



**HIGHER
HORIZONS**
HIGH PROTEIN WRAPS



**WHY SOME
PEOPLE STAY LEAN
WHATEVER THEY
EAT AND WHAT YOU
CAN DO TO BE LIKE
THEM!**



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Summary

Brown fat has been shown to be one of the main reasons why some people stay lean regardless of what they eat. A study showed that women who cannot gain weight regardless of what they eat have active brown fat at room temperature, while both normal-weight women and anorectic women do not.

Benefits of brown fat

- Active brown fat clearly helps women who cannot gain weight to keep the weight off in studies
- Brown fat burns a lot of calories without movement and helps you stay lean
- The more brown fat you have the more calories you burn and it helps you stay warm when it's cold
- People with more brown fat have lower BMI and lower risk for Type II diabetes

What is brown fat?

Brown fat is a different kind of fat from white fat as it not only stores calories, it can also burn energy for heat increasing your calorie burn. Brown fat acts like the body's thermostat and maintains body temperature while exposed to heat. The reason it can create heat is that it has mitochondria which are usually found in muscle cells.

How to increase your brown fat

You can increase and activate your brown fat through different types of cold exposure such as:

- Cold showers
- Cold baths
- Cold walks
- Cold indoors
- Freezing vests and similar
- Cryotherapy

What to eat to increase brown fat

These are things you can eat to increase your brown fat levels:

- Curcumin
- Omega 3
- Capsaicin
- Resveratrol

In this booklet, you will learn the details of why and how brown fat helps some people stay lean and what you can do to be more like them. If you want to understand more about how you can get and stay leaner more easily read on!

Introduction – How I got in the best shape of my life at 40

My name is Timmy and I'm the founder of Higher Horizons. I like to work out and I've always wanted to be as fit and lean as possible. I have a personal trainer certification and a certificate in Optimum Nutrition for Health & Performance and I'm an affiliate member of the Chartered Institute for the Management of Sport and Physical Activity (CIPSA). Even though I have these qualifications I'm not a person that lives in the gym. I'm a normal person with a normal desk job who goes to the gym 3 times/week, I like a drink and live a normal life. So to get my results you don't need to do anything extreme.

However, I've always gained weight really easily and struggled to be lean. I've compared what I've eaten to many of my friends and it has been so frustrating to see some of them being able to eat pizza, desserts, and sugary drinks and nothing makes them gain weight. It really felt a bit unfair.

Then there was a turning point. I read about brown fat and how it can make you burn a lot of fat and calories without exercise. I felt this was super interesting! I read more and started to understand it more and more. Then I implemented protocols to get more of it and activate it.

The result is that after just turning 40 I reached the best shape of my life! I measured my body fat, and it's at 11%. This put me among the top 0.5% of the population at 40. I achieved this without doing any cardio, not a single run, spinning, or other cardio activity. Even better than seeing the impressive number I simply feel great!

In this guide, I'll share how brown fat makes some people stay lean regardless of what they eat, how it can help you be leaner and how you get more brown fat! If you don't want to miss out on knowing the secret to why some people stay lean regardless of what they eat, you should read this guide!



In my 30's



In my 40's

About Higher Horizons:

Finding tasty AND healthy food to stay fit is really hard. Higher Horizons' high protein, high fibre and lower carb wraps create a large range of new healthy AND tasty options to keep you fit and healthy

Your benefits with Higher Horizons wraps:

- More protein than a chicken breast/100g so you can make your hard-earned gains which means you will feel fantastic
- 4 times the fibre of a banana/100g supporting your gut health improving your immune system which means you will be ill less often, reducing sick days and missed workouts making you feel stronger
- The 12g of fibre/100g also improves your gut-brain axis which can influence brain development and increase motivation
- Only has 6g of carbs/wrap limiting your insulin spikes which means you store less fat leading to a leaner body making you feel more confident



Why Some People Can't Gain Fat and Always Stay Lean

When you are doing all you can to try to keep fat off and stay in good shape, then there are some people who cannot gain fat even if they try it feels really unfair. It can be deflating when you look in the mirror and are unhappy with your appearance.

Almost 28% of the UK population is obese, and the number in the USA is even higher with a similar situation in many other Western countries. Obesity is linked to various chronic diseases such as high blood pressure, cardiovascular disease, type 2 diabetes, and cancer. Therefore, it's natural that scientists have been looking for the reason why some people can't gain weight for a long time.

