

Hair Health

Summary Report

REPORT CATEGORY —



Sample Client

Report date: 28 July 2025

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Table of Contents

03 Summary

04 Overview of Your Results

06 Recommendations Overview

08 Your Results in Details

08 Hair Health

19 Hair Loss Management Response

27 Recommendations Details

Personal information

NAME

Sample Client

SEX AT BIRTH

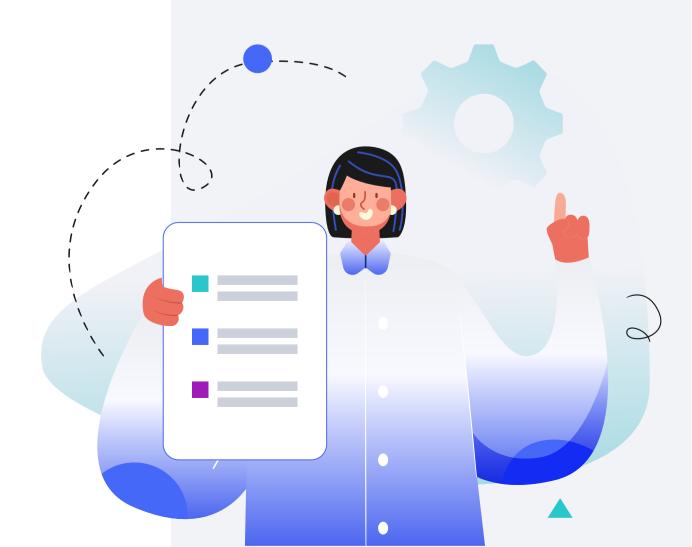
Male

HEIGHT

5ft 9" 175.0cm

WEIGHT

165lb 75.0kg



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.

Hair Health Summary Report Summary

Summary

Your hair tells a unique story—one that's written in your genes. This report explores how genetic makeup influences various aspects of hair health like hair loss, dandruff, and more. We also analyze how you may respond to different hair regrowth strategies.

By understanding your genetic predispositions, you can make more informed decisions about your hair care journey and choose approaches that are more likely to work for you. While genes play an important role, remember that they're just one part of the story - lifestyle, environment, and proper care all contribute to your hair's overall health and appearance.

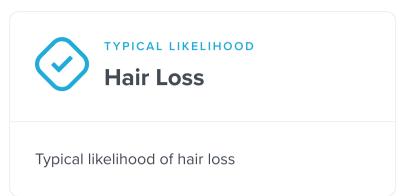
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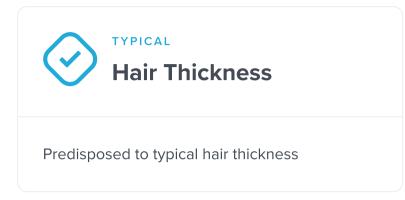
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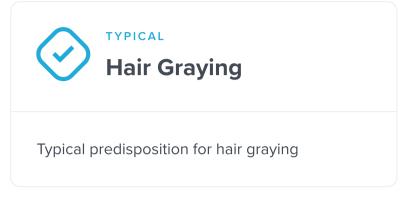
48 Recommendations

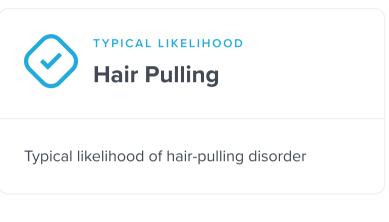
Overview of Your Results

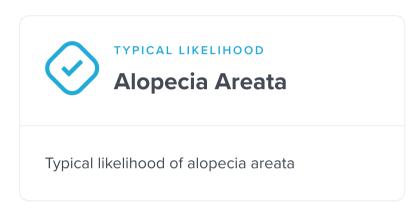
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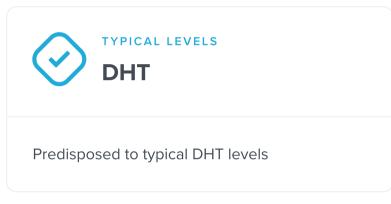


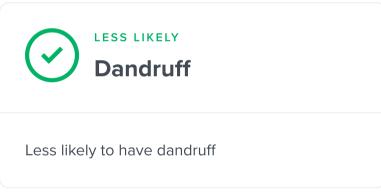




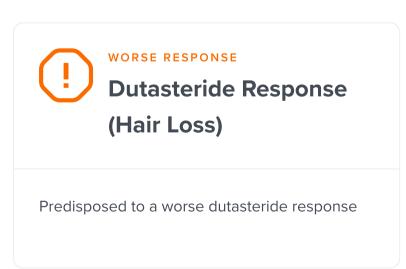


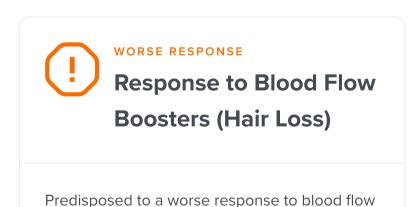


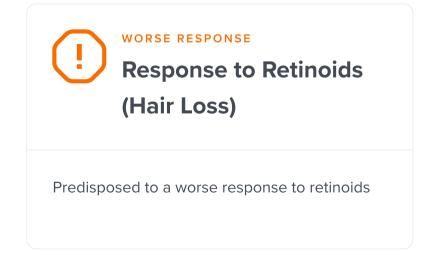


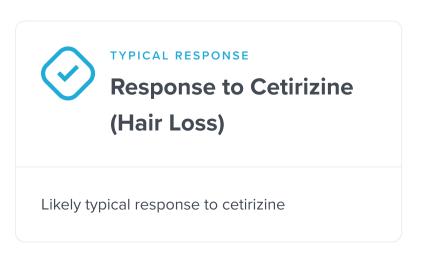


Mair Loss Management Response













boosters

Hair Health Summary Report **Overview of Your Results**



Predisposed to a better finasteride response

Hair Health Summary Report Recommendations Overview

Recommendations Overview

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 Low-Level Laser Therapy (LLLT) 30 seconds	2 Topical Minoxidil
3 Topical Dutasteride	4 Topical Caffeine
5 Scalp Massage 5 minutes	6 Infrared Light Therapy
7 Topical Finasteride	8 Topical Saw Palmetto
9 Topical Retinoids	10 Topical L-Arginine
11 Microneedling	12 Topical Rosemary Oil
13 Pumpkin Seed Oil	14 Saw Palmetto 320 mg
15 Topical Adenosine	16 Avoid Hair Plucking
17 Fo-ti	18 Methylsulfonylmethane (MSM) 1 g
19 Para-Aminobenzoic Acid (PABA) 100 mg	20 Topical Kudzu
21 Vitamin B12 10 mcg	Pantothenic Acid (Vitamin B5) 5 mg
23 N-acetylcysteine (NAC) 1200 mg	24 Progressive Muscle Relaxation 10 minutes
25 Topical Zinc Pyrithione	26 Yoga 30 minutes
Acceptance and Commitment Therapy (ACT)	28 Applied Relaxation 30 minutes
29 Art Therapy 1 hour	Choline-Stabilized Orthosilicic Acid (Choss) OSA) 5 mg

