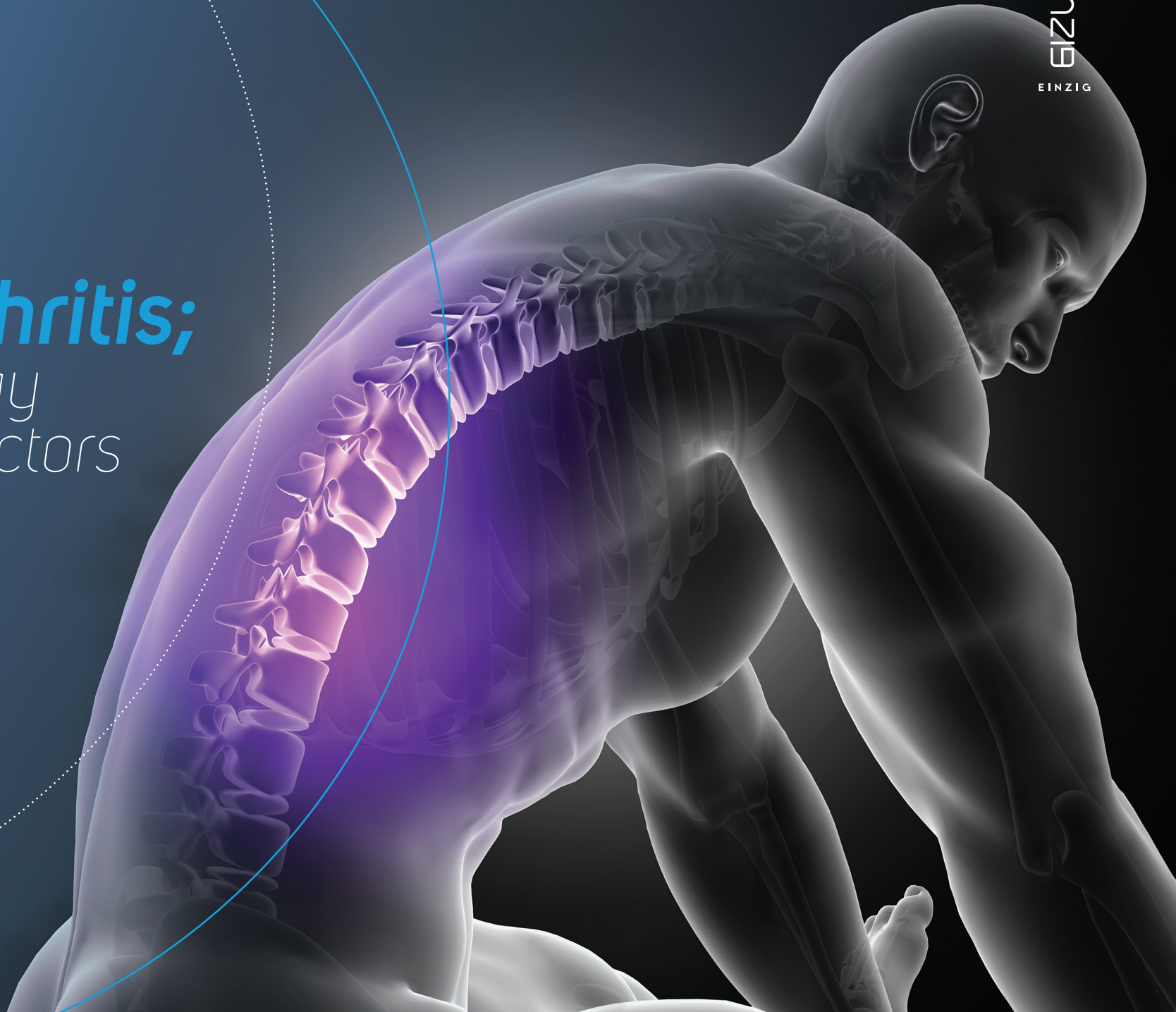




What do you  
know about  
**Osteoarthritis?**



***Osteoarthritis;***  
*Epidemiology  
and Risk Factors*





Adhere to these art styles you have been strong heart and cardiovascular system function. The running process, oxygen uptake increased significantly. The quality of work of various organs basically greatly improved. Adhere to these art styles you have been strong heart and cardiovascular system function. The running process, oxygen uptake increased significantly. The quality of work of various organs basically greatly improved. Adhere to these art styles you have been strong heart and cardiovascular system function. The running process, oxygen uptake increased significantly. The quality of work of various organs basically greatly improved.