Researchers discover brown fat

Around 20 years ago, researchers discovered that adults have brown fat. Previously it was thought that only toddlers had brown fat. It is a type of fat different from white fat, the primary type of fat that most people know about. Unlike white fat, which stores extra energy, brown fat burns excess fat to generate heat. Hence, it is found in toddlers and hibernating bears. Certain fantastic benefits come with having brown fat, such as a lower risk of diabetes and better cardiovascular health.

Five per cent of the body weight of newborns comprises brown fat. It is located towards their shoulders and the upper spine. Babies have a lot of brown fat because they cannot shiver to keep warm like adults. Brown fat is needed to generate extra heat in a process known as thermogenesis. Brown fat helps protect babies from hypothermia which can otherwise cause death. On the other hand, adults have a lower proportional surface area on their heads, more muscle, and can shiver, resulting in less reliance on brown fat to regulate heat.

Active brown fat clearly helps women from gaining weight

In a study in 2012, researchers looked at three groups of women. One group was constitutionally lean, one anorectic group, and one with normal-weight women. This study showed that all constitutionally lean women had active brown fat at room temperature. It was also found that active brown fat plays a huge role in body metabolism. Scientists have been looking into how people can lose weight and have mostly claimed that people need to burn more energy or cut down their food intake. However, this study clearly shows that active brown fat helps to prevent constitutionally lean women from gaining weight and fat.

Link to study: [PubMed](#)

More brown fat is linked to lower BMI and Lower Risk for Type II diabetes

In a study conducted in 2015 including 4,011 individuals, researchers could see that people with more brown fat have lower BMI (Body Mass Index), less visceral and subcutaneous fat, and less waist circumference. They also have lower blood glucose which is essential to limit the risk for Type II diabetes.

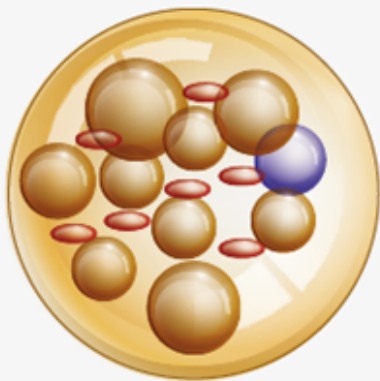
Link to study: [PubMed](#)

Plenty more research has been done on brown fat and how it is one of the key reasons some people can't gain weight. So naturally if we can find ways to increase the amount of brown fat you have, it will help you to lose fat and stay lean. This is fantastic news for everyone who wants to become and stay lean!

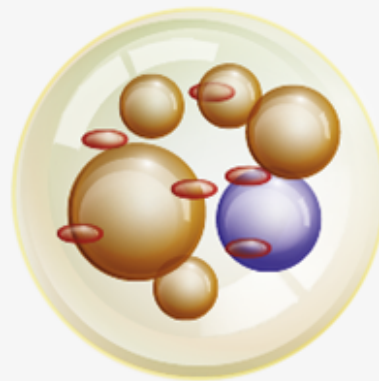
What Is Brown Fat?

Now that we know that brown fat is very good for us, let's look at what brown fat is. Brown fat or Brown Adipose Tissue (BAT), a more scientific name for it, is the less commonly known type of fat humans have. It converts calories to generate body heat and is also known as good fat. Generally, newborn babies and hibernating mammals have high levels of brown fat. If we can find a way to increase brown fat in humans, we can help provide a solution for obesity. When brown fat is burned, it generates heat and

decreases the shivering requirement when exposed to cold. The process also helps to burn a lot of calories. Active brown fat can be best described as the body's natural thermostat. It helps generate heat and maintain the temperature while burning calories in the process. The calorie-burning capabilities make it so interesting for fat and weight loss.



Brown fat cell



Beige fat cell



White fat cell

Brown Fat

- Numerous lipid droplets
- More capillaries supply oxygen and distribute heat across the body
- Rich in mitochondria – which gives it the brown colour – Rich in uncoupling protein 1 (UCP1)
- It can use energy directly without it needing to be oxidised – it skips this step making it burn more fat

Mitochondria is the powerhouse of a muscle cell. It's what creates the energy for a muscle to create movement.

