

# Fitness and Exercise Genetics

Client

Demo Client

File

Module 1

# Report Summary



⚠ Consider alternative therapy

## Additional Exercise Genetics

### Vigorous Exercise Tolerance



Low

### Understanding what this may mean

Individuals with this genetic result may have a lower tolerance for vigorous exercise. Genetic variations associated with this result suggest that their bodies may have certain traits that could make it more challenging for them to engage in high-intensity exercise without experiencing discomfort or fatigue. This could mean that they might need to adjust their exercise intensity or duration to prevent overexertion. While vigorous exercise remains important for overall fitness, individuals with this result may benefit from gradually increasing intensity and consulting with fitness professionals to design appropriate routines.

✓ Typical response is expected

**Strength and Muscle**

**Fatigue and Recovery**

## Muscle Mass



Neutral

### Understanding what this may mean

Individuals with this genetic result have typical muscle mass. Their genetic profile suggests that their bodies respond to strength training, physical activity, and nutrition in a manner similar to the general population. This indicates a balanced muscle mass capacity, which is important for overall health and fitness. Individuals with this result can engage in regular strength training routines and ensure adequate protein intake to maintain and improve their muscle mass, supporting their fitness goals.

## Strength



Neutral

### Understanding what this may mean

This result suggested a standard response to strength training and physical activity compared to the general population. Individuals with this result can engage in regular strength training routines to maintain and improve their muscle strength, supporting their overall health and fitness goals. Foundational support such as creatine supplementation, strength training, and sufficient protein intake are recommended.

This section will uncover how your genetics shape your muscle fatigue and recovery responses, guiding you toward a more personalized approach to exercise and post-workout healing.

## Muscle Recovery Speed



Neutral

### Understanding what this may mean

This result suggests that the body responds to exercise-induced muscle damage and physical stress in a manner similar to the general population. This shows balanced capacity for recovering after workouts and adapting to training. Standard recommendations apply, such as well-structured training routines that include proper rest, nutrition, and recovery strategies to support their muscle recovery and overall fitness goals. In cases of intense training, antioxidant support such as vitamin C can be beneficial to enhancing recovery speed and reducing injury risk in exchange for reduced muscle growth.

## Injury Risk

Your results will highlight genetic factors that may affect soft tissue strength, flexibility, and injury susceptibility.

### General Soft Tissue Risk



Neutral

### Understanding what this may mean

Individuals with this genetic result have a neutral risk of general soft tissue injuries. Their genetic profile suggests that their bodies respond to physical activity and exercise in a manner similar to the general population. This indicates a balanced soft tissue injury risk, which can be influenced by factors such as training techniques, biomechanics, and overall conditioning. It is essential for individuals with this result to incorporate proper warm-up routines, stretching, and strength training exercises into their fitness regimen to minimize the risk of soft tissue injuries.

## Muscle Endurance



Neutral

### Understanding what this may mean

Individuals with this genetic result have a typical level of muscle endurance. Their genetic profile suggests that their bodies respond to physical activity and exercise in a manner similar to the general population. This indicates a balanced muscle endurance capacity, which is important for maintaining overall fitness and participating in various physical activities. Individuals with this result can engage in regular exercise routines to improve and maintain their muscle endurance, supporting their overall health and fitness goals.

## High Intensity vs Endurance

This section include genetics that indicate whether your muscles likely favor quick bursts or long efforts.

## Achilles Risk



Low

### Understanding what this may mean

Individuals with this genetic result have a low risk of Achilles tendon injury. Genetic variations associated with this result suggest that their bodies may have certain traits that contribute to a lower susceptibility to Achilles tendon injuries. This could mean that they might have relatively better tendon strength and structure. While this genetic profile may provide some degree of protection, it is still important for individuals with this result to engage in appropriate warm-up routines, flexibility exercises, and strength training to maintain optimal tendon health and prevent injuries.

