

# Arthritis and Runners

***Focused Treatment, Diet Supplements, Exercise Options, and Prevention***

---

***Jessy Faraday, Medical Research Journalist***

***Diana Rangaves, PharmD, RPH, Editor***



**"The will to win means nothing without the will to prepare."**

*~ Juma Ikangaa, 1989 NYC Marathon winner*

## **Copyright**

**"Knowledge not shared is knowledge wasted and the web universe is big enough for all of us."**

*~ Anonymous*

Attribution: If reproducing information provide a link to [ClinicalConsultantServices.com](http://ClinicalConsultantServices.com) and properly credit the author.

## **Disclaimer**

This information is provided solely for informational purposes and is not intended to replace the medical advice of your doctor or health care provider. Please consult your health care provider for advice about specific medical conditions or using anything listed in this eBook. Research for this article was performed citing reputable medical sources.

## Table of Contents

<b>CHAPTER 1~Arthritis for Runners Defined .....</b>	<b>5</b>
<b>What Is Arthritis? .....</b>	<b>6</b>
<b>How Does Arthritis Affect Runners? .....</b>	<b>8</b>
<b>Epidemiology .....</b>	<b>10</b>
1. <b>Osteoarthritis.....</b>	<b>10</b>
2. <b>Psoriatic Arthritis .....</b>	<b>12</b>
3. <b>Gout .....</b>	<b>13</b>
4. <b>Rheumatoid Arthritis.....</b>	<b>14</b>
<b>CHAPTER 2~Understanding Arthritis for Runners .....</b>	<b>16</b>
<b>Causes of Arthritis .....</b>	<b>16</b>
<b>Risk factors .....</b>	<b>17</b>
<b>Signs and Symptoms.....</b>	<b>18</b>
<b>Types of Arthritis .....</b>	<b>20</b>
1. <b>Osteoarthritis.....</b>	<b>20</b>
2. <b>Rheumatoid Arthritis.....</b>	<b>20</b>
3. <b>Psoriatic Arthritis .....</b>	<b>20</b>
4. <b>Fibromyalgia.....</b>	<b>21</b>
5. <b>Gout.....</b>	<b>21</b>
<b>CHAPTER 3~Treatment Options .....</b>	<b>22</b>
<b>Natural Diet.....</b>	<b>22</b>
<b>Active Lifestyle.....</b>	<b>30</b>
<b>Medications .....</b>	<b>33</b>
<b>Topical Analgesics .....</b>	<b>35</b>
<b>Some Supplements to Avoid.....</b>	<b>37</b>
<b>CHAPTER 4~Exercises .....</b>	<b>39</b>
<b>Importance of Exercise in Arthritis.....</b>	<b>39</b>
<b>Things to Remember Before Exercising .....</b>	<b>40</b>
<b>Exercises .....</b>	<b>43</b>

1. Weightlifting .....	43
2. Stretching Exercise.....	46
3. Nordic Walking .....	48
4. Treadmill .....	50
<b>CHAPTER 5~Prevention Plan .....</b>	<b>52</b>
<b>CHAPTER 6~You Must Go On .....</b>	<b>54</b>
<b>About the Author.....</b>	<b>55</b>
<b>About the Editor .....</b>	<b>56</b>
<b>Sources.....</b>	<b>57</b>

## CHAPTER 1~Arthritis for Runners Defined

***“It's not really about the competition. Your biggest challenge in a race is yourself.” – Summer Sanders***



Summer Elisabeth Sanders is an American former competition swimmer and Olympic champion from 1992. Who would know the thrill, excitement, and challenge of running better than an athlete?

Like Summer Sanders pointed, an athlete is always in the pursuit of bettering themselves.

However, circumstances may not always be in favor. Athletes often find themselves braving injuries and many athletes have been beaten by arthritis.

It takes time and patience but out of the ailment of arthritis, are born some truly inspirational stories. Shaquille O'Neal, the superstar of

basketball won 4 NBA championships and several other honors despite his arthritis in the big toe.

And who can forego the legacy of Kristin Armstrong who focused on cycling after being diagnosed with osteoarthritis in hips in 2001? From Kristine Holzer to Sandy Koufax, athletes have shining examples before them of how persistence and regular treatment cannot let arthritis overtake them.

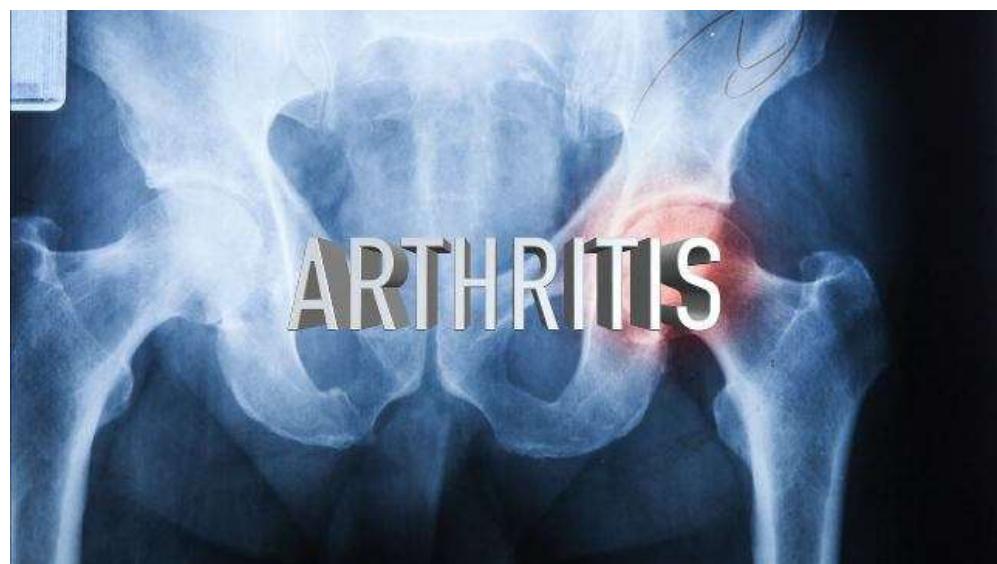
Undeniably, it's truly an inspiration.

This book reveals all that you need to know to fight arthritis as a runner.

Not having arthritis but always have that fear at the back of your mind? Worry not because there are prevention tips to keep arthritis at bay.

Read on.

## **What Is Arthritis?**



Arthritis can be referred to as joint pain. It literally means joint inflammation. The word is composed of two terms: ("arthr-" means

joint; "-itis" means inflammation). It influences the musculoskeletal framework, especially the joints. There are as many as 100 types of arthritis.

The most commonly existing type of arthritis is osteoarthritis. It refers to the breaking down of cartilage (which protects our bones at the joints).

Individuals who have arthritis also have joint pain. Pain can occur constantly or can occur locally in the affected joint.

It is a degenerative joint disease. It can be caused due to trauma to the joint or an infection of the joint. Old age can also lead to it. Daily wear and tear of the joint and or any damage to the joint from a disease can also cause arthritis pain.

Approximately 40 million Americans or one in every 7 people suffer from it. Arthritis can affect people hailing from all ages.