TABLE OF CONTENTS

PAGE 6 / 42



Hair Health Summary Report **Recommendations Overview**

31 Dietary Zinc		32 Fruits
33 Inositol	2 g	34 Lactobacillus Paracasei 10 billion CFU
35 Mindfulness Meditation	30 minutes	36 Moisturize the Skin
37 Social Activity	1 hour	38 Spend Time in Nature 2 hours
39 Stress Management Therapy	1 hour	40 Support Groups
41 Topical Coal Tar		42 Topical Lemongrass
43 Topical Myrtle		44 Topical Pink and Blue Ginger
45 Topical Salicylic Acid		46 Topical Selenium Sulfide
47 Topical Sulfur		48 Topical Tea Tree Oil

Your Results in Details





Hair Health

Your genetic blueprint influences your hair's natural features. In this section, we explore key aspects of hair health, such as susceptibility to hair loss, graying, and dandruff. Understanding these genetic predispositions can help you take proactive steps in your hair care routine and anticipate potential changes in your hair's appearance and health over time.



Typical likelihood of hair loss



Predisposed to typical hair thickness



Typical predisposition for hair graying



Typical likelihood of hair-pulling disorder



Typical likelihood of alopecia areata



Predisposed to typical DHT levels



Less likely to have dandruff

Hair Loss

Key Takeaways:

- About 60% of differences in people's chances of having hair loss may be due to genetics.
- Risk factors include genetics, cancer treatments, excessive male hormone activity, and certain health conditions.
- Up to half of all men and women develop androgenetic alopecia. If you are experiencing hair loss, speak to your doctor.
- Click the next steps tab for relevant labs and lifestyle factors.

Androgenetic alopecia is a common type of hair loss. You may know it as male- or female-pattern baldness [R].

Up to half of all men and women develop androgenetic alopecia. Men typically experience a receding hairline and hair loss at the top of the head. Women typically experience hair thinning at the top and crown of the head [R, R].

Androgenetic alopecia is fairly common and harmless. However, it may impact confidence and self-image in some people [R, R].

Androgenetic alopecia is usually caused by high activity of male sex hormones, like <u>dihydrotestosterone</u> (DHT). However, hair loss may also be caused by a health condition or exposure to cancer treatments [R, R].

Some people are at greater risk than others of losing their hair. This may be partly due to **genetics** [R].

Treatments for androgenetic alopecia include [R, R]:

- Topical medication
- Hair transplants
- Low-level laser therapy

Up to 60% of differences in people's chances of losing their hair may be attributed to genetics. Genes involved in hair loss may influence [R, R, R, R, R, R]:

Hair follicle activity (<u>LGR4</u>, <u>TWIST1</u>, <u>PRKD1</u>, <u>RUNX3</u>)



Typical likelihood of hair loss based on 13,176 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TWIST2	rs 9287638	AC
PAX1	rs2180439	тс
BCL2	rs 7226979	тт
BCL2	rs12457893	СС
COPB2	rs10212419	GG
PTHLH	rs10843026	GG
KLF15	rs35892873	тт
AUTS2	rs4718886	AA
LRMDA	rs1907350	AA
L3MBTL3	rs1415701	AA
FADS2	rs1535	AA
SUPT3H	rs227808	СС
SLC14A2	rs10502861	СС
SLC14A2	rs34800162	тт
SLC14A2	rs8085664	СС
ALX4	rs2863081	AG
TWIST1	rs13245206	AG
TWIST1	rs10225279	TG
RORA	rs 11071559	тс
ICE2	rs2028122	AG
TCF4	rs1452787	AG
TCF4	rs2958184	CA
AUTS2	rs 6945541	СТ
AUTS2	rs939963	GC
LRMDA	rs10762668	СТ
TWIST2	rs11684254	GC
PAX1	rs1160312	AG

- Hair cell death (<u>BCL2</u>, <u>TOP1</u>, <u>IRF4</u>, <u>MAPT</u>)
- Male sex hormone activity (<u>AR</u>, <u>MEF2C</u>)

Genetically high free testosterone levels may be causally associated with a high risk of androgenetic alopecia [R].

GENE	SNP	GENOTYPE
SETBP1	rs 9967367	тс
/	rs382854	СТ
COPB2	rs 7642536	тт
FERD3L	rs 2073963	тт
LRMDA	rs117246174	AA
TMEM50A	rs2064251	GG
KLF15	rs9850626	тт
ALX4	rs 922017	тт
PTHLH	rs 805512	AA
RUNX3	rs 760805	тт
WNT10A	rs 74333950	тт
WNT10A	rs 7349332	СС
CLIC6	rs 68088846	GG
RREB1	rs675209	СС
HDAC4	rs4075018	GG
FAM53B	rs3781458	тт
BCL11A	rs 2540917	тт
/	rs2149150	СС
TWIST1	rs17140672	AA
MEF2C	rs1366594	СС
PRDM1	rs12214131	GG
IRF4	rs12203592	СС
ALX4	rs11037975	СС

Hair Thickness

The following factors may affect hair health:

- Diet and nutrition: Vitamins and minerals like biotin, vitamins A, C, D, and E, iron, and omega-3 fatty acids are vital for hair health.
- Hair care practices: Overuse of heat styling tools, harsh chemical treatments, and rough handling can damage hair.
- Environmental factors: Sun exposure, humidity, and pollution can affect hair.
- Health conditions: Thyroid disorders, hormonal imbalances, and scalp conditions can impact hair health.
- Stress and lifestyle: High stress levels can lead to conditions like telogen effluvium (temporary hair shedding) or alopecia areata (patchy hair loss).

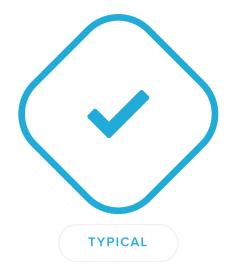
Genetics determines hair type, texture, and potential for conditions like male-pattern baldness or graying. For instance, two variants at the <u>FGFR2</u> and <u>EDAR</u> genes have been linked to increased hair thickness, especially in Asians [R, R].