## Elite Power Propensity



Neutral

### Understanding what this may mean

Individuals with this genetic result have a neutral propensity for power performance. Their genetic profile suggests that their bodies respond to strength and power training in a manner similar to the general population. This indicates a balanced power capacity, which is important for participating in various power-based activities that require explosive strength. Individuals with this result can engage in regular strength and power training routines to maintain and improve their power performance, supporting their overall fitness and well-being.

## Aerobic Training Benefit

## Cartilage Risk



Low

### Understanding what this may mean

Individuals with this genetic result have a low risk of cartilage-related issues. Genetic variations associated with this result suggest that their bodies may have certain traits that contribute to a lower susceptibility to cartilage degradation and related problems. This could mean that they might have relatively better cartilage structure and integrity. While this genetic profile may offer some degree of protection, it is still important for individuals with this result to engage in joint-friendly exercises, maintain a healthy weight, and consider strategies to support joint health as they age.

## Additional Exercise Genetics

## Aerobic Training Benefit



Neutral

### Understanding what this may mean

Individuals with this genetic result can expect a neutral benefit from aerobic training. Their genetic profile suggests that their bodies respond to aerobic exercise and cardiovascular training in a manner similar to the general population. This indicates a balanced capacity for improving cardiovascular fitness and endurance through aerobic exercises. Individuals with this result can engage in regular aerobic training routines to maintain and improve their cardiovascular health and overall endurance.

## VO2 Max

### VO2 Max Trainability Propensity



Neutral

### Understanding what this may mean

This indicates an average potential for improvement in aerobic capacity with training. Regular aerobic exercise can effectively enhance fitness levels and overall cardiovascular health.

## Creatine Benefit



Neutral

### Understanding what this may mean

Individuals with this genetic result can expect a neutral benefit from creatine supplementation. Their genetic profile suggests that their bodies respond to creatine supplementation in a manner similar to the general population. This indicates a balanced capacity to experience improvements in strength, power, and exercise performance when incorporating creatine into their supplement regimen. Individuals with this result can benefit from creatine supplementation as part of their fitness routine to enhance their athletic performance and support muscle growth.

## Caffeine Effects on Reaction Time



Neutral

### Understanding what this may mean

Individuals with a neutral response to caffeine experience standard effects on reaction time after caffeine consumption. This means their speed and accuracy in responding to stimuli after ingesting caffeine align with the average population. For these individuals, caffeine may offer a moderate improvement in alertness and reaction time, consistent with commonly observed effects.

## Weight Loss from Exercise



Neutral

### Understanding what this may mean

Individuals with this genetic result can expect a neutral benefit in terms of weight loss from exercise. Their genetic profile suggests that their bodies respond to exercise-induced calorie expenditure and training in a manner similar to the general population. This indicates a balanced capacity to achieve weight loss goals through regular exercise routines. Individuals with this result can engage in regular physical activity, combined with healthy dietary choices, to support their weight loss efforts effectively.

 Additional information available

## High Intensity vs Endurance

This section include genetics that indicate whether your muscles likely favor quick bursts or long efforts.

## Elite Endurance Propensity



Elite

### Understanding what this may mean

Individuals with this genetic result may have an elite-level propensity for endurance performance. Genetic variations associated with this result suggest that their bodies have an exceptional ability to develop the physiological traits required for exceptional endurance. This could indicate a potential for exceptional gains in endurance from aerobic exercise and specialized training. Individuals with this result may consider advanced training programs, guidance from experienced fitness professionals, and participation in endurance events to harness their genetic advantage and excel in endurance-based activities.

# Strength and Muscle

Strength and muscle mass are critical components of overall physical health and functionality. Genetic variations can play a role in how your body responds to strength training and the development of muscle mass. This section delves into your genetic predisposition for strength and muscle mass, offering insights into how you might naturally excel or face challenges in these areas.