Beige Fat – "Browned" White Fat

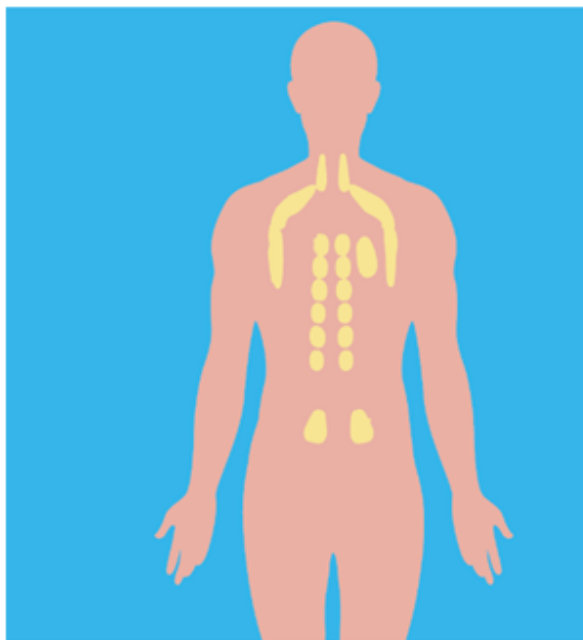
- A variable amount of lipid droplets
- It has a bit of mitochondria in it (not as much as brown fat, but more than white fat)

White fat

- Single lipid droplet
- Not rich in mitochondria
- It needs the energy to be oxidised to use as energy

Where Do We Have Brown Fat?

A majority of a person's brown fat sits around the colour bones and the spine. Beige fat can be spread out across the body in the same way as white fat.



Brown fat location in the body

How Does Brown Fat Burn Calories?

As mentioned previously, brown fat acts like the body's thermostat to keep us warm. What it does is that it works much more like a muscle, but instead of generating force and heat, it only generates heat. For a muscle to generate heat, it needs to contract and this contraction generally comes from a movement of some sort. However, because brown fat isn't a muscle and doesn't have the muscle it cannot produce a contraction or movement. When it burns energy all it does is create heat. It takes energy from other fat cells and calories from what we have eaten when it creates that heat. This heat is generated in the mitochondria, which is found in your muscles but also in brown fat.

When you have brown fat and activate it, it will increase your calorie burn even when resting. It will help you burn more calories in the long run and help you get and stay lean. Brown fat helps regulate your body temperature by breaking down fat molecules and glucose (blood sugar). It is activated in colder temperatures and leads to metabolic changes in your body.

In addition to this, research shows that high brown fat activity reduces BCAAs (Branched Chain Amino Acids) in the bloodstream.

High levels of BCAAs have been linked to type 2 diabetes, insulin resistance, and obesity. Brown fat produces the protein SLC25A44 when you are exposed to cold temperatures. This protein diverts BCAAs into the mitochondria, which use them to generate heat and energy. Hence, brown fat has excellent potential to combat these conditions.

How Could Michael Phelps Eat Up To 10,000 Calories/Day And Win 8 Olympic Golds?

Michael Phelps had reported that he consumed around 9,000 to 10,000 calories before the Beijing Olympics, where he won 8 gold medals and was in peak shape! Most people say he was exercising a lot and therefore burnt all these calories. However, running a marathon only burns around 3,000 calories, and he didn't exercise enough for it to be the equivalent of 2 marathons each day. This would have burnt him out rather than making him ready to win 8 gold medals. There has to be something else at play here!

The reason he could eat so much and still be in peak shape is because he spent so much time in the pool. Even though the pool wasn't cold, it was significantly lower than his body temperature of 37 C. Being in the pool cooled down his body and activated his brown fat resulting in this enormous calorie burn. The pool cools you down more than air because the water transfers heat much faster than air. You can feel that yourself if you are in 20 degrees it's comfortable but as soon as you step into 20°C water, it feels much colder on your skin. This is because of the higher heat transferability of water compared to air. Air is very insulating and water is the opposite.

How to Get More Brown Fat!

Now that you know how beneficial brown fat is to burn calories and get lean, the question is, how can you get more brown fat? This section will give you two ways to increase your amount of brown fat and how to activate it to burn calories helping you stay get and stay lean.

Cold Exposure Increase and Activate Your Brown fat

One of the best ways to get more brown fat is by exposing yourself to colder temperatures. In a study that involved 51 young men with lower-than-average amounts of active brown fat who were asked to sit in a 17-degree Celsius room for two hours a day over the course of six weeks, it was found that they burned an extra 108 calories in the cold compared to normal indoor temperatures.

After six weeks of exposure to cold temperatures, their bodies burned an extra 289 calories. This clearly shows that after spending time in the cold room, the men in the study had adapted and acquired more brown fat, leading to increased calorie burn.

Link to study: [PubMed](#)

Another study showed an increase in detectable brown fat when the individuals were kept at 19 degrees room temperature. No such increase was seen when they were kept in at 27 degrees. From this, it's clear that cold exposure increases the activity and prevalence of brown fat.