To improve your hair health, make sure to implement the following management practices:

- Gentle handling: Avoid tight hairstyles and be gentle when brushing or washing.
- Proper nutrition: A balanced diet rich in essential nutrients.
- Regular trimming: To remove split ends and encourage growth.
- Limit heat and chemical exposure: Minimize the use of hair dryers, straighteners, and chemical treatments.
- Use of protective styles: Especially in harsh weather conditions.
- Scalp care: Regular washing and use of appropriate products for your scalp type.
- Hydration: Keeping the hair moisturized to prevent dryness and breakage.

Moreover, the following may help you avoid hair damage:

- Protect hair from excessive sun exposure.
- Avoid over-washing, which can strip natural oils.
- Use hair products that suit your hair type and address specific concerns.
- Regularly massage the scalp to promote blood circulation.



Predisposed to typical hair thickness based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
EDAR	rs3827760	AA
FGFR2	rs 4752566	GT

Hair Graying

Hair color is determined by the amount and type of pigment called **melanin** in your hair follicles. The same pigment determines skin, eye, and hair color. **Graying happens with the loss of this melanin**, which is a natural effect of aging.

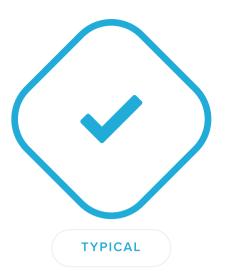
Anywhere from 30% up to 90% of differences in people's hair graying may be due to genetics [R].

Other risk factors for graying hair include [R]:

- Obesity
- Lack of exercise
- Drug use
- High cholesterol
- High uric acid

Conditions that may contribute to hair graying include [R]:

- High blood pressure
- Thyroid disorders
- Liver conditions



Typical predisposition for hair graying based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
KIF1A	rs59733750	AA
MROH2A	rs2361506	GT
NSMCE1	rs1127228	тс
PRDM8	rs 7680591	AT
IRF4	rs12203592	СС

Hair Pulling

Risk factors for hair-pulling disorder include [R]:

- Age: Often develops during preadolescence or young adulthood, though it can begin at any age.
- Family history: Those with a family member who has hairpulling disorder are more likely to develop it.
- Other mental health disorders: Anxiety, depression, and OCD may be associated with hair-pulling disorder.
- Stress: Periods of high stress or emotional trauma can trigger the condition.

While the exact cause of trichotillomania is unclear, genetics likely plays a role. It's not uncommon for individuals with hairpulling disorder to have a close family member with the same or a similar disorder, suggesting a hereditary predisposition.

Types of therapy that may be helpful for hair-pulling disorder include [R]:

- Cognitive-behavioral therapy (CBT), particularly habit reversal training, is a mainstay in treatment.
- Medications such as SSRIs may be helpful in some cases, but their effectiveness varies.
- Stress-management techniques like meditation, yoga, or exercise may reduce the urge to pull hair.
- Support groups can provide empathy, understanding, and coping strategies.



Typical likelihood of hair-pulling disorder based on 3 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SMIM12	rs6662980	GA
DLGAP3	rs 4652869	TG
HTR2A	rs6313	GA

Alopecia Areata

Risk factors for alopecia areata include:

- Family history of alopecia areata or other autoimmune conditions.
- Having another autoimmune disorder, such as thyroiditis or vitiligo.
- Certain genetic markers related to the immune system.
- Stress, which may trigger or exacerbate the condition.

Alopecia areata has a strong genetic component, and multiple genes are involved, especially those linked to the immune system and inflammatory processes. People with a family history of autoimmune diseases are at a higher risk.

Currently, there's no known way to prevent alopecia areata. Managing stress and leading a healthy lifestyle might help reduce the risk of exacerbations.

The condition has no cure but hair often regrows on its own without treatment within a year. Treatments that can promote a faster hair growth include:

- Topical corticosteroids
- Topical immunotherapy
- Minoxidil
- Platelet-rich plasma injections



Typical likelihood of alopecia areata based on 42 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PPARGC1A	rs16873952	AA
NTM	rs11600229	AA
CPVL	rs 505532	тт
/	rs1431704	СТ
REELD1	rs9997120	СС
ITPR2	rs10506012	GG
HLA-DQA2	rs 9275572	AG
ARHGAP42	rs11224294	СТ
DISP3	rs3099624	СС
BBS12	rs 7664318	AG
HLA-DQA2	rs9268528	GA
ST8SIA5	rs 9952976	AA
CCDC24	rs304303	TG
ST3GAL3	rs 4660260	тс
B3GAT1	rs10791360	AA
CSMD1	rs 718121	СТ
NUP35	rs13409979	GA
KCNU1	rs10503991	AG
DPYSL4	rs 9419187	СТ
RBBP8	rs 9954649	AG
DOCK5	rs 2979742	СТ
TERF1	rs 4738296	AA
CXXC4	rs 7657799	тт
TFF3	rs 9982439	тт
RDH14	rs2345724	AA
IQSEC3	rs2270797	СС
RNF5	rs3115553	СС

GENE	SNP	GENOTYPE
UVSSA	rs4130791	GG
SRRM4	rs12228387	GG
UNC5C	rs17023881	СС
LDLRAD3	rs16928055	тт
LIPA	rs17479692	тт
BRD4	rs11666141	тт
CRIM1	rs2666138	AA
LURAP1L	rs 7022183	тт
APOLD1	rs2110597	AA
OPCML	rs11223339	GG
ARHGAP42	rs1216476	AA
ACOX1	rs12430	GG
FNDC3B	rs6414541	тт
SNX2	rs2125856	тт
NUDT6	rs304650	тт
APCDD1	rs 7228576	СС
UBE2E2	rs1692617	GG
HSD17B3	rs10512241	СТ
PGM5	rs 7036795	тт
ZNF217	rs2766671	СС
DCBLD1	rs916305	СС
DPH5	rs12403551	AA

DHT

The following factors can cause decreased DHT levels:

- 5α-reductase deficiency [R]
- Low testosterone levels [R]
- Alcohol consumption [R]
- AIDs wasting syndrome [R]
- Aging [R]
- Taking 5α-reductase inhibitors, such as finasteride (Proscar, Propecia) and dutasteride (Avodart) [R, R]

Some strategies that may help increase DHT levels in people with deficiency include:

- Exercise [R, R]
- Eating enough healthy fats [R]
- Reducing alcohol intake [R]
- Correcting <u>zinc</u> or <u>DHEA</u> deficiency [R, R]
- Supplementing with <u>creatine</u> or <u>Tribulus terrestris</u> [R, R]

If your testosterone levels are normal but your DHT is elevated, that could mean that your male sex hormones are metabolized via the 5α pathway, which produces more DHT, rather than the $5-\beta$ pathway.

