
Pain Coping Strategies for Knee Osteoarthritis

— Marian Thomas Sudano, SPT —

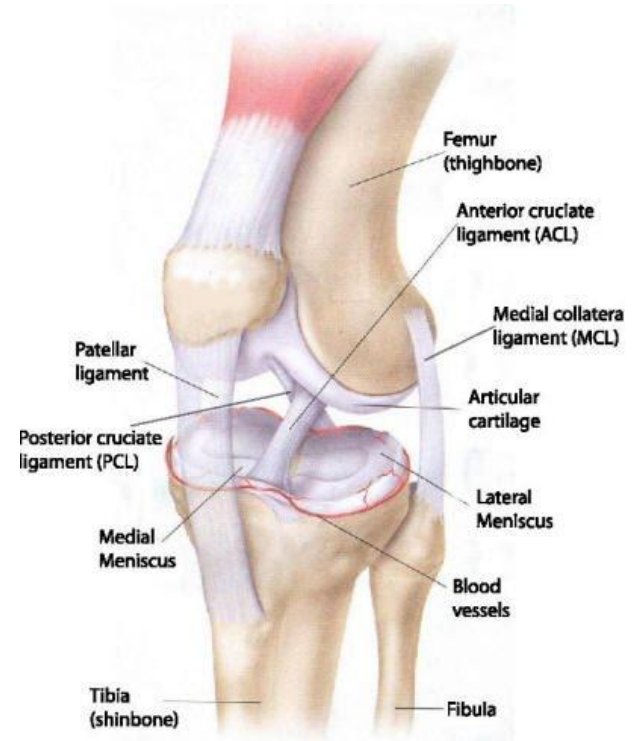
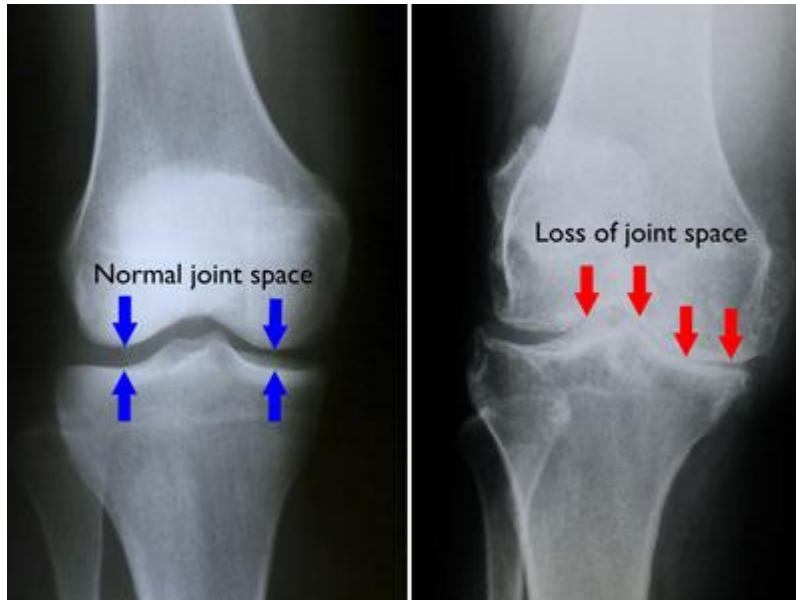
Learning Objectives

The learner will be able to...

1. Comprehend the prevalence, anatomy and pathology of knee osteoarthritis.
2. Recognize common treatment options for knee OA
3. Explain how physical therapy can provide treatment for knee OA
4. Understand how exercise and weight loss can help knee pain symptoms
5. Summarize the gate control theory of pain
6. Identify types of positive pain-coping strategies
7. Apply positive pain coping strategies and goal setting into daily life.
8. Describe specific resources that the UNC Wellness center provides to manage their condition