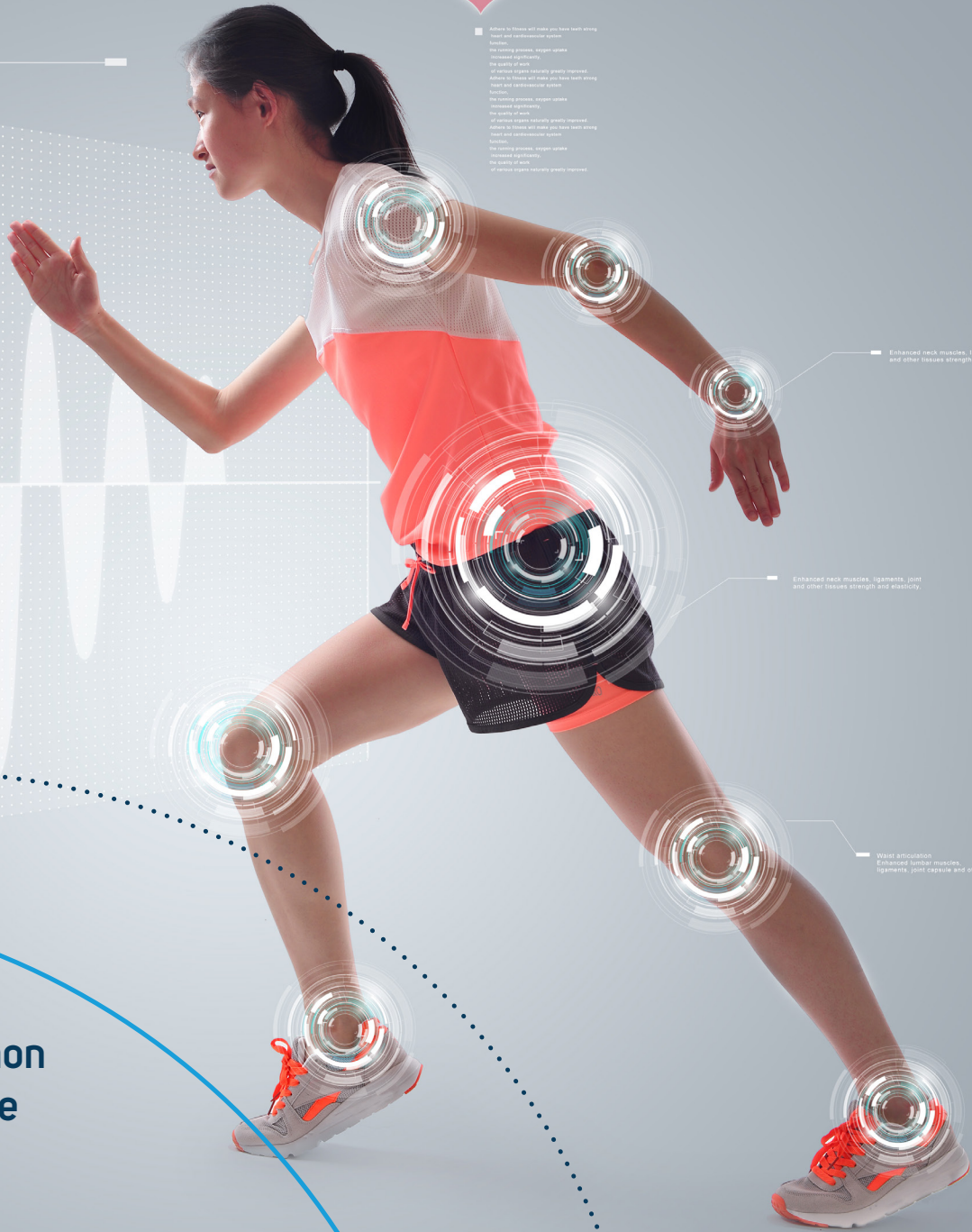
Exercise means or by hand using a variety of equipment. The use of specialized scientific ways and means makes exercise to developed muscles. Increase strength and improve physical and strive for the purpose of sport.

