

Joint Pain

DNA Health Report

REPORT CATEGORIES —



JOINT & TENDON
HEALTH



PAIN

Sample Client

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DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

Personal information

NAME

Sample Client

SEX AT BIRTH

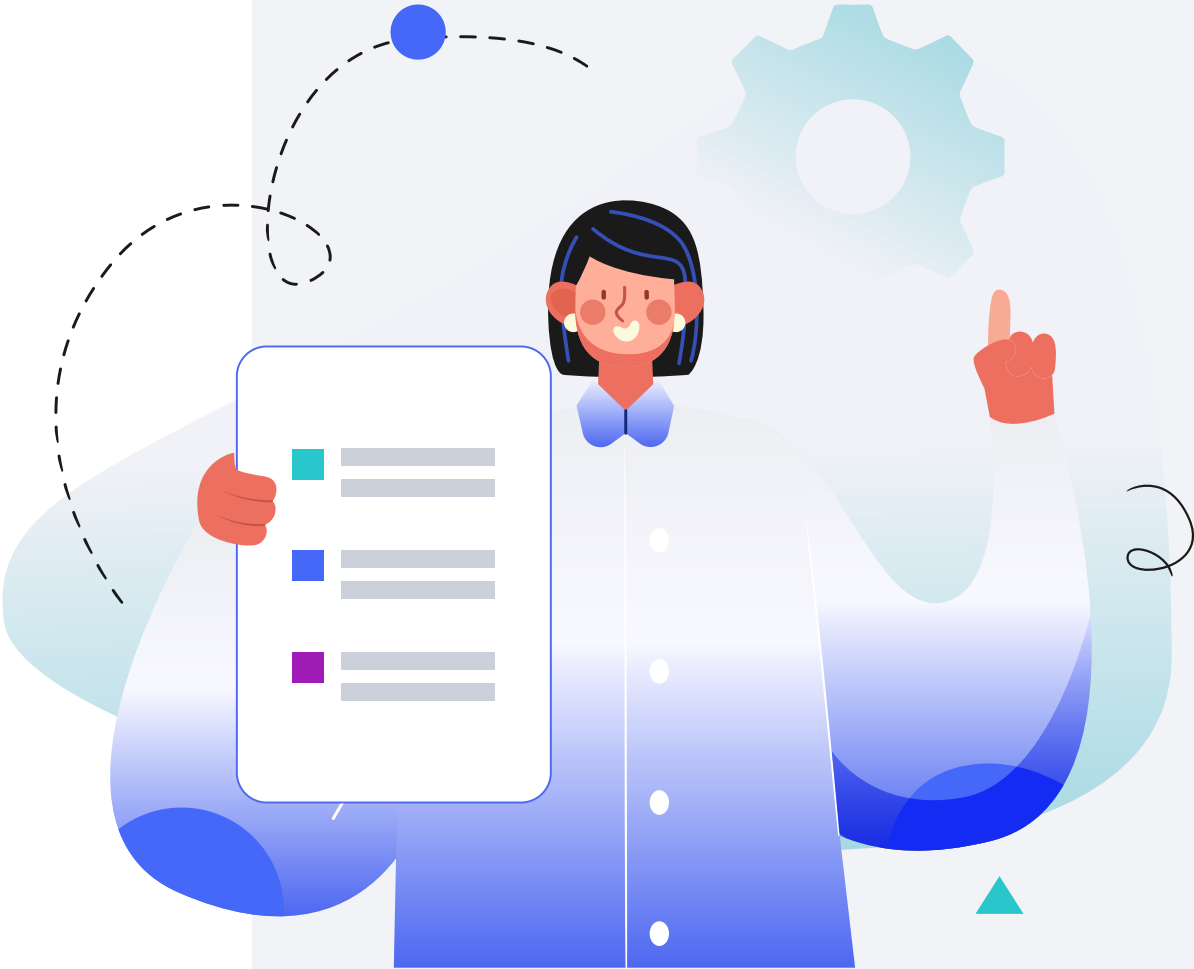
Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg



How this works

Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



Similarly, our Trait Reports look at how your DNA influences your traits.



Your DNA is like an instruction manual — it contains a lot of information.
You can think of it as a blueprint for your body.

Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



We use artificial intelligence and machine learning to analyze all this information.
We then summarize your results as a risk score or display it on a gauge.

In total, we analyze up to 83 million genetic variants.

When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

You have 2 risk alleles

Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.

Our recommendations come in four categories: lifestyle, diet, supplements and drugs.
The following icons tell you which category a recommendation falls into:



Our team of scientists also ranks each recommendation.
We rank based on impact and the strength of evidence in the medical literature.

Impact shows how strongly a recommendation will affect your health in a certain area.
Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):



Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

Recommendation Evidence

5 / 5

Recommendations that are considered effective and generally recommended by experts and medical bodies.

4 / 5

Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.

3 / 5

Recommendations that are considered possibly effective and have many studies supporting them

2 / 5

Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.

1 / 5

Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.

0 / 5

No evidence in humans.

Genotype-specific Evidence

High-quality

Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).

Medium-quality

Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).

Low-quality

Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).

Indirect

A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).

In theory

A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

Introduction

Your parents may have told you to stop cracking your knuckles or you’d get arthritis. It turns out that’s just a myth. Osteoarthritis is a complicated disease, and it doesn’t just come from “wear and tear.”

A joint is any place where two or more bones meet. Each joint has layers of protective cartilage that help it move smoothly. **In osteoarthritis, cartilage breaks down, causing pain.** Sometimes, the bone can thicken or grow in harmful ways [\[R\]](#).

There is currently no cure for osteoarthritis. However, **many strategies may help manage joint pain.** Doctors often recommend painkillers like Advil (ibuprofen) and Tylenol (acetaminophen, paracetamol). Some people use creams or supplements along with standard medical care [\[R\]](#).

Your DNA can help predict which of these strategies may work best for you.

This report focuses on the genetics of joint pain. Read more to find out:

- **How your genetics play a role in joint pain**
- **Your genetic risk score based on over 380,000 genetic variants**
- **Personalized recommendations based on your genetics**

About Joint Pain

Key Takeaways:

- Osteoarthritis will affect the majority of people over the age of 55. So, even with low genetic risk, the overall risk is still high for older people.
- About **50%** of the differences in people's chances of getting osteoarthritis may be due to genetics.
- Higher genetic risk may mean earlier onset and a greater impact from potential risk factors.
- Risk factors include: being female, joint injury or overuse, obesity, bone deformities, and diabetes.
- Click the **next steps** tab for relevant labs and lifestyle factors.

Osteoarthritis tends to affect knees, hands, and hips. People with this condition may experience [R](#), [R](#):

- Joint pain and stiffness
- Difficulty moving
- Weakness and balance problems

Most people with osteoarthritis are over the age of 55. In fact, older age is the number one risk factor for this condition. Other risk factors include [R](#), [R](#):

- Being a woman
- Joint injury or overuse
- Obesity
- Bone deformities
- Diabetes
- **Genetics**

About 50% of the differences in people's chances of getting osteoarthritis can be attributed to genetics. Genes that contribute to osteoarthritis may influence [R](#), [R](#), [R](#):

- [Collagen](#) production in the joints ([COL2A1](#), [COL11A1](#), and [COL1A1](#))
- Inflammation ([IL1B](#), [IL4R](#), [IL17A](#), [IL17F](#) and [IL6](#))
- Activity of joint cells ([ESR1](#))
- Bone formation ([FRZB](#), [VDR](#))
- Bone strength ([IGF1](#), [TGFB1](#), [TIMP3](#), and [ADAM12](#))

Genetically high levels of the following markers may be causally associated with a high risk of hip and knee



LESS LIKELY

Less likely to have osteoarthritis based on 385,825 genetic variants we looked at



PERCENTILE



Your risk is greater than 1% of the population and lower than 99% of the population.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
EPHA5	rs201194999	CC
COL11A1	rs2622873	TT
ICA1L	rs62182810	AA
SRR	rs216175	AA
ERI1	rs330050	GG
LYZ	rs317630	TT
HLA-DPB1	rs2856821	TT
CPNE1	rs2248393	CC
RAB28	rs1913707	AA
DPEP1	rs1126464	GG
FAM53A	rs798726	CT
CSK	rs35206230	TC
ANAPC4	rs34811474	GA
TGFB2	rs2785988	CA
LTBP1	rs2061027	GA
TSKU	rs1149620	TA
KIF26B	rs10218792	TG
PRDM5	rs11729628	TG
TGFB2	rs2820436	CA
SOCS2	rs2171126	TC
CDC5L	rs12154055	AG
GLIS3	rs10974438	CA
TMEM241	rs10502437	GA
SGO1	rs62242105	AG

osteoarthritis:

- IGF-1 [\[R\]](#), [\[R\]](#)
- Testosterone [\[R\]](#)

In contrast, genetically high ApoB levels may be associated with a lower risk [\[R\]](#).

GENE	SNP	GENOTYPE
PARD6G	rs1039257158	CC
SCUBE1	rs528981060	GG
SLC39A8	rs13107325	CC
TGFB1	rs75621460	GG
TGFA	rs3771501	GG
H4C8	rs115740542	TT
COL27A1	rs919642	AA
SLC44A2	rs1560707	GG
SLC44A2	rs10405617	GG
MPPED2	rs11031191	GG

The number of "risk" variants in this table doesn't necessarily reflect your overall result.

Your Recommendations

Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

You’ll likely find common healthy recommendations at the top of the list because they are often the most impactful and most researched.

		DOSAGE			DOSAGE
1	Exercise At Least One Hour a Day	1 hour	2	Tai Chi	1 hour
3	PEMF	30 minutes	4	Avocado/Soybean Unsaponifiables (ASU)	300 mg
5	SAM-e	200 mg	6	Turmeric	
7	Shock Wave Therapy		8	Limit Calorie Intake	
9	Curcumin	500 mg	10	Topical Capsaicin	
11	Chondroitin	800 mg	12	Yoga	30 minutes
13	Transcutaneous Electrical Nerve Stimulation (TENS)	30 minutes	14	Physical Therapy	30 minutes
15	Aerobic Exercise (Cardio)	1 hour	16	Massage	30 minutes
17	Hot and Cold Applications	15 minutes	18	Devil’s Claw	100 mg
19	Hot Applications	20 minutes	20	Cold Applications	15 minutes
21	Topical Black Seed Oil		22	Topical Arnica	
23	Cat's Claw	250 mg	24	Sweet Wormwood	100 mg
25	Niacinamide (Vitamin B3)	1000 mg	26	Topical Globemallow	
27	Andrographis	300 mg	28	Low-Level Laser Therapy (LLLT)	30 seconds
29	Strength Training	1 hour	30	Acupressure	1 minute

31	Collagen (Non-Hydrolyzed)	5 g	32	Aquatic Therapy	30 minutes
33	Strontium Citrate	125 mg	34	Dietary Omega-3 Fatty Acids	
35	Chair Yoga	30 minutes	36	L-Carnitine	500 mg
37	Pilates	30 minutes	38	Mediterranean Diet	
39	Apply Heat	15 minutes	40	Topical Cabbage Leaf	
41	Stretching	15 minutes	42	Willow Bark	240 mg
43	Garlic Supplement	200 mg	44	Boswellia	350 mg
45	Aquatic Exercise	1 hour	46	Collagen Peptides	10 g
47	Capsaicin		48	Stinging Nettle	300 mg
49	Ginger	500 mg	50	Pycnogenol	100 mg
51	Progressive Muscle Relaxation and Guided Imagery	30 minutes	52	Backward Walking	10 minutes
53	Avoid PAHs Exposure		54	Manual Joint Mobilization	30 minutes
55	Myofascial Release	5 minutes	56	Walking	30 minutes
57	Whole-Body Vibration	15 minutes	58	Bromelain Enzyme Blends	500 mg
59	Krill Oil	1 g	60	Core-Strengthening Exercises	20 minutes
61	Glucosamine	1500 mg	62	Glucosamine + Chondroitin	500 mg
63	Pomegranate		64	Rose Hip	500 mg
65	Strawberries		66	Soy Protein	20 g
67	Spearmint		68	Dietary Antioxidants	
69	Acupuncture	1 hour	70	Bromelain	

71	Green-Lipped Mussel Extract	1000 mg
72	Avoid Lead Exposure	
73	Aromatherapy	30 minutes
74	Avoid Cadmium Exposure	
75	Methylsulfonylmethane (MSM)	1 g
76	Hyaluronic Acid	120 mg
77	Cupping Therapy	15 minutes
78	Aquatic HIIT	30 minutes
79	Hydroxytyrosol	5 mg
80	Black Seed (Black Cumin)	1000 mg
81	Cucumber Extract (Q-Actin™)	
82	Chinese Skullcap And Acacia	
83	Curcumin Longvida	1 g
84	Artemisia Extract	200 mg
85	Rosemary	400 mg
86	Choline-Stabilized Orthosilicic Acid (Ch-OSA)	5 mg
87	Palmitoylethanolamide (PEA)	
88	Tamarind	500 mg
89	Bitter Melon Supplement	500 mg
90	Limit Coffee Intake	
91	Passion Fruit Peel Extract	150 mg
92	Alpha-Lipoic Acid	600 mg
93	Tart Cherries	
94	Swimming	30 minutes
95	Iyengar Yoga	1 hour
96	Curcumin BCM95	1000 mg
97	Papain and Bromelain	500 mg
98	Vitamin E	200 iu
99	N-Acetyl-Glucosamine (NAG)	500 mg
100	Clove	500 mg
101	Low-Intensity Exercise	1 hour
102	Lactobacillus Casei	10 billion CFU
103	Hatha Yoga	1 hour
104	Black Seed Oil	2 tsp
105	Alpinia Galanga	300 mg
106	N-Acetyl-Glucosamine (NAG) And Chondroitin	1500 mg
107	Glucosamine And MSM	
108	Curcumin Theracurmin	180 mg
109	Guggul	500 mg
110	Blueberry Supplements	500 mg

111	Probiotics	30 billion CFU	112	Omega-3 (Fish Oil)	500 mg
113	Chinese Skullcap	300 mg	114	Guided Imagery	30 minutes
115	Dietary L-Alanine		116	Progressive Muscle Relaxation	10 minutes
117	Dietary Vitamin A		118	Avoid Iron Supplements (Unless Deficient)	
119	Acacia Fiber	5 g			

1



Exercise At Least One Hour a Day

IMPACT

4 / 5

EVIDENCE

5 / 5

How to implement

Dedicate a minimum of 60 minutes to moderate-intensity activities such as brisk walking, swimming, or cycling. Do this most days of the week, aiming for at least 5 days to optimize benefits.

TYPICAL STARTING DOSE

1 hour

Description

[Exercise](#) can do wonders for your health. It can help you lose weight, improve your heart health, boost your mood, and more [\[R\]](#).

There are many ways you can be active. You can walk, run, swim, dance, or play team sports. **Everything counts, and it's never too late to start!**

Try to get at least **60 minutes of moderate physical activity on most days**, including walking. **Getting a mix of cardio (min 150 min/day) and strength training (min 2 times a week) may be optimal.**

How it helps

According to health experts, gentle [exercise](#) is one of the best things you can do to manage joint pain [\[R, R, R, R, R\]](#).

Types of exercise that can be good for joint pain include [\[R, R, R, R, R\]](#):

- Walking
- Moderate strength training
- Aquatic exercise
- Tai chi
- Yoga

Aquatic exercise includes swimming and water aerobics. This type of exercise improves strength and flexibility without putting a lot of strain on the painful joints. People tend to stick to aquatic exercise better than other types of training because it’s more comfortable [\[R, R\]](#).

Yoga and tai chi combine exercise and meditation. They may improve joint pain and stiffness [\[R, R, R, R\]](#).

2



Tai Chi

IMPACT

4 / 5

EVIDENCE

3 / 5

How to implement

Practice Tai Chi for 30 to 60 minutes at least twice a week. Choose a quiet, spacious area and follow along with a qualified instructor, either in person at a class or through an online video tutorial, to ensure proper technique and maximum benefit.

TYPICAL STARTING DOSE

1 hour

Description

Tai Chi is a traditional Chinese mind-body practice involving slow, flowing movements and deep breathing. It is known for its potential to reduce stress, improve balance, and enhance overall physical and mental well-being.

Tai chi involves gentle movements and breathing to strengthen and relax the mind and body. Practicing tai chi may help [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Manage pain
- Improve fitness
- Increase well-being
- Improve sleep and mood

How it helps

Experts recommend tai chi for people with osteoarthritis. Tai chi may help by improving [\[R\]](#), [\[R\]](#):

- Strength
- Balance
- Self-care
- Mood

Regular practice of tai chi may reduce joint pain and stiffness in people with osteoarthritis. However, **most studies are small and of low quality** [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

3



PEMF

IMPACT

3 / 5

EVIDENCE

4 / 5

How to implement

Use a PEMF (Pulsed Electromagnetic Field) device for 30 minutes to 2 hours daily. Position the device as directed by the manufacturer, typically over the area of concern or discomfort. It can be part of your daily routine, such as during rest or activity, without a specific end date unless advised by a healthcare professional.

TYPICAL STARTING DOSE
30 minutes

Description

PEMF, or Pulsed Electromagnetic Field therapy, involves the use of electromagnetic fields to stimulate cellular activity within the body. This therapy is believed to help improve circulation, reduce pain and inflammation, and enhance cellular function.

How it helps

PEMF (Pulsed Electromagnetic Field) therapy can help joint pain by encouraging the body's natural recovery processes, such as enhancing blood circulation and tissue healing. Over time, this can alleviate pain and inflammation in the joints.

Six meta-analyses (the largest one with 16 trials) concluded that low-frequency (≤ 100 Hz) PEMF improves physical function, pain (with mixed results), and stiffness (with mixed results) in people with knee and hand osteoarthritis, but not cervical osteoarthritis. Sessions shorter than 30 minutes were found most effective [R, R, R, R, R, R].

4

Avocado/Soybean Unsaponifiables (ASU)

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Take 300 milligrams of avocado/soybean unsaponifiables (ASU) supplement once daily with food. This supplementation should be continued daily for a minimum of three to six months to observe potential benefits in joint health.

TYPICAL STARTING DOSE

300 mg

Description

Avocado/soybean unsaponifiables are natural extracts derived from avocados and soybeans. They are used as dietary supplements and are believed to support joint health, reduce inflammation, and alleviate symptoms of osteoarthritis.

Avocado/soybean unsaponifiables (ASU) are extracts from avocados and soybean oil [R].

These extracts **support joint health** [R].

How it helps

Taking ASU (300-600 mg a day for 1.5 months or more) may slow the progression of osteoarthritis. It may also reduce pain and improve joint function [R, R, R, R, R, R].

Note that ASU may be less effective for hip osteoarthritis [R, R].

PERSONALIZED TO YOUR GENES

Your **COL11A1** gene variant is linked to joint pain. This gene plays a role in the production of collagen. ASU may boost collagen production [R, R, R, R].

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
COL11A1	rs4338381	AA	

5



SAM-e

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Take 400-1600 mg of SAM-e as a supplement daily, preferably on an empty stomach to enhance absorption. It is often recommended to start with low dosage and observe how your body responds over a few weeks, adjusting as necessary under the guidance of a healthcare provider.