A low genetic predisposition for strength and muscle mass suggests that you may need to put in extra effort and adopt specific strategies to achieve substantial gains in strength and muscle size. Engaging in targeted strength training exercises, following appropriate nutrition plans, and focusing on progressive overload may be particularly important for individuals with lower genetic predisposition scores.

A typical genetic predisposition for strength and muscle mass indicates that your body is likely to respond in a manner similar to the general population when engaging in strength training. With consistent effort and a structured training regimen, you can expect to see improvements in both strength and muscle mass over time.

An increased genetic predisposition for strength and muscle mass suggests that you may have a natural advantage when it comes to building muscle and increasing strength. Your body may respond more favorably to strength training, resulting in relatively faster gains in muscle size and overall strength.

It's important to remember that while genetics play a role, lifestyle factors such as training frequency, intensity, recovery, and nutrition are equally crucial for maximizing your strength and muscle mass potential. Tailoring your training routine to your genetic predisposition can be beneficial, but individualized approaches based on your personal goals and preferences are essential.



---

## Muscle Mass



**Neutral**

### Understanding what this may mean

Individuals with this genetic result have typical muscle mass. Their genetic profile suggests that their bodies respond to strength training, physical activity, and nutrition in a manner similar to the general population. This indicates a balanced muscle mass capacity, which is important for overall health and fitness. Individuals with this result can engage in regular strength training routines and ensure adequate protein intake to maintain and improve their muscle mass, supporting their fitness goals.

---

## Strength



**Neutral**

### Understanding what this may mean

This result suggested a standard response to strength training and physical activity compared to the general population. Individuals with this result can engage in regular strength training routines to maintain and improve their muscle strength, supporting their overall health and fitness goals. Foundational support such as creatine supplementation, strength training, and sufficient protein intake are recommended.

---

## Genetic Summary <sup>15</sup>

SNP	Marker	Genotype
-----	--------	----------

---

SNP	Marker	Genotype
-----	--------	----------

---

---

MSTN T458C	rs1805086	TT
ACTN3 C1729T	rs1815739	TC
PPARD G-101-842A	rs2267668	AG
TRHR A789+9321C	rs16892496	AA
ACE G2328A	rs4343	AA
LEPR A668G	rs1137101	.
PPARA G1160-396C	rs4253778	CG
PPARD C*1762T	rs1053049	CC

---

---

PPARD C-87T	rs2016520	TC
PPARG C34G	rs1801282	CC
TNF T-1031C	rs1799964	TC
TNF G-238A	rs361525	GG
TNF G-308A	rs1800629	GG
TNF C-857T	rs1799724	CC
TNF C-863A	rs1800630	AC

---

# Fatigue and Recovery

Muscle fatigue and recovery are integral aspects of physical performance and overall fitness. Genetic variations can influence how quickly your muscles fatigue during exercise and how efficiently your body recovers afterward. This section delves into your genetic predisposition for muscle fatigue and recovery, providing insights into how your body might respond to intense physical activity and the strategies you can adopt to optimize recovery.

A low genetic predisposition for muscle fatigue suggests that you may have a natural advantage in sustaining muscular effort during exercise. Your muscles might be able to endure more extended periods of activity before experiencing significant fatigue. However, it's essential to listen to your body and not push beyond safe limits to prevent overexertion and potential injury.

A typical genetic predisposition for muscle fatigue indicates that your muscles are likely to respond similarly to the general population when it comes to fatigue during exercise. Regular training and gradual progression can help improve your endurance and delay the onset of muscle fatigue.

An increased genetic predisposition for muscle fatigue means that you might experience quicker muscle fatigue during exercise compared to others. While this might pose challenges in terms of sustaining high-intensity activities, there are strategies you can adopt to enhance your endurance and extend the time before fatigue sets in.

Recovery after exercise is equally crucial, and genetic variations can influence how efficiently your body repairs and regenerates muscles post-workout. Understanding your genetic predisposition for muscle recovery can help you tailor your recovery strategies effectively.

