

## Your summary results

#	Trait name	Your result
1	Endurance Genetic variations in endurance levels <a href="#">Learn more</a>	Good: Likely to be good at endurance activities
2	Aerobic Capacity Or Vo2 Max Genetic variations in transport and utilization of oxygen during exercise <a href="#">Learn more</a>	Good: Likely to have good aerobic capacity
3	Muscle Power Genetic variations in muscle power <a href="#">Learn more</a>	Good: Likely to be good at power-based activities
4	Cardiac Output Genetic variations in cardiac output with exercise <a href="#">Learn more</a>	Average: Likely to have average cardiac output
5	Lung Function Genetic variations in lung capacity and function <a href="#">Learn more</a>	Average: Likely to have average lung function
6	Lactate Accumulation During Training Genetic variations in lactate accumulation during training <a href="#">Learn more</a>	Higher: Likely to have higher lactate accumulation
7	HDL Cholesterol Levels With Exercise Genetic variations in HDL cholesterol levels with exercise <a href="#">Learn more</a>	Average: Likely to have moderate increase in HDL levels
8	Insulin Sensitivity With Exercise Genetic variations in insulin sensitivity with exercise <a href="#">Learn more</a>	Average: Likely to have moderate increase in insulin sensitivity
9	Blood Pressure Response To Exercise Genetic variations in blood pressure response to exercise <a href="#">Learn more</a>	Favorable: Likely to reduce BP with exercise
10	Resting Metabolic Rate Or Rmr Genetic variations in RMR <a href="#">Learn more</a>	Average: Likely to have moderate metabolic rate
11	Achilles Tendinopathy Genetic variations in risk for AT <a href="#">Learn more</a>	Higher: Likely to have higher risk for AT
12	Exercise Induced Muscle Damage Genetic variations in risk for exercise induced muscle damage <a href="#">Learn more</a>	Higher: Likely to have higher risk for exercise-induced muscle damage
13	Ligament Injury Genetic variations in risk for ligament injury <a href="#">Learn more</a>	Higher: Likely to have higher risk for ligament injury
14	Pain Tolerance Genetic variations in pain tolerance <a href="#">Learn more</a>	Moderate: Likely to have moderate pain tolerance
15	Fatigue Genetic variations in fatigue onset <a href="#">Learn more</a>	Lower: Likely to sustain exercise for longer durations
16	Handgrip Strength Genetic variations in handgrip strength <a href="#">Learn more</a>	Good: Likely to have good handgrip strength
17	Joint Strength And Flexibility Genetic variations in joint strength and flexibility <a href="#">Learn more</a>	Lower: Likely to have lower joint strength and flexibility
18	Performing Under Stress Or Warrior Vs Worrier Genetic variations in response to stress <a href="#">Learn more</a>	Average: Likely to have intermediate stress response
19	Exercise Recovery Genetic variations in post-exercise recovery <a href="#">Learn more</a>	Faster: Likely to have rapid recovery period
20	Response To Resistance Training Genetic variations in response to RT <a href="#">Learn more</a>	Favorable: Likely to respond better to RT
21	Lean Body Mass Genetic variations in lean body mass <a href="#">Learn more</a>	Higher: Likely to have greater lean body mass

#	Trait name	Your result
22	Muscle Building Genetic variations in muscle mass <a href="#">Learn more</a>	Higher: Likely to have higher muscle mass
23	Weight Loss With Exercise Genetic variations in weight loss with exercise <a href="#">Learn more</a>	Unfavorable: May not experience much weight loss
24	Glucose Response To Exercise Genetic variations in glucose response with exercise <a href="#">Learn more</a>	Lower: Likely to have lower glucose response with exercise
25	Triglyceride Levels With Exercise Genetic variations in triglyceride levels with exercise <a href="#">Learn more</a>	Average: Likely to have moderately reduced triglyceride levels
26	Exercise Behaviour Genetic variations in attitude towards exercise <a href="#">Learn more</a>	Excellent: Likely to have higher tendency to exercise

## Endurance

Good: Likely to be good at endurance activities

The ability of the body to sustain prolonged rhythmic exercise is termed endurance. Cardiovascular endurance refers to the heart's ability to fuel the body with oxygen, and muscular endurance refers to the muscles' ability to work continuously. Certain genes like HIF1A (hypoxia-inducing factor) influence endurance aspects such as the type of fuel used by the cells for energy production, percentage distribution of muscle fibers, and the ability of the blood vessels to carry more oxygen. People with certain genetic types are better at endurance-based activities than others. [Learn more about Endurance](#)

Genes Analyzed:

HIF1A
ACE
ACTN3
ADRB1
ADRB2
ADRB3
AGTR2
AQP1
BDKRB2
CKM
CLSTN2

COL5A1

COL6A1

GABPB1

HFE

IGF1R

NFATC4

NFIA-AS2

NRF1

NFE2L2

PPARA

PPARD

PPARGC1A

PPARGC1B

RBFOX1

SLC2A4

TFAM

TPK1

TSHR

UCP2

VEGFA

KDR

(VEGFR2)

## Recommendations

- People with your genetic type may perform better in endurance exercises like long-distance walking, jogging, and running for longer durations.
- You can also go for resistance training exercises with moderate weights. You should be

able to do more sets and repetitions before fatigue sets in.

