



Gx *renew* Personal Report

Prepared for: Jane Smith



REPORT SUMMARY

This quick overview shows which genes we tested and the rating assigned to the results from your analysis. Make sure to review the detailed results carefully to best interpret your rating for each trait.



LOOK

RATING

GENES

Sun Sensitivity	FAVORABLE	IRF4, LOC105374875, NTM, TYR, HERC2, MC1R, CPNE7, MC1R, RPS2P1, ASIP
Skin Aging	NORMAL	IRF4, SPATA33, RALY/ASIP, BNC2
Facial Aging	IMPROVED	STXBP5L
Stretch Marks	NORMAL	ELN, SRPX, HMCN1, LOC105373353
Skin Glycation	BELOW AVERAGE	AGER, GLO1
Fat Loss Response to Cardio	LOW	ADRB2, LPL
Body Composition Response to Strength Training	ENHANCED	NRXN3, GNPDA2, LRRN6C, PRKD1, GPRC5B, SLC39A8, FTO, FLJ35779, MAP2K5, QPCTL-GIPR, NEGR1, LRP1B, MTCH2, MTIF3, RPL27A, SEC16B, FAIM2, FANCL, ETV5, TFAP2B



FEEL

RATING

GENES

Intrinsic Motivation to Exercise	MORE LIKELY	BDNF
Addictive Behavior / Stimulus Control	LESS LIKELY	DRD2
Impulse Control & Taste Preference with Aging	BELOW AVERAGE	FTO
Sleep Duration	ABOVE AVERAGE	ABCC9, LOC101927400, DRD2
Sugar Intake	NORMAL	SLC2A2, GLUT2



FUNCTION

RATING

GENES

Cognitive Decline with Aging	SLIGHTLY ABOVE AVERAGE	APOE, BDNF
Age Related Hearing Loss	INCREASED	GRM7
Kidney Function with Aging	ABOVE AVERAGE	UMOD, GALNTL5, GALNT11
Longevity	NORMAL	FOXO3, APOC1 (APOE-CI-CII)



FUNCTION

RATING

GENES

Fitness Response to Cardio	LOW	AMPD1, APOE
Systemic Inflammation	ABOVE AVERAGE	CRP, APOC1 (APOE-CI-CII), HNF1A
Polyunsaturated Fatty Acid Levels	SLIGHTLY ABOVE AVERAGE	FADS1-2
Cholesterol Response to Dietary Fat	NORMAL	LIPC
Insulin Response to Dietary Fat	SENSITIVE	FTO
Triglyceride Response to Cardio	NORMAL	CYYR1, GLT8D2, RBFOX1, ZNF385D
Lactose Intolerance	UNLIKELY	MCM6
Calcium Levels	BELOW AVERAGE	CASR, DGKD, GCKR, LINC00709, CARS, LOC105370176, CYP24A1
Copper Levels	BELOW AVERAGE	SMIM1, SELENBP1
Magnesium Levels	NORMAL	MUC1, SHROOM3, TRPM6, DCDC5, ATP2B1, MECOM
Dietary Choline Levels	NORMAL	PEMT
Selenium Levels	NORMAL	DMGDH
Zinc Levels	BELOW AVERAGE	CA1, PPCDC, LINC01420

FACIAL AGING

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits characteristics that give you an **IMPROVED** level of visible skin aging. That means that while most people will see wrinkles as early as their late twenties, you're not likely to notice lines, wrinkles and skin thinning and sagging until later. As with all physical conditions, however, genes are only part of the story. A certain amount of skin aging is, of course, inevitable. Also, since skin aging is ultimately caused by skin damage, your lifestyle and dietary habits can accelerate the process no matter what your genetic makeup.



Your genetic profile indicates that you are likely to have an **IMPROVED** level of skin aging.

You can maximize your fortunate genetic predilection by taking steps to protect your skin from undue damage and help it maintain its elasticity over time.

SUCCESS STRATEGIES

The longer you can keep your skin's structural support system—which includes the collagen, elastin and the extracellular matrix—healthy and strong, the more firm and youthful it appears. Your skin is genetically more likely to maintain its integrity overtime, but you can also take steps to protect against premature skin aging by minimizing your exposure to damaging elements, such as sun and smoke.

The biggest culprit behind premature signs of skin aging is sun exposure. The sun's UV rays, particularly the deep penetrating UVA rays damage the skin's collagen and elastin fibers. Wear sunscreen of at least SPF 30, especially if you burn easily, and be sure the label indicates that it provides at least 4 star UVA protection as well.

