GET FIT STAY FIT THE SMART WAY

Your guide to personalized eating and exercising according to your DNA.

Make Your New Year’s Resolution a Reality!
Based on your DNA and your lifestyle, we analyze how you should eat and exercise to achieve your fitness goals. We’ve helped tens of thousands of people around the world lose weight, build muscle, and lead fitter, healthier, happier lives and we are really excited you’ve chosen to start your new year with us. We’re really excited to work with you, so let’s get started!
INTRODUCTION

Congratulations for taking the first step towards a fitter, healthier, and happier lifestyle.

In this book, we’re going to simplify a very complicated subject:

What to eat and how to exercise to achieve your fitness and body composition goals.

Not only will we help you do it, we’ll eliminate all the guesswork and repetitive failure cycles that accompany most people’s exercise and dietary struggles. We’re going to put you on the most direct path to success.

We’ll help you understand exactly the type of personalized workouts and foods that are best for your body, ensuring your training and nutrition follows your genetic predispositions and natural rhythms rather than applying a generic theory to your unique makeup.

Whether this is the first time or the 20th time you’ve promised yourself “This is the year I’m going to get fit”, you’ve come to the right place.

Five years ago, this kind of personalized diet and workout program was for professional or elite athletes only. Now, thanks to the reduction in technology costs, this level of specialization is increasingly available and affordable, so why would you settle for “generic” when you can get “precise?” Why would you settle for an exercise plan that did not play to your strengths, or for a diet that stuffed you with the incorrect foods... or worse still, starved you?

Five years from now, these genetically tailored fitness and nutrition plans will become the “new normal.” You’re in the right place at the right time, and we’re happy to help you on the road to sustainable fitness and happy, healthy living.

Give us 45-60 minutes of your day, 3-5x per week, follow our plans and recommendations to the letter, for at least 4, if not 8 or 12 weeks and we are 100% confident that you’ll be delighted with what you see in the mirror.

You will be on a straight-line to success. No wasted workouts. No stupid fad or celebrity diets. Just smart, precise, personalized nutrition and exercise programs designed around your DNA (not your friend’s genes, your personal trainer’s habits, or something your mom read in a magazine). Our customers find this quantifiable, personalized data very motivating because they know they are doing the right thing; and if they continue doing the right thing, they get noticeable, lasting results.

Take a cruise through this book where you’ll find articles from numerous members of our team on fitness, nutrition, the mental health benefits that exercise provides, how to squeeze a workout into your busy schedule, but more importantly, you’ll read success stories from people whose lives we’ve transformed.

Let me know if you have any questions
Martin.Cheifetz@fitnessgenes.com
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Here’s What You’ll Find Out:

Should I intermittently fast?  

How much coffee should I drink?

What’s my ideal ratio of fats, protein, and carbs?  

What is the best way for me to exercise?

How much sleep do I really need?
Spit, Register, Work Out the Smart Way

FitnessGenes interprets your DNA to help you build muscle, burn fat, and lead a healthier, longer life. We’ve taken an incredibly complex series of processes and made it very simple, easy, and affordable.

All you need to do is send us your saliva sample and we extract and analyze the DNA for dozens of genetic variables that influence metabolism, appetite, muscle structure, and performance.

When you register the barcode of your DNA sample on our secure website, we also conduct a thorough lifestyle survey, because these “environmental” factors influence how your genes express themselves (This is called epigenetics).

After a detailed analysis of your combined DNA and lifestyle data, we provide precise, actionable advice on how you should eat and train to achieve your body composition goals. We also create goal-specific, genetically tailored weekly plans detailing each day’s workout, caloric load, and macronutrient breakdown.

Research and Recommendations

The FitnessGenes system uses an FDA-approved saliva collection kit and we conduct our DNA tests in duplicate, so every person who gets tested actually gets tested twice to ensure their results are consistent and accurate.

We use three levels of research to refine the DNA analysis and our personalized recommendations:

1. peer-reviewed research relating on the relevant SNP (Single-Nucleotide Polymorphism)
2. our own process of discovery within the algorithmic models that we’ve created, refined, and tested via rigorous R&D
3. our proprietary research in collaboration with several universities

Your Personalized Results

When you receive your gene results, personalized nutrition guidance and genetically tailored workout plan, you’ll be supported every step of the way with coaching tips, community support via our Facebook groups, and technical help via our helpdesk. We ensure you understand the info we send and are passionate about helping you succeed in your fitness and physique goals.
In this next section, and throughout the book, you will see testimonials from current FitnessGenes customers. These are real, unedited photos from real people who have happily taken the time to write to us because we’ve helped them succeed on their fitness journey.

We’ve helped these men and women lose weight, build muscle, tone up, eat and exercise correctly, and most importantly, **be happy with their bodies and feel great about themselves.**

This video from a very happy customer is an excellent place to start:
In an era of timidly hiding behind one’s keyboard seeking corporate anonymity, I am often asked why I put my “real name”, my picture, and my contact details on so many articles and emails like the one pictured above.

The answer is simple: I love hearing from our customers. Good news, bad news, and everything in between. It is all really helpful insight into an ever-changing marketplace of consumer preferences, and if someone takes the time to write, I respond every time... and so does everyone else at FitnessGenes!

I recently received an excellent piece of fan mail (in response to the email pictured above), and am sharing it now (with the customer’s express written permission) because it highlights the very essence of what we do at FitnessGenes:

"Hey Martin!

Just wanna say that being a full-time working dad with 4 kids, I couldn’t really afford the GB £150 I paid for my DNA test kit but you know what, after
training for 30 years, achieving certifications & a Ph.D. in Exercise & Sports Science, it was the best money I've ever spent!

I've been very aware of the concept of gene codes in the use of exercise optimization for some time but never have I had my DNA sample previously collected & analyzed for that purpose. I've always relied on a much broader science base for programming. What absolutely floored me was how far 'off beam' I was in determining my own constructs!

I read my entire results analysis & quickly realized, at last the fog has cleared! How to train-for me.

For years I trained the Dorian Yates High Intensity way, and the Mike Mentzer system really appealed to me & was scientifically based. It seemed the answer. I've followed it for years, blindly, with only ever moderate success at best. I put my lack of results down to me not putting forth enough effort despite many 'near death' intensity experiences under the bar! ;-) 

To see my DNA results definitively set out what I should be doing is truly amazing! No guesswork, just pure science! Love it.

It's as though a weight has been lifted off me! It's really been that enlightening. So, many thanks my friend. I've instantly adjusted my programming accordingly & I can't wait to see the results!

In a world of complaints & negativity, I think it's even more essential to say something when you come across things that shine.

The enlightenment from having your DNA results, shines. In my case, the cost of the test kit was totally justifiable & totally necessary. I'm so glad I took the step.

Best,
Daniel"

Wow! There's an endorsement! We'd love to hear your story too, so please send them to me at martin.cheifetz@fitnessgenes.com I'm definitely not hiding and I look forward to hearing from you.
In conjunction with Women’s Health & Fitness we conducted an 8-week Transformation Challenge to help these lucky ladies get fit, tone up, and feel amazing. We created a private Facebook group, in which the women could interact with each other, and were fully supported by FitnessGenes staff.

The women worked hard, motivated each other, and were led and coached by our CEO Dr. Dan Reardon, who provided daily tips and advice.

We selected 4 of their stories to share with you on the next page:

1) How FitnessGenes helped Nicole feel energized and look great.

2) How FitnessGenes changed Toni’s life.

3) How FitnessGenes made Priscilla happy.

4) How FitnessGenes helped Krystie kickstart her fitness and self-discovery journey.
1) How FitnessGenes helped Nicole feel energized and look great:

On September 2nd, Nicole wrote: “I have been following a full, plant-based diet and have found it easier to stick to than I anticipated. I feel less bloated and more energized!”
2) How FitnessGenes changed Toni’s life:

On October 21st, Toni said: “Thank you for this amazing opportunity. It has honestly changed my life. You are seriously changing lives Dan. It's incredible. I will never be the same person I was before this challenge. Thank you so much for everything!”
3) How FitnessGenes made Priscilla happy:

On December 20th, Priscilla wrote:  

Hi Dan and Martin just wanted to check in I’m on week 7 of lean 2 and caught sight of myself in the mirror this morning far out Brussel sprout 47 and I’m the happiest I have ever been in my skin so Thank you so much what a fantastic program it is 💪💪💪💪 and merry Christmas to u and yours 🎄🎄🎄🎄🎄🎄🎄!
4) How FitnessGenes helped Krystie kickstart her fitness and self-discovery journey:

On 18 October, Krystie wrote: “This is exactly the thing I needed to kickstart me on an amazing fitness and self-discovery journey. I am already planning my program for the next 12 weeks and setting some long-term goals for 1-2 year’s time. Thank you so much Dan Reardon, Martin Cheifetz and all of the incredible ladies in our group!”
For a long time, Krystie has struggled with body weight and self-image and was happy to share her inspiring story with us:

**Why did you want to be involved in the WH&F/FitnessGenes Transformation Challenge?**

Since having two children within 18 months of each other, it had been some time since I really looked at myself in the mirror, let alone focused on my fitness journey. As a stay-at-home-mum, I spent every moment of each day, during my children’s awake time, doing everything I possibly could to give them the best opportunities & start in life, which inevitably affected my motivation levels, and in turn, my self-confidence regarding my overall appearance and fitness levels. I wanted to be a part of Women’s Health & Fitness Magazine/ FitnessGenes Transformation Challenge to get back into the swing of things, and ultimately, improve my health and vitality. I wanted to gain back some self-esteem and self-efficacy and to get in the best shape that I could and should be for my children for the future years to come. I so desperately wanted to break away from my mundane lifestyle and feel invigorated with new knowledge about what the best diet and training methods were for me based on my DNA results.

**Tell us a little about your previous background with health, fitness, diet, exercise, and weight management.**

I previously suffered from anorexia in my late teens, early 20's, and was knocking on death’s door at 31 kgs. It took some time, but eventually, I worked my way back to being healthy enough to bear children in more recent years.

Before having my babies ~5 years ago and following my recovery from an eating disorder, I used to exercise regularly, but it was really just bits and pieces here and there, i.e., DC weight training program, aerobic cardio, body balance and yoga (including Bikram) classes. I always had a desire to compete in a bodybuilding fitness/figure competition one day, but as I had problems with my cycle, I really wanted to wait until I had had my family first, so I never took my training or nutrition too seriously or to a level beyond recreational. I have never been overweight according to the scales; rather I have pretty much just been average build most of my life. After I gave birth to my two children within 18 months of each other, I bounced back to a normal weight, but I was on the spectrum of being ‘skinny fat’, which I didn't consider to be necessarily enviable or healthy in the long term.

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Thankfully, Krystie has recovered from this frightening stage in her life!
Tell us a little bit about your overall experience with FitnessGenes.

During the 8-weeks, I made some reasonable gains losing around 5 kg (from 58.5 to 53.5kg), a decrease in girth measurements, and I even started to see some mini abs, which was a nice surprise. Above all, I finally felt like I was in a very good place mentally, as I started to build back my self-esteem. I lost a lot of confidence being a stay-at-home mum, losing touch with the world being at the toddler level for so long & devoting all my time to caring for my babies, with complete disregard for my own physical and mental health. Achieving this was a huge part of why I entered the competition in the first place & throughout the program I felt like I went from strength to strength each day.

It is always interesting to hear what you learned about yourself from the DNA analysis and the changes you will be making to your diet, training and recovery protocols as a result of your DNA test results.

The information provided from the DNA test result was very thorough and insightful. Having gravitated towards long distance running when I did Little Athletics as a child, it was no surprise to me when my genetic test results indicated that I am more suitable to endurance style sports/training. It was really good to be able to validate this very important detail nonetheless. I was particularly surprised to find out that I am a fast caffeine metabolizer, as I know in the past when I drank coffee or took sports supplements that have stimulants in them, I am in fact hypersensitive to the effects and actually get the jitters, so I was convinced caffeine based products were not necessarily for me, but I stand corrected.

I was of mixed emotions reading that according to my test results, if I want to look lean and athletic, I need to work really hard with diet and exercise all the time. I must admit, I had always suspected this was the case; that I have never been one that could eat...
whatever I wanted whenever I wanted, but to have this unequivocally confirmed with my individual DNA, was somewhat melancholic.

On another note, I had never tracked macros before, so I have learned and benefited a lot from adopting this approach to my eating; I will most definitely continue to keep this as my main nutritional focus, more so than counting calories or following other outlandish diet protocols.

I loved being a part of the group and the support from the other women and FitnessGenes was fabulous.

At FitnessGenes, we are so inspired working with women like Krystie. She has been amazing to work with: overcoming her busy schedule, juggling multiple priorities and competing demands on her time. She’s overcome a serious eating disorder and now she’s healthy, happy, feels amazing, and doesn’t she just look gorgeous?
In this section, you’ll find answers to Frequently Asked Questions on the genes we test, weight loss, muscle building, personalized diets, obesity and genetics and more from interviews, podcasts, and articles with media sources around the world featuring FitnessGenes CEO and Co-Founder Dr. Dan Reardon.

1) What exactly are genes and why do they have such a powerful effect on the way our body responds to diet and exercise?

DNA forms the building blocks of life. It carries your genetic code from your parents down to you. It’s therefore the way that you pass on your genetic code to your children.

If DNA is the “recipe book” of genetic information, your genes are the “individual recipes” that lead to the formation of proteins. It’s the proteins in the human body that drive everything.

Here’s a really good example of how genes have a significant impact on how we should eat. The LCT gene codes for the enzyme lactase. Lactase breaks down lactose, so when you drink milk or consume dairy products, it’s the action of this gene that leads to the formation of lactase, enabling us to digest the lactose in milk.

However... some people have the LCT gene variation that does not code for this enzyme, meaning they do not produce lactase. These people are therefore not able to digest lactose in milk, and are ‘lactose intolerant’. These people should therefore not consume dairy products for all the side effects that lactose intolerance can bring. [5]

2) To whom do you generally recommend genetic testing? Is it for everyone?

Fitness DNA Testing is without a doubt for everyone. If we look at the fitness and nutrition world, it’s inarguably broken. There’s entirely too much choice. Too much conflicting information. Too much guess work, and entirely too much failure. The Western world is getting fatter and more unhealthy by the day, so I don’t see how there could be any other conclusion than the current system doesn’t work. Genetic testing itself is not going to fix the obesity problem, but it does fix the problem of people guessing (mostly incorrectly), getting frustrated by their failures, and then simply giving up on the hope of achieving a healthy, sustainable, and desirable body composition and physique. [5]
3) How is it possible that you can test for all of these genes with a simple saliva test? I.e. how does that work?

Great question and the answer is really simple. Saliva contains cheek cells. Every cell in our body contains DNA, so we are able to extract DNA from these cheek cells, and perform the genetic analysis. Okay... it’s not simple, but the phenomenal advances in science and saliva collection devices has made all of this possible and affordable to the average consumer. We use special Saliva collection tubes from our friends at DNA Genotek which are in fact the only FDA approved saliva collection devices on the market. Within these tubes is a non-toxic reagent that actually preserves your DNA for transport. When it arrives in our lab, we have a process that extracts the DNA from the cheek cells, that we can then run through our micro-array technology.\(^5\)

After the sample is received and the DNA is extracted, there’s a massive digital readout that goes into the computational system we’ve been building over 4 years. That information is delivered through our secure Member’s Area on a gene by gene basis, where we describe how each genetic variation impacts how you should eat and how you should exercise. Then we also deliver a series of targeted, goal specific systems for Building Muscle, Losing Weight, Getting Fit, or Getting Lean.\(^1\)

4) Walk us through some of the most significant genes relating to fat loss, and how different copies can affect how we should train?

One of the most important components to fat loss is diet. We look at many genes that give us information about how to structure an eating plan, so I will focus on one example here, and that’s the FTO gene. The FTO gene is a complex gene that was one of the first to have been found to be associated with obesity. It has many associations to physiological processes and eating behaviour, but ultimately gives us clear information about how an individual would need to structure their nutritional programs in order to be successful.

If you carry the gene variations that put you at risk of being overweight, there are a number of interventions that we can take, to maximize your chances of being able to lose weight. For example:

1. We know that after you eat, you produce the hormone Ghrelin very quickly, which means you get hungry very quickly. So it’s very important for you to eat small meals frequently to try to control hunger. And you should also look at ways you can implement strategies to control hunger such as drinking cold water, drinking water mixed with glutamine, very low calorie and low glycemic impact snacks, and so on. We would also recommend early morning protein as this has been shown to increase energy expenditure and reduce hunger.

2. Contrary to the modern day hype, eating diets that are high protein and high fat with low carbohydrates will almost certainly lead to failure. Research shows that when people with such gene variations follow these types of diets, within 10-weeks almost everyone will revert back to normal eating. This is because people with such gene variations require carbohydrates to get satisfaction from the foods they eat. Therefore
when long term success is considered, a gradual overall reduction in calories within the right macronutrient ratios for your genotype, coupled with the right type of exercise is going to maximize the chances of long term weight loss success, not crash lowering carbohydrates in favour of protein and fat.\[5\]

5) Tell me about the most significant genes relating to building lean muscle, and how different variations can affect how we should train?

