

# **CURRENT PRM APPROACH OF OSTEOARTHRITIS**

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# OA PATHOLOGY

Characterized by progressive deterioration and ultimate loss of articular cartilage

Reactive changes of joint margins and joint thickening of the capsule

When OA symptomatic leads to:

- Pain on movement
- Restriction of joint motion
- Stiffness of joints
- Joint enlargement- may result from increased synovial fluid

Early in disease pain results from joint use and its relieved by rest, with the progression of the disease pain at rest may be common, as well as pain on by minimal movement.

Joints commonly involved include hip, knee and spine DIP and PIP, shoulder and elbow are involved more rarely.

# OSTEOARTHRITIS (OA)

The most common degenerative joint disease

Leading cause of disability in older adults and


4<sup>th</sup> cause of disability

OA is reported to affect the 9,7% and 18% of men and women elderly population over 60 years old

According World Report of Disability the prevalence of OA-associated till 2011 is reaching 43, 4 millions at all ages

It's estimates that by 2020 will be the leading cause of disability due to increase in **Osteoarthritis Research Society International (ORSI)** life expectancy

# THE ROLE OF PRM PHYSICIAN IN OA MANAGEMENT

- Prevention
  - Diagnosis
  - Assessment
  - Prescription and /or application of wide range of interventions and PRM program management
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# PREVENTION

Evaluation of the risk factors, incidence progression of OA

Strong evidence is found about the association between OA and:

- Age
- Gender
- Body Density
- BMI
- Previous joint injury

## **Modifiable risk factors :**

Obesity, mechanical aspects, abnormal loading, occupational factors, sports, muscle weakness.

PRM specialist is responsible to offer lifestyle interventions to avoid or reserve these risks

# TREATMENT

All the guidelines and recommendations agree on fact that the optimal management of OA combines both non-pharmacologic and pharmacologic treatment modalities

Treatment of OA is directed towards:

- decreasing pain
- stiffness
- stabilizing and increasing joint mobility
- reducing physical limitation and disability
- limiting the progression of joint damage
- improving health -related quality of life



# TREATMENT

PRM program includes:

- Patients education
- Weight reduction interventions
- Reduction of joint load
- Exercise therapy
- Physical agent modalities
- Assistive devices Orthoses
- Work place interventions
- Pharmacological treatment
- For each OA anatomical site the non-pharmacologic approach must be adapted to the individual patient, while pharmacological treatment is usually the same

# EDUCATION

One of the important roles of PRM physician is to provide information and education programs for patients and their families together with the other Rehab. Members.

**Education** constitute the *initial step* in OA pain management, with focusing on information about the disease and its treatment, alleviating fear of damage, advice regarding other self-management strategies, the importance of exercise, joint protection and energy conservation techniques, as well as the appropriate use of analgesic.





# EDUCATION

According to the guidelines point the initial treatment should focus on:

- Patient empowerment
- individualized therapies

All patients should receive education on life-style changes including:

- Exercise
- Pacing of activities
- Modification on work methods
- Adherence to various treatment modalities
- Weight loss and use of suitable orthotic and assistive devices.

Research has found 1a level of evidence for the effect of patient education on pain in knee and hip OA.

Education have benefits in improving function, psychological outcomes.



# EXERCISE

Individuals with lower limb OA have reduced muscle strength, impaired proprioception, restriction in the ROM and poor balance.

Some studies of patients with knee OA have found that quadriceps weakness is the most important predictor of functional limitations and disability, stronger than pain, radiographic findings.

Recent studies find that the quadriceps weakness seems to precede the development of knee OA and could be a predictor of knee OA.

Exercise for OA patients is not only required for preventing muscle weakness and muscle function but its beneficial for improved physical fitness, stimulating of reparative process in cartilage, activation of the natural descending inhibitory pain pathways and for a reduction of cardiovascular risk.

# WEIGHT REDUCTION

Weight reduction is strongly recommended by **Osteoarthritis Research Society International (ORSI)** with high level (1a) of evidence regarding pain relief and disability in knee OA.


Disability was found to be significantly improved with a weight reduction greater than 5,1 % based on meta-regression analysis. Some studies proved the effect of weight loss also in patients with hip OA.

# EXERCISE

Exercise should be core initial treatment regardless of:

- Age
- Pain intensity
- Disability
- Co-morbidity

**An optimal exercise program includes:**

- ROM exercise and stretching
  - Strengthening exercises – exercises against gradually increase resistance
  - Isotonic exercises recommended for pain relief
  - Balance and proprioceptive training
  - Aerobic exercises (high and low intensity)
  - Proprioceptive exercises
  - Water based exercises
  - Balance exercises- walking and strengthening exercises
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# MANUAL THERAPY

While manipulative therapy (traction, mobilization and manipulation) did not appear as a recommendation for knee or hip OA in earlier guidelines, nowadays is recommended especially for hip and knee OA not as a single treatment but in combination with exercise.