TYPICAL STARTING DOSE

200 mg

Description

SAM-e is a chemical that helps maintain liver and brain health. Your body makes SAM-e from the amino acid *methionine*, but it’s also available as a supplement [\[R\]](#).

SAM-e supplementation may help with:

- Joint pain [\[R\]](#)
- Liver disease [\[R\]](#)
- Depression [\[R\]](#)

Please note: SAM-e may not be safe for people with a bipolar disorder. It may also interact with 5-HTP, St. John’s wort, and different medications. Combining it with antidepressants can be dangerous and even life-threatening. Never take SAM-e supplements without consulting your doctor [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

SAM-e (600-1200 mg/day) may relieve pain and stiffness from osteoarthritis. It likely helps reduce joint inflammation and build cartilage [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

6



Turmeric

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Incorporate 500-1000 mg of turmeric into your daily diet, either by adding ground turmeric spice to your food, such as in curries, soups, and smoothies, or by taking a dietary turmeric supplement. This should be done daily for at least 8 weeks to observe potential health benefits.

Description

Turmeric is a bright yellow spice derived from the root of the *Curcuma longa* plant. It contains curcumin, a potent antioxidant and anti-inflammatory compound. Turmeric is used for various health conditions, including reducing inflammation, alleviating joint pain, and supporting digestive health.

How it helps

Turmeric or curcumin extract supplementation (for 4 weeks to 8 months) may improve pain and physical function in people with knee osteoarthritis. It also noted that the therapeutic response of turmeric was comparable to some standard painkillers but with fewer side effects [\[R\]](#), [\[R\]](#).

7



Shock Wave Therapy

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Schedule and attend sessions for extracorporeal shock wave therapy (ESWT) with a qualified healthcare provider. Typically, treatments may involve 1 to 3 sessions a week over a span of 3 to 4 weeks, depending on the condition being treated and the severity of symptoms.

Description

Extracorporeal shockwave therapy is a medical treatment that uses shockwaves to stimulate healing and reduce pain in various musculoskeletal conditions. It is often used for conditions such as plantar fasciitis and tendinitis.

In extracorporeal shockwave therapy, sound waves are emitted and passed through parts of the body. Doctors use it to help reduce pain and stimulate tissue recovery in people [\[R\]](#), [\[R\]](#).

How it helps

Two meta-analyses (the largest one with 12 studies and 734 participants) concluded that extracorporeal shock wave therapy improves pain in the short term and functionality in all follow-ups, and improves the effectiveness of physiotherapy, in people with knee osteoarthritis [\[R\]](#), [\[R\]](#).

8



Limit Calorie Intake

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Consume fewer calories than your body needs for maintenance. Calculate your daily caloric needs using an online calculator based on your sex, age, weight, height, and activity level, then reduce that number by 500-1000 calories per day to safely lose 1-2 pounds per week. Adjust the caloric intake as needed based on your progress.

Description

People often limit their calorie intake to help them lose weight [R, R]. However, moderate calorie restriction may also help you stay healthier and age better [R, R, R, R, R].

There are different ways to take in fewer calories. You can:

- **Eat low-calorie foods**, such as those rich in proteins, fiber, and water. Avoid fatty and sugary foods, which tend to be high in calories [R].
- Try **intermittent fasting**, which involves changing how often you eat [R].

If you are restricting your calories, make sure your diet remains healthy and balanced. Experts also recommend being physically active, to prevent the loss of muscle and bone mass.

How it helps

Health experts strongly recommend weight loss to overweight or obese people with joint problems [R, R].

You may lose weight by changing your diet. Having a healthy weight may help improve joint function and quality of life in people with osteoarthritis [R, R, R, R, R].

Please note: Limiting calorie intake too much or fasting for too long can cause malnutrition, anemia, eating disorders, and other health problems. Talk to your doctor before making any drastic changes to your calorie intake [R].

9



Curcumin

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Take a 500 mg curcumin supplement daily with food. To enhance absorption, take it with a meal that contains fats or oils since curcumin is fat-soluble.

TYPICAL STARTING DOSE
500 mg

Description

Curcumin is a compound found in turmeric known for its anti-inflammatory and antioxidant properties. It has been studied for its potential to reduce inflammation, support joint health, and contribute to overall well-being.

[Turmeric](#) is a yellow spice from India. It may reduce inflammation and [oxidative stress](#) [\[R\]](#).

The most important active compound in turmeric is **curcumin**. People use curcumin for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Joint pain
- Hay fever
- Mood
- High blood sugar
- Gut health
- Liver health

How it helps

Curcumin (turmeric extract) may reduce inflammation and pain in the joints. It may even protect cartilage [\[R\]](#), [\[R\]](#).

Studied doses include 1-2 g of curcumin per day for 1-3 months. Some supplements may work in lower doses (170-200 mg) because they contain *bioavailable curcumin*. This means they are easily absorbed [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Note that curcumin is hard to absorb. Look for supplements with *bioavailable* curcumin, which is easier to absorb. Combining it with [piperine](#) (a compound in black pepper) may also help [\[R\]](#), [\[R\]](#).

Please note: curcumin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using curcumin or turmeric supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

 PERSONALIZED TO YOUR GENES

Your [HLA-DPB1](#) gene variant is linked to joint pain. HLA proteins may contribute to inflammation. Curcumin may help reduce inflammation caused by HLA [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
HLA-DPB1	rs9277552	CC	

10

Topical Capsaicin

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Apply a capsaicin cream or gel to the affected area 3 to 4 times daily. Make sure the skin is clean and intact before application. Avoid contact with eyes, mouth, and other sensitive areas. Use consistently for several weeks to see improvement.

Description

Capsaicin is a compound found in chili peppers and is used topically in creams and patches for its potential to alleviate pain related to conditions like arthritis, neuropathy, and muscle soreness.

[Capsaicin](#) is the compound that makes chili peppers spicy [\[R\]](#).

People use topical capsaicin to relieve pain and oral capsaicin to aid weight loss [\[R\]](#), [\[R\]](#).

In the short term, capsaicin causes pain. However, **if you’re exposed to a lot of capsaicin over a long period of time, it can reduce your pain sensitivity** [\[R\]](#), [\[R\]](#).

***Please note:** Capsaicin may irritate the skin. Consult your doctor if the irritation is severe or lasts longer than 4 weeks. If capsaicin gets in your eyes, flush them with water immediately and consult your doctor* [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

Most health experts recommend topical capsaicin for knee osteoarthritis [\[R\]](#), [\[R\]](#), [\[R\]](#).

However, capsaicin may not help with pain in deep joints like the hip [\[R\]](#).

It also may not be the best choice for painful joints in the hand. This is because it’s more likely to get into the eye when applied to the hands [\[R\]](#).

11



Chondroitin

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Take 400 mg of chondroitin sulfate orally, three times a day or 800 mg once daily. This supplement regimen is typically followed for up to 6 months to support joint health.

TYPICAL STARTING DOSE

800 mg

Description

Chondroitin is often used as a supplement to support joint health and reduce the symptoms of osteoarthritis. It may help improve joint mobility and reduce discomfort in individuals with joint-related issues.

Chondroitin is a major component of cartilage. It helps keep cartilage healthy, and it provides the building blocks for the body to produce new cartilage.

People often combine chondroitin with glucosamine as supplements for joint health [\[R\]](#), [\[R\]](#).

How it helps

Five meta-analyses (the largest one with 18 trials) concluded that chondroitin sulfate improves pain, physical function, and minimum joint space width (by 0.07-0.13 mm/year) in people with knee osteoarthritis. Pharmaceutical-grade preparations and doses higher than 1200 mg/day were found most effective. However, a meta-analysis of 50 trials found the certainty of the evidence was very low [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Chondroitin may help due to its anti-inflammatory and shock-absorbing properties.

12



Yoga

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Practice yoga for at least 20 to 30 minutes a day, most days of the week. Choose a style that matches your fitness level and goals, and consider attending a class or using online resources to guide your practice.

TYPICAL STARTING DOSE

30 minutes

Description

Yoga is a mind-body practice that combines physical postures, breathing exercises, and meditation. It enhances flexibility, strength, and mental well-being and is used for stress reduction, relaxation, and overall health improvement.

[Yoga](#) combines breathing, stretching, and relaxation techniques. Practicing yoga may help [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Reduce [stress](#)
- Improve fitness
- Lower blood pressure and heart rate
- Manage pain

How it helps

Regular yoga training may **improve joint pain, stiffness, and function** in people with osteoarthritis. Yoga may also help improve mood [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Most studies are small and of low quality. Hence, some experts say there is not enough evidence to recommend yoga for osteoarthritis [\[R\]](#).

Please note: *Choose a yoga program that avoids moves that cause joint pain. Consult your doctor or yoga instructor for more information* [\[R\]](#).

13



Transcutaneous Electrical Nerve Stimulation (TENS)

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Apply TENS unit electrode pads around the area in pain; begin with the device set to a low setting and gradually increase intensity to a comfortable level. Use the device for 15-30 minutes per session for pain relief, and it can be used multiple times a day as needed.

TYPICAL STARTING DOSE

30 minutes

Description

TENS is a therapy that uses low-level electrical currents to relieve pain by stimulating the nerves. It's commonly used as a non-invasive method to manage various types of pain, such as musculoskeletal pain or chronic pain conditions.

How it helps

In people with knee osteoarthritis, TENS may reduce pain while improving physical function and walking ability. TENS may be more effective than electroacupuncture but less than interferential current [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

14

Physical Therapy

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Attend physical therapy sessions 2-3 times per week for a duration of 4-6 weeks, depending on your specific condition and the advice of your healthcare provider. Each session typically lasts about 30-60 minutes, where a licensed therapist will guide you through targeted exercises, stretches, and possibly other treatments like electrical stimulation or ultrasound therapy.

TYPICAL STARTING DOSE

30 minutes

Description

Physical therapy is a therapeutic practice focused on optimizing physical function and mobility through specialized exercises, manual techniques, and therapeutic modalities. It helps individuals recover from injuries, manage chronic conditions, and improve overall physical well-being by enhancing strength, flexibility, and pain management.

Physical therapy (physiotherapy) helps people regain or maintain their ability to move [\[R\]](#).

Physical therapy can involve [\[R\]](#):

- Joint or muscle exercises
- Corrective movements
- Massage
- Education and advice

People mainly use physical therapy to help with [\[R\]](#), [\[R\]](#):

- Pain and injury
- Stroke recovery
- Chronic health conditions
- Headaches

Mirror therapy uses a mirror placed between the arms or legs. The image of a moving arm or leg gives the illusion of normal movement in the affected one. This therapy stimulates different brain regions and aims to improve mobility [\[R\]](#).

Constraint-induced movement therapy is another type of physical therapy. It consists of restraining the healthy leg or arm to increase the use of the affected one [\[R\]](#).

How it helps

A study found that physical therapy, including exercise and manual therapy, significantly improved pain and function in patients with knee and hip osteoarthritis. This included improvements in walking speed, muscle strength, and daily activities such as climbing stairs and getting up from a chair [\[R\]](#).

Another study evaluated the effectiveness of manual physical therapy and exercise in osteoarthritis of the knee. It concluded that these treatments were effective for improving function, decreasing pain and stiffness, and increasing the distance walking in 6 minutes [\[R\]](#).

Research also supports that at least 12 supervised sessions of physical therapy are required initially to obtain sufficient clinical benefit for patients with knee and hip osteoarthritis. Supervised, active treatment helps maintain these effects over the long term [\[R\]](#).

15

Aerobic Exercise (Cardio)

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Engage in at least 150 minutes of moderate-intensity aerobic exercise or 75 minutes of vigorous-intensity activity each week. Distribute this time over at least 3 days per week, avoiding consecutive days of vigorous exercise to allow for recovery.

TYPICAL STARTING DOSE

1 hour

Description

Engaging in regular aerobic exercise, such as running, swimming, or cycling, offers numerous health benefits, including improved cardiovascular fitness, weight management, and mood enhancement. It supports overall physical and mental well-being while reducing the risk of chronic diseases.

Cardio, short for cardiovascular exercise, is any type of physical activity that temporarily increases your heart rate. Examples include **running, cycling, swimming, and brisk walking**.

Regular cardio exercise has many benefits for your overall health. It can help lower your risk of heart disease and diabetes, support weight loss, and improve your mood and energy levels. To get the most out of cardio, try to do it for at **least 30 minutes, 3-5 times a week**.

Interval training is a type of cardio that combines periods of high-intensity training with brief rest periods.

How it helps

Aerobic exercise promotes circulation, bringing nutrients to joints, reducing inflammation, and strengthening the muscles that support joints. Ultimately, this decreases joint pain and promotes overall joint health.

A meta-analysis of 8 studies found both aerobic and resistance training effective at reducing pain in people with knee osteoarthritis [\[R\]](#).

Two meta-analyses (the largest one with 103 trials and 9134 participants) found that aerobic exercise is most effective at improving pain and performance. Aerobic exercise was more effective with an increased number of supervised sessions and when practiced 3x/week [\[R, R\]](#).

16



Massage

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Schedule a massage session, ideally with a licensed therapist, for 30-60 minutes, once a week. Choose a type of massage that suits your specific needs, such as Swedish for relaxation or deep tissue for muscle tension.

TYPICAL STARTING DOSE

30 minutes

Description

Massage therapy involves the manipulation of soft tissues to relax muscles, reduce stress, and alleviate pain. It can improve circulation, promote relaxation, and provide relief from various physical and mental health concerns.

If you’ve ever had a professional [massage](#), then you probably know how much good it can do. Massages may help with [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Anxiety
- Pain
- Fatigue

Reflexology is a type of massage. It involves applying pressure to specific parts of your feet or hands. In theory, by pressing on these areas, you can relieve tension from other parts of the body [\[R\]](#).

Acupressure is a similar technique, in which pressure points are used to help with stress and pain [\[R\]](#), [\[R\]](#).

How it helps

Massage therapy may reduce pain and stiffness in people with osteoarthritis. Massage works best in combination with other strategies, such as exercise and physiotherapy [\[R\]](#), [\[R\]](#), [\[R\]](#).

Massage may help by [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Increasing blood flow
- Relaxing the muscles
- Lowering inflammation
- Promoting the release of feel-good chemicals

Some people like to use essential oils for massage. **Massage with [lavender](#) or [ginger](#) oil may help with joint pain** [\[R\]](#), [\[R\]](#), [\[R\]](#).

However, health experts say there’s **not enough evidence to recommend massage for osteoarthritis** [\[R\]](#), [\[R\]](#).

17



Hot and Cold Applications

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Alternate applying a warm compress for 15-20 minutes, then a cold pack for 15-20 minutes to the affected area. Repeat this cycle 3-4 times per day for up to one week or until symptoms improve.

TYPICAL STARTING DOSE

15 minutes

Description

Alternating hot and cold applications, such as hot and cold packs, can help reduce pain and inflammation in sore muscles and joints. This method, known as contrast therapy, can promote muscle relaxation and improve circulation.

People use hot and cold applications to **relieve pain, improve blood flow, and more** [R, R].

Types of hot applications include [R, R]:

- Heating pads
- Hot baths
- Saunas

Types of cold applications include [R, R]:

- Ice packs
- Ice baths

How it helps

According to health experts, hot and cold applications may help with osteoarthritis. They relieve joint pain in different ways [R, R, R]:

- Hot applications increase blood flow to the affected area. **This relaxes muscles and eases stiffness.**
- Cold applications decrease blood flow to the affected area. **This lowers swelling and inflammation. It also has a numbing effect.**

Methods that may help with pain from osteoarthritis include:

- Applying a hot pack or heating pad for 20 minutes twice a day for 4 weeks [R, R]
- Wearing a heat-retaining sleeve 12 hours a day for 4 weeks [R]
- Wearing a heated wrist wrap 8 hours a day for 3 days [R]
- Applying an ice pack for 30 minutes twice a day for 1 day [R]

Hot and cold applications may be equally effective at improving pain, joint function, and quality of life. Choose the method you prefer because you will be more likely to stick to it [R, R].

18



Devil's Claw

IMPACT

3 / 5

EVIDENCE

2 / 5

How to implement

Take 600-2000 mg of devil's claw supplement daily, preferably with a meal to help with absorption and to minimize potential digestive discomfort.

TYPICAL STARTING DOSE

100 mg

Description

Devil's claw is an herbal remedy traditionally used to manage conditions like arthritis and pain. Some studies suggest it may have anti-inflammatory and analgesic effects, making it a natural option for pain relief.

Devil's claw (*Harpagophytum procumbens*) is an herb used in traditional medicine. Its name comes from its hooked appearance [\[R\]](#).

People take devil's claw to potentially help with pain [\[R\]](#).

How it helps

Devil's claw may relieve inflammation and pain [\[R\]](#).

Supplementing with devil's claw extract may improve joint pain and stiffness from osteoarthritis. A dosage of **2.5 g a day for 8-16 weeks** showed beneficial effects [\[R\]](#), [\[R\]](#), [\[R\]](#).

Some products combine devil's claw with [stinging nettle](#), rose hip, [bromelain](#), or [turmeric](#). These blends may also improve osteoarthritis symptoms [\[R\]](#), [\[R\]](#).

19



Hot Applications

IMPACT3 / 5

EVIDENCE2 / 5

How to implement

Apply a hot pack, heating pad, or a warm towel to the affected area for 15-20 minutes at a time. Do this several times a day, especially before activities that increase pain.

TYPICAL STARTING DOSE

20 minutes

Description

The use of hot applications, such as heating pads or warm compresses, can help relieve muscle tension, reduce pain, and improve blood flow to affected areas. It is a common approach for managing muscular discomfort and promoting relaxation.

People use hot applications to relieve pain, improve blood flow, and help muscles relax [R, R].

Types of hot applications include [R, R]:

- Heating pads
- Hot baths
- Saunas

How it helps

According to health experts, hot applications may help with osteoarthritis. They relieve joint pain by increasing blood flow to the affected area. This relaxes muscles and eases stiffness [R, R, R].

Methods that may help with pain from osteoarthritis include:

- Applying a hot pack or heating pad for 20 minutes twice a day for 4 weeks [R, R]
- Wearing a heat-retaining sleeve 12 hours a day for 4 weeks [R]
- Wearing a heated wrist wrap 8 hours a day for 3 days [R]

20



Cold Applications

IMPACT3 / 5

EVIDENCE2 / 5

How to implement

Apply a cold pack or a bag of frozen peas wrapped in a towel to the affected area for 15-20 minutes, every 2-3 hours during the first 48 hours of experiencing pain or swelling.

TYPICAL STARTING DOSE

15 minutes

Description

Cold applications, such as ice packs, can help reduce inflammation, alleviate pain, and promote muscle recovery after injuries or intense physical activity. Applying cold can provide temporary relief from discomfort and support the body's natural healing processes.

People use cold applications to relieve pain, reduce inflammation, and more [\[R, R\]](#).

Types of cold applications include [\[R, R\]](#):

- Ice packs
- Ice baths
- Cryotherapy

How it helps

According to health experts, cold applications may help with osteoarthritis. They relieve joint pain by decreasing blood flow to the affected area. This lowers swelling and inflammation. It also has a numbing effect [\[R, R, R\]](#).

Applying an ice pack for 30 minutes twice a day may help with pain from osteoarthritis [\[R\]](#).