DHT can also increase due to:

- Exercise [R]
- High testosterone levels [R]
- Drugs such as Sildenafil (Viagra, Revatio) [R]

On the other hand, preliminary evidence suggests that the following supplements may help decrease DHT levels:

- Saw palmetto [R, R]
- St John's wort [R]

Work with your doctor to find out what's causing your low or elevated DHT and to treat any potential underlying condition. The additional lifestyle changes listed above are other things you may want to discuss with your doctor. None of these strategies should ever be done in place of what your doctor recommends or prescribes.



Predisposed to typical DHT levels based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TNFSF12	rs1799941	GG
TNFSF12	rs 4151121	GA
TNFSF12	rs17856697	GA
ZBTB4	rs4239258	GG

Dandruff

Key Takeaways:

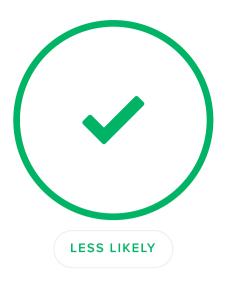
- Risk factors for dandruff include age, stress, dry or oily skin, sensitivities, and impaired gut/skin microbiome.
- Dandruff is a common condition. If you have higher genetic risk, taking action on factors you can change may lower the overall risk.
- Click the **Recommendations** tab for potential dietary and lifestyle changes.

Dandruff is a common inflammatory skin condition that mainly affects the scalp. It causes flaking skin and sometimes mild itchiness. Some consider it a mild form of seborrheic dermatitis [<u>R</u>].

Risk factors for developing dandruff include [R]:

- Skin conditions such as seborrheic dermatitis, eczema, and psoriasis
- Being male
- Younger age
- Stress
- Not shampooing enough
- Dry or oily skin
- Sensitivity to hair care products
- Certain medical conditions
- Impaired gut or skin flora (microbiome)
- Genetics

Genes that play a role in dandruff may affect inflammation and immune response [R].



Less likely to have dandruff based on 1,672 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CDKL2	rs 56229013	СС
CFAP61	rs115175415	СС
KRT83	rs2857667	AA
ADPRHL1	rs139075628	GG
PKD1	rs147350387	GG
CERCAM	rs148321495	GG
SDF2L1	rs 73166641	GG
KIF20A	rs3172747	СС
UNC93A	rs113906647	GG
GANC	rs3 5285091	СС
NUP214	rs 61751470	AA
ZP4	rs36017138	тт
XRN1	rs35351308	GG
TCP10L2	rs146018563	СС
PTK7	rs34021075	AA
METTL17	rs 72661115	GG
CYP4B1	rs 45467195	AA
AGA	rs 76491548	GG
GRM2	rs116567227	GG
ST7L	rs114199731	тт

GENE	SNP	GENOTYPE
ERICH6	rs114572143	GG
ZNF154	rs 74939505	GG
UNC5C	rs34585936	СС
MIS18BP1	rs34168608	GG
NTN5	rs549539292	AA
SRPRA	rs114538197	СС
CACNA2D3	rs112362995	СС
APOD	rs 76929107	СС
PKHD1L1	rs 72687022	GG
VPREB1	rs11089977	AA
PDZD2	rs 116598198	GG
KRT75	rs2232398	СС
ABCC11	rs60681475	СС
AP1S3	rs138292988	GG
NBAS	rs 76459791	СС
PIK3C2G	rs61757718	GG
XIRP2	rs16853333	GG
ALPK1	rs3 5756863	тт
CAPG	rs62623452	СС
DYNC2H1	rs144717489	GG





Hair Loss Management Response

Everyone's body responds differently to hair health solutions, and genetics plays a significant role in these variations. This section reveals your genetics of response to widely used approaches for managing hair loss.

Understanding your genetic likelihood of responding to different solutions can help you and your healthcare provider make more informed decisions about your hair wellness journey.



WORSE RESPONSE

Dutasteride Response (Hair Loss)

Predisposed to a worse dutasteride response



WORSE RESPONSE

Response to Blood Flow Boosters (Hair Loss)

Predisposed to a worse response to blood flow boosters



WORSE RESPONSE

Response to Retinoids (Hair Loss)

Predisposed to a worse response to retinoids



TYPICAL RESPONSE

Response to Cetirizine (Hair Loss)

Likely typical response to cetirizine



TYPICAL RESPONSE

Response to Latanoprost

Predisposed to a typical latanoprost response



Minoxidil Response (Hair Loss)

Predisposed to a better minoxidil response



BETTER RESPONSE

Finasteride Response (Hair Loss)

Predisposed to a better finasteride response

Dutasteride Response (Hair Loss)

A 2019 study identified several genetic variants associated with dutasteride response [R].

The most significant finding was a SNP <u>rs72623193</u> in the *DHRS9* gene, which showed a negative correlation with treatment response. *DHRS9* is particularly interesting as it functions in both androgen metabolism and retinoid signaling pathways.

Other notable genetic associations include:

- **SRD5A1** (rs3822430): The type I 5α -reductase gene, which enables DHT production
- CYP26B1 (rs2241057): Involved in retinoic acid metabolism
- ESR1 (rs3020314): The estrogen receptor gene
- CYP19A1 (rs700519): Involved in estrogen synthesis
- RXRG (rs1128977): A retinoid receptor gene

The findings suggest that treatment response isn't solely determined by androgen-related genes. The involvement of retinoid pathway genes (*DHRS9*, *CYP26B1*, *RXRG*) and estrogen-related genes (*ESR1*, *CYP19A1*) points to a complex interplay between different hormonal systems in determining treatment outcomes.

Interestingly, variants in SRD5A2 (type II 5α -reductase) weren't significantly associated with response, despite being dutasteride's primary target, along with SRD5A1.

These insights might help predict people's dutasteride response, allowing more personalized approaches to AGA.



Predisposed to a worse dutasteride response based on 10 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IGFBP3	rs10255707	СС
CYP19A1	rs 700519	GG
ESR1	rs3020314	СС
SRD5A1	rs3822430	GA
CYP26B1	rs2241057	AG
RXRG	rs1128977	AG
CYP4V2	rs3736456	тс
DHRS9	rs 72623193	тт
HSD17B12	rs10838177	AA
CYP4F11	rs3093088	AA

Your Results in Details Hair Health Summary Report

Response To Blood Flow **Boosters (Hair Loss)**

The <u>ACE</u> gene encodes an enzyme called angiotensin I converting enzyme. ACE narrows blood vessels and increases blood pressure as part of the fight or flight response [R].

Specifically, ACE converts angiotensin I to angiotensin II, a potent vasoconstrictor involved in blood pressure regulation and fluid balance. This enzyme also degrades bradykinin, a vasodilator, thus balancing vasoconstriction and vasodilation [R].

One of the two main ACE gene variants, rs4343, influences gene and enzyme activity. Its "G" allele may increase ACE activity and levels [R, R, R].

