استئـــو آرتـــریت زانو

دکتر محمد بداغ آبادی

رزیدنت طب سالمندی

Background

- Aging of the population
- By the year 2050:

20% of the population will be older than 65 – years

850,000 people will be centenarians–

In Iran more than 24000000 people older – than 65 years

Did You Know…….

- In the 4,500 years from the Bronze Age to the year 1900, life expectancy increased 27 years
- In the next 90 years, from 1900-1990, life expectancy also increased 27 years
- Of all human who have EVER lived to be 65 or older, half are currently alive.

Many of them are or will be your patients

Domains of Comprehensive Geriatric Assessment

- Medical
- Functional (physical and social)
- Cognitive
- Affective
- Social Support
- Environmental
- Economic Factors
- Quality of life

Geriatric Target Conditions

- Dementia or delirium
- End-of-life care
- Falls or mobility disorders
- Malnutrition
- Pressure ulcers
- Urinary incontinence

Wenger N et al. Ann Intern Med 2003; 139: 740-747.

استئوآرتریت چیست

تعریف آرتروز

آرتروز به معنی فرسودگی غضروف می باشد و با اختلال در عملکرد مفاصل باعث درد و ناتوانی در فرد می گردد

در مرحله اول غضروف در سطح دچار فیبریلاسیون شده سپس کم کم گسترش پیدا کرده و غضروف فرگمنته می شود تا استخوان بدون غضروف بر جای بماند همزمان تولید **MMPs** و فاکتور های التهابی و ایجاد التهاب و ...

اهمیت آرتروز

با وجود اینکه یکی از بیماریهای لاعلاج بوده است اما در پـــایـــــان قرن بیستم در زمره بیماریهای قابل درمان و مهمتر از آن قـــــــــابل پیشگیری درآمد

حرکت دو سطح غضروف بر روی یکدیگر

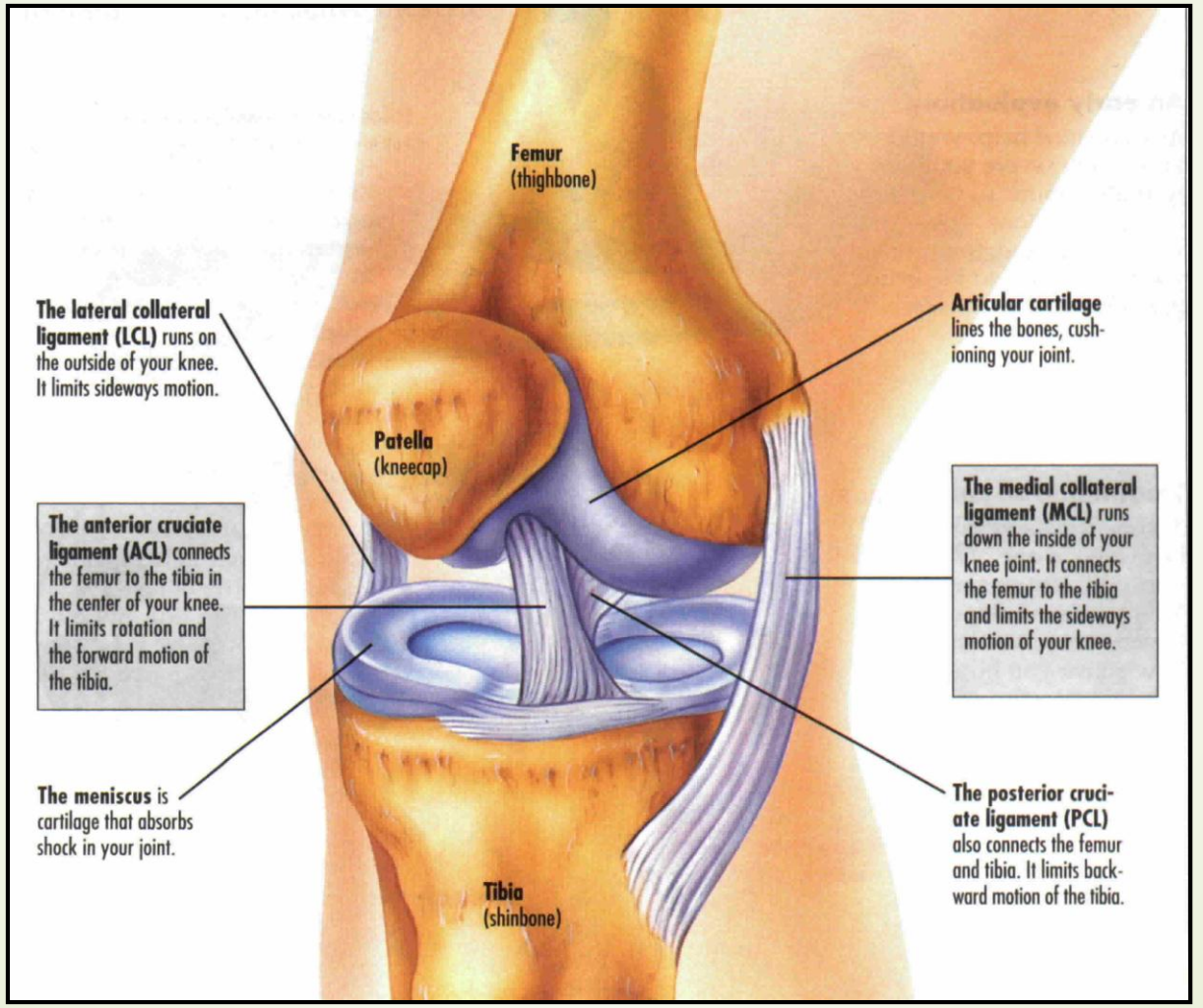
برای حرکت دو سطح غضروف روی یکدیگر باید :

۱- سطوح غضرف صیقلی باشند.

۲- مواد لغزنده ما بین سطوح باشند.

درحرکات سنگین مانند غضروف زانو در هنگام راه رفتن مکانیسم مربوط به فشارهیدرواستاتیک مایع مفصلی کمک می کند .