Enhanced neck muscles, ligaments, joint and other tissues strength and elasticity.

Enhanced neck muscles, ligaments, joint and other tissues strength and elasticity.

Waist articulation. Enhanced lumbar muscles, ligaments, joint capsule and other tissues strength and elasticity.

**Osteoarthritis OA is the most common form of arthritis and often affects the hands, knees, feet, and hips.**







Osteoarthritis of the knee is the most common joint disorder worldwide. The estimated population prevalence varies from,

4<sup>to</sup>50 %

depending on age, gender distribution and disease definition. These discrepancies may be due to differences in race, lifestyle, or socioeconomic background.<sup>1,2,3</sup> Patients with OA suffer mostly from pain, stiffness, discomfort, joint function impairment, and reduced quality of life. Osteoarthritis> Incidence rates vary according to regions, The prevalence is higher in high-income countries compared with low-income countries.



347

256

91

High-Income Areas

Central Europe

sub-Saharan Africa

An estimates of 347 new cases per 100,000 in high-income areas, compared with 256 per 100,000 in Central europe and 91 per 100,000 in sub-Saharan Africa.<sup>4,26</sup>



## Risk factors; Gender

Female gender is associated with a higher prevalence and severity of OA. A large meta-analysis demonstrated a greater risk in women for prevalent and incident knee and hand OA as well as incident hip OA compared with men <sup>29</sup>.



In addition, women were found to have more severe knee OA than men, particularly after menopause <sup>28,29</sup>.



## Osteoarthritis and the Age



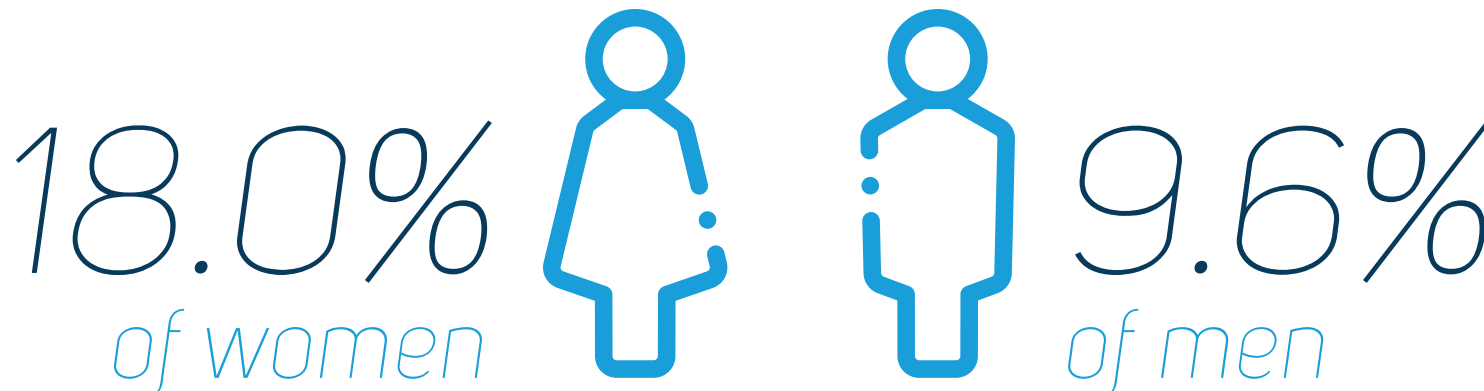
In the past, it was believed that the link with age was due to 'wear and tear' of articular cartilage by continuous mechanical stress; we now know, however, that OA involves an active response to injury comprising remodelling of articular cartilage and subchondral bone, in addition to synovial inflammation and damage to other joint structures, such as ligaments and menisci.<sup>30</sup>



## Risk factors; Age

The prevalence of osteoarthritis increases indefinitely with age.<sup>10</sup> Despite this fact, a considerable percentage of this incidence are now occurring at as early age as 18 years old. Approximately 14 percent of adults aged 25 and older have symptomatic OA of at least one joint.<sup>27</sup> Osteoarthritis is no longer perceived as a geriatric-associated disease.