### **What is a joint?**

The joint is a zone where two bones meet. In a joint pain, one or more joints get irritated. Joint inflammation can also be accompanied by joint torment. Arthritis is a condition which can cause aggravation and agony to a joint.

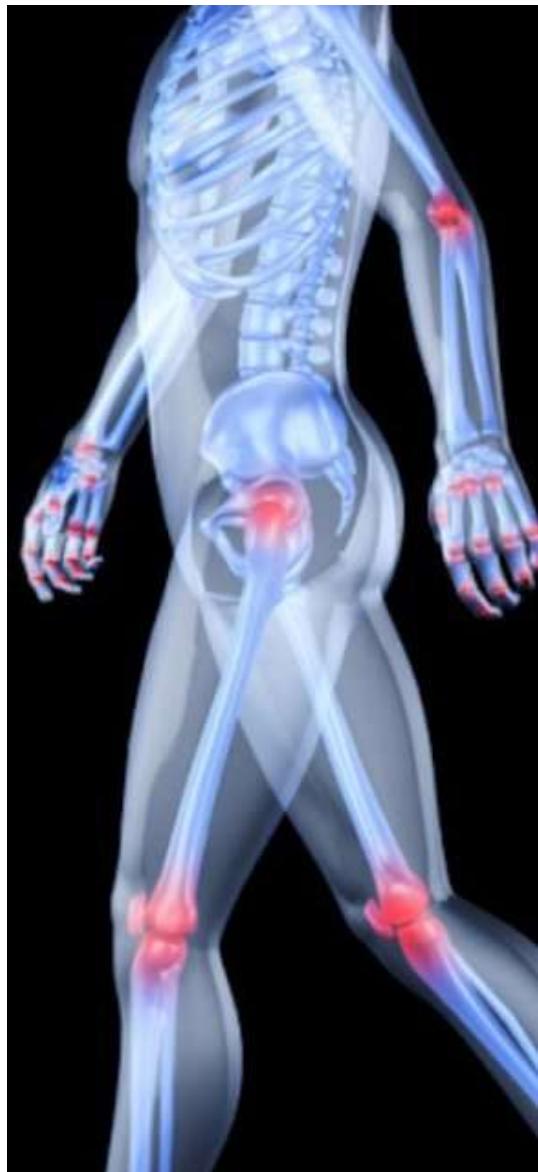
### **How does the pain feel?**

Pain, fatigue, and stiffness are followed by arthritis. The severity of these can vary from one individual to another. Some people only experience pain in a few joints and the impact of arthritis can be small. In some other people, the entire body may be affected by it.

If the joint is hurt and damaged and you do exercises that you don't normally do, the joint can hurt. In the case of inflamed and hurt joints, you should take extra precautions.

Arthritis can make it harder to carry out activities involved in a daily routine.

## How Does Arthritis Affect Runners?



Athletes tend to be healthy individuals but a very active lifestyle can put some strain on the body. While it is not necessary that all active people suffer from arthritis, pushing one's body in sports can put strains on the joints.

According to one study observing 75,000 runners, there is no evidence that running can lead to osteoarthritis. This also includes participation in marathon races. In fact, runners in the study had a lesser chance of developing arthritis as compared to those who were less active.

Some researchers at Queen's University in Kingston, Ontario, as well as other institutions also studied the mechanics of running and how they compare to running.

Another study, however, reveals that arthritis is not just associated with the elderly but also younger individuals and athletes. The study reports

that athletes and young individuals can sustain damage to articular cartilage due to loading and repetitive impact. Some of the sports causing most direct blunt trauma are football, soccer, hockey, lacrosse, and rugby. These sports are the ones causing the highest impact damage.

According to another study, more than 80% American football players having a history of knee injury had osteoarthritis after 10 to 30 years of competing.

Same results were also observed in soccer players when they were compared with other people of similar ages. It has also been observed that the prevalence of osteoarthritis in former athletes is higher as compared to those who are not in athletics.

According to further research, in order to sustain any damage to normal articular cartilage, a force of 25 MPa or more should be put. Jumping and running put lesser stress than this on joints and hence are less likely to cause any damage to cartilage.

In an athlete, the frequency of impacts as well as loading can increase the damage caused to cartilage.

Whatever may be the cause of arthritis in athletes; it can cause interference to the daily activities and bring a halt to the activities of even a seasoned athlete.

Another study in 2017 explores the different perspective related to arthritis and running. Some people believe that running is good for overall health while some researchers believe that running can pose a greater risk to age-related ailments of hips and knees.

The study suggested that the outcome depends on the frequency and intensity of the running exercise.

## Epidemiology

Arthritis has several forms and each can affect athletes in varying ways. An insight and epidemiology of the disease help the runners see how they can tackle this ailment.

### 1. Osteoarthritis



Involving the cartilage and surrounding tissues, osteoarthritis starts gradually but can progress towards joint failure as well as pain and disability. Osteoarthritis of the knees and hips tends to cause the greatest strain. Primary symptoms of this ailment include stiffness, limitation of movement, and joint pain.

Some of its risk factors include occupation, local trauma, and obesity. It can develop in any joint but most commonly occurs in feet, hands, facet joints, knees, and hips.

According to an estimation in 2005, around 26 million people in the United States suffered from some form of osteoarthritis.

The incidence of osteoarthritis in the knee, hip, and hand increases with age. Women have higher rates of osteoarthritis than men, particularly after the age of 50. The incidence of hand, knee, and hip osteoarthritis is higher in women than men and it particularly spikes around the time of menopause.

One of the risk factors for knee osteoarthritis is a traumatic knee injury. Fractures, dislocations, acute injuries, and meniscal and cruciate tears can all increase the risk of osteoarthritis development and musculoskeletal symptoms.

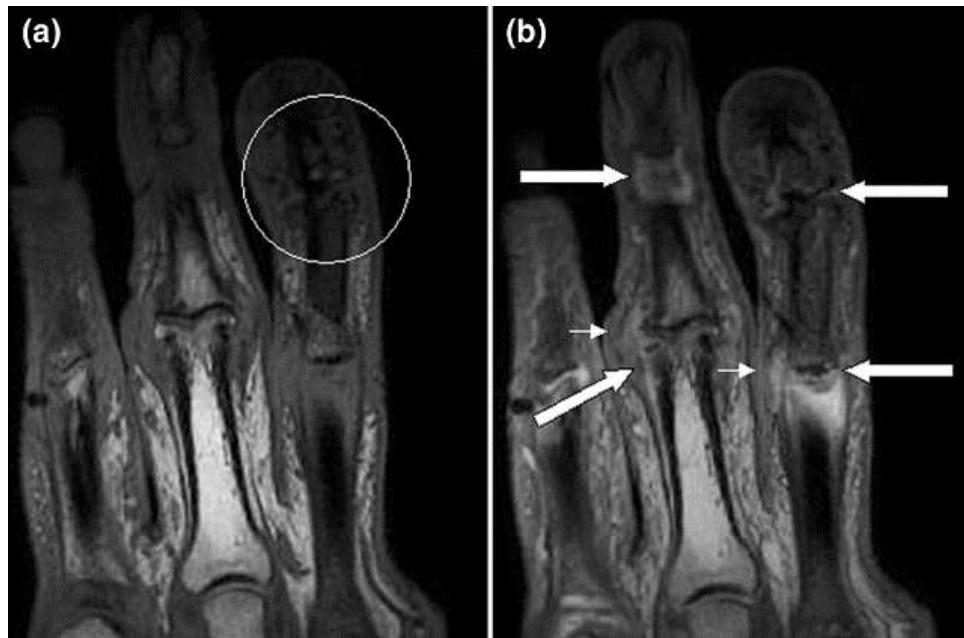
The direct damage to the local tissue coupled with disturbance of normal biomechanics and changed load distribution in the joint all lead to increased risk of osteoarthritis.