Anatomy of The Knee



فیزیوپاتولوژی

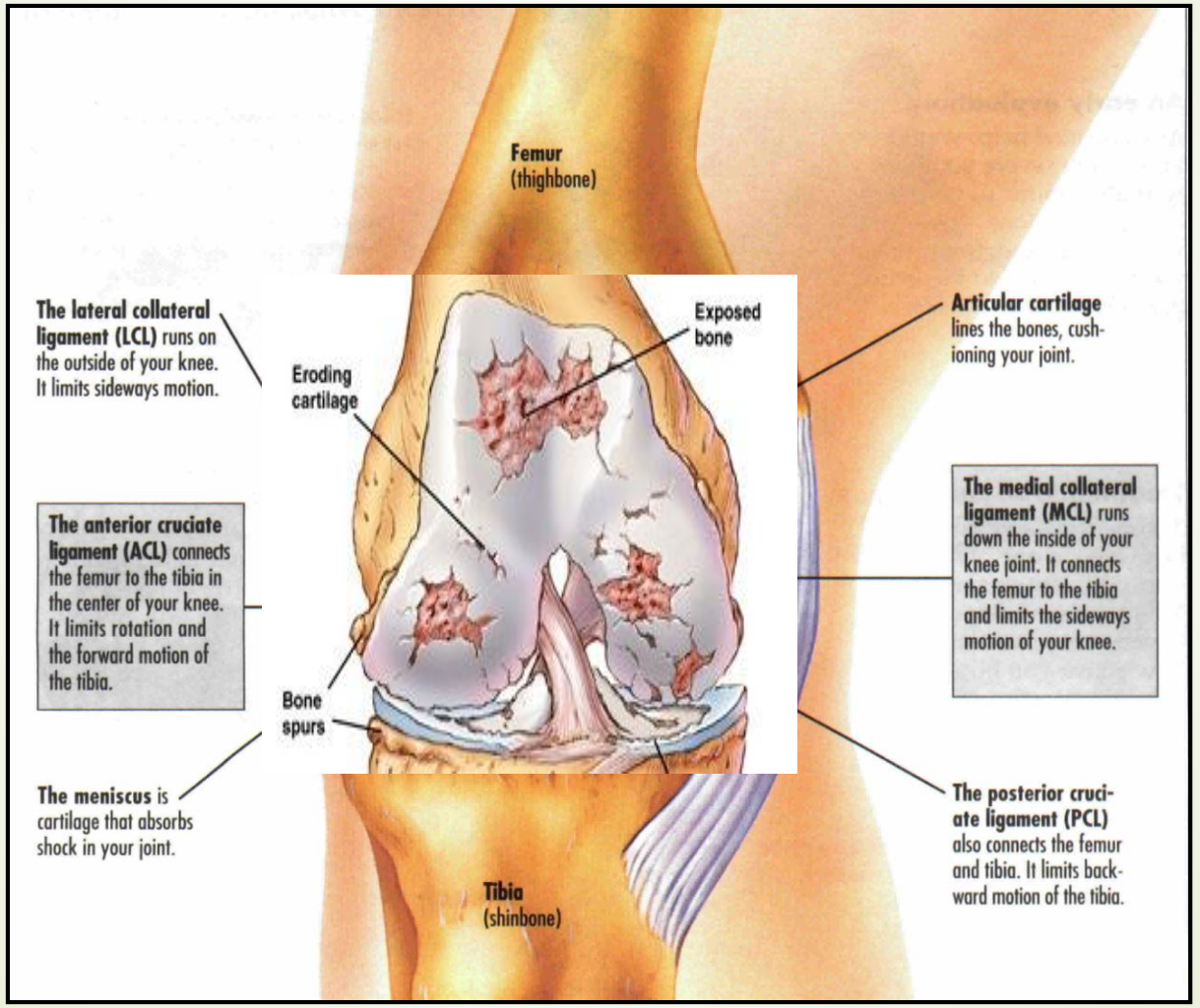
بازسازی غضروف همیشگی نیست، پس از مدتی تعـــادل تخریب و بازسازی به علل ناشناخته به هم می خورد. با توجه به این که غضروف و استخـــــــوان و سینـــــویال با یکدیگر رابطه مستقیـــــــم دارند، فعل و انفعال هر یک در دیگری اثر می گذارد و عامل اولیه به هم ریختگی تعادل می تواند هر یک از اینها باشد، بنابراین احتمالا یک نوع آرتروز وجود ندارد و برای هر یک عامل اولیه و بافتی که از آن شروع می شود متفاوت است.

سطح غضروف به مرور زمان مخملی می شود.

شکـــــاف‌هایی در غضـــــروف بوجود می آید که حالت رشته رشته پیدا کرده و بالاخره غضروف از بین می رود و استخوان زیر آن نمایان و کلفت می گـــــردد و کم کم خورد می شوند.

عکس العمـــــل دیگـــــــــــر بـافت استخوانی ساختن استئوفیت است . بافت سینوویال نیـــــز ملتهب می شود. در طول زمان بافت سینوویال تدریجاً به طرف اسکلروز می رود.