Also, keep your skin, as well as the rest of you, in good shape by eating a diet rich in fruits, vegetables and essential omega-3 fatty acids, all of which have

RELATED GENES / SNPs

STXBP5L

The gene and its associated SNP included in this category have been shown in studies to have significant associations with a person's susceptibility to visible signs of facial aging.

As is the case with all of our organs, our skin, especially that on our face, ages over time. Visible signs of facial aging include wrinkling, especially around the eyes and mouth; creases or frown lines in the forehead, and thinning and sagging or folding of your skin, particularly around your eyes, mouth and jawline.

Some amount of visible facial aging is inevitable with the passage of time. However, there are certain lifestyle behaviors that accelerate and/or exacerbate it such as smoking, poor nutrition and sun damage. Genetics also plays a role, especially in the case of Caucasians.

In the first ever genome-wide association



LOOK

FACIAL AGING

been shown to keep maintain skin integrity and protect it from damage. Stay well-hydrated to keep skin supple, as dehydration robs the skin of elasticity.

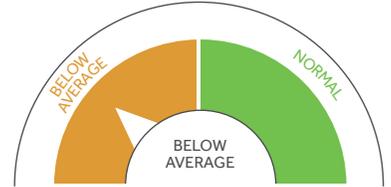
study of its kind, researchers examined more than 500 middle-aged French Caucasian women to identify the factors that may affect the severity of skin aging. They found that those who carried the A allele of this gene showed less aging, particularly skin wrinkling and sagging (age spots were not influenced by this gene), over time.

Our analysis investigated which genotype for this gene was present in your DNA. Your rating of NORMAL or IMPROVED reflects the degree to which you are likely to experience visible signs of skin aging with the passage of time.

SKIN GLYCATION

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits characteristics that give you a **BELOW AVERAGE** level of protection against skin glycation. That means you are more susceptible to AGEs (advanced glycation end products) damage and premature skin aging as evidenced by marked loss skin tone in the form of sagginess and wrinkles.



Your genetic profile indicates that you are likely to have **BELOW AVERAGE** levels of protection against AGEs (advanced glycation end products) and skin glycation.

You can reduce your risk of skin deterioration and premature aging via skin glycation by practicing healthy diet, exercise and lifestyle habits to maintain healthy skin integrity.

SUCCESS STRATEGIES

Even if you don't necessarily stress about wrinkles and skin tone, it's important to protect yourself against skin glycation because the AGEs that damage the integrity of your skin are also wreaking havoc on the organs inside your body that you can't see. Here's how to minimize the levels of AGEs in your system.

Avoid simple sugars. Not surprisingly, the best way to minimize your exposure to this glucose-driven cell damage is to avoid dumping tons of the sugary stuff into your system. That means minimizing your intake of simple sugars like white sugar and especially fructose and high fructose corn syrup, which studies show increase your rate of glycation by 10 times. Stick to whole grains and other complex carbohydrates, which are rich in healthy fiber and release less glucose into your system.

RELATED GENES / SNPs

AGER, GLO1

The genes and their associated SNPs included in this category have been shown in studies to have significant associations with a person's susceptibility to skin glycation—deterioration of certain proteins in skin that causes visible signs of aging such as fine lines, wrinkles, sagginess and dullness or loss of radiance.

As the name implies, skin glycation is glucose (sugar) driven. It occurs when sugar molecules in your system glom onto proteins in your skin, such as collagen and elastin (which give your skin its firm, plump, springy texture) and form what are known as advanced glycation end products (AGEs for short). AGEs cause your protein fibers to become rigid, brittle and prone to breaking down. High levels of glucose (blood sugar) may accelerate this process, but it also occurs when cells are exposed to normal blood sugar levels over time. How susceptible you are to skin glycation also depends on your genes, as some people have genetic variations that



LOOK

SKIN GLYCATION

Be wary of BBQ. Cooking or caramelizing foods at high temperatures as with barbecuing creates AGEs, which when you eat them can do their damage to your collagen and elastin fibers, creating skin glycation. Eat these foods sparingly.

Eat more blueberries. Blueberries are rich in antioxidant compounds called anthocyanins, which are particularly potent for blocking AGE formation and collagen breakdown. Make them one of your two to three servings of fruits you eat each day.

Drink green tea. Well known for its cancer-fighting properties, green tea contains a powerful antioxidant compound called epigallocatechin gallate (EGCG) that protects your skin and interferes with the glycation process.

