

Disc Degeneration

DNA Health Report

REPORT CATEGORIES —



BONE HEALTH



JOINT & TENDON
HEALTH

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

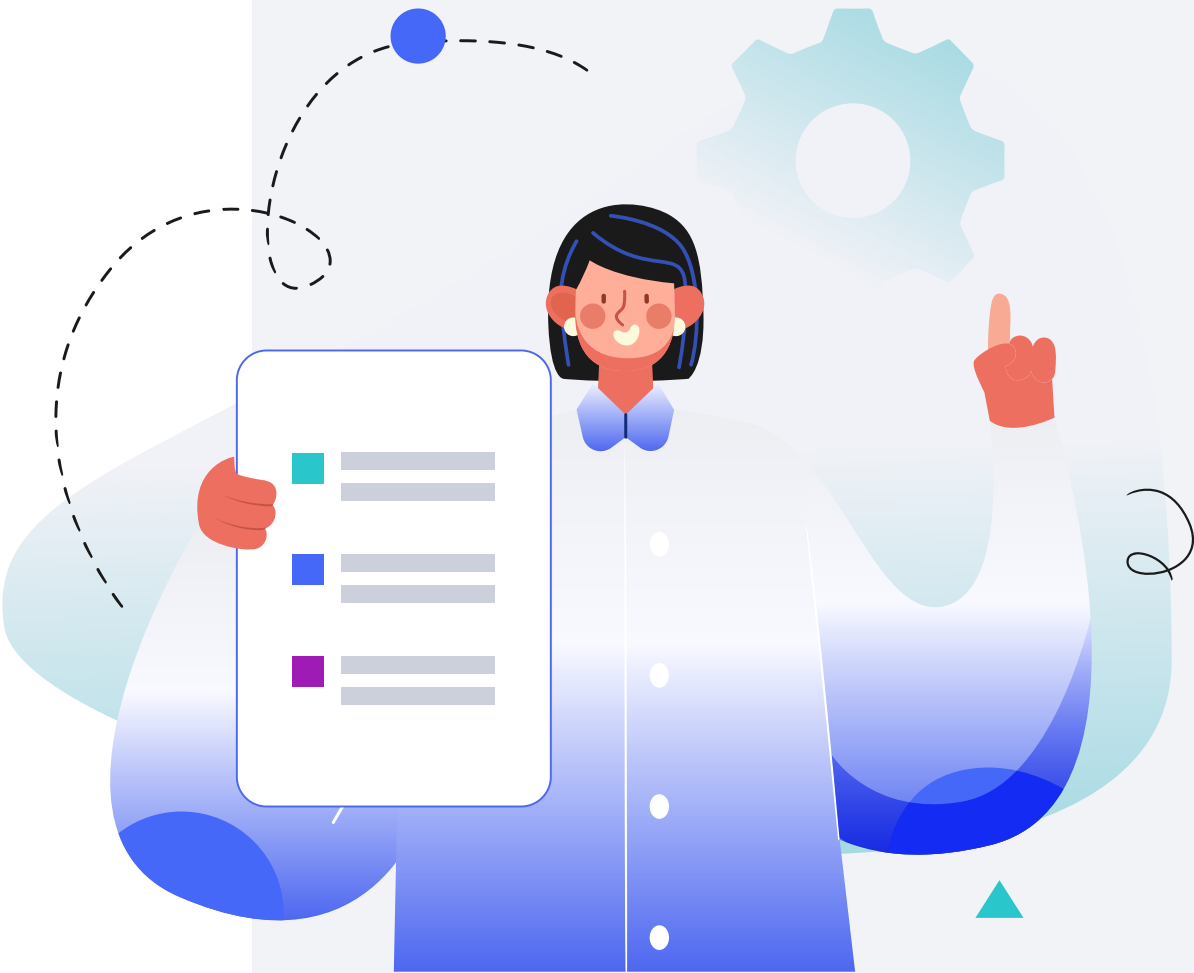
Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg

