

3rd March 2018

## PEAK AND PEEK CONFERENCE

### OSTEOARTHRITIS OF THE KNEE: OMT EVALUATION AND TREATMENT

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### OSTEARTHRTIS: DEFINITION

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*Given by the American Academy of Orthopaedic Surgeons with the National Institutes of Health: **OA** is the result of both biomechanical and biological events that occur in any joints of the body and which change the normal physiological process of bone erosion and production affecting the joint cartilage and subchondral bone.*

## KNEE OA: MAIN ASPECTS

- chronic evolutive arthropathy with primary regressive alterations of the joint cartilage and secondary degeneration of all joint structures (bone, synovia and capsule)
- more disability and clinical symptoms result from OA of the knee than from any other joint

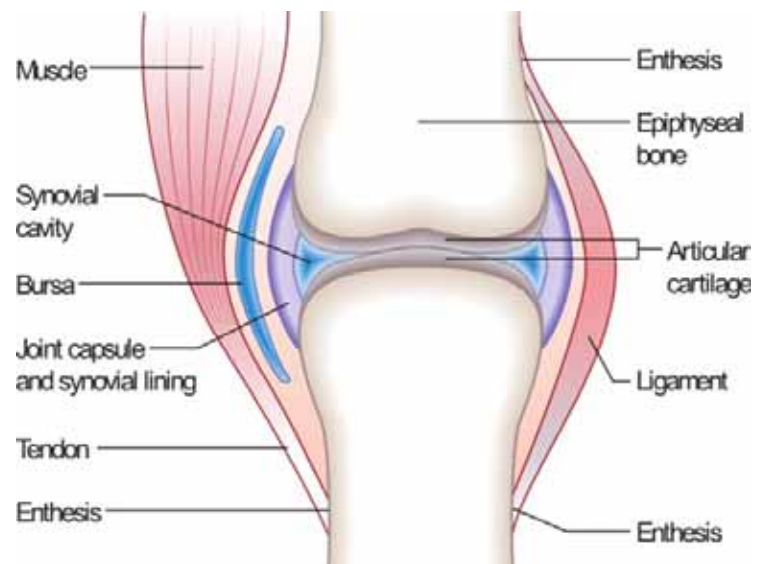
## KNEE OA: EPIDEMIOLOGY

- major health problem worldwide
- most common joint disorder throughout the world
- one of the leading causes of disability and pain in the elderly, second place after cardi-vascular disease
- more than 80% of people over 55 years old show OA radiographic signs, especially on women
- the number of individuals with clinical OA in the United States increased from 21 million in 1995 to nearly 27 million by 2005
- symptomatic knee OA occurs in approximately 12% of people aged 60 years or older
- only 4% of the population in the United States was older than 65 years in 1900, but by the year 2030, 22% of the US population will be older than 65