21



Topical Black Seed Oil

IMPACT3 / 5

EVIDENCE2 / 5

How to implement

Apply a thin layer of black seed oil to the affected area of the skin. Gently massage it in until fully absorbed. Repeat this application twice daily, in the morning and at night before bed, for a period of 1 to 2 months to observe beneficial effects.

Description

Black seed oil is a topical application derived from the seeds of the Nigella sativa plant. It contains the compound thymoquinone and is used for its potential anti-inflammatory and antioxidant properties, making it beneficial for skin health and wound healing.

[Black seed](#) (black cumin) and its oil are used in cooking and traditional medicine [\[R\]](#).

People use black seed for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Asthma
- High blood sugar
- High blood pressure
- Allergies
- Joint pain

How it helps

In people with osteoarthritis, **rubbing black seed oil on the affected joints may relieve pain**. You can apply black seed oil to painful joints up to three times a day [\[R\]](#), [\[R\]](#).

Black seed oil may help by reducing inflammation [\[R\]](#).

 PERSONALIZED TO YOUR GENES

People with your [NFKB1A](#) gene variant may be more prone to joint pain. This gene plays a role in inflammation. Black seed oil may help reduce inflammation [\[R\]](#), [\[R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
NFKB1A	rs8904	AG	

22



Topical Arnica

IMPACT

3 / 5

EVIDENCE

2 / 5

How to implement

Apply arnica cream or gel to the affected area 2 to 3 times daily for up to 3 weeks. Ensure the skin is clean and unbroken before application.

Description

Arnica is a natural plant-derived remedy often used topically for its potential to reduce bruising, inflammation, and muscle soreness. It can be applied to areas of the body experiencing minor injuries or trauma.

[Arnica](#) is a daisy-like flower that grows in the mountains. People use arnica creams for [R](#), [R](#):

- Muscle or joint pain
- Swelling
- Bruises

How it helps

Arnica may lower inflammation and prevent collagen breakdown [R](#), [R](#), [R](#).

Arnica gel or cream may help with joint pain. Try applying it 2-3 times a day for several weeks [R](#), [R](#).

***Please note: Do not ingest arnica.** Ingesting arnica can cause drowsiness, vomiting, and increased heart rate. To avoid potential drug interactions, talk to your doctor before using arnica creams or gels on your skin [R](#), [R](#), [R](#).*

 PERSONALIZED TO YOUR GENES

Your ***NFAT5*** gene variant is linked to joint pain. This gene helps make a protein that triggers inflammation. Arnica may block NFAT5 and other inflammatory proteins [R](#), [R](#), [R](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
NQO1	rs6499244	AT	

23



Cat's Claw

IMPACT

3 / 5

EVIDENCE

1 / 5

How to implement

Take 250-350 mg of cat's claw extract daily, preferably with a glass of water. This dosage can be split into two separate doses, one in the morning and one in the evening. Continue this regimen for at least 4 to 8 weeks to observe potential benefits.

TYPICAL STARTING DOSE

250 mg

Description

Cat's claw is an herbal supplement derived from a tropical vine known for its potential anti-inflammatory and immune-boosting properties. It's used in traditional medicine to support joint health and overall well-being.

Cat's claw (*Uncaria tomentosa* and *Uncaria guinaensis*) is a vine native to the Amazon rainforest and other tropical regions of Central and South America. Its curved thorns look like cat's claws [R].

Cat's claw has been used for centuries in South American traditional medicine for [R]:

- Fever
- Fatigue
- Muscle and joint pain

How it helps

Powdered cat's claw (100 mg/day for 4 weeks) may improve pain and tenderness in people with osteoarthritis [R].

Cat's claw may help with osteoarthritis by reducing inflammation [R].

24



Sweet Wormwood

IMPACT3 / 5

EVIDENCE1 / 5

How to implement

Take a sweet wormwood supplement as an extract or tablet form, following the manufacturer's guidelines on dosing, which typically ranges from 100 to 200 mg daily. It's usually taken for no longer than 4 to 6 weeks.

TYPICAL STARTING DOSE

100 mg

Description

Sweet wormwood (*Artemisia annua*) is a plant native to Asia and has been traditionally used in Chinese herbal medicine as a potent antimalarial compound. This is due to the compound artemisinin and its derivative, which are widely used in modern medicine to treat malaria.

Sweet wormwood (*Artemisia annua*) is a herb used in traditional Chinese medicine. It may help combat infections by parasites, viruses, fungi, and bacteria. In line with this, people have used sweet wormwood for [\[R\]](#), [\[R\]](#):

- Malaria
- Tuberculosis
- Lice
- Scabies
- Dysentery

Artemisinin, the most important anti-malarial drug, was originally isolated from sweet wormwood [\[R\]](#).

How it helps

Sweet wormwood extract (up to 300 mg/day for at least 12 weeks) may improve joint pain, stiffness, and function in people with osteoarthritis [\[R\]](#), [\[R\]](#).

Sweet wormwood may help with osteoarthritis by reducing inflammation [\[R\]](#).

25



Niacinamide (Vitamin B3)

IMPACT

3 / 5

EVIDENCE

1 / 5

How to implement

Take 500 mg of niacinamide (vitamin B3) orally, twice daily with a glass of water, preferably with meals to avoid stomach upset. This supplementation can be continued long-term for maintaining overall skin health and supporting metabolic functions.

TYPICAL STARTING DOSE
1000 mg

Description

Niacinamide, also known as vitamin B3, is a water-soluble vitamin that plays a crucial role in skin health and may help reduce inflammation, improve skin texture, and alleviate symptoms of certain skin conditions when applied topically.

[Niacinamide](#) is one of two forms of [vitamin B3](#). Vitamin B3 supports your nervous system, skin, gut, and more [\[R\]](#).

Vitamin B3 deficiency is called pellagra. It may cause diarrhea, dermatitis, and dementia. Niacinamide may help with pellagra because the body converts it into vitamin B3. Niacinamide may also help with [\[R\]](#):

- Acne [\[R\]](#)
- Diabetes [\[R\]](#)
- Osteoarthritis [\[R\]](#)

How it helps

Niacinamide (up to 3,000 mg/day for 12 weeks) may improve joint function in people with osteoarthritis [\[R\]](#).

Niacinamide may help with osteoarthritis by reducing inflammation [\[R\]](#), [\[R\]](#).

Please note: *Oral niacin, the other form of vitamin B3, can cause skin flushing* [\[R\]](#).

26



Topical Globemallow

IMPACT3 / 5

EVIDENCE1 / 5

How to implement

Apply a thin layer of globemallow extract or cream directly to the affected area of the skin 1-2 times daily. Continue application for as long as symptoms persist or as directed by a healthcare provider.

Description

Globemallow (*Sphaeralcea angustifolia*) is a herb from traditional Mexican medicine. It is commonly used for the management of inflammatory disorders.

Globemallow (*Sphaeralcea angustifolia*) is a herb from traditional Mexican medicine. It is commonly used for the management of inflammatory disorders, such as [\[R\]](#), [\[R\]](#):

- Joint pain
- Tonsillitis
- Bronchitis
- Pink eye
- Gastritis
- Hemorrhoids

How it helps

Applying globemallow extract gel (3x/day for 4 weeks) may relieve joint pain in people with osteoarthritis [\[R\]](#).

Globemallow may help with osteoarthritis by reducing inflammation [\[R\]](#).

27



Andrographis

IMPACT3 / 5

EVIDENCE1 / 5

How to implement

Take an Andrographis supplement following the dosages provided on the product label, usually ranging from 300 to 600 mg daily. This is typically divided into two to three doses throughout the day, with meals, and should be done for up to 8 weeks to support immune function or relieve cold symptoms.

TYPICAL STARTING DOSE
300 mg

Description

Andrographis is a medicinal herb native to South Asian countries like India and Sri Lanka. It is known for its potential health benefits, primarily due to its active compound, andrographolide, which has anti-inflammatory and immune-boosting properties. Andrographis is often used in traditional medicine to treat conditions such as upper respiratory tract infections, fever, and digestive issues.

[Andrographis](#) (*Andrographis paniculata*) is an Ayurvedic plant known as the “king of [bitters](#)” People traditionally use it to fight infections and the common cold [\[R\]](#).

How it helps

Andrographis extract (300-600 mg/day for 12 weeks) may improve joint function, fatigue, and quality of life in people with osteoarthritis [\[R\]](#).

Andrographis may help with osteoarthritis by reducing inflammation [\[R\]](#).

28



Low-Level Laser Therapy (LLLT)

IMPACT2 / 5

EVIDENCE3 / 5

How to implement

Use a low-level laser therapy device, as directed by its manual or a healthcare professional, on the affected area. Generally, treatment involves applying the laser for a specified duration, often between 30 seconds to several minutes, per treatment area. Sessions can be conducted 2-3 times per week for a period of 4-12 weeks, depending on the condition being treated and the device used.

TYPICAL STARTING DOSE
30 seconds

Description

Low-level laser therapy (LLLT), also known as photobiomodulation, is a type of light therapy that uses low-intensity lasers to promote healing. It has been shown to be effective in treating a variety of conditions, including pain, inflammation, and wound healing.

How it helps

LLLT, in specific doses and wavelengths, significantly reduced pain and disability in knee osteoarthritis patients, with no reported adverse events, in a systematic review and meta-analysis of 22 trials [\[R\]](#).

A systematic review of 14 trials with 820 knee osteoarthritis patients found that combining LLLT with exercise therapy significantly reduced pain immediately and at follow-up. However, it did not affect knee ROM, muscle strength, or knee function. The recommended LLLT dosage is 4-8 J with a wavelength of 640-905 nm per point for 10-16 sessions at a frequency of 2 sessions/week, combined with a prescribed exercise therapy program involving major muscle groups [\[R\]](#).

LLLT may help by reducing inflammation and promoting tissue repair. It increases blood flow to the affected area, stimulating the body's healing process and easing discomfort.

29

Strength Training

IMPACT

2 / 5

EVIDENCE

3 / 5

How to implement

Engage in strength training exercises, such as weight lifting or bodyweight exercises, for 60 minutes per session, 2 to 3 times per week. Ensure you work all major muscle groups and rest each muscle group for at least 48 hours before exercising it again.

TYPICAL STARTING DOSE

1 hour

Description

Strength training, also called resistance or *anaerobic* training, contracts the muscles against an external resistance for short periods of time. This helps gain muscle strength, tone, and mass. This can include activities like weight lifting, pushups, and crunches.

Strength training, also known as resistance training, is a type of physical exercise that uses resistance to build strength, anaerobic endurance, and size [R]. Some of the most common strength training methods include [R]:

- Weight lifting
- Bodyweight exercises like push-ups, pull-ups, squats, and lunges.
- Resistance bands
- Plyometrics or explosive force exercises

The benefits of strength training are numerous, and include [R]:

- Increased muscle strength
- Improved bone health
- Reduced risk of injury
- Improved balance and coordination
- Enhanced mood
- Boost metabolism

Consult with a doctor before starting any new exercise program, especially if you have any health conditions.

How it helps

Strength training helps joint pain by strengthening the muscles surrounding your joints, thus providing more support and reducing the strain on them. Also, it improves flexibility and mobility, alleviating pain and preventing further joint damage.

According to health experts, gentle [exercise](#) is one of the best things you can do to manage joint pain [R, R, R, R, R].

Three studies with 189 participants over 50 years old with hip osteoarthritis found supervised progressive resistance exercises significantly improved function, reduced hip pain, and enhanced quality of life, but the evidence quality was low due to lack of blinding and imprecision [R].

30

Acupressure

IMPACT2 / 5

EVIDENCE3 / 5

How to implement

Apply firm pressure on specific acupoints related to your condition using your fingers or a blunt object for 1-3 minutes. Repeat this process 2-3 times a day for several weeks to potentially observe improvements.

TYPICAL STARTING DOSE

1 minute

Description

Acupressure is a traditional Chinese healing technique that involves applying pressure to specific points on the body to promote relaxation, alleviate pain, and improve overall well-being.

How it helps

Acupressure provides benefits in managing osteoarthritis, particularly in reducing pain levels, whether as a main or complementary therapy. However, more clinical trials with proper methodology are needed to confirm the effectiveness of acupressure for osteoarthritis [\[R\]](#).

A study found that self-administered acupressure and exercise (for 16 weeks) decreased pain and stiffness and improved the range of motion and walking speed in people with knee osteoarthritis compared to other interventions [\[R\]](#).

Acupressure therapy, when combined with standard therapy, showed improvement in pain, depression, anxiety, and stress among people with knee osteoarthritis [\[R\]](#).

31



Collagen (Non-Hydrolyzed)

IMPACT2 / 5

EVIDENCE3 / 5

How to implement

Take 5 grams of non-hydrolyzed collagen supplement daily. You can mix it with a beverage of your choice, such as water or juice, for easier consumption.

TYPICAL STARTING DOSE

5 g

Description

Collagen is a protein that plays a crucial role in maintaining skin, joint, and connective tissue health. Collagen supplements are believed to support skin elasticity, joint mobility, and overall skin and joint health.

[Collagen](#) is a protein that helps build skin, bones, and joints [\[R\]](#), [\[R\]](#).

People use collagen supplements for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Joint pain
- Skin health
- Hair growth

How it helps

Collagen is a major part of cartilage. It helps protect and rebuild the cartilage in your joints [\[R\]](#).

Taking collagen supplements (10 mg/day) may improve osteoarthritis [\[R\]](#), [\[R\]](#).

You can get either whole collagen or collagen that has been broken down (hydrolyzed). Both types may help with joint pain and stiffness [\[R\]](#), [\[R\]](#).

However, the overall evidence for collagen is mixed. Not everyone will notice improvements [\[R\]](#).

32



Aquatic Therapy

IMPACT

2 / 5

EVIDENCE

3 / 5

How to implement

Participate in aquatic therapy sessions 2-3 times a week for at least 30 minutes. These sessions should be guided by a professional therapist who specializes in aquatic therapy, and the program should be tailored to your specific health condition and physical capabilities.

TYPICAL STARTING DOSE

30 minutes

Description

Aquatic therapy involves performing exercises and rehabilitation activities in a water environment. It is particularly beneficial for individuals recovering from injuries, surgeries, or certain medical conditions, as the buoyancy of water reduces the impact on joints, eases pain, and improves mobility and muscle strength.

How it helps

Aquatic exercise may have small, short-term, and clinically relevant effects on patient-reported pain, disability, and quality of life in people with knee and hip osteoarthritis. The exercises led to a small improvement compared to control in pain and disability, and a slightly larger effect on quality of life [\[R\]](#).

Another study reported that aquatic exercise improved knee and hip flexibility, strength, and aerobic fitness. It also showed that while these physical attributes improved, aquatic exercise did not significantly affect self-reported physical functioning and pain [\[R\]](#).

A study on aquatic physical therapy for osteoarthritis noted less pain and joint stiffness, greater physical function, quality of life, and muscle strength post-intervention. Importantly, these benefits were maintained for 6 weeks after completing the therapy, indicating lasting effects [\[R\]](#).

33



Strontium Citrate

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Take at least 125 mg of strontium citrate daily, preferably on an empty stomach before bedtime to optimize absorption. It is recommended to continue this supplementation for at least 3 months to evaluate its effectiveness.

TYPICAL STARTING DOSE

125 mg

Description

Strontium citrate is a dietary supplement that may support bone health by increasing bone density and reducing the risk of fractures. It is sometimes used as an alternative to calcium supplements for individuals with osteoporosis.

How it helps

Strontium citrate can help treat joint pain by aiding in the process of building stronger bones, as it is believed to increase new bone growth while slowing down bone loss. Consequently, solid and healthy bones lead to reduction in joint pain.

A meta-analysis of 47 trials and 22,037 patients associated strontium ranelate treatment (based on 1 study) with improvements in joint space narrowing in patients with knee osteoarthritis. In a placebo-controlled trial of 1371 patients with knee osteoarthritis, supplementation with strontium ranelate (1-2 g/day) for 3 years improved pain, physical function, and stiffness. In a subset of 330 patients with meniscal extrusion from this study, strontium ranelate (2 g/day) reduced osteoarthritis progression. In another subset of 330 patients, strontium ranelate (2 g/day) reduced cartilage volume loss and bone marrow lesion progression in the medial compartment [\[R, R, R, R\]](#).

34



Dietary Omega-3 Fatty Acids

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Incorporate foods high in omega-3 fatty acids into your diet daily. This includes eating fish such as salmon, mackerel, and sardines at least twice a week. Alternatively, include a tablespoon of flaxseed oil or chia seeds in your daily diet.

Description

[Omega-3 fatty acids](#) are some of the healthiest fats we can eat. They help lower inflammation and protect the heart, brain, and eyes. Our bodies produce less omega-3s than we need for optimal health, so it's important to get enough through food or supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

There are three major types of omega-3s: ALA, EPA, and DHA. **EPA and DHA are vital for mental and heart health** [\[R\]](#), [\[R\]](#), [\[R\]](#).

Fatty fish are rich in EPA and DHA. They include [\[R\]](#):

- Salmon
- Tuna
- Herring
- Sardines

For optimal health, try to get at least **two servings of fatty fish per week**. Fish oil supplements are available for those who don't eat fish regularly [\[R\]](#).

How it helps

Supplementation with omega-3 polyunsaturated fatty acids (PUFAs) significantly reduced knee pain, swelling, and tenderness in women with osteoarthritis. This study indicates that a daily dose of 2000 mg of omega-3 PUFAs may inhibit inflammation and improve arthritic symptoms within a three-month treatment period [\[R\]](#).

Another study highlighted that dietary omega-3 fatty acids, specifically eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), provided alongside standard anti-inflammatory medication, improved the duration of morning stiffness and overall global assessment by physicians and patients compared to other groups [\[R\]](#).

35



Chair Yoga

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Practice chair yoga for at least 20 minutes, three times a week. Find a comfortable chair without arms, wear loose clothing, and follow a guided chair yoga session focusing on gentle stretches and breathing exercises.

TYPICAL STARTING DOSE

30 minutes

Description

Chair yoga is a modified form of yoga designed for individuals with limited mobility or physical challenges. It offers a range of physical and mental health benefits, including improved flexibility, reduced stress, and enhanced relaxation, making it accessible to a wide range of individuals.

How it helps

In non-placebo-controlled trials involving patients with osteoarthritis, chair yoga consistently demonstrated positive effects. It improved physical function in comparison to Reiki and education interventions. Additionally, a sit 'n fit chair yoga program practiced twice a week for 8 weeks led to improvements in depression and life satisfaction. Practicing chair yoga for the same duration and frequency significantly reduced various symptoms associated with osteoarthritis, including pain, fatigue, and depression, while enhancing physical function, mobility, and gait speed in older adults with lower-limb osteoarthritis across multiple studies [\[R, R, R, R, R\]](#).

Chair yoga involves gentle movements and stretching which can help increase flexibility, improve balance, and reduce joint pain. It can promote overall physical health by helping maintain joint function and reducing symptoms like stiffness and inflammation.

36



L-Carnitine

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take 500 mg of L-carnitine supplement daily with a glass of water, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

500 mg

Description

L-carnitine is an amino acid-like compound that plays a role in energy metabolism and helps prevent toxic substances from building up in cells. It is often used in dietary supplements for its potential to support muscle recovery, reduce fatigue, and enhance athletic performance.