*Worldwide estimates are*



*14% of adults aged 25 and older have symptomatic OA.*

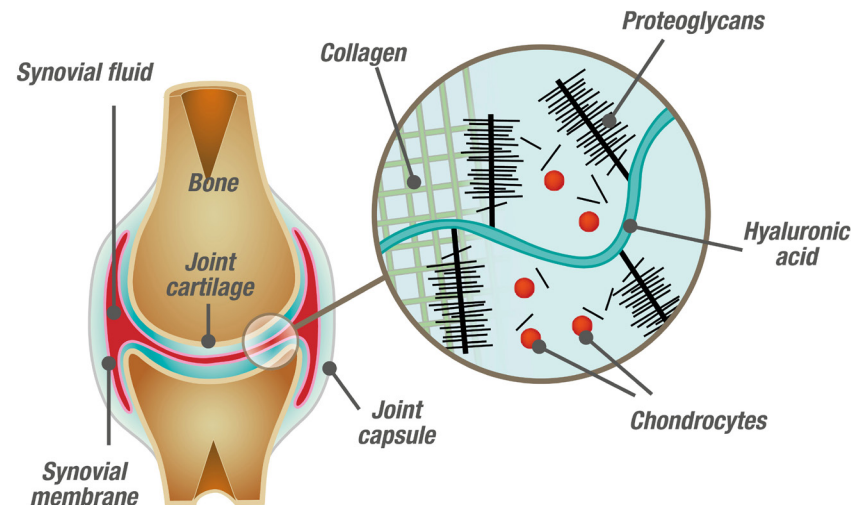


# The Synovial fluid

Hyaluronic acid is the substance in the synovial fluid that provides viscosity, but it requires the presence of a large mucinous protein called proteoglycan (also known lubricin) to provide a low-friction state and protect the joint surface from shear stresses<sup>4</sup>.

The collagen type II fibers provide the tensile strength and form a network that restrains the very hydrophilic proteoglycans that provide resiliency.

Thus, the collagen plays a salient role in protecting joints cartilage by maintaining the intactness of the synovial fluid and the tensile strength.



# Inflammation is a Key element in the pathogenesis of OA

Synovitis (inflammation of the synovium) is a critical characteristic of OA and is often considered the driver of the OA process.

However, inflammatory processes are initiated via mediators that are released not just by the synovium but by bone and cartilage too.<sup>31</sup>

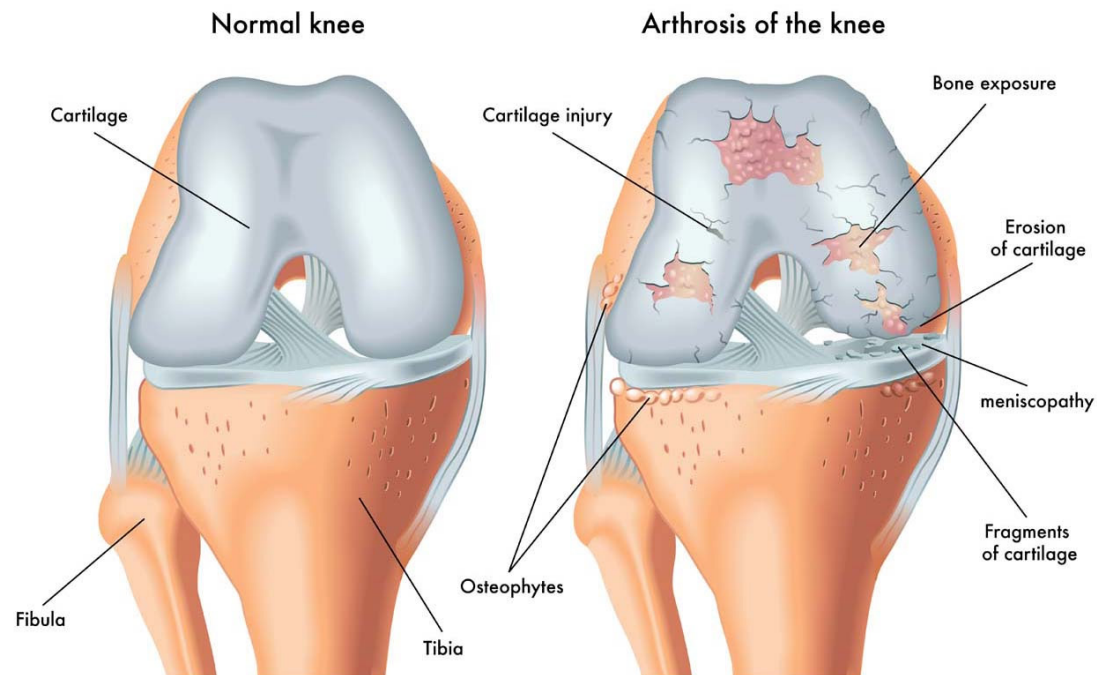
Anti-inflammatory medications are the mainstay of OA treatment and to improve patient's functionality.





