will keep medical costs down as patients will not be as dependent on the health care system for treatment

“If I treat you, I help you today. If I TEACH you, I help you for a lifetime.”

Chinese Proverb