[L-carnitine](#) is a compound that helps you burn fat. It also prevents toxic substances from building up in cells [\[R\]](#).

Your body can usually make enough carnitine to meet its needs. You can also get it from **meat and dairy products** [\[R\]](#).

People use L-carnitine for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Heart problems
- Overactive thyroid
- Fertility problems
- Blood sugar control
- Weight control

How it helps

L-Carnitine aids in reducing inflammation in your body, which can help alleviate joint pain. It also boosts energy production in cells, which may help to speed up tissue repair and reduce pain.

37



Pilates

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Engage in Pilates exercises for at least 20-30 minutes, 3 times a week. Focus on core strength, flexibility, and mindful breathing. It is suitable for both beginners and advanced individuals, adjusting the difficulty of exercises as necessary.

TYPICAL STARTING DOSE
30 minutes

Description

Pilates is a form of exercise that focuses on strengthening the core, improving flexibility, and enhancing overall body awareness through controlled movements and breathing techniques. Its health benefits include increased core strength, improved posture, enhanced flexibility, and better balance, making it a popular choice for those seeking a holistic approach to fitness.

Pilates is a type of exercise that emphasizes proper alignment, breathing techniques, and precise movements.

It involves a series of controlled movements performed on a mat or with specialized equipment, such as a reformer or Cadillac. Pilates helps strengthen the core muscles, improve flexibility, and promote mind-body awareness.

How it helps

In a non-placebo-controlled trial of 44 patients with knee osteoarthritis, practicing Pilates 3x/week for 8 weeks improved pain, range of motion, and physical function better than isometrics. Pilates improved dynamic and static balance and range of motion, but less than suspension training, in a non-placebo-controlled trial of 30 women with knee osteoarthritis. In a non-placebo-controlled trial of 41 women with knee osteoarthritis, practicing mat Pilates (60 min, 2x/week) improved overall health, pain, and functionality. Pilates was more effective than conventional therapeutic exercise at improving pain and disability in a non-placebo-controlled trial of 41 patients with knee osteoarthritis. Combining Pilates with pain neuroscience education improved psychological characteristics more than Pilates alone in a non-placebo-controlled trial of 54 older patients with knee osteoarthritis [R, R, R, R, R].

Pilates can strengthen the muscles around your joints, improving stability and reducing the pressure on them. This can alleviate joint pain by reducing inflammation and stiffness, and improving general mobility.

38



Mediterranean Diet

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Incorporate a variety of primarily plant-based foods, such as fruits, vegetables, whole grains, nuts, and legumes, into every meal. Choose healthy fats, like olive oil, over saturated fats and consume fish and poultry at least twice a week. Limit red meat to a few times a month and include a moderate amount of dairy products. Opt for water and red wine in moderation as your beverages.

Description

The [Mediterranean diet](#) is based on the traditional cuisine from the Mediterranean regions. It moderates the intake of red meat and dairy, while being rich in fruits and vegetables, whole grains, and healthy fats ([olive oil](#)).

The [Mediterranean diet](#) focuses on traditional cuisine from the Mediterranean regions. It’s rich in [\[R\]](#):

- [Olive oil](#)
- Fruits and vegetables
- Whole grains
- Nuts and seeds
- Fish

This type of diet may **reduce inflammation and protect the brain and heart** [\[R, R, R, R\]](#).

Limited intake of animal products, saturated fat, and refined sugar likely contribute to the health benefits of the Mediterranean diet [\[R\]](#).

How it helps

Sticking to the Mediterranean diet may lower the risk of osteoarthritis. It may also increase quality of life in people with this condition [\[R\]](#).

The Mediterranean diet may help by lowering inflammation [\[R, R\]](#).

 PERSONALIZED TO YOUR GENES

In people with your [TERC](#) gene variant, the Mediterranean diet may reduce inflammation. Inflammation plays a role in joint pain [\[R, R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
ACTRT3	rs12696304	CC	

39



Apply Heat

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Place a warm, not hot, heating pad or a warm wet towel on the affected area for 15-20 minutes at a time. Do this several times a day, ensuring there's at least a 1-hour interval between sessions to avoid skin damage.

TYPICAL STARTING DOSE

15 minutes

Description

Applying heat, such as through heating pads or warm baths, can help relieve muscle tension and soothe pain. It is a common method for managing muscle aches, menstrual cramps, and minor injuries.

People use hot applications to relieve pain, improve blood flow, and more [\[R\]](#), [\[R\]](#).

Types of hot applications include [\[R\]](#), [\[R\]](#):

- Heating pads
- Hot baths
- Saunas
- Hot water bottles

How it helps

A study on people with moderate knee osteoarthritis demonstrated that local heat application (for 4 weeks) decreased pain intensity and tenderness. It also reduced joint stiffness and physical function disabilities [\[R\]](#).

Another study evaluated the effects of local heat application (20-minute heat application every other day for 4 weeks) on pain, stiffness, physical function, and quality of life in people with knee osteoarthritis. It found that heat application every other day for four weeks decreased pain and disability while improving aspects of quality of life [\[R\]](#).

40



Topical Cabbage Leaf

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Apply a fresh, clean cabbage leaf directly to the affected area. Leave it in place for at least an hour or overnight if possible, securing it with a loose bandage. Repeat daily until symptoms improve.

Description

Cabbage leaf compresses are a natural remedy involving cabbage leaves placed on the skin. They are used topically to relieve breast engorgement in breastfeeding women and reduce swelling and inflammation.

How it helps

Topical cabbage leaves may help with joint pain by reducing inflammation due to their high content of antioxidants and anti-inflammatories. The leaves are wrapped around the affected area, potentially providing natural pain relief and reducing swelling.

A study divided participants into three groups: cooling gel pad (20 mins/day), diclofenac gel (4 times/day), and cabbage leaf (1 hour/day). Cabbage leaf and cooling gel pad were equally effective in reducing OA symptoms, outperforming diclofenac gel [R].

In a study with 81 patients (42 women, average age 65.9), after 4 weeks, those using cabbage leaf wraps (CLW) for at least 2 hours daily reported significantly less pain compared to the UC group but not compared to the TPG group [R].

41



Stretching

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Incorporate stretching exercises into your daily routine, dedicating at least 10-15 minutes each day. Focus on major muscle groups such as the neck, shoulders, chest, back, hips, and legs. For best results, stretch both before and after other physical activities, holding each stretch for 15-30 seconds without bouncing.

TYPICAL STARTING DOSE

15 minutes

Description

Stretching involves gently elongating the muscles to improve flexibility, reduce muscle tension, and enhance joint mobility. Regular stretching can help prevent injuries, promote better posture, and increase overall physical comfort.

Stretching is a form of physical exercise that involves moving a muscle or group of muscles to their maximum range of motion. The most common types are **dynamic** (involving movement) and **static** stretching.

Stretching can help **improve flexibility, range of motion, and posture**. It may also relieve stress, reduce muscle soreness and tension, increase blood flow, and reduce the risk of injuries.

To get the most out of stretching, try to do it regularly, breathe deeply, and ease into the stretches.

How it helps

Stretching, particularly techniques like static stretching and proprioceptive neuromuscular facilitation (PNF), improves pain, range of motion, and functional outcomes when combined with isokinetic exercises in people with knee osteoarthritis. PNF stretching was noted to be particularly effective for increasing muscle strength and range of motion at higher angular velocities [\[R\]](#).

A study found that rectus femoris stretching (for 4 weeks) enhanced pain relief, flexion range of motion, and spatiotemporal gait parameters such as step length and speed in patients with knee osteoarthritis [\[R\]](#).

Passive muscle stretching was shown to improve hip abduction and muscle fiber size in people with osteoarthritis of the hip, indicating potential structural and functional benefits from regular stretching routines [\[R\]](#).

42



Willow Bark

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Take a willow bark supplement in a dosage of 240 milligrams per day. The course of treatment typically ranges from 2 to 6 weeks. Always consult with your healthcare provider before starting any new supplement regimen, particularly if you are pregnant, nursing, or taking other medications.

TYPICAL STARTING DOSE

240 mg

Description

Willow bark is derived from the bark of willow trees and contains salicin, a natural compound similar to aspirin. It's used for pain relief and reducing inflammation, making it a traditional remedy for headaches, muscle aches, and osteoarthritis.

Willow bark is the bark from several varieties of the willow tree. People use extracts from willow bark to help with back pain [R].

Willow bark is rich in components such as salicin and polyphenols. They may help reduce inflammation and relieve pain [R].

How it helps

Willow bark extracts (containing 120-240 mg/day salicin for 2-6 weeks) may improve pain in people with osteoarthritis. However, one study found that willow bark doesn't benefit osteoarthritis [R, R, R, R].

Please note: Willow bark may interact with blood thinners (such as aspirin, Plavix, and Coumadin). In addition, it may irritate the stomach in some people. People who are allergic to aspirin should also avoid using white willow bark. Talk to your doctor before taking willow bark [R, R].

43



Garlic Supplement

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take a garlic supplement, such as a garlic extract or aged garlic supplement, in a dosage of 600-1,200 mg per day, divided into separate doses. This should be taken with meals to minimize digestive issues. Continue daily for at least 8-12 weeks to evaluate its effects on health markers like blood pressure or cholesterol.

TYPICAL STARTING DOSE
200 mg

Description

Garlic is a pungent herb known for its potential health benefits, including cardiovascular support and immune system enhancement. It contains bioactive compounds that may help reduce the risk of chronic diseases and support overall well-being.

[Garlic](#) is a delicious aromatic herb that adds flavor to your food. But did you know that garlic has been a part of traditional medicine for thousands of years? **From ancient Egypt and Rome to China, people have praised garlic for its many health benefits.** Today, we can trace many of those benefits to sulfur-rich compounds found in garlic. People take garlic to help control their blood pressure and cholesterol [\[R\]](#).

Please note: *Garlic can interact with blood thinners (like aspirin, Plavix, Coumadin). If you are on blood thinners, consult your doctor before supplementing with garlic [\[R\]](#).*

How it helps

Garlic extract (1,000 mg/day for 12 weeks) may reduce pain and inflammation in people with osteoarthritis [\[R\]](#), [\[R\]](#).

Please note: *Garlic can interact with blood thinners (such as aspirin, Plavix, and Coumadin). In addition, garlic can irritate the stomach in some people. Talk to your doctor before taking garlic [\[R\]](#), [\[R\]](#).*

44



Boswellia

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take a 350 mg Boswellia supplement daily, ideally with a meal to enhance absorption.

TYPICAL STARTING DOSE

350 mg

Description

Boswellia is an herbal remedy derived from the resin of certain trees. It's known for its potential anti-inflammatory properties and is often used to support joint health.

[Boswellia](#), also known as frankincense, is the hardened sap of the *Boswellia serrata* tree [\[R\]](#).

In traditional medicine, boswellia is used for joint pain and gut conditions [\[R\]](#).

Today, some people use boswellia for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Osteoarthritis
- IBD
- Skin aging
- Asthma
- Gum health

How it helps

Boswellia may help with osteoarthritis by **lowering inflammation** [\[R\]](#), [\[R\]](#).

Taking boswellia extract (100-250 mg/day) may reduce knee pain [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

45



Aquatic Exercise

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Participate in aquatic exercise sessions, such as swimming or water aerobics, for 60 minutes, 3 to 5 times per week. Ensure the exercise intensity is moderate, allowing you to talk but not sing during the activity. Consistency over time is key, so aim to incorporate this into your weekly routine for at least 3 to 6 months to observe benefits.

TYPICAL STARTING DOSE

1 hour

Description

Aquatic exercise involves physical activity performed in water, such as swimming, water aerobics, or aquatic therapy. It is gentle on the joints, making it suitable for individuals with mobility issues, and can help improve cardiovascular fitness and muscle strength.

Aquatic exercise is any type of low-impact physical activity performed in a pool. In this type of cardio exercise, water helps the body float, which reduces gravity and makes the practice more comfortable and tolerable [\[R\]](#), [\[R\]](#).

Compared to land-based exercise, aquatic exercise may be better by [\[R\]](#):

- Reducing the stress and impact on joints
- Lowering fracture risk

Hence, it is usually **recommended for the elderly**. Aquatic exercise is also suitable for people who don't know how to swim [\[R\]](#).

How it helps

An aquatic exercise program (3X/week for 8 weeks) decreased pain, stiffness, and difficulty in physical functions while increasing self-efficacy and muscle strength in people with osteoarthritis [\[R\]](#).

Another study reported that aquatic exercise did not reduce pain immediately after the program but did result in fewer adverse effects compared to land-based exercise programs, highlighting its safety and tolerability for people with knee osteoarthritis [\[R\]](#).

Additionally, aquatic exercise (for 12 weeks) was found to improve knee and hip flexibility, strength, and aerobic fitness in adults with osteoarthritis of the hip or knee, although it did not significantly impact self-reported physical functioning and pain [\[R\]](#).

46



Collagen Peptides

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Take 10-20 grams of collagen peptides daily, mixing the powder into a glass of water, juice, or a smoothie. It is recommended to consume this supplement on an empty stomach to improve absorption, ideally first thing in the morning or right before bedtime for a period of at least 8-12 weeks to observe beneficial effects.

TYPICAL STARTING DOSE

10 g

Description

Collagen peptides are a form of collagen that is broken down into smaller, more easily absorbed molecules. They are commonly used in supplements and skincare products for their potential to promote skin elasticity, hair strength, and nail health.

[Collagen](#) is a protein that helps build skin, bones, and joints [\[R\]](#), [\[R\]](#).

People use collagen supplements for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Joint pain
- Skin health
- Hair growth

How it helps

Collagen peptides, when consumed, stimulate the body to produce more natural collagen, a primary component of joints. This helps rebuild joint tissues, reduce inflammation, and can alleviate joint pain over time.

Collagen peptides (5 g/day for 3 months) may reduce exercise-induced knee pain [\[R\]](#), [\[R\]](#).

Taking collagen supplements (10 mg/day) may improve osteoarthritis [\[R\]](#).

You can get either whole collagen or collagen that has been broken down (hydrolyzed). Both types may help with joint pain and stiffness [\[R\]](#), [\[R\]](#).

47



Capsaicin

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Apply a capsaicin cream or gel to the affected area up to 4 times daily. Make sure the skin is intact and not broken. Start with a lower concentration (0.025%) and gradually increase to 0.075% if needed for pain relief. Use continuously for at least 4 weeks to evaluate its effectiveness.

Description

Capsaicin, found in chili peppers, is known for its potential to boost metabolism and promote weight loss. It can also provide pain relief when used topically in certain creams and ointments.

How it helps

Capsaicin cream (0.025%) used as monotherapy (for 12 weeks) provided pain relief for people with osteoarthritis. Those treated with capsaicin experienced significant reductions in pain and joint tenderness, and improved physical function [\[R\]](#).

A study that combined capsaicin with glyceryl trinitrate (for 6 weeks) reported enhanced analgesic effects, suggesting that the combination could offer greater benefits than capsaicin alone in reducing osteoarthritis pain [\[R\]](#).

Another trial highlighted the benefits of capsaicin (0.075%, for 4 weeks)) in reducing pain specifically in the hands of people with osteoarthritis, also noting that capsaicin was well-tolerated with mainly mild skin irritation as a side effect [\[R\]](#).

48



Stinging Nettle

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take a 300 to 600 mg capsule of stinging nettle extract daily with water, ideally with a meal to reduce the risk of stomach discomfort. Continue for at least 3 months to observe benefits.

TYPICAL STARTING DOSE

300 mg

Description

Stinging nettle is a plant known for its stinging hairs on its leaves and stems, and is native to parts of Europe and Asia. It has been used in traditional medicine as an herbal remedy and today as a dietary supplement. It contains compounds like flavonoids, polyphenols, and vitamins A and C, iron, and calcium. This helps it provide potential benefits for allergies and arthritis.

[Stinging nettle](#) (*Urtica dioica*), also known as common nettle, is a herb that grows all over the world. Coming in contact with the stinging hairs on the leaves and stems may cause a burning sensation [\[R\]](#), [\[R\]](#), [\[R\]](#).

In ancient Egypt, it was commonly used to treat arthritis. Stinging nettle has also been used to [\[R\]](#):

- Reduce inflammation
- Relieve allergies
- Control blood pressure
- Improve wound healing
- Support prostate health

Stinging nettle is available in many forms, including:

- Capsules
- Tincture
- Tea
- Cream
- Leaves

How it helps

Stinging nettle applied on the painful area may improve joint pain and function in people with osteoarthritis. Studied forms of stinging nettle include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Leaves (daily for a week)
- Cream with stinging nettle extract (2x/day for 2 weeks)

49



Ginger

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take a 500 mg ginger supplement daily, preferably with a meal to enhance absorption and minimize potential stomach discomfort.

TYPICAL STARTING DOSE

500 mg

Description

Ginger is a versatile spice known for its potential anti-inflammatory and digestive benefits. It may help alleviate nausea, reduce muscle soreness, and support gastrointestinal comfort when consumed as part of a balanced diet.

[Ginger root](#) is a cooking spice and a traditional remedy. People mostly use it to relieve [\[R\]](#):

- Nausea
- Menstrual cramps
- Joint pain

How it helps

Ginger may lower inflammation and improve joint pain [\[R, R, R, R, R, R\]](#).

You can try massaging **ginger essential oil** onto painful joints twice a week. **Ginger gel** can be used four times a day [\[R, R, R\]](#).

Taking **ginger extracts** by mouth may improve osteoarthritis symptoms as well. However, the evidence for this is weak [\[R, R, R, R, R, R\]](#).

50



Pycnogenol

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take 100 mg of pycnogenol supplement daily. This can be taken in a single dose or divided into two doses of 50 mg each, one in the morning and one in the evening.

TYPICAL STARTING DOSE

100 mg

Description

Pycnogenol (pine bark extract) is derived from the bark of the maritime pine (Pinus pinaster). It has been used in traditional n European folk medicine for centuries, and more recently as a supplement. The extract contains a group of bioactive compounds known as proanthocyanidins, which may be beneficial in supporting cardiovascular health, promoting skin health, and aiding in the management of various conditions related to inflammation and oxidative stress.

Pycnogenol comes from the bark of pine trees that grow in the Mediterranean [\[R, R\]](#).

It may improve [\[R, R, R, R, R, R\]](#):

- Athletic performance
- Seasonal allergies
- Cognitive function
- Joint health
- Varicose veins

How it helps

Taking pine bark extract (100-200 mg/day for 3 months) may **improve joint pain and stiffness in osteoarthritis** [\[R, R, R\]](#).

This compound may **reduce inflammation and protect cartilage** [\[R, R, R\]](#).

 PERSONALIZED TO YOUR GENES

Your [GDF5](#) gene variant is linked to joint pain. This gene plays a role in cartilage repair. Pine bark extract may help protect joint cartilage [\[R, R, R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
CPNE1	rs143384	AA	

51

Progressive Muscle Relaxation and Guided Imagery

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Set aside 15-30 minutes daily in a quiet, comfortable space. Start by tensing each muscle group in your body for about five seconds and then slowly relaxing them for 30 seconds, sequentially from your toes to your head. After completing the muscle relaxation, close your eyes and visualize a peaceful scene or story for about 5-10 minutes, focusing on the details that make it relaxing.