Anatomy of The Knee



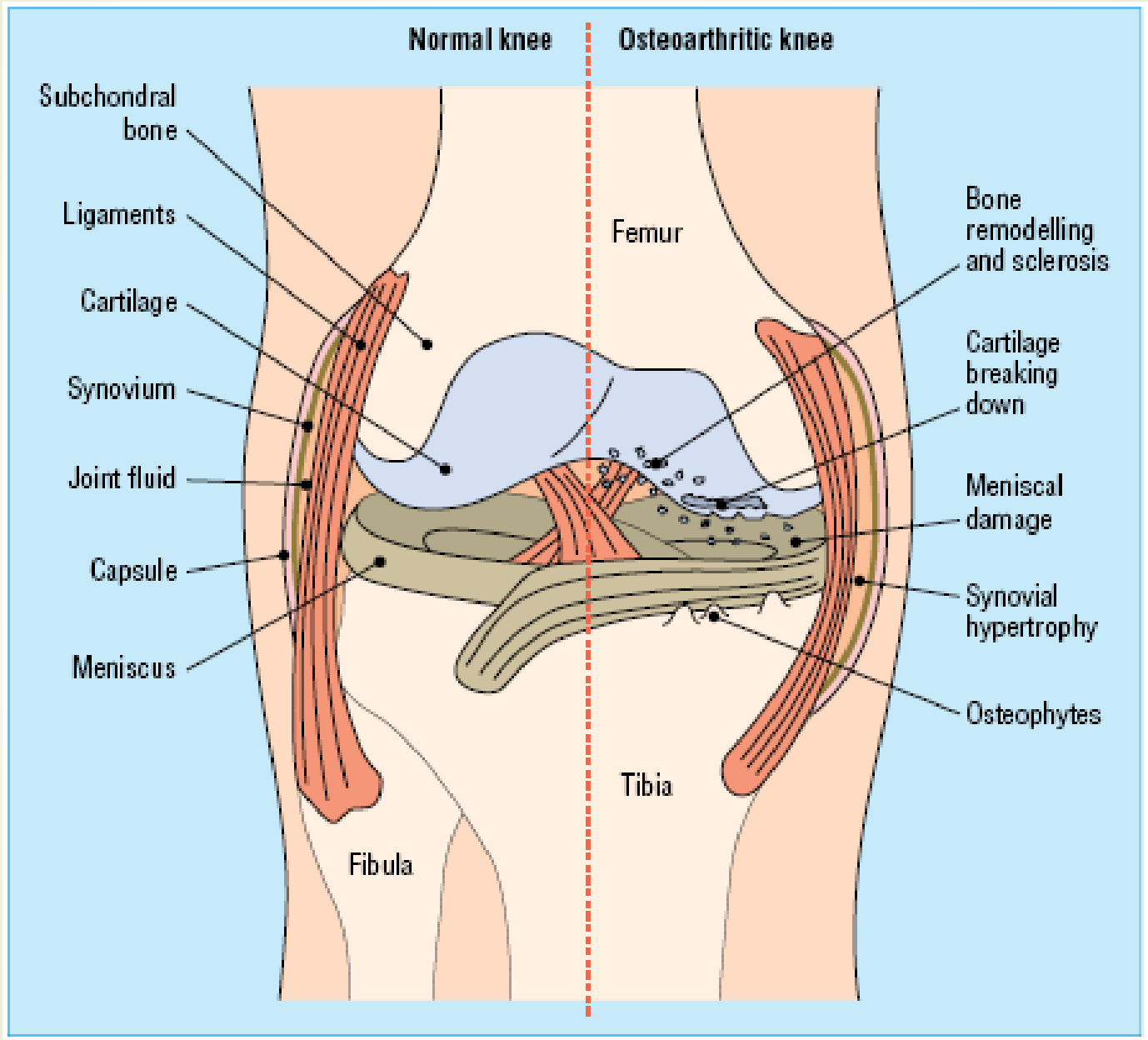


Fig 1 Pathogenic features consistent with osteoarthritis ("joint failure")

Classification (etiology) of osteoarthritis

- Primary / idiopathic
- Secondary:
  - posttraumatic
  - instability
  - rheumatoid disease
  - malalignment
  - post-infectious
  - congenital
  - lifestyle factors

عوامل خطر ساز

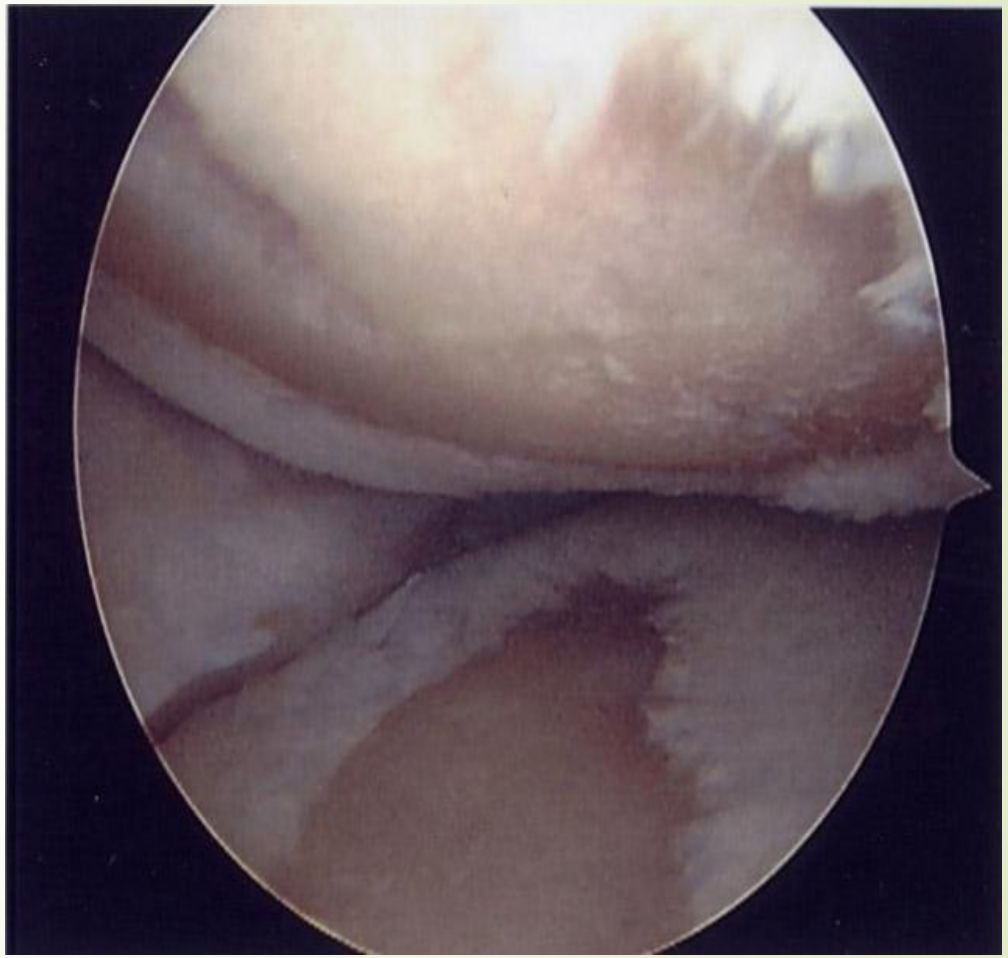
- سن بالا
- جنسیت خانم
- چاقی و اضافه وزن
- سابقه ضربه به زانو
- کجی و انحراف در اندام تحتانی
- کشش وفشار مکرربه زانو
- ورزش های با انرژی بالا
- ضعف عضلانی
- اختلالات پا ازکودکی

OSTEOARTHRITIS (OA) IS ONE OF THE MOST COMMON FORMS OF MUSCULOSKELETAL DISORDERS AND INCURS SIGNIFICANT ECONOMIC, SOCIAL AND PSYCHOLOGICAL COSTS.