Excessive or repetitive joint loading accompanying specific physical activities can also contribute to an increased risk of osteoarthritis. There have been differing studies about the **relationship between sports and resulting osteoarthritis**.

Some evidence suggests elite long-distance runners are at high risk of hip and knee osteoarthritis. Other studies imply that without any joint injury, athletes taking part in moderate running and sports activity do not seem to have any risk of radiographic hip or knee osteoarthritis.

Osteoarthritis is coupled with not only physical but also psychological effects. As compared to people having a chronic disease such as diabetes, patients with osteoarthritis most frequently expressed psychological distress.

## 2. Psoriatic Arthritis



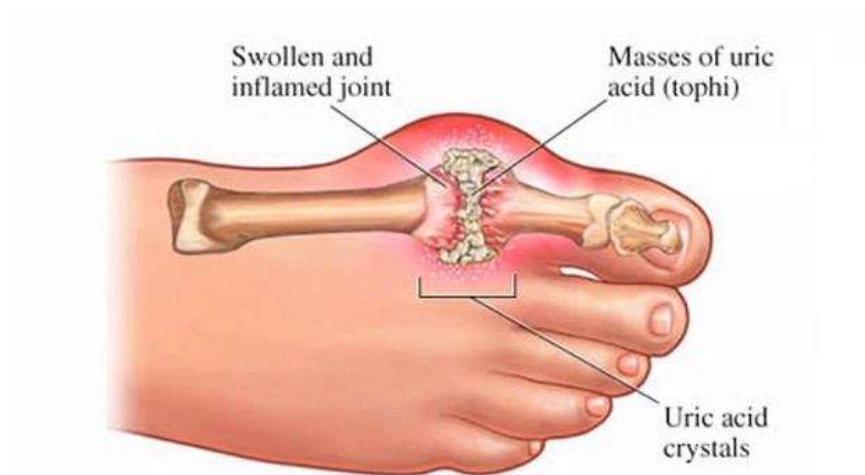
This is a chronic disease involving inflammation of the skin, entheses, and synovial tissue. It was initially considered as a mild disease but in the past 10 years, around 40 to 60% of the patients have developed joint complications.

While its exact prevalence is not known, it is estimated to have affected around 0.3% to 1% of the population. It causes not only radiological and clinical damage but also leaves a detrimental impact on the quality of life of its patients.

It occurs almost equally in both the genders and is more common among people of age 30 to 50 years. The greatest risk factor for this ailment is psoriasis.

The severity of psoriatic arthritis varies and ranges from mild symptoms to extreme inflammatory joint destruction. Patients may initially suffer from oligoarthritis (one to four joints) and then have polyarticular (five or more joints) involvement.

### 3. Gout



This is the most prevalent form of inflammatory arthropathy. Several studies imply that gout's incidence and prevalence have increased in current decades.

Some of its risk factors include the following:

- Hyperuricemia
- Genetic factors
- Metabolic syndrome
- Hypertension
- Obesity
- Dietary factors
- Alcohol consumption
- Diuretic use chronic renal disease

This type of inflammatory arthritis disrupts the quality of life of patients. It can occur at any age. However, mostly the first attack of gout in men is between the ages of 40 and 50.

Its symptoms usually develop at rapid speed and the first attack is often at night. During a gout episode, the patient may notice severe joint pain, swelling, and extreme tenderness in the joint area.

An episode of gout can be triggered by injury to a joint. Cases of gout precipitated by marathon running are rare.

#### **4. Rheumatoid Arthritis**



This is a common autoimmune disease and affects approximately 1% of the global population. Its annual incidence in the United States is reported to be around 70 for every 100,000. Its prevalence progresses with age and reaches 5% in women over the age of 55.

It is characterized by damage to joint health including inflammation and joint pain, fatigue as well as the development of cardiovascular disease.

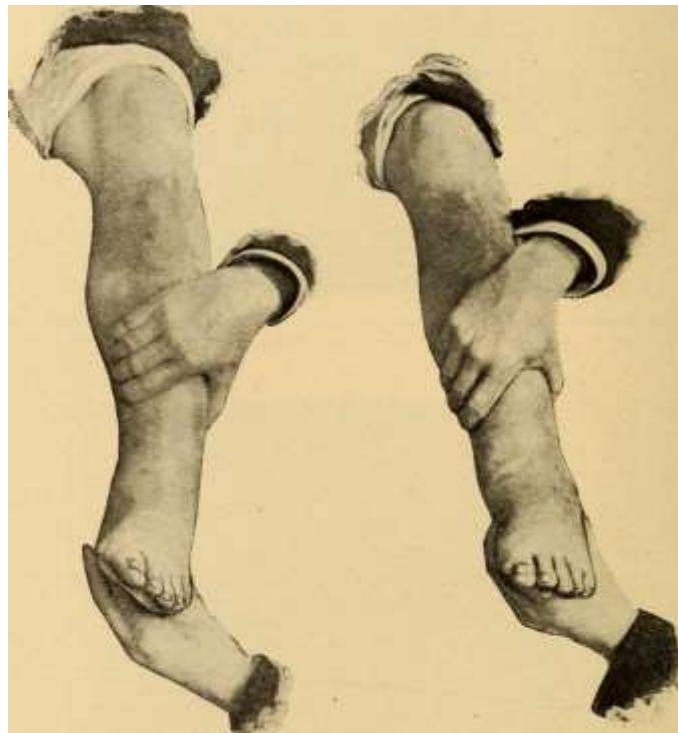
This ailment is most prevalent in individuals aged 40 years or more, with women having 5 times higher risk of developing rheumatoid arthritis.

Patients suffering from rheumatoid arthritis have the typical symptoms of reduced muscle strength, extreme joint pain, and disturbed physical function.

Although rheumatoid arthritis can occur at any age, it affects patients most commonly from the third to sixth decades.

## CHAPTER 2~Understanding Arthritis for Runners

### Causes of Arthritis



Here are some factors which can contribute to osteoarthritis:

#### **Ligament Injuries**

These injuries include ACL (Anterior Cruciate Ligament) injuries. In this injury, cartilage can sustain damage when a ligament is injured or torn. This damage can lead to early arthritis.

#### **Orthopedic Joint Dislocations**

If a joint is dislocated, it can cause damage to cartilage any time.

#### **Fractures**

When a bone gets fractured near the joint, the cartilage can have uneven healing. This causes faster wear and tear on the cartilage and possible early arthritis.

### **Injury to the cartilage**

A sharp or forceful hit at the joint can result in cartilage injury.