Link to study: [PubMed](#)

Different Levels of Cold Exposure

The direct physical impact of the level of intensity used can be split into two categories: shivering and non-shivering.

- **Shivering:** When exposed to shivering intensity, your body will burn a lot of calories due to the small muscle contractions. The shivering will also increase your body's browning and beigeing of white fat due to the release of certain enzymes in your blood.
- **Non-Shivering:** When you are exposed to cold but not shivering, you burn fewer calories short term. However, you will still burn calories without shivering. The level of cold exposure you shiver at will also change when your body gets used to the cold and acquires more brown fat. You will be able to withstand lower temperatures without shivering, this is called cold adaption.

When we do deliberate cold exposure, we generally split it into three levels that link to the shivering and non-shivering levels.



Lowest Intensity Cold Exposure

When starting out, you will likely use the lowest level of intensity. This level does not feel particularly cold. At this level, you will feel a slightly increased level of breathing. Although you would not shiver, your metabolic heat production would increase, and after exposing yourself to this level, you would start to shiver less as your body gets used to the temperature.

Benefits

- A small increase in calorie burn adds up over time
- Improved sleep
- Reduces oxygen uptake
- It gives you a better appetite
- Burns fat

Medium Intensity Cold Exposure

At this level, you start to feel the cold. You are not shivering, but you might feel some goosebumps. Then, you will start to activate your brown fat and skeletal muscle uncoupling will occur. This is a similar feeling to being in a cold room. If you are not at all "cold-adapted," meaning used to the cold, this level of intensity is likely to cause you to shiver a bit on and off.

Benefits

- Increased calorie burn
- A drastic increase in glucose from the bloodstream
- Improved insulin sensitivity
- Boosted immune system
- It might positively impact the cellular mitochondria, which might improve longevity

High-Intensity Cold Exposure

At this level, you are almost shivering or full-out shivering. To maximise the brown fat activation, it is not recommended to be full-out shivering for extended periods as the shivering keeps you warm rather than the brown fat. The recommended approach is to go in and out of shivering. It is not recommended to be at the highest level of intensity throughout your entire cold exposure session. Approach this as you would do interval training, where you do not sprint 80- 100% all the time but continuously lower the intensity and push it back up again.

Benefits

At this level you get all the benefits from previous levels plus these:

- ~100% increase in calorie burn just before shivering starts
- ~300% increase in calorie burn when shivering starts
- ~500% increase in calorie burn when shivering all out
- Increase of brown adipose tissue/brown fat (BAT)
- Similar benefits to High-Intensity Interval Training (HIIT)
- Positive impact on muscle growth
- Reduced oxidative stress
- Reduced inflammation

Different Types of Cold Exposure

There are several different ways you can practice cold exposure to activate and acquire more brown fat.

- Cold showers
- Cold baths
- Cold walks
- Cold indoors
- Freezing vests and similar
- Cryotherapy

Now we will go through the details and intensity of each of these methods:

Cold Showers

Cold showers have a water temperature of less than 20° C. Cold showers can improve your well-being, relieve symptoms, increase endorphins, improve metabolism, boost circulation, and fight off common illnesses.

Intensity Level

Cold showers are generally medium intensity. It can be high intensity if your shower reaches below 7° C and you are not used to it.

Cost of Cold Showers

Taking a cold shower is practically free. The only cost you have is the water you use which is negligible.

How to Get Started With Cold Showers

To get started with cold showers, we recommend building up your tolerance. Anyone can do it, and it goes quicker than you think.

This is a simple and effective protocol for how you build yourself up to cold showers:

- Start at the end of your regular shower and turn the temperature on until it gets chilly for 15 seconds
- Next time do it for 20 seconds
- Add another 10 seconds every time and build up to 2 minutes
- When you reach 2 minutes, start making it slightly colder every time

You will soon have adapted and can do fully cold showers for 5 minutes or more.



Cold Baths

Cold baths are simply getting in a bath of less than 20° C. The colder it is, the more beneficial it is for burning calories and activating your brown fat.

Intensity Level of Cold Baths

If the bath is less than 10° C, it will likely be high intensity. If it is 10°-20° C, it will be medium intensity.

Cost of Cold Baths

The cost of a cold bath can vary a lot depending on where you live. If you live close to the water in a cold country in wintertime, it can be free to jump in the water. If you don't have this option, you can fill up a bathtub with cold water, and this will be practically free. If you want to push the temperature lower than what comes out of your tap, you can do this with ice. You can either buy this frozen or freeze your own at home. It will only cost a few pounds per session.