TYPICAL STARTING DOSE
30 minutes

Description

This combination technique involves both progressive muscle relaxation and guided imagery, a mental exercise that uses vivid imagination to promote relaxation and manage stress. Together, they can reduce muscle tension and foster a calm and peaceful state of mind.

How it helps

A pilot study found that guided imagery with progressive muscle relaxation (for 12 weeks) reduced pain and mobility difficulties in older women with osteoarthritis [R].

Another study compared progressive muscle relaxation with graded motor Imagery for managing knee osteoarthritis. Both methods were beneficial, but graded motor imagery showed slightly better outcomes in terms of knee flexion range and function [R].

52

Backward Walking

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Engage in backward walking for 10-15 minutes daily, preferably in a safe, obstacle-free environment to minimize the risk of falls. This can be done in a straight line or in a loop. Ensure to start slowly to maintain balance and gradually increase your pace as you become more comfortable with the movement.

TYPICAL STARTING DOSE
10 minutes

Description

Backward walking, also known as retro walking, can provide unique benefits for balance, coordination, and muscle engagement compared to forward walking. It's used as a form of exercise to improve motor skills and lower-body strength.

How it helps

A meta-analysis of 21 studies and 635 participants found backward walking more effective than physiotherapy at improving pain, functional disability, and quadriceps strength in people with knee osteoarthritis [R].

53



Avoid PAHs Exposure

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Minimize your exposure to Polycyclic Aromatic Hydrocarbons (PAHs) by avoiding or reducing consumption of charred, grilled, or smoked foods, not smoking or avoiding secondhand smoke, and limiting time spent in areas with heavy traffic or industrial fumes. Use exhaust fans in kitchens and ensure proper ventilation when cooking at high temperatures to reduce indoor levels of PAHs.

Description

PAHs or Polycyclic Aromatic Hydrocarbons are harmful substances found in smoke and grilled foods. Try to limit exposure to them for better health. For example, avoid inhaling smoke from cigarettes or barbeques and choose alternative cooking techniques over grilling. Minimizing PAHs can reduce the risk of several health issues, particularly lung and skin diseases.

How it helps

A study of 9735 participants associated exposure to 1-hydroxynaphthalene and 3-hydroxyfluorene with arthritis (especially osteoarthritis). The combined exposure to PAHs and heavy metals further increased the risk [\[R\]](#).

Another study (10613 participants) associated exposure to high levels of 1-hydroxynaphthalene, 3-hydroxyfluorene, and 2-hydroxyfluorene with respectively 6%, 9%, and 6% higher risk of osteoarthritis, while combined exposure increased the risk by 11% [\[R\]](#).

PAHs can cause inflammation and oxidative stress, which worsen joint pain.

54



Manual Joint Mobilization

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Schedule a session with a qualified physical therapist who specializes in manual joint mobilization techniques. Initially, aim for 1-2 sessions per week for a duration of 4-6 weeks. During these sessions, the therapist will apply specific hands-on techniques to move your joints through their natural range of motion, aiming to improve flexibility and decrease pain.

TYPICAL STARTING DOSE
30 minutes

Description

Manual joint mobilization is a hands-on physical therapy technique that can help improve joint function, reduce pain, and enhance mobility. It is often used by physical therapists and chiropractors to address musculoskeletal issues.

How it helps

A combination of manual therapy (including joint mobilization) and exercise (12 sessions over 4 weeks) has shown to be more effective in treating pain and functional disability than a sham intervention in patients with thumb carpometacarpal osteoarthritis. These results were maintained for up to two months after the intervention [\[R\]](#).

Manual joint mobilization (3x/week, 30 minutes/day for 4 weeks) reduced pain and improved range of motion and body function in people with knee osteoarthritis [\[R\]](#).

Joint mobilization may help by enhancing pain modulation mechanisms, thereby potentially reducing the pain experienced in osteoarthritis [\[R\]](#).

55



Myofascial Release

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Incorporate myofascial release into your routine by using tools like foam rollers or massage balls, focusing on tense areas for about 5-20 minutes daily. You can also seek professional myofascial release therapy sessions, which typically last about 30-60 minutes, 1-2 times per week for targeted treatment.

TYPICAL STARTING DOSE

5 minutes

Description

Myofascial release is a type of massage therapy that can help to improve range of motion, reduce pain, and increase circulation. It can also help to improve posture and reduce stress.

How it helps

Myofascial release (for 1 week) may reduce pain and improve hamstring flexibility and functional disability in people with knee osteoarthritis [R].

Another study reported that myofascial release on the quadriceps muscle (for 3 weeks) reduced pain and improved the functional activities of people with knee osteoarthritis [R].

Myofascial release applied to the patella altered the thickness of the fat pad and improved the range of motion in knee osteoarthritis patients, suggesting some structural changes beneficial for joint mobility [R].

56



Walking

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Incorporate at least 30 minutes of brisk walking into your daily routine, aiming for a minimum of five days a week. This can be done in one continuous session or broken into shorter periods, such as three 10-minute walks throughout the day.

TYPICAL STARTING DOSE

30 minutes

Description

Walking is a low-impact form of exercise that can contribute to cardiovascular fitness, weight management, and improved overall health. It is used to support physical activity goals, enhance mood, and promote better cardiovascular health.

How it helps

Walking can help ease joint pain by strengthening the muscles around your joints and promoting blood flow to the joint tissues. It also aids in weight maintenance, which prevents added pressure on weight-bearing joints like the knees and hips.

Seven high-quality studies on adults aged 40+ with knee OA found that aerobic walking programs, whether in facilities, hospitals, or at home, improved stiffness, strength, mobility, and pain. Limitations include study heterogeneity [\[R\]](#).

A systematic review of 21 studies showed that backward walking combined with physiotherapy reduced pain, improved function, and quadriceps strength in various conditions, notably juvenile rheumatoid arthritis and anterior cruciate ligament injury, but not in others [\[R\]](#).

57



Whole-Body Vibration

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Stand, sit, or lie on a machine with a vibrating platform for about 15 minutes a day, three times a week. Make sure to start with a lower intensity and gradually increase as you get more accustomed to the vibrations.

TYPICAL STARTING DOSE

15 minutes

Description

Whole-body vibration involves standing, sitting, or lying on a vibrating platform to stimulate muscle contractions. It's used in fitness routines and rehabilitation for improving muscle strength, circulation, and balance, and may benefit conditions like osteoporosis. No specific chemical compound or nutrient is associated with whole-body vibration.

Whole-body vibration is a form of exercise and treatment utilizing a vibrating platform upon which a person stands or performs various exercises. It creates vertical, oscillating vibrations with frequencies and amplitudes that can be controlled by the user [R].

Whole-body vibration is used for a variety of purposes, including [R]:

- Weight loss
- Boosting strength
- Improving balance/coordination
- Boosting mood

How it helps

A meta-analysis of 16 trials on chronic musculoskeletal pain conditions, including low back pain, osteoarthritis, and fibromyalgia, showed medium-term and long-term pain relief with whole-body vibration therapy. It was particularly effective for osteoarthritis and low back pain but not significantly better than traditional treatments [R].

A systematic review and meta-analysis of 5 studies found that whole-body vibration training in individuals with knee osteoarthritis may reduce pain and improve knee function. Another systematic review/meta-analysis of 5 trials (170 patients with knee osteoarthritis) found whole-body vibration improved physical function, walk test, and balance in 8-12 weeks [R, R].

Whole-body vibration therapy may help by enhancing circulation and muscle strength around the joints.

58



Bromelain Enzyme Blends

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take a 500 mg bromelain enzyme blend supplement daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

500 mg

Description

Bromelain enzyme blends, derived from pineapples, are often used as dietary supplements for their potential anti-inflammatory and digestive benefits.

[Bromelain](#) is an extract from pineapples. It’s rich in enzymes that break down proteins [\[R\]](#).

Bromelain is anti-inflammatory and may prevent blood clotting. People use it to [\[R\]](#):

- Improve joint health
- Heal burns
- Manage heart conditions

How it helps

Supplementing with 200-500 mg of bromelain once a day for 1-4 months may reduce joint swelling, pain, and stiffness. However, the evidence is mixed [\[R, R, R\]](#).

Blends containing bromelain and other enzymes may also relieve pain and improve joint function [\[R, R, R, R, R\]](#).

59



Krill Oil

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take 1 to 3 grams of krill oil daily as a dietary supplement, preferably with a meal to enhance absorption. It's often available in soft gel form, making it easy to swallow. Continue this regimen consistently for best results, typically reviewing its effectiveness and any need for adjustments with a healthcare provider after a few months.

TYPICAL STARTING DOSE

1 g

Description

Krill oil is a source of omega-3 fatty acids, primarily in the form of phospholipids. It can promote cardiovascular health, joint comfort, and may have anti-inflammatory properties.

How it helps

In a study of 90 patients with cardiovascular disease, rheumatoid arthritis, or osteoarthritis and elevated CRP levels, taking 300 mg/day of krill oil for 30 days reduced CRP levels by 30.9% and improved osteoarthritis scores. In two trials involving 282 knee osteoarthritis patients, krill oil (2-4 g/day) over 1-6 months alleviated knee pain and stiffness, and improved knee function and range of motion [\[R\]](#), [\[R\]](#), [\[R\]](#).

Krill oil is rich in omega-3 fatty acids, which are known for their anti-inflammatory properties. They can help reduce inflammation in your joints, potentially decreasing joint pain.

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Core-Strengthening Exercises

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Incorporate exercises like planks, bridges, abdominal crunches, and leg lifts into your daily routine. Aim to do these exercises for 20-30 minutes, 3 times a week. Each exercise should be performed in sets of 10-15 repetitions.

TYPICAL STARTING DOSE

20 minutes

Description

Core-strengthening exercises target the muscles of the abdomen, lower back, and pelvis, helping improve posture, stability, and reduce the risk of back pain. Regular core workouts support a strong and balanced musculoskeletal system.

The core, or trunk, includes several groups of muscles in your abdomen, back, and pelvis. Keeping these muscles strong helps stabilize your body, twist and bend your back, protect your back from injuries, and enhance your overall fitness [\[R\]](#).

Some exercises that help strengthen the core include [\[R\]](#):

- Crunches
- Planks
- Bridges
- Supine toe taps
- Bird dogs

The core can also be strengthened by practicing Pilates, kettlebell training, and some types of yoga [\[R, R, R\]](#).

How it helps

In 3 non-placebo-controlled trials of 959 patients with patellofemoral pain, practicing core strengthening exercises, both alone and as an add-on to physiotherapy, for 4-6 weeks improved pain, function, and strength. Patients with more pain, better function, greater lateral core endurance, and less anterior core endurance were more likely to obtain benefits. The combination of these exercises with whole-body vibration further improved pain and lower limb functionality in a non-placebo-controlled trial of 50 subjects with this condition. In a non-placebo-controlled trial of 113 patients with osteoarthritis of the knee, practicing core strengthening exercises 3x/week for 12 weeks as an add-on to conventional exercises further reduced pain in the short term [\[R, R, R, R, R\]](#).

Core-strengthening exercises enhance stability in the body, reducing unnecessary pressure and strain on the joints to alleviate joint pain. They also help improve posture and balance, which results in better joint alignment and less discomfort.

61



Glucosamine

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take glucosamine as a dietary supplement, commonly available in capsules or liquid form. The standard dose is 1500 mg per day, which can be taken all at once or divided into multiple doses throughout the day. It's often recommended to continue taking glucosamine for at least 3 to 4 months to evaluate its effectiveness in relieving joint pain or osteoarthritis symptoms.

TYPICAL STARTING DOSE

1500 mg

Description

Glucosamine is a supplement commonly used to support joint health and may help alleviate symptoms of osteoarthritis. It's believed to promote cartilage health and reduce joint discomfort, but individual responses can vary.

[Glucosamine](#) is a compound naturally made by the body. It helps keep the connective tissues, such as the cartilage in the joints, strong and elastic [\[R\]](#).

Many people use glucosamine supplements to support joint health [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

Glucosamine (500 mg), alone or in combination with methylsulfonylmethane (MSM, 500 mg) three times daily for 12 weeks, has shown improvements in pain and swelling and in improving the functional ability of joints [\[R\]](#).

However, other studies report that glucosamine does not significantly reduce pain more than a placebo. For example, a large study found no significant difference in pain reduction or physical function improvement compared to placebo [\[R\]](#).

Long-term studies have indicated that while glucosamine may not significantly reduce pain, it could slow the progression of joint space narrowing in osteoarthritis, suggesting some potential structural benefits [\[R\]](#).

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Glucosamine + Chondroitin

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Take a combination of glucosamine and chondroitin supplement, each at a dose of 500 mg, three times a day with meals for a total daily dose of 1500 mg of each.

TYPICAL STARTING DOSE
500 mg

Description

[Glucosamine](#) and chondroitin are popular supplements for joint health. They are often available as a combination.

[Glucosamine](#) and chondroitin are popular supplements for joint health. They are often available as a combination [\[R, R\]](#).

People mostly use these supplements for joint pain [\[R, R\]](#).

How it helps

These compounds help your body make hyaluronic acid. You need hyaluronic acid to build cartilage [\[R, R, R\]](#).

Some people may find that glucosamine and chondroitin improve joint pain. **However, most experts say there’s not enough evidence to support their use.** If you do decide to use them, ask your doctor where to find a high-quality supplement [\[R, R, R, R\]](#).

Please note: Glucosamine and chondroitin can interact with blood thinners like warfarin. If you are taking blood thinners, avoid these supplements [\[R\]](#).

 PERSONALIZED TO YOUR GENES

Your [GDF5](#) gene variant is linked to joint pain. This gene is involved in cartilage repair. Glucosamine and chondroitin may support cartilage repair [\[R, R, R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
CPNE1	rs143384	AA	

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Pomegranate

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Incorporate pomegranate into your diet by consuming fresh pomegranate seeds, drinking pure pomegranate juice, or adding pomegranate extract to smoothies or yogurts. Aim for at least one serving per day, which could be about half a cup of seeds or a glass (8 ounces) of juice, to gain its health benefits.

Description

Pomegranate is a fruit native to regions of the Middle East and Mediterranean. It is rich in antioxidants and nutrients such as vitamin C, vitamin K, and dietary fiber. It contains punicalagins, anthocyanins, and ellagic acid, which give it anti-inflammatory effects and potential heart health benefits.

[Pomegranates](#) are red fruits that contain seeds covered by edible sweet coats. They are rich in antioxidants [\[R\]](#), [\[R\]](#).

Pomegranate may reduce inflammation and support heart health. People use pomegranate seed oil and peel in cosmetics and traditional medicine [\[R\]](#), [\[R\]](#).

How it helps

Pomegranate juice (200 mL/day for 6 weeks) may help improve joint pain and function in people with osteoarthritis [\[R\]](#).

Please note: *Pomegranate root, stem, and peel may be harmful if consumed in large amounts* [\[R\]](#).

64



Rose Hip

IMPACT2 / 5

EVIDENCE1 / 5

How to implement

Take a 500 mg rose hip supplement daily, preferably with a meal to aid absorption.

TYPICAL STARTING DOSE

500 mg

Description

Rose hip is the fruit of the wild rose plant and is commonly used in various forms, such as oil or extract. It's rich in nutrients like vitamin C, antioxidants, and essential fatty acids, making it valuable for skincare and immune health.

Rose hips are round fruits found on rose plants [\[R\]](#).

They're a **good source of vitamin C and other antioxidants**. Some compounds in rose hips are also **anti-inflammatory** [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

Rose hips may reduce inflammation and provide antioxidants [\[R\]](#), [\[R\]](#).

Rose hip powder (5 g/day for 3 months) may **improve joint pain and stiffness in osteoarthritis**. Studies tested rose hip from the dog rose (*Rosa canina*) plant [\[R\]](#), [\[R\]](#).

Rose hip can be combined with [stinging nettle](#) leaves and devil's claw root. Taking this blend for 12 weeks may specifically improve the symptoms of knee osteoarthritis [\[R\]](#).

65



Strawberries

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Incorporate a serving of strawberries, which is approximately eight medium-sized strawberries (about 1 cup or 150 grams), into your daily diet. You can enjoy them as a snack, add them to your breakfast cereal or oatmeal, blend them into smoothies, or use them as a topping for salads and desserts.

Description

Strawberries are a delicious fruit rich in vitamin C, antioxidants, and dietary fiber. They provide essential nutrients and are associated with various health benefits, including improved immune function and heart health.

Strawberries (*Fragaria ananassa*) are one of the most consumed berries, both fresh and processed in juices, jams, yogurts, and desserts [\[R\]](#).

Strawberries have a high content of antioxidants and vitamins, such as [\[R\]](#), [\[R\]](#):

- Vitamin C
- Folate
- Flavonoids

How it helps

Strawberry beverages (equivalent to 50 g/day of strawberries for 12 weeks) may help reduce pain and inflammation in people with osteoarthritis [\[R\]](#), [\[R\]](#).

66



Soy Protein

IMPACT2 / 5

EVIDENCE1 / 5

How to implement

Include 20 grams of soy protein in your daily diet. This can be achieved by consuming soy-based products such as tofu, soy milk, or soy nuts throughout the day.

TYPICAL STARTING DOSE

20 g

Description

Soy protein is a high-quality plant-based protein derived from soybeans. It is commonly used in vegetarian and vegan diets and may support muscle growth, weight management, and overall nutritional needs.

Soy is a common food in many cuisines around the world, especially Asian cuisines [\[R\]](#).
It's a great source of [\[R\]](#), [\[R\]](#):

- Plant-based protein
- Fiber
- Omega-3 fats
- Antioxidants (isoflavones)

Soy-based foods include [\[R\]](#):

- Tofu
- Tempeh
- Edamame
- Miso
- Natto

Soy protein and soy isoflavones are also available as supplements.

How it helps

Soy protein (40 g/day for 6 weeks) may improve joint pain and mobility, especially in men with osteoarthritis [\[R\]](#).

67



Speararmint

IMPACT2 / 5

EVIDENCE1 / 5

How to implement

Take a spearmint supplement, usually found in capsule form, once or twice daily with water. Daily dosage recommendations can vary, but they are commonly around 400mg to 800mg, based on product guidelines and individual tolerance. Continue this supplementation daily for at least 90 days to observe potential benefits.

Description

Speararmint is a member of the mint family, and is native to Europe and Asia. Traditionally, it has been used in teas and cooking for its flavor and potential digestive and respiratory benefits. It contains compounds like carvone and limonene, which help give it these benefits.

Speararmint (*Mentha spicata*) is an aromatic herb used to flavor food and tea [\[R\]](#).

People also use spearmint to help with [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Digestive issues
- Cough and respiratory issues
- Cognition

How it helps

In a study of 62 people with knee osteoarthritis, consuming a tea brewed from spearmint (2 cups/day for 16 weeks) improved stiffness and physical disability. Those consuming tea enriched in rosmarinic acid (130-150 mg/cup) also improved pain and quality of life [\[R\]](#).

68



Dietary Antioxidants

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Incorporate foods rich in antioxidants, such as fruits (berries, oranges, plums), vegetables (spinach, kale, bell peppers), nuts (walnuts, almonds), and seeds (flaxseeds, chia seeds) into your daily meals. Aim for at least 5 servings of fruits and vegetables per day, ensuring a variety of colors to cover different antioxidants.