- Endurance-based exercises will help you in achieving an optimal level of cardiorespiratory and muscle fitness and will help you to excel in various sports.

## Aerobic Capacity Or Vo2 Max

Good: Likely to have good aerobic capacity

Aerobic capacity (VO2 max) or the maximal oxygen uptake is the ability of the body to maximally transport and utilize oxygen during physical activity. Muscles need more oxygen during exercise to produce more energy. This is the reason why there is a progressive increase in breathing when the intensity of exercise increases. By improving aerobic capacity, you can increase your performance and burn more calories. The maximal oxygen uptake is partly determined by your genetic makeup. Genes like VEGF-A, a growth factor needed for blood vessels, influence aerobic capacity. People with certain genetic types differ in the level of oxygen uptake during exercise. [Learn more about Aerobic Capacity Or Vo2 Max](#)

Genes Analyzed:

VEGFA

ADRB2

CAMK1D

CPQ

GABPB1

NFIA-AS2

NRF1

PPARA

PPARGC1A

PPP3CA

MYBPC3

BAHD1

MYLIP

ADRB1

IL6

HFE

### Recommendations

- People with your genetic type may have good transport and utilization of oxygen during exercise.
- You can go for high-intensity aerobic exercises like skipping, running, cycling, skating, swimming, high-intensity interval training (HIIT), cross-fit training.

## Muscle Power

Good: Likely to be good at power-based activities

Muscle power is defined in fitness and sports as the ability to exert maximum force in a minimum time. It is an important aspect of performance as it takes into account both strength and speed. Type II or fast-twitch muscle fibers allow us to perform rapid, high-intensity movements. The ability of blood vessels to constrict and make oxygen utilization more efficient is also important for power. Certain genes like ACTN3 influence the percentage distribution of muscle fibers (slow twitch and fast twitch) and their ability to exert maximal power over a short period. People with certain genetic types are better at power-based activities than others. [Learn more about Muscle Power](#)

### Genes Analyzed:

ACTN3

AGT

EPAS1

ADRB2

AGTR2

AMPD1

ARHGEF28

CACNG1

CALCR

CKM

CLSTN2

COTL1

CREM

DMD

FOCAD

GABRR1

GALNT13

GPC5

HIF1A

HSD17B14

IGF1

IGF1R

IL6

IP6K3

MED4

MPRIP

MTHFR

MTR

MTRR

NOS3

NRG1

PPARA

PPARG

PPARGC1B

RC3H1

SLC16A1 (MCT1)

SUCLA2

TPK1

UCP2

VDR

WAPL

ZNF423

### Recommendations

- People with your genetic type may have a tendency to perform better in power-based activities, such as sprinting or weightlifting, which require fast bursts of muscle power.
- You can go for high-intensity exercises like high-intensity interval training (HIIT), cross-fit training, weight training with heavyweights, and fewer repetitions.

## Cardiac Output

**Average:** Likely to have average cardiac output

Cardiac output refers to the amount of blood pumped out per ventricle each minute. It is the product of heart rate and stroke volume. An optimal cardiac output is needed for a continuous supply of oxygen and nutrients to all the organs. The cardiac output may rise to 3 to 4 times than normal when the intensity of physical exercise increases, and as a result, the oxygen requirement by your muscles increases. Some genes like ADRB2 play a key role in the regulation of the cardiac, pulmonary, vascular, endocrine, and central nervous systems. People with certain genetic types may have better cardiac output than others. [Learn more about Cardiac Output](#)

Genes Analyzed:

ADRB2

### Recommendations

- People with your genetic type may have an average cardiac output and may require more time to adjust to exercises. Aerobic training can improve cardiac output over time.

# Lung Function

Average: Likely to have average lung function

The main function of the lungs is to transfer oxygen from the air you breathe to blood. Shortness of breath during working out is because of the extra demand for oxygen. The lungs can only increase the breathing rate up to a certain extent, beyond which it leads to shortness of breath. Lung function can vary based on several factors, including the amount of physical activity and genetics. Certain genes like ADRB2, which modulate airway smooth muscle tone and lung fluid clearance, influence lung capacity. People with certain genetic types may have a lower lung function than others. [Learn more about Lung Function](#)

Genes Analyzed:

ADRB2

SCNN1A

near GSTP1

EPHX1

## Recommendations

- You may have an average lung function, so it is advisable to increase the intensity of your exercises gradually. You may be more likely to feel 'short of breath' easily. Aerobic training can increase lung function over time.