It’s always a tough question to be able to name one or two genes when it comes to multifactorial concepts like building muscle. When you consider how one builds muscle, there are so many things you must think about such as strength, time under tension, metabolic stresses, recovery and so on. Genetics plays an important role in many of these factors, and ultimately in understanding how genes such as ACE, ACTN3, PGC1A, PPARA, MCT1, CKM, etc. work individually and collectively, especially when combined with relevant environmental (lifestyle) data, you can start to personalize training approaches to building muscle. Some people respond to very high volume training whereas others absolutely do not...and these outcomes are predictable based on genetics. Some people require a high frequency of training in order to grow, whereas others are completely the opposite and require lots of rest. Some require high-intensity training, others low. For some people strength training periodization is critical, for others it’s not. Even training splits can be defined through what people's genetics look like.\[5\]

Think of DNA as the recipe book, and your genes are the recipes. Genes produce proteins and the proteins have a certain specific effect. One of the of the genes we look at is the ACT3N. When you have one variation it produces a protein called alpha-actinin and when you have the other variation you don’t produce it. We know alpha-actinin plays a role in anabolic signalling, that it affects fast twitch muscle signalling and recovery, and that it influences structural properties that gear someone for speed or endurance.\[2\]

6) Explain some of the most significant genes relating to cardiovascular training, and how different copies can affect how we should train?

Endurance training is really a measure of how well you can improve your VO₂ max - your body’s ability to utilize oxygen. There are some incredibly well-researched genes that give an indication as to how well someone responds to training to improve VO₂ max, and for such people designing endurance style training programs is relatively straightforward. The challenge is to define endurance style training programs for people who don’t respond as well to endurance training, and therefore don’t get the VO₂ max responses others get. We are currently researching a number of theories around this and how we can influence such individuals with training methods that would improve VO₂ max. As a service, one of the things that make FitnessGenes superior is that we are continually updating our research for all of our members, so if you take the test now and we discover something in 6 weeks, 6 months, or 6 years from now, you personalized results and actionable advice will be updated to reflect the latest research.\[5\]
7) What have you found with the athletes that you’ve worked with specifically, what have you found to be some of the major common issues, whether it’s genes, body types, etc?

I’ve consulted for numerous big teams and while there are some incredibly knowledgeable coaches, one of the biggest issues they have is stratifying individuals into certain ways of training. If a team is training or feeding everyone the same way, you’re going to end up with some people doing great and others who don’t do so well. One of our biggest assignments is going to teams and specifically looking at players who are having trouble getting their body composition under control, so helping to increase their lean body mass.

For whatever reason, these athletes have not been able to drop body fat. When you look at what they’re doing, it’s the same as everyone else on their team. 50% of the variation between people and their physical performance and fitness is genetic so if you don’t understand that 50%, how can you define what the environmental 50% (the part you can control) should look like, e.g. how you should train and how you should eat?

Currently, the level of personalization is not good enough for professional teams, but when you come in with DNA testing and you work with the coaches and the nutritionists and can you really personalize player’s programs, that’s when you can make progress with individual players.

A good example of this is Major League Baseball. These guys play back to back games or numerous consecutive nights across time zone changes, training during the day, playing games at night, managing injury, there is a lot to consider and you need to figure out how to optimize them. The fact is they’re not all the same, they play different positions, have different circadian rhythms, so it’s a real challenge for the coaches and they’re all starting to realize that there’s a significant requirement for personalization. [2]

8) For the average person, does DNA testing really make a difference?

Absolutely! If we discussed how many different types of workouts exist, we could talk about hundreds or thousands of different types of workouts and methodologies, and the fact is, what works for one person with the same level of effort doesn’t work for somebody else. 95% of diets fail the individuals following them….they simply don’t get results.

When you start to dig into the mechanics of what a periodized workout program actually looks like, and what the matching nutritional plan actually looks like, the variables are mind boggling. It’s no wonder there’s so much guesswork and so much failure.

With our combination of DNA analysis and environmental (lifestyle) data, we can completely tailor workouts and nutrition plans and put people on the straightest line to success. [1]
9) Can a person who is just starting out benefit from FitnessGenes or do you have to have years of exercise experience before you can benefit from it?

One of our fastest growing categories is people who have never exercised before, and you could certainly argue that people who have never exercised and who have never followed a healthy eating plan are probably the people who would benefit the most from a FitnessGenes test because we’re giving them the information up front that this is what you need to do… there’s no trial and error…. and this is how you’re going to get results. [3]

10) I see it a lot where people aren’t eating right or getting results and then they lose the motivation, so I certainly see the value in this type of information. So you take the test and then get the results… is there a common workout that most people end up with?

No! When you look at the construct of the workout, there are so many ways that it varies: training volume, training frequency, how much rest do you take, how fast do you perform movements, how much HIIT, how much cardio, do you lift weights, do you use bodyweight exercises, how much stretching, etc, etc…. there are so many ways that the workouts get personalized…. and even if you ignore the workouts themselves, the demographics of the users are so different.

Taking the US for example, 60-66% of the people are significantly overweight, so the way you get these people exercising is completely different to people who are not overweight. That adds another layer of personalization on top of the goal-specific plans, so the workouts are all very different based on the genetics and lifestyle data that we gather from our customers. [1]

11) How can DNA testing help people eat better?

Two thirds of the Western World are significantly overweight, and when you do a DNA test on the people who are obese and they realize that there may be an underlying reason contributing to their obesity or to their weight management problems, all of a sudden there’s a burden lifted off their shoulders. They lose that discomfort and that bad feeling about being overweight and it prompts them to do something about it. They understand their weight is not entirely their fault, but they also understand that there is something they can do about it, so from a psychological perspective, a DNA test can have a massive impact on a person who has been struggling and who has never been able to engage in a lifestyle that enables them to lose weight.

On the other side of the spectrum, for the people who are incredibly engaged in fitness, yes, they are leaving a lot of potential on the table by NOT knowing their fitness DNA, because if they have that blueprint, and they have that information on how they can get a 6-pack, or how they can get super lean, or how they can get the best time on their triathlon, or if their goal is to build muscle, then every 1% we can help them improve is of massive value. [4]

One of the most popular nutritional genes we analyze is CYPIA2 which is the gene for
caffeine sensitivity. Everyone wants to know how they can make their daily living better: how can they be less tired, more alert, how can they sleep better, how can they wake up in the morning and feel refreshed and ready to go, and coffee is something that people are very reliant on, whether it’s first thing in the morning or if their energy levels sag during the day.

Understanding how fast you break down coffee influences when you should be consuming it in the first place and whether it is something that will have a positive effect on maintaining energy levels throughout the day, or if you are at risk of having energy slumps resulting from being a fast metabolizer of caffeine.

Another interesting one is the FTO gene, which has a known correlation with being overweight or obese due to its hormonal effect on appetite regulation. When we know this result, we can deliver information to people that is actionable to help people control their appetites and achieve their weight loss goals. [3]

Our team of PhDs is advancing our scientific recommendations in some truly ground-breaking ways. Our scientists not only evaluate peer-reviewed research from around the world, but also have academic collaborations with universities, so the analysis we produce from our proprietary genetic database enables a huge element of discovery.

We have a lot of information that no one in the world has ever seen before and we’re learning some amazing things, particularly around genetics and obesity. I’m very excited to say that we’re contributing to the global knowledge base of science. [2]

12) Tell us about the research paper that FitnessGenes released on the FTO gene - the gene associated with obesity.

It’s an interesting study that we’ve done in conjunction with Loughborough University in the UK, where we looked at 538 people within our population of users. Our user base is theoretically people who are fitness orientated and we wanted to look at the frequency of the FTO gene to see if it was the same as the general population. We then did various body composition measurements, using questionnaires, and behavioral studies around eating and the really interesting thing that we found was that people carrying the risk allele for obesity, were NOT overweight. So that’s the first really important thing to understand.

Secondly, where it gets really interesting is that those people who had at least one copy of the “at risk for obesity” variation generally exercised much more and much harder than the other people and thirdly, people that were carrying two copies of the gene variation had to practice a lot more cognitive restraint with foods, so without even knowing it, they understood they needed to modify their behavior.

What’s one of the things you hear in the media about diet, “an occasional indulgence isn’t going to do you any harm”, so if you give someone with no cognitive restraint food that they are not going to be able to control eating, that’s surely the worst thing you can do.

Genetically, there will be categories of society where you shouldn’t be tempting them
with food, you should be helping them to understand quite early in life that these are the foods to avoid and here’s the reasons why, and helping them understand the food choices they should be making and the reasons why, and most importantly, making sure they don’t get caught up in media driven diets. [4]

In a stark contrast to the Weight Watchers model, where their Chief Science Officer is a psychiatrist, our CSO and co-founder, Dr. Samantha Decombel is a Ph.D. geneticist. One of the many genes she and her team analyze is FTO, aka, “The Fat Gene”. In the July/August 2017 interview in Functional Sports Nutrition magazine, Dr. Decombel states:

We’ve been conducting our own research on the effect of the FTO ‘fat’ gene in our customer population, which has yielded some surprising and very interesting results. FTO is a gene that has proven in numerous studies to have a significant effect on weight gain, yet in our cohort its effects were completely absent. In our group, it appears that higher physical activity (especially HIIT) and improved cognitive restraint in FTO ‘high risk’ individuals may reduce, and even eliminate genetic predisposition to weight gain. We are using this novel research to make even better recommendations for our customers. It is possible to fight back against your genes!

13) So let’s say you’re the head of the worldwide obesity congress and you have all of the industry and government leaders in front of you, what are your 5 recommendations to reverse the obesity trend?

Great question!

1. 80% of the financial resources should go into children and over the course of 50-80 years, you’ll get the greatest return on your investment.

2. People in their 20’s and 30’s need to understand that becoming overweight and all of the lifestyle diseases that result from it: diabetes high blood pressure, etc...I’d like them to understand that those diseases are not a natural course of living. That’s not normal, but huge swathes of the population think that it is. When I was a doctor, that was one of my biggest challenges, was trying to explain that this is not a normal path of life.

3. I’d like to stop seeing the media stop vilifying foods and food brands, because all they do is make those foods and those brands front of mind. So if you tell everyone that McDonald’s is bad, it doesn’t dissuade people from eating there, it just gives them free media coverage. I’d like the vilification to end for the media to focus on what is positive within food and the food industry, and restaurants and diets. Don’t focus on what people should not be doing, focus on what they should be doing.

4. The heart of good nutrition is the farmers, as they are ultimately responsible for the population eating well and having access to better nutrient quality foods. So what are the things that we can do to over support farmers and overdeliver to farmers so that the better quality foods are not as expensive? Rather Than focusing on banning junk foods, how can we over support farmers and get the prices of quality foods down, as this will give us a greater ROI over 50-80 years than virtually anything else that we are doing.
5. In terms of a more immediate impact, one of the things you could do is regulate fitness and nutrition information through social media so that when people say, “I got my abs by doing this or I got my butt by doing that”, they need to have that info verified before it can be posted.

Another aspect of obesity is the quality of the food. It’s not only the overconsumption of calories, it’s the inferior quality of the food combined with reduced activity levels.

Read about our science and read our blogs and read our studies to learn more about the information we can deliver, but ultimately the only way you are truly going to know is to do the test and follow the recommendations. You’ll learn how to make minimal changes that have maximal effect.

Finally, keep it realistic. Don’t write down 10 things that you need to change about your diet or exercise. Write down 5 and then pick 1 or 2 that you can actually do and stick with them. [4]

14) You said environment (lifestyle) plays a significant role, whether it’s the training program, the nutrition program or the psychology. What kind of basic recommendations would you make to strength and conditioning coaches based on the research you’ve done?

Assuming you have an individual in the gym environment and you know exactly how to structure their training program, and you know exactly what they need to be doing in their training with regards to volume, frequency, rest, recovery, tempo, how you periodize every season and every year…. so even if you know all of those things we still need to remember that the hour they’re in the gym, is only 1/24th of the day, so the question becomes, “what are you doing with the rest of the day?” What’s your nutrition plan like? Is it a diet that is high protein, high fat, low carbs; or high protein, low fat, high carbs, etc?

People will talk about fast and slow metabolisms, meal frequencies (lots of small meals vs 3 larger ones) there are so many ways nutrition varies and so many ways you can completely screw somebody up by getting their nutrition wrong that the take home message for coaches is always, “you can do every-thing right in the gym, but you have to do everything right out of the gym as well”. Nutrition, sleep, recovery…it all counts towards performance.

We’re in this world where everyone is obsessed with supplements. There are certainly some supplements that are important but there’s also a lot of supplements that aren’t. You’ll find people who are so focused on supplements and they must take these pills at these times and then their attention is perhaps diverted from what is more important: good sleep, recovery, and just simple down-time pleasures like spending time with friends, going for a walk, reading a book and you have to get that balance right. [2]

With genetic testing we can empower people to really understand what is going to work for their body: when they need to eat, when they need to sleep, when they should drink
coffee or when they should take other supplements, and the rest of the time they’re not worried about whether or not they’re doing the right thing. There’s a huge relationship between what happens in the gym and what happens out of the gym, and we can help decipher it all.

We make specific recommendations on exercise...training volume and frequency, how many meals per day you should be eating, how those meals should be balanced in terms of macronutrient ratios, are you genetically lactose intolerant, what your coffee consumption should be like, folate consumption, salt sensitivity...we look at genes that help determine the best time to sleep, best time to wake up, when your cortisol levels are likely to be high or low, the best time of the day to exercise...there’s a whole barrel of information that helps us create a structured daily plan custom made for each individual. [2]

15) I read some social media posts from people who received their FitnessGenes results and said, “Oh.....NOW I get it!”. There’s this “Ahah! moment” of why I’ve been getting good results or why it seems like I’m hitting my head against the wall trying to do something that just isn’t appropriate for me.

Yes, that’s exactly what happens. It’s a “Eureka moment” and people will say, “Now I get it. Now I understand the reasons for this or that”, so we get incredible feedback from people who really appreciate getting this information and are now empowered with knowledge that will help them in the future. [3]

16) There are countless stories of women having multiple diet failures and then blaming themselves even though it’s not really their fault... they were trying the wrong plan and it wasn’t a matter of effort or motivation, it was a matter of following the wrong road map.

Absolutely, and the general consensus is that 95% of people who are on diets fail. However, what is actually true is that 95% diets fail the people following them. They fail because they’re not following a diet based on their needs; they’re following a diet based on some random hype that they found in the media or that a friend of theirs is following. When people commit to personalized diet, they’ll understand that certain things that happened in the past are out of their control, but now that they understand their genetics, they can actually take control, and it’s incredibly empowering. [3]

17) Dan...You’re in terrific shape, so how have these programs made a difference in your life?

I’ve been a guinea pig for all the genetic training systems we’ve built and people have seen my transformations via social media so they can really see how these programs work. As FitnessGenes has grown as a business around the world, I’m travelling more, working more, and have less time to work out, so I have to ensure my workouts and eating plans are as efficient as possible, and I need to optimize what I consume and when in order to maintain good health and a lean physique.

Working with our user base and communities makes a massive difference in terms of my motivation, helps me get results, and the personalization of the programs definitely
improves the efficiency of my own increasingly busy life. [1]

18) So if I buy your program and then have a specific question, how do I get answers?

We have a very active social media community and a customer support desk where all questions are answered. I’m incredibly engaged in the social media groups so people can get to me directly because I love having a high level of customer interaction. We’re very happy to help and answer questions and we do so very quickly. [3]

FREQUENTLY ASKED QUESTIONS

MEET LORA DAVIS AND LEARN HOW FITNESSGENES HELPED HER.

Well I completed the whole 12 weeks program! I started at 142 lbs and 19% body fat and ended at 134 lbs and 15.5% body fat so I think I did pretty well. The program in general was great! The beginning was fairly easy but as you said towards the end it got more challenging. Overall I am very pleased and have told several people about it. I had success with the fat loss program and success again in the fat loss plus.
You have probably seen a meme that says something like this. It is 100% true!

Whether you are reading this book in preparation of your New Year’s Resolution to Get Fit and Stay Fit or at some other point during the year, we really encourage you to get outside more, exercise more, and spend less time with your assorted screens and devices. Looking at everyone else’s life on your various gadgets isn’t going to make you fit, healthy, and happy….but adopting a fit, healthy lifestyle WILL.

Don’t place unrealistic expectations on yourself just because you had a day or two of clean eating or took a walk around the block at lunch time. It took a long time for you to get out of shape, so getting back into shape will take more than a few days. You will quickly realize that you feel better physically and mentally after each trip to the gym, walk with the dog, bike ride, or whatever your chosen form of exercise is. Once you establish the connection between exercise and happiness, the rest is easy.

We assure you that any initial aches are worth the effort, and by reading this, you’re already on the right path for a healthier and happier 2018.