### **Risk factors**



Risk factors for arthritis are many. Some of these are the following:

#### **Family history**

Some types of arthritis are hereditary. So, you may have a higher chance of developing arthritis if someone in your family such as your parents or siblings have the disorder. Your genes can make you more prone to environmental factors that may lead to the onset of arthritis.

#### **Age**

Many types of arthritis such as osteoarthritis, rheumatoid arthritis, and gout have a higher chance with increasing age.

#### **Your sex**

Women are more at risk of developing rheumatoid arthritis than men. On the other hand, the majority of the people who have gout (another type of arthritis) are men.

### **Previous joint injury**

People who have damaged joints, as a result of, perhaps, playing a sport, are more prone to develop arthritis in that particular joint.

### **Obesity**

Excessive weight stresses joints, especially your knees, hips, and spine. Hence, obese people have a higher risk of developing arthritis.

## **Signs and Symptoms**



### **Pain**

The pain can be constant or it may come and go. It can occur while you are moving or also when you have been immobile for some time. The pain can occur in one spot or in several parts of the body.

### **Stiffness**

The joints can feel stiff and you may feel difficulty in moving them. Spine, hips, knees, and fingers have a certain tendency for stiffness. Stiffness progresses with the disease.

Daily tasks such as climbing stairs can become difficult. Stiffness or pain may be more in certain times of the day or after certain tasks. Certain types of arthritis lead to fatigue.

### **Swelling**

Some types of arthritis can lead to inflammation and swelling. The skin over the joint can appear red and swollen.

### **Stiffness after inactivity**

Due to stiffness and pain of osteoarthritis, an athlete can become inactive. This leads to the condition worsening.

### **Pain after inactivity**

Pain can follow after overuse of joints or even after any phase of inactivity.

### **Stiffness improvement**

Stiffness appears to get better once the athlete starts moving again after a period of inactivity

### **Morning stiffness**

Morning stiffness is usually related to osteoarthritis. It can resolve within 30 to 60 minutes of waking up

### **Sensations**

These include the grating or crackling sensations.

## Types of Arthritis



There are more than 100 types of arthritis, a few of which are most common and are enlisted below:

### **1. Osteoarthritis**

This occurs when the protective cartilage inside the joints is damaged. The affected joints make movement difficult and painful.

### **2. Rheumatoid Arthritis**

In this type of arthritis, the body's immune system attacks its own joints and organs. The lining of the joints, called the synovium, is affected by the immune system.

### **3. Psoriatic Arthritis**

It is an autoimmune inflammatory disease in which the body is attacked by the immune system, causing inflammation.

#### **4. Fibromyalgia**

In this ailment, the brain and spinal cord process the pain signal differently. It is recognized by widespread pain as well as sleep problems and fatigue.

#### **5. Gout**

This is a type of inflammatory arthritis; however, it doesn't result in inflammation in the entire body. If the body is unable to remove excess uric acid or produces too much of it, it can cause painful joint inflammation. It usually strikes the large joint of the big toe.

## CHAPTER 3~Treatment Options

If you are suffering from arthritis, it's never a good option to live with it. Instead, you can beat those painful sensations that disturb you from going ahead. As a runner, there is a myriad of treatment options you can choose from.

Let's explore all options in detail.

### Natural Diet



Inflammation processes are recognized by pain, heat, swelling, and redness. Usually, patients do not require immediate surgical procedures and hence they can be given treatments for reducing pain and enhancing the quality of life.

Many dietary supplements and herbal remedies have been used for ages to counter inflammation. Nutraceutical preparations derived from plants and animals have been used for centuries for relieving pain. Herbal medicines are becoming popular as they have fewer side effects. Oil of Camphor and capsaicin are some common examples of natural topical preparation which are used for traumatic injuries.

However, as with any natural compound, caution has to be exercised in the case of children, pregnant or lactating women as well as any medical condition which may worsen due to a side effect.

Here are some of the natural diet options to consider while combating arthritis pain:

### **Omega-3 (Fish Oil)**



Fish oil has been used in the treatment of skeletal, muscular and discogenic diseases and has records dating back to the 18<sup>th</sup> century.

#### ***Benefit***

According to research, omega-3 polyunsaturated fatty acids are natural anti-inflammatory agents. Also, the success of fish oil in treating arthritis has been corroborated by various clinical studies.

#### ***Side Effects***

It also has some rarer side effect, though. These may include steatorrhea as well as occasional belching if the supplements are unaccompanied by meals. Usually, people having anticoagulant

medications should avoid omega-3 EFAs, as this can increase bleeding potential.

## **Curcumin (Turmeric)**



This is a yellow pigment which occurs naturally and is derived from turmeric. While it is popular as a flavoring spice for food, it has also been used in Chinese and Ayurvedic treatments as an anti-inflammatory agent.

### ***Benefit***

It has been suggested to be used for ailments such as chronic neurodegenerative diseases, colitis, arthritis, and cancer.

A usual dosage of standardized turmeric powder can be 400 to 600 mg.

### ***Side Effects***

While its side effects are few, the patient should be mindful while using this agent for an extended period of time as it can cause an upset stomach. In extreme cases, using high dosages, it may cause gastric ulcers.

The patient should also be cautious if he/she is using high doses of nonsteroidal drugs or anticoagulant medications.

This agent can be used together with lower doses of nonsteroidal medications, according to some studies.

## **Green Tea**



### ***Benefit***

It contains polyphenolic compounds called catechins. Research points towards its anti-inflammatory effects.

Its antioxidant properties have been known to have cancer and cardiovascular preventative nature. More recently, it has been in limelight for its role as an anti-inflammation agent.

It is usually recommended to take 3 to 4 cups of green tea daily. Green tea extract should typically be taken in the dosage of 300 to 400 mg.

### ***Side Effects***

Side effects include stomach irritation in some due to its caffeine content.

## **Boswellia Serrata Resin (Frankincense)**



Its trees are located in Somalia, Ethiopia, and India. These trees produce a gum resin known as olibanum or frankincense. This resin has anti-arthritis and anti-inflammatory properties.

### ***Benefit***

This substance works to inhibit leukocyte elastase which is released in our body in rheumatoid arthritis. According to one study, arthritis of the knee statistically significantly improved when 333 mg *B. serrata* was taken three times a day for eight weeks. It improved function but did not bring any change in the affected joints, radiographically.

It was also observed that a combination of *Boswellia* and curcumin is effective for treating active osteoarthritis.

A standardized extract of *Boswellia* contains 30-40% boswellic acids. The dosage of 300-500 mg can be administered two or three times a day.

### ***Side Effects***

While *Boswellia* has been well-received by patients, some people may experience side effects of nausea, stomach discomfort, diarrhea, and acid reflux.

## **Resveratrol**

This is a plant-based polyphenol molecule. Most of the research done with Resveratrol concentrates on areas of cardio and neural protection. However, several studies have examined its use for arthritis-related joint pain.

### ***Benefit***

A study using animals reported that intra-articular injection of resveratrol protected cartilage. It also reduced inflammation in knee osteoarthritis.

The substance is available as a dietary supplement capsule. The typical dosage ranges from 50 to 500 mg daily.

### ***Side Effects***

While there are no significant side-effects, caution must be exercised when taking prescription or coagulation altering or herbal antiplatelet products as Resveratrol has an antiplatelet effect.