Get ample vitamin C. Your body uses the antioxidant vitamin C to produce collagen. Eat at least five servings of fruits and vegetables a day to get your fill of this protective micronutrient. Citrus fruits, peppers and strawberries are particularly good sources.

appear to make them more susceptible to the effects of AGEs.

The main enzyme that protects your cells from AGEs is known as glyoxalase 1. The gene that influences that activity is GLO1. In a recent study of 326 men and women with either healthy blood sugar levels or with type 1 or type 2 diabetes, researchers found that the specific SNP variations in the GLO1 gene people carried predicted their level of protective enzyme activity, with those carrying minor alleles having lower enzyme activity—e.g., increased risk for skin glycation.

Our analysis investigated which genotype for these genes was present in your DNA. Your rating of either NORMAL or BELOW AVERAGE reflects the level of natural glycation protection you have based on your genotype.



FAT LOSS RESPONSE TO CARDIO

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits a **LOW** fat loss response to cardio exercise. *That means, based on your genotype, you have a greater chance of showing a reduced fat loss response to doing the minimum recommended amount of 150 minutes of moderate to high intensity cardio exercise per week.* That's not to say that you can't lose weight through exercise, it may just be more difficult for you than someone with a more responsive genotype. That means if weight loss is your goal,



Your genetic profile indicates that you are likely to experience **LOW** fat loss in response to the minimum cardio recommendations of 90 to 150 minutes a week of moderate to high intensity exercise.

If your goal is weight loss, we recommend aiming for 250 to 300 minutes a week—an amount that has been shown in studies to promote significant amounts of weight loss.

you may have to do more and work harder to see the desired results. You may also experience more weight loss by focusing on watching what you eat more carefully, as diet influences body composition more than exercise for most people regardless of genotype. Remember, too, that exercise has health benefits above and beyond fat loss.

SUCCESS STRATEGIES

The general exercise recommendations to get 30 minutes of exercise most days a week were developed to improve cardiovascular health, but not necessarily to help with weight loss. Some people, especially those with less

RELATED GENES / SNPs

ADRB2, LPL

The genes and their associated SNPs that are included in this category have been shown to have significant associations with a person's ability to lose fat from a regular program of cardio exercise.

The desire to lose excess fat is a common one in America, where statistics show that 69 percent of us have at least some excess fat to lose. Along with a balanced diet, regular exercise is one of the ways to lose fat and improve body composition. Though everyone can lose some fat through exercise, how easily it comes off appears to be influenced by your genes.

In one large study, researchers put sedentary men and women on a 20-week cardio program where they exercised on a bike three days a week, starting at a moderate intensity for 30 minute sessions and building up to slightly harder bouts lasting for 50 minutes for the last 6 weeks of the study.

All the men in the study shed fat regardless of genotype. It was a different



LOOK

FAT LOSS RESPONSE TO CARDIO

exercise responsive genotypes, need to boost their exercise frequency and/or intensity to see measurable body composition changes through exercise.

Go longer. The American College of Sports medicine recommends 200 to 300 minutes per week to lose weight and keep it off. Research shows that for people trying to lose weight, exercising more than 250 minutes per week has resulted in significant weight loss. To hit the 300-minute mark, plan on 60 minute sessions five days a week. Signing up for a regular exercise class like Zumba, indoor cycling or other activities you enjoy can help you stick to a routine.

Push the pace. You can ramp up your fat burning by increasing the intensity of your exercise bouts. Try cardio interval training where you alternate very intense bursts of activity with intervals of exercise at a more moderate intensity. For example, walk for 10 minutes at an easy pace to warm up, then jog or run for 30 seconds to two minutes. Then return to an easy pace walk for three to five minutes and then jog or run again for 30 seconds to two minutes. As you get fitter, you can lengthen the high-intensity intervals and shorten the recovery intervals.

Hit the weights. Strength training helps improve body composition by helping to build and maintain lean muscle tissue, which is more metabolically active than fat tissue. High intensity resistance training sessions like kettlebell and/or boot camp style classes are great for burning a lot of calories in a short period of time so you burn more fat while you build muscle.

Eat a balanced diet. It's difficult for most people, regardless of genotype, to lose measurable amounts of fat and weight from exercise alone. If that's your goal, you will experience faster fat loss if you focus on sticking to a reduced-calorie diet, in addition to exercise.