In this section, we explain how and why exercise benefits your mental health and give you numerous helpful, practical tips to incorporate exercise into your every day life so that you can make this your best year ever!

We also include dietary advice to ensure you don’t undo your hard work in the gym by making poor food choices.
Everyone knows that exercise is good for your physical health, but only recently have the positive effects on mental health and well-being gained recognition. Exercise improves mood, enhances memory and focus, improves sleep quality and **circadian cycles**, decreases anxiety/stress, and has even been shown to have protective effects against Alzheimer’s disease and age-related cognitive decline[^1]. With the world’s population getting older and fatter, and 1 in 3 of us now experiencing some form of mental health problem in our lifetime, there has never been a better time to get moving!

The good news is that you don’t need to commit to hours in the gym, as studies show that you can reap the same rewards with just 30mins of moderate-intensity exercise, 5 times a week. Even a 15 minutes walk outside in the fresh air has mood-enhancing effects![^2]

**The short term benefits:**

Have you ever gone for a run after a particularly stressful day and felt much better afterward? I’m sure you have all experienced the short-term reward that exercise offers. Perhaps you don’t enjoy the first 5 minutes as your chest gets tighter, your heart beats faster and your muscles go into a mini state of shock, but after pushing past the initial hurdle (around 10-15 minutes duration), a rush of energy, of positivity, of pain relief, and euphoria flood your body, and you feel pretty unstoppable!

This feel-good factor not only lasts for the duration of the activity, but can last up to 12 hours afterwards[^3], so that increased focus and optimism can transfer into other areas.

[^1]: [1]
[^2]: [2]
[^3]: [3]
of your life as well! If you are new to exercise in general, the trick is to start off with a realistic and manageable regime. Many people are put off exercise because they set themselves up for failure by starting out way too hard. For example, exercising beyond your ventilatory threshold (the point which you can no longer hold a conversation), increases physical dis-comfort and delays the mood enhancing effects for up to 30 mins - so exercise smart and work with your own body!

Exercise is also a good opportunity to practice mindfulness. This involves gaining awareness of changes in physical sensations without attaching meaning to them and becoming fully present within each moment - a technique gaining huge popularity and proving very beneficial for those prone to anxiety or panic related disorders. Even practicing as little as 10 minutes of mindfulness a day can reduce stress-related complaints!

So why not kill two birds with one stone- next time you’re working out, try noticing how the rhythm of your breath changes as the exercise intensity increases, or the sensation of your feet pressing the floor away. You’ll be amazed how adding this element into your workouts not only improves your technique and performance but also allows you to clear your head.

**The Long term benefits:**
Getting regular exercise not only improves concentration and mood in the short term, but improves memory, cognitive processing, and motor control in the long term too! This is especially important given the world’s aging population where neuromuscular weakness, age-related cognitive decline and neuro-degenerative diseases like Alzheimer’s and Parkinson’s are on the rise. Regular exercise has also been linked to an increase in anti-inflammatory and infection fighting cells. Over time, this increase improves both the brain and body’s immune defense system, making you less prone to illness and more able to cope with environmental, physical and mental stressors.

As well as regulating various biological factors, exercise also has beneficial long-term effects on psychological well-being. Building a goal-oriented training routine can give you a sense of purpose, the joy of accomplishment, and reinforce your self-belief and ability to cope with other physical and mental difficulties. For many suffering from depression, anxiety and eating disorders, following an exercise program can provide a healthy and safe alternative to dangerous coping mechanisms like self-harming, the use of alcohol, recreational or prescription drugs, as well as improve sleep quality and can even help prevent relapse. Exercise is a great natural remedy for beating the blues, so let’s get moving and keep those negative feelings at bay!

**The science behind it all:**
It’s not surprising that exercise makes us feel good, given that back in the hunter-gatherer days, exercise was essential for our survival: for finding food and for running away from predators. Although these factors are no longer a risk in modern day society, looking after our mental well-being and quality of life should be a priority! So what are the
biological processes that underpin these exercise-induced transformations in our brains?
The feel good factor, pain relief and feelings of euphoria experienced during and after exercise, sometimes coined the “runner’s high”, is due to the release of chemical signals such as dopamine, noradrenaline, endorphins, and endocannabinoids in areas of the brain associated with reward, motivation, emotional regulation and pain relief. Anxiolytic or calming effects are thought to be due to the release of serotonin, a chemical transmitter associated with appetite, mood and sleep regulation. Modulation of serotonin is also the major action of antidepressant medication and is most likely one of the reasons why following an exercise program can be just as effective as antidepressants in treating and preventing the relapse of depression.

The cognitive enhancing effects are due, in part, to the increased production of neurotrophic or “brain growth” factors, especially in an area of the brain called the hippocampus which is associated with memory formation. Examples of neurotrophins include BDNF (brain-derived-neurotrophic factor), VEGF (vascular-endothelial-growth-factor) and IGF-1 (insulin-like-growth-factor-1) which aid in the protection of existing brain cells (neurones), increase growth of new neurones, and help clear the accumulation of “bad” proteins or plaques associated with diseases like Alzheimer’s.

**In short:**
Find an activity you enjoy- exercise doesn’t necessarily equate to a gym membership! Why not try swimming, cycling, running, practicing martial arts, playing tennis, or even joining an outdoor rolling skating club. There is more than one way to get your heart racing, and in doing so, you’re not only looking after your body but you are also looking after your mind!
Excuses for Not Exercising?

By Martin Cheifetz

“I don’t have the time to exercise • I don’t have the money • I look fat and people at the gym will laugh at me • I’m uncoordinated • I have too many obligation • I’m too tired • My knee/elbow/shoulder/back/etc hurts • My wife/husband/kids/job/parents/etc put too many demands on me!”

Sound familiar?

Believe me, I get it and I’m going to give you some helpful practical tips on how to incorporate exercise into your daily life. In doing this, I am unfortunately going to relieve you of most of your excuses, and I’m sorry, but you’ll have no choice but to start exercising more and start enjoying the resulting physical and mental health benefits. Your family, your friends, your boss, your co-workers and YOU will all be much happier.

I’ll give you a little insight into my life to put this article into perspective. I’m 51 now and generally speaking, I’ve never felt better. However 7 years ago, it was a different story. At age 44, I felt myself starting to slide downhill quickly. I had a “big job”. I ran a business with 65 employees in 6 countries. I traveled close to 50% of the time across multiple time zones and continents. I worked a minimum of 60 hrs a week. I lived in a very expensive city. I had an eye-watering mortgage and enormous bills to pay. I had 3 kids who were 3, 5, and 7 yrs old. My wife and I had no family infrastructure around to support us, so it was “full-on” at home. And despite working for the largest health and fitness publishing company on the planet and having unlimited access to the best information, trainers, coaches, nutritionists, etc, I was drinking too much, not exercising enough, developing an unflattering dad-bod and just starting to feel old, creaky, and out of shape.
Here’s what I did:

I made my mental and physical health my #1 priority. Yes, I had a family and yes, I had dozens of employees and a big P&L to look after, and yes, there were a lot of competing obligations and pressures to manage. I needed to operate at full throttle all the time, and if I couldn’t, I was failing either my colleagues or my family. So how could I possibly take the time to “indulge myself” in the “selfish pursuit” of exercise with all these demands on my time?

Rather than viewing my workout time as a luxury, I viewed it as a core responsibility integral to my success and happiness at home and the office. As the sole breadwinner in the family, my requirement to stay fit and healthy and maintain my ability to perform at maximum output was paramount, and exercise became a facilitator of peak performance. Exercise kept me sane. It kept me focused and calm. It kept me energetic and it kept me healthy.

I made a point of carving out time early in the morning and adjusted the rest of my day accordingly. I’d exercise at 6am at least 3, if not 5 days per week. I worked out early and was mentally prepared, physically energized, ready to blitz it every day. During the week, I could still be home by 8am to take the kids to school, or on the weekends when I could go for a long bike ride, I was still home by 10am to join up with whatever uber-organized, overly scheduled familial mayhem was ensuing.

Your possible excuses for not doing what I did:

1. I can’t get up that early: Actually, you can. Go to bed earlier. You can stop drinking alcohol too. That’s a big help for improved sleep quality and weight management. Exercising in the morning sets you up for the day. If you’ve never tried it, you really should. You’ll be amazed at how much better you feel, both mentally and physically.

2. I don’t like exercising in the morning. See #1 above or consult your CLOCK gene report for your optimal training time. There are 24 hours in a day. You CAN find 45-60 minutes 3-5x per week. Trust me...and I’m going to show you how if you keep reading.

3. My job starts too early. See 1 and 2 above or try a Runch... or... wait for it... exercise after work. Whatever irritating things happened during your work day will disappear in your endorphin rush.

4. I have a long commute. Can you ride your bike to work and shower at your workplace? Can you bring your bike to work on the train (or in a co-workers car) and then ride home afterward? Can you take the train half-way and ride the other half? So many enlightened employers or even national governments offer bike-to-work benefits. It is really something to look into.

Get creative and find a way to squeeze it in:

On days/weeks where I couldn’t get a “real workout” because my hotel didn’t have a
gym, or the weather was terrible, or I had “57 kid’s activities in a 48hr weekend”, I had to improvise.

Possible excuses for not working out while traveling or during busy weekends:

1. *Your hotel gym sucks:* Been there. Buy a good set of resistance bands or tubes and take them on every trip. They are an amazingly effective workout tool, they’re inexpensive, take up very little space, and weigh nothing. If you don’t want to buy resistance bands, presumably your own body weight is coming along on your travels, so develop a routine incorporating push ups, assorted plank variations, bodyweight squats and lunges, do one legged balance work, use the hotel room bed, desk or chair to elevate your feet or hands to change the angles, and intensities.

Our **Get Fit System** has a whole range of bodyweight routines that are genetically tailored just for you, so give that a try. I have stayed in some pretty poor hotels over the years and apart from those capsule/pod rooms in Japan, every hotel room has enough floor space for you to do push-ups, planks, lunges and squats and you can do them in your underwear at any time of the day or night. It makes no difference what you look like or what you’re wearing, so **no excuses, please.**

2. *Too many family obligations:* I hear you. You need to get from Point A to Point B with your kids, right? Get one of those jogging buggies, stick Jr inside and run him to his face painting party. *Don’t like running?* Neither do I. You can still walk him to the party pushing the buggy and get a bit of resistance training or better yet, get one of those baby back-pack contraptions, stick Jr in the back and walk to the party. Your kid gets a great view from up high and you get a killer core and leg workout. I used one of those baby backpack carriers with all 3 of my kids and a) they all loved it and b) it’s a great full body workout.

*None of that sound appealing?* Don’t worry because I’ve still got you covered. Rather than walking, you drove to Jr’s face painting party and now you have 45 minutes to kill before the next obligation starts flashing on your phone, right? *What do you do with those 45 minutes?*

*No, you don’t chit-chat* with all the other parents about whatever school/diaper rash/my kid is so fabulous repetitive brain-numbing drivel happens to be on their agenda.

*No, you don’t get a cappuccino* and a piece of carrot cake at a local cafe and fiddle with your phone.

**You go for a walk or a run**...or even just go back into the car and take a nap. Don’t feel guilty about taking a nap either. Chances are, not only do you need more exercise, you probably need to sleep more too.

If you’re lucky, and your over-scheduled weekend obligations all follow the same pattern, i.e. at 10am you need to be here and at noon you need to be there and at 2pm you need to be wherever..I am extraordinarily confident that somewhere along the way, there is a **park** or a **trail** (where you can go for a walk/runner, do a bodyweight workout, stretch, use...
BEING FIT MAKES YOU HAPPY

Excuses for Not Exercising?

the playground jungle gym for pull ups, muscle -ups, etc) or there is a gym (where you can get a full or casual membership or a day pass to use on weekends) or a Crossfit box, a swimming pool, a big set of stairs or a big hill that you can walk up and down a few times and get your heart and legs pumping. Stairs, hills, parks, and trails are all FREE and require no special equipment, so no excuses, please.

If you are motivated, there is a way that you can shoehorn some exercise in all of those blocks of downtime...even if it’s only 30 minutes here and 30 minutes there, you can grab an hour’s worth of activity instead of doing 2 sets of yapping about Jr ‘s test scores and chicken pox while super-setting carrot cake and cappuccinos.

I don’t have the money for a gym membership and/or people at the gym will laugh at me

The following list of suggestions for home -based workouts, or squeezing some exercise into a packed timetable while you’re “on the go”. No gym membership is required, and I’m also including a “low budget” option, so I sincerely regret to inform that you have no excuses for not exercising.

Get a good backpack:

Why are you carrying a backpack? Very simply, it’s added resistance that helps strengthen your legs and core. If you only have 30 minutes to go for a walk in between obligations, you’re better off walking up and down a hill carrying a backpack than simply taking a casual flat stroll in the park.

What to buy: Get a hiking pack with a stiff back and rigid internal frame (so that it holds its shape) with a capacity of at least 20 liters (and a maximum size of 35-40 liters) Make sure the pack fits you well and is comfortable. As much as everyone loves to shop via Amazon, please go to your local outdoor retail store to ensure you get a good fit.

What you’re going to do with it: Firstly, you’re going to put some weight in it and go for a walk. How much weight? It obviously depends on your level of fitness and the size of your pack, but anything from a couple of extra pounds up to a maximum of 25% of your body weight. (And if you think 25% of your body weight is too heavy, spare a thought for your fearless armed forces personnel carrying loads >100lbs in the desert or tropical heat, while trying not to get blown up as they fight bravely to preserve your freedom). You can use anything as weight in your pack, just as long as it’s not going to move around or poke you. Take a couple of 5lb bags of flour (or dirt/sand/etc) and wrap them in some towels to start. Add more weight (5lbs at a time) as you get stronger.

The other reason to carry a backpack is that it’s your personal portable weight room, and here’s what you can do:

While wearing the pack, you can do squats, lunges, good mornings, planks, calf raises, pull ups, push-ups, etc. Obviously, depending on the size of your pack, you may have some range of motion restrictions, but you get the idea. You don’t need a garage full of weights or a gym membership...you need a backpack and some bags of flour. Please
note: Before you start using the added resistance of a loaded backpack, do a couple of unweighted sets to make sure your muscles are warmed up and you can correctly execute each movement pattern.

**Use the pack’s weight instead of a barbell or dumbbell.** Take the pack off and hold it above your head and do your squats, lunges or calf-raises. Too easy? Hold the pack over your head with one arm. Bend at the hips, put the pack flat on the ground and use it for bent-over rows. You can use the pack weight for single or double armed overhead/military presses. Extend your arms straight out in front of you and see how long you can hold the pack. Too easy? Do it with one arm.

The combination of walking with the extra weight on your back and using the pack weight as a portable gym means you can enjoy a killer workout..anywhere, anytime. Leave the backpack packed and bring it with you every time you leave the house, so you have no excuses for not squeezing some exercise into your day.

**Low-budget option:** Easy. Buy a used backpack and proceed as above. The lowest budget option is to just go to your local garden center or hardware store and get 2x 5 or 10lb sacks of dirt or sand or gravel or whatever is cheapest. You can adjust your grip on the bag depending on the exercise, but for probably $5, those 2 sandbags will give you an amazing workout. Use them for farmer’s walks, lunges, squats, deadlifts, curls, overhead presses, bent over rows, etc. As you get stronger, you can easily add more weight to the bags.

**I’m sorry, but money is not an excuse,** because for as little as $5 you can have a portable set of adjustable dumbbells and for a maximum of a probably $150, you have a quality backpack/multi-gym.

If you feel a bit self-conscious hoisting this stuff around in your local park/beach/trail/playground, you can either take your backpack or sandbags into your living room.

**Plan B: a Bosu Ball**

My “meathead” friends love to laugh at these things, but I think they’re great and I use mine all the time. You’re working out in your own home, so who cares what anyone else thinks? In my opinion, they’re probably the best piece of home gym equipment because of their incredible versatility (and yes, you can buy this one from Amazon). A Bosu ball inherent instability makes every movement more challenging and there are dozens of ways you can use them in your home-based workout. *Obligatory Warning-they’re unstable, so if you have balance issues, stick with the backpack option and please don’t use a Bosu ball.*

Most of our [Genetic Workout Systems](#) prescribe some form of [HIIT (High-Intensity Interval Training)](#) because of its scientifically proven ability to build muscle or [burn fat faster](#) than lower intensity exercises. Here are 2 exercises to include in your HIIT workout at the cadence appropriate for your fitness levels (after you’re appropriately warmed-up).
With the Bosu platform up (i.e. round side down), stand on the platform and do as many bodyweight squats as you can during the timed interval (say 20 seconds). During your timed rest interval (say 10 seconds), get off the ball, get in push-up position, hold the Bosu by the edge of the platform and do as many pushups as possible during your timed exercise interval (20 secs), rest (10 secs), and repeat the cycle for a total of 8 sets. If you adhere to that timetable, you will have endured 8 minutes of HIIT, plus say another 10 minutes of a warm-up and a quick post HIIT stretch.