## ***Uncaria Tomentosa (Cat's Claw)***



*Uncaria tomentosa* is a Peruvian herb derived from woody vines. It has small claw-like thorns, hence its name. Traditionally, the bark of this

herb has been used to treat not only intestinal disorders but also arthritis.

### ***Benefit***

According to some studies, there has been an indication of a reduction in proinflammatory mediators after use of this herb.

This substance can be ingested in the form of tea. Ration should be 1000 mg root bark to 8 oz. water. It may also be taken in the form of dry, standardized extract in a capsule which translates to 20-60 mg daily.

### ***Side Effects***

Its side effects are minimal. Two cases of acute renal failure have been recorded in a patient with lupus erythematosus.

### **Avocado-Soybean Unsaponifiables (ASU)**

It is best for osteoarthritis and works by blocking pro-inflammatory chemicals. It stops the deterioration of synovial cells. A study (spanning over three years) in 2013 showed that it significantly decreased the advancement of hip osteoarthritis as compared to the control group.

### **Ginger**



It has anti-inflammatory properties similar to COX-2 inhibitors and ibuprofen. According to a 2012 study, specialized ginger extract works by reducing inflammatory reactions in rheumatoid arthritis as effectively as steroids.

It works best for rheumatoid arthritis and osteoarthritis.

### **SAM-E (S-Adenosylmethionine)**

It is a compound produced naturally in the body and has evidence backing it for the treatment of osteoarthritis pain.

#### ***Benefit***

It works as an analgesic (pain reliever) and has anti-inflammatory characteristics.

As per two studies, this compound relieves osteoarthritis symptoms as effectively as non-steroidal anti-inflammatory drugs (NSAIDs).

#### ***Side Effects***

It has fewer side effects, though, and benefits also last for a prolonged period.

## Active Lifestyle



If you are adding the above-mentioned foods in your diet plans, you are on the right track. But what if you eat the same super foods in excess amount without burning those additional calories? This is when you are unable to create the right balance.

Inability to follow a natural lifestyle may interfere with arthritis pain relief. Thus, it's vital to know about the lifestyle changes you should adapt while combating with arthritis.

Follow these tips to maintain a lifestyle that will help ease arthritis pain:

### **Manage Your Weight**

According to the Centers for Disease Control and Prevention, as many as 36% of obese American adults are suffering from arthritis. Excess weight can overburden or strain the joints, thus leading to more inflammation.

A healthy body plays a pivotal role in maintaining the health of all body parts. Therefore, it is recommended to consult your doctor to manage your body weight. This may help relieve arthritis pain.

### **Exercise**

Have plenty of exercises to keep off the weight and reduce arthritis pain.

### **Get vitamin C**

As per studies, vitamin C can prove to be beneficial in managing body inflammation. To get the required dose of vitamin C, have an orange or a glass of grapefruit juice daily.

### **Don't stress out**

Emotional stress can worsen arthritis and stop you from doing the needful such as exercising or taking medications.

For controlling stress levels, you can take a vacation, get enough rest, meditate, or relax in solitude. All these measures will help you in taking off the emotional burden.

### **Follow a diet that is good for arthritis pain relief**



The key is to have a nutrient-rich diet which can supply you all the calories without any deficiency of minerals, vitamins, or fats in the body. On the contrary, eating a calorie-laden diet can leave you feeling unwell.

According to studies, people suffering from arthritis would do well to have a Mediterranean diet which consists of vegetables, fresh fruits, beans, fish, and extra virgin olive oil.

People suffering from rheumatoid arthritis can eat the following foods:

- Salmon and other fatty fish
- Blueberries and other berries which are high in antioxidants
- Nuts or seeds

These foods improve energy levels.

Similarly, the following foods should be avoided as these cause inflammation:

- Sugar
- Trans Fats
- Saturated Fats
- Refined carbohydrates
- Gluten and casein
- Omega 6 Fatty acids
- MSG

## **Maintain mental health**

Every one in three patients suffering from chronic arthritis also comes across depression. Arthritis, for instance, can progress severely, affecting the lives of patients and their families. A patient may have feelings of depression or isolation when facing this chronic illness.

To help the person overcome these feelings, having a reliable support group and an active lifestyle are mandatory.

## Medications



Though natural diet and exercise may help reduce arthritis pain, your doctor may recommend medications when the pain doesn't stop.

Here are some common medications you should know about:

### **1. Paracetamol (Acetaminophen)**

For over 100 years, this drug has been in use. However, its mechanism of action has still not been uncovered.

It has been effective in the treatment of many arthritic conditions across all ages. It works as an oral analgesic for mild to moderate pain in osteoarthritis patients and has been well-received by osteoarthritis patients for a period of up to 12 months.

In general, the medicine has good track record. Recently, elaboration has been brought towards its frequency of use and a moderate increase in the risk of incident hypertension.

## **2. Tramadol**

This is a central-acting oral analgesic and has received extensive approval for use in arthritic pain.

Some common side effects of this chemical include dizziness, nausea, and constipation.

## **3. Non-Steroidal Anti-Inflammatory Drugs**

The anti-inflammatory effects of these drugs are linked to an inhibitory effect on cyclooxygenase enzymes. As a result, there is a decrease in inflammatory prostaglandins, for example, PGE2 and prostacyclin.

These drugs have proven to be very effective in the treatment of acute pain. They are one of the main pharmacological agents in the treatment of arthritis pain. There have been studies with some advocating Paracetamol while others advocating NSAIDs for analgesia therapy of arthritis conditions.

A recent study involving 5,986 participants indicated that NSAIDs had superiority over paracetamol for improving knee and hip pain in osteoarthritis. NSAIDs have also proven their worth in treating symptoms of rheumatoid arthritis. However, the effects have been modest.

## **4. Acupuncture**

Many patients suffering from arthritis seek help from alternative sources with acupuncture being a popular choice. Acupuncture has retained a respectable safety record and has a place in the symptomatic management of patients suffering from arthritis.

## **5. Transcutaneous Electrical Nerve Stimulation (TENS)**

TENS has achieved an established role in the treatment of chronic pain but there have been only a few studies assessing its effectiveness in dealing with arthritis pain.

Clinical studies have suggested that TENS has been as effective as an exercise and more than placebo in controlling arthritis pain. The most favorable result, however, will be achieved with a combination.

## **6. Acetaminophen**

This is a drug with analgesic properties allowing patients to avoid NSAIDs. This results in fewer side effects and is also a cheaper alternative.

Acetaminophen has to be administered in combination with nonpharmacologic therapeutic modalities. The standard dose can be up to 4000 mg/d.

Although the drug is a safe analgesic, it can lead to adverse effects such as causing hepatic toxicity. It should be taken with caution in patients with liver disease or chronic alcohol abuse.

## **Topical Analgesics**



**Methyl salicylate** or **capsaicin cream** are topical analgesics which can be taken by those patients who cannot take anti-inflammatory therapy.

Methyl salicylate is known as counterirritants. It makes the skin initially feel cool and then warm. It is used for the treatment of minor pains and aches of the muscle and joints.

*Capsicum annum* is a small spreading shrub and was originally cultivated in the tropical regions of the Americas but is now cultivated worldwide.

