

WHAT THE REPORT INCLUDES

- Detailed EXPLANATION of the test performed and recommendations to be followed.
- SUMMARY TABLE showing the metabolic areas investigated and the results obtained the DNA analysis, to have a quick overview of one's general situation and to check for compromised situations.
- BIBLIOGRAPHY providing scientific references for the test.

COLOURS USED



Green indicates that the variants identified in the analysis do not unfavourably alter enzymatic activity of the proteins they encode and/or the risk associated with certain diseases.



Orange indicates that the variants identified in the analysis slightly unfavourably alter enzyme activity and/or the risk associated with certain disorders or diseases.



Red indicates that the variants identified in the analysis alter enzyme activity in a particularly unfavourable way, resulting in an increased risk of developing certain disorders or associated diseases.

The results shown, as well as the considerations and explanations contained in the following pages of this booklet, should not be regarded as a medical diagnosis. It is important to bear in mind that the genetic information is only a part of the total information needed to gain a complete picture of a person's state of health, and the data reported here is therefore a tool available to the treating physician to formulate a correct assessment of the patient's physiological state and suggest an appropriate personalised treatment.

INTRODUCTION

Understanding how your body responds to exercise, recovery, and nutrition is essential for optimizing sports performance and achieving fitness goals. Genetic factors play a significant role in determining athletic potential, recovery speed, injury risk, and how the body processes key substances like caffeine.

This DNA Sport Test report provides personalized insights based on your genetic profile, covering critical areas that influence athletic performance and training outcomes:

- Athletic Aptitude (Power or Endurance?)

Discover whether your genetics favour power-based activities, endurance sports, or a combination of both, helping you tailor your training for maximum results.

- Recovery Efficiency (Anti-Inflammatory Capacity)

Learn how effectively your body manages inflammation after exercise, influencing recovery time and training frequency.

- Detoxifying Capacity (Antioxidant Capacity)

Understand your body's ability to combat oxidative stress caused by intense physical activity, which plays a key role in muscle recovery and overall health.

- Joint Resistance

Assess your genetic predisposition to joint-related injuries, enabling you to adapt your training to reduce injury risks and enhance long-term performance.

- Caffeine Metabolism Efficiency

Gain insights into how your body processes caffeine, allowing you to optimize its use for improved performance, focus, and recovery.

By leveraging the information in this report, you can make informed decisions about your training, nutrition, and recovery strategies, leading to enhanced performance and a reduced risk of injury.

1. Athletic Aptitude (Power or Endurance?)

This test considers the individual predisposition to power or resistance type activities. The genetic analysis examines the ACTN3 gene which encodes the alpha-actinin-3 protein, found in fast-twitch muscle fibres responsible for explosive and powerful muscle contractions. These fibres are important for activities like sprinting, weightlifting, and high-intensity sports. Variations in the ACTN-3 gene can influence athletic performance, muscle strength, and endurance capabilities.

YOUR RESULT:

ID Gentras	Gene	Allelic variants	Genotype		Variant
ATHLETIC APTITUDE TEST					
GTS026	ACTN-3	C	C	C	POWER SPRINT
		T			

How to interpret the results according to ACTN-3 Genotypes:

If you have:

1) CC Genotype

You have two functional copies of the ACTN3 gene, producing alpha-actinin-3. This is associated with enhanced sprinting ability, power, and strength which is common in elite power and sprint athletes.

Recommendations:

- Focus on sports that require speed, strength, and power (e.g., sprinting, weightlifting, football).
- Strength training and high-intensity interval training (HIIT) may be highly beneficial.
- Incorporate explosive movements like plyometrics and sprints to maximize potential.

2) CT Genotype

You have one functional and one non-functional copy of ACTN3. Balanced potential for both power and endurance performance and you may excel in sports requiring a combination of strength and endurance.

Recommendations:

- Combine endurance training (e.g., running, cycling) with strength and power exercises.
- Cross-training sports like soccer, tennis, or martial arts could leverage both power and endurance capabilities.

- Strengthen fast-twitch fibres with resistance training, while building endurance with aerobic sessions.