Description

Dietary antioxidants are compounds found in foods that help neutralize harmful molecules called free radicals, potentially reducing the risk of oxidative stress-related diseases and supporting overall health. Examples include vitamins C and E, beta-carotene, and polyphenols.

Our cells sometimes produce molecules called **reactive oxygen species (ROS)** [\[R\]](#).

High levels of ROS can cause [oxidative stress](#) and damage our cells. Oxidative stress plays a role in many health conditions, including [\[R\]](#):

- High blood sugar
- Type 2 diabetes
- Heart disease

Antioxidants are substances that help combat ROS [\[R\]](#).

Antioxidants are found in many plants. Good sources include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Fruits like tomatoes, berries, and pomegranates
- Vegetables like onions, spinach, and celery
- Chocolate
- Olive oil
- Wine

How it helps

Oxidative stress may impair joint health. Antioxidants may protect against oxidative stress [\[R\]](#).

Vitamin C in particular helps make collagen, which supports healthy joints [\[R\]](#).

Lots of foods are good sources of antioxidants. Some that may help with joint pain are:

- Pomegranates [\[R\]](#)
- Strawberries [\[R\]](#), [\[R\]](#)
- Tart cherries [\[R\]](#)

Note that the evidence is mixed. Some studies show that antioxidants don’t benefit osteoarthritis [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

69



Acupuncture

IMPACT1 / 5

EVIDENCE3 / 5

How to implement

Visit a licensed acupuncturist for a session, typically lasting between 30 to 60 minutes, once or twice a week. Depending on your specific condition, a course of treatment might range from a few weeks to several months.

TYPICAL STARTING DOSE

1 hour

Description

Acupuncture is a part of traditional Chinese medicine. It involves inserting thin needles at specific points on the body. People use it to relieve pain and allergies, as well as reduce nausea and improve sleep.

[Acupuncture](#) is a part of traditional Chinese medicine. It involves **inserting thin needles at specific points on the body**. People use it to [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Relieve pain
- Improve sleep quality
- Relieve allergies
- Reduce nausea

How it helps

Acupuncture may lower pain by boosting your body’s opioids [\[R\]](#).

In some cases, health experts recommend acupuncture for joint pain [\[R\]](#), [\[R\]](#).

In the short term, it may help with pain from knee osteoarthritis. **However, the benefits are likely small, and most studies are of low quality** [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Acupuncture may have little to no effect on hip osteoarthritis [\[R\]](#).

Please note: *Acupuncture is generally safe for most people. However, it may come with extra risks for pregnant women, people with pacemakers, and people with bleeding disorders. Consult your doctor or a [licensed acupuncturist](#) for more information* [\[R\]](#).

How to implement

Description

How it helps

Bromelain may help by reducing inflammation [[R](#), [R](#)]

71



Green-Lipped Mussel Extract

IMPACT

1 / 5

EVIDENCE

2 / 5

How to implement

Take 1000-2000 milligrams of green-lipped mussel extract daily, in divided doses if necessary, with meals to potentially aid in reducing inflammation and joint pain. It's recommended to assess its efficacy over a period of at least 4-8 weeks.

TYPICAL STARTING DOSE

1000 mg

Description

Green-lipped mussel extract is used for its potential anti-inflammatory properties and may help alleviate joint pain and symptoms of conditions like osteoarthritis. It is commonly used in dietary supplements to support joint health.

How it helps

Green-lipped mussel extracts (400-3000 mg/day over 8-12 weeks) improved knee joint pain, stiffness, and mobility. It also reduced digestive symptoms and altered the composition of the gut microbiota in 4 studies of 166 people with osteoarthritis [\[R, R, R, R\]](#).

However, one study of 80 people with moderate to severe osteoarthritis of the hip or knee did not find these benefits [\[R\]](#).

72



Avoid Lead Exposure

IMPACT

1 / 5

EVIDENCE

2 / 5

How to implement

Prevent lead exposure by using cold water for drinking and cooking, regularly cleaning dust from windowsills and floors, and ensuring that your home's paint is not chipping if it was built before 1978. For occupations involving potential lead exposure, use protective gear and follow safety protocols. Test your home for lead if it's old or you're concerned about contamination.

Description

Lead is a heavy metal. It is naturally found in the environment in small amounts [\[R, R\]](#).

Exposure to lead can cause it to build up in the body. A buildup of lead can contribute to oxidative stress and cell damage. This is called **lead poisoning** [\[R, R\]](#).

Lead is no longer used in the manufacturing of some products like gasoline and paint. However, it can still be found in some pipes, batteries, and the wall paint of older homes [\[R, R, R\]](#).

How it helps

In 2 studies from the NHANES database, both lead and calcium increased osteoarthritis prevalence [\[R, R\]](#).

Lead accumulation in the body can damage the joints and cause their inflammation.

73



Aromatherapy

IMPACT1 / 5

EVIDENCE2 / 5

How to implement

Select essential oils like lavender, peppermint, or eucalyptus. Use a diffuser to disperse the scent into your room for 30-60 minutes at a time, up to 3 times a day. Alternatively, apply a few drops diluted in a carrier oil directly to your skin, such as on your temples or wrists, twice a day.

TYPICAL STARTING DOSE

30 minutes

Description

Aromatherapy is a holistic practice that uses the scents and aromas of essential oils to promote physical, mental, and emotional well-being. It is often used for relaxation, stress reduction, and to address various health concerns through inhalation or topical application of essential oils.

Aromatherapy uses concentrated plant extracts known as **essential oils**. They can be inhaled using a diffuser (a device that releases small amounts of oil into the air) or applied to the skin using a roller [\[R\]](#).

[Lavender](#) is a decorative flower and a calming herb and its essential oil is commonly used in aromatherapy. People use it to [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Reduce anxiety [\[R\]](#)
- Improve sleep quality [\[R\]](#), [\[R\]](#)
- Relieve pain [\[R\]](#), [\[R\]](#)

Essential oils can be harmful if not used properly. Tips for using them safely include [\[R\]](#), [\[R\]](#):

- Diluting them properly using a plant-based carrier oil (such as olive oil or almond oil)
- Using diffusers in a well-ventilated area for a maximum of 1 hour
- If using on the skin, testing a small area first and waiting a day before using more
- Keeping essential oils away from candles or other heat sources

How it helps

A meta-analysis of 12 studies and 737 participants concluded that massage therapy improves pain, stiffness, and functionality, but massage with aromatherapy doesn’t further improve the outcomes. However, 2 non-placebo-controlled trials of 183 patients with knee osteoarthritis found aromatherapy alone effective at improving pain, function, and quality of life [\[R\]](#), [\[R\]](#), [\[R\]](#).

Aromatherapy may help by reducing inflammation and soothing the nerves.

How to implement

Description

- Lead
- Cadmium
- Arsenic
- Chromium
- Mercury

How it helps

Two studies of 24,969 participants associated high lead and cadmium levels with an increased risk of osteoarthritis [R, R].

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Methylsulfonylmethane (MSM)

IMPACT

1 / 5

EVIDENCE

2 / 5

How to implement

Take 1 to 3 grams of Methylsulfonylmethane (MSM) per day, divided into three doses. This can be in the form of capsules or powder that is mixed with water. It is recommended to start with a lower dose to assess tolerance, then gradually increase to the desired dose over a period of 1 to 2 weeks.

TYPICAL STARTING DOSE

1 g

Description

MSM is a naturally occurring sulfur compound found in foods and used in dietary supplements. It has anti-inflammatory properties and may be used to support joint health and reduce exercise-related muscle soreness.

A molecule of MSM is broken down in the body into a sulfate (sulfur) group and two methyl groups.

The following may increase people’s needs for sulfur and methyl groups: physical activity, recovery from injuries, inflammation, infections/sickness, toxins, etc.

People also need more sulfur when taking hormones (DHEA, pregnenolone, etc.), drugs (Aspirin, Tylenol, NSAIDs, birth control, etc.) or supplements (flavonoids & polyphenols - resveratrol, quercetin, curcumin, etc.) that undergo sulfation.

How it helps

Methylsulfonylmethane (MSM) helps alleviate joint pain primarily through its anti-inflammatory properties. By reducing inflammation in the joints, MSM can decrease pain, swelling, and stiffness commonly associated with conditions like osteoarthritis.

Additionally, MSM may contribute to the maintenance of healthy joint tissue due to its sulfur content, which is vital for the formation and repair of connective tissue such as cartilage. This action may help improve joint flexibility and overall function.

MSM may also have an analgesic effect by disrupting the transmission of pain signals through nerve fibers, reducing pain sensations. This can be particularly beneficial for individuals with chronic pain conditions like arthritis.

Of 20 supplements investigated in 69 eligible studies, six (undenatured type II collagen, avocado soybean unsaponifiables, methylsulfonylmethane, diacerein, glucosamine and chondroitin) revealed statistically significant improvements on pain, but were of unclear clinical importance [R](#)

76



Hyaluronic Acid

IMPACT

1 / 5

EVIDENCE

2 / 5

How to implement

Take 120-240 mg of oral hyaluronic acid supplement daily, ideally with or after a meal to enhance absorption. Consistent use for at least one month is recommended to evaluate its effects on skin hydration and joint health.

TYPICAL STARTING DOSE
120 mg

Description

Hyaluronic acid is a natural substance that plays a key role in joint and skin health. As a supplement or topical application, it may help support joint mobility and skin hydration.

How it helps

Hyaluronic acid, naturally found in your joints, helps in maintaining their lubrication, thereby reducing pain and stiffness. Taking it as a supplement can increase this lubrication, making movement easier and less painful.

In a double-blind, placebo-controlled study involving 40 subjects over 3 months, oral hyaluronic acid supplementation showed statistically significant improvements in pain and function for osteoarthritis. The treatment group also exhibited reduced inflammatory cytokines, leptin, and bradykinin levels, along with decreased hyaluronic acid turnover in synovial fluid [\[R\]](#).

In a study with 60 osteoarthritic subjects, those who received 200 mg of hyaluronic acid (HA) daily for 12 months showed symptom improvement measured by the JKOM score, particularly in those aged 70 or younger. The HA group had significantly better scores at the 2nd and 4th months compared to the placebo group [\[R\]](#).

77



Cupping Therapy

IMPACT

1 / 5

EVIDENCE

2 / 5

How to implement

To practice cupping therapy as part of your lifestyle, schedule sessions with a qualified therapist once or twice a month to address specific concerns or for general wellness. Each session usually lasts between 5 to 15 minutes. Consistent treatment over several months may yield the best results.

TYPICAL STARTING DOSE

15 minutes

Description

Cupping therapy is an alternative therapy that involves placing cups on the skin to create suction. Some believe it may help with pain relief and muscle tension.

How it helps

A meta-analysis of 7 trials found weak evidence that adding cupping therapy (both dry and wet) to Western medicine further improves pain, stiffness, and physical function in patients with knee osteoarthritis [R].

Cupping therapy can help with joint pain by increasing blood flow and bringing fresh nutrients and oxygen to the inflamed area, potentially reducing inflammation and promoting healing.

78



Aquatic HIIT

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Participate in high-intensity interval training (HIIT) in a pool for 30 minutes, 3 times a week. Each session should include short bursts of intense activity, such as swimming laps or water aerobics, followed by brief periods of rest or low-intensity movement.

TYPICAL STARTING DOSE

30 minutes

Description

Aquatic High-Intensity Interval Training (HIIT) combines the benefits of high-intensity interval training with the low-impact nature of water workouts. It offers an effective way to improve cardiovascular fitness, burn calories, and build muscle strength while reducing the risk of joint stress and injury.

How it helps

Aquatic HIIT, a high-intensity interval training program in water, can be beneficial for joint pain as the buoyancy of water reduces the pressure on your joints, making movements smoother and less painful. The strength and cardio activity involved in HIIT further helps strengthen the muscles around the joints, reducing the likelihood of joint pain occurrence in the future.

The study used an aquatic treadmill with destabilizing water jets for high-intensity interval and balance training. Participants showed reduced joint pain, improved balance, function, and mobility after the exercise program, but not during the non-exercise control period [R].

Please note: Intense exercise may not be suitable for people with chronic health conditions. Talk to your doctor before starting a new exercise regimen [R].

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Hydroxytyrosol

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take a hydroxytyrosol supplement at a dose of 5 to 10 mg per day, with or without food. This supplement should be taken daily for at least 8 to 12 weeks to observe potential health benefits.

TYPICAL STARTING DOSE

5 mg

Description

Hydroxytyrosol is a natural phenolic compound found in extra virgin olive oil. It is known for its antioxidant properties and may contribute to the health benefits associated with the Mediterranean diet.

How it helps

In a placebo-controlled trial of 25 patients with gonarthrosis, supplementation with hydroxytyrosol for 4 weeks improved pain (the Japanese Orthopedic Association score) and visual analog scale score [\[R\]](#).

In another double-blind clinical trial, hydroxytyrosol or placebo was administered to adult patients with gonarthrosis for 4 weeks. The group administered hydroxytyrosol showed significant improvement in the Japanese Orthopedic Association score (pain measurement index) and the visual analog scale score compared to the placebo group [\[R\]](#).

Hydroxytyrosol may help by reducing inflammation and swelling in the knee joint.

80



Black Seed (Black Cumin)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 1000 mg of black seed (black cumin) supplement daily, preferably split into two doses of 500 mg each, one in the morning and one in the evening.

TYPICAL STARTING DOSE

1000 mg

Description

Black seed, also known as black cumin or *Nigella sativa*, has been used for its potential health benefits in traditional medicine. It is believed to have anti-inflammatory, antioxidant, and immune-boosting properties.

[Black seed](#) (black cumin) and its oil are used in cooking and traditional medicine [\[R\]](#).

People use black seed for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Asthma
- Allergies
- High blood sugar
- High blood pressure
- Joint pain

How it helps

Black seed oil has anti-inflammatory properties that may reduce inflammation and pain in the joints. It can also improve joint function, potentially slowing the progression of joint conditions.

In 2 placebo-controlled trials of 164 patients with knee osteoarthritis, supplementation with black seed oil (2.5 mL every 8 hours) for 1 month decreased pain scores by ~34%, osteoarthritis scores by ~16-28%, and painkiller use [\[R\]](#), [\[R\]](#).

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Cucumber Extract (Q-Actin™)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a supplement containing Cucumber extract (Q-Actin™) as per the manufacturer's guidelines, typically around 100-200mg daily, orally with water. It's important to follow the exact dosage recommended by the product you are using. Continue this regimen for a period as suggested by the product's guidelines or consult a healthcare provider for personalized advice.

Description

Cucumber extract is used in skincare products for its potential to soothe and hydrate the skin. It can provide a cooling sensation and may help reduce skin irritation.

How it helps

Q-Actin™, a cucumber extract, helps in joint pain by supporting body's natural joint and cartilage repair processes. It reduces inflammation, which alleviates discomfort and enhances mobility.

There were 101 patients with knee OA enrolled for the 180-day study, with 91 patients completing it. Patients were grouped into a placebo group (PLBO), as well as a 20mg dose (Q-Actin 1) and 100 mg dose (Q-Actin 2) groups. There was a significant, dose dependent improvement in the pain-related parameters over time [\[R\]](#).

Another study was done with 122 patients who had knee problems. They were split into two groups. One group took glucosamine-chondroitin, and the other group took CSE. After 30 days, the CSE group felt 22.44% less pain, and after 180 days, they felt 70.29% less pain. In comparison, the group taking glucosamine-chondroitin felt 14.80% less pain after 30 days and 32.81% less pain after 180 days. No one had any bad reactions to the medicines during the study [\[R\]](#).

82



Chinese Skullcap And Acacia

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a Chinese skullcap supplement of 300 to 500 mg, up to three times daily, with meals. Ensure to check the label for specific extract concentration and consult with a healthcare provider to adjust the dosage as needed.

Description

Chinese skullcap and acacia are both plant-based substances used in traditional remedies for their potential calming and anti-anxiety properties. It is primarily consumed in the form of teas or herbal supplements. They are believed to have properties that soothe the nervous system and aid in gastrointestinal comfort.

How it helps

A combination of Scutellaria baicalensis and Acacia catechu extracts was shown to decrease knee joint pain, increase range of motion, and reduce biomarkers of inflammation in a one-week clinical trial [\[R\]](#).

83



Curcumin Longvida

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 400-1000 mg of Longvida curcumin once daily, preferably with a meal to enhance absorption. It's recommended to continue this supplement intake daily for at least 8-12 weeks to evaluate its benefits.

TYPICAL STARTING DOSE

1 g

Description

Curcumin Longvida is a specialized formulation of curcumin designed for improved bioavailability and brain health support. It has been studied for its potential cognitive benefits and ability to cross the blood-brain barrier.

How it helps

In a placebo-controlled trial of 42 patients with knee osteoarthritis, supplementation with curcumin Longvida (400 mg, 2x/day) for 90 days was as effective as ibuprofen at alleviating the symptoms [\[R\]](#).

Curcumin Longvida may help reduce inflammation, a key factor in joint pain. This action can alleviate the discomfort and stiffness associated with joint issues like arthritis.

Please note: curcumin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using curcumin or turmeric supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

84



Artemisia Extract

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take an artemisia extract supplement, usually available in capsule form, with a typical dosage ranging from 200 to 400 mg daily. This should be taken with water, preferably after meals to reduce the risk of stomach upset. Follow the specific dosage recommended on the product label or by a healthcare provider for up to 4 weeks.

TYPICAL STARTING DOSE

200 mg

Description

Artemisia extract is derived from various species of the Artemisia plant, and it is used in traditional medicine for its potential medicinal properties. It is being studied for its possible role in supporting digestive health and immune function.

How it helps

In a placebo-controlled trial of 42 patients with osteoarthritis of the hip and knee, supplementation with *Artemisia annua* extract (150-300 mg, 2x/day) for up to 6 months improved WOMAC total scores, as well as its components pain, stiffness, and physical function [R, R].

Artemisia extract may help through its anti-inflammatory properties. This supplement may also aid in joint mobility by reducing swelling and stiffness.

85



Rosemary

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take rosemary in supplement form, such as capsules, with a typical dose ranging from 400 to 600 milligrams once daily. It is best taken with food to improve absorption and reduce the risk of stomach irritation. Consult with a healthcare professional before starting, especially if pregnant, nursing, or on medication.

TYPICAL STARTING DOSE

400 mg

Description

Rosemary is a fragrant herb native to the Mediterranean region. It's a source of nutrients such as vitamin C, vitamin A, and dietary fiber. It contains antioxidants and compounds that may support digestion, improve memory, and have anti-inflammatory properties.

How it helps

Rosemary has anti-inflammatory properties that can help reduce swelling and pain in the joints. Its antioxidants can also help protect your joint cells from damage by free radicals.

In an open-label, 8-week observational trial with 54 patients with rheumatic disease, osteoarthritis, and fibromyalgia, Meta050 (a proprietary, standardized combination of reduced iso-alpha-acids from hops, rosemary extract and oleanolic acid) (440 mg Meta050, 3x/day for 4 weeks and then 880 mg, 2x/day for 4 weeks) decreased pain and abridged arthritis by 50% and by 40% in arthritis subjects. However, it did not improve fibromyalgia scores. It caused a decreasing trend of CRP in subjects who presented with elevated CRP [R].