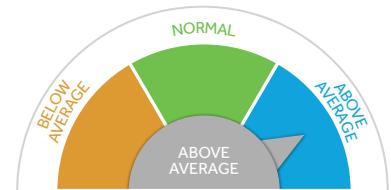
story for the women, however. Though all the women lost some fat, women who carried certain variations of these genes lost less fat over the course of the 5-month study than their peers who carried more 'favorable' genotypes.

Our analysis investigated which genotype for each of these genes was present in your DNA. Your rating of either NORMAL, BELOW AVERAGE or LOW reflects whether your genotypes included those that carried a risk of experiencing a reduced fat loss response from a regular program of cardio exercise.

SLEEP DURATION

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits characteristics that make you likely to get an **ABOVE AVERAGE** amount of sleep per night. That's generally good news because adequate sleep protects your health and improves your mood and general daytime functioning. It's important to keep in mind, however, that the majority of factors that influence sleep duration are not genetic. So even if you have a genetic predisposition for above average sleep, you must still practice good sleep hygiene to ensure that you get sufficient rest and reap the many health benefits associated with regularly getting a good



Your genetic profile indicates that you may be likely to get an **ABOVE AVERAGE** amount of sleep per night.

Since the average American sleeps just 6.8 hours of sleep a night, that's good news. Because many lifestyle, diet, and behavior factors impact your sleep duration, you'll be more likely to maximize your genetic potential and to consistently get the recommended 7 to 8 hours of restorative sleep each night if you implement habits that are conducive to good sleep.

night's sleep. Also be mindful that excessive amounts of sleep (more than 9 or 10 hours) are associated with health risks such as obesity, heart disease, and diabetes and may be a symptom of an underlying condition such as depression. If you are a long duration sleeper, talk to your doctor.

SUCCESS STRATEGIES

Sleep has a powerful effect on health. It's a big check in the plus column that you are genetically inclined to get above the average amount of sleep per night. Remember, however, many factors impact quality sleep and your genes don't make you immune to sleep disrupting lifestyle factors. You still need to practice good sleep habits to ensure you get the proper amount of restorative sleep you need.

RELATED GENES / SNPs

ABCC9, DRD2

The genes and their associated SNPs that are included in this category have been shown to have significant associations with sleep duration.

Sleep is essential for physical and psychological health. Research shows that sleep plays a critical role in immunity, metabolism, learning, memory and a host of vital functions. Getting too little sleep (6 hours or less) doesn't just make you feel drowsy and irritable during the day, but also has been linked with an increased risk for heart disease, diabetes, poor cognitive function, getting sick and weight gain. Research shows that adults sleeping 5 or fewer hours a night have 55% greater odds of becoming obese.

Research also shows that Americans currently average 6.8 hours of sleep a night, with 26 percent averaging 6 hours or less and 14 percent averaging 5 hours or less. Many factors, including age, gender, lifestyle, diet, caffeine and alcohol consumption, occupation, light exposure and general health influence how much (or

SLEEP DURATION

Easy on the late day lattes. Caffeine has many mental and physical performance benefits. It's easy to overdo, however, especially late in the day. Caffeine works by binding to your brain's nerve receptors, speeding them up, which triggers your pituitary glands to secrete adrenaline. Hence the energy buzz. The half-life of caffeine is about six hours, so if your last mug is at 4 p.m., by 10 p.m., you still have a shot of espresso's worth flowing through your system, which research shows can reduce your sleep by an hour. Have your last cup before 4, so you can wind down and fall asleep more easily.

Avoid alcohol close to bedtime. Alcohol within an hour of bedtime lengthens your non-REM sleep and shortens your REM sleep during the first half of the night, so you are in more wakeful territory longer. As your liver clears the ethanol from your bloodstream, your body can go into a bit of withdrawal during the second half of the night, making you restless and more likely to toss and turn. Stick to one or two drinks and avoid alcohol an hour or two before bedtime.

Dim the lights – and electronics. Too much light exposure late in the evening suppresses your melatonin – a hormone produced in the pineal gland of the brain that is critical for your natural sleep-wake cycle – so your body temperature doesn't dip and your body doesn't get the signals that it is time to start the stages of sleep. That includes your smartphone or tablet, which also emit blue wavelength light, which has been shown to be especially harmful to circadian rhythm function. Dim the lights and shut down all electronics 30 minutes before you want to be asleep. Also consider downloading a blue light-filtering app if you must be on your device at night.

