# The Role of Exercise in Pain Management

**Pan Am Pain Clinic**  
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## Outline
- Definition of pain
- Acute Vs. Chronic Pain
- Fear of Injury/Harm
- Why Exercise?
- Pacing Your Activities
- Types of Exercise
- Exercise Guidelines
- Posture and Body Mechanics

## What is PAIN?
- The International Association for the Study of Pain defines Pain as:
  - "an unpleasant **sensory** and **emotional** experience associated with **actual** or **potential** tissue damage, or described in terms of such damage."
  - Pain does NOT = damage
  - Pain protects you – alerts you of danger

## Acute versus Chronic Pain
- **Acute pain** is a reliable indicator of the severity of the threat/injury occurring
- **Chronic pain**: Pain alarm continues to sound although harm has passed
- The more the alarm sounds, the easier it is to trigger
  - Malfunction of the pain system itself (nervous system)

## Chronic Pain
- Used to be defined as pain that has lasted > 6 months
- Now chronic pain is defined as pain that has persisted longer than the normal course of time associated with a particular type of injury
- Example: soft tissues such as ligaments and muscles takes 6 weeks to heal

## Sensitized Nervous System
- Nerve fibers easier to stimulate
- No actual damage but the brain perceives that it may!
- The amount/intensity of pain does not correlate with the severity of the threat
- Chronic pain is an overprotective, learned response
- Good news: you can modify/unlearn these overprotective patterns
- Gradual stimulation is the key (gradual activity/movement) – slowly teaches the nervous system not to over react
But the last time I exercised....
- My pain got worse – “good pain” versus “bad pain”
- I was too tired to do anything else
- It didn’t help
- Fear of re-injury causes you to avoid exercise

Fear of Injury
- Increased pain does not equal tissue injury in Chronic Pain
- Increased activity will often increase aches and pains but this is temporary and will improve with continued activity

Why Exercise?
- “Motion is lotion”
- By not moving you place yourself at more risk of re-injury
- Includes Activities of Daily Living
- Balancing Act

Exercise and Chronic Pain

Side Effects of Inactivity
- Loss of bone and muscle mass
- Muscle stiffness, shortening
- Loss of joint flexibility
- Increased pain with movement
- Loss of activity tolerance, decreased energy
- Depressed mood
- Impaired sleep

Benefits of Regular Exercise

Decreased Risk Of:
- Obesity
- Diabetes
- Heart disease
- Hypertension/Stroke
- Osteoporosis
Benefits of Regular Exercise

- Improved cardiovascular fitness
- Improved strength and muscular endurance
- Greater lean body mass and less body fat
- Reduction in tension
- Reduction in pain (endorphins)
- Reduced anxiety, depression
- Improved sleep

Types of Exercises

- Aerobic (cardiovascular exercise)
- Muscular strength and endurance
- Flexibility- stretches

Aerobic (Cardiovascular) Exercise

- Aerobic means in the presence of oxygen
- Activity that helps to improve blood flow and oxygen to all tissues (muscles, bones, and ligaments).
- Exercise for the heart and lungs
- Requires the use of the larger muscle groups (legs, arms) in a continuous, rhythmic motion.
- Choose low impact activities such as walking, swimming, cycling, or aquasize.

Muscle Strength and Endurance

- Strength: the ability to do work
- Endurance: the ability to do work for long periods of time
- Strength and endurance increase with resisted exercise
- Weight/Resistance training- using free weights, machines, stretchy bands, household items, or body weight
- Tasks around the home and yard

Benefits of Strengthening

- Develops bracing action - increased support and protection of joints
- Makes daily activities easier
- Muscles become less prone to trauma, meaning less pain

Flexibility

- Stretching: Lengthening of muscles in order to increase muscle flexibility and/or joint range of motion
- Benefits:
  - Decreases pain by relieving pressure throughout the muscle as well as on your joints and nerves
  - Increases blood supply to muscles and nutrients to joints
  - Improves balance and coordination, overall functioning
  - Prevents post exercise muscle soreness; relieves stress
  - Decreases Risk of Injury
Flexibility- How to Stretch

- Do gentle warm up first
- Proper stretches are done in a slow controlled fashion, there should be no bouncing!
- Stretch to the point of mild tension, hold 30-45 seconds; repeat 2-3 times
- Remember to breathe throughout the stretch!!

Guidelines for Activity

- Frequency (2.5 hours / week)
- Intensity
- Time (Duration of the activity)
- Type of activity
- Discuss individualized guidelines with a doctor or physiotherapist

Frequency

- Stretching: Daily, before and after exercise or other physically demanding activities
- Strength: 2-3 times/week with at least 1 day of rest between work outs
- Aerobic Exercise: Canadian Physical Activity Guidelines- 150 minutes of moderate exercise per week, in bouts of 10 minutes or more
- Examples of moderate intensity activities: brisk walking, biking, swimming, mowing the grass, heavy hard work, dancing, exercise machines such as elliptical, stationary bike, treadmill, sports, Tai Chi, Yoga

Intensity

- How hard should you go at it?
  - Aerobic Exercise: low to moderate intensity
  - Moderate Intensity: You breathe a little harder, heart beats a little faster, sweat a little
  - Heart rate max: 220 - your age (50-85% of HRM)
  - Rating of Perceived Exertion Scale
  - Talk Test- should be able to carry on a conversation while exercising
  - Strengthening- use a resistance level that allows you to do 8-12 repetitions comfortably

Time: How Long?