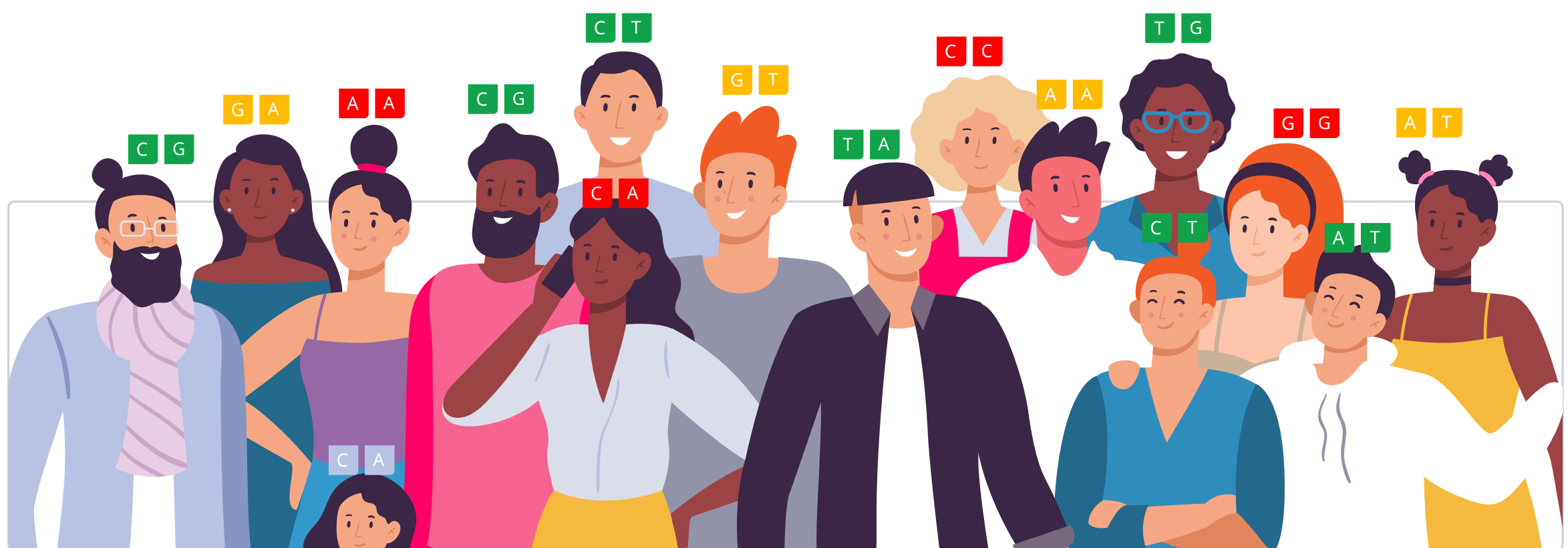


Our Wellness Reports analyze how your DNA influences your health.

We then use this analysis to give you personalized risk estimates and recommendations.



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

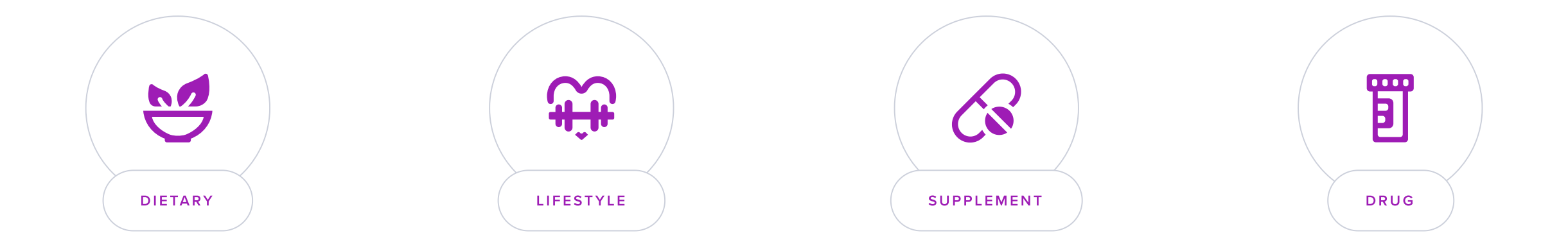
You have 2 risk alleles

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

Disc degeneration refers to the gradual deterioration of the intervertebral discs, which are cushion-like pads situated between the bones of the spine (vertebrae). Over time, these discs can lose hydration and elasticity, a condition commonly associated with aging, but it can also be accelerated by injury or repetitive strain.

This degeneration can lead to a reduction in the discs' ability to absorb shock, maintain spinal flexibility, and provide the proper spacing for nerve roots branching off from the spinal cord.

Complications

As disc degeneration progresses, individuals may experience chronic back pain, stiffness, or reduced mobility. In some cases, the narrowing of the disc space can lead to nerve compression, resulting in symptoms such as sciatica, which is characterized by radiating pain down one or both legs.

Moreover, the body may form bony growths called bone spurs in response to the instability, potentially exacerbating nerve compression and leading to further discomfort and disability.