Set the stage for sleep. Humans sleep best in cool, dark, quiet conditions. Set your thermostat to between 60 and 67 degrees for the optimum ambient sleeping temperature. Consider blackout curtains if outside light enters your bedroom. Earplugs or white noise machines can block out disruptive noise.

little) sleep we get each night. Your genes may also play a role in sleep duration.

Studies show the inheritability of sleep duration to be anywhere between 9 and 44 percent. Variations in the genes, or *alleles*, listed above have been shown to influence sleep duration, with each allele increasing or decreasing sleep by 3 to 4 minutes. Compared to other factors, genes may not move the needle on sleep in a giant way, but even small amounts of additional sleep if you are typically a short sleeper can improve your well-being. Consider that research shows just a 10-minute nap is sufficient for significantly improving alertness and cognitive performance for more than two hours, and just three minutes of stage 2 sleep (the stage where we drift off and become less aware of our surroundings) has recuperative benefits and you'll appreciate how key every minute of sleep is to your well-being.

Trending your sleep duration in a healthy direction may also set the stage for improved sleep hygiene and better sleep duration long term, which may trigger a cascade of further genetic outcomes. One British study reported that there are approximately 500 genes that are affected by sleep duration. When volunteers who typically slept 7 ½ hours shaved an hour off their nightly rest, the genes associated with inflammation, immune response, stress, diabetes and risk of cancer became more active. The opposite occurred when the volunteers who typically slept 6 ½ hours added an hour of sleep.

Our analysis investigated which genotype of each of these 5 genes was present in your DNA. Your rating of NORMAL, BELOW AVERAGE, or ABOVE AVERAGE reflects whether your genotypes include those that carried a risk of reduced healthy sleep duration.



COGNITIVE DECLINE WITH AGING

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your gene profile exhibits characteristics that make you at a **SLIGHTLY ABOVE AVERAGE** risk for cognitive decline with age. *That means you are slightly more likely to experience age-related problems with memory and brain function.* The good news is that there are many lifestyle and behavioral factors that impact your brain health and cognitive ability. You can minimize decline and build and protect your brain's health and sharpen your mind with a healthy diet and regular physical and mental exercise.



Your genetic profile indicates that you are at a **SLIGHTLY ABOVE AVERAGE** risk for cognitive decline with age.

Minimize the impact of those genes and protect and build your brain with physical and mental exercises that will help you maintain healthy cognitive function as you get older.

SUCCESS STRATEGIES

Everyone is concerned about declining mental sharpness with age because it is essential to our independence, physical well-being and simple joy of life. Adopting a lifestyle that includes regular physical exercise, continual learning and cognitive stimulation, and a diet that is high in essential nutrients has been shown to be the most effective means for preserving and even enhancing your cognitive function at any age.

Eat like a Mediterranean. Protect your brain health by eating a traditional Mediterranean diet that is rich in olive oil, fish, vegetables, beans, nuts, fruits, and whole grains, and is low in refined sugars and meat. This diet has been shown to be the best for brain health because it is high in anti-inflammatory monounsaturated fats, which protect your arteries (your brain needs good circulation) and your general health. One Columbia University study that tracked the eating habits of nearly 2,000 men and women for close to five

RELATED GENES / SNPs

APOE, BDNF

The genes and their associated SNPs that are included in this category have been shown to have significant associations with age-related cognitive decline.

Brain-derived neurotropic factor (BDNF) is a protein that helps you grow new brain cells and helps keep your existing neurons alive. It's vital for learning, short and long term memory and higher thinking. It is encoded by the BDNF gene. It also appears to be an important marker of cognitive health and memory in women (though for reasons not yet clear, the association is not strong in men).

One study of 369 older adults, average age of about 73, found that women who had one of two minor variations of this gene had an increased risk of poorer cognitive performance (memory and perceptual speed, how quickly your brain interprets and organizes information) as compared with their peers who carried



FUNCTION

COGNITIVE DECLINE WITH AGING

years found that those who most closely followed a Mediterranean style diet showed a 28 percent lower risk of mild cognitive impairment compared to those who did not follow Mediterranean eating patterns. Moderate consumption of alcohol, particularly wine, that is a hallmark of this diet may have its own protective effect against cognitive decline.

Go for fish. You'll already be eating fish if you follow a Mediterranean diet, but it bears emphasis. Seafood and freshwater fish are especially good for your brain. Fatty fish, like wild salmon, herring, sardines, and anchovies are especially rich in the omega-3 fatty acid DHA, which is highly concentrated in the brain. Eat at least two 4-ounce servings of fatty fish each week to boost your omega-3 levels and protect your cognitive health.