## KNEE OSTEARTHRTIS: MAIN SYMPTOMS

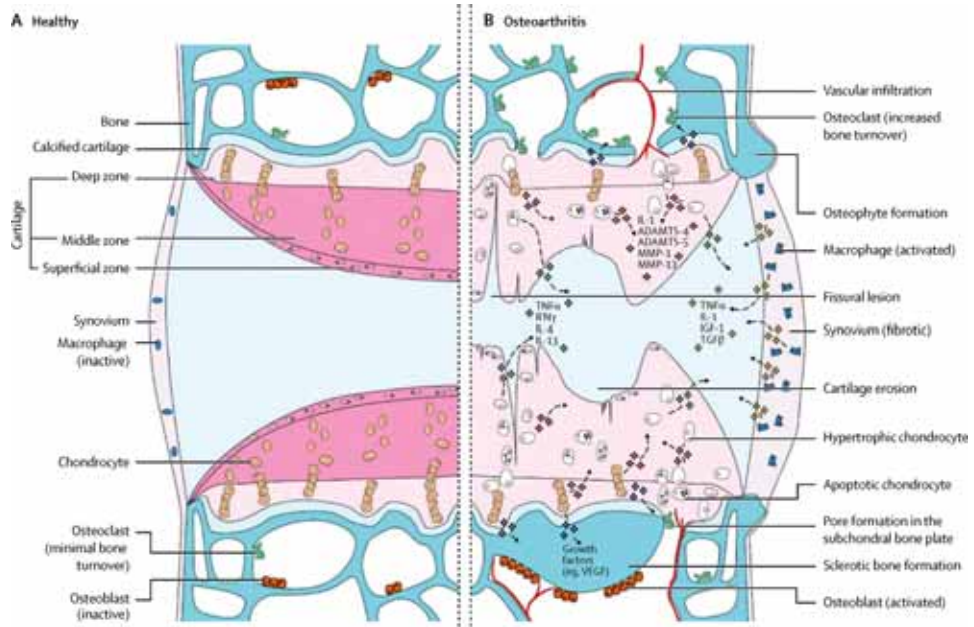
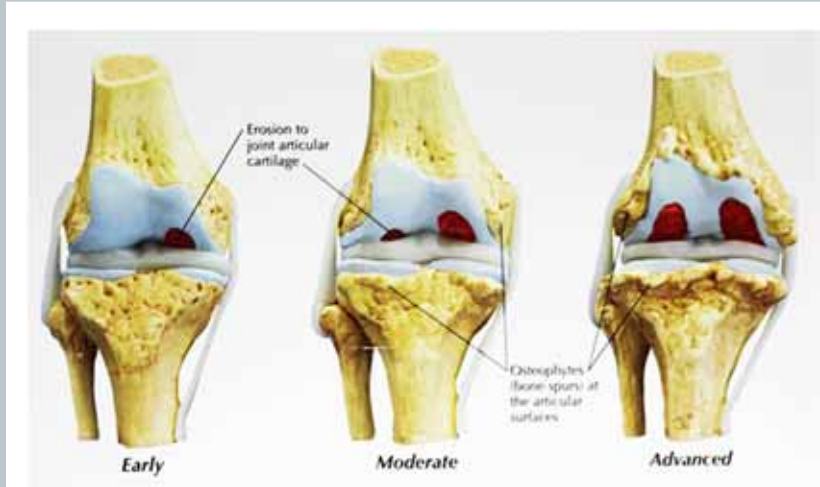
- pain that increases when you are active, but gets a little better with rest
- Swelling
- feeling of warmth in the joint
- stiffness in the knee, especially in the morning or when you have been sitting for a while
- decrease in mobility of the knee, making it difficult to get in and out of chairs or cars, use the stairs, or walk
- creaking, crackly sound that is heard when the knee moves

## CARTILAGE STRUCTURE



# ETIO-PATHOGENESIS

## STAGE OF KNEE OSTEOARTHRITIS



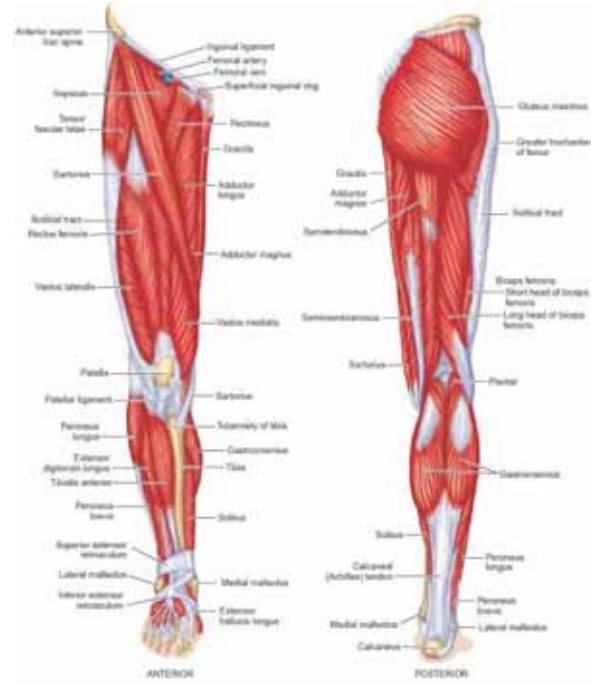
## OA RISK FACTORS

- **Age:** The ability of cartilage to heal decreases as a person gets older
- **Weight:** Weight increases pressure on all the joints, especially the knees. Every pound of weight you gain adds 3 to 4 pounds of extra weight on your knees.
- **Injuries:** history of joint trauma gives a variable increase (risk range) of the risk of developing OA
- **Heredity:** This includes genetic mutations that might make a person more likely to develop osteoarthritis of the knee. It may also be due to inherited abnormalities in the shape of the bones that surround the knee joint.
- **Gender:** Women ages 55 and older are more likely than men to develop osteoarthritis of the knee.
- **Repetitive stress injuries.** These are usually a result of the type of job a person has. People with certain occupations that include a lot of activity that can stress the joint, such as kneeling, squatting, or lifting heavy weights (55 pounds or more), are more likely to develop osteoarthritis of the knee because of the constant pressure on the joint.
- **Athletics.** Athletes involved in soccer, tennis, or long-distance running may be at higher risk for developing osteoarthritis of the knee. That means athletes should take precautions to avoid injury. However, it's important to note that regular moderate exercise strengthens joints and can decrease the risk of osteoarthritis. In fact, weak muscles around the knee can lead to osteoarthritis.
- **Other illnesses.** People with rheumatoid arthritis, the second most common type of arthritis, are also more likely to develop osteoarthritis. People with certain metabolic disorders, such as iron overload or excess growth hormone, also run a higher risk of osteoarthritis.