I guarantee you that after those 18 minutes you’ll feel great and if you can do that 3-5x per week you’ll be on your way to a fitter, healthier lifestyle and will start to notice a difference in your physique and overall fitness level. Please don’t tell me that you don’t have 18 minutes 3x per week to exercise in your living room because frankly, that’s bullxxxx. Get up 20 minutes earlier and do it before work. Fiddle with your phone for 20 minutes less each day. Watch TV for 20 minutes less each day. 20 minutes! Sorry...no excuses.

Some other ideas for your Bosu ball home workout: To increase the intensity of the squats, hold some weights at your side or over your head...or you can wear your backpack. If you don’t have weights or a backpack, you can use water bottles, a box of “something” held in front of you or over your head or two shopping bags of “stuff” held at your sides or over your head. Still too easy? Try a Bosu pistol squat like World Cup Champion and Olympic Gold Medal winning skiers Lindsey Vonn or Mikaela Shiffrin.

On a recent visit to my home town, reigning Overall World Cup champion and reigning Olympic and World Cup slalom champion, Mikaela Shiffrin of the US Ski Team was so happy to learn that I do Bosu pistol squats that she skied over to me and insisted that we get a picture together. She seemed really nice and since she travelled such a long way, I had to oblige ;-)

Round ‘em up!

Flip the Bosu over so the flat platform is on the floor and the round part is up. Put your forearms on the round part and hold yourself in a plank position for 60 secs or as long as you can. Bosu planks are challenging and there are lots of variations to increase the intensity.

Stand up and do alternating deep lunges with your forward foot landing on top of the ball. Sit down with your butt on top of the ball, hold your arms and legs out straight in front of you and hold a V-shape for as long as you can.

If you’re really just starting out with your fitness or recovering from an injury, or even
during your rest days, simply try standing on the Bosu ball (either side) for 30 minutes while you watch the news or your favorite TV show. First of all, we all sit too much. Secondly, you’ll be amazed out how many little adjustments your body will need to make during a 30-minute standing session on an unstable surface. If standing gets too easy, hold yourself in a ¼ squat for 30-60 second intervals. If you have time to watch TV, you have no excuse not to do this. You don’t watch TV? Good. Do you stand in your kitchen and eat? So do I. Stand on your Bosu ball and eat your breakfast or your dinner.

Budget option: If you can’t buy a Bosu ball, no problem. I’m making the assumption that you have 2 legs (and please forgive me if you do not!). You can do your entire home workout on one leg, with your eyes closed. Why? On one leg with no visual reference points your balance is completely out of whack and a simple, single joint movement becomes a full body workout. Don’t believe me? Stand up, grab a bottle of water or some-thing that has some weight to it and do single arm biceps curl. Easy, right?

Now stand on one leg, close your eyes and do the same biceps curl. Immensely different experience isn’t it? I learned that one from the Strength and Conditioning Coach at Manchester United Football Club a few years ago during my fitness magazine days. So the next time you are watching TV, or standing in your kitchen eating...stand on one leg and close your eyes to increase the difficulty. You will definitely feel it in your legs and core the next day. There is no extra time and absolutely no cost for doing this, so no excuses, please.

My knees/shoulder/back hurts!

The only excuse we haven’t covered yet is injury, which we’ll briefly discuss now. As an avid outdoor sports participant, I have had my share of damaged joints, bones, muscle, and flesh. If you are motivated, are not in a full body cast, and not on a respirator, there is usually a way to work around your injury. If you have a lower body injury, work on your upper body only. Have an upper body injury? Work on your lower body. Unless you have a spinal or rib injury, you can usually find some variation of plank that will allow you to create tension in your body. TUT (Time Under Tension) is an important variable in creating an effective workout, and planks are usually safe and effective for everyone because they are an incredibly powerful full body exercise that actually requires no movement. You can increase the intensity of your planks by simply squeezing every muscle in your body HARD from your toes right up to your neck. By squeezing each muscle group separately, you increase the mind-muscle connection, a skill which helps you in all your workouts. Obviously, increasing the duration of the plank increases the intensity as well.

While none of my suggestions above are a replacement for a proper genetically tailored workout and nutrition program, they are certainly a step in the right direction to get you moving towards a healthy, active lifestyle.

I hope I’ve given you a few ideas to help you exercise anywhere, work around your injuries, and incorporate more exercise into your everyday life, regardless of your budget or location.
It’s not new that the food we eat has a significant impact on our training performance, body composition and physiological and metabolic health, but did you know that food may also affect our mood and mental well-being?

Having processed and/or fast food every day isn’t a good idea for your long-term health. These types of food can be extremely calorie dense and severely lack micronutrients. Fruits, vegetables, and legumes are much more beneficial for our bodies; they are less calorie dense and plentiful in micronutrients & minerals. The physical and physiological effects of our diets on our bodies is widely acknowledged and reported on in the media, but what about the psychological effects of food?

In a recently published study [1], the effect of diet in the treatment of moderate to severe depression was investigated. In a randomized controlled trial, people with moderate to severe depression were allocated to receive either a nutritional intervention or to serve as a control group. The 31 people in the nutritional intervention group attended 7 nutritional consulting sessions with a clinical dietician. The 25 controls followed a befriending protocol of the same schedule and duration as the nutritional intervention group.

The diet intervention consisted of personalized dietary and nutritional counselling support to help them adjust their eating patterns and help them adhere to the new diet. Since the study did not have a weight-loss focus, the participants were not given a calorie limit and could eat as much as they wanted to. The prescribed diet was based on a Mediterranean style diet and consisted of increasing the intake of the following key food groups:
VEGETABLES (6 servings per day)

FRUITS (3 per day)

LEGUMES (3-4 per week)

WHOLE GRAINS (5-8 per day)

RAW & UNSALTED NUTS (1 per day)

FISH (at least twice per week)

LEAN RED MEATS (3-4 per week)

CHICKEN (2-3 per week)

EGGS (up to 6 per week)

LOW-FAT & UNSWEETENED DAIRY FOODS (2-3 per day)

OLIVE OIL (3 tablespoons per day)

The following was aimed to be reduced/removed:

SUGARY DRINKS

PROCESSED MEATS

FRIED FOOD FAST FOOD

REFINED CEREALS

SWEETS/CANDY/DESSERTS

Opt for wine over beer or spirits, and max of 2 standard drinks per day

The macronutrient ratio (also included in your personalized FitnessGenes’ nutritional advice) for this diet worked out to be roughly 18% of calories from protein, 40% fat and 37% carbohydrates (with fiber (3%) and alcohol (2%) making up the remainder).

At the end of the 12-week trial, the diet group had significantly greater reductions in their depressive symptoms than the control group independent of any changes in weight, BMI and/or physical activity.

Previous studies had already suggested that a healthy diet may have a positive impact on anxiety and signs of depression and other mental health issues [2–4], but this is one of the first randomized controlled trials to show a healthy diet may help in treating moderate to severe depression. Higher intakes of processed food, refined carbohydrates and saturated fats have been also associated with poorer mental health [5].

The mechanism of how someone’s diet impacts mental well-being is not fully understood but there are several overlapping hypotheses. To begin with, a balanced diet of vegetables, fruits, legumes, whole grains, nuts and lean meat (basically all the good stuff) provides plentiful nutrition at both the macro and micro levels. Diets that lack
those foods, and that are mostly composed of refined carbs and processed meats/foods is less well balanced and unhealthier. Unfortunately, the latter is a typical Western diet – especially in the US and UK, and is deficient in some important micronutrients.

Secondly, it is also known that an unhealthy diet can be more inflammatory\cite{6}, increase oxidative stress\cite{7} in a negative way, reduce brain plasticity\cite{8} and can negatively impact your gut microbiota\cite{9}. Together, this may impair cellular functioning and health, consequently reducing energy levels and motivation to exercise, pulling someone into a vicious negative cycle.

**Physical activity is known to have mood enhancing effects** (it is also recommended as part of an overall treatment package for people suffering from depressive symptoms) and lacking the energy or motivation to exercise could have further negative impacts on someone’s mood.

Of course, depression isn’t treated through a healthy diet alone. In the study\cite{10} discussed here, the diet intervention group still needed psycho- and/or pharmaco-therapy. It is also not true that a poor diet will definitely lead to a low mood or depressive symptoms. But it highlights again that a healthy balanced diet, along with regular exercise, can help you to get into a positive, motivated, and healthier rhythm where energy levels, motivation and mood all positively feedback on each other, helping you to reach your health and fitness goals.

Whether it be building muscle, losing fat, hitting sporting PB’s or just improving our lifestyles, long-term consistency is the key, and having the energy, motivation and having the right mind frame can be essential for success.

The next time you hear someone preaching the benefits of eating a healthy, fresh, whole foods, well-balanced diet, remember it doesn’t only improve physiological and metabolic health, but also potentially mental health and mood, all of which can contribute to making sustainable long-term improvements in your lifestyle.
For many of us, drinking alcohol is a common activity within our modern lifestyles. But how does it impact your body following exercise?

Limits Recovery

Alcohol consumption causes oxidative stress. High levels of oxidative stress can impair processes within the body, and may slow your recovery post-workout; particularly following more eccentric based exercise. Eccentric activities are when the muscles are elongated when under maximum load, like squats, or walking/running downhill, and this causes more muscle damage than concentric activities in which muscles are under maximum load while contracted. At FitnessGenes, we provide you a score of your susceptibility to oxidative stress using a combination of genes (PGC1A and UCP2). If you are more susceptible to oxidative stress, then the effect of alcohol consumption could be amplified for you!

Alcohol can also negatively impact upon your recovery by slowing the replenishment of muscle glycogen (energy in the form of glucose stored in your muscles). Even when carbohydrate-rich meals are eaten following a workout, consuming alcohol reduces glucose uptake inhibiting replenishment of your muscle glycogen stores. For those of you who are partaking in prolonged, demanding exercise, it is super important that you focus on your carbohydrate intake following exercise and avoid alcohol. If not,
your glycogen stores won’t fully recover, leaving you with less energy to fuel your next workout!

The impact of alcohol on your recovery can be long lasting, so if you have a heavy training schedule and high-performance expectations, alcohol should probably not exist as part of your diet.

**Muscle Growth**

There are many important molecules involved in increasing muscle protein synthesis to allow for hypertrophy *(muscle growth)* and increased strength. You have probably heard about the importance of post-workout nutrition - particularly the intake of protein during the ‘anabolic window’ (i.e. the 40 minutes immediately following your workout when amino acid uptake is the highest, and the most critical period for increasing muscle protein synthesis). Rather than grabbing a protein shake, many of us still reach for a few drinks instead.

This is bad news for your ability to maximize muscle growth following a resistance workout. Alcohol has been shown to impair IGF1 (one of the genes responsible for muscle growth) signalling, leading to reduced gene transcription post-exercise. This reduces hypertrophy, particularly in the fast twitch fibers. Alcohol also impairs mTOR signaling (the key regulator of muscle growth), reducing muscle protein synthesis. When alcohol is consumed post-workout, muscle protein synthesis is reduced even if adequate carbohydrates and/or protein are eaten.

The short story is: If you want to make the most of your strength training, avoid alcohol post-exercise. But if temptation creeps in, make sure your post workout tipple is enjoyed with a high protein meal to help salvage some of the muscle growth you want!

**Testosterone**

Testosterone is important for anabolic processes such as muscle growth, so maintaining adequate levels of circulating testosterone both at rest and around training is important. High levels of alcohol consumption post-exercise have been shown to decrease testosterone levels, with chronic high consumption having a negative long-term impact on resting testosterone levels. Low testosterone can negatively impact on body composition, protein synthesis and muscular adaptations; further inhibiting recovery post-exercise. It is important to not over-consume alcohol to keep your testosterone levels optimized for maximum muscle building potential!

Here at FitnessGenes, we provide a genetic results for testosterone production, but also a Testosterone Evaluation Template (TET) score which combines genetics with environmental factors like your age to give you a more accurate indication of what your actual circulating blood testosterone levels are (Ranging from High to Low). If you have a poor TET score, it is even more important to limit your alcohol intake.

Many of the studies on the negative impacts of alcohol have involved relatively high
doses – around six alcoholic drinks for a 180-pound (82 kg) man. Half this amount - 0.5g of alcohol / kg of body weight or about 3 drinks - will have less of an impact on your muscle building potential and recovery. Despite this, it is still important that your proper post-exercise nutrition comes first, so eat the protein and / or carbs you need and rehydrate before you indulge in the occasional beer!!

I approached FitnessGenes in 2014 as I was interested in how they could help me achieve my fitness goals and improve my kick boxing and MMA training. I am not going to lie, the first six months or so were trial and error and I relapsed into old ways on occasion. After Christmas this year I decided to take things seriously and stick to the muscle genes diet and exercise plan.

My report stated that I had an efficient metabolism, Didn’t burn fat that efficiently and had to stay away from High GI Carbs At the end of every training plan I contact Fitnessgenes for advice that they always give and then start again. They inspire me to keep going. Thanks for all the help and support FitnessGenes.
No, this isn’t some form of super environmentally friendly exercise...it’s more elemental. Green Exercise is simply being physically active in the presence of nature. I’ve chosen my words carefully here, so please read on!

Being immersed in nature has profound benefits for your health. It can improve your psychological well-being and self-esteem, boost immunity, enhance productivity, increase concentration and problem solving, and reduce irritability and stress [1].

These benefits are similar to those induced by physical activity - leading to the idea that there may be a synergistic effect of combining physical activity with exposure to nature. This theory has now been supported by many studies [2, 3].

The Three Stages of Engagement with Nature

If I said you could experience greater mood-boosting effects simply by exercising in front of an image of the beautiful countryside, would you believe me?

Science says you should. A study by Pretty and colleagues found that those who ran on a treadmill while exposed to a pleasant rural image had, in addition to lower blood pressure, significantly improved self-esteem and mood compared to those running without the image [4]. Viewing nature has also been shown to improve job satisfaction and reduce stress, as shown through studies looking at workers who had access to windows with views of trees and flowers [5].
If merely looking at a picture of a tree doesn’t sound like ‘green exercise’ to you, worry not - passively looking at nature is only the first stage of engagement.

The second stage is being in the presence of nature. Comparisons of indoor and outdoor exercise have highlighted the added benefits of this second stage of engagement. People who exercise outdoors, immersed in nature, feel more revitalized, have increased energy levels; and reduced levels of tension, confusion, and anger compared to those exercising indoors [2].

You may laugh at those people using the outdoor gym equipment in the park, but they’ll be the ones more likely to be laughing and enjoying life than those slaving away indoors in the sweaty pits of the gyms.

Of course, this doesn’t mean you should never exercise indoors. Unfortunately, climates, availability of equipment, safety concerns and our individual lifestyles all dictate whether we can get outdoors. Our motivation is also a major factor - not all of us are hardcore enough to embrace wind, rain and cold; and many probably won’t come back from an inclement session feeling revitalized!

The final stage of engagement is actively engaging with nature. This stage of green exercise uses initiatives that also help care for the environment, e.g., through voluntary work on preserving nature spots. This provides a double dose of mood enhancement - through being surrounded by nature and from the positive feeling of giving up your time for a worthy cause. But you don’t necessarily require formally-organized green initiatives to engage with nature: you can simply undertake activities such as gardening, where you use the natural environment to help burn off some calories and reduce stress! So, get planting those trees and flowers!

**It may only take five minutes…**

It probably takes less time than you think to reap the benefits of green exercise for your mood and well-being. The optimum improvement in mood occurs after just 5 minutes of exposure to nature, with no further increase after this point [6]. With such a quick, cheap, and easy way to enhance your mood and increase your happiness, why wouldn’t you add a small walk outdoors every day?

So, when you are having a bit of a down day at work or just need a quick way to de-stress from the chaos of family life (particularly around this holiday season!), get yourself outdoors. Boost your mood and self-esteem, and enhance the benefits of your exercise even further!

Exercising isn’t just about improving your physical health; your mental well-being is just as important - so utilize the natural environment around you and take your activity outside.

New to exercise? Why not give our Get Fit plan a try. It has home-based workouts, so no gym membership is required, and you can perform all of the bodyweight exercises outdoors, so no excuses, please!
In this section, we help to turn your New Year’s Resolutions into a happy, healthy reality.

New Year’s Resolutions are a classic example of “actions speak louder than words”. It is really easy to make a New Year’s Resolution, but it’s not so easy to keep one, particularly if your self-promise revolves around changing a long–standing habit like quitting smoking or making significant dietary or lifestyle/exercise adjustments. Old (and bad) habits are often hard to break, so it is sad, but not surprising that 75% of all New Year’s Resolutions are abandoned by Feb 1st.

We’re on a mission to transform all of those fitness and dietary failures into success stories. First, let’s understand the reason for the failures.

The #1 Reason Why Diet and Exercise Programs Fail is LAZINESS. Most people can’t be bothered getting off the sofa and going to the gym or out for a run. It’s easy to talk about getting fit or losing weight. It’s fun picturing yourself with those 6 pack abs or a great ass, but it’s another thing entirely to dedicate the time to work for it.