Knee Anatomy

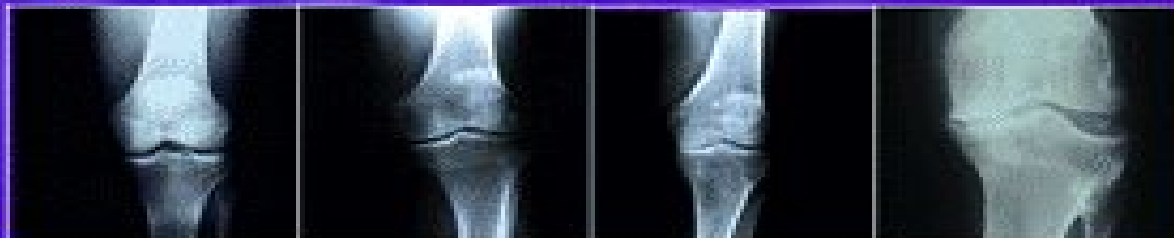
- [Knee Osteoarthritis Video](#)



What is Knee Osteoarthritis?¹

- Degeneration of cartilage within the knee joint
- Typically due to “overuse”
- Pain more likely due to bone growth between the joint
- Affects²:
 - 13% women over the age of 60
 - 10% men over the age of 60
 - More severe pain experienced by women

Kellgren and Lawrence Radiographic Criteria for Assessment of OA*



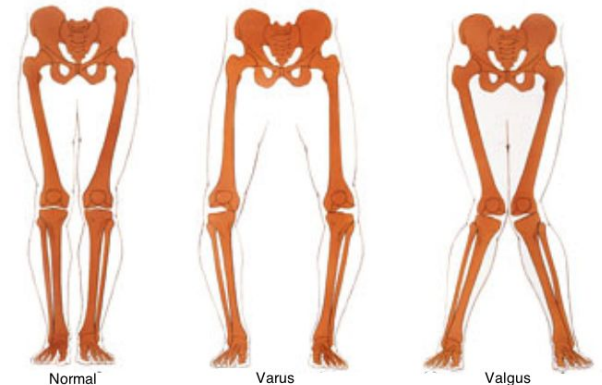
Radiographic grade	0	I	II	III	IV
Classification	Normal	Doubtful	Mild	Moderate	Severe
Description	No features of OA	Minute osteophyte; doubtful significance	Definite osteophyte; normal joint space	Moderate joint-space reduction	Joint space greatly reduced; subchondral sclerosis

Cooper C et al. In: Brandt KD, Doherty M, Lohmander LS, eds. Osteoarthritis. Oxford, NY: Oxford University Press, 1998:237-249.

*Radiography does not reliably correlate with symptoms.

Knee Osteoarthritis Risk Factors

Past Medical History	Anatomy	Overuse or trauma
Family history	Bony alignment	Sports
Obesity	Joint laxity	Occupational
Diabetes	Muscle weakness	
Previous meniscal surgery		

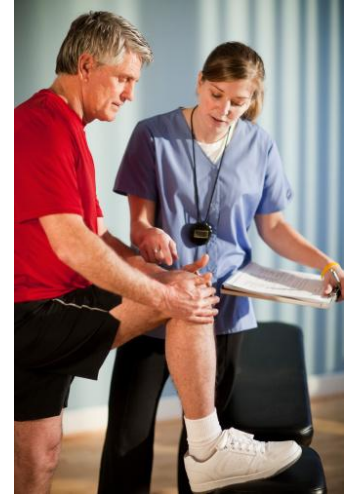


Clinical Signs and Symptoms

- Morning stiffness
- Reduced function
- Crepitus (cracking, crunching)
- Restricted movement
- Bony enlargement
- Swelling
- Tenderness at joint
- **Pain**
 - Increases with activity, decreases with rest
 - Chronic pain: persists for 3 months or more

Treatment Options

- Physical therapy
- Lifestyle modification
- Medication/supplements
- Injections
- Surgery



Effectiveness of PT

- Improved pain outcomes for patients who received PT compared to those who completed a home exercise program only¹¹
- Significant difference in endurance and physical function after one year¹¹
- Patients in the PT group were less likely to be using medication to manage their pain after one year¹¹
- Positive relationship with therapist correlated to better outcomes⁶