Get at least 30 minutes of physical activity a day. Exercise is essential for brain health. When you exercise you dramatically increase the production of neurotrophins such as BDNF, which promotes stem cell division and new brain cell formation, effectively doubling or tripling the production of neurons. In one study, researchers had 59 sedentary adults either start an aerobic exercise program (brisk walking) or remain sedentary for 6 months. After just three months, scans showed that the exercisers had built their brains so that they had the volume of people three years younger. One meta-analysis of 15 studies that included more than 33,000 men and women followed for up to 12 years showed that people with the highest levels of physical activity were 38 percent less likely to show signs of cognitive decline over time compared to their peers who did very little activity. It only takes 30 minutes a day to reap potent brain benefits.

Exercise your brain. Every task you perform stimulates a vast network of billions of neurons connected by trillions of synapses within your brain. When you perform novel or challenging tasks such as learning a new language, playing chess, solving puzzles and even intricate physical tasks like ballroom dancing, you engage new pathways, stimulate neurogenesis, and build what you could call a cognitive reserve. Challenge and exercise your brain daily to delay the onset of and/or reduce the impact of age related cognitive decline.

Make sleep a priority. When you sleep, your glymphatic system—a network of water channels in the brain—become active and shuttles waste, which would otherwise build up and damage brain cells, out of your brain. Too little sleep long term is bad for brain health. Get 7 to 8 hours a night.

major forms of the gene. The more minor variations of these genes they carried, the greater their risk of decreased cognitive function, especially regarding memory and perceptual speed. Other research shows that the interaction of BDNF with another genotype (APOE4) increases the likelihood and magnitude of cognitive decline.

It can be scary to hear that you're at a higher risk for cognitive decline. Remember, however, that gene science is still relatively very young and there are a great many factors that impact your brain health and cognitive functioning beyond genetic predisposition. Likewise, there are myriad steps you can take to help maintain healthy brain function as you age. Knowing that you may be at above average risk genetically gives you time to take those steps early to protect your brain later in life.

Our analysis investigated which genotype for these genes was present in your DNA. Your rating of LOWER, SLIGHTLY ABOVE AVERAGE, or ABOVE AVERAGE reflects whether your genotypes included those that carried a risk for more or less cognitive decline with age.



AGE RELATED HEARING LOSS

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits characteristics that give you **INCREASED** risk for age-related hearing loss. *That means your hereditary risk for hearing loss is higher than normal.* That doesn't mean you are fated to lose your hearing, of course. One third of permanent hearing damage is preventable. It's just especially important that you be vigilant about protecting your ear health to maintain your hearing and minimize loss throughout your lifespan.



Your genetic profile indicates that you have an **INCREASED** risk for age-related hearing loss.

We recommend that you take extra precautions to protect your ears, maintain good general health and avoid damage and health conditions that can contribute to hearing loss overtime.

SUCCESS STRATEGIES

Everyone, regardless of genetic makeup, is at some risk for hearing decline over time. As someone with increased risk, protecting your hearing and ear health is particularly important.

Turn it down. There's more noise in our everyday life than we're often aware of. Everyday appliances like hair dryers, blenders, and coffee grinders all send out uncomfortable decibel levels. As a rule of thumb, if something is noisy enough to be uncomfortable, it's noisy enough to damage your hearing.

Turn the hair dryer on medium or low; wrap a dishtowel around the base of blenders and coffee grinders to muffle the noise.

Wear hearing protection. Protect your ears when you know they'll be exposed to particularly loud sounds and/or environments, such as when you're mowing the lawn, blowing leaves, using heavy machinery, attending a loud music venue, hanging around loud motor vehicles and so forth. Earplugs or earmuffs can reduce noise by a hearing protecting 30 decibels.

RELATED GENES / SNPs

GRM7

The gene and its associated SNPs that are included in this category have all been shown to have significant associations with a person's risk for developing age-related hearing loss.

Hearing loss is the most prevalent sensory impairment as we get older. About 20 percent of Americans report some degree of hearing loss, and by age 65 one in three of us has at least some trouble with our hearing. Hearing loss can be isolating since we use this sense as one of our primary forms of conversation.

Age-related hearing loss happens as the tiny hair cells in your inner ears slowly break down and can't pick up sound vibrations as well as they used to. The loss of these cells often happens with aging itself, but there are numerous contributing factors such as exposure to loud noise, health conditions like heart disease and diabetes, certain antibiotics and other medications and heredity.