Incorporating proper nutrition, hydration, sleep, and active recovery techniques based on your genetic profile can aid in optimizing muscle recovery and reducing the risk of overtraining or injury.



## Muscle Recovery Speed



**Neutral**

### Understanding what this may mean

This result suggests that the body responds to exercise-induced muscle damage and physical stress in a manner similar to the general population. This shows balanced capacity for recovering after workouts and adapting to training. Standard recommendations apply, such as well-structured training routines that include proper rest, nutrition, and recovery strategies to support their muscle recovery and overall fitness goals. In cases of intense training, antioxidant support such as vitamin C can be beneficial to enhancing recovery speed and reducing injury risk in exchange for reduced muscle growth.

## Muscle Endurance



**Neutral**

### Understanding what this may mean

Individuals with this genetic result have a typical level of muscle endurance. Their genetic profile suggests that their bodies respond to physical activity and exercise in a manner similar to the general population. This indicates a balanced muscle endurance capacity, which is important for maintaining overall fitness and participating in various physical activities. Individuals with this result can engage in regular exercise routines to improve and maintain their muscle endurance, supporting their overall health and fitness goals.

## Genetic Summary <sup>8</sup>

SNP	Marker	Genotype
AMPD1 G34A	rs17602729	GG
SOD2 A47G	rs4880	AG
IGF2 C-6-285G	rs3213221	GG
IGF2 T-468-2872G	rs7924316	GG

SNP	Marker	Genotype
CCR2 T780C	rs1799865	CC
IL-1B G315A	rs1143634	GG
MYLK G62T	rs28497577	GG
SLC30A8 C973T	rs13266634	CC

# Injury Risk

Soft tissue injuries can significantly impact your physical activities and overall well-being. Genetic variations can influence your predisposition for specific soft tissue injuries, such as those involving the Achilles tendon and cartilage. This section provides insights into your genetic risk for soft tissue injuries, empowering you to take preventive measures and make informed choices to minimize your risk.

Achilles tendon injuries can be particularly challenging, often leading to discomfort and limitations in mobility. Genetic predispositions can affect the strength and resilience of your Achilles tendon. Understanding your genetic risk can guide your exercise routines, emphasizing appropriate warm-up, cool-down, and gradual progression to reduce the likelihood of injury.

Cartilage injuries are another concern, especially in activities that involve joint movements. Genetic factors play a role in cartilage health and regenerative capacity. Being aware of your genetic predisposition can influence your exercise choices and assist in selecting activities that are less likely to strain your joints.

Additionally, a general genetic predisposition for soft tissue injuries suggests that your body might be more susceptible to various types of soft tissue injuries. This may necessitate adopting cautious training practices, focusing on proper technique, and avoiding sudden spikes in activity intensity.

Incorporating dynamic warm-up routines, flexibility exercises, and proper biomechanics during training can help mitigate your soft tissue injury risk. Furthermore, giving your body adequate time to recover between workouts is crucial for preventing overuse injuries.



---

## General Soft Tissue Risk



**Neutral**

### Understanding what this may mean

Individuals with this genetic result have a neutral risk of general soft tissue injuries. Their genetic profile suggests that their bodies respond to physical activity and exercise in a manner similar to the general population. This indicates a balanced soft tissue injury risk, which can be influenced by factors such as training techniques, biomechanics, and overall conditioning. It is essential for individuals with this result to incorporate proper warm-up routines, stretching, and strength training exercises into their fitness regimen to minimize the risk of soft tissue injuries.

---

## Achilles Risk



**Low**

### Understanding what this may mean

Individuals with this genetic result have a low risk of Achilles tendon injury. Genetic variations associated with this result suggest that their bodies may have certain traits that contribute to a lower susceptibility to Achilles tendon injuries. This could mean that they might have relatively better tendon strength and structure. While this genetic profile may provide some degree of protection, it is still important for individuals with this result to engage in appropriate warm-up routines, flexibility exercises, and strength training to maintain optimal tendon health and prevent injuries.