A study of 26,607 associated the 'G' allele of rs4343 with an increased risk of male-pattern hair loss. The association was stronger in those who also carried the minor 'T' variant of <u>PTGES2</u> <u>rs13283456</u> [R].

Based on their effects on blood flow, patients with male-pattern hair loss and these variants may respond better to blood flow boosters like adenosine [R].

Other interventions for hair loss that may work by boosting blood flow include arginine and topical caffeine [R, R].

However, there are no studies directly linking this variant to responses to hair regrowth interventions.



Predisposed to a worse response to blood flow boosters based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ACE	rs4343	AA

Response To Retinoids (Hair Loss)

A study of 26,607 associated the 'G' allele of rs12724719 with an increased risk of male-pattern hair loss. This variant has also been associated with lower retinoic acid levels [R].

Retinoic acid promotes hair growth, and carriers of this variant may especially benefit from supplementation with topical retinoic acid or retinol. However, there are **no studies** directly linking this variant with a response to retinoids [R].



Predisposed to a worse response to retinoids based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
RRNAD1	rs12724719	GA

Response To Cetirizine (Hair Loss)

A study of 26,607 participants associated the 'C' allele of <u>rs533116</u> and the 'T' allele of <u>rs545659</u> with an increased risk of male-pattern hair loss. Another study of 287 Romanian and 882 Brazilian patients with male-pattern hair loss found that half of the Romanian subjects and three-quarters of the Brazilian subjects carried these variants [R, R].

These variants may increase PTGDR2 activity, thus enhancing the negative effects of prostaglandin D2 on hair follicle growth and viability [R, R].

Topical cetirizine helps with hair loss by reducing PGD2. This suggests subjects with these variants may benefit more from cetirizine for hair growth [R].

The same goes for another hair regrowth product, Prostaquinon® [R].

However, no studies directly link PTGDR2 variants to responses to hair regrowth interventions.



Likely typical response to cetirizine based on 2 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PTGDR2	rs 533116	СТ
PTGDR2	rs 545659	тт

Response To Latanoprost

The only available studies for genetics of PGF2a analog (latanoprost) response are conducted for **glaucoma** treatment.

They found different SNPs linked to latanoprost effectiveness, most of them in the <u>PTGFR</u> gene. This gene helps make the prostaglandin F2a receptor (FP), the target of PGF2a analogs [R, R, R].

The variant with the strongest evidence is $\underline{rs3753380}$. Its "C" allele is linked to a better latanoprost response $[\underline{R}, \underline{R}, \underline{R}]$.

Another notable variant is $\underline{rs10782665}$, with the "T" allele linked to a better response. This variant showed a link with the risk of androgenetic alopecia, which makes it more relevant for hair loss treatment response [R, R].

Other genes with variants linked to latanoprost response include [R, R, R]:

- <u>ABCC4</u> and <u>ABCB1</u>: involved in drug detox
- **GMDS**: potentially involved in prostaglandin signalling

Please note: Although latanoprost potentially improves glaucoma and hair loss through the same receptor, the above findings might not translate to hair loss treatment.



Predisposed to a typical latanoprost response based on 13 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PTGFR	rs3 753380	тс
PTGFR	rs10782665	GT
PTGFR	rs12093097	СС
PTGFR	rs1073611	AA
FOXC1	rs9503012	СТ
PTGFR	rs6686438	TG
PTGFR	rs1328441	тс
PTGFR	rs3766355	СС
ABCC4	rs11568658	СС
ABCB1	rs1045642	GG
PTGFR	rs 6672484	СС
PTGFR	rs11578155	AA
PTGFR	rs10489950	СС

Your Results in Details Hair Health Summary Report

Minoxidil Response (Hair Loss)

Not everyone responds well to minoxidil for hair loss, and this difference may be partly due to genetics.

Minoxidil needs to be "activated" in hair follicles by enzymes called *sulfotransferases*. Scientists have found that people with higher activity of these enzymes may respond better to minoxidil for hair loss $[\underline{R}, \underline{R}, \underline{R}]$.

The *SULT1A1* gene helps make one such enzyme. A variant in this gene known as **SULT1A1*2** may reduce its activity. People with the "T" allele at rs1042028 (previously named rs9282861) carry this variant and may thus have a worse response to minoxidil [R, R, R].

Researchers have found other variants like <u>rs1042157</u> affecting SULT1A1 activity, but their link with minoxidil response is not clear. Also, they are usually inherited together with SULT1A1*2 [R, <u>R</u>].

Salicylic acid is commonly applied on the scalp for different issues like dandruff. However, it may reduce SULT1A1 activity and thus potentially impair minoxidil response. People with poor minoxidil response may want to avoid using salicylic acid [R, <u>R</u>].

Some popular resources claim that PTGES2 gene variants may also affect minoxidil response. This gene helps produce prostaglandin E2, which plays a role in hair follicle development and may be one of the minoxidil's targets. One PTGES2 variant, rs13283456, has shown a link with androgenetic alopecia. However, no studies have linked this or any other PTGES2 variants to minoxidil response.



Predisposed to a better minoxidil response based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SULT1A1	rs1042028	СС

Finasteride Response (Hair Loss)

Genetics plays a crucial role in both the development of androgenetic alopecia (AGA) and the variability in response to treatments like finasteride. Two key genes of interest are <u>SRD5A2</u> and <u>AR</u>, both of which influence how the body processes and responds to androgens.

The *SRD5A2* gene encodes the type II 5-alpha reductase enzyme, which converts testosterone into dihydrotestosterone (DHT). Finasteride helps with AGA by blocking this enzyme. One *SRD5A2* variant, <u>rs9282858</u>, is linked to male-pattern baldness and may in theory affect finasteride response [R, R, R].

Some sources mention another SRD5A2 variant, $\underline{rs523349}$, as a potential factor in finasteride response. However, most studies haven't observed a link between this variant and AGA, DHT levels, or prostate health issues. This variant may have mild and complex effects that depend on ethnicity [R, R, R].

The *AR* (androgen receptor) gene also plays a significant role in AGA. Variations in AR androgen receptor sensitivity. Increased sensitivity to DHT is strongly associated with AGA severity. These genetic differences may thus affect finasteride response. Key variants include <u>rs12558842</u> and <u>rs2497938</u> [R].

A 2019 study revealed some genetic variants linked to dutasteride response. Dutasteride is a drug from the same class also sometimes used for AGA. These variants include [R]:

- *DHRS9* (rs72623193): Involved in both androgen metabolism and retinoid signaling
- CYP26B1 (rs2241057): Involved in retinoic acid metabolism
- ESR1 (rs3020314): The estrogen receptor gene
- CYP19A1 (rs700519): Involved in estrogen synthesis
- RXRG (rs1128977): A retinoid receptor gene

In theory, these variants may affect finasteride response as well, but the specific research is lacking.