Physical Therapy Overview

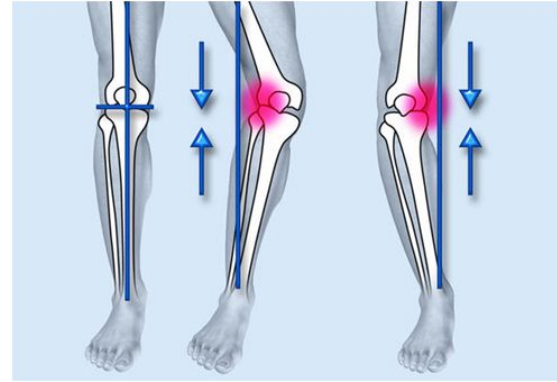
- Assessment/Examination
 - Outcome measures
 - Range of motion
 - Strength
 - Palpation
 - Functional movement testing: walking, stair climbing
 - Alignment

Physical Therapy Treatment

- Individualized exercise program
 - Lower body strengthening program
 - Balance program
 - Aerobic exercise
- Aquatic therapy
- Joint mobilizations and massage
- Education

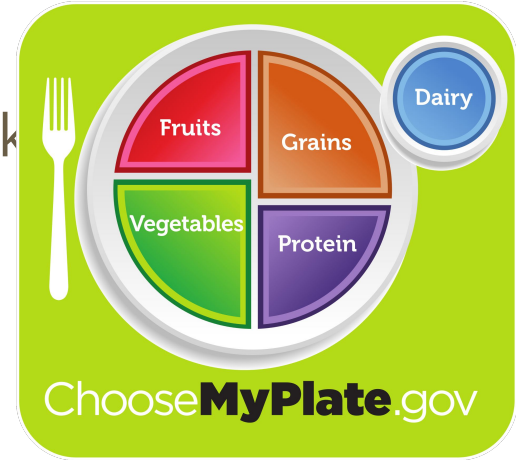
Physical Therapy Treatment

- Knee brace
- Shoe modifications
- Assistive device use



Lifestyle Modification

- Exercise
 - 150 min of moderate exercise a week
 - Leg strengthening
- Healthy diet and weight loss
- Use of pain coping strategies



Exercise and Weight Loss

- Found to significantly²²:
 - Reduce pain
 - Improve function
 - Improve quality of life
- Minimal adverse side effects
- Significant improvement in disability with > 5.1% weight reduction²³
- Use of pain coping strategies along with a weight loss program was found to significantly decrease pain when compared to either intervention alone²⁴
 - Similar results for joint exercise and weight loss program ²³

Exercise Opportunities

- Exercise program should include:
 - Aerobic exercise
 - Lower body strengthening
 - Balance exercises
- Be enjoyable!