MORE LIKELY

More likely to have disc degeneration based on 844,435 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ZEB1	rs2484990	CC
ZEB1	rs1250307	AA
ZEB1	rs2484992	CC
EYS	rs11754641	CC
DCT	rs9301951	TT
LRRN1	rs17034687	CC
CILP	rs2073711	AG
PSMB9	rs2187689	TC
ARL8B	rs11918654	TT
HIVEP1	rs1205863	TG
PSMB9	rs7744666	TC
PSMB9	rs11969002	GA
PSMB9	rs6457690	GA
PSMB9	rs1029296	TC
PSMB9	rs6936004	TC
PSMB9	rs3749982	TA
PSMB9	rs9469300	GA
PSMB9	rs10214886	TA
PSMB9	rs10046257	GA
PSMB9	rs1029295	TC
PRKN	rs926849	TC
MYH14	rs4802666	GA
PDGFD	rs12805875	AG
PDGFD	rs7103004	CT

GENE	SNP	GENOTYPE
PDGFD	rs4554859	GT
PDGFD	rs7118412	AG
STOX1	rs10998466	AA
MARCKS	rs9488238	AA
PFKP	rs7896691	TT
SLC26A7	rs2657195	AA
CSMD1	rs1154053	CC
CSMD1	rs4875102	AA
RAB40C	rs7204439	TT
PIGQ	rs1981483	GG
CSMD1	rs980238	AA
METTL26	rs2017567	TT

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	Aquatic Exercise	1 hour	2	Avoid High-Impact Exercise	
3	Reduce Back Strain		4	McKenzie Method	5 minutes
5	Spinal Manipulation		6	Chiropractic Adjustment	30 minutes
7	Good Posture		8	Topical Capsaicin	
9	Core-Strengthening Exercises	20 minutes	10	Topical CBD	
11	Glucosamine	1500 mg			

1



Aquatic Exercise

IMPACT

1 / 5

EVIDENCE

1 / 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

Aquatic exercise alleviates stress on the spine, providing a supportive environment that reduces pain and enhances mobility for individuals with disc degeneration. The buoyancy of water allows for improved range of motion and muscle strengthening without exacerbating discomfort.

2



Avoid High-Impact Exercise

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Opt for low-impact activities such as swimming, cycling, or walking instead of running or jumping exercises. Engage in these alternative exercises for at least 150 minutes per week, spread out over several days to ensure rest periods between sessions.

Description

For individuals with certain medical conditions or joint issues, avoiding high-impact exercise can help prevent injuries and joint strain. Choosing lower-impact activities like swimming or cycling can provide similar cardiovascular benefits while minimizing the risk of overuse injuries.

How it helps

Avoiding high-impact exercise in individuals with disc degeneration helps reduce mechanical stress on the spine, alleviating pain and preventing further disc damage. Engaging in low-impact activities maintains fitness levels while safeguarding spinal integrity.

3



Reduce Back Strain

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Maintain good posture while sitting and standing, avoiding bending or twisting at the waist. When lifting objects, bend your knees and lift with your leg muscles, not your back. Take breaks every 30 minutes to stretch or walk if you have a sedentary job. Implement these practices daily for ongoing back health.

Description

Reducing back strain entails adopting proper posture, lifting techniques, and ergonomic practices to prevent or alleviate stress on the back muscles and spine, promoting better musculoskeletal health.

The muscles, tendons, and bones of the back are extremely complex. Together, they hold up a large portion of the body’s weight. **Any mechanical stress on the back, especially if the muscles aren’t fit, can cause strain.** Hence, back strain is very common [\[R\]](#).

Back strain often develops in the workplace. Jobs that increase the risk of back strain include:

- Truck drivers [\[R\]](#)
- Nurses and physiotherapists [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Dentists [\[R\]](#)
- Farmers [\[R\]](#)
- Forklift operators [\[R\]](#)
- Domestic workers [\[R\]](#)

How it helps

By adopting proper posture and lifting techniques, individuals with disc degeneration can minimize mechanical stress on the spine, reducing inflammation and preventing further degeneration of intervertebral discs, thus promoting overall spinal health.

4



McKenzie Method

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Perform the McKenzie method exercises daily, ideally under the guidance of a certified McKenzie therapist. Begin with 5-10 minutes per session, gradually increasing as advised. Continue as long as necessary to improve symptoms, maintaining regular sessions for at least 4-6 weeks for noticeable results.

TYPICAL STARTING DOSE

5 minutes

Description

The McKenzie Method is a physical therapy approach designed to manage musculoskeletal pain, especially in the back and neck. It focuses on exercises and movements that promote pain relief and spinal health.