FUNCTION

AGE RELATED HEARING LOSS

Minimize earbud time. Wearing earbuds can place your ears at a higher risk for damage because the sound is going directly into your ears without dissipating in the air. Headphones max volume is around 105 decibels. Normal talking is between 50 and 60 decibels. Ear health experts recommend keeping the volume on your player to 60 percent of max—the level of someone talking loudly—and limit it to about 60 minutes a day.

Manage diseases related to hearing loss. Diabetes, high blood pressure and heart disease can increase your risk for suffering hearing loss because they affect the blood supply to your ears. Control your blood pressure and manage your insulin to help maintain healthy ear function.

Get your hearing checked. Hearing loss happens so gradually many people don't realize it's happening until they've suffered significant loss. Get your hearing tested as part of your annual physical.

Check your meds. A long list of medications including antibiotics and high doses of aspirin can harm your ears and lead to hearing loss. Talk to your doctor about hearing damage concerns when receiving any prescriptions so you can work to find an alternative drug or take other measures to minimize potential damage.

Heed warning signs. Be aware and see your doctor if you notice any changes in your hearing, including ringing in your ears, trouble hearing conversations, can't hear high-pitched sounds and/or have difficult hearing over the phone.

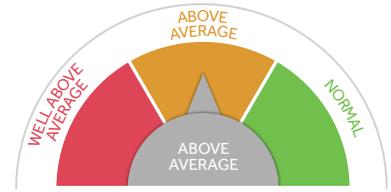
We've long known that people who have family members with hearing loss are more likely to have hearing loss themselves as they age. A recent study of 3,434 men and women from six different countries identified people with certain gene variations (specifically those carrying the T allele, which was associated with 2.5 times higher risk) as having a much greater risk for age-related hearing loss. Other variations were connected to even greater risk for hearing loss over time, though the age of onset, the rate of decline and the type of hearing loss they experience—e.g. whether it's mostly certain pitches or tones or trouble with word recognition—varies from person to person.

Our analysis investigated which genotype for this gene was present in your DNA. Your rating of NORMAL, INCREASED or HIGHLY INCREASED reflects whether or not your genotype includes those that put you at a higher risk for age-related hearing loss.

KIDNEY FUNCTION WITH AGING

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits characteristics that give you an **ABOVE AVERAGE** risk for kidney function decline with age. *That means you may be likely to experience a more pronounced rate of kidney function decline than normal with age.* Remember, however, that genetics are only part of the picture when it comes to kidney function. Your overall health has a great impact in preserving kidney function. It is also possible to develop a mildly low GFR and not have kidney damage or disease.



Your genetic profile indicates that you have an **ABOVE AVERAGE** risk for kidney function decline with age.

We recommend that you take steps to maintain healthy kidney function; be mindful of other important risk factors for kidney dysfunction, be alert to signs of potential trouble and consult your doctor regularly to check up on your overall and kidney health.

Knowing your risks and taking steps to keep your kidneys healthy can prevent decline and preserve function as you get older.

SUCCESS STRATEGIES

Kidney dysfunction develops slowly and you can develop early kidney dysfunction without symptoms. It's important to know your risks and take steps to preserve your kidney function and health.

Maintain healthy lifestyle habits. Like the rest of your body, your kidneys will maintain healthy function longer if you treat them well by exercising regularly, not smoking, following a balanced diet, managing your weight, monitoring your cholesterol and staying hydrated.

Avoid taxing your kidneys with prescription and over-the-counter medications

RELATED GENES / SNPs

UMOD, GALNTL5/GALNT11

The genes and their associated SNPs that are included in this category have been shown to have significant associations with a person's likelihood of developing kidney function decline with aging.

Our kidneys play a critical role in our health and well-being, as they filter our blood and remove excess wastes and fluids that we ultimately urinate out. Health experts use a formula called the *glomerular filtration rate* (GFR) to measure how well the kidneys are doing their job. Normal function is considered a GFR of above 90 ml/min/1.73m². For most people, a GFR over 60 mL/min/1.73m² is adequate. But in general, the lower the number, the poorer the kidneys are functioning.

As is the case with many of our biological functions, our kidney function naturally declines with age. The rate of decline varies from person to person, but on average it is about 0.8 mL/min/1.73 m² per year after age 30. That decline can accelerate after about age 65 to 70.



FUNCTION

KIDNEY FUNCTION WITH AGING

& supplements. Your kidneys work hard to filter your blood. Taking NSAIDs like ibuprofen and naproxen, as well as certain prescription medications, and even vitamins and supplements can make them work hard to the point of taxing them. Take only medications and supplements that your doctor recommends.