86



Choline-Stabilized Orthosilicic Acid (Ch-OSA)

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 5-10 mg of choline-stabilized orthosilicic acid (ch-OSA) daily, with a meal. This supplement should be taken consistently for several months to see benefits in skin, hair, nails, and bone health.

TYPICAL STARTING DOSE

5 mg

Description

Choline-stabilized orthosilicic acid (Ch-OSA) is a form of silicon that is more bioavailable than other forms. It has been shown to have a number of health benefits, including improving bone health, reducing the risk of heart disease, and protecting against age-related cognitive decline.

How it helps

In a 12-week study of choline-stabilized orthosilicic acid (ch-OSA) for knee osteoarthritis, no significant differences were found between treatment and placebo groups overall. However, there were noteworthy treatment-gender interactions. Men taking ch-OSA showed improvements in WOMAC scores, and cartilage degradation biomarkers, while WOMEN did not, though men also showed a positive trend in WOMAC pain [\[R\]](#).

87



Palmitoylethanolamide (PEA)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

For managing pain and inflammation, take 300mg to 1,200mg of palmitoylethanolamide (PEA) in divided doses throughout the day, preferably with meals to enhance absorption. This regimen should be followed for at least 6 weeks to evaluate its effectiveness.

Description

Palmitoylethanolamide (PEA) is a naturally occurring fatty acid amide. It is a compound found in various tissues of animals, including humans. PEA has been a supplement for the past couple of decades, and is utilized for its potential anti-inflammatory and pain-relieving properties.

[Palmitoylethanolamide](#) (PEA) is a compound naturally made by the body to help combat inflammation [\[R\]](#).

It’s also made by plants and other animals. Good sources of PEA include [\[R\]](#):

- Soy lecithin
- Soybeans
- Egg yolk
- Peanuts

How it helps

In a placebo-controlled trial of 111 patients with knee osteoarthritis, supplementation with PEA (300-600 mg/day) for 8 weeks reduced the Western Ontario and McMaster Universities Osteoarthritis Index pain, stiffness, and function scores [\[R\]](#).

PEA may help by minimizing inflammation and swelling in the joint tissues. Moreover, PEA can inhibit pain signal transmission to the brain.

88



Tamarind

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 500 mg of tamarind extract as a supplement daily, with or without food. This can be continued for up to 12 weeks, after which you should consult your healthcare provider for further guidance.

TYPICAL STARTING DOSE

500 mg

Description

Tamarind is a tropical fruit native to Africa but is now grown in many tropical regions. Tamarind is rich in nutrients like vitamins C and B-vitamins, minerals such as potassium and magnesium, and dietary fiber. The main compounds in tamarind include tartaric acid and various antioxidants, which contribute to its distinctive taste and potential health benefits.

How it helps

Tamarind has compounds known as polyphenols, which exhibit anti-inflammatory and antioxidant effects. These can potentially alleviate inflammation in the joints and reduce joint pain.

TamaFlexTM, a synergistic anti-inflammatory formula with Tamarindus indica seed and Curcuma longa rhizome extracts, improved knee pain and joint discomfort in 90 adults during a 12-week study. It increased the six-minute walk distance and average walking speed as early as 14 days into the trial [\[R\]](#).

89



Bitter Melon Supplement

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a bitter melon supplement in the form of capsules or tablets, typically ranging from 500 mg to 1000 mg per day, split into two to three doses before meals. It's recommended to follow the dosage instructions on the product label or consult a healthcare provider for personalized advice. Continue for as long as recommended by the healthcare provider, usually a few weeks to months, to monitor effectiveness and tolerance.

TYPICAL STARTING DOSE

500 mg

Description

Bitter melon supplements are often used in traditional medicine for their potential to support blood sugar control. They contain compounds that may help regulate glucose metabolism and promote overall metabolic health.

How it helps

Bitter melon has anti-inflammatory properties, which may help reduce swelling and alleviate joint pain. Additionally, it may slow down the progression of joint diseases, including arthritis, by inhibiting enzymes that break down cartilage.

In a study, 38 knee osteoarthritis patients took *Momordica charantia* for 3 months, resulting in reduced weight, BMI, blood glucose, improved knee function, and lower pain medication usage [\[R\]](#).

90



Limit Coffee Intake

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Reduce your coffee consumption to no more than 2-3 cups (approximately 200-300 mg of caffeine) per day. Try to avoid drinking coffee after 2 PM to minimize potential impacts on sleep.

Description

Limiting coffee consumption can help prevent potential side effects like jitteriness, insomnia, and increased heart rate, while allowing for better sleep quality and overall energy regulation. Moderation in coffee intake supports overall well-being without overstimulation.

People often drink coffee for an energy and mood boost [\[R, R\]](#).

However, **coffee also comes with some drawbacks**. Drinking a lot of coffee can increase blood pressure and anxiety. It may also cause headaches [\[R, R, R\]](#).

How it helps

Limiting coffee intake can help manage joint pain as excessive caffeine can potentially exacerbate inflammation, contributing to joint discomfort. Cutting down on coffee may also contribute towards a better balance of essential nutrients, allowing for better overall joint health.

MR analysis indicates that a genetically predicted 1% increase in coffee consumption leads to higher risks of overall OA, knee OA, and self-reported OA, but not hip OA. Results were consistent across various genetic instruments [\[R\]](#).

Please note: Too much caffeine (over 400 mg per day) may lead to sleep problems, high blood pressure and cholesterol, fast heart rate, and dependence. If you're pregnant, try to limit caffeine to 200 mg per day [\[R, R\]](#).

91



Passion Fruit Peel Extract

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 150-300 mg of passion fruit peel extract supplement daily, preferably with a meal to enhance absorption. This should be done consistently for a period of at least 4 to 8 weeks to observe potential benefits in conditions such as asthma or anxiety. Always check the supplement’s label for specific dosing instructions.

TYPICAL STARTING DOSE

150 mg

Description

Passion fruit peel extract is derived from the peel of the passion fruit (*Passiflora edulis*), a fruit native to South America. It contains carotenoids, flavonoids, and polyphenols, that are utilized for skin health and boosting the immune system.

How it helps

In a placebo-controlled trial of 33 patients with knee osteoarthritis, passion fruit peel extract pills (150 mg/day) improved total WOMAC score (for clinical symptoms) and WOMAC subscale score of physical function after 30 days and pain after 60 days. At 60 days, the extract got reductions of 18.6%, 18%, 19.6%, and 19.2% in pain, stiffness, physical function, and composite WOMAC score, respectively [\[R\]](#).

Passion fruit peel extract contains antioxidants and anti-inflammatory components that help reduce inflammation and pain in your joints.

92



Alpha-Lipoic Acid

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 600-1800 mg of alpha-lipoic acid daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

600 mg

Description

[Alpha-lipoic acid](#) is a natural antioxidant found in almost every cell in your body. People use alpha-lipoic acid to help with issues like skin aging, weight loss, and high blood sugar [\[R, R, R\]](#).

People use alpha-lipoic acid to help with [\[R, R, R, R\]](#):

- Complications of high blood sugar
- Skin aging
- Weight loss
- Carpal tunnel syndrome

How it helps

In a placebo-controlled trial of 210 adults with chronic pain (141 of them with joint pain), supplementation with ALA (400-800 mg/day) for 2 months reduced pain scores [\[R\]](#).

93



Tart Cherries

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Consume about 200 grams (7 ounces) of tart cherries or drink 240 ml (8 ounces) of tart cherry juice daily. This can be done at any time of the day but consuming it in the evening might improve sleep quality. It is recommended to continue daily consumption for at least 4 weeks to observe benefits such as reduced muscle pain, improved sleep, and potential reduction in inflammation.

Description

Tart cherries, often available in the form of juice or supplements, has vitamin C, as well as anthocyanins and melatonin, known for their potential to reduce inflammation and improve sleep quality. They are rich in antioxidants and may aid in recovery from exercise-induced muscle soreness.

Cherries are stone fruits with numerous species. Tart or “sour” cherries (*Prunus cerasus*) are native to parts of Europe and Asia [\[R\]](#), [\[R\]](#).

They are close to regular, sweet cherries (*Prunus avium*) but more acidic. Hence, people do not eat them fresh but dried or in syrups, salads, pies, or liqueurs.

People consume tart cherries to help with [\[R\]](#):

- Gout
- Exercise recovery
- Blood sugar control
- Blood pressure

How it helps

In a study of 53 people with knee osteoarthritis, consuming tart cherry juice (240 mL, 2x/day for 6 weeks) slightly improved pain, probably by reducing the levels of inflammation [\[R\]](#).

Please note: *Cherry pits contain a toxic substance. Avoid crunching or crushing them* [\[R\]](#).

94



Swimming

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate swimming into your routine for at least 30 minutes, 3 times a week. Choose a pace and stroke that keeps your heart rate elevated yet allows you to breathe comfortably. Continue this practice regularly for long-term health benefits.

TYPICAL STARTING DOSE

30 minutes

Description

Swimming is a whole-body workout that engages various muscle groups, promoting strength and endurance. It helps keep the heart and lungs healthy, improves flexibility, and can even help reduce stress. Regular swimming is a great way to maintain a balanced, fit, and healthy lifestyle.

How it helps

In 2 non-placebo-controlled trials, swimming proved beneficial for individuals with osteoarthritis. It reduced joint pain and stiffness, improved muscle strength, and enhanced functional capacity in one study. In the other one, swimming lowered central arterial stiffness, reduced IL-6 levels, and increased brachial flow-mediated dilation in patients with osteoarthritis [\[R\]](#), [\[R\]](#).

95



Iyengar Yoga

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Attend a 90-minute Iyengar yoga class at least once a week. Choose a class led by a certified Iyengar yoga instructor to ensure proper guidance and technique adherence.

TYPICAL STARTING DOSE

1 hour

Description

Iyengar yoga is a style of yoga that emphasizes proper alignment and the use of props to support poses. It can help improve flexibility, balance, and mental well-being through precise and controlled movements.

How it helps

In a non-placebo-controlled trial of 11 patients with knee osteoarthritis, practicing Iyengar yoga (90 min, 1x/week) for 8 weeks reduced pain while improving physical function and mood [\[R\]](#).

Iyengar yoga emphasizes alignment, strength, and flexibility, reducing stress on joints and mitigating pain.

96



Curcumin BCM95

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 500 mg of BCM-95 curcumin twice daily with meals to ensure better absorption. Continue this regimen for at least 8 to 12 weeks to evaluate its benefits on your condition.

TYPICAL STARTING DOSE
1000 mg

Description

Curcumin BCM95 is a bioavailable form of curcumin that may enhance the absorption and effectiveness of curcumin in the body. It is often used in supplements to harness the potential health benefits of curcumin.

How it helps

Supplementation with curcumin BCM95 (500 mg, 3x/day) improved pain and osteoarthritis severity in 139 knee osteoarthritis patients as effectively as diclofenac but with better tolerance. In combination with glucosamine and chondroitin, it reduced pain and improved knee function in a placebo-controlled trial of 53 patients with knee osteoarthritis [\[R\]](#), [\[R\]](#).

Curcumin BCM95 may help by reducing inflammation, oxidative damage, and swelling in the joints.

Please note: curcumin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using curcumin or turmeric supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

97



Papain and Bromelain

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 500 mg of papain and 500 mg of bromelain supplements daily with meals to aid digestion. Continue this regimen for at least two weeks to assess effectiveness.

TYPICAL STARTING DOSE

500 mg

Description

Bromelain and papain are plant-derived enzymes from pineapple and papaya respectively, and are commonly used in dietary supplements and food processing. Both enzymes work to break down proteins, and have a long history of traditional use in Central and South America for digestive support. As supplements, they have been used for several decades for digestion, reducing inflammation, and promoting wound healing.

How it helps

In a non-placebo-controlled trial of 40 patients with lumbar spine osteoarthritis, supplementation with papain and bromelain (250 mg, 2x/day) as an add-on to aceclofenac for 6 weeks further reduced pain [R].

Papain and bromelain may help by reducing inflammation and swelling.

98



Vitamin E

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 200 IU of Vitamin E daily as a supplement, preferably with a meal that contains fat to enhance absorption.

TYPICAL STARTING DOSE

200 iu

Description

Vitamin E is a fat-soluble antioxidant found in various foods, such as nuts and seeds. It is known for its ability to protect cells from oxidative damage, support immune function, and may play a role in skin health. Vitamin E supplements are used to bolster antioxidant defenses and may be beneficial for conditions related to oxidative stress.

[Vitamin E](#) is an antioxidant important for the immune system and for heart health [\[R\]](#).

Plant-based foods have the most vitamin E. These include [\[R\]](#):

- Wheat germ
- Sunflower seeds
- Almonds
- Plant oils

Adults need about **15 mg** of vitamin E per day [\[R\]](#).

How it helps

Vitamin E may help joint pain because of its anti-inflammatory properties, which can reduce swelling and pain in the joints. It's also an antioxidant, which means it could help combat damaging substances called free radicals that lessen inflammation and pain in joints.

In a study with 53 osteoarthritis patients (hip and knee), vitamin E (400 mg) and Diclofenac (50 mg) were equally effective over 3 weeks, although one patient discontinued vitamin E due to inefficacy. Both treatments reduced pain, joint size, walking time, and increased joint mobility. Patients with higher plasma-alpha-tocopherol levels showed greater pain reduction [\[R\]](#).

Please note: *While dietary vitamin E is generally considered safe, vitamin E supplements have been linked to prostate cancer. They may also not be the best option for pregnant people. Those who have heart disease, bleeding disorders, or other conditions may also need to avoid them. Consult your doctor before taking vitamin E supplements [\[R\]](#).*

99



N-Acetyl-Glucosamine (NAG)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 500-1000 mg of N-acetyl-glucosamine (NAG) orally with a glass of water, preferably with meals to minimize digestive discomfort. This should be done once daily for at least 2-6 months to evaluate its effectiveness on the intended condition.

TYPICAL STARTING DOSE

500 mg

Description

NAG is a compound derived from glucose and is often used in dietary supplements for its potential joint health benefits, particularly in combination with other compounds like chondroitin and glucosamine.

How it helps

A placebo-controlled trial to test the efficacy of a polymer of N-acetyl-D-glucosamine (NAG), or POLY-Nag concluded that POLY-Nag may be useful in treating patients with osteoarthritis [\[R\]](#).

Oral N-acetyl glucosamine (100 mg/day) and chondroitin sulfate (180 mg/day) supplementation for 12 weeks or longer improved knee function and household physical activity in middle-aged and older Japanese adults with knee pain/stiffness, aligning with studies from Europe and the US [\[R\]](#).

NAG aids in the production and repair of cartilage, the protective tissue that cushions your joints. By improving joint health, it may reduce inflammation and discomfort associated with conditions like osteoarthritis.

100



Clove

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a clove supplement in capsule form, following the manufacturer's recommended dosage, usually ranging from 500 mg to 1000 mg daily with meals. Continue as long as needed or as directed by a healthcare provider.

TYPICAL STARTING DOSE

500 mg

Description

Clove is a spice known for its strong flavor and potential health benefits. It contains compounds like eugenol that have antioxidant and anti-inflammatory properties, making it a valuable addition to herbal remedies and culinary dishes.

How it helps

A prospective pilot study with 20 people found that a polyherbal formulation of Eezpain spray (containing Gaultheria oil, Eucalyptus oil, Turpentine oil, Clove Oil, Menthol, and Camphor) helped with muscular pain relief in the affected areas: knee and wrist joints, back of neck and shoulder, forearms and lower back. The herbs included are known for having analgesic and anti-inflammatory activity [R].

Clove contains eugenol, which has anti-inflammatory and pain-killing properties. Therefore, incorporating clove into your diet may help alleviate joint pain.

101



Low-Intensity Exercise

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Incorporate 60 minutes of low-intensity activities, such as walking or gentle yoga, into your daily routine. Aim to do this 5 days a week to achieve the best results.

TYPICAL STARTING DOSE

1 hour

Description

Low-intensity exercise, such as walking or gentle yoga, provides numerous health benefits, including improved cardiovascular health, stress reduction, and enhanced overall fitness without the strain of high-intensity workouts.

How it helps

A randomized controlled trial compared the effects of high and low-intensity progressive resisted exercises on knee osteoarthritis people with sarcopenia. The study found that low-intensity exercises showed greater improvements in pain, functional disability, and quality of life compared to the high-intensity group [\[R\]](#).

However, low-quality evidence suggests that high-intensity exercise may be superior to low-intensity exercise in reducing pain and improving physical function. These improvements, however, were not maintained at long-term follow-up, highlighting the need for ongoing participation in exercise [\[R\]](#).

Low-intensity exercise may lead to declines in pain levels and improvements in health status, though the biological markers of cartilage degradation did not change. This suggests that low-intensity exercise may improve symptoms without significantly altering the underlying joint pathology [\[R\]](#).

102



Lactobacillus Casei

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a supplement containing Lactobacillus casei daily, with a dosage recommended by the product's manufacturer or a healthcare professional. The specific amount can vary, but it is commonly found in doses around 10 billion colony-forming units (CFUs). Continue this regimen for at least 4 weeks to observe potential health benefits.

TYPICAL STARTING DOSE

10 billion CFU

Description

Lactobacillus casei is a probiotic bacterium known for its potential to support gut health and immune function. It contributes to a balanced gut microbiome and may help alleviate digestive issues like diarrhea.

[Lactobacillus casei](#) is a [probiotic](#) bacterium found in fermented foods (e.g., cheese), as well as in the reproductive and gastrointestinal tracts of humans and other animals [\[R\]](#), [\[R\]](#).

People mainly take *L. casei* to support a healthy gut microbiota [\[R\]](#).

How it helps

In a placebo-controlled trial of 537 patients with knee osteoarthritis, consuming skimmed milk with *L. casei* Shirota for 6 months improved the symptoms while decreasing inflammation [\[R\]](#).

103



Hatha Yoga

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Practice Hatha Yoga for 60 minutes at least twice a week. Choose a quiet, comfortable space and consider guided sessions for beginners or those unfamiliar with the poses. Consistency over a period of months to years is beneficial for appreciating its full effects.

TYPICAL STARTING DOSE

1 hour

Description

Hatha yoga is a gentle and accessible form of yoga that combines physical postures, breathing exercises, and meditation. Practicing hatha yoga regularly can promote flexibility, stress reduction, and overall physical and mental well-being.

How it helps

Hatha Yoga encourages slow movements which strengthen muscles surrounding the joints, reducing the stress on them and thereby decreasing pain. Its focus on flexibility and balance can also improve joint function and overall mobility.

In a study of 250 participants with knee osteoarthritis, those who received hatha yoga therapy along with transcutaneous electrical stimulation and ultrasound treatment showed better improvements in various knee-related factors compared to those who received therapeutic exercises [\[R\]](#).

104



Black Seed Oil

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take one to two teaspoons (5-10ml) of black seed oil twice daily, preferably before meals. For capsule forms, follow the manufacturer's instructions, commonly 500mg capsules twice daily. Continue this regimen for up to 8 weeks to evaluate its effects.