- **Progresive**
- **Irreversibil**
- **Poor quality of life**
- **Difficult treatment**
- **Never ending story**

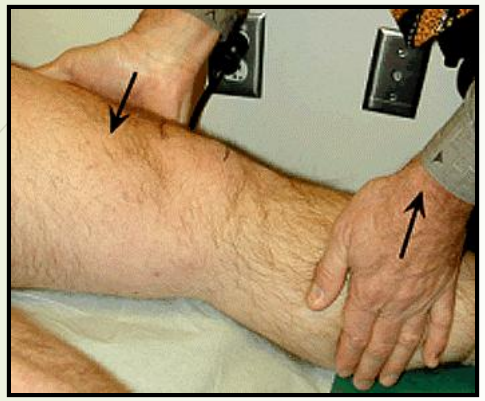
X-rays; AP projection

Arthroscopic view

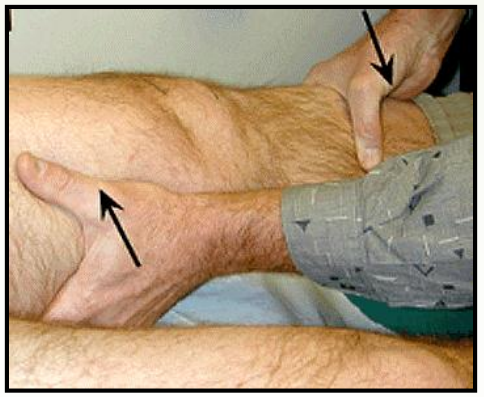


Clinically OA of the knee is characterized by joint pain, crepitus, stiffness after immobility and limitation of movement.

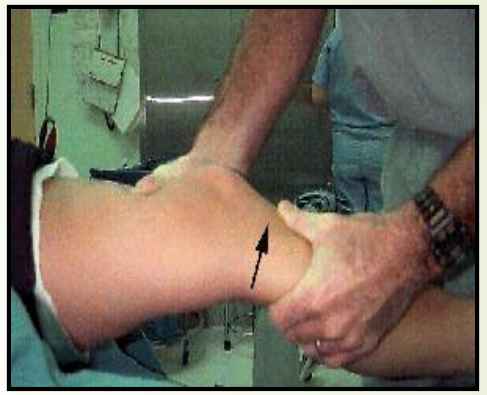
Clinical Approach to Knee Pain



Valgus Test (MCL)



Varus Test (LCL)



Lachman Test (ACL)

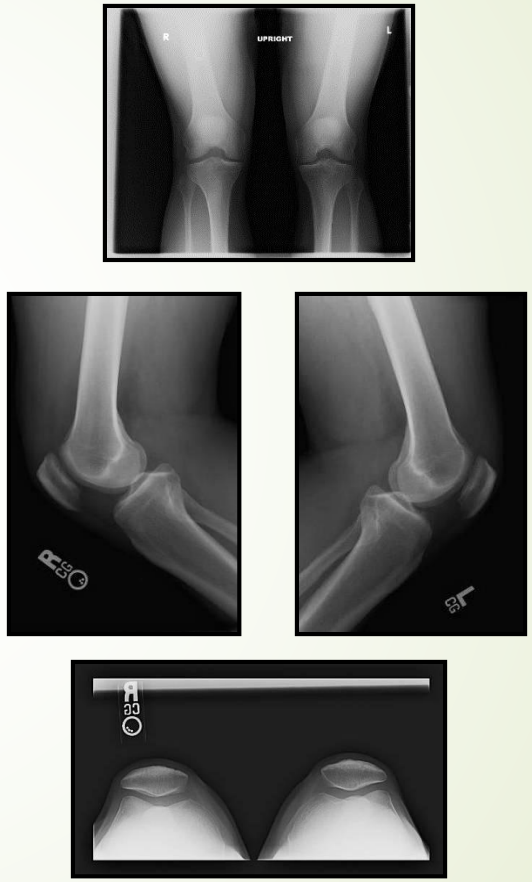
McMurray Maneuver (menisci)

Duck Waddle (stability)

Clinical Approach to Knee Pain

Tests

- **CBC, ESR, RF**
- **Arthrocentesis**
- **X-rays (3 views)**
  - **Weight-bearing AP**
  - **Lateral**
  - **Tangential Patellar (Sunrise)**
- **MRI**