---

## Cartilage Risk



**Low**

### Understanding what this may mean

Individuals with this genetic result have a low risk of cartilage-related issues. Genetic variations associated with this result suggest that their bodies may have certain traits that contribute to a lower susceptibility to cartilage degradation and related problems. This could mean that they might have relatively better cartilage structure and integrity. While this genetic profile may offer some degree of protection, it is still important for individuals with this result to engage in joint-friendly exercises, maintain a healthy weight, and consider strategies to support joint health as they age.

### Genetic Summary <sup>10</sup>

SNP	Marker	Genotype
AMPD1 G34A	rs17602729	GG
TNF G-308A	rs1800629	GG
BMP4 G-132-945T	rs2761884	TG
DIO2 T274C	rs225014	CC
COL5A1 C*267T	rs12722	TT

SNP	Marker	Genotype
COL1A1 C104-441A	rs1800012	AC
DIO2 C-143T	rs12885300	TT
FOXP3 G2383A	rs3761549	AA
GDF5 G-275A	rs143383	AG
FCRL3 (A>G)	rs7528684	GG

# High Intensity vs Endurance

The composition of muscle fibers in your body can have a significant impact on your performance in different types of physical activities. Genetic variations influence whether you are more predisposed towards having a higher percentage of fast-twitch muscle fibers, associated with explosive power and strength, or slow-twitch muscle fibers, geared towards endurance and sustained activities. This section explores your genetic propensity for muscle fiber composition, shedding light on your potential strengths and areas for improvement in high-intensity and endurance activities.



If you possess a higher genetic predisposition for fast-twitch muscle fibers, you may excel in activities requiring short bursts of power and strength, such as weightlifting, sprinting, and jumping. These muscle fibers allow for rapid force generation, making them crucial for explosive movements. Tailoring your training to focus on power and strength exercises can maximize your potential in these activities.

On the other hand, if you have a greater genetic propensity for slow-twitch muscle fibers, you might find yourself thriving in endurance-based activities like long-distance running, cycling, or swimming. Slow-twitch fibers are designed for prolonged, repetitive contractions, providing the necessary stamina for extended efforts. Engaging in regular aerobic exercises and incorporating endurance training can help you make the most of your genetic predisposition.

It's important to remember that most individuals possess a combination of both muscle fiber types, albeit in varying proportions. This genetic makeup means you can benefit from a well-rounded training routine that includes a mix of high-intensity and endurance exercises. Cross-training can help you develop your weaknesses and capitalize on your strengths.

Ultimately, while genetics provide a foundational framework, dedication, training consistency, and proper nutrition all play vital roles in achieving your fitness goals. Seeking guidance from fitness professionals, trainers, or coaches can aid in designing a training regimen tailored to your muscle fiber composition, optimizing your performance across a range of physical activities.

---

## Elite Power Propensity



**Neutral**

### Understanding what this may mean

Individuals with this genetic result have a neutral propensity for power performance. Their genetic profile suggests that their bodies respond to strength and power training in a manner similar to the general population. This indicates a balanced power capacity, which is important for participating in various power-based activities that require explosive strength. Individuals with this result can engage in regular strength and power training routines to maintain and improve their power performance, supporting their overall fitness and well-being.

---

## Elite Endurance Propensity



**Elite**

### Understanding what this may mean

Individuals with this genetic result may have an elite-level propensity for endurance performance. Genetic variations associated with this result suggest that their bodies have an exceptional ability to develop the physiological traits required for exceptional endurance. This could indicate a potential for exceptional gains in endurance from aerobic exercise and specialized training. Individuals with this result may consider advanced training programs, guidance from experienced fitness professionals, and participation in endurance events to harness their genetic advantage and excel in endurance-based activities.