# Lactate Accumulation During Training

Higher: Likely to have higher lactate accumulation

Lactate accumulation occurs when the body produces more lactate than it can burn and use as energy. This usually occurs after strenuous exercise. This can lead to exercise-induced or exercise-related hyperlactatemia. This can be beneficial in cases where people adopt lactate threshold training. The lactate threshold is a predictor of endurance performance. Genes like MCT1 are involved in lactate transport and can influence the risk of lactate accumulation. People with certain genetic types are at a higher risk of lactate accumulation during high-intensity training than others. [Learn more about Lactate Accumulation During Training](#)



## Genes Analyzed:

SLC16A1 (MCT1)

### Recommendations

- People with your genetic type show a slower lactate clearing potential.
- Include training programs that are a combination of high volume, maximal steady-state, and interval workouts, which have the most pronounced effect on lactate threshold improvement.
- Consume foods rich in vitamin B (such as leafy green vegetables, cereals, peas and beans, fish, beef, poultry, eggs, and dairy products), magnesium (such as pumpkin, sesame, and sunflower seeds), and vegetables (such as spinach, collard greens, turnip greens, navy beans, kidney beans).
- Use a foam roller to massage the muscles, as it loosens tight muscles and reduces the buildup of lactic acid by stimulating blood flow and encouraging lymphatic drainage.
- Stay hydrated. Drink water or an electrolyte replacement drink that can play a vital role in preventing the buildup of water-soluble lactic acid.

## HDL Cholesterol Levels With Exercise

**Average: Likely to have moderate increase in HDL levels**

Levels of HDL cholesterol or good cholesterol can be increased through physical activity. HDL cholesterol removes other harmful types of cholesterol from the blood and reduces the risk of developing cardiovascular issues. Improving the exercise routine and increasing the intensity of workouts can help boost HDL cholesterol levels. Research shows that the duration, frequency, intensity, and type of exercise have an effect on HDL cholesterol levels in the body. Genes like PPARD are involved in the metabolism of energy substrates and influence cholesterol levels. People with certain genetic types can increase their HDL cholesterol levels better during training compared to others. [Learn more about HDL Cholesterol Levels With Exercise](#)

## Genes Analyzed:

PPARD

ACADS

### Recommendations

- People with your genetic type may experience a moderate increase in HDL cholesterol

levels with exercise.

- Many different types of exercise are effective at raising HDL cholesterol, including strength training, high-intensity exercise, and aerobic exercise.
- High-intensity endurance training regularly for 20 weeks will produce the best results for your HDL profile. Go for high-intensity workouts at least three times a week.
- Low-intensity exercises can also help increase HDL levels, but the change will not be as significant as seen in high-intensity exercises.
- Complement your exercise sessions with a balanced diet (more unsaturated fats, less saturated or trans fats, low-carb diet) for effectively increasing your HDL cholesterol levels.

## Insulin Sensitivity With Exercise

**Average:** Likely to have moderate increase in insulin sensitivity

Insulin is a hormone responsible for controlling blood glucose levels. The way the cells in the body respond to insulin is different in different people. Some people have high insulin sensitivity, which allows the cells to use blood glucose more effectively and reduce blood sugar. People with low insulin sensitivity may have high blood sugar levels, and this can lead to complications like type 2 diabetes. Research shows that physical activity can help improve insulin sensitivity by modulating glucose transport and uptake by cells. However, the response of insulin sensitivity to exercise is influenced in part by genetics. People with certain genetic types show better insulin sensitivity upon exercising than others. [Learn more about Insulin Sensitivity With Exercise](#)

Genes Analyzed:

LIPC

CRP

### Recommendations

- People with your genetic type may experience a moderate increase in insulin sensitivity with exercise. This means that if you exercise regularly, your body may respond better to insulin.
- Exercise promotes an immediate increase in insulin sensitivity, which lasts for about 2 to 48 hours.
- Aerobic and resistance training increases insulin sensitivity; combining both in your routine appears to be the most effective.
- Even if you do not have diabetes, you should do at least 30 minutes of exercise five

times a week. This exercise should include high-intensity aerobic exercise three times a week and strength training in all major muscle groups twice a week.