Drink alcohol only in moderation, if at all. Alcohol makes your kidneys work harder. If you choose to drink, practice moderation.

Manage high-risk conditions. Diabetes, high blood pressure and heart disease increase your risk for kidney function decline. If you have any of those conditions, it's important to keep them well-managed to protect your kidneys

Beware other risk factors. Other risk factors for kidney dysfunction to be mindful of include prolonged use of NSAIDs such as ibuprofen and naproxen, having had kidney stones and obesity. African Americans, Native Americans, and people of Hispanic, Asian and/or Pacific Island Heritage are also at an increased risk.

Get your GFR checked often. Schedule annual checkups including kidney function to catch high-risk chronic conditions and changes in kidney function early. See your doctor right away at signs of trouble that include fatigue or weakness, foamy urine, pink or dark urine (blood in your urine), increased need to urinate (especially at night), increased thirst, difficult and/or painful urination, swollen face, hands, abdomen, ankles and/or feet and puffy eyes.

Nearly 50 percent of people 70 years old and older have at least a mild level of kidney dysfunction, according to a study published in the *Journal of the American Medical Association*. That said, not everyone develops kidney dysfunction with advancing age. One study on healthy older adults showed no appreciable decline in kidney function over a ten-year span, while another showed minimal decline in healthy adults over age 65.

Healthy seems to be the operative word. Aging alone is not the main culprit behind significant kidney function decline, damage and/or disease, but rather common age-related chronic diseases, especially diabetes, hypertension and atherosclerosis, often exacerbate it. Genes also influence susceptibility. The Framingham Heart Study estimated that decline in GFR was about 38 percent hereditary.

Along those lines, a recent meta-analysis among more than 63,500 people identified one gene variation linked to a decline in kidney function with aging and one variation for more rapid decline with aging. Kidney function is a very complex process and how much or little these genes contribute is still a matter of research. Awareness of potential risk is still helpful as kidney dysfunction is a serious health issue and according to the National Kidney Foundation, the earlier kidney dysfunction is detected the better chance of slowing or stopping its progression.

Our analysis investigated which genotype for these genes was present in your DNA. Your rating of NORMAL, ABOVE AVERAGE or WELL ABOVE AVERAGE reflect whether your genotype included those that increase your risk for kidney function decline with age.

LINKS TO RELATED STUDIES:

SUN SENSITIVITY

A genome-wide association study identifies novel alleles associated with hair color and skin pigmentation

<https://www.ncbi.nlm.nih.gov/pubmed/?term=18483556>

A polymorphism in IRF4 affects human pigmentation through a tyrosinase-dependent MITF/TFAP2A pathway

<https://www.ncbi.nlm.nih.gov/pubmed/?term=24267888>

FAT LOSS RESPONSE TO CARDIO

Evidence of LPL gene-exercise interaction for body fat and LPL activity

<http://www.ncbi.nlm.nih.gov/pubmed/11509533>

Effects of beta2-adrenergic receptor gene variants on adiposity

<http://www.ncbi.nlm.nih.gov/pubmed/12740450>

Ruchat SM1, Rankinen T, Weisnagel SJ, Rice T, Rao DC, Bergman RN, Bouchard C, Pérusse L.

BODY COMPOSITION RESPONSE TO STRENGTH TRAINING

High genetic risk individuals benefit less from resistance exercise intervention

<http://www.nature.com/ijo/journal/vaop/ncurrent/abs/ijo201578a.html>

SKIN AGING

A genome-wide association study in Caucasian women points out a putative role of the STXBP5L gene in facial photoaging

<https://www.ncbi.nlm.nih.gov/pubmed/?term=23223146>

INTRINSIC MOTIVATION TO EXERCISE

What keeps a body moving? The brain-derived neurotrophic factor val66met polymorphism and intrinsic motivation to exercise in humans

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SLEEP DURATION

A K(ATP) channel gene effect on sleep duration: from genome-wide association studies to function in Drosophila

<https://www.ncbi.nlm.nih.gov/pubmed/?term=22105623>

Novel loci associated with usual sleep duration: the CHARGE Consortium Genome-Wide Association Study

<https://www.ncbi.nlm.nih.gov/pubmed/?term=25469926>

Common variants in DRD2 are associated with sleep duration: the CARE consortium

<https://www.ncbi.nlm.nih.gov/pubmed/?term=26464489>