3. TT Genotype

You lack a functional copy of the ACTN3 gene, resulting in no alpha-actinin-3 production. It's associated with greater endurance capacity but reduced power and sprint performance and it's common among elite endurance athletes (e.g., long-distance runners, cyclists).

Recommendations:

- Focus on endurance-based sports and activities such as long-distance running, swimming, or cycling.
- Develop power and strength carefully, as you may have a lower natural response to explosive training.
- Incorporate low-load, high-repetition resistance training for muscle endurance.
- Pay attention to recovery and injury prevention, as the lack of alpha-actinin-3 may increase injury susceptibility.

General Tips Regardless of Genotype

While genetics provide insights, your training response, lifestyle, and preferences matter most. Optimize rest, nutrition, and mobility work to enhance performance and prevent injuries.

Sport test sample report

2. Recovery Efficiency

The test evaluates athletic recovery in relation to anti-inflammatory capacity. The genetic analysis examines the IL-6 (Interleukin-6) gene which plays a key role in the body's inflammatory response and muscle recovery after exercise. It influences how efficiently your body repairs muscle tissue, adapts to training, and handles exercise-induced inflammation. Variations in the IL-6 gene can impact recovery speed, susceptibility to muscle damage, and overall training performance.

YOUR RESULT:

ID Gentras	Gene	Allelic variants	Genotype		Variant
RECOVERY EFFICIENCY					
GTS028	IL-6	G	C	C	UNFAVOURABLE
		C			

WHAT YOUR GENETICS SAY



In the presence of an unfavourable genetic profile for the gene analysed.

How to interpret the results according to IL-6 Genotypes:

If you have:

1. GG Genotype (High Recovery Efficiency)

This is associated with faster recovery after exercise, lower levels of inflammation post-exercise, allowing quicker return to training and potentially lower risk of exercise-induced muscle damage.

Recommendations:

- You can tolerate higher training volumes and intense sessions with less downtime.
- Incorporate back-to-back high-intensity workouts (e.g., HIIT, strength training) without extended recovery periods.
- Use progressive overload strategies confidently, knowing your body recovers efficiently.
- Focus on active recovery (light cycling, swimming, yoga) rather than extended rest.

2. GC Genotype (Moderate Recovery Efficiency)

Intermediate recovery speed, faster than CC but slower than GG. Balanced inflammatory response, with a moderate risk of muscle soreness and fatigue.

Recommendations:

- Alternate high and moderate-intensity workouts to allow adequate recovery.
- Implement recovery strategies like stretching, foam rolling, and adequate hydration.
- Nutrition: Focus on anti-inflammatory foods (e.g., berries, leafy greens, omega-3s) to support recovery.
- Consider reducing training intensity every 4–6 weeks to prevent overtraining.

3. CC Genotype (Lower Recovery Efficiency)

Slower recovery due to a heightened inflammatory response after exercise. Increased risk of muscle soreness, fatigue, and injury if recovery is insufficient. It may require more tailored training programs with emphasis on recovery.

Recommendations:

- Prioritize recovery: Include rest days and low-intensity sessions between hard workouts.
- Focus on recovery-enhancing practices:
 - Sleep: 7–9 hours per night.
 - Massage, stretching, and mobility work.
 - Contrast baths or cold therapy to reduce inflammation.
- Emphasize nutrition for recovery:
 - Protein-rich meals (1.2–2g/kg body weight) to support muscle repair.
 - Antioxidants and anti-inflammatory nutrients (turmeric, ginger, omega-3 fatty acids).
- Monitor training load:
 - Avoid consecutive days of high-intensity workouts.
 - Try periodization training to balance intensity and recovery effectively.

General Tips Regardless of Genotype

- Hydration: Supports muscle recovery and reduces soreness.
- Active Recovery: Gentle movement boosts circulation and speeds healing.
- Listen to Your Body: Adjust workouts based on soreness and fatigue levels.
- Track Progress: Use fitness trackers or journals to spot recovery patterns.

3. Detoxifying Capacity

The test evaluates athletic recovery in relation to antioxidant capacity. The genetic analysis involves the interrogation of the SOD2 gene which encodes the Manganese Superoxide Dismutase enzyme, which plays a critical role in the detoxification process within the mitochondria of cells. This enzyme helps neutralize free radicals (specifically superoxide radicals) produced during intense physical activity. Efficient detoxification of these free radicals is essential for reducing oxidative stress, supporting muscle recovery, and optimizing athletic performance.