- If you are already diabetic, you can exercise more. You can perform long-duration, moderate-intensity aerobic exercises three times a week and high-repetition resistance training in all major muscle groups twice a week.
- Keep checking your blood sugar levels on a regular basis and consult a doctor, if required.
- Do not substitute medicines with exercise for the treatment of diabetes. Exercise, diet, and medicines can all work together to give you the best effects.

## Blood Pressure Response To Exercise

**Favorable:** Likely to reduce BP with exercise

Blood Pressure (BP) normally rises with exercise as the heart rate and cardiac output increase during physical activity in response to oxygen demand from working muscles. However, some individuals present with an abnormal rise in blood pressure during exercise due to impaired exercise-induced endothelial vasodilation. This results in a limited opening of blood vessels in response to increased shear stress from exercise. This may lead to exercise hypertension. Certain genes like GNAS, involved in regulating cardiac output and vascular resistance, can interfere with vasodilation. People with certain genetic types show a poor response in blood pressure to exercise. [Learn more about Blood Pressure Response To Exercise](#)

Genes Analyzed:

GNAS

### Recommendations

- People with your genetic type show a greater reduction in blood pressure with aerobic exercise. This means that if you have a tendency for elevated blood pressure in the absence of physical activity, it can be reduced with exercise.
- Include aerobic exercises like brisk walking, jogging, cycling, swimming, climbing stairs, dancing, playing sports like tennis and badminton.
- Resistance training exercises like weight lifting (lower loads, higher repetitions; 2-3 days/week; 8-10 exercises; 1-3 sets; 10-15 repetitions) have been proven to be effective in managing hypertension. However, if you have high blood pressure, get your physician's consent before adding weight training exercises to your fitness routine.

# Resting Metabolic Rate Or Rmr

Average: Likely to have moderate metabolic rate

The rate at which various metabolic processes occur in the body is termed metabolic rate. Resting metabolic rate (RMR) is an indicator of the energy needed to perform basic life-sustaining functions. RMR can vary from person to person depending on several factors. Exercises that increase muscle mass can also help increase the metabolic rate. This effect increases with the intensity of training. Certain genes like LEPR (leptin receptor) associated with body weight regulation play a role in determining the metabolic rate. People with certain gene types have a higher RMR compared to others. [Learn more about Resting Metabolic Rate Or Rmr](#)

Genes Analyzed:

LEPR

GNAS

UCP2

UCP1

GPR158

## Recommendations

- People with your genetic type show an average metabolic rate.
- Consume adequate protein, as it will allow your body to build and repair its muscle tissue. This can help you maintain or increase your muscle mass.
- Increase your daily activity level by including strength training exercises like high-intensity interval training (HIIT), cross-fit training, weight training with heavyweights, and fewer repetitions. These will not only burn more calories but also strengthen your muscle mass.
- Limit your sugar consumption and increase protein and fat consumption; this will boost your RMR. The amount of energy that the body requires to process sugar is relatively small compared with that required to process fat and/or protein.

# Achilles Tendinopathy

Higher: Likely to have higher risk for AT

Achilles tendinopathy is a condition that causes swelling, pain, and stiffness of the Achilles tendon that joins the heel bone to the calf muscles. It is thought to be caused by repeated small injuries to

the Achilles tendon. The lack of flexibility or a stiff Achilles tendon can increase the risk of injuries. It can affect a range of individuals, from athletes to people with sedentary lifestyles. It can affect your ability to exercise or do other physical activities if it's not treated. Genetics is partly responsible for this condition. Variants in genes like TNC, MMP3 can increase your risk of this condition. [Learn more about Achilles Tendinopathy](#)

#### Genes Analyzed:

TNC
MMP3
TIMP2
GDF5
CASP8
MIR608
BMP4

#### Recommendations

- People with your genetic type are more prone to Achilles tendinopathy.
- Consider frequent stretching (one to three times per day for 15 to 30 seconds each) and strengthening exercises (four sets of 12 to 15 repetitions with moderate to heavyweight). This can help prevent an Achilles injury.
- Consider a structured warm-up and cool-down routine. This will help in preventing injury and also prepares the heart, lungs, muscles, and joints for sustained strenuous activity.
- Including Plyometric Drills exercises (movements such as jumping, skipping, and hopping) in routine, can help prepare and condition the muscles, tendons, and ligaments in the lower legs and ankle joints.
- Consider wearing good footwear designed for running. These will keep your ankles stable, cushion your foot and heel, and support your foot and lower leg during the running motions.
- Consume foods rich in plenty of protein, omega -3 fats, calcium, vitamin D, and magnesium in your daily diet. This will help in strengthening the tendons and may reduce the risk of injuries.
- Ensure to incorporate 1-2 days of rest per week to avoid overtraining and burnout.