The second reason diet and exercise programs fail is FRUSTRATION:

• Frustration that your friend can lose weight, but you can’t.
• Frustration that your friend can gain muscle, but you can’t.
• Frustration that your friend is running faster or lifting more than you despite the two of you starting at the same time.
• Frustration that no matter what you seem to do, NOTHING is helping you achieve your fat loss or muscle building goals. Sound familiar?

This high level of frustration and failure rate stems from people guessing which of the thousands of generic diet and fitness plans will work for them.

Do you have the time and motivation to fail at 999 (or even 99 or maybe only 9) plans before you find the 1 that makes a difference to your body composition?

Would you like to stop guessing, stop wasting time, and start seeing results?

Please watch our 2 minute video and get started on the new, improved you!

Let’s make this your year for significant transformation. You will be so happy you decided to stick with it!
You’ve made a commitment to yourself, your friends, and your family that 2018 is the year you are going to get fit and stay healthy, or lose weight, or build muscle, or get lean, or get an enviable beach body. Saying that is easy. Doing it is slightly more difficult, so here’s 6 solid tips to get you off to a strong start.

**Establish your specific, measurable, achievable, and time bound goal.**

Don’t just say, “I want to lose weight”. It is far better to say, “I’d like to lose 10 pounds in 2 months” because it is easier to track progress, measure results and stay on course over a defined and realistic time frame. Obviously, the more realistic the steps, the more likely you are to succeed, and success is always a great motivator to keep the momentum going. It also helps if you know what type of specific diet or exercise is going to help you achieve this goal, and that is exactly the type of program FitnessGenes offers.

**Write down 5 habits you must change to achieve your goal.**

For example, I need to exercise intensely at least 3x per week; I need to cook all my own meals so I can control the ingredients and portions; I need to reduce the amount of refined/processed foods in my diet; I need to get 7-8 hrs of sleep (yes, this helps with weight loss!), and I need to treat my workouts as a non-negotiable appointment. Make these habit changes realistic and achievable. If you eat a tub of ice cream every
night, completely eliminating ice cream is going to be incredibly difficult. Instead, limit yourself to two spoonful’s of ice cream every night for the 1st month and one spoonful of ice cream per night for the 2nd month. Same with alcohol or any other junk food...make the cuts realistic and achievable and further reductions will become self-motivating based on the positive results you will observe in the mirror.

**Ensure that at least 3 of the 5 habits or changes are adhered to every day and track these changes and accomplishments on a calendar.**

As the saying goes, “Don’t complain about the results you didn’t get from the work you didn’t do.” Making a calendarized checklist keeps you accountable and gives you a visual reminder of what you have achieved and the work you still need to do. You don’t need to do all 5 things every day. Ideally you should, but start with 3, get some momentum, and then keep refining the process. You didn’t become overweight in a week, and you’re not going to become lean in a week either, so be patient, and measure (and enjoy) your progress.

**It also may help to have photographic evidence,**

so print out a picture of the person who has the body you would most like to achieve and print out a picture of yourself in the same pose. Put the pictures side by side on your fridge, pantry, and all the mirrors around your house, as this will remind you of the work you have to do. However, you may find it easier and more rewarding to use pictures of yourself vs someone who has a marginally better physique than an exponentially better one. In other words, if you are a very heavy and out of shape, it may be demotivating to compare yourself to a supermodel or Olympic athlete. Instead, find a picture of a woman who is a few steps closer to the goal than you are, and compare yourself to her. When you achieve that goal, find a new target woman and repeat the process. However, you should always keep a picture of your “Before” physique as that will motivate you to keep moving towards your new target, one step at a time. Be sure to photo-document your journey each step of the way so you can see how far you’ve come!

**Track your weight loss, but don’t get hung up by the numbers on the scales.**

You are aiming for improvements in body composition (i.e. the proportion of your body that is lean muscle vs fat). Muscle is denser than fat and therefore weighs more, so the scale is just a guide. After all, you’d be very surprised to learn how much those Olympic athletes with “zero percent” body fat actually weigh! It’s far more than you think! This is why our previous suggestion of taking progress pictures is so important. If you feel better, your body is firming up, and your hips and waist are shrinking, who cares what the scale says?
Don’t waste time:

Make sure you are doing the right type of exercise and getting the right type of nutrition for YOUR body. Just because your friend or brother/sister/personal trainer is doing X, Y, or Z does NOT mean that same program or system is going to work for you. Everyone is different and each person’s body will react differently to foods, exercise and recovery.

Our single biggest tip for achieving success is to get a FitnessGenes DNA analysis and a personalized exercise and nutrition plan. By analyzing your genes, we will be able to tell you exactly how to exercise and exactly what you should eat to achieve your body composition goals.

After all, if you don’t really like going to the gym, but know that you really need to work out at least 3x per week to hit your targets, wouldn’t you like to see great results for the effort you put in? **Doing 3 poor workouts isn’t going to change anything…. however, doing 3 great ones that are tailor made for your specific genotype will!**

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**MEET MICHELLE ROWLANDS AND LEARN HOW FITNESSGENES HELPED HER.**

I’m a busy working mum to two boys, so for me to have a personal trainer is out the question, plus I couldn’t afford to. Doing the GTS challenge was my personal trainer in my opinion, I would copy my weekly challenge on my phone and hit the gym, fitnessgenes had weekly contact with me if not every day through media. By the end of the challenge it was hard and everyday, (my genetic results state I’m able to train every day) The results I saw were impressive, in a short 8 weeks training on my own with my plan in hand I had slimmed down on the waist, abs started to show through and my quads were bigger, my delts/arms went really toned. The best thing is now I know I can change body composition in 8 weeks. My plan is mine and I don’t need to spend out on personal trainers.
Why is this public enemy #1? Because the average person annually consumes over 17,000 extra calories, equating to a weight gain of about 5 pounds (2.2kg) per year due to restaurant upselling tactics!

“Would you like to go large for an extra 50 cents?”

“Whipped cream and sugar with your coffee, sir?”

“Would you like fries with that?”

You’ve probably heard these types of phrases before. You’ve just ordered your regular morning coffee when immediately the barista offers you an accompanying pastry. There’s a term for this practice of persuading a customer to buy something extra – it’s called “upselling.” Now, a joint report by the Royal Society of Public Health and Slimming World[1] suggests, somewhat unsurprisingly, that ‘upselling’ could be to blame for the UK’s obesity crisis.

Upselling affects most of us. According to the report, 78% of us experience up selling at least once a week. Restaurants, fast-food joints, supermarkets and coffee shops seem to be the biggest offenders. Of course, all those extra sides, portions and toppings also contain extra calories. And it all adds up. Succumbing to each instance of upselling can, over time, cause us to amass a large calorie surplus. This, in turn, leads to fat deposition and weight gain.
But just how much weight gain can it cause? Over a year, the average person will chow down an additional 17,000 calories as a result of upselling. That’s an extra 5 lbs (2.27kg) of body weight every year you’ll have to lug around. The figures are worse for younger people (aged 18 - 24 years old), who are more vulnerable to marketing ploys from the food and drink industry. Young people could potentially consume a gargantuan 39,000 extra calories over the year: equivalent to 11 lbs (4.99kg) of body weight. With figures like those (in both senses of the word), it’s little wonder the current obesity epidemic shows no sign of slowing [2].

So what can be done about this disturbing trend? The problem is that upselling is big business. Food and drinks retailers will always be trying to maximise sales and, by extension, profit. But, even as a customer, it’s often better value for money to buy that bigger portion or get that ‘discounted’ extra side. Arguably, parting with only 17% more cash for 55% more calories is financially a good deal. What makes rational economic sense, however, doesn’t always make the best sense for your body.

Luckily, FitnessGenes can help you resist the urge to say ‘yes’ to that extra packet of crisps or upgrade in portion size. Here are some helpful tips:

**Know your genetic makeup:** in particular your FTO genotype. Numerous re-search studies show that a variant (the A allele) of the FTO ‘obesity’ gene increases your risk of putting on weight [3]. People who carry one or two copies of the A allele typically feel hungrier and are less likely to feel full after a meal. They’re also more likely to eat higher-calorie foods – including the high-fat, high-sugar, high salt offerings from upsellers. By analyzing your DNA, FitnessGenes can determine your FTO genotype (as well as your genotype for several other diet and fitness related genes) and give you an appropriately tailored diet and workout plan. This will help you to stave off cravings and maintain a healthy weight.

**Eat intelligently:** knowing when and what to eat to promote feelings of fullness (satiety) will help you refrain from those extra snacks. Increasing the amount of protein in your diet is one means of feeling fuller for longer. Spreading out your daily caloric intake across more meals is also a useful strategy for some people. Of course, the most effective nutritional advice is personalized to your unique genetic makeup and your particular lifestyle – FitnessGenes can help you here.

**Cook at home.** It’s easier to say ‘no’ to extra portions at a cafe or restaurant if you’re not there in the first place! Cooking meals at home gives you control over the nutritional value of your meals. It’ll probably taste better and save you cash too! If you’re feeling short of inspiration, check out some of our delicious, nutritious and easy recipes.
New Year’s Resolutions are here and, “No more junk food” we tell ourselves…but then those pesky cravings kick in and resisting that donut becomes a whole lot harder.

Cravings are an intensified motivation directed towards the consumption of a specific food.

Hunger on the other hand is a non-specific drive to eat food in general; and emerges from a different brain circuit to that of cravings.

Cravings are associated with overeating and can lead to unsuccessful weight management or failed weight loss efforts because most craved foods are high in sugar and fat!

What causes cravings?

The brain is a fascinating thing. It has been hard-wired to be motivated by goals that aid survival. We soon learn the most effective ways to achieve these goals, and this learning process is controlled by a key mechanism involving a substance called dopamine. Dopamine is integral to reinforced, repetitive, behavioural learning. Dopamine is released in response to goal accomplishment and leads to the rewarding sensations felt when a piece of chocolate is eaten.
Controlling your Cravings

The sensory cues of the situation such as the sound, smells or location in which you developed this response behaviour will generate the intensified motivation to repeat that behaviour – this is the development of cravings. Our bodies and brains begin to build these associations between the specific components of foods (high sugar, high fat) and the surge in dopamine and reward experienced; even if short lived.

In simpler terms...

You eat your first piece of chocolate. It sends signals to the brain saying this food contains the high levels of fat and carbs your brain loves. Your brain releases dopamine and remembers the environment and taste/smell/texture of that chocolate. This builds an link between that chocolate and the pleasure it led to. Now if anyone mentions chocolate, you see chocolate, or you are in a certain environment or mood; the saliva will begin to flow as the chocolate craving kicks in!

Previously this physiological mechanism was beneficial for survival when calorie-dense food was less abundant. However, our world nowadays has an excess of these dopamine-inducing calorie-dense foods (and at a cheaper price than more nutrient dense, health-promoting foods). Implementing effective strategies to help control these cravings is important with mindfulness practices emerging more and more as the top intervention. Grasping mindfulness and its concepts such as acceptance, distancing and willingness isn’t a straightforward task; and will take lots of repetition and practice.

One simple strategy to reduce cravings

Sleep is an important part of our health and holds the key to many issues faced such as poor recovery following exercise, blunted weight loss and increased cravings. Prioritising your sleep and formulating a night-time routine that looks to optimise your quality and quantity of sleep can be an easy to implement strategy to manage your cravings. At FitnessGenes, we test for the CLOCK gene which is associated with disturbed body clock (circadian rhythm). We also provide a post-workout recovery and sleep recommendations based upon your genetics and lifestyle information.
If you’re not familiar with Cheddar TV, it’s a very cool live and on-demand video news network focused on covering the most innovative products, technologies, and services, through the lens of the companies and executives driving these changes. Cheddar broadcasts live daily from the floor of the New York Stock Exchange, NASDAQ, and the iconic Flatiron Building in NYC.

Here’s the highlights of an insightful short interview with our CEO Dr Dan Reardon on Cheddar.tv on the topic of *Why do some people have an easier time losing weight than others?*

**Weight loss by the numbers:**

**100:** Losing weight is NOT 60% diet and 40% exercise. It is 100% diet + 100% exercise. You need to be totally committed to both

**95:** 95% of diets fail the people who follow them because they are not tailored to the individual’s needs

**50:** 50% of the variation between people in physical performance and body composition is genetic, so when you understand that 50%, you can compose a diet plan that is correct for the other 50% and start tailoring macronutrient ratios and caloric loads that will work for the individual so they can achieve their desired result.

**1:** 1 company that delivers personalized weight loss plans that work - 1 individual at a time. Genetically tailored, weight loss with FitnessGenes.
In this next section, we’ll give you several helpful, practical, genetically tailored tips on choosing foods and eating correctly. You’ll learn about: calories macros and the importance of each macronutrient in your overall eating plan and body composition goals.

There’s also short videos on intermittent fasting and nutrient timing to help shape your day. We also discuss the importance of sleep in your recovery and weight management goals. Follow this advice, and you’ll be well on your way to a fitter, happier, healthier 2018.
Understanding Calories and Macros

How Many Calories Should I Be Eating?

Part 1. In this short video, our CEO Dr. Dan Reardon explains how to calculate your calories based on your DNA and how those calories should look from a macronutrient perspective (protein, fats, carbs).

How to Track Your Macronutrients?

Part 2. Understanding macronutrients is the first step to achieving your body composition goals. If you’re interested in losing weight, gaining muscle, or getting lean, please watch this informative webinar on Macronutrients and Food Tracking. You’ll learn why all macros are important for your overall health and physique as Dr Dan dispels many common nutrition myths and puts you on a path to sustainable dietary success. Watch the webinar.
Making conscious, mindful food choices is Step 1 in refining your diet and achieving your body composition goals.

If you read our newsletters or follow our delicious, nutritious recipes, you’ll know I write about 50% of our articles on specific food ingredients. While editing a beautifully photographed recipe for red pepper and mince wraps, Quorn was one of the ingredients I considered for the food review.

Quorn is an interesting food. Without taking too much of a position, the significant benefits of Quorn are: it’s high in protein; it’s high in fiber; it may be beneficial for weight loss, it’s low on the glycemic index, it has no cholesterol; and it is a plant-based food which is unquestionably more sustainable and easier on the conscience and the environment than fish/animal based food sources. It’s also convenient, easy to prepare and comparatively inexpensive. That’s an impressively long list of attributes!

So why am I hesitating to write about it? Despite its clear nutritional benefits and environmental advantages, it’s not on my personal grocery list. Why? Because it’s equal parts food and laboratory experiment. Quorn doesn’t grow on a tree or in the ground, and it reminds me of that perfectly formulated “astronaut food” in a can. Like Quorn, “astronaut food” is also precision engineered for optimum human nutrition, but personally, I don’t really want to eat that either.

So this made me think: How and why do people choose their food ingredients? What are
the primary motivations for food selection, and how/why do people blend those ingredients into their daily meals and weekly meal plans?

**Medical reasons**

My FitnessGenes DNA Analysis told me I should eat or avoid foods like “XYZ”

My Doctor told me that due to my “ABC condition”, I should eat more or less “XYZ” or follow a Mediterranean / Paleo / vegetarian / low FODMAPS etc diet

I took a specialized breath test / blood test / gut biome test that suggested Either avoid certain foods or eat certain other foods to correct a problem (or avoid one in the future)

I have a known or suspected food intolerance or allergy

I have dental issues and therefore need to eat foods that are soft in texture or in liquid form

**Ethical, cultural, or financial reasons**

I’m a vegetarian / vegan because it’s more environmentally friendly i.e. plant based foods can be produced with less pollutants and less water than farmed animals

I’m a vegetarian / vegan because I think killing animals for food is cruel / gross

I’m a vegetarian / vegan because that’s part of my family’s/cultural/religious beliefs

Cows (or other) are a sacred animal and cannot be eaten

Worldwide fish stocks are dwindling, so I’m not going to eat fish

I only eat foods that are sustainably produced or that I grow / catch or kill myself

It’s what my parents fed me when I was a kid, so I keep eating it as an adult

I can’t afford to buy “X” so I buy “Y” instead

**Taste, appearance, cultivation, cooking**

I only like foods that are salty or sweet or bland, etc

I only like foods that are brown (or brightly colored) etc

I only like foods that I can drink (or need to chew)

I only eat foods that are raw (or cooked)

I only eat foods that are all natural / preservative free / come from a local farm / haven’t travelled more than 100 miles from farm to plate, etc.

I can’t cook, so I only eat prepared foods at home or out in restaurants (any format)

I only want to cook once a week, so I only eat stews / soups or anything else that I can cook in a massive pot.

I only want to cook foods that have 5 ingredients (or less) and that can be on the table in less than 30 minutes (or faster).
Recommendation from a friend, family member, or publication I trust

My friend lost weight or gained muscle by eating more of “this” and less of “that” so I’m going to try it too (i.e. anecdotal evidence of success)

My mother’s Doctor told her to “eat this, not that”, so I’m going to follow the same advice and attempt to avoid the same problem (i.e. avoid genetic predisposition for a certain condition)

I read an article on a website or in a magazine / newspaper (or other media) that I trust and they said I should “eat this and not that” so I’m following their well-credentialed, well-researched advice

Gwyneth Paltrow eats kale chips and blueberries and she’s gorgeous and healthy, so I’m going to eat kale chips and blueberries and be gorgeous and healthy too.