Treatment Overview

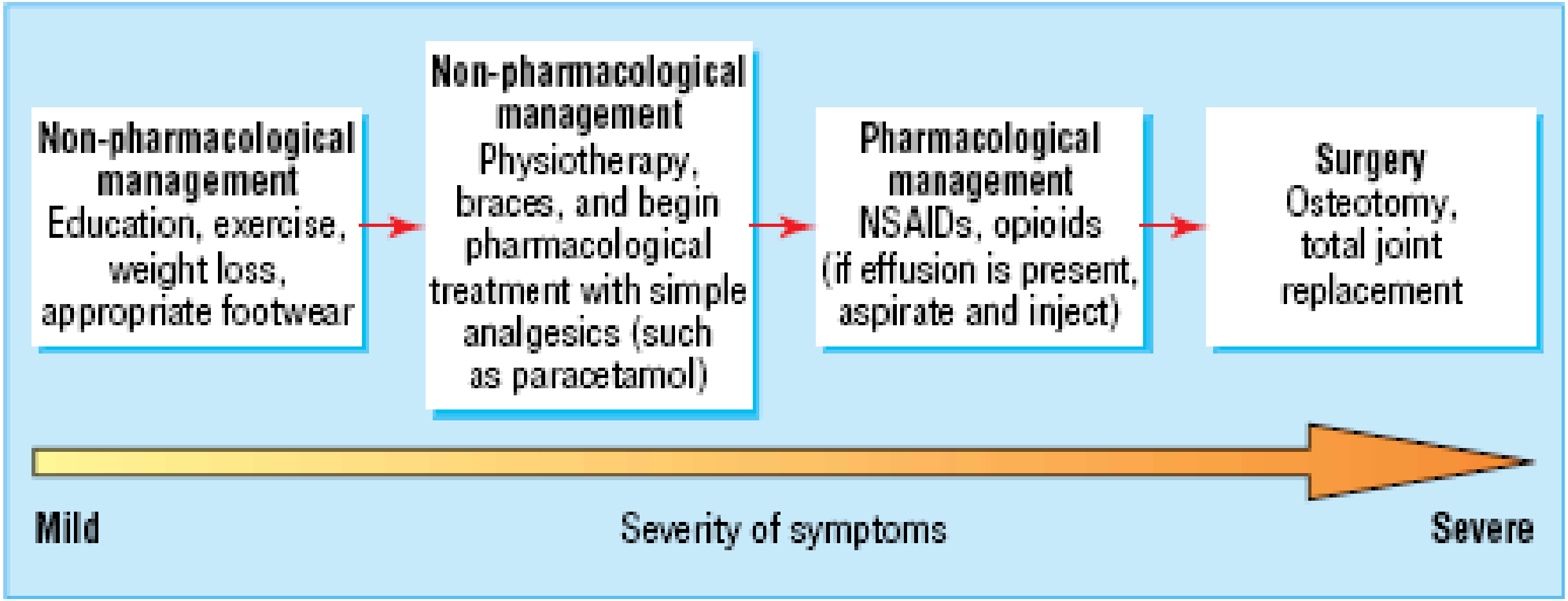


Fig 3 Stepwise algorithm for the management of patients with osteoarthritis. This is an example of a treatment algorithm that is modified according to patient's response and clinician's preference. It highlights the encompassing need to consider non-pharmacological management as first line for all patients

The following organizations also issued guideline document for the management of OA:

- **European League Against Rheumatism (EULAR)**
- **American College of Rheumatology (ACR)**
- **Osteoarthritis Research Society International (OARSI)**
- **UK National Institute for Health and Clinical Excellence (NICE)**

BASIC PRINCIPLE AND CORE SET

COMBINATION OF TREATMENT MODALITIES, INCLUDING NON-PHARMACOLOGICAL AND PHARMACOLOGICAL THERAPIES IS STRONGLY RECOMMENDED.

The core set represent the initial measures and interventions that every patient with knee OA should undergo:

- **Information / Education**
- **Weight loss if overweight**
- **Exercise program**

CORE SET

Information acces and education consists in providing to the patient the necessary knowledge about the nature of the disease and the objectives of treatment. The physican should promt changes in the patients lifestyle toward behaviors that may have a beneficial impact on joint protection. It is recognized that these measures have minimal effect on AO symptoms, but they are essential for treatment adherence.

CORE SET

Weight loss if overweight

Weight loss should be targeted to at least 10% to achieve significant symptom benefit. A similar degree of weight loss has also been indicated to improve the quality and thickness of medial femoral compartment cartilage._

There is therefore good evidence that education (1A) and exercise regimens (1B) reduce pain in knee OA and that exercise regimens also improve function. The use of appliances and advising weight reduction both seem sensible options in patients with knee OA, but are only supported by relatively weak evidence at present.

CORE SET

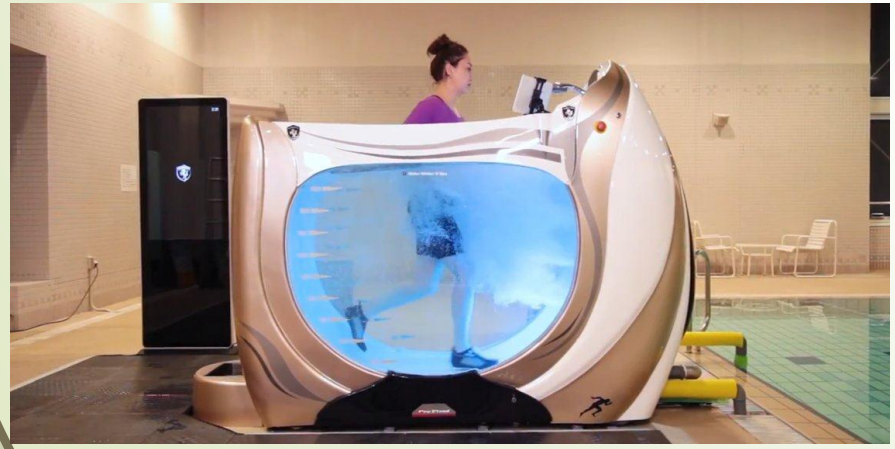
Exercise program

There is good evidence that water-based exercises is effective on both pain and function. However, specific quadriceps strengthening exercises with strength training for the lower limb, together with aerobic training such as walking, remain the best documented exercise approaches.

Exercises, especially those directed towards increasing strength of quadriceps and/or preserving normal mobility of the knee are strongly recommended

درمان


Knee Exercises Level I
#1 Quad Sets
#2 Hamstring Sets
#3 Straight Leg Raise
#4 Bridging
#5 Knee Extension
#6 Heel Raises
#7 Butt Kicks
whyiexercise.com



It is a common clinical experience that core therapies are usually isufficient to fully control symptoms after diagnosis has been made and with disease progression.

In agreement with the basic principle of treatment recommendation, paralel addition of sequential non-pharmacological and pharmacological therapies should be established.

STEP 1: BACKGROUND TREATMENT

During Step 1, which follows the core set, further background physical remedies should be established as needed. In parallel, and if the patient is still symptomatic, background pharmacological therapy should be started and progressively moved toward combination treatment as soon as the clinical response is not satisfactory.

Step 1-a: Non-pharmacological backgroud treatment

Physician should first evaluate whether correction for malignment is necessary. Varus or valgus malalignment is a risk factor for knee OA and its progression. There is reasonable evidence to suggest that knee braces, foot orthoses or insoles actually improve biomechanical imbalance and may improve knee OA symptoms.