TYPICAL STARTING DOSE

2 tsp

Description

Both black seed extract and black seed oil have been traditionally used for their potential health benefits, including anti-inflammatory and antioxidant properties. They may support overall wellness and immune function when incorporated into a balanced diet.

[Black seed](#) (black cumin) and its oil are used in cooking and traditional medicine [\[R\]](#).

People mainly use black seed for [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Allergies
- Joint pain

How it helps

Black seed oil has anti-inflammatory properties that may reduce inflammation and pain in the joints. It can also improve joint function, potentially slowing the progression of joint conditions.

In 2 placebo-controlled trials of 164 patients with knee osteoarthritis, supplementation with black seed oil (2.5 mL every 8 hours) for 1 month decreased pain scores by ~34%, osteoarthritis scores by ~16-28%, and painkiller use [\[R\]](#), [\[R\]](#).

105



Alpinia Galanga

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take an Alpinia galanga supplement with a glass of water, following the dosage instructions on the product label, typically ranging from 300 to 500 mg, once daily. It's important to consult with a healthcare provider before starting any new supplement regimen, especially if you are pregnant, nursing, or have existing health conditions.

TYPICAL STARTING DOSE

300 mg

Description

Alpinia galanga, commonly known as greater galangal, is a tropical plant native to Southeast Asia. Its rhizomes are used in traditional medicine for their potential to alleviate digestive issues, stimulate appetite, and reduce inflammation. The main chemical compounds in *Alpinia galanga* include essential oils like cineole and terpinolene.

How it helps

In a placebo-controlled trial of 261 patients with knee osteoarthritis, supplementation with *Alpinia galanga* and ginger extracts for 6 weeks improved knee pain on standing (by 8.1 mm), and after walking 50 feet (by 6.5 mm), the Western Ontario and McMaster Universities osteoarthritis composite index (by 3.9 mm), global status, and intake of rescue medication [R].

Alpinia galanga has anti-inflammatory properties that may help reduce swelling and pain in the joints.

106



N-Acetyl-Glucosamine (NAG) And Chondroitin

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 500 mg of N-acetyl-glucosamine (NAG) along with 400 mg of chondroitin sulfate three times a day with meals. This combination should be consumed daily for at least two months to evaluate its effects on joint health.

TYPICAL STARTING DOSE
1500 mg

Description

NAG is a compound derived from glucose and is often used in dietary supplements for its potential joint health benefits, particularly in combination with other compounds like chondroitin and glucosamine. Chondroitin is a natural substance found in the cartilage of joints. It is commonly used in dietary supplements to support joint health and reduce symptoms of osteoarthritis.

How it helps

A placebo-controlled trial to test the efficacy of a polymer of N-acetyl-D-glucosamine (NAG), or POLY-Nag concluded that POLY-Nag may be useful in treating patients with osteoarthritis [R].

Oral N-acetyl glucosamine (100 mg/day) and chondroitin sulfate (180 mg/day) supplementation for 12 weeks or longer improved knee function and household physical activity in middle-aged and older Japanese adults with knee pain/stiffness, aligning with studies from Europe and the US [R].

NAG aids in producing cartilage, thus reducing joint discomfort. Chondroitin, on the other hand, helps retain water in your cartilage, promoting elasticity and combating joint pain.

107



Glucosamine And MSM

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take glucosamine as a dietary supplement, commonly available in capsules or liquid form. The standard dose is 1500 mg per day, which can be taken all at once or divided into multiple doses throughout the day. It's often recommended to continue taking glucosamine for at least 3 to 4 months to evaluate its effectiveness in relieving joint pain or osteoarthritis symptoms.

Take 1 to 3 grams of Methylsulfonylmethane (MSM) per day, divided into three doses. This can be in the form of capsules or powder that is mixed with water. It is recommended to start with a lower dose to assess tolerance, then gradually increase to the desired dose over a period of 1 to 2 weeks.

Description

Glucosamine is a supplement commonly used to support joint health and may help alleviate symptoms of osteoarthritis. It's believed to promote cartilage health and reduce joint discomfort, but individual responses can vary.

[Glucosamine](#) is a compound naturally made by the body. It helps keep the connective tissues, such as the cartilage in the joints, strong and elastic [\[R\]](#).

Many people use glucosamine supplements to support joint health [\[R\]](#), [\[R\]](#), [\[R\]](#).

MSM is a naturally occurring sulfur compound found in foods and used in dietary supplements. It has anti-inflammatory properties and may be used to support joint health and reduce exercise-related muscle soreness. A molecule of MSM is broken down in the body into a sulfate (sulfur) group and two methyl groups.

The following may increase people’s needs for sulfur and methyl groups: physical activity, recovery from injuries, inflammation, infections/sickness, toxins, etc.

How it helps

Glucosamine (500 mg), alone or in combination with methylsulfonylmethane (MSM, 500 mg) three times daily for 12 weeks, has shown improvements in pain and swelling and in improving the functional ability of joints [\[R\]](#).

108



Curcumin Theracurmin

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 90 mg of Theracurmin curcumin twice daily with meals. Continue this regimen for at least 8 weeks to observe potential benefits.

TYPICAL STARTING DOSE

180 mg

Description

Curcumin Theracurmin is another formulation of curcumin designed for enhanced absorption and bioavailability. It may offer various health benefits, including anti-inflammatory and antioxidant effects.

How it helps

Supplementing with curcumin Theracurmin (700 mg, 3x/day or 180 mg/day) in patients with knee osteoarthritis reduced pain, improved muscular function, and reduced celecoxib dependence in several placebo-controlled trials. Long-term use (6-12 months) was safe and effective, improving osteoarthritis symptoms and cartilage health [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Curcumin Theracurmin is a potent anti-inflammatory that may help reduce joint pain by lessening inflammation in your joints. Additionally, it has antioxidant properties that can prevent joint damage.

Please note: curcumin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using curcumin or turmeric supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

109



Guggul

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a guggul supplement, usually in capsule form, at a dosage of about 500-1000 mg per day, divided into 2-3 doses. This should be taken with meals and continued for a minimum of 3 months to evaluate its effectiveness.

TYPICAL STARTING DOSE

500 mg

Description

Guggul is an herbal resin used in traditional Ayurvedic medicine for various health concerns, including cholesterol management. It may have potential benefits for lipid profiles and overall cardiovascular health.

How it helps

In a non-placebo-controlled trial of 30 patients with knee osteoarthritis, supplementation with guggul (500 mg, 3x/day) for 1 month improved WOMAC total scores and secondary measures of pain [R].

Guggul may reduce joint pain by reducing inflammation in the joints.

110



Blueberry Supplements

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take a blueberry supplement capsule, usually ranging from 500 mg to 1000 mg, once daily. It's best to consume it with a meal to enhance absorption. Continue this regimen daily for at least 4 weeks to observe benefits.

TYPICAL STARTING DOSE
500 mg

Description

Blueberry supplements often contain concentrated extracts of blueberry compounds, including antioxidants like anthocyanins. They are used to support cognitive function, eye health, and overall antioxidant protection.

[Blueberries](#) are enjoyed all around the world for their sweet taste and nutritional benefits. They may support [\[R\]](#):

- Heart health
- Cognitive function
- Normal blood sugar levels

In addition to eating the fruits, people can take different blueberry supplements, such as **blueberry powder or extract**.

How it helps

In a placebo-controlled trial of 63 patients with knee osteoarthritis, consuming freeze-dried blueberry powder (40 g/day for 4 months) reduced pain, stiffness, and difficulty to perform daily activities, while improving gait performance [\[R\]](#).

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Probiotics

IMPACT

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EVIDENCE

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How to implement

Take a probiotic supplement containing 10 billion or more live cultures once daily, preferably with a meal or as directed by the packaging or a healthcare provider.

TYPICAL STARTING DOSE
30 billion CFU

Description

Probiotics are live beneficial bacteria and yeasts that can support gut health and digestive function when consumed as supplements or found in fermented foods like yogurt and sauerkraut. They may be beneficial to gut health, immune function, blood sugar, and mood.

[Probiotic bacteria](#) are “good” bacteria found mainly in the large intestine. They support your body and mind by [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Maintaining gut health
- Supporting a healthy immune system
- Improving your mood
- Helping to maintain healthy blood sugar

Prebiotics are certain types of fiber and other complex carbs that serve as food for gut bacteria. **They support gut health by helping boost the activity and growth of “good” bacteria** [\[R\]](#), [\[R\]](#).

Prebiotics are also added to foods and supplements. Common prebiotic ingredients are [\[R\]](#), [\[R\]](#):

- Oligo-fructose
- Oligo-galactose
- [Inulin](#)

Mixtures of probiotics and prebiotics are known as **synbiotics** [\[R\]](#).

How it helps

In a placebo-controlled trial of 537 patients with knee osteoarthritis, consuming skimmed milk with *L. casei* Shirota for 6 months improved the symptoms while decreasing inflammation [\[R\]](#).

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Omega-3 (Fish Oil)

IMPACT

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EVIDENCE

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How to implement

Take 1-2 g of omega-3 (fish oil) supplement daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

500 mg

Description

Omega-3 fatty acids are essential fats found in fatty fish like salmon, flaxseeds, and walnuts. They are known for their potential cardiovascular and brain health benefits, including reducing the risk of heart disease and supporting cognitive function.

[Omega-3 fatty acids](#) are some of the healthiest fats we can eat. They help lower inflammation and protect the heart, brain, and eyes. Our bodies produce less omega-3s than we need for optimal health, so it's important to get enough through food or supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

There are three major types of omega-3s: ALA, EPA, and DHA [\[R\]](#), [\[R\]](#).

Fatty fish are rich in EPA and DHA. They include [\[R\]](#):

- Salmon
- Tuna
- Herring
- Sardines

For optimal protection, try to get at least **two servings of fatty fish per week**. Fish oil supplements are available for those who don't eat fish regularly [\[R\]](#).

How it helps

Experts suggest omega-3 fatty acids may help relieve pain and improve function. However, some recommend against omega-3s for osteoarthritis due to their lack of effect on this condition [\[R\]](#), [\[R\]](#), [\[R\]](#).

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Chinese Skullcap

IMPACT

0 / 5

EVIDENCE

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How to implement

Take a Chinese skullcap supplement of 300 to 500 mg, up to three times daily, with meals. Ensure to check the label for specific extract concentration and consult with a healthcare provider to adjust the dosage as needed.

TYPICAL STARTING DOSE

300 mg

Description

Chinese skullcap is an herb used in traditional Chinese medicine for its potential calming and anti-anxiety effects. It may be used to reduce stress and promote relaxation.

How it helps

A combination of Scutellaria baicalensis and Acacia catechu extracts was shown to decrease knee joint pain, increase range of motion, and reduce biomarkers of inflammation in a one-week clinical trial [\[R\]](#).

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Guided Imagery

IMPACT

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EVIDENCE

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How to implement

Find a quiet, comfortable place to sit or lie down where you can spend 20 to 30 minutes without interruptions. Close your eyes and take deep breaths to relax. Then, listen to a guided imagery audio recording or follow a script where you imagine a peaceful scene or scenario in detail. Do this practice daily, ideally at the same time each day, to reduce stress and improve well-being.

TYPICAL STARTING DOSE

30 minutes

Description

Guided imagery is a relaxation technique that involves using mental images to promote relaxation, reduce stress, and manage pain. It can have a positive impact on mental well-being and overall stress management.

Guided imagery is a relaxation technique that involves visualizing positive, peaceful settings. Guided imagery aims to [\[R\]](#), [\[R\]](#):

- Improve mind-body connection
- Enhance well-being
- Reduce stress and anxiety
- Improve immunity

How it helps

A pilot study found that guided imagery with progressive muscle relaxation (for 12 weeks) reduced pain and mobility difficulties in older women with osteoarthritis [\[R\]](#).

Another study compared progressive muscle relaxation with graded motor imagery for managing knee osteoarthritis. Both methods were beneficial, but graded motor imagery showed slightly better outcomes in terms of knee flexion range and function [\[R\]](#).

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Dietary L-Alanine

IMPACT

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EVIDENCE

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How to implement

Incorporate foods high in L-alanine, such as meat, fish, dairy, eggs, and certain beans and seeds, into your daily meals. For a specific dietary intake, aim to consume these alanine-rich foods as part of at least two meals per day to help meet your body's alanine needs.

Description

L-alanine is a non-essential amino acid that plays a crucial role in the body's energy metabolism, particularly during periods of intense exercise. It can help support endurance and muscle recovery by providing a source of energy and aiding in the removal of harmful metabolic byproducts like lactic acid.

How it helps

A Mendelian randomization study suggested that genetically predicted alanine, tyrosine, and isoleucine levels were significantly associated with a reduced osteoarthritis risk [\[R\]](#).

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Progressive Muscle Relaxation

IMPACT

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EVIDENCE

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How to implement

Set aside at least 10-15 minutes daily in a quiet, comfortable spot where you won't be disturbed. Start by tensing the muscles in your feet for 5 seconds, then relax for 30 seconds, and progressively work your way up through the major muscle groups of your body, tensing then relaxing each for 5 and 30 seconds respectively.

TYPICAL STARTING DOSE

10 minutes

Description

Progressive Muscle Relaxation is a relaxation technique involving the systematic tensing and releasing of muscle groups to reduce muscle tension, stress, and anxiety. Regular practice can lead to improved physical and mental relaxation.

Progressive muscle relaxation is a relaxation technique focused on releasing muscle tension. In this technique, you focus on tensing and relaxing different parts of your body, one after the other, to relieve stress [R](#), [R](#)].

It is common to start with the toes and slowly work your way up to the neck and head. Try to focus on a single muscle group at a time (for example, the calf muscles). Tense these muscles for 5-10 seconds, then relax for 20-30 seconds before moving on to the next muscle group [R](#), [R](#)].

How it helps

A pilot study found that Guided Imagery with Progressive Muscle Relaxation (for 12 weeks) reduced pain and mobility difficulties in older women with osteoarthritis. Participants in the treatment group reported substantial improvements compared to those in the control group, who experienced no differences in pain and non-significant increases in mobility difficulties [R](#)].

Another study compared Progressive Muscle Relaxation with Graded Motor Imagery for managing knee osteoarthritis. Both methods were beneficial, but Graded Motor Imagery showed slightly better outcomes in terms of knee flexion range and function. This suggests that while PMR is effective, other therapies might provide more significant improvements in some functional aspects [R](#)].

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Dietary Vitamin A

IMPACT

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EVIDENCE

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How to implement

Include foods high in vitamin A in your daily diet, such as sweet potatoes, carrots, spinach, and fortified foods like milk. Aim for 700-900 micrograms (mcg) of vitamin A per day for adults, depending on your age and sex, with a slightly higher intake recommended for women who are pregnant or breastfeeding.

Description

Vitamin A is essential for maintaining healthy vision, immune function, and skin integrity. It also plays a role in cell differentiation and growth, supporting various bodily functions.

How it helps

Genetically higher vitamin A may be associated with a lower risk of osteoarthritis [\[R\]](#).

Please note: *There is no evidence from controlled clinical trials to support this recommendation. It is included based on uncontrolled clinical trials, animal or cell studies, or non-scientific criteria. Please take this recommendation with a grain of salt until more research is available.*

Please note: *A high dose of vitamin A or taking high amounts of vitamin A long-term can be harmful, especially in women planning pregnancy or already pregnant. Vitamin A may cause harm to the fetus Vitamin A may also interact with some medications. Talk to your doctor before supplementing with vitamin A [\[R\]](#), [\[R\]](#), [\[R\]](#).*

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Avoid Iron Supplements (Unless Deficient)

IMPACT

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EVIDENCE

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How to implement

Only take iron supplements if a blood test shows you are iron deficient. If not deficient, do not use iron supplements. For those diagnosed with iron deficiency, follow your healthcare provider's instructions on the type and dosage of iron supplement to take.

Description

Iron (Fe) is an essential mineral. It helps make [hemoglobin](#), a protein that carries oxygen to cells. In this way, iron **increases energy** and supports **brain and immune system function** [\[R\]](#), [\[R\]](#), [\[R\]](#).

Avoiding unnecessary iron supplements, particularly without a confirmed deficiency, can prevent the risk of iron overload, which can lead to health issues like hemochromatosis and oxidative stress.

However, too much iron can be bad for the body. It can deposit into organs, such as the liver, heart and the pancreas. This can cause issues such as liver disease, heart problems and diabetes [\[R\]](#), [\[R\]](#).

How it helps

Genetically higher iron levels may be causally associated with hip (but not knee) osteoarthritis and total hip replacement [\[R\]](#).

Please note: *Some people deficient in iron may need to take iron supplements. Your doctor should help you make that decision based on your actual iron levels.*

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Acacia Fiber

IMPACT

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EVIDENCE

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How to implement

Take 5-10 grams of acacia fiber supplement per day, mixed with at least 8 ounces of water. Do this daily, preferably in the morning, for ongoing gut health support. Be sure to start with a lower dose to assess tolerance and gradually increase to the desired amount.

TYPICAL STARTING DOSE
5 g

Description

Acacia fiber is a soluble dietary fiber derived from the gum of the Acacia tree. It is often used as a natural thickening agent in foods and supplements and can promote digestive health by supporting regular bowel movements, and serve as a prebiotic.

How it helps

A combination of *Scutellaria baicalensis* and *Acacia catechu* extracts was shown to decrease knee joint pain, increase range of motion, and reduce biomarkers of inflammation in a one-week clinical trial [\[R\]](#).

Next Steps

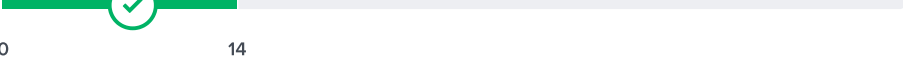
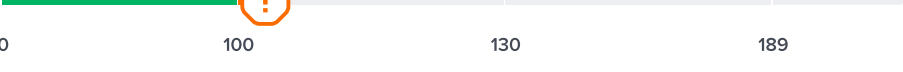
Remember, your genes only tell one important part of your health story!

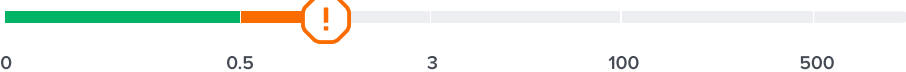
Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

Your lab results

Your lab results are impacted by the combined effect of your genes, environment and lifestyle.

Lab tests will give you the best picture of your current health status, while your genes provide insight into your health predispositions and which recommendations are best for you.

	ALT	26 IU/L		9 Nov 2025
	WBC	6.92 x10 ³ /mm ³		9 Nov 2025
	SHBG	39.3 nmol/L		9 Nov 2025
	Zinc	17.12 umol/L		9 Nov 2025
	Rheumatoid Factor	7.7 IU/mL		9 Nov 2025
	LDL Cholesterol	103 mg/dL		9 Nov 2025
	Uric Acid	4.4 mg/dL		9 Nov 2025
	Triglycerides	54 mg/dL		9 Nov 2025
	Homocysteine	12.84 umol/L		9 Nov 2025

 hs-CRP	1.6 mg/L		9 Nov 2025
 Testosterone, Total	1500 ng/dL		9 Nov 2025
 Calcium	9.2 mg/dL		9 Nov 2025
 Iron	228 mcg/dL		9 Nov 2025
 ApoB	108 mg/dL		9 Nov 2025