Daily or weekly meal planning

a) I am very precise and methodical in my daily meal planning and ensure that all of my food is weighed, measured, all meals are nutritionally balanced, and in the correct caloric and macronutrient ratios because I am following a specific diet or nutritional plan

b) I don’t really weigh or measure anything, but I do strive to eat a healthy, well balanced diet on a daily basis

c) I eat like Gwyneth Paltrow some days (see 4d above) and on other days, I eat like Norm from Cheers.

d) I have a specific rotation of foods to ensure I get a bit of everything good (eg. I Eat fish every Sunday, only plant-based foods on Monday and Thursday, chicken on Wednesday, and red meats on Tuesday and Saturday).

e) I go by feel….if I feel like I’m eating too much meat, I may have 3 (or 7) consecutive meat-free days, etc.

f) I follow a specific diet or meal plan from a book/magazine/website/medical professional/personal trainer/etc.

If there are other reasons or rationales that you believe I missed, please feel free to email me at martin.cheifetz@fitnessgenes.com. We may develop a more detailed survey (yes, with a prize/incentive for completion) to learn more about your food and dietary preferences in the near future, so as always, we’re very interested in your opinion.
One of the most debated questions in the fitness industry is – how much protein do I need to eat to gain strength and build muscle?

Recommendations range from the bare minimum required to survive – around 56 grams per day for men (19-50 years, ~70 kg/154 lbs) and 46 grams per day for women (19-50 years, ~57.5 kg/127 lb and not pregnant) equating to 0.8 grams per kg of body weight (0.363 grams per lb) – to the extreme – 6.6 grams per kg of body weight (3 grams per lb) or higher, equivalent of 462 grams of protein a day for someone who weighs 70 kg. That’s a lot of chicken breasts – nearly 1.5 kg of uncooked chicken and almost 1850 calories from the protein alone and over 2300 calories in total. Just eating that much chicken is a workout!

**Industry standard**

Fortunately, there aren’t too many people recommending either the bare minimum survival levels or hyperbolic protein consumption, and the fitness industry standard figure is normally 2.2 grams per kg (or 1 gram per lb). Again, for someone weighing 70 kg that equates to 154 grams of protein or 0.5 kg of uncooked chicken breast. That’s still quite a lot of chicken, but since most people will consume other sources of protein throughout their day, it’s an achievable figure. 154g of protein = 616 calories which leaves plenty of calories to round out your daily nutrition plan.
Is the “industry standard” the optimal amount to help you build muscle?

Rather than debate the merits of anecdotal evidence you’ll find in fitness forums, I will take a purely scientific approach and summarize a meta-analysis published this year (a meta-analysis is when researchers combine data from multiple studies to see if there is a consistent effect). This well thought out and well researched study was conducted by Menno Henselmans, Eric Helms, Alan Aragon and Brad Schoenfeld, all of whom are well-known, have a high degree of integrity, and are highly respected coaches/researchers from the fitness industry.

What did they study?

They looked at whether consuming extra protein affected gains in muscle and strength from Resistance Exercise Training (RET). They also looked at what was the highest protein intake after which no noticeable benefit in increased strength and muscle gains were seen. They included data from 49 studies and included measures such as one rep max, fat-free mass (lean mass) and muscle size (muscle fibre cross-sectional area).

Who did they study?

The 49 studies included in their meta-analysis had a total of 1,863 healthy adult participants from 17 different countries. 10 studies included resistance trained individuals and 14 studies were exclusively females. The average age was 35.

What resistance exercise training did the participants do?

The length of the RET programs across the studies ranged from 6 to 52 weeks, with the average being 13 weeks. RET was performed between 2 and 5 days per week with 3 days being the average. Exercises per session ranged from 1 to 14, 7 being the average. In terms of sets and reps, the ranges from the different studies were 1 to 12 sets per exercise (average = 4) and 3 to 25 reps (average = 9). Some studies focused only on lower body RET, others did both lower and upper body RET, while some only performed a single exercise involving a single joint (e.g. – knee extension or elbow flexion).

How much protein did they consume?

The experimental groups had their protein intake increased by protein supplementation, while the control groups either received a placebo or no supplement.

Protein supplementation ranged from 4 to 106 grams of extra protein per day. This extra protein came from a variety of sources including whey, casein, egg, milk, soy, and pea protein powders, mixed blends of protein powders, as well as whole foods including beef, yogurt, and milk. The average increase in protein intake across all studies was 23 grams per day.
What did they find?

Although both control and protein groups responded to RET, those who consume extra protein did respond slightly better.

Overall results for both the control and experimental groups showed an average increase in one rep max (1RM) strength of 27 kg (~60 lbs). When comparing controls to those given extra protein, the average difference in 1RM between the

For fat-free mass (i.e. lean muscle gain), the overall average increase was 1.1 kg (2.4 lbs) and again those consuming protein got slightly better results with the mean difference being 0.3 kg (0.7).

When comparing experienced versus previously untrained/novice trainees they also found that increasing protein intake had more of an effect on those who had prior experience with resistance exercise training.

The overall average protein intake was 1.4 grams per kg per day (0.64 grams per lb) and an increase of around 35 grams per day was enough to see improved muscle gains. Although increased protein does seem to increase muscle gains there was a plateau at 1.62 grams per kg (0.73 grams per lb).

They also found that post-exercise protein dose did not augment the positive effect seen from consuming more protein, meaning the overall increase in protein throughout the day had a much bigger influence on strength and muscle gains than the amount consumed post-exercise.

So, it’s settled?

So therefore, is it correct to think that everyone who wants to get bigger and stronger should just eat 1.6 grams of protein per kg of body weight per day and not focus on nutrient timing? Unfortunately and unsurprisingly, it’s not that straightforward. In the paper, the authors point out that the upper and lower values for the “confidence interval” for protein intake were 1.03 and 2.20 grams per kg. If the upper and lower values of the confidence interval were say, 1.50 and 1.70, you could be more confident that 1.6 grams per kg was potentially the right amount for building muscle. With such a wide range between the intervals, there is more variation in the collected results and you would be less confident that 1.6 grams per kg is the true value of the RET induced gains plateau. As this meta-analysis clearly shows, a single figure that is optimal for everyone is extremely unlikely. Alternatively, it might be wise to consume the 2.2 gram per kg “industry standard” just in case the true value is higher than 1.6.

Final thoughts

What can we say about protein intake and building muscle with greater certainty? The minimum RDI (Recommended Daily Intake) of 0.8 grams per kg is not enough for optimal strength and muscle gains, but this isn’t particularly surprising since RDI’s are
formulated to prevent malnutrition and not promote hypertrophy. It is also interesting to note that extremely high protein amounts won’t result in increased gains compared to more moderate protein amounts. Protein isn’t magic and more intake doesn’t necessarily equate to more gains.

When trying to **build muscle** it would probably be wise to aim for around 1.6-2.2 grams of protein per kg of total bodyweight per day (0.73-1 grams per lb) depending on your own personal eating preferences and body composition goals. Eating a little less than this would probably be ok (1.2-1.6 grams per kg or 0.54-0.73 grams per lb) if you don’t like consuming higher amounts of protein. There may also be times, especially for people who have very high activity levels, when they might want to consume a greater amount of protein to make their meals more interesting, satisfying, and beneficial for recovery. When trying to **lose fat** and sustaining a calorie deficit, increasing protein intake can help with satiety and maintenance of lean mass.

A single level of protein intake is not applicable to everyone. At FitnessGenes our protein recommendation ranges from 0.8 to 2.4 grams of protein per kg of total bodyweight depending on genotype and **body composition goals**.

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**MEET KYRIAKOS CHRYSOSTOMOU AND LEARN HOW FITNESSGENES HELPED HIM.**

Since taking the FitnessGenes test and adjusting my training and nutrition accordingly, I’ve managed to get in the best shape of my life. I now understand how my body works and what I need to do to achieve my goals without any guesswork! The support from FitnessGenes has been great and it’s been nice keeping in touch with them through social media.
Simply put, maintenance calories are the number of daily calories required to maintain your current body weight and body composition (the proportion of fat and muscle) for a given level of physical activity. If you ate this number of calories for a prolonged period and didn’t intensify your training, overreach, force adaptation or increase/decrease your activity levels, then your current body weight and body composition would not significantly change.

Why is it important to know your correct level of maintenance calories? There are a number reasons, but since I am a scientist, I’ll compare it to conducting an experiment.

Finding your baseline

During my Phd., I spent countless hours in the lab growing cells in flasks. These cells had been genetically engineered to produce a specific protein (sometimes of medical value) and we wanted to see if we could make them produce greater amounts of the protein\(^1\). This was attempted via several different ways through both genetically engineering the cells as well as modifying the growth media or the temperature in which the cells were grown. To see if our changes made a significant difference, we needed a baseline for comparison. This was the control condition and without the baseline, any results we got would be almost meaningless in the sense that we wouldn’t know what effect the changes we made had on the protein produced.

Your maintenance calories can be deemed the baseline or control condition and knowing this number will allow you to make changes to your diet and activity levels
to assess the effects on your body. However, unlike in the lab where we could set up controls every time we did an experiment (in parallel), there is only one of you (or me), and we therefore can’t both run a dietary control and make changes at the same time. This means we should all invest some time working out what our daily baseline (maintenance) caloric requirement is before we start making changes.

Using your nutrition calculator

As part of the FitnessGenes “Action Blueprint”, there is a nutrition calculator to compute maintenance calories. Clients are advised to start with the estimated daily calorie value while keeping their activity levels the same and monitoring their weight to see if it changes. On the nutrition calculator, there is a slider to let customers increase or decrease their calories in case the first estimate is not quite right. All equations used to produce daily calories are never 100% accurate and can only produce estimates as they cannot account for the all the different activities people do during each “typical” day (e.g. – do they sit at a desk all day or work on their feet, do they fidget a lot, do they walk upstairs at work, do they commute by walking or cycling etc.).

Therefore, there is the option for customers to select a value between -10% to +10% of their estimated daily maintenance calories. If they are gaining weight on their estimated daily maintenance calorie number, then they should reduce the value, and if they lose
weight they should increase it. This process can take a few weeks to complete (2-4 weeks) but once you have a baseline calorie value, you can make small changes in your diet or activity levels and monitor the effects on your body.

Once maintenance calories are known, many people choose to try to build muscle or to lose body fat to achieve their physique goal. Both goals involve an increase in physical activity but they will involve the opposite in terms of daily calories. Losing fat will require a calorie deficit while building muscle almost always requires a calorie surplus.

**Controlling variables**

When conducting an experiment, you do not want to change too many variables at the same time. If a significant effect was observed, regardless of whether this was positive or negative, changing too many variables simultaneously makes it difficult to determine which variable change had the biggest impact. The duration of an experiment can also impact results. Typically, our experiments lasted between 48 hours and 5 days. If I ran the experiments for just 24 hours instead, this often wouldn’t be long enough to see an effect from the variable changes. In most cases, it wasn’t until after 48 hours when we could see the effects of the variable changes.

The same goes for dieting to **lose body fat** or to **gain muscle**. Often people are very enthusiastic at the beginning of a diet or exercise plan and make numerous changes simultaneously. Without proper genetically tailored advice, they might decide to drastically cut carbohydrates or fats, consume a bucket load of supplements, eat in line with the lunar phases, swap LISS cardio for some new buzzword hybrid HIIT session, swap their upper/lower split for some crazy micro-undulating periodized ‘Bro’ split where triceps and traps can only be trained on days of the week containing a ‘T’. They soon become overwhelmed trying to adhere to and fit all the changes into their lifestyle and have no idea which change is having a positive impact or which is having a negligible or negative impact. Ultimately, the result is rather predictable: using this haphazard approach, they make little progress, get frustrated and give up.

**Monitoring changes**

Even if people are sensible and only make one initial small change, like reducing daily calories by 200-300 kcal or doing a couple of extra LISS cardio sessions each week, they often do not wait long enough to see if there is an effect on their body weight or other body measures (e.g.- waist or chest circumference etc.). They are impatient and often begin to make changes after only a week or a few days and repeat this until they are in a situation like the previous paragraph where they are confused and have no idea what is having a positive impact and what is having a negligible/negative impact.

Men should wait at least two weeks after making a small change to see its impact, while women might need to wait longer depending on how their menstrual cycle affects their bodies (2-4 weeks). Be patient with your transformation and make sure you give the changes time to take effect before making further adjustments.
One of the questions that we frequently see on our Helpdesk is, “why is my carbohydrate recommendation so high?”...followed by a slightly more panicked “I can’t possibly eat that many carbs, I’ll get fat!”

This article isn’t to dismiss low carbohydrate diets for weight loss. Low carb diets can work but it is the reduction in total calories and eating below your maintenance calories which results in the loss of weight and body fat, not just a reduction in carbohydrates. A low-carb diet might also be better for some people for both fat loss and maintaining a healthy weight because it helps them adhere to a healthier way of eating (i.e. – making better food choices) and the increased fat and/or protein intake might increase satiety levels and prevent them overeating. Low-carb diets might also make some people feel more energetic and spritely, making their workouts more fun and something they look forward to. In contrast though, other people might feel utterly terrible: unable to concentrate (foggy head), no energy to perform adequately in the gym, make poor food choices, crave carbohydrates and be unable to adhere to their plan.

So, if it’s not the diet I want to address then what is it? It is the idea that “carbs will make you fat” and the carb-phobia that some people now have. I will be bold and say categorically that carbs alone do not make you fat. It is the number of calories you consume versus the amount of energy you expend over a prolonged period which will make you either gain or lose weight.
Why Low-Carb Diets are NOT the Answer to the Weight Loss Question?

I don’t want to just rant about carbohydrates and fat gain. I also want to explain my position by introducing a process which all our bodies perform: **de novo lipogenesis (DNL)**. This is the metabolic process by which our bodies convert excess carbohydrates into fatty acids which are then incorporated into triglycerides for energy storage in both the liver and adipose tissue (subcutaneous fat). So yes, carbs can be converted into and stored as fat in our bodies however the rate at which this occurs is much lower and less significant than people who see carbs as the enemy would have you believe. I often see it written in other blogs in a way that would suggest that any carbohydrate not burned or stored in the liver or muscles as glycogen will be immediately converted and stored as fat in adipose tissue.

Numerous studies in which participants were over-fed and given excess carbohydrates show that DNL only makes a small contribution to any increase in total fat stores and does not account for the entire increase in body fat. So, if the excess carbs are not turned into fat then does this mean I can eat unlimited amounts of carbohydrates? No, during overfeeding of carbs there is increased carbohydrate oxidation and a reduction in fat oxidation (or fat used for energy) resulting in a positive fat balance and an increase in the net storage of the fat consumed from your diet.

Alternatively, an overfeed of fat will also increase fat storage. While you will burn more fat, the fact that there is more fat being consumed and total calories are still in excess means that the net fat balance is still positive and dietary fat will be stored. So unfortunately, regardless of whether the excess calories you consume come from the carbohydrates or fats, the fat balance in your body will be positive and you will gain body fat.

For both carbs and fat, the excess calories and resulting positive fat balance need to be present for a prolonged period to lead to significant increases in body fat. A single high-carb or high-fat meal or day might initially result in a transient positive fat balance and the storage of some dietary fat as body fat, but this will be balanced out throughout the rest of the day or coming days providing there isn’t a prolonged excess of total calories.

**Are low-fat diets better?**

Are low-fat diets better than low carb diets for maintaining a healthy weight and not putting on excess body fat? No, again it is not so straightforward. If we over-eat but consumed very little fat and mostly carbs, we might potentially get less body fat than if we ate a greater proportion of dietary fat. However, this is unrealistic as fats are important for other processes and are not just used for energy. We need them to produce hormones, cellular membranes, and for nutrient uptake. Although DNL increases when dietary fat is extremely low it might not necessarily be able to provide
all the fat our bodies need. This is especially true in terms of the essential fatty acids that our bodies cannot produce and must be consumed through our diet. A prolonged extremely low-fat diet would lead to an unhealthy physiology and eventually death. Now some might be asking: what about protein? The short answer is that an excess of total calories from protein will behave in a comparable manner to carbohydrates. Protein oxidation will increase while fat oxidation decreases leading to a positive fat balance and net storage of fat.

**What do all successful weight loss diets have in common?**

They all create an energy deficit over a prolonged period of time leading to a negative fat balance and a reduction in total body fat. As I mentioned earlier, there isn’t a single successful way of decreasing caloric intake and different approaches will work for different people. You don’t need to be extreme or completely avoid consuming one of the macronutrients. Each macro has a unique effect on the body so altering the ratios will be beneficial for different people.

This is what we do at FitnessGenes. Genetically, we know that some people in a calorie deficit struggle much more with hunger then others, and consuming slightly more protein will help these people feel fuller for longer between meals.