In symptomatic patient physical therapy at any time:

- Thermal agents (thermopack, ultrasound, sham procedure…)
- Manual therapy in combination with exercise

  Patellar taping

  Chinese acupuncture
- TENS may reduce the need for analgesic medications
- Balneotherapy

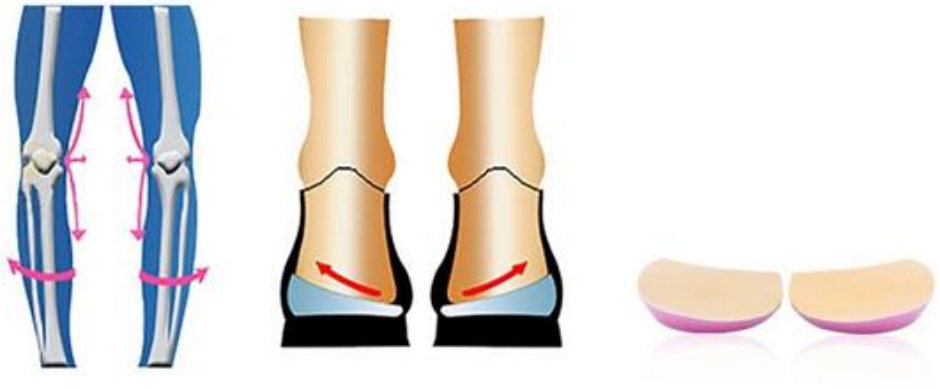
Manual therapy

Braces, splints, and taping

Wedge

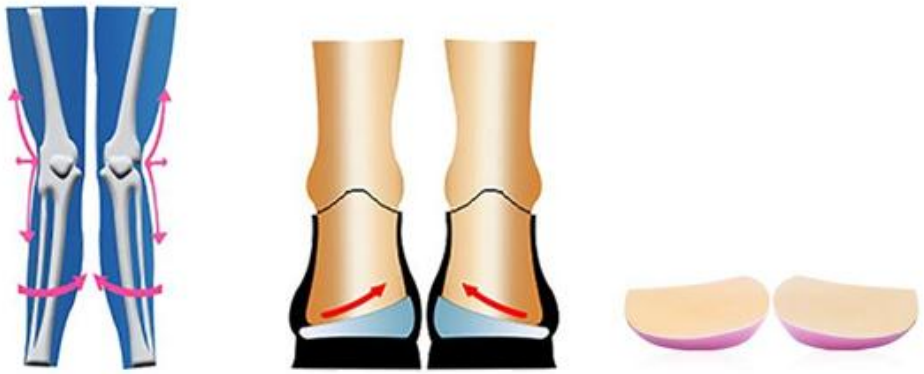
O TYPE LEG:

Put the thick side of the padding on the outside of the shoe, can improve the O type leg and bandy leg.



X TYPE LEG :

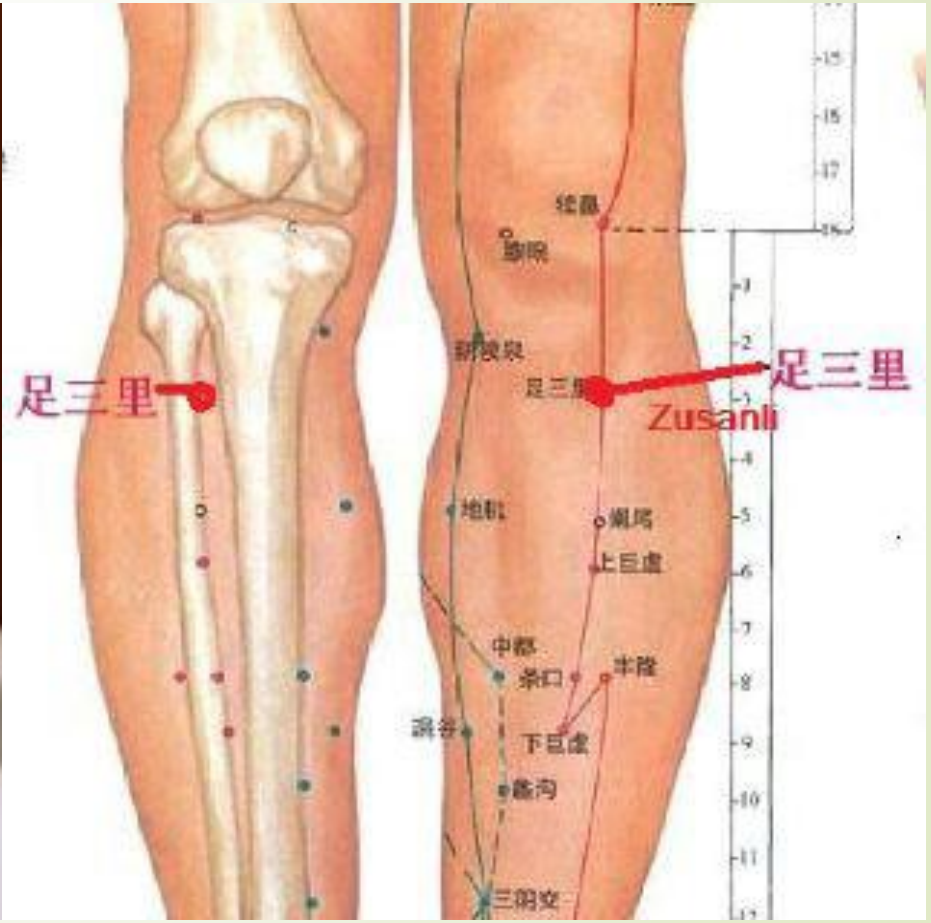
Put the thick side of the padding on the inside of the shoe, can improve the X type leg and knock knee.



