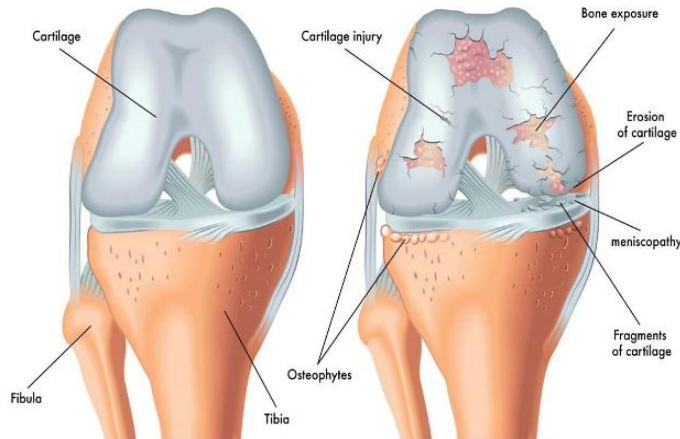


EARLY ARTHRITIS AND DEGENERATIVE CARTILAGE

A. What is Arthritis and cartilage?



Cartilage is a tissue covering over bones in the joint which makes movement smooth and frictionless.

As with degeneration and ageing it start becoming soft and eroded leading to early and eventually advanced arthritis.

Courtesy:

<https://www.ibphysio.com.au/your-injury/conditions/osteoarthritis/>

B. What are possible reasons and risk factors?

1. Risk factors

a. Modifiable

- i. Injuries
- ii. Overuse especially occupation and habits with repetitive knee bending
- iii. Poor muscle condition around knee
- iv. Overweight
- v. Poor Alignment of limb/ joint and deformities

b. Non-Modifiable

- i. Gender: more common in females
- ii. Age
- iii. Genes and family history
- iv. Race

C. What can be done?

Early Arthritis:

I. MEDICATIONS AND PHYSIOTHERAPY:

When advised?

Early phases or initial presentation. Pain relief with anti-inflammatory medications followed by physiotherapy for both pain control and muscle conditioning by exercises. Also weight reduction measures with knee precautions are advised.

- Medications:
1. Anti-inflammatory short course for acute pain
 2. Glucosamine and chondroitin sulphate supplements
 3. Collagen Supplement
 4. General vitamins and other essential nutrients supplement: Calcium

Magnesium, Vitamin D and C, Omega 3 fatty acids mainly but there are many others who have role in cartilage health

II. INJECTIONS:

A. Platelet Rich Plasma Injections:

Patient's own blood is collected to get the concentrate of platelet cells to potentially stimulate tissue repair and healing of the cartilage

Procedure: Patient's blood is collected and centrifuged in the machine to concentrate platelet cells. They are then injected in the joint.

How does it work?

Contain growth factors and bioactive proteins that play a pivotal role in tissue repair and healing.

Chief mechanisms are

Stimulation of Stem Cells, Anti-Inflammatory Effects, Promotion of Tissue Growth

Advantage: Addresses the disease process to potentially regenerate the cartilage.
Hence potential reversal of disease process.
One of the safest injections since it is derived from patients own blood.
Good time buying procedure to delay the progression of arthritis.

Disadvantage: No long term results are available but good and encouraging short term effects.
Takes long time to show the potential effects hence not useful in acute pain
Avoiding anti-inflammatory post procedure is advisable which further affects the pain management in acute and severe pain scenarios.
Generally **NOT COVERED** under insurance and are **EXPENSIVE**.

B. Stem Cell Injection: Stem Cells are collected from adipose fat tissue around abdomen and injected in the joint after processing. Lesser definitive evidence is available but still can be considered.

C. Hyaluronic Acid Injections

Hyaluronic acid is a naturally occurring substance found in the synovial fluid (Lubrication liquid of joints) of the knee joint

Procedure: Injections available in pharmacy. Once available it can be injected in the joint.

How does it work?

Thought to lubricate the cartilage thereby reducing pain for long-term relief.
Lubricating properties result in lesser wear and tear.
Potentially improves the composition of joint fluid in inflamed joint.

Advantage: Partially addresses the disease process.
Reasonably safe injections.
Good time buying procedure to delay the progression of arthritis.
Generally **COVERED** in some of the insurance.

Disadvantage: Only effective for the short term generally up to 6 months.
Sometimes may show partial or no effect.
Takes long time to show the potential effects hence not useful in acute pain.
Further injections are less effective after repeat dosing.

D. Steroid Injections:

Corticosteroid molecules like methylprednisolone or triamcinolone are injected in the joint.

How does it work?

Anti-inflammatory properties of steroid suppresses inflammation and hence reduces the pain.

Advantage: Useful in acute and severe pain. Gives quicker pain relief.

Reasonably safe injections.

Good time buying procedure to delay surgical intervention.

Generally **COVERED** under insurance.

Disadvantage: Do not address the disease process

Only effective for the short term generally up to 6 months

Sometimes may show partial or no effect .

Potential detrimental effect on cartilage health with possible damage to cartilage.

Further injections are less effective after repeat dosing

E. Combination Of Hyaluronic Acid And Steroid Injection:

Above two hyaluronic and steroid injections can be combined to give immediate relief with steroid and sustained relief with hyaluronic acid.

F. Risks With Injections:

General risks with all injections: Pain, bleeding, infection, partial or no relief, failure of the procedure, allergies, Skin hypopigmentation after repeated injections.

Specific to PRP: Partial or no relief, abandoning the procedure if enough blood cannot be collected

Specific to Hyaluronic acid: Allergies, short term effect

Specific to steroid injections: Allergies, steroid flare up reaction, Infection.

G. SURGERIES:

They can be used *As a Last Resorts* and applicable in certain situations only:

Time buying procedures in moderate to severe arthritis:

A. Arthroscopic debridement

B. Osteotomy to realign the limb

C. Partial Joint replacement

Definitive procedure in advanced arthritis as a last resort:

Total Knee replacement

DISCLAIMER: The purpose of this article is simplification of the topic for patient understanding only. For any further understanding and interpretation issues kindly contact the owner for their final clarifications. Hence assume this as oversimplification.