# Exercise Induced Muscle Damage

Higher: Likely to have higher risk for exercise-induced muscle damage

Exercise-induced muscle damage (EIMD) affects the muscle fibers when an extremely strenuous physical activity is done for an extended period of time. It is especially seen in cases of new/unaccustomed training routines. When the muscles are overburdened with these damages, the connection between the contractile filaments gets disrupted. This results in an increase in white blood cell count, which triggers an inflammatory response. The main consequence is the loss of skeletal muscle function and soreness. Genetics is partly responsible for exercise-induced muscle damage. Variants in several genes, including ACE, CCR2 can increase your risk of this condition. [Learn more about Exercise Induced Muscle Damage](#)

Genes Analyzed:

ACE

CCR2

TRIM63

IGF2

IGF2

INS-IGF2

SLC30A8

ACTN3

## Recommendations

- People with your genetic type are more prone to muscle injury.
- Including exercises like stretching and light exercises such as swimming, rowing, running, boxing, tai-chi, and yoga, can help to build total-body strength in the muscles.
- Stay hydrated as it prevents dehydration and reduces muscle soreness.
- Consume foods rich in omega-3 fats (Oily fish such as herring, mackerel, salmon, tuna, and fish-oil supplements), magnesium (almonds, cashews, pumpkin seeds, green leafy vegetables, and beans), calcium (kale, sardines with bones, and yogurt), potassium (sweet potatoes, white beans, spinach, and dried apricots), and antioxidants (Fruits like blueberries, strawberries, and cranberries and vegetables like spinach, kale, red & green chili peppers, red cabbage, and red beets).

# Ligament Injury

Higher: Likely to have higher risk for ligament injury

A ligament is a band of tough fibrous connective tissue that holds together bones and facilitates the movement of the joints. It can be strained when the joint is stressed beyond its normal range. Ligament injuries are most commonly caused by sports injuries and occur most often in the knees and ankles but are also possible in any joint in the body, including the wrist, thumb, shoulder, neck, and back. Genes like COL1A1 and COL5A1 influence collagen production, which is required to support the ligaments. People with certain variants of these genes are more prone to ligament injuries than others. [Learn more about Ligament Injury](#)

Genes Analyzed:

COL1A1

COL5A1

COL12A1

VEGFA

IL6

## Recommendations

- People with your genetic type are more prone to ligament injuries.
- Consider stretching and strengthening exercises (such as quadriceps, hamstrings, heel slides, straight leg raises, and passive knee extension). This will help to reduce the pain and swelling, improve range of motion, and increase strength in the muscles of the thigh, knee, and hip.
- Practice proper technique and form in your workouts by consulting a trainer. This is essential for avoiding high-impact and damaging motions.
- Do not abruptly increase the intensity of workouts. Take proper time for recovery post-exercise or between sessions.
- Consume foods rich in omega -3 fats, fibers, antioxidants, vitamins, calcium, minerals, and iron. This will help in strengthening the ligaments and may reduce the risk of injuries.

# Pain Tolerance

Moderate: Likely to have moderate pain tolerance

Pain tolerance is a physiological phenomenon that allows an individual to experience a sensation when the body experiences a physical impact. It is an important phenomenon as it protects the body from further damage by alerting the brain that something bad is happening and to initiate protective and repair measures. Pain tolerance and threshold vary from person to person depending on complex interactions between your nerves and brain. Overall, men have a higher pain tolerance than women. This difference in pain tolerance levels is partly dependent on the presence of genetic variants in the pathways that process pain signals. The COMT gene has been reported to influence pain tolerance.

[Learn more about Pain Tolerance](#)

Genes Analyzed:

COMT

### Recommendations

- People with your genetic type are associated with intermediate pain sensitivity and moderate pain tolerance.
- Moderate aerobic exercises can raise pain tolerance and decrease pain perception. Moderate to vigorous cycling significantly increases pain tolerance with no effect on the pain threshold.
- Consider practicing yoga every day, as it helps in increasing your pain tolerance levels. Yoga mixes physical postures with breathing exercises, meditation, mental training, and therefore, has a high impact on pain perception.
- Vocalization and mental imagery (creating vivid images in your mind) can help in increasing pain tolerance. If you are in pain, then try imagining your pain as a red, pulsating ball. Then, slowly shrink the ball in your mind and change it to a cool shade of blue.
- Practice biofeedback - a type of therapy that helps in increasing your awareness of the body's response to stimuli like pain. During this session, the therapist will teach you how to use relaxation techniques, breathing exercises, and mental exercises to override your body's response to stress or pain.