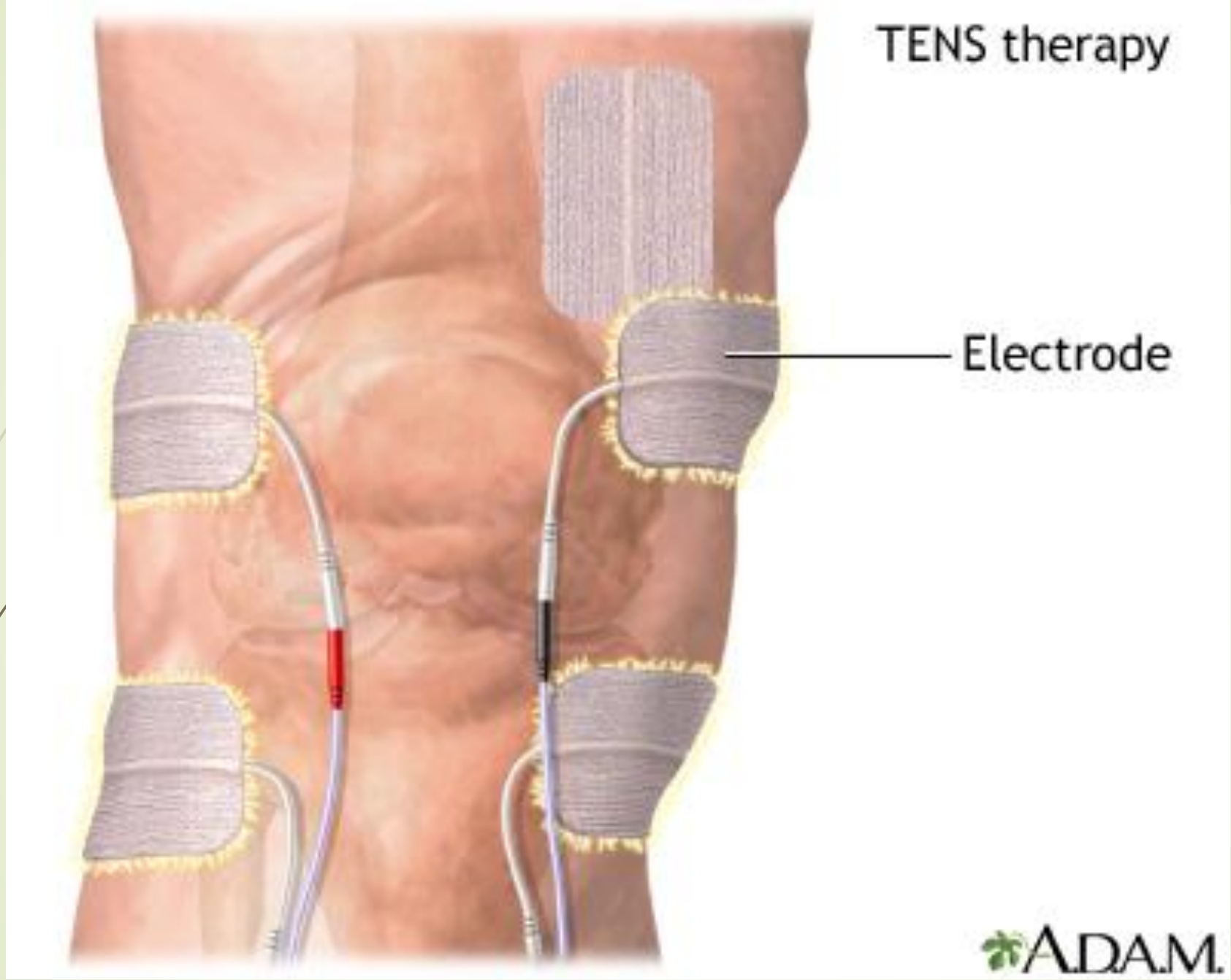
In light of evidence for no clinical effects of the use of lateral wedged insoles and the report of adverse effects, the group rejected the recommendation

Heat and cold therapy

Acupuncture



Tens



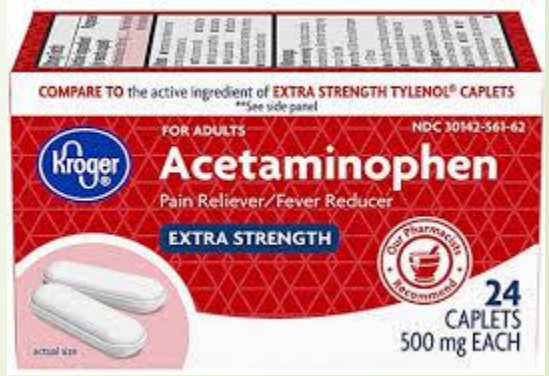
کرم های موضعی

Balneotherapy

دارو ها

Acetaminophen

- Doses no greater than 3g/day on a regular basis
- Recommended as an initial pharmacological approach
- Short-term, rescue analgesia
- Not for chronical us (GI adverse events and drug-induced liver injury)
- Minimal effect on pain
- Significant effect on function



NSAIDS
داروهای ضد التهابی غیر استروئیدی

Intermittent or continuous (longer cycles) oral NSAIDs

INCREASED CV RISK

- Prefer naproxen
- Avoid high dose diclofenac and
- ibuprofen (if on low-dose aspirin)
- Caution with other non-selective NSAIDs
- Avoid Cox-2 selective and inh NSAIDs

INCREASED RENAL RISK

- Avoid NSAIDs in patients with GF below 30cc/min

Narcotic analgesic

- Stronger narcotic medicines, such as oxycodone, hydrocodone, or morphine sulfate, may be considered in some OA patients after failure of other treatments
- Depression breath
- Dependence
- constipation, urinary retention, confusion and sedation.
- vulnerable to falls due to joint disease and other risk factors
- Mix forms for chronic

Nutraceutical

- Glucosamine and chondroitin sulfate
- S-adenosylmethionine
- Pomegranate
- green tea
- Turmeric
- Ginger
- cat's claw
- devil's claw
- collagen hydrolysates
- avocado-soybean

S-adenosylmethionine

Pomegranate green tea

Turmeric ginger


use GINGER To Treat Knee Pain
1
Take a cup of water.
Ginger
2
Mix crushed fresh ginger root.
3
Boil it for 10 minutes.
4
Strain it.
5
Add a little honey & lemon juice to it.
Honey
Lemon
Drink 2-3 cups of this Ginger Tea daily until the pain is gone.
Top 10 Home Remedies

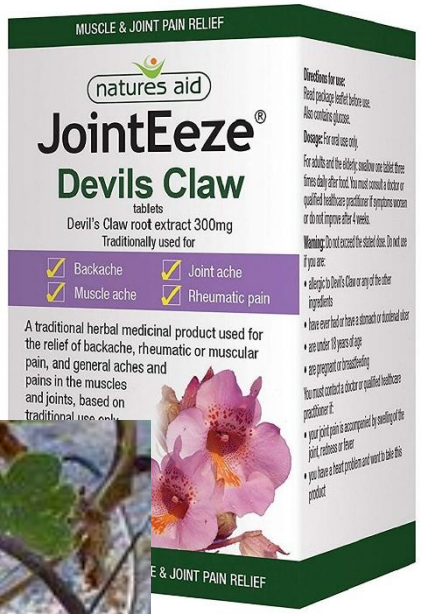
Step 1-b: Pharmacological background treatment