Other strategies such as increased fat intake or consumption of soluble fiber can help slow digestion and increase satiety, helping people eat less overall. Some people will need a more carbohydrate-rich diet to fuel their workouts while others, especially if they are obese, might benefit initially from consuming less.

There isn’t a single way to diet but at FitnessGenes we always make sensible, evidence led dietary recommendations that are healthy and sustainable for the long term and we won’t endorse extreme diets of any variety.
Should You Skip Breakfast or Use Intermittent Fasting to Lose Weight?

Is skipping breakfast a good idea for weight management or your overall health? Our CEO Dr. Dan discusses how intermittent fasting may benefit you depending on your DNA results. Watch the video.

Should You Eat Before You Work Out?

What’s better, eating before you work out or working out in a fasted state? The answer depends on how quickly you switch from burning carbs for fuel to burning fats.....and that factor is largely based on your genetics. Find out how we help you take the right info to the gym and get the best results from your workout. Watch the video.
How Your Sleep Cycle Impacts Your Weight And Your Workouts?

By Sarah Barron

Are you a morning lark or a night owl? We'll help you understand your body clock and its effects on weight loss and your performance in the gym.

What is your circadian rhythm?

Have you ever wondered why some people seem to be inherently better at coping with early morning starts, while others need to set multiple alarms at 5-minute intervals in the hope that one of them will give them the motivation to crawl out from under the covers? Although there are other influencing factors, what determines whether someone is intrinsically an ‘early bird’ or ‘night owl’ is down to genetics and an individual’s circadian cycle.

The word Circadian comes from the Latin phrase Circa meaning “about” and diēm meaning “each day”. Therefore, a circadian rhythm is defined as any biological process that occurs over a 24-hour period endogenously (or in other words is self-sustained and occurs irrespective of any external influences). Bodily processes which occur in a circadian ‘clockwork’ fashion include sleep cycles, hormone fluctuations, core body temperature and even immune and digestive function.

How does genetics determine your circadian rhythm?

One of the main genes associated with body clock regulation is the Circadian Locomotor Output Cycles Kaput or CLOCK gene. Individuals who carry one or two copies of the C allele for this gene, are more likely to prefer the evening's, experience daytime fatigue, have delayed sleep onset, and are therefore more likely to experience sleep deprivation than those who carry a T allele[1].

Both the C allele and sleep deprivation are linked to weight loss resistance, dysregulation of the hormones controlling appetite, and have a higher risk of obesity[2]. Therefore, those
How Your Sleep Cycle Impacts Your Weight And Your Workouts?

carrying the C allele may need to be more mindful of setting up a good night time sleeping routine to ensure they catch those all-important zzzz’s.

How does my environment affect my circadian rhythm?

Although your circadian rhythms is endogenous and partially determined by genetics, they can also be entrained or ‘locked onto’ natural external cues such as sunlight, temperature and physical activity (or in the modern world, artificial lighting, handheld devices, and alarm clocks!). In ancestral ‘hunter gatherer’ times, this allowed us to optimize our environment’s resources and keep in sync with seasonal changes in climate change.

However, modern day living is having an increasingly negative impact on our circadian synchronicity, health and well-being. For example, shift workers have a higher risk of developing metabolic, cardiovascular and mental health disorders and even cancer[3,4]. This is due in part, to dysregulation of our natural body clock and those circadian cycles controlling blood pressure, heart rate, energy metabolism and hormones such as melatonin and cortisol which are involved with sleep, stress, and inflammation.

How can I use my circadian rhythm to my advantage?

But don’t worry, your circadian rhythm can be rescued or realigned to its natural cycle by including routine activities into your daily schedule and getting enough exposure to natural light during daytime hours. For example, in female night-shift workers and mice who carry a mutation in the CLOCK gene, having structured meal and exercise periods at the same time every day has shown to be helpful in preventing metabolic dysregulation [5,6].

Although the majority of studies show peak performance in strength, anaerobic output, and joint flexibility generally occurs in the late afternoon [7], your own individual peak time may differ depending on your personal circadian programming.

Rather than a specified time of day, ‘time after awakening’ may be a better indicator for optimal performance. For example, one study that divided 121 age-matched athletes into 3 groups: morning larks, intermediates, and night owls, revealed that peak performance was highest at 5.36, 6.30 and 11.11 hours after awakening respectively [8]. This study also revealed that performance output can vary by up 26% within the course of the day!

If you have more flexibility in your work-to-leisure ratio, it’s likely that optimizing the timings of your workouts according to your genetic traits will lead to better results. For the majority of us that have fixed working hours, having a workout routine at roughly the same time each day will still have a positive effect on mood regulation, sleep quality and metabolism. So plan a schedule that works for you, and follow it as best you can. If mornings and evenings are too hectic for you, maybe try a regularly scheduled “Runch”.

Ready to find out whether you’re a morning lark or a night owl? CLOCK is one of the 42 genes that we analyze and provide reports on.
The message is simple. You need to exercise. It’s the best thing for your head, your heart, your body, your weight management, and your happiness.

You don’t need to be an over-the-top Ironman triathlete or a powerlifter to enjoy the benefits of exercise, but you do need to incorporate resistance and cardiovascular workouts into your life, at least 3x and hopefully 5x per week. 20 mins per session is a good place to start, but ideally each of your 3-5 weekly sessions will be at least 45-60 mins in duration.

This section gives you helpful pointers on:

• The best way to warm-up to prevent injury.
• Additional tips for working out at home, on the road, during your workday, or in a hurry.
• How increasing your resting metabolic rate through exercise has a positive effect on managing your weight.
• Women and weight training (Spoiler: You will NOT turn into a man).
In commercial gyms everywhere, warming up comprises of little more than devoting ten to fifteen minutes on a treadmill, stair climber, cross-trainer or stationary bike. Although this approach will no doubt serve the purpose of warming you up, it misses an ideal opportunity to make much use of that time at the start of each session to improve fundamental areas of your fitness.

I know 10-15 minutes does not sound like a lot of time to utilize well, but when you do this every session, every week, it accumulates to a lot of training time. Wouldn’t it be better to try a warm up routine that not only improves your performance in the subsequent workout but also helps maximize movement efficiency and effectiveness for more long-term benefits?

**An effective warm-up should set the tempo for what follows in the workout or practice both physically and mentally!**

**Why do we need to warm up?**

Warm ups have become an essential tool for coaches and trainers to assist in the prevention and reduction of injury, and to enhance the overall performance of their athletes and clients.
From a physiological standpoint, the objectives of an effective warm up should be to:

- Activate the neural system
- Stimulate the entire body and major biomechanical functions (raise core and muscle temperature, increase blood flow)
- Prepare the joints for activity through all ranges of motion. \[1\]

**All these mechanisms can help influence your performance by:**

- Increasing the speed at which your muscles can contract and relax. \[2\]
- Improve your muscle strength and power output \[3,4\]
- Improve your rate of force development (RFD) \[5\]
- Greater economy of movement as it lowers the viscous resistance in muscles – more resistance to stress and less likely to tear. \[4\]
- Improve the muscles oxygen delivery (hemoglobin releases oxygen more readily at higher muscle temperatures) \[6\]
- Enhances metabolic reaction allowing the body’s energy system to work more efficiently, resulting in an improved work capacity. \[4\]

Not to forget that an effective warm up also allows you to mentally prepare yourself for the workout you are about to undertake. To quote Mel Siff, “The term warm-up” should be replaced by a term such as “pre-activity preparation”. \[7\]

**Is there a best way to warm-up?**

While there are many different theories and preparation sequences out there, the R.A.M.P approach, based on the structure put forward by Ian Jeffreys, provides an effective framework around which your warm up can be built. \[8\] Choice of exercise and movement can be altered and tailored to your specific needs, within this framework but the general methodology remains the same.

**R**aise body temperature & heart rate.

**A**ctivate key muscle groups.

**M**obilize joints.

**P**otentiate – prime the body for the maximal intensities it will be required to produce in the session.
Raise

- Body Temperature
- Heart rate
- Blood flow
- Respiration Rate
- Joint fluid viscosity

Similar to the common approach to warming up, the Raise phase of the RAMP protocol aims to elevate body temperature, heart rate, blood flow, joint fluid viscosity and respiratory rate. This phase looks to accomplish these aims by using low intensity cardio activities for 5 to 10 minutes, with a gradual build up of speed that has a similar movement pattern in the subsequent workout/training session.

Example - you could use skipping variations or light jogging to start an interval session, or begin on a rowing machine or cross-trainer before a full body gym session.

Activate

This portion of the warm up is to help activate the necessary muscle groups.

Once your core body temperature has increased and your muscles are warm and stimulated, it’s time to move onto the next component of the warm up phase. This phase can be very specific to not just your session but also your individual mobility needs.

Choose activation exercises to stimulate the key muscle groups that will be worked during the workout or training session.

Example - On a lower body workout focussing on glutes, quadriceps, and hamstrings you could include exercises such as single leg glute bridges or lunge and squat variations. On an upper body day, you could include push up variations and resistance band pull-aparts.

The goal is to activate and not fatigue the muscles being worked so try to perform no more than 8 repetitions of each exercise, focus on contracting the muscle explosively and maintaining control throughout the movement. The ability to transmit force and coordinate neuromuscular recruitment is vital before going into a rigorous training session.

Mobilize

For those of you who have an area of mobility that you would like to address such as poor shoulder mobility or tight hip flexors, it is during this phase that you would implement corrective specific mobilization drills or pre-habilitation drills.

Example – Use mobility work such as rotator cuff exercises, balance work, resistance band routines and glute-ham exercises.

Static stretching is generally not performed in the RAMP protocol, the focus on specific
muscle groups and their activation is not as important as the movement patterns. However, if you feel that the introduction of some static stretches may help your performance in the workout holding a static stretch for under 45 seconds at a time has been shown to have no adverse effects on workout – especially if you follow them with some more dynamic activities before the workout.\([9]\)

**Potentiate/ Performance**

Now that you are all fired up and ready to go, it’s time to improve the effectiveness of the workout. This phase helps to prime the muscles for exercises, which have similar coordination patterns and neuromuscular activity. The word ‘Potentiate’ is in relation to ‘Post Activation Potentiation’. This is when a high intensity contraction results in an excitation of the motor neurons by the CNS, which positively influences subsequent exercise performance.\([10]\)

In this phase, you should introduce specific explosive movements or drills that reflect the fundamental aspects of the upcoming training session with an increase in intensity.

Example - if you were about to perform an outdoor HIIT sprinting session, this part of the warm up should include some form of speed and agility work like plyometric bounds or sprinting drills. Whereas if you were about to start one of the Genetic Weight Loss or Muscle Building gym days, the inclusion of med ball throws and lighter explosive resistance training such as bodyweight squat jumps, lateral jumps plyometric push ups, or doing a warm up set concentrating on a quick concentric portion of the lift with a lighter load would be appropriate.

Note: The potentiate phase exercises, although explosive, should have a low injury risk. If you are going to be performing jumping activities, make sure you are competent with the movement and can perform it safely. Jumps and countermovement jumps can significantly increase the force experienced on joints during landing.\([11]\)

The increase in intensity, speed of contraction and the focus on technique in the RAMP warm up enables the muscles to withstand larger loads without injury and should help improve your performance in the subsequent workout.

**Give it a go!**

Try out the RAMP warm up structure that will increase body temperature and heart rate, provide dynamic stretching, stimulate the entire body and major bio- mechanical functions, provide practice for movement patterns, improve mobility and finally, prepare you for a rigorous workout session. Remember a warm up should be your preparation and secret weapon, not a chore!
‘Runch’ is a phrase that has been used in the health and fitness world for a few years now but many people may not be familiar with it (myself included even though I have undertaken a fair few of them!). Runch is the term used for a lunchtime run.

One of the most common excuses for not exercising is the lack of time. Pressing work and family commitments spark the frequent cry of ‘but I just don’t have the time!’ But everyone does have a lunch break. Whether it’s an hour long or just 30 minutes; fitting in a good run or perhaps a quick HIIT session could be the perfect opportunity enjoy the physiological, psychological, and performance (work wise!) benefits of exercise.

Work productivity

Exercise increases blood flow to your brain which increases your alertness and clarity for the tasks you must complete at work. This is a better way of getting that mid-day boost than reaching for a fizzy drink, caffeinated energy drink or sugary sweet. At FitnessGenes, we provide a score on your blood flow and vasodilatory capacity using your genetic and lifestyle information. You can see how your gene variants on ACE, PGC1A and PPARA may mean that running at lunch is even more beneficial.

Runching is also a fantastic way to help you destress and reduce the number of mental distractions limiting your productivity in the office. If these stressors are work related, taking the opportunity to get away from your working environment and clear your head while running may be just what you need to have a better second half of your working day.
Health Benefits of Running

Running, and exercise in general improves all aspects of your health. Running improves your cardiovascular health, strengthens your bones and joints, improves your metabolic health (insulin sensitivity for example, which is one of the physiological traits you can discover your score for at FitnessGenes!) and aids weight loss.

Self Esteem and Confidence

Exercise can help raise your self-esteem and confidence particularly if you’ve set goals to achieve. Reaching these goals and improving your lifestyle will increase your self-esteem which may positively impact other aspects of your life – including your workplace. Overall, positive mental and physical health are important for success at home and at work, so get moving, and enjoy the overall health benefits.

Planning your runch:

Here are some key pieces of advice for starting your journey into the world of runching:

1. Leave a bag at work with all your running essentials in (shorts, tops, change of clothes, body wash, deodorant, towel etc.) or pack one the night before to bring in.
2. Plan your route the day before so you are all prepared for the next day.
3. Get a running buddy to join you (this will help with motivation on those days where you would rather just have a normal lunch break as well as being a good opportunity to socialize with a colleague).
4. Have a pre-workout snack an hour or so before running. Some good examples are Greek yogurt and fruit, a banana and some nuts, a small bowl of cereal or oatmeal; or an energy bar. Check our food blog for recipes.
5. Schedule your runch in like you would a meeting. This will make sure you do it but also keeps others aware that you are busy at that time.
6. Make sure you have also packed a nutritious lunch and late afternoon snack to satisfy your hunger when back at work.

Nowadays, most of us have sedentary jobs that involve sitting down for most the day. We all know that being sedentary is not good of our health, so it is important to utilize these breaks in our days to be active. So get your running shoes on, get outside, and get runching!
When assessing body composition goals, most people are looking to gain muscle or lose fat. More often than not, they want to do both at the same time. The starting point for either of these body composition goals involves estimating total calorie (kcal) intake needs.

Simply put, when your calorie intake (what you eat) is greater than your calorie expenditure (what you burn), you gain scale weight. The same is true for scale weight loss: calorie intake is less than calorie expenditure. Maintenance occurs when the two are equal.

However, even though lots of people discuss weight loss in terms of scale weight, it is much more appropriate to look at weight loss from a body composition perspective. Yes, you may wish to lose weight but more specifically you are trying to lose body fat while gaining/maintaining muscle.

Unfortunately, since most scales cannot differentiate between lean mass and fat mass, total calorie intake will not necessarily be best judged by looking at scale weight alone.

The total number of calories a person needs each day depends on a number of different factors including age, body weight, activity level, gender, diet, training program, body composition, and genetics. Before we can determine the energy (calorie) needs of an individual we must first look at these factors, which determine a person’s ability to use the calories ingested.
What is Basal Metabolic Rate:
Basal metabolic rate (BMR) is the energy requirement to maintain the body’s basic functions such as respiration, blood circulation, and gastrointestinal and renal processing when the body is in a resting state.

BMR is the largest contributor to an individual’s total energy expenditure; accounting for approximately 65 to 70% of daily caloric burn. [1,2,3].

What is the difference between Basal Metabolic Rate and Resting Metabolic Rate?
Although often used interchangeably BMR & RMR (resting metabolic rate) are slightly different. BMR is measured after an overnight fast. More precisely, this means 12 to 14 hours laying down completely motionless flat on your back, without any food – not the most pleasant experiment.

RMR on the other hand does not require a fasting period, so due to its ease of use compared to BMR testing, it has become the more common approach for taking measurements.

Since you are more active during an RMR measurement compared to the completely motionless state required for a BMR measurement, RMR is higher than BMR on average by about 10 to 20%.

Factors Influencing RMR

Body composition
Your ratio of fat and lean body mass. Even at rest, a muscle cell is metabolically much more active than a fat cell. Variations in fat-free mass, explain approximately 70 to 80% of the difference in RMR among individuals. [4, 5, 6].

Age
Younger people tend to have a higher metabolic rate than older people, largely because of their higher lean body mass and more active hormonal processes.

Nutrition
Poor nutritional strategies such as following generic ‘fad’ diets, eating too little, eating nutrient deficient foods, or being malnourished lowers your metabolic rate.

Endocrine function
Insulin efficiency, cortisol secretion and other hormonal deviations such as hypo or hyperthyroidism can influence your metabolic rate.