How it helps

The McKenzie Method helps individuals with disc degeneration by promoting proper spinal alignment and movement patterns, which can alleviate pain and prevent further deterioration. Through targeted exercises, it strengthens supporting muscles and enhances mobility, contributing to overall spinal health.

5



Spinal Manipulation

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Schedule regular appointments with a licensed chiropractor or physical therapist trained in spinal manipulation. These sessions should occur 1-2 times per week for 4-6 weeks to assess effectiveness for your condition.

Description

Spinal manipulation is a therapeutic technique performed by chiropractors or physical therapists to address musculoskeletal issues, improve spinal alignment, and alleviate back pain and discomfort.

How it helps

Spinal manipulation helps improve spinal alignment and reduces muscle tension, which can alleviate pain and discomfort associated with disc degeneration. By enhancing mobility and promoting optimal spinal function, this therapy may facilitate the healing process and improve overall quality of life.

6



Chiropractic Adjustment

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Schedule and attend chiropractic sessions 1-2 times per week for a period of 4-6 weeks initially, depending on the severity of your condition. Your chiropractor may adjust the frequency based on your progress.

TYPICAL STARTING DOSE

30 minutes

Description

Chiropractic adjustments are manual manipulation techniques used by chiropractors to improve musculoskeletal function, relieve pain, and enhance overall mobility. They are often used as part of a holistic approach to address various health concerns, primarily those related to the spine and joints.

Chiropractic adjustment involves applying pressure to different parts of the spine. It tends to help with pain and headaches [\[R\]](#), [\[R\]](#).

Only a trained specialist should perform this procedure [\[R\]](#).

How it helps

Chiropractic adjustments help reduce pain associated with disc degeneration by realigning the spine, improving overall spinal function, and enhancing nerve communication. This therapeutic approach alleviates discomfort and promotes mobility in affected individuals.

7



Good Posture

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Ensure your back is straight, shoulders pulled back but relaxed, and your head is aligned above your shoulders when sitting or standing. When sitting, keep your feet flat on the ground, and use a chair that supports your lower back. Do this continuously throughout the day, reminding yourself to adjust your posture whenever you notice it lapsing.

Description

Maintaining good posture helps prevent musculoskeletal problems, reduces the risk of back and neck pain, and supports overall spinal health. Proper posture can also enhance self-confidence and improve breathing and digestion.

Good posture may help lessen strain on your body. It involves keeping your head, shoulders, and hips aligned [\[R\]](#).

Forward head posture is a type of poor posture in which the head is pushed forward or tilted down toward the chest. This posture is common when using computers or smartphones [\[R\]](#).

Poor posture may lead to [\[R\]](#), [\[R\]](#):

- Muscle pain
- Headaches
- Breathing problems

How it helps

Maintaining good posture reduces stress on the spine and discs by distributing weight more evenly. This can help slow the progression of disc degeneration and alleviate associated discomfort.

8

Topical Capsaicin

IMPACT

0 / 5

EVIDENCE

0 / 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

Capsaicin cream, derived from chili peppers, can decrease pain from disc degeneration by depleting the nerve cells of substance P, a chemical component of pain.

9



Core-Strengthening Exercises

IMPACT

0 / 5

EVIDENCE

0 / 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

Strengthening the core muscles, which include the muscles in the abdomen and back, can help support the spine. Improved support can reduce the load on the spinal discs, potentially slowing the progression of disc degeneration.

10



Topical CBD

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Apply a CBD-infused cream or ointment to the affected area of the skin 2-3 times per day, gently massaging it into the skin until fully absorbed. Continue this regimen for at least 4 weeks to assess effectiveness.

Description

CBD, derived from the cannabis plant, is used topically in various skincare products for its potential anti-inflammatory and soothing effects on the skin. It is applied to address skin conditions like acne, eczema, and psoriasis.

[Cannabidiol \(CBD\)](#) is a compound found in cannabis. Unlike its cousin THC, **CBD is not psychoactive and can’t get you “high”** [\[R\]](#).

People use CBD to:

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

Topical CBD products are also available. People use them for skincare, joint problems, and more [\[R, R\]](#).

How it helps

Topical CBD may help alleviate pain associated with disc degeneration by reducing inflammation and interacting with the body's endocannabinoid system to lower pain perception.

11



Glucosamine

IMPACT

0 / 5

EVIDENCE

0 / 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 is a natural compound found in cartilage. Taking glucosamine supplements may help slow the deterioration of cartilage, relieve arthritis joint pain, and improve joint mobility in people with disc degeneration.

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.