**OA affects the entire joint: the cartilage is damaged, the underlying subchondral bone structure is remodelled, and a chronic inflammation of the synovium develops.**

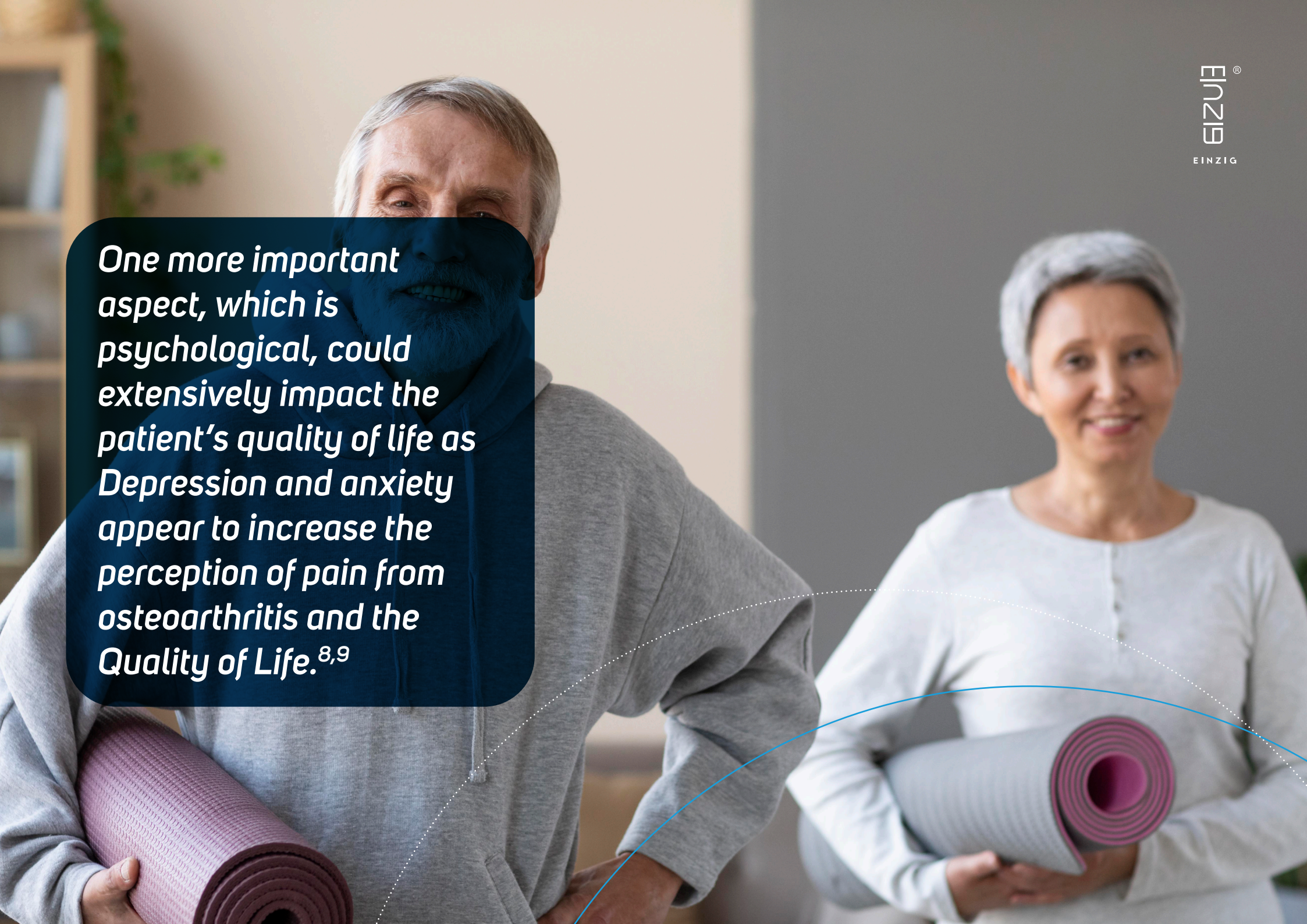
reference: Osteoarthritis: A review. Ashford S, Williard J Nurse Pract. 2014 May 12; 39(5):1-8.