---

## Genetic Summary <sup>17</sup>

SNP	Marker	Genotype
AGTR2 A*501C	rs11091046	AA
PPARGC1A C1444T	rs8192678	CC
ACTN3 C1729T	rs1815739	TC
ACE G2328A	rs4343	AA
IL6/IL6-AS1 (G>C)	rs1800795	CC
AGT A803G	rs699	AG
GABPB1 A1-8797G	rs7181866	AA
NOS3 T894G	rs1799983	GG
NOS3 T-786C	rs2070744	TT

SNP	Marker	Genotype
PPARD C-87T	rs2016520	TC
PPARGC1B G607C	rs7732671	GG
UCP2 G164A	rs660339	AA
HFE C187G (H63D)	rs1799945	CC
COL5A1 C*267T	rs12722	TT
ADRB2 G46A	rs1042713	AG
PPARA G1160-396C	rs4253778	CG
VEGFA C-94G	rs2010963	CG

# Aerobic Training Benefit

Aerobic training, also known as cardiovascular exercise, plays a crucial role in improving cardiovascular fitness, endurance, and overall health. However, not everyone responds to aerobic training in the same way due to genetic factors that influence the magnitude of training benefits. This section explores the genetic propensities for aerobic training benefit, shedding light on how the body may respond to cardiovascular exercise.

Some individuals may have a genetic predisposition that allows them to experience a higher benefit from aerobic training. This means that their cardiovascular fitness and endurance may improve more significantly compared to others with different genetic profiles. These individuals are more likely to experience noticeable enhancements in their aerobic capacity, allowing them to perform endurance-based activities with greater ease.

On the other hand, some individuals may have a genetic propensity for a lower benefit from aerobic training. Their cardiovascular fitness and endurance may improve to a lesser extent compared to those with a more favorable genetic makeup. However, it's essential to note that even with a genetically lower benefit, engaging in regular aerobic exercise can still contribute to overall health and fitness.

Understanding genetic tendencies related to aerobic training benefit can provide insights into the body's natural responses to cardiovascular exercise. This knowledge can guide exercise choices, helping optimize the type, intensity, and duration of aerobic training to align with the genetic profile. It's important to remember that while genetics play a role, other factors like consistency, proper training techniques, and individual health considerations also contribute to training outcomes. Consulting with fitness professionals or coaches can help develop an effective and personalized aerobic training plan that leverages genetic insights for improved fitness and overall well-being



## Aerobic Training Benefit



**Neutral**

### Understanding what this may mean

Individuals with this genetic result can expect a neutral benefit from aerobic training. Their genetic profile suggests that their bodies respond to aerobic exercise and cardiovascular training in a manner similar to the general population. This indicates a balanced capacity for improving cardiovascular fitness and endurance through aerobic exercises. Individuals with this result can engage in regular aerobic training routines to maintain and improve their cardiovascular health and overall endurance.

### Genetic Summary <sup>5</sup>

SNP	Marker	Genotype
PPARGC1A C1444T	rs8192678	CC
CKMM (T>C)	rs8111989	TC
ACE G2328A	rs4343	AA

SNP	Marker	Genotype
PPARD G-101-842A	rs2267668	AG
NOS3 T-786C	rs2070744	TT

# VO2 Max

VO2 max, or maximal oxygen uptake, is a measure of the maximum amount of oxygen the body can utilize during intense exercise. It is a key indicator of cardiovascular fitness and aerobic endurance. Higher VO2 max levels are associated with better athletic performance and overall cardiovascular health. While training and lifestyle factors significantly influence VO2 max, genetic factors also play an important role in determining an individual's potential for aerobic capacity. Understanding these genetic components can help tailor personalized training programs and improve cardiovascular fitness.

Several genes have been identified that impact VO2 max and aerobic performance. These genes are involved in various physiological processes, including oxygen transport, muscle fiber composition, and mitochondrial function. For example, variations in the ACE gene, which affects blood flow and cardiovascular efficiency, can influence VO2 max levels. The ACTN3 gene, related to muscle fiber type, also plays a role; individuals with certain variants may have a higher proportion of fast-twitch muscle fibers, which can affect endurance performance. Additionally, genes involved in the regulation of aerobic metabolism, such as PGC-1 $\alpha$ , contribute to the body's ability to generate energy efficiently during exercise. By analyzing these genetic markers, it is possible to understand an individual's potential for improving VO2 max and tailor training regimens accordingly.