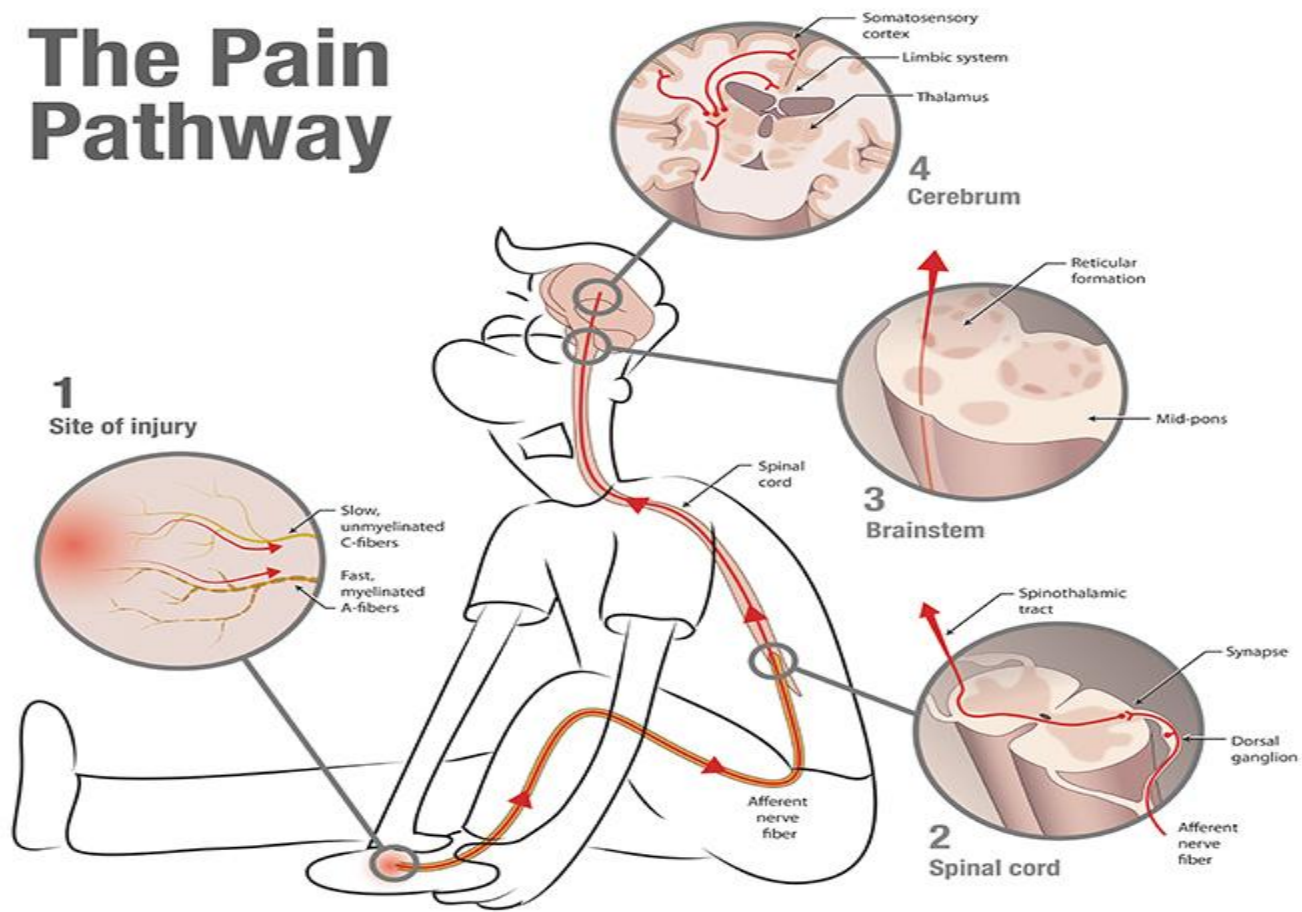
Exercise Classes UNC Wellness Center at NW Cary

- Cardiovascular/Strength:
 - Aqua Fitness
 - Aqua Zumba
 - Hi-low Aerobics
- Balance:
 - Joint friendly Yoga I
 - Tai Chi for Seniors
- Other:
 - Physical therapy
 - Personal training
 - Weigh to Wellness Weight Loss Program