## Fatigue

**Lower:** Likely to sustain exercise for longer durations

Fatigue is a feeling of tiredness or lack of energy. In exercise, fatigue can affect your ability to continue working out with the same intensity. Fatigue onset during workouts depends on several factors, including the intensity and duration of exercise, fitness level of the individual, and other environmental conditions like heat and humidity. It also depends on the genetics of an individual. People with certain genetic types may be able to do high-intensity workouts for longer. These



differences can be attributed to variations in genes like IL6R and AMPD1, both of which are associated with physical performance. [Learn more about Fatigue](#)

Genes Analyzed:

IL6R

AMPD1

IL6

### Recommendations

- You are likely to sustain physical activities of your choice for longer durations.
- Consume food sources rich in hydroxymethyl butyrate (grapefruit, catfish, avocado), manganese (mussels (seafood), hazelnuts, pumpkin seeds, cloves, whole wheat bread), and ascorbic acid/vitamin C (guava, kiwi, black currant, red bell pepper, orange), which may provide just enough of an energy boost for you to keep fatigue at bay.

## Handgrip Strength

**Good:** Likely to have good handgrip strength

Handgrip strength (HGS) is a measurement of localized muscle strength and reflects the force derived from the combined contraction of extrinsic hand muscles. HGS is influenced by age, gender, height, weight, hand size, arm circumference, and hand dominance. It is recognized as an important health indicator. HGS is associated with frailty and risk of fracture. HGS is also used in the identification of potential sports talents and in admission tests for different professional activities such as police, armed forces, and fire brigade. Several genes, including GBF1, HLA influence handgrip strength. People with certain genetic types have a better handgrip strength than others. [Learn more about Handgrip Strength](#)

Genes Analyzed:

GBF1

HLA

ACTG1

DELEC1 (DEC1)

ERP27

GLIS1

HOXB3

IGSF9B

KANSL1

LRPPRC

MGMT

PEX14

POLD3

SLC8A1

SYT1

TGFA

UCP3

ACTN3

ACE

MLN

ZNF608

VDR

BDNF

## Recommendations

- People with your genetic type may have a good handgrip strength. This means that you are likely to have high muscular strength and a lower risk of fracture.
- Good handgrip strength means that you will be able to easily perform daily activities like grasping and opening things, lifting and carrying objects, turning handles, etc.
- Though you have a likelihood of good handgrip strength, we recommend you to practice grip strengthening exercises on most of the days of the week so that you can maintain high handgrip strength even in old age when muscle mass usually decreases

and handgrip strength declines.

- High handgrip strength also indicates that you may be at lower risk of various heart-related diseases if you continue to follow a healthy diet and lifestyle.

## Joint Strength And Flexibility

**Lower:** Likely to have lower joint strength and flexibility

Joint strength and flexibility is the ability of your joints to move through their full range of motion without pain. Flexible muscles and tendons allow for a vast range of motion during activities. Joint mobility can have multiple benefits on function for people at all stages of life, like a workout for athletes or gym-goers, and also be beneficial for older adults with arthritis or joint pain. A desirable joint strength and flexibility can increase muscle strength, maintain bone density, improve balance, and reduce joint pain. People with variants of certain genes like COL5A1 tend to have differences in this trait. [Learn more about Joint Strength And Flexibility](#)

Genes Analyzed:

COL5A1

### Recommendations

- People with your genetic type are associated with lower joint strength and flexibility.
- Consider extensive stretching exercises and warm-ups before exercise sessions.
- Consume food sources rich in ascorbic acid (guava, kiwi, black currant, red bell pepper, orange), anthocyanidins (black raspberries, eggplant/brinjal, blackcurrant, blueberries, blackberries), methionine (brazil nuts, lean beef, and lamb, turkey and chicken, fish and shellfish (tuna), soybeans), cysteine (soya, beef/lamb, sunflower seeds, chicken/turkey, oats and oats bran), and taurine (mackerel, chicken liver, crab, lamb, beef liver) to improve your joint strength and flexibility.

## Performing Under Stress Or Warrior Vs Worrier

**Average:** Likely to have intermediate stress response

Stress is a transactional state, which is neither something entirely external nor a purely internal response. It is the result of the interaction between the individual and their environment. Research has shown that certain enzymes are associated with response to stressful events. People born with fast-acting enzymes (Warriors) tend to respond favorably to stress as it increases their catecholamine levels, which improves their focus. But they can quickly break these down and return to a state of low

activation. Worriers, on the other hand, see a reduction in performance in times of high stress. Variants in the COMT gene can influence your warrior/worrier personality, and in turn, your response to stress. [Learn more about Performing Under Stress Or Warrior Vs Worrier](#)

Genes Analyzed:

COMT

#### Recommendations

- People with your genetic type are associated with an intermediate stress vulnerability (somewhere in the middle of being a warrior or worrier depending on the environment, situation, and experience).
- Regular, intense exercise several times per week may significantly improve your response to stress conditions and balance your dopamine levels.
- Maintain a healthy and balanced diet. Include foods rich in vitamin C and magnesium in your diet, which will boost your dopamine levels.