It produces extremely selected regional anesthesia. It also inhibits NF- $\kappa$ B, hence producing an anti-inflammatory effect.

The herb is seldom used alone and is mixed with other natural anti-arthritis chemicals. It is applied as a topical gel, cream, or patch. According to a German study in 2010, pain decreased almost 50% after use of 0.05 percent capsaicin cream for three weeks.

Many capsaicin products – such as Zostrix HP, Zostrix, and Capzasin-P among others – contain between 0.025 to 0.075 percent concentrations. They should be applied regularly three times daily.

## **Side Effects**

Methyl salicylate may cause warmth or redness on the skin. Some unlikely but serious side effects include swelling, blistering, severe redness, and unusual pain at the site of application.

Capsaicin can cause burning sensation if direct contact occurs with human flesh or in the digestive tract.

## Some Supplements to Avoid



While caution should be exercised using any supplements, the following medications, proclaimed to treat arthritis, should not be taken at all.

### **1. Arnica**

Claimed to relieve ache, it is toxic if it gets inside the body. The only way it cannot prove to be poisonous is when it is extremely diluted in the form of a homeopathic pill. It is safe when applied topically.

The medication can cause paralysis, miscarriages, allergic reactions, and death.

### **2. Aconite**

This is also poisonous and affects central nervous system and heart.

### **3. Adrenal, Spleen, thymus extracts**

They are taken from raw animal organs which the FDA believes may be contaminated. Hence, such extracts are unsafe for consumption.

#### **4. Autumn crocus**

It should only be taken under doctor's supervision as it is potentially hazardous.

#### **5. 5-HTP**

It is proclaimed to help fibromyalgia. However, it can raise serotonin to dangerous levels if it is combined with some other medications e.g. anti-depressants. High level of serotonin can cause hot flashes, fluctuating heart rate, and coma.

#### **6. GBL**

This has been associated with coma, seizures, and death.

#### **7. L-tryptophan**

When combined with other medications, this too may raise serotonin levels possibly resulting in hot flashes, fluctuating heart rate, and coma.

#### **8. Chaparral**

It can possibly cause damage to hepatitis, kidney, and liver.

#### **9. Kombucha tea**

It can prove to be hazardous if made in non-sterile conditions and fermented. Pregnant and lactating mothers should avoid it.

## CHAPTER 4~Exercises

### Importance of Exercise in Arthritis



According to studies conducted in 1995, 2003, and 2004, elder people who take regular part in physical activities are healthier and have a better quality of life as compared to their inactive counterparts.

Regular exercise has also been touted to reduce pain in people suffering from knee osteoarthritis, according to two studies conducted in 1997 and 2003. It also helps in preventing mechanical low back pain.

On the other hand, periods of inactivity have been associated with greater pain along with the injury. They have also been linked to lower muscle tone and bone density. Recent research has also suggested that complementary and alternative medicine (CAM) exercises may play a part in improving osteoarthritis symptoms.

According to another 2011 study, exercise training for rheumatoid arthritis patients has been effective in reversing cachexia. It has also

helped in improving function without worsening the disease. It was also likely to play a crucial role in reducing cardiovascular risk.

As with any exercise, the patient should be mindful and not go into extremely rigorous exercise regimes. Some aerobic activities such as running have been linked to increased risk of fractures or stress. In addition, runners could face increased pain and disability if there is recurring trauma to soft tissue. This could be if there is excessive physical activity.

## Things to Remember Before Exercising



Though several exercises may help reduce arthritis pain, it's essential to follow the exercise rules. Inability to follow specific exercises properly may worsen the case. Therefore, it's always better to take care of a few things before getting started.

Here are a few tips to help you make the most from your exercises:

### **Don't go overboard**

During the first few weeks of exercising, you may feel a little discomfort because muscles are being moved in a new and unfamiliar way. When you are performing new exercises, it is normal to feel stiffness in any of your body parts.

According to Lynn Millar, Ph.D., a professor of physical therapy at Winston Salem State University in

Winston-Salem, N.C, the muscles and joints get their nutrition through exercise. Once we start moving, the circulation and lubrication around the joint begin to improve.

However, if the exercise gives you sharp pains, abandon it immediately. You may be excited about exercising in arthritis but don't ignore any warning signs and check with doctor or physiotherapist before attempting that exercise again.

### **Have a good posture**

A good posture is necessary for people suffering from arthritis as the body is less under strain. Bad posture makes you slouch. When this happens, all the weight of the body is put forward and the muscles and joints come under added pressure.

### **Exercise and arthritis flare-up**

Certain types of arthritis such as lupus and rheumatoid arthritis affect some people in the form of a flare-up. This refers to the condition where inflammation suddenly becomes active, painful, and stiff. This condition can last from a few days to a few weeks.

Remember to carry out gentle exercises during a flare-up but leave out the more rigorous exercises. Gentle muscle-strengthening exercises can also be done.

### **Focus on a different area**

It might be that you have moderate to severe pain in some joint area before working out. It means you need to concentrate on some other joint area for a few days, probably a day or two.

For instance, if you experience pain in your knees, you should cut back on the intensity of the leg workout. If the pain worsens, stop any

exercises pertaining to the lower body. Instead, focus on the upper body.

If you continue to put pressure on a joint even when it is sore, you could be playing a part in joint damage. Hence, it is best to ease up for some time.

### **Make the exercise less intense and shorter**



If you experience moderate to severe joint pain after the workout, it is time to make the workout a bit less intense.

For instance, if the next day after a workout, you feel sore, it means the exercise you were attempting was either too hard or was done for too long a time.

To counter this situation, take a day off from exercising. After that, try performing exercises which are less strenuous and do them for a shorter period of time.

If the pain still exists, you could switch to an exercise which is less intense. For instance, water aerobics is an effective, less intense form

of exercise. You can substitute water aerobics for your elliptical workout.

## **Switch to a less rigorous exercise that is easy on your joints**

If you experience consistent pain in joints after exercise, this could point that your activity is a bit too taxing. You can observe this sign by seeing if you need a brace or ibuprofen, constantly. You should make the switch to a workout that puts less pressure on the joints.

If you want to opt for exercises suitable and appropriate for people with arthritis, have a look at water aerobics, swimming or biking. People with joint pain can easily carry out these exercises.

## **Exercises**

Below are outlined some exercises which can be successfully carried out by a person with arthritis ailment:

### **1. Weightlifting**



Arthritis's pain can be managed to a certain extent by lifting weights. This exercise helps strengthen the muscles in the affected area and help lubricate your joints. It also decreases bone loss and contributes in controlling joint swelling.

Before starting, remember to warm up or stretch gently. Ideally, this should be a part of any exercise routine as it helps the muscles get loose.

Start by lifting dumbbell weights of 5 to 8 pounds for men and 2 to 3 pounds for women. It should be done for 12 repetitions. If you are unable to do so, it implies that the weights are too heavy.

On the other hand, if you don't feel tired after the 12 repetitions, the weights are too light.

To combat this, either strap weight-adjustable weights to your wrists or strap them to your ankles if you have arthritis in your hands.