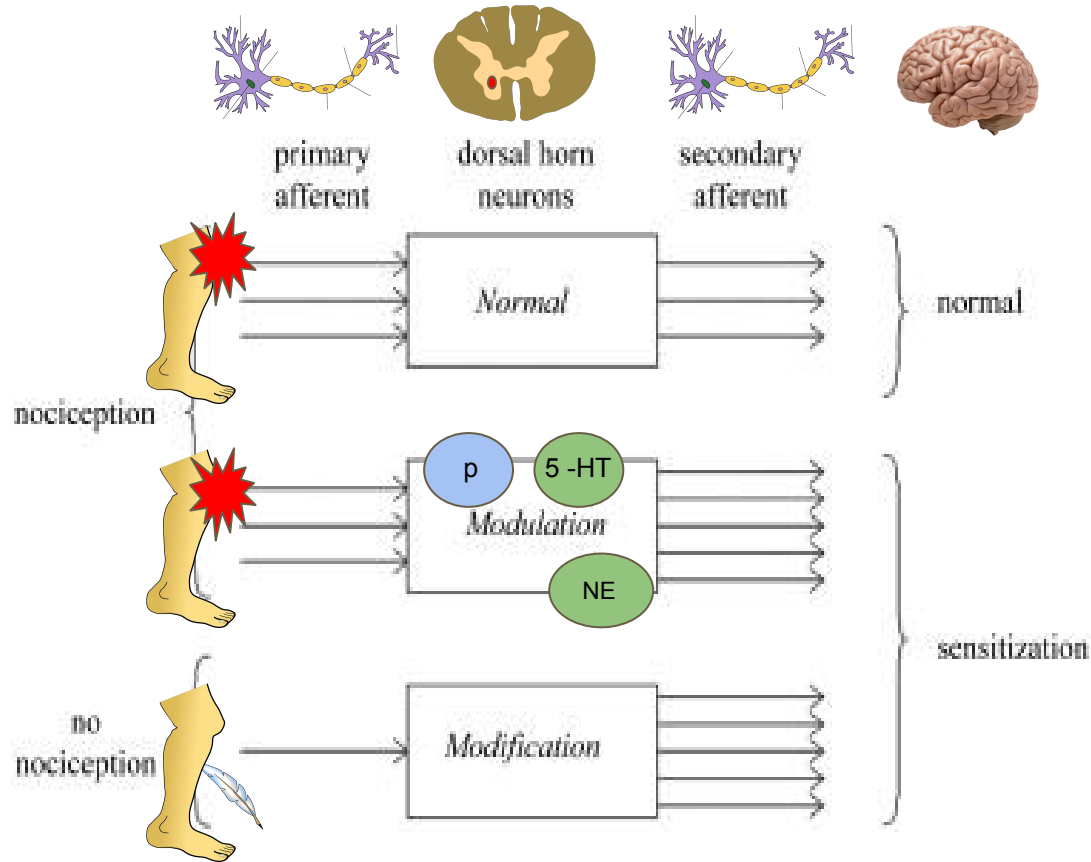


Pain Science

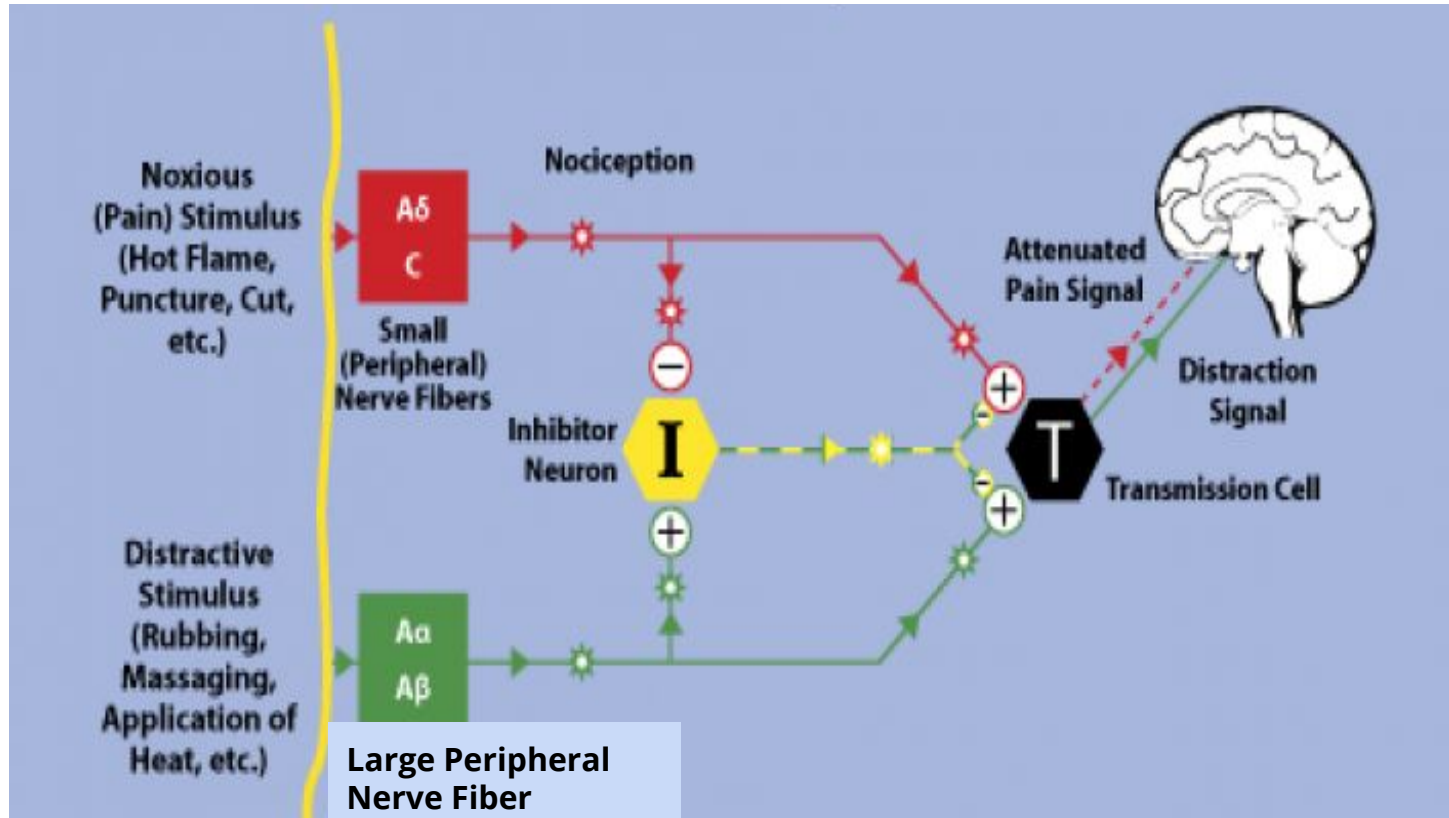
The Pain Pathway



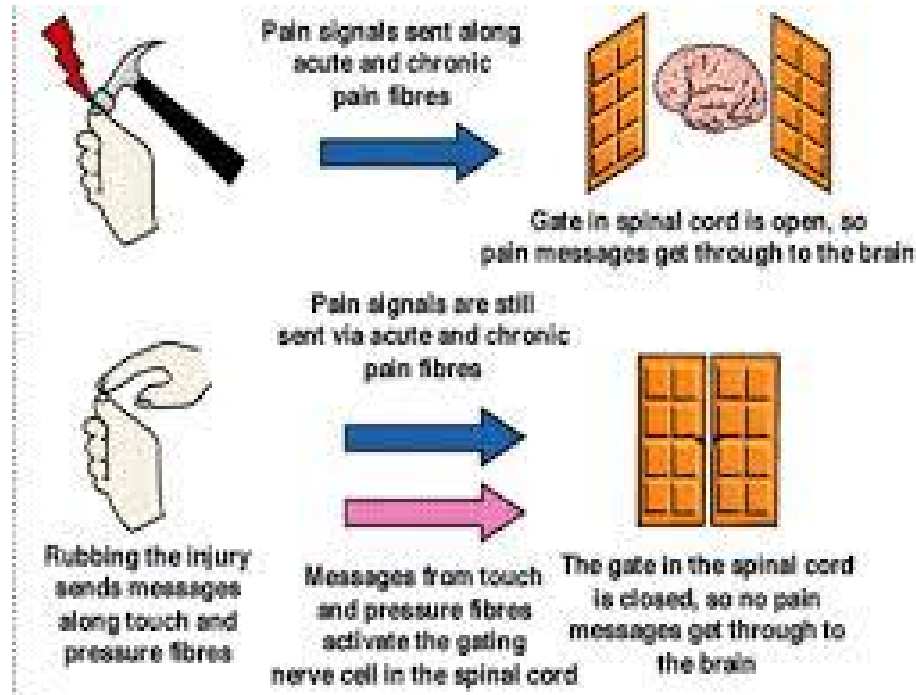
Central Sensitization - Chronic Pain



Gate Control Theory



Gate Control Theory Simplified



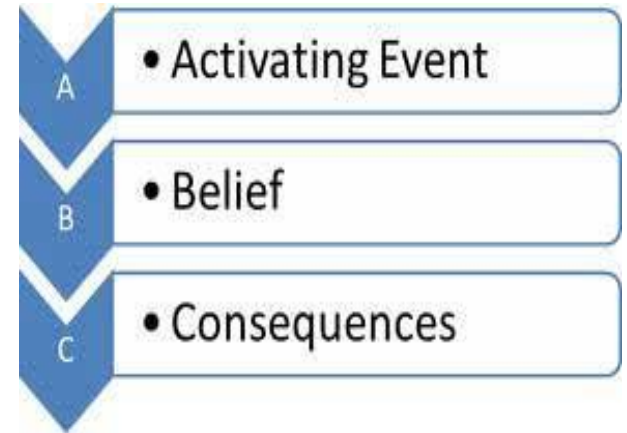
Neurophysiology of Pain

- The pain experience can be changed by a variety of factors, with tissue damage being one component
 - Pain can be experienced even without tissue damage
- Pain can also be increased due to feelings
 - Fear
 - Anxiety
- Pain can be decreased in response to “distraction” techniques
 - Rubbing the area
 - Heat/cold