Environmental factors
Temperature or altitude change can play a role in the metabolic rate of an individual. Increased heat, cold or altitude forces the body to work harder to regulate and maintain homeostasis, therefore increasing RMR.
Genetics

A number of genes play a role in an individual’s metabolic rate. Here at FitnessGenes, we focus on guiding you in the right direction when it comes to training and nutrition strategies to help increase the largest components of total energy expenditure – increasing overall lean muscle mass and genetically optimizing nutritional and workout choices.

How to increase your overall daily energy requirements

The more energy expended through physical activity, the higher the energy requirements to fuel the workout. In other words, the harder the workout, the more calories you burn.

Out of all the factors mentioned above, this is one that has the most variability among individuals. The number of calories you expend through physical activity increases with the frequency, intensity, and duration of the training program, not to mention the extra activities you do on a daily basis such as walking the dog, cleaning the house, etc. In general, approximately 20 to 30% of total daily energy expenditure is from physical activity.

* A rise in physical activity levels will result in this section having a greater influence on total energy expenditure.

Activities that are anaerobic in nature such as strength training and HIIT are proven to enhance lean muscle tissue growth and promote sustained increases in RMR/BMR, which is why they are the cornerstones of the FitnessGenes exercise recommendations.

Aerobic physical activity such as steady state running or cycling may improve endurance capabilities but have little effect on the basal or resting metabolic rate. The increase in resting metabolic rate from an aerobic activity is rather short lived and usually decreases during the cool down period of an aerobic session.

If you are looking for an exercise and nutrition program that can help increase your overall energy expenditure and optimizes your lean muscle building potential, then I recommend having a look at our genetically tailored workout programs.
Calculating RMR

Many different predictive equations can be used to estimate BMR or RMR calorie needs, with the most common being the Harris-Benedict equation, the Cunningham, and the Schofield equations, all of which take into account the sex, body weight, height and age of the individual.

Once RMR has been predicted this figure is then multiplied by the equations associated activity factor ranging from 1.2 (sedentary) to 1.9 (heavy physical activity) to predict total energy requirements. 1.

Alternatively, one of the best ways to accurately calculate your total daily caloric needs is to record your dietary intake for a week, during a period when you will maintain a stable body weight.

Your energy requirement is then assumed to equal the average number of calories consumed for each day. One of the downfalls of this approach, however, is that most people do not always accurately monitor their food intake, so using a fitness tracking app or simple food diary can be very helpful. Monitoring your calorie intake, and weight gain/weight loss can help you get a much better view of your energy requirements.

At FitnessGenes we take into account a host of genetic and lifestyle factors to give you an intelligent approximation of calorie requirements. We consider your current activity level and/or genetic training program intensity, fitness experience, sex, body weight, height and age to help gauge an approximate maintenance calorie intake. Our Nutrition Calculator can then be manually adjusted based on changes in body composition.

We then use your genetic results to determine the ratio of macronutrients required to help you achieve your body composition goals in a sustainable manner.

Take home points on RMR

1. Track the amount of food and drink you are consuming to become more mindful of your current calorie intake and whether it is altering your body aesthetically.

2. Increasing your energy expenditure with exercise will not only increase the number of calories burned during the exercise, but will also increase lean muscle mass and therefore RMR.

3. If you find yourself stalling with fat loss in particular, consider taking a look at all the variables in your life that could be contributing to a lower RMR score. Being stressed at work, not getting enough sleep, eating a nutrient deficient diet, and not partaking in enough physically demanding activity could be the reason for this weight loss plateau.
With the busy lives many of us lead, fitting in exercise can be a struggle. When life becomes too hectic, exercise is often the first thing to be sacrificed. But help might be at hand in the form of an inexpensive, convenient and highly effective form of resistance training that doesn’t need a gym membership.

Resistance bands are the answer. This portable arsenal for your training toolbox can be used at home, when travelling for work, when on vacation or even in the gym to ramp up your training. Their effectiveness to improve physiological factors such as strength, muscle mass, body fat percentage, power and even endurance has been demonstrated across all ages and abilities. As well as improving your body composition, they are ideal for rehabilitation and frequently used and prescribed by physical therapists and physios. They can also improve balance, gait and mobility - key physiological traits you’ll want to train to limit the age-related declines in certain movement patterns.

**How do they work?**

**Tension:** The greater the stretch on the bands, the greater the resistance against the muscles being exercised. Just like weights and dumbbells, bands have different resistances so you can progress in the same fashion as traditional weight training. The thickness of the band coupled with the tension applied to it determines the resistance (with different colours used to represent different resistances).
Example exercises

You can use resistance bands to perform the majority of exercises that will be familiar to those of you using isotonic resistances (barbells, dumbbells) and weight machines. Some exercises will need you to ‘anchor’ the band to a fixed object; whether this is a door, a tree, or your feet. This means it is easy for you to use resistance bands as part of a home-based workout - just like our Get Fit plans!

**Chest Press**

1. Lie on your back with the resistance band under your upper back.
2. Grab hold of the ends of the band (or handles if they have them) and start with your arms bent at shoulder height.
3. Extend at the elbows bringing your arms upwards, providing the tension needed.
4. Slowly return to the starting position.

**Seated Row**

1. Sit on the floor with your legs straight out in front of you.
2. Wrap the band around a bar or your feet to anchor it, and grab hold of the ends (or handles if you have them).
3. Start with your arms fully extended and your back straight.
4. Pull your elbows into your sides by squeezing your shoulder blades together.
5. Once you reach your midsection, squeeze and hold the contraction before slowly returning to the starting position.

**Deadlift**

1. Step on to the resistance band and grab hold of the ends, hinging at the hips.
2. Stand upright by pushing through your heels and thrusting your hips forward.
3. Slowly lower yourself by bending at the knees and hip, keeping your back straight.
4. Bring yourself back up to the starting position making sure you squeeze your glutes.

**Other benefits of resistance bands**

Bands can also be applied to more traditional weight training at the gym. Resistance bands can be attached to the ends of barbells to add resistance and also to help improve form. The addition of bands increases the rate of force development within movements such as squats or bench press.

Compared to weight machines, resistance bands increase the neuromuscular control needed within the movement; recruiting more motor units and increasing muscular strength. Unlike barbells and dumbbells, resistance bands can be applied to high speed movements and plyometric exercises. This is a great benefit for functionally training for the sports you play; especially those that involve speed and power.

The **ACTN3** gene is a well studied gene in relating to one’s predisposition to power and strength. Those who are RR have increased fast twitch fibres so are more suited for power exercises and sports. **Find out** if you could utilize resistance bands to optimize your power potential!

New to exercise and looking to improve your health? **Our Get Fit plan** is an ideal choice and provides the perfect set of exercises to use with resistance bands!
Myth 1: Weight training will lead to a ‘bulky’ masculine physique

Weight, or resistance training, helps to reduce body fat and increase the amount of lean muscle, improving strength and body composition in both sexes. As lean muscle is denser and takes up less space than body fat, women might well see a slight increase in the number displayed on their scales, they are unlikely to “bulk up” or develop a masculine physique. So it comes down to what is more important to you: the number on your scales or your physical appearance?

Multiple studies of women following resistance training programs of 10[1] and 20[2] weeks - and even up to 6 months[3] - found little or no changes in body circumferences at the hip, thigh and abdomen. In a 12[4] week study, those circumferences even decreased! More importantly, these studies showed a decrease in skinfold thickness, indicating a decrease in subcutaneous fat. This demonstrates that an increase in muscular mass – if any – is concealed by reductions in body fat. Therefore, women may respond to training with more defined and stronger muscles, but are unlikely to get bulky, massive Popeye muscle.

Even for women who have a genetic predisposition for hypertrophy in response to high volume, heavy weight lifting – as found in FitnessGenes’ MSTN and MSTN Rare genetic results – it is highly unlikely they will see a very substantial increase in limb circumference with ‘bulging’ protruding muscles.

With a suitably designed progressive resistance-training program, you are not at
risk of excessive **hypertrophy** (increases in muscle volume), but can certainly expect improvements in your muscle definition and strength.

**Myth 2: Long cardio sessions are the best way to reduce body fat**

Women are often guided towards, or choose, cardiovascular endurance exercise when their goal is to reduce body fat, leading to the common sight of gym sessions consisting of women hopping on the treadmill or elliptical machine for 45 minutes to expend calories and decrease their fat stores.

A pitfall, however, is that after the initial weight loss in the first few months after starting cardio activities, the body will adapt and have a more efficient economy of motion.

As an example, a 45-minute jog that had your heart pumping at 75% of your HR Max may have burned 750 calories 6 weeks ago, but now that you’re more fit and don’t need to work as hard to achieve the same treadmill speed, the session may only burn 500 calories, leading to a weight loss plateau. Hence, it is important to continuously stimulate the body in different ways to avoid plateaus and keep the gains (or losses) moving in the right direction.

One way would be to increase the duration of cardio sessions, however increasing the intensity may be more practical. HIIT training differs from regular cardio by the **elongated oxygen consumption after workouts**, and is known to improve fat burning capacity.

Another reason why cardio would not be the best fat-burner is because it leads to smaller muscle mass compared to weight training. With its intrinsically very high energy expenditure, **muscle mass improves basal metabolic rate, increasing your daily caloric burn even when your body is at rest**.

Ideally one would combine resistance training with cardio activities and HIIT training, which as scientific evidence has shown\(^5\), is the most effective mix for sustainable long-term body-fat loss.

**Myth 3: Women should structure their training differently to men**

Women are often encouraged to use lighter weights with slow controlled movements out of fear that using free weights, manual resistance or exercises that involve explosive movements could result in injury.

However, nothing is less true. There is a lack of evidence that women are more predisposed to injury than men. With the correct training technique and instruction, following a suitably progressive training program can reduce virtually all the risks.

Women experience the same acute and long-lasting physiological effects from resistance training as men—only the magnitude differs. From a health perspective, the inclusion of resistance training may actually be of more importance for women because of it’s positive effects on bone health, osteoporosis risk, and the menstrual cycle\(^6\).

So, women can perform almost identical programs to men. When it comes to tailoring
programs, the main gender difference is the focus on specific body parts; such as glutes and hamstrings for female-specific programs and chest for male-specific programs.

**Myth 4: Elderly women lifting weights will lead to injury**

Sarcopenia – loss of skeletal muscle mass - is a universal characteristic of ageing and is absolutely **not** gender specific. For both elderly men and women, preserving muscle mass, increasing body awareness and stimulating muscular coordination should be the focus of their training. Resistance training hugely reduces the risk of injury caused by falling, and also helps to improve independence.

Resistance training for seniors can be safely and successfully applied to both women and men. Even the most frail and weak individual will improve their quality of life through muscular growth, body awareness, increasing muscle, bone and connective tissue strength not to mention the long list of physiological benefits.

It is also a myth that the elderly cannot gain muscle. Several studies with exercise protocols lasting between 12 and 36 weeks demonstrated muscle biopsies that both slow (type 1) and fast (type 2) muscle fibers in seniors can increase in cross-sectional area\[7,8,9\].

The implementation of functional resistance training programs can help improve a senior’s ability to perform everyday activities such as climbing the stairs\[10\], carrying groceries and getting up from a chair.

Including balance training in a program for the elderly is imperative to help reduce the risk of slips and falls. Such movements would include traditional exercises such as standing on one leg, lunging with support and walking heel to toe\[11\].

**Conclusion**

Ladies, please do not be afraid to use heavier resistances, free weights and more intense forms of exercises. Try it out you as may enjoy it much more than you think.

Start implementing resistance training into your workout routine if you are not already doing so. A combination of cardio/HIIT and resistance training in conjunction with an appropriate diet will help you towards that leaner physique.

Scale weight is not a good indicator of progression and can fluctuate a lot even over the course of a week. Instead, use weekly photos, how you feel, and **quantifiable performance measures** (more reps, increased load) to measure your progress and keep you motivated.
The number one New Year’s resolution made year in and year out is to ‘Lose Weight’. Many will approach this goal by looking to their diet. And others will also consider taking up some form of physical activity (ideally, you should do both!). One of the most effective forms of exercise for weight loss is running.

We all know what running is and most of us know it will make us healthier. But there are also many more benefits from this inexpensive and easily accessible activity!

**Some benefits of running are well-known:**

- Improved cardiovascular health reducing your risks of disorders such as high blood pressure
- Strengthens bones and joints
- Burns calories like there’s no tomorrow
- Improves your metabolic health. It improves insulin sensitivity –FitnessGenes gives you a score based on your genetic and lifestyle information.
- Weight loss

A less well-known benefit is the effect running has on your brain. A recent study found a dose-response relationship between endurance running participation and the connectivity strength within the frontal cortex of the brain. This area of the brain is responsible for decision making, planning and the ability to switch attention between
tasks. The endurance athletes investigated in this study could complete these types of tasks more effectively compared to sedentary control group. This is good news for men who usually get told they can’t multi-task – take up running and soon you’ll be able to master the elusive skill!

These cognitive benefits are not just limited to running. Even moderate intensity walking has been shown to induce improvements in cognitive functioning. If you’re new to exercise, walking is a great way to start your health and fitness journey. Why wouldn’t you take up it?

**Running and Genetics**

One of the mechanisms behind some of these positive impacts of running is the upregulation of PGC1-α, which leads to increased mitochondrial number and function. Mitochondria are the power-plant for supplying your muscles with the energy they need when running; using carbs and fats as fuel. The more mitochondria you have and create, the higher your energy (caloric) expenditure, and the more weight you will lose.

At FitnessGenes, we test for a variant of the **PCG1A gene**. This gene determines the amount of PGC1-α protein and irisin you produce (a hormone that converts fat cells into those that burn energy as heat); **the proportion of slow twitch/fast twitch muscle fibres you have**; your aerobic capacity; and your **susceptibility to oxidative stress**. The variation we test for also impacts your baseline aerobic capacity, which may influence whether you can start running straight away or should perhaps build up to it with walking initially.

Weight loss can be difficult, but here at FitnessGenes we provide the personalized advice you need to achieve your goal. If you are serious about this year’s resolution, get running and **unlock your genetics with a FitnessGenes DNA analysis kit!**
CONCLUSION

Come join us. You’ll be Happy you did.

We sincerely hope you enjoyed this book and clearly see the benefits of personalized nutrition and genetically tailored workouts. We hope that through the combination of articles, testimonials, scientific studies, and solid, actionable advice we’ve motivated you to join us at FitnessGenes to succeed in your quest for a fitter, healthier, happier lifestyle.

The successful transformations we’ve featured in this book showcase people just like you. They’ve all had their struggles. They’ve all had their failures. Now, they’ve now found sustainable, healthy, long-term fitness because they approached nutrition and exercise The Smart Way with FitnessGenes.

All you need to do to successfully transform your habits and your body is believe in the process, eat according to the genetically tailored nutritional guidelines and follow the genetically tailored structured workouts. FitnessGenes is not snake-oil. It’s not voodoo…..and it’s also not magic.

You still need to put in the time and the effort to do the exercise and eat the right foods. The key thing to remember is that with FitnessGenes, you’re not guessing….and we’re not guessing.

We’ve helped tens of thousands of people eat and exercise The Smart Way and we’re well on our way of fulfilling our mission of transforming the lives of 1 million people through personalized nutrition and exercise plans.

One million more people who Get Fit

One million more people who Stay Fit

One million more people who are Fit, Healthy, and Happy.

Each one of those people receive precise, genetically optimized advice, avoiding the guesswork and repetitive failure cycles that have plagued so many people in their quest for better body composition, better health, and more confidence and happiness.

Smart, sustainable fitness that leads to a longer, healthier life. That’s not just a nice thought. That’s the reality with FitnessGenes.

Let me know if you have any questions Martin.Cheifetz@fitnessgenes.com
REFERENCES BY CHAPTER

Section 1

1.1 The Benefits of Exercise on Brain Function and Mental Health


1.2 Scientific study on how food can affect mood


1.3 How Alcohol Limits Your Progress


Section 3


Section 6

6.1 RAMP up your warm up to boost your results!


6.2 Your lunch break is not just for eating... upgrade it to a Runch!

http://www.runnersworld.com/general-interest/how-to-run-at-lunch


6.3 Increasing Your Resting Metabolic Rate to Burn More Fat
REFERENCES BY CHAPTER


6.4 Resistance Band Training

6.5 Ladies, don’t let these 4 myths stop you from weight training!
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6.6 Does Your DNA Give You A Running Start?


ELIMINATE THE GUESSWORK FROM DIET AND EXERCISE

We check for 40+ genes that are related to fitness, health and nutrition. We combine this information with your environmental data and discover your body’s abilities with regards to fitness, fat-loss, muscle-building and nutrition.

Eliminate the guesswork from diet and exercise by analyzing your DNA. All you need to do is spit in our special test tube, register the barcode and post it back to our lab.

Our team of PhD geneticists, medical doctors, exercise scientists and nutritionists then make over 40 DNA-specific recommendations for personalised diet and workout plans geared towards maximising your genetic advantage and/or losing fat.

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Start the journey to the new you right now. No wasted time. No guesswork. Get a precise action plan and get results.

Get fit and stay healthy with our genetically tailored home workout system. A great place for newcomers to start or for those looking for the most efficient way to keep fit.

LET’S GO →