- Find your “easy activity” level
- Gradually increase time
- If starting at less than 5 min., try 2-4 times a day
- Keep a daily log of exercises and chart the progress

Rating of Perceived Exertion Scale

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<th>Description</th>
<th>Effort Level</th>
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<tr>
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<tr>
<td>18</td>
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<td>Very, very hard</td>
</tr>
<tr>
<td>20</td>
<td>Maximum exertion</td>
<td>Maximum exertion</td>
</tr>
</tbody>
</table>

How you feel when lying in bed or resting is: Little or no effort.
Sample Progressive Program

Day 1- Walk 3 minutes (easy activity)
Day 2- Walk 3 minutes and climb up/down 2 steps
Day 3- Walk 4 minutes and climb up/down 3 steps
Day 4- Walk 5 minutes and climb up/down 4 steps
Day 5- Walk 5 minutes and climb up/down 5 steps
Day 30- Walk 30 min. and climb up/down 30 steps
Day 60- Walk 60 min. and climb up/down 60 steps

Consensus

- Symptoms vary day to day
- Low to moderate intensity exercise is better tolerated than exercise of higher intensity
- Brief exercise is better tolerated than prolonged durations
- Intermittent sessions are better than continuous bouts

Pain with Exercise

- 2 Hour Pain Rule
- Modify your exercise program by reducing the frequency (days per week) or duration (amount of time each session) until pain improves.
- Change the type of exercise to reduce impact on the joints - for example switch from walking to water aerobics.
- Do proper warm-up and cool-down before and after exercise.
- Exercise at a comfortable pace
- Make sure you have good fitting, comfortable shoes.

Exercise Tips

- It doesn't have to be a formal exercise program. Just fitting more activity into your daily routine can provide many benefits (e.g. walk/ride a bike instead of driving).
- Use positive self-talk to stay on schedule.
- Start slow and take it one step at a time; add components of exercise program as tolerated
- Exercise in a group or with a friend

Exercise Tips

- Make exercise a part of your day - Routine is important
- Limit “Screen Time” time
- Move yourself - use different modes of transportation if possible instead of driving
- Join a club or team
- Set short and long term goals
- Every step counts!

Exercise Tips

- It is helpful to have a variety of activities/exercises that use various muscle groups, which prevents overuse injuries.
- Boredom is your enemy
- If your exercise is comfortable and enjoyable, it will be easier to keep up with.
Exercise Resources

- Canada's Physical Activity Guide
- Winnipeg in Motion
  www.winnipegmotion.ca
- Winnipeg Leisure Guide
  www.winnipeg.ca/leisureonline
- The Arthritis Society
  www.arthritis.ca/manitoba

Pacing

- Determine your baseline:
  How long/how much can you do before discomfort starts or increases?
- Stop before you become exhausted
- Set a schedule:
  - How important is the job?
  - Schedule most important jobs first
  - Plan at least one enjoyable activity each day
- Include a plan for good and bad days

Pacing (continued)

- BREATHE throughout activities
- Work at an easy, relaxed pace
- Plan work/exercise for times when you feel better
- Plan rest periods throughout the day
- Alternate between light and heavy tasks
- Change positions frequently
- Listen to your body

Posture

- Posture is defined as the position in which you hold your body upright against gravity while standing, sitting, or lying down.
- Holding your body in positions where the least strain is placed on the supporting muscles and ligaments.

Importance of Proper Posture

- Keeps bones and joints in correct alignment so that muscles are used properly.
- Decreases stress on the ligaments supporting your joints and also prevents abnormal wearing of joint surfaces.
- Prevents the spine from being fixed in abnormal positions.
- Prevents fatigue.
- Prevents backache and muscle pain.
- Contributes to a good appearance.

Poor Posture

- If one body part is out of alignment, others move out of alignment to balance it.
- This strains muscles, over-stretches ligaments and can damage joint cartilage making you prone to arthritis and injury.
Body Mechanics

- Performing activities correctly in a way that uses the least amount of energy/effort e.g. lifting, pushing, or moving objects.
- Maintaining proper body positioning during movement
- Using muscles efficiently to prevent muscle pain & joint strain.

Incorrect vs. Correct Lifting

Laundry

Housework

Poor Posture - Chin Poke

Poor Posture - Sway Back
Summary

The following will help to decrease pain & prevent future injury/pain:

- Participating in regular exercise/activity
- Remembering to pace yourself
- Maintaining good posture
- Practicing proper body mechanics

Questions?