## PREVENTION OF CARTILAGE LESIONS

- Physical activity
- Weight loss
- Increase muscle strength

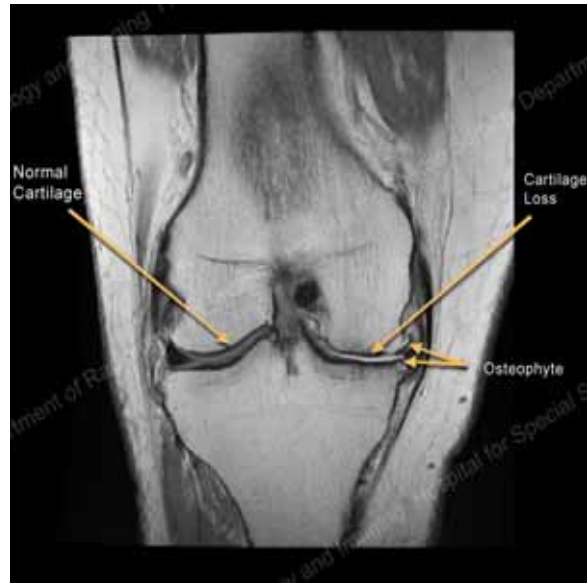
MYOFASCIAL  
COMPONENT OF  
PAIN IN KNEE OA



EXAMS FOR  
KNEE OA:  
X-RAYS

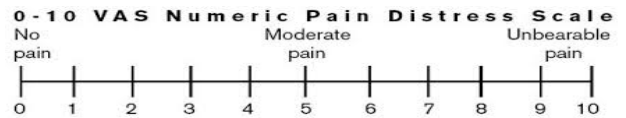


## EXAMS FOR KNEE OA: MRI



## HOW TO MEASURE PAIN

a.  
VISUAL ANALOGUE SCALE (VAS)



## HOW TO MEASURE KNEE FUNCTION

### b. Lysholm knee Score

#### Lysholm Knee Questionnaire / Tegner Activity Scale

Name:  First  Last  Date:

Physician:

1. Limp:
  - a) None
  - b) Slight or occasional
  - c) Severe and constant
2. Support:
  - a) None
  - b) Stick or crutch
  - c) Weight-bearing impossible
3. Locking:
  - a) No locking and no catching sensations
  - b) Catching sensation but no locking
  - c) Locking occasionally
  - d) Locking frequently
  - e) Locked joint on examination
4. Instability:
  - a) Never giving way
  - b) Rarely during activities or other severe exertion
  - c) Frequently during activities or other severe exertion (or incapability of participation)
  - d) Excessively in daily activities
  - e) Often in daily activities
  - f) Every step
5. Pain:
  - a) None
  - b) Intermittent and slight during severe exertion
  - c) Marked during severe exertion
  - d) Marked on or after walking more than 2 km
  - e) Marked on or after walking less than 2 km
  - f) Constant
6. Swelling:
  - a) None
  - b) On severe exertion
  - c) On ordinary exertion
  - d) Constant
7. Stair-climbing:
  - a) No problems
  - b) Slightly impaired
  - c) One step at a time
  - d) Impossible
8. Squatting:
  - a) No problems
  - b) Slightly impaired
  - c) Not beyond 90°
  - d) Impossible

## HOW TO MEASURE PATIENT'S FUNCTION DURING ACTIVITY

### c. 6-MINUTE WALK TEST DISTANCE





## WHY USING OMT FOR KNEE OA

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Attention to two of the four traditional precepts of osteopathic medicine:

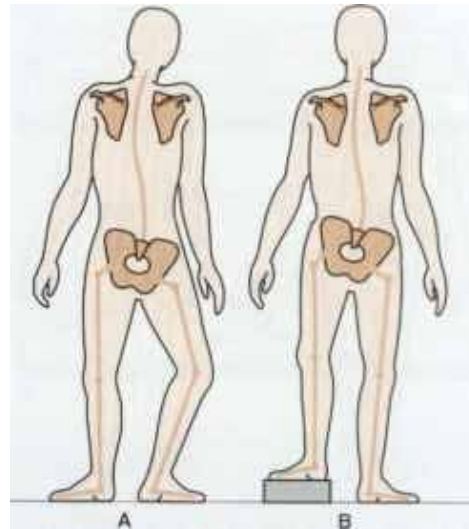
- the body is a unit
- structure and function are interrelated

Osteoarthritis alters knee function and results in reduced function and changes in weight-bearing capability.