In sports, oxidative stress can affect performance by causing muscle fatigue, slower recovery, and increasing the risk of injuries. Understanding your MnSOD2 genotype helps you tailor your training, recovery, and nutrition strategies.

YOUR RESULT:

ID Gentras	Gene	Allelic variants	Genotype		Variant
DETOXIFYING CAPACITY					
GTS006	MnSOD2	T	C	C	UNFAVOURABLE
		C			

WHAT YOUR GENETICS SAY



In the presence of an unfavourable genetic profile for the gene analysed.

How to interpret the results according to MnSOD2 Genotypes:

If you have:

1. T/T Genotype (Higher Detoxifying Capacity)

Highly efficient detoxification and handling of oxidative stress. Suited for high-intensity training and explosive sports with shorter recovery times.

Recommendations for Athletes:

- Training Strategy:
 - Engage in intense, power-based workouts (e.g., sprinting, weightlifting, HIIT).
 - Experiment with two-a-day training sessions, if appropriate.
- Recovery Techniques:
 - Although recovery is faster, active rest days still support long-term performance.
 - Use dynamic stretching and mobility drills post-workout.
- Nutrition Support:
 - Maintain a balanced diet to sustain performance levels.
 - Include mitochondrial support nutrients (L-carnitine, alpha-lipoic acid).
- Lifestyle Tips:
 - Continue prioritizing good sleep hygiene for optimal recovery and mental focus.

2. T/C Genotype (Moderate Detoxifying Capacity)

Intermediate detoxification ability, balancing recovery, and performance. You can handle moderate to high-intensity training, though recovery support is still essential.

Recommendations for Athletes:

- Training Strategy:
 - Alternate between high-intensity and endurance sessions.
 - Incorporate cross-training to avoid repetitive strain and oxidative overload.
- Recovery Techniques:
 - Use contrast baths (hot/cold therapy) to manage inflammation.
 - Prevent overtraining.
- Nutrition Support:
 - Focus on balanced meals with antioxidants and anti-inflammatory nutrients (turmeric, omega-3s).
 - Stay hydrated to support cellular detoxification.
- Lifestyle Tips:
 - Regular mobility exercises to maintain flexibility and support recovery.

3. CC (Lower Detoxifying Capacity)

There is less efficient transport of the MnSOD2 enzyme into the mitochondria, higher oxidative stress during high-intensity or prolonged exercise and increased risk of muscle fatigue, slower recovery, and overtraining injuries.

Recommendations for Athletes:

- Training Strategy:
 - Focus on moderate-intensity training with gradual increases in intensity.
 - Include longer recovery periods between intense sessions.
- Recovery Techniques:
 - Prioritize active recovery (e.g., swimming, cycling, yoga).
 - Incorporate foam rolling and stretching post-exercise.
- Nutrition Support:
 - Consume antioxidant-rich foods like berries, dark chocolate, spinach, and nuts.

- Consider supplements such as vitamin C, vitamin E, and CoQ10 (after medical advice).
- Lifestyle Tips:
 - Ensure adequate sleep (7–9 hours) for optimal recovery.
 - Stress management techniques (mindfulness, meditation) to reduce overall oxidative load.

General Recommendations for All Athletes (Regardless of Genotype):

- Hydration: Adequate water intake supports detoxification during and after exercise.
- Nutrition: Emphasize whole foods, particularly antioxidant-rich fruits, and vegetables. Include protein for muscle repair and complex carbohydrates for energy.
- Recovery Practices: Incorporate massages, stretching, and active rest. Consider sleep tracking to ensure quality rest for cellular recovery.
- Adaptable Training: Periodize training to avoid cumulative oxidative stress and promote sustainable performance improvements.

Sport test sample report

4. Joint Resistance

The test evaluates the main component of the joints, type 1 collagen. The genetic analysis involves the interrogation of the COL1A1 gene. The COL1A1 gene encodes the type I collagen alpha-1 chain, a key component of type I collagen, which is the most abundant collagen in the human body. Type I collagen provides strength, structure, and resistance to connective tissues, including tendons, ligaments, bones, and joints.