Chronic Symptomatic Slow-Acting Drugs for Osteoarthritis (SYSADOAs)

- Glucosamine sulfate and chondroitin sulfate are safe medications, with no difference in adverse effects compared with placebo, which strengthen their role as chronic background treatments
- Are often used in combination as dietary supplements
- In most country are not a prescription drugs
- Long-term prescription has potential benefit beyond symptoms control when used early in the management of knee OA
- May delay joint structure changes

Piascledine

Cat claw devils claw



STEP 2: ADVANCED PHARMACOLOGICAL MANAGEMENT IN PERSISTIENT SYMTOMATIC PATIENT

May delay total joint replacement

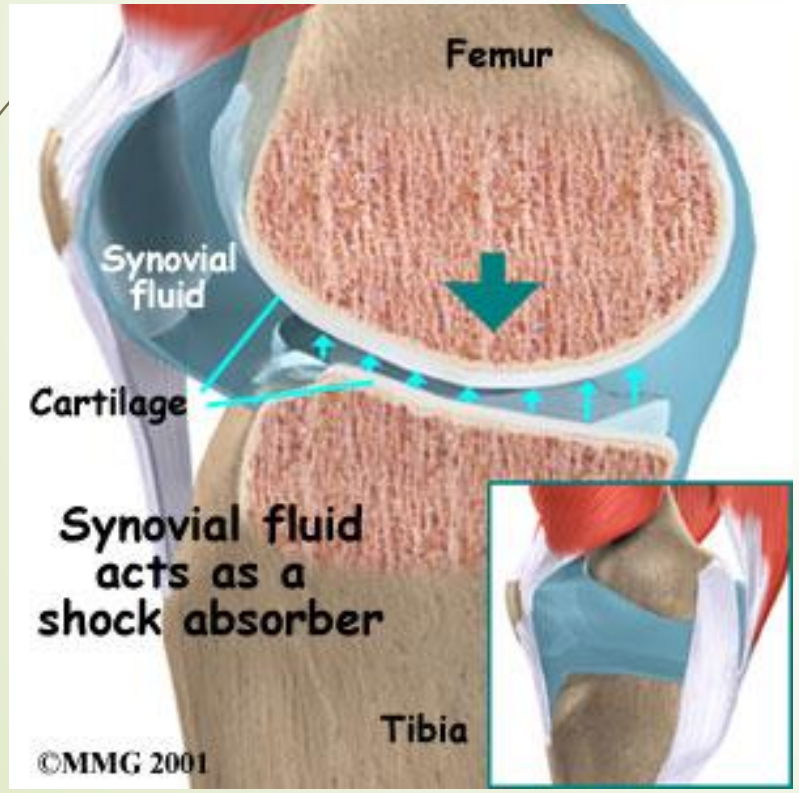
- Intra-articular hyaluronate
- Intraarticular corticosteroids

In conclusion, there is evidence (1B) that intra-articular steroids are efficacious but their benefit may be relatively short lived. The evidence for predictors of response, however, remains unclear, and further studies are needed to consider this question.

Various Procedures

- Hyaluronic acids
  - Injected into the joint capsule to reduce friction and improves articulation (act as synovial fluid)

In summary, there is evidence to support the efficacy of hyaluronic acid in the management of knee OA both for pain (1B) and functional improvement reduction (1B). However, although pain relief may be obtained for several months, rather than for several weeks as with steroid, this benefit may be offset by its slower onset of action and by the requirement of a course of three to five injections a week with the logistical and cost issues that entails.



Management: Surgical

When to Refer

- Knee pain or functional status has failed to improve with non-operative management

Types of Procedures

- Arthroscopic Irrigation
- Arthroscopic Debridement
- High Tibial Osteotomy
- Partial Knee Arthroplasty
- Total Knee Arthroplasty

Management: Surgical

High Tibial Osteotomy

- Indication:
  - Unicompartmental arthritis
  - Genu varus or valgus
- Realign mechanical axis
- Age < 60yo
- < 15 degrees deformity[19]

Management: Surgical

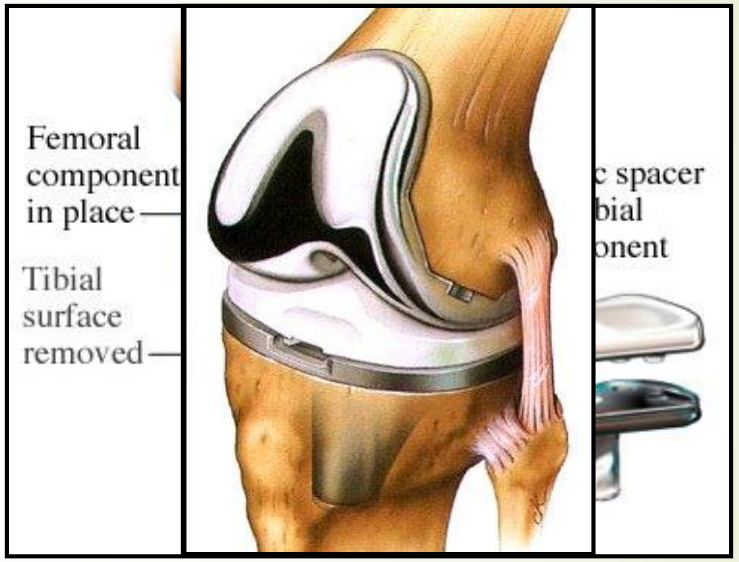
Partial Knee Arthroplasty

- Indication:
  - Unicompartmental arthritis
- Ligaments spared
- Increased ROM
- Faster recovery
- Prosthesis 10-yr survival: 84% [20]

Management: Surgical

Total Knee Arthroplasty

- Indication:
  - Diffuse arthritis
  - Severe pain
  - Functional impairment
- Pain relief > functional gain
- ACL sacrificed
- PCL also may be sacrificed
- Prosthesis 10-yr survival: 90% [21]



با تشکر از توجه شما

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