JOINT PROTECTION PRINCIPLES

The purpose of joint protection is to allow participation in daily activities with the least amount of damage to the affected joints. Following these guidelines can help reduce pain, inflammation and injury resulting from too much joint stress, and preserve the internal structures of the joint.

Joint protection is a process that has the following two major components:

1. A thorough assessment of an individual's activities to determine the potential of each to contribute to worsening pain, inflammation, instability and/or deformity of an already abnormal joint.
2. Creation of a program of behavioral modifications, supplemented if necessary with splints, braces, or other equipment designed to minimize further joint damage.

The process of joint protection also includes energy conservation, which is a paced, more efficient use of muscles and joints. These principles encourage individuals with arthritis to utilize their bodies in a manner to minimize pain, swelling, and associated limitations of movement and function.

THE PRINCIPLES OF JOINT PROTECTION

- Respect pain
- Distribute the load over stronger joints and/or larger surface areas
- Avoid maintaining the same joint position for prolonged periods
- Reduce excess body weight
- Use good posture and body mechanics
- Use the minimum amount of force necessary to complete the job
- Simplify work by using efficiency principles: plan, organize, balance work with rest
- Maintain strength and range of motion

RESPECT PAIN

Activities that worsen joint pain warrant modification. Some individuals avoid activity in order to prevent pain. Those who do are more likely to experience increased joint stiffness and become deconditioned. Others persevere in their activities despite pain.

The two-hour pain rule – this rule is a useful guideline to evaluate excessive activity. If an individual has pain for two hours after an activity it means he or she has done too much.

Factors affecting activity-related joint pain – many factors influence the onset and intensity of joint pain that is activity-related:

- Time – the length of time one spends on an activity can influence pain. As an example, 5 minutes of an activity may be manageable, but an hour of the same task may result in pain that lasts for a few days

- Weight – weight can influence pain in more than one way. Carrying a small bag of groceries with a few times may not cause any difficulties but a full 10 pound bag can cause or worsen hand or knee pain depending on the vulnerable joints. Pain can also occur from carrying too much body weight.

- Repetition – The number of repetitions of an activity that cause or worsen pain are notable. Stapling a few sheets of paper may not cause any pain, but stapling 50 handouts may cause significant pain that lingers for hours or days.

DISTRIBUTE THE LOAD

Distribute the load over stronger joints and/or larger surface areas. Large joints are stronger than small ones. Using larger joints will reduce strain that can overstretch ligaments and create instability.

Small hand joints are vulnerable to pain or inflammation when used too much or too often. When possible, spread the load over several joints or a greater surface area.

AVOID PROLONGED IMMOBILITY

Joints kept in one position for prolonged periods of time are inclined to get stiff. Immobilization of a joint for days or weeks can lead to muscle atrophy and joint contractures. Frequently shifting weight, stretching or changing positions can alleviate this pain and stiffness.

USE GOOD POSTURE AND BODY MECHANICS

Each joint should be used in its most anatomically stable and functional plane. Good body mechanics and posture can have a powerful impact by minimizing musculoskeletal strain and thereby preventing or reducing pain. While it takes more energy initially, once it becomes a habit, it takes less energy to maintain good posture.

- Spine – the three normal curves of the spine at the neck, middle back, and low back are gentle and small. Each of these curves is ideally maintained in the midrange of available motion, or neutral spine. In this position, the gentle curves absorb shock and provide stability. A slumped posture, a rigid posture, sustained sitting or standing in a single position without positional shift can contribute to spine discomfort. Performing repetitive tasks in compromised posture such as viewing a computer monitor in neck flexion often results in pain.

- Peripheral joints – All body parts experience less strain in the neutral position. People are less vulnerable to wrist pain and strain when they avoid extremes of flexion and extension.

USE THE MINIMUM NECESSARY FORCE

Squeezing and pinching activities should be avoided, as they tend to further injure soft tissue as well as increase deformities of the hand. Less force can be used consciously holding equipment with less effort, taking rest breaks and using special equipment.

Adaptive devices – For people with painful hand and wrist problems, specially made or adapted devices allow forces to be spread over larger areas and permit joints to operate nearer the mid range of their motion. Lightweight equipment with built-up handles can decrease the amount of force on joints, and can help individuals with weak hands. Simple devices, such as jar openers, car door openers and key holders help limit painful and deforming actions. Equipment such as grab bars may assist in rising from the bathtub or toilet. A long-handled shoehorn may allow you to put on and remove your shoes with greater ease.

Braces – Symptomatic improvement in patients with osteoarthritis may result from bracing. Bracing the knee may produce a significant decrease in pain and improvement in physical function.

Splints – Splinting of the wrist and hand joints may be beneficial for people with inflammatory arthritis. Careful assessment by a therapist and well-fitting splints are required. Individuals with early stage disease are the best candidates for extensive splinting.

- Wrist splints – prefabricated soft wrist splints increase pinch and grip strength, decrease pain, decrease inflammation and improve the person's ability to carry out every day tasks.

- Thumb splints – arthritis in the first carpometacarpal (CMC) joint of the thumb can be painful and interfere with daily activities. Splinting this joint provides pain relief.
- Finger splints – ring splints are designed to provide stability and improve alignment of the interphalangeal (IP) joints of the fingers. Their design prevents hyperextension of this joint, improving grasp and prehensile strength and the overall appearance of the joint.

SIMPLIFY WORK BY USING EFFICIENCY PRINCIPLES

Planning, organizing, and balancing work with rest are useful principles to employ to reduce stress on joints.

- Planning – Individuals who plan ahead can find the best time of day to perform a task, allow enough time, and perhaps eliminate steps and simplify the task.

Planning ahead and getting help to perform a difficult task can reduce stress and pain during a busy week. People tend to have less pain when they avoid rushing, simplify tasks, and spread out difficult tasks such as cleaning activities.

- Organizing – Organizing tasks also makes them easier. Having supplies at easy to reach locations, between eye-level and hip-level, prevents excess strain on joints. Duplicating supplies in different locations avoids excess energy expenditure, and eliminating clutter helps people avoid awkward positions and save time and energy in finding items.

- Resting – Schedule rest breaks during the day. Breaks give an opportunity to rest joints, thereby avoiding pain and inflammation. Alternating heavy and light tasks, and alternating sitting and standing activities can help reduce pressure off joints.

MAINTAIN STRENGTH AND MOBILITY

Remain active to maintain/increase strength and range of motion. Exercise plays an important role in control of body weight, cardiovascular fitness and prevention of coronary heart disease. When individualized for people with arthritis, exercise is expected to improve rather than worsen joint pain and function. Muscle weakness may contribute to the development of osteoarthritis.

The type and amount of exercise depends on the person for whom it is prescribed. Walking, swimming and biking are low-impact or non-impact forms of exercise that many people with arthritis can safely perform. Individuals with arthritis may need some modifications such as a longer warm-up and cool-down than the general population.

RESOURCES

www.arthritis.org
Many free booklets that provide useful information for patients.

www.webmd.com
Provides general information including: Ask the Expert, Medical Library, Message Boards and more.

www.rheumatology.org/public/factsheets
Education regarding different types of arthritis.

www.sammonspreston.com
A catalog of energy saving devices.