In sports, the COL1A1 gene is particularly important for joint resistance, injury prevention, and overall musculoskeletal performance. Variations in this gene can influence the risk of tendon and ligament injuries, such as ACL ruptures and tendinopathies, which are common in high-impact and high-intensity sports.

YOUR RESULT:

ID Gentras	Gene	Allelic variants	Genotype		Variant
JOINT RESISTANCE					
GTS029	COL1A1	T	G	G	UNFAVOURABLE
		G			

WHAT YOUR GENETICS SAY



In the presence of an unfavourable genetic profile for the gene analysed.

How to interpret the results according to COL1A1 Genotypes:

If you have:

1. TT Genotype (Typical Joint Resistance)

There is normal collagen production and typical joint resistance, average risk of tendon and ligament injuries, and a balanced ability to handle various physical activities with moderate injury risk.

Recommendations for Athletes:

- Training:

- Incorporate progressive strength training to maintain joint support.
- Include functional exercises (e.g., squats, lunges) to enhance joint stability.
- Injury Prevention:
 - Warm up properly before exercise and use dynamic stretching.
 - Focus on joint mobility exercises, especially for knees, hips, and shoulders.
- Recovery:
 - Prioritize cool-down routines and post-exercise stretching.
 - Use ice baths or compression therapy after intense sessions.

2. TG Genotype (Moderate Joint Resistance)

Slightly altered collagen regulation, potentially reducing joint resistance. Moderate risk of soft tissue injuries, especially with high-impact activities. It may require additional joint protection strategies, especially during rapid direction changes or load-bearing exercises.

Recommendations for Athletes:

- Training:
 - Emphasize eccentric strength training (slow lowering of weights) to build tendon strength.
 - Incorporate balance and proprioception exercises (e.g., single-leg squats, balance boards).
- Injury Prevention:
 - Use supportive gear (knee sleeves, ankle braces) during high-impact sports.
 - Practice neuromuscular training to improve joint alignment during movements.
- Nutrition:
 - Include collagen-boosting nutrients: Vitamin C, proline, glycine, and gelatin.
 - Consider collagen supplements to support connective tissue health.
- Recovery:
 - Schedule rest days and incorporate low-impact activities like swimming or cycling.

3. GG Genotype (Lower Joint Resistance, Higher Injury Risk)

Associated with reduced collagen production and weaker connective tissue structure. Higher risk of tendon, ligament, and joint injuries, such as ACL tears. It may require proactive injury prevention strategies and careful training adjustments.

Recommendations for Athletes:

- Training:
 - Prioritize joint-stabilizing exercises (hip bridges, planks, single-leg exercises).
 - Gradually increase training loads to avoid overloading joints.
 - Focus on low-impact sports (e.g., cycling, swimming) if injury history is significant.
- Injury Prevention:
 - Strengthen surrounding muscles (e.g., quads and hamstrings for knee support).
 - Incorporate stretching routines focusing on flexibility around key joints.
 - Avoid sudden increases in training intensity or volume.
- Nutrition:
 - Ensure adequate protein intake to support collagen synthesis.
 - Supplement with collagen peptides, glucosamine, and chondroitin after medical advice.

- Recovery:
 - Use active recovery techniques like yoga and Pilates for joint flexibility.
 - Physiotherapy check-ins for injury prevention and rehabilitation guidance.

General Recommendations for All Athletes (Regardless of Genotype):

- Cross-Training: Diversify workouts to reduce repetitive stress on specific joints.
- Core Strength: A strong core supports proper joint alignment and reduces injury risks.
- Warm-Up & Cool-Down:
 - Include dynamic warm-ups to activate muscles.
 - Use static stretching post-exercise for flexibility.

Sport test sample report

5. Caffeine Metabolism Efficiency

The test evaluates the speed of metabolism of caffeine. The genetic analysis involves the interrogation of the CYP1A gene which encodes an enzyme in the liver responsible for metabolizing caffeine. This gene plays a significant role in how quickly your body processes caffeine, which can directly impact sports performance, endurance, and recovery.

Caffeine is widely used in sports for its performance-enhancing effects, including improved focus, increased endurance, and reduced perception of effort. However, the effect of caffeine is highly dependent on an individual's CYP1A2 genotype, which determines whether they are a fast, intermediate, or slow metabolizer of caffeine.