According to American College of Rheumatology and American Council on Exercise, you should complete a set of 8 to 12 repetitions and bring the muscle to the point of fatigue by the time you reach the last few repetitions of a set.

For the exercise, you can use any of the following:

- Home weight machine
- Gym weight machine
- Resistance bands

### **Exercise 1- How to do it?**

To start off, begin with larger muscles and proceed to all major muscles. Include exercises involving opposing muscles. For instance,

if you have begun with exercise for triceps and biceps of your arms, then include exercise for hamstrings and quadriceps of your thighs.

### **How long?**

This exercise can be done two to three times in a week for 20 to 30 minutes. Within 4 to 12 weeks, the patient can start seeing benefits such as a boost in energy and improved muscle tone.

Many people increase their energy by 40% or more within a span of 6 months. However, be careful to have a recovery day in between sessions.

### **Exercise 2- How to do it?**

Holding a 16-oz. soup can in both hands, stand with feet and shoulder-width apart, bending knees slightly and putting palms facing forward. Now, bend the knees - keeping feet and knees pointed in a straight direction. Then squat by gradually lowering your hips. Be mindful and while ensuring that you are not feeling any pain.

Pause for some time while squatting and slowly return to the initial position. Now, do a biceps curl. This is done when you bend elbows and bring the cans towards shoulders and back down.

### **How long?**

Repeat this entire procedure 10 to 15 times.

## 2. Stretching Exercise



This can be done as a warm-up prior to any exercise. It especially helps those who are suffering from arthritis as it lubricates joints.

Do not stretch a cold muscle.

Stretching and holding should only be done after 5 to 10 minutes of a warm-up exercise. A warmed up muscle has the ability to endure more.

Perform active stretching. This means mimicking the movements of the sport or activity you will do later. If you intend to play tennis, you will begin by doing front lunges.

You can do the following as dynamic stretches:

### **Arm circles**

Stand by keeping your feet and shoulder-width apart. Now, hold arms to your sides and keep the plasma down at shoulder height.

Do 20 circles in each direction.

As your body becomes more flexible and elastic, increase the size of circles.

### **Hip circles**

Standing on one leg, gently swing the other leg in circles out to the side. Use something for support while standing in this way. Perform 20 circles like this in each direction and then switch legs.

You can increase the size of circles as your body becomes more flexible.

### **High-stepping**

Stand keeping both the feet apart at shoulder's width. Now, step forward with left leg and raise the right knee towards your chest. You can use a wall or the counter for balance if you need. Next, using both the hands, pull your knee up further. You can use both your hands and even one hand if you are using one hand for support on the wall.

Now, bring right leg back on the ground.

Repeat the same procedure with the other side. Perform the high-stepping five times on either leg as you are walking forward.

### 3. Nordic Walking



You may be surprised how walking can yield big results. However, walking is beneficial in many forms. From walking the dog to taking a stroll in the park to walking on a treadmill, people with arthritis can undertake this exercise in a number of ways.

Nordic walking makes use of trekking poles.

A person with arthritis, particularly in areas such as feet, ankles, knees, and hips, may think that he or she may never be able to enjoy the walking again. For these people, Nordic walking may provide the perfect alternative. This makes walking more enjoyable and also more comfortable.

Nordic walking comes under aerobic walking and is done with the assistance of Nordic or trekking poles. Trekking poles have long been used for providing extra support and they can make the walker have a more stable grip when walking over.

However, you don't need to move to the mountain to use them. For people suffering from arthritis, these poles are equally good for taking a stroll in the park.

People with joint injuries in the lower back or lower body can benefit much as trekking poles absorb the landing impact made with each step. This is particularly when the person is going downhill.

With the help of poles, the body is kept in an upright position so the person has an improved balance.

The Cooper Institute in Dallas also illustrates in its research that Nordic walking can help burn as many as 20% more calories and utilizes more oxygen when compared to regular walking.

While there hasn't been much research studying the relationship between Nordic walking and arthritis, research involving other groups such as people suffering from chronic diseases and elderly people, has shown that Nordic walking tends to put less pressure on lower limb joints and engages upper body and arms in an aerobic manner.

### **How to do the Nordic walking**

Take hold of poles with metal or rubber tips. Typically, the poles used will have metal tips with rubber covers. The metal is beneficial when the person is walking on dirt or in the grass. The rubber part comes in handy when walking on asphalt.

Choose poles according to your height. When you have the pole by your side, the elbow should make a ninety-degree angle. Many poles can be adjusted in height.

People suffering from arthritis should especially look for poles having an ergonomic or soft grip. This makes it easier to hold them.

When walking, plant the poles next to the foot's back and step forward while pushing on the pole. This gives a forward thrust, making it easier

for the person to move. People who have shoulder arthritis or who need more support can plant the pole farther forward for more ease.

#### 4. Treadmill

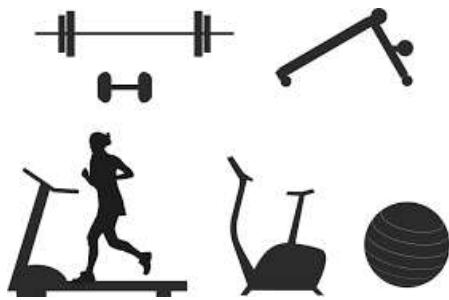


If it is not possible for you to walk outside the house or in a park, the treadmill can be another option worth considering.

Theresa Lawrence Ford, MD, a rheumatologist working with the North Georgia Rheumatology Group in Atlanta explains that utilizing the treadmill is a source for an excellent workout. This is because it improves blood flow and increases cardiovascular endurance. The improved blood flow leads to boosted circulation and lesser pain.

However, you need to be careful when using a treadmill as it can prove to be hazardous particularly for people having joint or balance issues. If you try to catch yourself when you are losing your balance, you can strain a muscle. This may even lead to a joint injury.

#### **How to choose the right treadmill?**



### **Look for side rails**

A treadmill with only a front rail will not help in the long run. Side rails help a person in grabbing a support in case he or she is falling.

### **Get a Full-sized tread belt**

This means the belt should be at least 22-inches wide and 50-inches long. This may reduce the risk of any accidents.

### **Look for a pull cord or a stop button**

This helps the person in stopping the treadmill immediately in case of severe pain or in case they start feeling faint.

## CHAPTER 5~Prevention Plan

There is no dependable way to prevent arthritis. But care can be taken to reduce the chances of it occurring. The onset of certain types of arthritis can be delayed.

If you are a runner who has healthy joints, you must undertake measures to ensure the best mobility as well as to avoid the pain associated with arthritis.



Some risk factors cannot be changed. These include gender. Females are more likely to have arthritis. Another is a family history of arthritis.

Other risk factors, however, can be modified. This means that taking care of these risk factors can prevent arthritis or delay its onset.

Osteoarthritis has a modifiable risk factor for maintaining a healthy weight.

For rheumatoid arthritis, you should not smoke.

If you want to reduce the risk of gout, eat a healthful diet containing low sugar and prunes.

Other tips include the following:

### **Eat fish**

According to a study in *Annals of the Rheumatic Disease*, women who eat fish are at lesser risk for rheumatoid arthritis. Fish high in omega-3s is recommended by the USDA.

### **Exercise**

This takes the stress of the excess weight on joints. It also helps by strengthening the muscles around the joints preventing them from wear and tear.