One of the most interesting clinical features of osteoarthritis is the lack of correlation between its severity as determined by X-rays and the degree of pain. In some cases the joint appears essentially normal, with little if any joint space narrowing, yet the pain can be excruciating. On the other hand, there are cases where there is tremendous deformity, yet little if any pain. In fact, about 40% of individuals with the worst X-ray classification for osteoarthritis are pain free.<sup>5</sup>



*One more important aspect, which is psychological, could extensively impact the patient's quality of life as Depression and anxiety appear to increase the perception of pain from osteoarthritis and the Quality of Life.<sup>8,9</sup>*





# Guidelines



*Initially the ACR recommends the nonpharmacologic approach and to promote weight reduction and physical activity in order to obtain adequate pain relief alongside intermittent dosing of OTC, acetaminophen, and NSAIDs.*

*If no adequate pain relief could be achieved then the use of topical/oral NSAIDs, or intra-articular corticosteroid injections may be considered.*




*The ACR (the American College of Rheumatology) Guidelines recommend NSAIDs as the mainstay of the Pharmacological Management of OA in order to obtain adequate pain relief and improves mobility.*

*NSAIDs appear to suppress the symptoms of osteoarthritis but accelerate its progression.<sup>12</sup>*







*As most of OA patients are elderly, thus NSAIDS would put this population in greater risk of the following critical conditions:*

- *Gastrointestinal Bleeding.*<sup>12</sup>
- *Cardiovascular events (e.g., Myocardial Infarction or Stroke)*<sup>13,12</sup>
- *Edema, Congestive Heart Failure and impaired renal Function.*



# Osteoarthritis and Mortality

Individuals with OA (defined both symptomatically and radiographically) at the knee or the hip show a 55% excess in all-cause mortality.



are independently associated with the excess in all-cause mortality.<sup>31</sup>

Importantly, deaths from cardiovascular causes are higher in patients with walking disability due to OA (72% higher), even after adjustment for baseline covariates, indicating that there is an interplay between the underlying OA and the additional co-morbid conditions, which result in a higher risk of mortality.

Thus, although the main clinical symptoms of OA are pain and disability, the consequences of the disease are much more far reaching.



*Thus a need for an effective and safe management of osteoarthritis (OA) for the millions of people has emerged.*



# *General Principles of Osteoarthritis management*


**The principles of chronic disease management apply to the care of patients with osteoarthritis (OA) and are based on the following: care should be continuous, tailored to patients according to individual needs, goals, and values, and be patient-centered; decision-making should be based on the best evidence available, with prioritization of the safety of the patient <sup>27</sup>.**

**Patient's safety should be prioritized.**

## *Goals of Osteoarthritis Therapy*

- **Alleviate or eliminate joint pain through inflammation suppression.**
- **Improve or restore joint function and mobility.**
- **Improve muscle strength to protect cartilage, ligaments and the joint capsule.**
- **Prevent and reduce damage to joint cartilage, bone, ligaments, muscles and local nerves.**





*Let's Lose the  
extra Burden,  
and **gain the**  
functioning  
collagen*



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