OMT can address musculoskeletal findings and treat somatic dysfunction that develop during OA evolution → involvement of hip, pelvis and low back

## RELATIONSHIP BETWEEN LOWER LIMBS AND POSTURE

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## OA THERAPY: MULTIMODAL TREATMENT

### CONSERVATIVE:

- Weight loss
- Os (NSAIDS, analgesic, opioid) medicines;
- Injections (corticosteroid, hyaluronic acid);
- Physiotherapy rehabilitation (exercise, ultrasound, tens)
- OMT
- Ice
- Hot packs

### SURGERY:

- Arthroscopy
- Knee replacement (partial or total)

## ITALIAN CLINIC STUDY ON KNEE OA

### MAIN ASPECTS:

- 40 patients
- Double blind randomized
- Exclusion criteria: no previous pathology to all the inferior limb, lower limbs vascular pathologies
- Inclusion criteria: knee OA with Xray moderate signs
- Evaluation before and after: flexion, extesion and Lysholm score
- 20 patients: OMT
- 20 patients: Placebo
- Treatments: 1 per week, 4 weeks

ITALIAN CLINIC  
STUDY ON KNEE  
OA

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- OMT PROTOCOL:
- soft tissue
  - joint mobilization
  - indirect techniques: blt

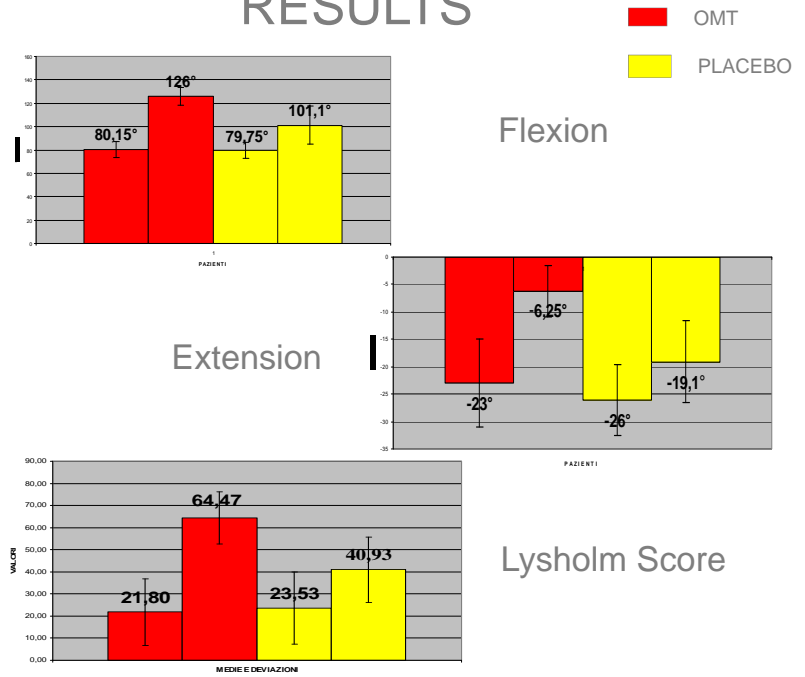
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STUDY ON KNEE  
OA

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PLACEBO:  
anatomic palpation of the knee  
tissues without any input

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OA

RESULTS



ITALIAN CLINIC  
STUDY ON KNEE  
OA

SCIENTIFIC CONSIDERATIONS:  
Patients treated with OMT show  
decreased pain, stiffness, increased  
knee mobility and function

## ITALIAN CLINIC STUDY ON KNEE OA

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OUR CONSIDERATIONS:  
Subjects in the clinic treatment group appeared to be more satisfied with the overall outcome of their OMT treatment than subjects in the Placebo group → IMPORTANCE OF THE RELATIONSHIP BETWEEN OSTEOPATH AND PATIENT IN IMPROVING THE OA SYMPTOMS, UNDER THE "HANDS ON" POINT OF VIEW

## PSYCHOLOGICAL EFFECT OF THE TREATMENT

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## IMPROVEMENTS DURATION

- ACUTE PHASE
  - FOLLOW UPS
- We are Osteopaths, do not miss that!



## QUESTIONS?

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