Genetic insights into VO2 max can guide personalized fitness and training strategies to optimize aerobic capacity. For individuals with genetic variations that favor higher VO2 max, high-intensity interval training (HIIT) and endurance exercises may be particularly effective in maximizing cardiovascular fitness. Those with genetic predispositions for lower VO2 max might benefit from tailored training programs that focus on gradually increasing intensity and incorporating a mix of aerobic and resistance exercises to improve overall fitness. Nutritional support, such as adequate protein intake and antioxidants, can aid in muscle recovery and enhance training outcomes. Monitoring and adjusting training intensity based on genetic predispositions can help prevent overtraining and injuries, leading to more effective and sustainable fitness improvements. By leveraging genetic information, fitness professionals and individuals can develop personalized training plans that enhance VO2 max, improve athletic performance, and promote cardiovascular health.



## VO2 Max Trainability Propensity



**Neutral**

### Understanding what this may mean

This indicates an average potential for improvement in aerobic capacity with training. Regular aerobic exercise can effectively enhance fitness levels and overall cardiovascular health.

### Genetic Summary <sup>9</sup>

SNP	Marker	Genotype
ACTN3 C1729T	rs1815739	TC
PPARGC1A C1444T	rs8192678	CC
FAAH C385A	rs324420	CC
GABPB1 C109-994T	rs8031031	CC
GABPB1 C1+16735A	rs12594956	AC

SNP	Marker	Genotype
GABPB1 A1-8797G	rs7181866	AA
RBFOX1 A331-3987G	rs7191721	GG
TSHR C*245T	rs7144481	TT
NFIA-AS2 (G>T)	rs1572312	TG

# Additional Exercise Genetics

Exercise genetics encompass a wide range of factors that influence how the body responds to physical activity and training. This section delves into some miscellaneous exercise-related genetic propensities, shedding light on the benefits of creatine supplementation, tolerance for vigorous exercise, and how the body may respond to exercise for weight loss.

**Creatine Benefit:** Creatine is a naturally occurring compound in the body that plays a vital role in providing energy for short bursts of high-intensity activities. Some individuals may have a genetic predisposition that allows them to experience greater benefits from creatine supplementation, such as improved muscle strength and power during high-intensity workouts.

**Vigorous Exercise Tolerance:** Participating in vigorous exercise requires a certain level of cardiovascular fitness and endurance. Some individuals may have genetic factors that contribute to better adaptation to vigorous or high-intensity exercise.

**Weight Loss from Exercise:** Exercise is a valuable tool for weight management, but genetic factors can influence how the body responds to exercise in terms of weight loss. Some individuals may have a genetic predisposition that makes them more responsive to exercise for weight loss, yet others may have more difficulty, and benefit more from leveraging nutrition and other factors.



---

## Creatine Benefit



**Neutral**

### Understanding what this may mean

Individuals with this genetic result can expect a neutral benefit from creatine supplementation. Their genetic profile suggests that their bodies respond to creatine supplementation in a manner similar to the general population. This indicates a balanced capacity to experience improvements in strength, power, and exercise performance when incorporating creatine into their supplement regimen. Individuals with this result can benefit from creatine supplementation as part of their fitness routine to enhance their athletic performance and support muscle growth.

---

## Caffeine Effects on Reaction Time



**Neutral**

### Understanding what this may mean

Individuals with a neutral response to caffeine experience standard effects on reaction time after caffeine consumption. This means their speed and accuracy in responding to stimuli after ingesting caffeine align with the average population. For these individuals, caffeine may offer a moderate improvement in alertness and reaction time, consistent with commonly observed effects.