Saw palmetto is a popular supplement for hair loss that also works by blocking 5-alpha reductase. In theory, people who respond well to finasteride may also respond well to saw palmetto, but there is no direct evidence to support this [R].



Predisposed to a better finasteride response based on 11 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
AR	rs12558842	A
IGFBP3	rs10255707	СС
CYP19A1	rs 700519	GG
ESR1	rs3020314	СС
CYP26B1	rs2241057	AG
RXRG	rs1128977	AG
CYP4V2	rs3 736456	тс
SRD5A2	rs 9282858	СС
AR	rs 2497938	т
DHRS9	rs 72623193	TT
HSD17B12	rs10838177	AA

Recommendations Details





Low-Level Laser Therapy (LLLT)

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

Helps with these Symptoms & Conditions:

Hair Loss

Hashimoto's Disease

Underactive Thyroid

Helps with these Goals:

Strength

Helps with these DNA Risks:

! Response to Blood Flow Boosters (Hair Loss)

How it helps



Response to Blood Flow Boosters (Hair Loss)





Low-Level Laser Therapy (LLLT) promotes hair growth by stimulating cellular activity in the hair follicles, improving blood flow and nutrient delivery to these areas. This treatment method can retard hair loss and restore growth, offering an effective, non-invasive solution to balding issues.

Low-level laser therapy is an approved treatment for hair loss. It is recommended by most experts. It may help alone or combined with topical medication [R, R, R, R, R].

Low-level laser therapy may help by stimulating hair growth [R].

Note that what we know at the moment is based on short-term studies. More studies are needed to understand the long-term effects of low-level laser therapy [R, R].

2



Topical Minoxidil

TABLE OF CONTENTS

PAGE 27 / 42

Begin with a clean, dry scalp. Part your hair in sections and apply the solution (5% for men, 2% or 5% for women) directly to the scalp using the dropper or spray applicator. Gently massage it in with your fingertips for even distribution. Wait for it to dry completely before styling hair or lying down. Expect possible initial shedding in the first few weeks - this is normal and indicates the treatment is working. Consistency is key for success.

Helps with these Symptoms & Conditions:







Topical Dutasteride

Ensure your scalp is clean and dry. Use the dropper to apply the solution (typically 0.05%), creating partings every few centimeters for thorough coverage. Massage gently for 1-2 minutes to ensure even distribution. Avoid getting your scalp wet for at least 6 hours after application. Monitor for any adverse reactions and document progress with photos.

Helps with these Symptoms & Conditions:

Hair Loss

Helps with these DNA Risks:

• Dutasteride Response (Hair Loss)

How it helps



Dutasteride Response (Hair Loss)

IMPACT 2/5

EVIDENCE 2/5

Like finasteride, dutasteride can be used topically. There's less research on topical dutasteride compared to topical finasteride, but early studies are promising. It's typically used in concentrations around 0.05%. The molecule is larger than finasteride, which might affect skin penetration [R].

Some studies suggest it may be effective when combined with minoxidil, though more research is needed to establish optimal formulations and long-term safety profiles [R].

Please note: Dutasteride is a prescription drug. You shouldn't use it before consulting your doctor.





Topical Caffeine

Apply a caffeine-containing topical product to the area of concern once or twice daily. Typically, these products should be applied after cleansing the skin but before moisturizing. Regular application over several weeks is generally necessary to observe benefits.

TABLE OF CONTENTS

Helps with these Symptoms & Conditions:

Hair Loss

Helps with these DNA Risks:

Response to Blood Flow Boosters (Hair Loss)

How it helps



Response to Blood Flow Boosters (Hair Loss)



Lotions and shampoos with caffeine may decrease hair loss and increase hair strength in both men and women. They may also support the effects of topical medication [R, R, R, R].

Caffeine may help by boosting blood flow and stimulating hair follicles [R].





Scalp Massage

Use your fingertips to gently massage your scalp in a circular motion for at least 5 minutes daily. This can be done either with dry hair or while washing your hair with shampoo.

TYPICAL STARTING DOSE

5 minutes

Helps with these Symptoms & Conditions:

Hair Loss

Helps with these DNA Risks:

Response to Blood Flow Boosters (Hair Loss)

How it helps



Response to Blood Flow Boosters (Hair Loss)





Scalp massage (for 4 minutes during 24 weeks) may improve self-perceived hair density and hair thickness. It may help by boosting **scalp blood flow** and increasing several proteins involved in hair growth [R, R].

TABLE OF CONTENTS





Infrared Light Therapy

Helps with these Symptoms & Conditions:



Helps with these Goals:







Topical Finasteride

Apply to a clean, dry scalp using the provided applicator. Create several partings to expose treatment areas and apply the solution (typically 0.1%) thoroughly. Massage gently into your scalp, focusing on thinning areas. Avoid washing your hair for at least 4 hours after application. Take monthly progress photos, as improvements can be gradual.

Helps with these Symptoms & Conditions:

Hair Loss





Topical Saw Palmetto

To use topical saw palmetto, apply a small amount to the affected area twice daily. Be sure to wash your hands before and after applying the product. You may also want to wear gloves to protect your hands from the product.

Helps with these Symptoms & Conditions:

Hair Loss





Topical Retinoids

Apply a pea-sized amount of topical retinoid to clean, dry skin once every evening before moisturizing. Start with applications 2-3 times a week, gradually increasing to nightly use as your skin tolerates it.

Helps with these Symptoms & Conditions:

Hair Loss

Helps with these DNA Risks:

! Response to Retinoids (Hair Loss)

How it helps



Response to Retinoids (Hair Loss)



When it comes to hair loss, retinoids seem to work in several ways - helping skin cells turn over properly, reducing inflammation, and possibly making other treatments like minoxidil work better.

The most studied retinoid for hair loss is tretinoin, which has shown some promise, especially when combined with minoxidil. In a study, 43% of subjects who were initially non-responders to minoxidil became responders after using topical tretinoin for five days [R].

Topical tretinoin alone may stimulate hair regrowth in approximately 58% of subjects with androgenetic alopecia. When combined with minoxidil, the effectiveness increased, resulting in terminal hair regrowth in 66% of subjects over a year [R].

However, retinoids can be tricky to use - they can cause irritation if too strong, and they make your skin more sensitive to sun damage [R].

They also take time to show results, and your scalp might get worse before it gets better as it adjusts. The key is to start with a very low concentration and use it just a few times a week at first.





Topical L-Arginine

Apply a pea-sized amount of l-arginine cream or gel to the affected area of the skin. Gently massage it in until fully absorbed, twice daily, in the morning and evening. Continue this routine for at least 4 weeks to observe potential benefits.