YOUR RESULT:

ID Genras	Gene	Allelic variants	Genotype		Variant
CAFFEINE METABOLISM EFFICIENCY					
GTS008	CYP1A2	A C	C	C	UNFAVOURABLE

WHAT YOUR GENETICS SAY



In the presence of an unfavourable genetic profile for the gene analysed.

How to interpret the results according to CYP1A2 Genotypes:

If you have:

1. AA Genotype (Fast Caffeine Metabolizer)

Your body metabolizes caffeine quickly. Performance benefits from caffeine are more likely, with lower risk of side effects. Caffeine can enhance endurance, power output, and mental focus during

training and competition. Less likely to experience jitters, insomnia, or increased heart rate from typical doses.

Recommendations for Athletes:

- Optimal Caffeine Timing:
 - Consume caffeine 30–60 minutes before exercise for maximum benefit.
- Dosage Guidance:
 - 3–6 mg/kg of body weight is generally effective.
Example: A 70 kg athlete could consume 210–420 mg of caffeine.
- Training Considerations:
 - Ideal for endurance sports (e.g., long-distance running, cycling).
 - Also beneficial for power-based sports requiring explosive movements.
- Additional Tips:

Test caffeine strategies during training, not on competition day, to ensure optimal dosage and timing.

2. AC Genotype (Intermediate Caffeine Metabolizer)

Your body metabolizes caffeine at a moderate speed. Performance benefits are still possible but may vary depending on dose and timing. Moderate caffeine consumption can still improve endurance and mental alertness, though some side effects (e.g., jitteriness) may occur at higher doses.

Recommendations for Athletes:

- Optimal Caffeine Timing:
 - 45–90 minutes before exercise, depending on tolerance.
- Dosage Guidance:
 - Start with a lower dose (e.g., 3 mg/kg) and adjust based on response.
- Training Considerations:
 - Effective for team sports, high-intensity interval training (HIIT), and strength training.
- Additional Tips:
 - Monitor for side effects like rapid heartbeat or anxiety and adjust intake accordingly.
 - Avoid caffeine late in the day to prevent sleep disturbances.

3. CC Genotype (Slow Caffeine Metabolizer)

Your body metabolizes caffeine slowly, leading to prolonged caffeine effects. Higher risk of negative effects, such as high blood pressure, heart palpitations, or anxiety from caffeine consumption.

Caffeine may provide little to no performance benefit and could even impair performance due to side effects. There is also an association between high caffeine intake and an increased risk of cardiovascular issues in slow metabolizers.

Recommendations for Athletes:

- Caffeine Use:
 - Consider minimizing caffeine intake or avoiding caffeine altogether before competition. If consumed, use very low doses (e.g., 1–2 mg/kg), 90–120 minutes before exercise to allow partial metabolism.
- Alternative Performance Strategies:
 - Focus on other ergogenic aids, such as nitrate-rich foods (e.g., beetroot) for endurance or creatine for strength.
- Recovery Considerations:
 - Since caffeine lingers longer in the system, avoid caffeine late in the day to prevent sleep disruptions, which are critical for recovery.

General Recommendations for All Athletes (Regardless of Genotype):

- Test Caffeine Use in Training: Never try new caffeine strategies on competition day.
- Stay Hydrated: Caffeine has mild diuretic effects; ensure adequate fluid intake.
- Monitor Sleep Quality: Avoid caffeine intake in the afternoon if sleep is affected.
- Mind Total Daily Caffeine: Remember to include caffeine from all sources (coffee, tea, energy drinks, supplements).

Caffeine Strategies by Sport Type:

- Endurance Sports (e.g., running, cycling): Fast metabolizers benefit most from caffeine pre-competition; slow metabolizers should consider non-caffeine ergogenic aids.
- Power Sports (e.g., weightlifting, sprinting): Caffeine can boost explosive power for fast metabolizers, but slow metabolizers should be cautious due to jitteriness.
- Team Sports (e.g., football, basketball): Intermediate metabolizers may benefit from caffeine during breaks; slow metabolizers should rely more on hydration and carbohydrates.