## Exercise Recovery

**Faster:** Likely to have rapid recovery period

Exercise recovery and rest periods are an essential part of any workout routine. Usually, muscles need around 24 to 48 hours to be repaired and rebuilt before working again. This period of rest and repair post-exercise is called the recovery period. If there is insufficient time between training sessions for recovery to occur, the individual increases their risk of undue accumulation of fatigue, potentially resulting in acute underperformance, injury, and illness. Genetically, some people may recover better and sooner than others. Variations in genes like CCR2 influence exercise recovery.

[Learn more about Exercise Recovery](#)

Genes Analyzed:

CCR2

ACTN3

MLCK

CCL2

IL6

ACE

MSTN

CHRM2

### Recommendations

- People with your genetic type may have rapid post-exercise recovery. This means that your body will need lesser time than normal for recovering from one exercise session before starting the next session.
- As you are associated with rapid exercise recovery, consider endurance and strength-based training exercises in your daily routine.
- Periodize your fitness routine. Use your recovery period for moving from high-intensity activity to a moderate to low intensity activity rather than going for complete rest or leisure activities. This approach may help improve physical fitness while still allowing adequate rest. Try to optimize your exercise routine with the help of fitness experts to achieve greater health benefits and to excel in sports.

## Response To Resistance Training

**Favorable:** Likely to respond better to RT

Resistance training, also called strength training or weight lifting, aims to improve muscle strength and endurance. Response to resistance training includes an increase in the cross-sectional area of muscles, muscle fiber power, voluntary activation of muscles, muscle fiber type conversion, discharge, and torque development rate. It also has an effect on neuromuscular responses. This type of training improves your performance, builds muscle, and burns more calories. People with certain genetic types adapt better to resistance training than others. Variations in genes like MSTN that encodes the myostatin protein can influence the response to resistance training. [Learn more about Response To Resistance Training](#)

Genes Analyzed:

MSTN

CCL2

CCR2

ANKRD6

LEPR

FTO

SH2B1

LOC107985940

### Recommendations

- Strength training exercises including weight training, circuit training, isometric exercise, gymnastics, plyometrics, yoga, pilates, can be performed with fewer repetitions.

## Lean Body Mass

**Higher:** Likely to have greater lean body mass

Lean body mass, which is the difference between total body weight and body fat weight, can help maintain a healthy weight and boost your metabolism. It includes the weight of the organs, bones, body water, muscle mass, and skin. Research suggests that a high proportion of lean body mass can reduce inflammation and risk of certain chronic diseases. Lean body mass percentage can be controlled by several environmental factors. Certain genes like FTO play a role in maintaining a lean body mass. People with certain genetic types can gain a higher lean mass percentage compared to others. [Learn more about Lean Body Mass](#)

### Genes Analyzed:

FTO

ACVR2B

TRHR

ADAMTSL3

IRS1

HSD17B11

VCAN

## Recommendations

- Include anaerobic exercise (e.g., resistance training, sprint training) and aerobic exercise (cardio training) to maintain lean body mass, which can help sustain RMR (resting metabolic rate) during weight loss and weight management.
- Maintain a balanced diet by consuming foods rich in iron ( such as spirulina, oysters, beef/liver, apricot, spinach), beets (good source of betaine), brown rice, oranges, cantaloupe, cottage cheese, eggs, milk, quinoa, spinach (good source of glutamine), apples, and Greek yogurt.

# Muscle Building

Higher: Likely to have higher muscle mass

Muscle building needs a combination of structured, progressive strength-based training and a balanced, protein-rich diet. When people talk about building muscle, it is usually referred to the skeletal muscles. Not everyone can build muscles the same way. Genetics determines, up to a certain extent, how much muscle you can build and how fast you can gain muscle mass. Variations in the IGF-1 (Insulin-like growth factor) gene have been shown to influence body composition and muscle building. People with certain genetic types are better at muscle building than others. [Learn more about Muscle Building](#)

Genes Analyzed:

IGF1

## Recommendations

- People with your genetic type may have a higher muscle mass.
- Include resistance or strength training activities in your routine, as it helps in increasing muscle mass and strength.
- Consume food sources rich in proteins (chicken breasts, pumpkin seeds, eggs, wild salmon, greek yogurt, and soybeans), complex carbs (whole-grain bread and cereals, oatmeal, brown rice, sweet potatoes, beans, fruits, and vegetables) to boost your muscle mass and strength.