Helps with these Symptoms & Conditions:

Hair Loss

Helps with these DNA Risks:

Response to Blood Flow Boosters (Hair Loss)

How it helps



Response to Blood Flow Boosters (Hair Loss)



The theory is that by improving blood flow to hair follicles, arginine could help deliver more nutrients and oxygen they need to grow.

While this makes sense in theory, and there is some evidence that better blood flow can help with hair growth, the research specifically on arginine for hair loss is still limited. When applied topically, it might help improve the scalp environment, and some people report their hair feels thicker when using arginine-containing products.

In one study, a topical treatment containing arginine and zinc significantly reduced hair loss and increased the percentage of anagen (growth phase) hair compared to a placebo [R].

Another topical product with arginine effectively reduced hair loss in individuals with mild androgenetic alopecia. The study reported a high satisfaction rate among participants, with a significant reduction in hair loss observed in both men and women [R].

A study using an **oral supplement** with arginine, l-cystine, zinc, and vitamin B6 demonstrated improvements in hair quantity and diameter in patients with telogen effluvium. TE is a temporary form of hair loss and thinning, typically triggered by stress, illness, hormonal changes, medications, or nutritional deficiencies [R].

However, it's probably better as a supporting treatment rather than a primary solution for hair loss. The good news is that it's generally very safe to try.





Microneedling

To implement microneedling as a lifestyle recommendation for skin rejuvenation or scar treatment, use a dermaroller or microneedling device with needles of 0.2 to 1.0 mm in length, depending on the treatment area and sensitivity of your skin. Gently roll the device over the target area in a criss-cross pattern, ensuring to cover all desired areas, typically once every 2 to 4 weeks. Cleanse the skin and device before and after each use to prevent infection.

Helps with these Symptoms & Conditions:

Hair Loss





Topical Rosemary Oil

Apply 2-3 drops of rosemary oil mixed with a carrier oil, such as coconut or almond oil, to the affected area of the scalp. Massage gently for a couple of minutes to ensure absorption. Do this twice daily, in the morning and before bedtime, for at least six months to observe potential improvements in hair growth and scalp health.

Helps with these Symptoms & Conditions:

TABLE OF CONTENTS

Hair Loss





Pumpkin Seed Oil

Take 1 to 2 tablespoons of pumpkin seed oil daily, either directly or by adding it to salad dressings, smoothies, or yogurt. It's best consumed with meals to increase absorption.

Helps with these Symptoms & Conditions:

Hair Loss





Saw Palmetto

Take a saw palmetto supplement of 160 mg twice daily or 320 mg once a day. This dosage is typically taken in capsule form. Continue this regimen for at least two to six months to assess its effectiveness for conditions like benign prostatic hyperplasia.

TYPICAL STARTING DOSE **320 mg**

Helps with these Symptoms & Conditions:

Hair Loss





Topical Adenosine

Apply a topical adenosine solution or cream to the affected area of the skin once or twice daily. Ensure the skin is clean and dry before application. Continue use as per the product's instructions or as advised by a healthcare professional.

Helps with these Symptoms & Conditions:

Hair Loss





Avoid Hair Plucking

Refrain from intentionally pulling out hair from any part of your body, including scalp, eyebrows, and other areas, to prevent damage to hair follicles and potential hair loss or skin issues.





Fo-ti

Take a fo-ti supplement of 500-1000mg daily, ideally with meals to enhance absorption. This should be done consistently for at least a few months to evaluate its effects. Adjust dosage according to personal tolerance and health goals, and consult a healthcare provider for personalized advice.





Methylsulfonylmethane (MSM)

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





Para-Aminobenzoic Acid (PABA)

Take para-aminobenzoic acid (PABA) as a dietary supplement in doses ranging from 100 mg to 500 mg per day, with meals to enhance absorption. It's important to follow the dosage recommended by the product manufacturer or your healthcare provider. The duration of supplementation can vary, but consult a healthcare professional for personalized advice, especially for long-term use.

TYPICAL STARTING DOSE

100 mg





Topical Kudzu

Apply a cream or gel containing kudzu extract to the affected area of the skin, gently massaging it in until fully absorbed. This should be done 2-3 times daily for at least 4 weeks to see improvements.

TABLE OF CONTENTS





Vitamin B12

Take a 50 mcg vitamin B12 supplement daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

10 mcg

Helps with these Symptoms & Conditions:

Cognitive Decline

Underactive Thyroid

Helps with these Goals:

Mood





Pantothenic Acid (Vitamin B5)

For adults, take a pantothenic acid (Vitamin B5) supplement of 5 to 10 milligrams daily with water and a meal. This can be continued indefinitely as part of a daily vitamin regimen to support overall health.

TYPICAL STARTING DOSE

5 mg





N-acetylcysteine (NAC)

Take 600 mg of N-Acetylcysteine (NAC) supplement daily with water. It can be taken at any time of the day, but try to take it at the same time each day for best results.

TYPICAL STARTING DOSE

1200 mg

Helps with these Goals:

Energy

Mood

24



Progressive Muscle Relaxation

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

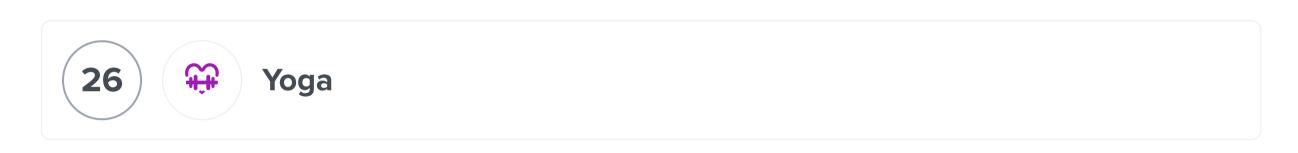
10 minutes

Helps with these Goals:





Apply a pea-sized amount of zinc pyrithione cream or lotion onto the affected area of the skin once daily, preferably in the evening before bed, for at least 4 weeks, or as directed by your healthcare provider. Avoid contact with eyes and rinse thoroughly with water if this occurs.



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.

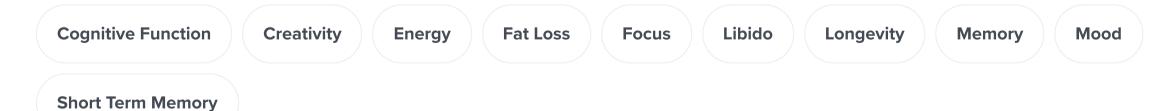
TYPICAL STARTING DOSE

30 minutes

Helps with these Symptoms & Conditions:

Artery Hardening Cognitive Decline

Helps with these Goals:





Participate in Acceptance and Commitment Therapy (ACT) sessions with a licensed therapist weekly for a minimum of 8 to 12 weeks. During this period, engage in daily ACT exercises at home as recommended by your therapist, such as mindfulness practices and writing exercises that help you connect with your values and accept your thoughts without judgment.