Pain Coping Strategies

Types of Pain Coping Strategies¹⁵

Behavioral	Cognitive
Pacing	Challenge negative thoughts
Activity Persistence	Distraction
Pleasant activity scheduling	Goal setting
Relaxation breathing	Self - efficacy
Avoidance	



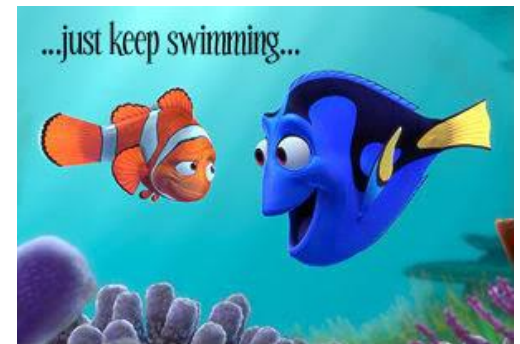
Pacing

- Alternate between activity and rest periods when performing an activity
 - Work before reaching the point of pain
 - Pacing is done with every activity
 - Pre-planned



Activity Persistence

- Continuing activity despite negative pain feelings
- Task persistence
 - Related to decrease in depression, anxiety, pain and fatigue
- Excessive persistence
 - Associated with disability and depression



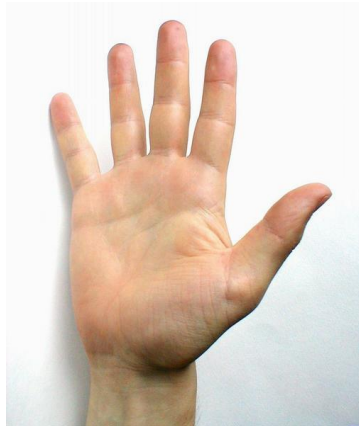
Pleasant activity scheduling

- Planning activities throughout the day that you enjoy
- Keep track of how often you perform the activity
 - Comment on how you feel before/during/after the activity



Distraction

- Visual focal points
- Auditory stimulation
- Guided imagery
- Altered focus on a non-painful body part



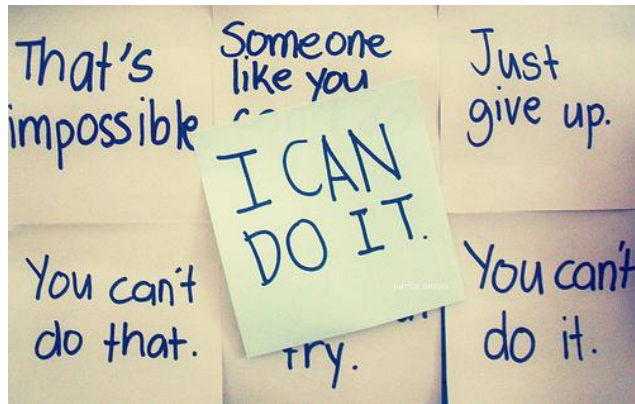
Relaxation Response

- Progressive muscle relaxation
- Deep breathing techniques



Identifying and Challenging Negative Thoughts

- “Cognitive restructuring”
- Notice negative thoughts during increased periods of pain
- Challenge negative thought with questions
- Counteract negative thoughts
 - Counter-act with self - soothing statements



Goal Setting

- Create SMART goals :
 - **S** - Specific
 - **M** - Measurable
 - **A** - Attainable
 - **R** - Relevant
 - **T** - time sensitive
- Keep a record of progress toward goals
- Be accountable to someone else for goals
- Creating goals significantly increases^{28,30}:
 - well being
 - change in exercise behavior
 - weight loss



Goal #1

I want to exercise every day.

Goal #2

I want to attend an Aqua Fitness class twice a week for the next 2 weeks.

Self - Efficacy

- Belief that you are able to accomplish the steps required to complete a task
- Methods to build self - efficacy³¹:
 - Exercise successfully
 - Exercise with other people who have knee
 - Positive feedback
 - Recognition of symptoms



Thank you!

Questions?

Please fill out the surveys before
you leave!