### **Avoid injury**

With time, joints can wear and tear. Injuring a joint, however, can lead to damage of cartilage and cause it to wear out at a quicker pace. You can avoid injury by using appropriate safety equipment.

## CHAPTER 6~You Must Go On



From the superstar of basketball Shaquille O'Neal to the Olympic gold medal figure skater Dorothy Hamill, athletes have been making waves not only for their talent but also their superhuman ability to compete while suffering from arthritis.

Now the question is, can you do the same? Can you perform the same feat and go on making a name for yourself?

The answer is yes!

And as Matt Biondi, an American former competition swimmer, eleven-time Olympic medalist, says:

*“Persistence can change failure into extraordinary achievement.”*

What's next? There's nothing to wait for. Go on. Keep running.

## About the Author

---



**Jessy Faraday** is a full-time writer and editor.

She believes that it is the power of words that influence people, decisions, directions, and above all: the readers!

With the passion for helping athletes embrace challenges, she helps them win by writing informative and educational articles, eBooks, and guides. She knows that the fire is within already. It's all about giving a spark to that fire. Her writing helps runners strengthen their passion.

She is actively writing a series of eBooks on “Aloe Vera.” To help her readers explore new horizons of natural healing, she plans to provide runners the way to heal naturally with the help of aloe vera – she calls it a magic herb!

## About the Editor

---



**Diana Rangaves** is a full-time writer, editor, award-winning teacher, and pharmacist.

She has work appearing in numerous venues, including children's picture books, medical pharmaceutical books, scholastic books, and academic articles. Diana is the author of ***The Adventures of Rosy Posy Papillion*** children's series. One-hundred percent of the author's royalties benefit PapHavenRescue.org. She is also the author of the growth educational books, Medicine Child's Play, Escape into Excellence, and Embrace Your Excellence.

She is actively working on the Ethical Hacker ~ Acidemia a political suspense thriller novel, we wish we could say more.

Former Executive Editor and Chief Content Officer for the digital magazine, Healthcare Worldwide Central, she earned her Doctorate in Pharmacy from the University of California, San Francisco.

Diana is a foster mom for PapHavenRescue.org and lives in California with her dogs and pasture pets, in their forever home.

## Sources

1. Buckwalter JA, Lane N, [Athletics and osteoarthritis](#), *Am J Sports Med.* 1997 Nov-Dec; 25(6):873-81.
2. RALL KL, MCELROY GL, KEATS TE, [A Study Of Long Term Effects Of Football Injury To The Knee](#), *Mo Med.* 1964 Jun; 61():435-8.
3. Kujala UM, Kettunen J, Paananen H, Aalto T, Battié MC, Impivaara O, Videman T, Sarna S, [Arthritis Rheum, Knee osteoarthritis in former runners, soccer players, weight lifters, and shooters](#), *Arthritis Rheum*, 1995 Apr; 38(4):539-46.
4. Repo RU, Finlay J, Survival of articular cartilage after controlled impact, *J Bone Joint Surg Am.* 1977 Dec; 59(8):1068-76.
5. Tveit M, Rosengren BE, Nilsson JÅ, Karlsson M, Former male elite athletes have a higher prevalence of osteoarthritis and arthroplasty in the hip and knee than expected, *Am J Sports Med.* 2012 Mar; 40(3):527-33.
6. [Josef Smolen](#), [Edward C. Keystone](#), Article Navigation, [Rheumatoid arthritis: where are we now?](#) *Rheumatology (Oxford)* (2012) 51 (suppl\_5): v1-v2
7. Reynolds, G., [Why Runners Don't Get Knee Arthritis](#), the New York Times, September 25, 2013
8. Eliza F. Chakravarty, MD, MS, Helen B. Hubert, Ph.D., Vijaya B. Lingala, Ph.D., Ernesto Zatarain, MD, and James F. Fries, MD, [Long Distance Running and Knee Osteoarthritis A Prospective Study](#), *Am J Prev Med.* 2008 Aug; 35(2): 133–138.
9. Paul T. Williams, [Effects of Running and Walking on Osteoarthritis and Hip Replacement Risk](#), *Med Sci Sports Exerc.* 2013 Jul; 45(7): 1292–1297.
10. Tyler Childs Cymet, DO; Vladimir Sinkov, MD, [Does Long-Distance Running Cause Osteoarthritis?](#) *The Journal of the American Osteopathic Association*, June 2006, Vol. 106, 342-345.
11. Lars Konradsen, Else-Marie Berg Hansen, Lars Søndergaard, [Long distance running and osteoarthritis](#), *The American Journal of Sports Medicine*, Volume: 18 Issue: 4, page(s): 379-381
12. Bruce, B., Fries, J. and Lubeck, D., [Aerobic exercise and its impact on musculoskeletal pain in older adults: a 14-year prospective, longitudinal study](#), *Arthritis Research & Therapy* 2005 7: R1263
13. Amoako, A. and Pujalte, G. [Osteoarthritis in Young, Active, and Athletic Individuals](#), *Clin Med Insights Arthritis Musculoskelet Disord.* 2014; 7: 27–32.
14. Longhurst, A., [An Athlete's Guide to Knee Pain and Osteoarthritis](#), *Healthline*, January 4, 2017
15. Running and Osteoarthritis: [Does Recreational or Competitive Running Increase the Risk?](#) *Journal of Orthopaedic & Sports Physical Therapy*, 2017 Volume:47 Issue:6 Pages:391–391

16. Maroon, J., Bost, J., Maroon, A., [Natural anti-inflammatory agents for pain relief](#), Surg Neurol Int. 2010; 1: 80.
17. Kidd, B., Langford, R. and Wodehouse, T., Arthritis and pain. [Current approaches in the treatment of arthritic pain](#), Arthritis Research & Therapy 2007 9:214
18. DeAngelo, N.; Gordin, V., [Treatment of Patients With Arthritis-Related Pain](#), The Journal of the American Osteopathic Association, November 2004, Vol. 104, 2S-5S.
19. Chyu, M., Bergen, V., Brismée, J., Zhang, Y., Yeh, J., and Shen, C., [Complementary and Alternative Exercises for Management of Osteoarthritis](#), Arthritis Volume 2011 (2011), Article ID 364319, 10 pages
20. Cooney, J., Law, R., Matschke, V., Lemmey, A., Moore, J., Ahmad, Y., Jones, J., Maddison, P., and M. Thom, J., [Benefits of Exercise in Rheumatoid Arthritis](#), J Aging Res. 2011; 2011: 681640.
21. John Davis, [How to Keep Running With Arthritis Pain](#), Runners Connect
22. Mayo Clinic Staff, [Arthritis Symptoms and causes](#), Jan. 07, 2016
23. Staff Writer, [Nine Supplements to Avoid](#), Arthritis Foundation
24. Staff Writer, [SAM-e \(S-adenosylmethionine, SAMe\)](#), WebMD, December 21, 2016
25. Diana Rodriguez, [Lifestyle Changes to Manage Arthritis Pain](#), Everyday Health
26. Staff writer, [Understanding Arthritis in Athletes](#), The Orthopedic and Sports Medicine Institute (OSMI)