# PHYSICAL AGENTS MODALITIES

**Electrostimulation** . Transcutaneous electrical nerve stimulation (**TENS**) is recommended by some guidelines for pain relief of knee OA.

Neuromuscular stimulation contributes to strengthening of the weak muscles and overcoming the muscular imbalance.

Some studies found that TENS, interferential currents and pulse electrical stimulation offer clinically relevant short term pain relieving effect in knee OA.

Some of these studies show that that the effect is preserved up to six months after treatment.



# PHYSICAL AGENTS MODALITIES ELECTROMAGNETIC FIELDS

Among the other physical treatment options **pulsed electromagnetic fields (PEMF)** have been applied successfully in different musculoskeletal conditions.

A number of studies shed light on their positive effect on bioactivity of chondrocytes and glycosaminoglycan metabolism, have chondroprotective and anti-inflammatory effect.

PEMF is a successful adjuvant option in management of OA.

It's effect on WOMAC scores is fairly similar to those on intra-articular corticosteroids , so it improves clinical scores and function, mainly activities of daily living (ADL).



# PHYSICAL AGENTS MODALITIES ULTRASOUND

Ultrasound therapy is usually applied in persons mainly with OA of the knee.

Therapeutic ultrasound has beneficial effects for the treatment of knee OA in term of pain relief and improved physical function.

Studies showed that the application of US to traditional physiotherapy in hip OA has a longitudinal positive effect on pain.





# PHYSICAL AGENTS MODALITIES

*New physical agents-* high intensity laser therapies and **extracorporeal shock wave** are investigating in patients with OA and give promising results.

**Low level laser therapy** : has benefits mainly in reducing pain and oedema in patients with OA patients.

**Short wave diathermy** only a local thermal sensation evoking modality have significant beneficial effects on pain and muscle performance in patients with knee OA with no reported adverse effects.



# THERMOTHERAPY

**Heat/Cold** is recommended by most of the guidelines especially in OA of the knee .

The use of local heat or cold should be considered as an adjunct to core treatment, but supporting evidence is very limited.



# BALNEOTHERAPY

Thermal mineral water especially radon, sulphid and peloidotherapy are effective options for the treatment of OA patients.

**Balneotherapy** and **SPA therapy** have been included in the recent evidence based treatment guidelines for rheumatic diseases especially in OA.

Thanks to its mechanical, thermal and chemical effects mineral water, gases and peloids help in alleviating pain and improving function in patients with rheumatic diseases.

**Osteoarthritis Research Society International (ORSI)** published in 2014 recommend balneotherapy for patients with multiple-joint OA and co-morbidities.

They have favorable effect on cartilage destroying cytokines and TNF. The effect of balneotherapy lasts for 6-9 months.

# DRUG THERAPY

Including

PARACETAMOL

NSAIDs

Topical NSAIDs

Capsaicin and opioids

Intra-articular injections: corticosteroids, hyaluronate and symptomatic slow acting drugs as glucosamine, chondroitin sulphate and dicarcehrin.

Glucosamine and chondroitin sulphate may relieve symptoms of OA, but treatment should be discontinued if there is no relief after 6 months therapy.

# INJECTION THERAPY

Most common intra-articular injections include corticosteroids and hyaluronic acid. Botulinum toxin is also used lately. In a recent systematic review there is a strong evidence supporting intra-articular knee injections as a viable intervention in the management of arthritis with a 1a level of evidence for corticosteroids resulting in significant pain relief and functional improvement up to 1-year after the injection.

Botulinum toxin type A injection has shown to be effective for relieving knee OA pain based on 2B level of evidence

Intra-articular hyaluronans are reported to provide longer relief of pain than corticosteroid injections in OA.

# ASSISTIVE DEVICES-ORTHOSES

The use of stick is recommended for OA of hip and knee because it helps in off-loading of the arthritic joint.

The use of knee braces and foot orthoses are also found to be effective in decreasing pain, joint stiffness and drug dosage with knee OA.

Medially-directed tape was found to decrease in pain by 20,1 mm on 100 mm VAS in patients with chronic knee pain compared with no tape.

**ΕΥΧΑΡΙΣΤΩ ΓΙΑ ΤΗΝ ΠΡΟΣΟΧΗ ΣΑΣ**