# Weight Loss With Exercise

Unfavorable: May not experience much weight loss

Regular exercise aids in weight management via improved metabolism. People with certain genetic types may benefit more than others in terms of weight loss in response to exercise. [Learn more about Weight Loss With Exercise](#)

Genes Analyzed:

FTO

ADRB2

### Recommendations

- Likely to lose less weight upon taking up regular exercise.
- Exercise may not be helpful for you in weight loss and weight management. However, you must continue to exercise regularly as it has several other health benefits.
- Try other methods of weight loss like following a healthy and balanced diet.
- Monitor your intake of calories and avoid energy-dense foods high in carbs and fats.
- Avoid overconsumption of alcohol.
- Maintain a proper sleep schedule.
- You can consult a nutritionist to get a proper diet plan or supplements for helping in weight loss.

## Glucose Response To Exercise

**Lower:** Likely to have lower glucose response with exercise

Glucose is a simple sugar, a form of carbohydrates present in fruits and honey. It is a major sugar found within the blood and also a source for energy production in the cells. Hence, optimizing the glucose level in the blood is crucial. Higher blood glucose levels result in a condition called hyperglycemia and risk of diabetes. Some studies have shown that physical activity can help improve glucose metabolism by modulating glucose intake by cells. However, the glucose response to exercise is influenced in part by genetics. People with certain genetic types show better insulin sensitivity upon exercising than others. [Learn more about Glucose Response To Exercise](#)

Genes Analyzed:

PPARG

IL6

LEPR



## Recommendations

- People with your genetic type may experience less glucose response with exercise. This means that exercising may not have much effect on your glucose tolerance
- Exercising may not lead to much increase in glucose tolerance. However, you must exercise regularly, as it has numerous health benefits.
- Try to improve your glucose tolerance through other methods like consuming a diet high in soluble fibers, colored fruits, and vegetables, etc. Also, increasing the use of certain herbs like fenugreek, garlic, turmeric, and ginger in your diet can increase your glucose tolerance. Cinnamon use is exceptionally helpful in boosting your glucose metabolism.
- Get sufficient sleep to boost your glucose metabolism as lack of sleep has been shown to reduce insulin sensitivity.
- In case you are diabetic, try to control your blood sugar levels through other methods like following a proper diet that is low in processed sugars, simple carbohydrates, and trans fats.
- Keep checking your blood sugar levels on a regular basis and consult a doctor for medicines, if required.

## Triglyceride Levels With Exercise

**Average: Likely to have moderately reduced triglyceride levels**

Triglycerides are a type of fat present in the body. Extra calories are stored in the form of fat in adipose cells. Energy is produced from metabolizing this fat apart from carbohydrates. However, higher levels of triglycerides in the blood can pose a risk of developing CVD, diabetes, kidney diseases, etc. Research has shown that exercise can reduce triglyceride levels. People with certain genetic variations show a poor reduction in triglycerides levels during training compared to others.

[Learn more about Triglyceride Levels With Exercise](#)

Genes Analyzed:

CYR1

GLT8D2

RBF1

ZNF385D

ZNF608

LOC102724694

DOCK10

SPATA31C1

FGD2

GPATCH2

COL3A1

FAM19A1

BAI3

LOC105374685

LEF1

ZNF77

PRRX2

ADTRP

DOCK4

JAK2

NOS3

## Recommendations

- People with your genetic type may experience a moderate reduction in triglyceride levels with exercise. This means that exercising may have added benefit in decreasing your triglyceride levels.
- Many different types of exercise are effective at raising HDL cholesterol, decreasing triglycerides, including strength training, high-intensity exercise, and aerobic exercise.
- High-intensity endurance training regularly for 20 weeks may produce the best results for your triglyceride profile. Go for high-intensity workouts at least three times a week.
- Low-intensity exercises can also help increase HDL levels, but the change will not be as significant as seen in high-intensity exercises.
- Complement your exercise sessions with a balanced diet (more unsaturated fats, less saturated or trans fats, lesser carbs) to achieve the best results for elevated HDL cholesterol levels and reduce triglyceride levels.

# Exercise Behaviour

Excellent: Likely to have higher tendency to exercise

A sedentary lifestyle is one of the important causes for developing various diseases such as cancer, obesity, CVD, etc. Although people are aware of the benefits of physical activity, only a few meet the required physical activity recommendation. Studies have shown that this behavior towards exercise lies in the genetic makeup of the individuals. ACE is one such gene that modulates exercise behavior. [Learn more about Exercise Behaviour](#)

## Genes Analyzed:

ACE
DRD2
CASR
PAPSS2
SGIP1
DNASE2B
SIPA1L2
C2orf3
SKIP
PRSS16
ZNF248
RORA
Q6UXP9_HUMAN
ERCC2
CNR1
GABRG3
LEPR
MC4R