TABLE OF CONTENTS

Helps with these Goals:







Applied Relaxation

Practice applied relaxation by dedicating 15-30 minutes each day to learning and practicing relaxation techniques, such as deep breathing, progressive muscle relaxation, or guided imagery. Consistency is key, so aim to incorporate these practices into your daily routine for an ongoing period to effectively manage stress and anxiety.

TYPICAL STARTING DOSE

30 minutes





Art Therapy

Participate in art therapy sessions, which can include activities such as painting, sculpting, or drawing, for 1-2 hours per week. These sessions can be done either in group settings guided by a trained art therapist or individually, depending on your comfort level and goals. It is beneficial to engage in this practice consistently for several months to observe the therapeutic benefits.

TYPICAL STARTING DOSE

1 hour

Helps with these Symptoms & Conditions:

Cognitive Decline

Helps with these Goals:

Creativity

Mood





Choline-Stabilized Orthosilicic Acid (Ch-OSA)

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





Dietary Zinc

Incorporate foods high in zinc, such as beef, poultry, seafood (especially oysters), beans, nuts, and whole grains, into your daily diet. Aim for the recommended dietary allowance of zinc, which is 11 mg per day for adult men and 8 mg per day for adult women.

Helps with these Goals:







Fruits

Incorporate at least two servings of fresh, frozen, or canned fruits into your daily diet, aiming for a variety of colors and types to ensure a broad intake of vitamins, minerals, and antioxidants. One serving is equivalent to one medium-sized fruit, such as an apple or banana, or one-half cup of chopped fruit.

Helps with these Goals:

Longevity

Mood





Inositol

Take inositol as a daily supplement, usually available in powder or capsule form. The typical dosage ranges from 2 grams to 18 grams per day, divided into smaller doses taken with meals and water to aid absorption. It's important to start with a lower dose and gradually increase to avoid digestive side effects.

TYPICAL STARTING DOSE

Helps with these Symptoms & Conditions:

Hashimoto's Disease

Helps with these Goals:

Mood





Lactobacillus Paracasei

Take a supplement containing Lactobacillus paracasei daily, with a dose of around 10 billion colony-forming units (CFUs). Consume the supplement with or without food, but consistently at the same time each day for at least 4 weeks to observe beneficial effects.

TYPICAL STARTING DOSE

10 billion CFU

Helps with these Symptoms & Conditions:

Bloating





Mindfulness Meditation

Practice mindfulness meditation for 10-20 minutes daily. Find a quiet, comfortable place to sit or lie down, then focus on your breath, observing thoughts and sensations without judgment. Consistency is key, so try to incorporate it into your daily routine, perhaps in the morning or before bed.

TYPICAL STARTING DOSE

30 minutes

Helps with these Goals:

Creativity

Fat Loss

Focus

Libido Memory

Mood

Short Term Memory





Moisturize the Skin

Apply a moisturizer to your skin within a few minutes after bathing or showering once daily. For dry skin conditions, moisturizing twice daily, once in the morning and once at night before bed, may be beneficial. Choose a moisturizer suited for your skin type; for sensitive skin, opt for fragrance-free options.

PAGE 39 / 42





Social Activity

Participate in group activities or gatherings with friends, family, or community members at least twice a week.

This could include joining clubs, attending local events, or scheduling regular outings with friends. Aim for these social engagements to last at least an hour each time to foster meaningful connections and conversations.

TYPICAL STARTING DOSE

1 hour

Helps with these Symptoms & Conditions:



TABLE OF CONTENTS

Cognitive Decline

Helps with these Goals:

Cognitive Function Longevity Memory

38 Spend Time in Nature

Aim to spend at least 120 minutes per week in natural environments, such as parks, forests, or beaches. This can be divided into short durations throughout the week, for example, 17 minutes per day or longer sessions on weekends.

Mood

TYPICAL STARTING DOSE

2 hours

Helps with these Goals:

Creativity Energy Longevity Mood

39 Stress Management Therapy

Engage in stress management therapy sessions, such as cognitive-behavioral therapy (CBT), for at least 1 hour per week over a course of 8 to 12 weeks. Techniques can include mindfulness, deep breathing exercises, and identifying stressors to develop coping strategies.

1 hour

40 Support Groups

Attend a support group meeting related to your condition at least once a week. These meetings can be found through local hospitals, online platforms, or health organizations specific to your condition. Participation can be in-person or virtual, depending on what is offered and your preference.

Apply a thin layer of coal tar ointment, lotion, or solution to the affected skin areas once daily. Gently massage it into the skin and leave it on for at least one hour or overnight; follow up by washing the area with soap and water. Use consistently for at least 4 weeks to see improvement.





Topical Lemongrass

Apply a lemongrass oil diluted with a carrier oil (like coconut or jojoba oil) directly to the affected area of the skin 2-3 times daily. Lemongrass oil should be diluted in a ratio of 1 to 2 drops of lemongrass oil per teaspoon of carrier oil.





Topical Myrtle

Apply myrtle essential oil diluted with a carrier oil directly to the affected area of the skin 1-2 times daily. Continue application until symptoms improve, but not longer than 4 weeks without consulting a healthcare provider.





Topical Pink and Blue Ginger

Apply a small amount of the product containing pink and blue ginger to the affected area of your skin. Gently massage it in until fully absorbed. Repeat this process twice daily, in the morning and at night, for at least one month to observe benefits.





Topical Salicylic Acid

Apply a small amount of salicylic acid gel or cream to the affected area of the skin once or twice a day, after gently cleaning and drying the skin. Use consistently for several weeks to achieve the best results, and always follow the specific product instructions.

46



Topical Selenium Sulfide

Apply selenium sulfide lotion or shampoo to the affected area of skin or scalp, leave it on for 2 to 3 minutes, and then rinse thoroughly. Use it twice a week for the first 2 weeks and then once a week for the next 2 weeks or as directed by a healthcare provider.

TABLE OF CONTENTS





Topical Sulfur

Apply a thin layer of topical sulfur cream, lotion, or ointment to the affected area of the skin once or twice a day, after cleaning the skin thoroughly. Allow it to sit on the skin for 10 minutes before rinsing off if the product instructions specify. Use consistently for 4 to 8 weeks to see improvement in skin conditions such as acne.





Topical Tea Tree Oil

Apply a few drops of 100% tea tree oil to a cotton swab or ball and gently dab onto the affected area of the skin. Do this 1-2 times daily until improvements are noticeable, usually for a period of 1-4 weeks. Avoid applying tea tree oil to large areas of the skin and test on a small patch of skin first to ensure no allergic reaction occurs.