---

## Vigorous Exercise Tolerance



**Low**

### Understanding what this may mean

Individuals with this genetic result may have a lower tolerance for vigorous exercise. Genetic variations associated with this result suggest that their bodies may have certain traits that could make it more challenging for them to engage in high-intensity exercise without experiencing discomfort or fatigue. This could mean that they might need to adjust their exercise intensity or duration to prevent overexertion. While vigorous exercise remains important for overall fitness, individuals with this result may benefit from gradually increasing intensity and consulting with fitness professionals to design appropriate routines.

---

## Weight Loss from Exercise



**Neutral**

### Understanding what this may mean

Individuals with this genetic result can expect a neutral benefit in terms of weight loss from exercise. Their genetic profile suggests that their bodies respond to exercise-induced calorie expenditure and training in a manner similar to the general population. This indicates a balanced capacity to achieve weight loss goals through regular exercise routines. Individuals with this result can engage in regular physical activity, combined with healthy dietary choices, to support their weight loss efforts effectively.

---

## Genetic Summary <sup>59</sup>

SNP	Marker	Genotype
CKMM (T>C)	rs8111989	TC
FOXP3 G2383A	rs3761549	AA
DIO2 C-143T	rs12885300	TT
FTO T46-23525A	rs9939609	TT
FTO A46-13587G	rs9930506	AG
FTO T46-39685G	rs17817449	TT
FTO G46-34805A	rs1121980	AG
FTO T46-43098C	rs1421085	TT
PPARG C34G	rs1801282	CC
NFATC4 G668C	rs2229309	GC
PPARGC1B G607C	rs7732671	GG
PPARD C-87T	rs2016520	TC
UCP2 G164A	rs660339	AA
LEPR G849+841T	rs12405556	GG

SNP	Marker	Genotype
GABPB1 A1-8797G	rs7181866	AA
ADRB1 G1165C	rs1801253	CC
PPARGC1A C1444T	rs8192678	CC
MMP3 T133C	rs679620	TT
TNF G-238A	rs361525	GG
TNF C-857T	rs1799724	CC
TNF C-863A	rs1800630	AC
TNF T-1031C	rs1799964	TC
TNF G-308A	rs1800629	GG
FCRL3 (A>G)	rs7528684	GG
BMP4 G-132-945T	rs2761884	TG
ADRB3 A190G	rs4994	AA
COL5A1 C*267T	rs12722	TT
ADRB2 G46A	rs1042713	AG

---

GABRB3 A271-108082G	rs8036270	AA
CNR1 T-63-6513C	rs6454672	TT
ANKK1 G2137A	rs1800497	GG
PPARD C*1762T	rs1053049	CC
PPARD G-101-842A	rs2267668	AG
ADRB2 C79G	rs1042714	GC
ACE G2306-19C	rs4341	GC
FADS1 G1054-143A	rs174549	AA
FADS1 C1054-109G	rs174548	GG
FSHR C2039T	rs6166	CC
DIO2 T274C	rs225014	CC
HFE C187G (H63D)	rs1799945	CC
MSTN T458C	rs1805086	TT
FTO T46-40478A	rs1558902	TT
COL1A1 C104-441A	rs1800012	AC
GDF5 G-275A	rs143383	AG

---

---

AGTR2 A*501C	rs11091046	AA
IGF2 C-6-285G	rs3213221	GG
IGF2 T-468-2872G	rs7924316	GG
LEPR A668G	rs1137101	.
LEP G-39A	rs2167270	AG
TRHR A789+9321C	rs16892496	AA
PPARA G1160-396C	rs4253778	CG
AGT A803G	rs699	AG
VEGFA C-94G	rs2010963	CG
ACE G2328A	rs4343	AA
NOS3 T894G	rs1799983	GG
NOS3 T-786C	rs2070744	TT
ACTN3 C1729T	rs1815739	TC
IL6/IL6-AS1 (G>C)	rs1800795	CC
AMPD1 G34A	rs17602729	GG

---