There are more expensive solutions where you can buy specific bathtubs that also keep your water cold.

How to Get Started With Cold Baths

We recommend getting used to cold showers before going into cold baths. In the same way as with showers, we recommend starting gradually. When you get used to the cold showers, you can start with a bath at the same temperature as your shower.

This is a simple and effective protocol for how you build yourself up to cold baths:

- Run a cold bath with cold tap water and start by getting in for 1 minute or as long as you can manage
- Extend the time you can be in 20s each time until you reach 2 minutes
- When you have reached 2 minutes, start making the bath colder by putting ice in the bath.
- Increase the amount of ice each time to make it cooler

An alternative is to make it very cold and extend the time of each session.



Cold Walks

Cold walks are straightforward. You go out when it's cold with less clothes than you normally would at that temperature. As with the other methods, your body will adapt after a while.

Intensity Level of Cold Walks

The intensity level of the cold walks depends on how cold and windy it is outside and how long you are doing them. It would generally be considered medium intensity if it's above freezing without much wind. It can be high intensity if it's below freezing and windy. It would rarely be more than low intensity during the summer months.

Cost of Cold Walks

Cold walks are completely free.

How to Get Started With Cold Walks

It's very easy to start with cold walks in the cooler part of the year.

Protocol for how you start with cold walks:

- Head outside for 10-15 minutes when it starts to get cold outside with limited clothing
- Increase the time you spend outside gradually each time

Cold Indoors

Turning down the heating at home in the wintertime will increase your exposure to cold. As seen in some of the studies mentioned, simply being in a cold room activates and increases your levels of brown fat.

Intensity Level of Cold Indoors

Depending on the temperature outside, your house can easily get very chilly. However, it's unlikely that you will make your house colder than reaching low-intensity levels.

Cost of Cold Indoors

Instead of costing you money, you would save on heating expenses when you turn down the heating.

How to Get Started with Cold Indoors

Protocol for starting

- Start by slowly reducing the temperature to get used to cooler temperatures at home and see how your entire household reacts to it
- Gradually lower the temperature to increase the intensity until you or someone in your household gets uncomfortable



Freezing Vests or Similar Devices

These are devices that you wear on your body to cool yourself down. It could be in the form of a different vest or more full-body versions worn either straight on your skin or with layers of clothing in between. Prime Science Calorie Burner vest is an alternative. One of the significant benefits is that you can often wear them when doing other things like watching TV or sitting in front of your laptop and working, saving considerable time.

Intensity Level of Freezing Vests

These intensity levels vary depending on the specific device but are generally medium to high. The intensity level can be increased by combining it with drinking cold water simultaneously.

Cost of Freezing Vests

The cost of these vests is from £150-£1,000. Considering that it is generally a one-off purchase, it can be cost-effective if you do not want to go in cold water.

How to Get Started with Freezing Vests

To get started, you must find one that suits your requirements. How they work can differ, so make sure it comes with clear instructions on how to use them.

Our recommendation is the Prime Science Calorie Burner*. We have tested this; it can triple your calorie burn while sitting with your laptop.

Link to the Prime Science Calorie Burner: [Link](#)

*Disclosure: Prime Science is a company I founded and wholly owned.



Cryotherapy chambers

Cryotherapy chambers are a technique that exposes your body to extreme cold (below -100° C) for a few minutes. The treatment can either target one area or the entire body. There are mainly two methods used to get cryotherapy chambers to a very low temperature; liquid nitrogen and refrigerated cold air.

Intensity level of Cryotherapy Chambers

The intensity of the cryotherapy chambers is medium to high. However, as the treatment is short, the impact on brown fat and the total calorie burn is still limited. From our testing, it didn't feel as cold as you would expect. This is because it's air and air doesn't transfer heat from your body fast as previously mentioned.

Cost of Cryotherapy Chambers

One session of cryotherapy will cost you around £30. Unless cost is not an issue for you we do not recommend Cryotherapy due to the cost. The impact on brown fat is likely not high enough to warrant the high cost. In addition, there are very limited direct studies done on Cryotherapy. Most marketing uses studies from other types of cold treatments and assume Cryotherapy has the same impact which is not certain.

How to Get Started with Cryotherapy Chambers

As cryotherapy chamber treatment is conducted at a clinic or health centre, you must find one at a convenient location. When you have found one contact them to get more information as the exact procedure will differ between each treatment centre.

Additional tips to get as much brown fat as possible

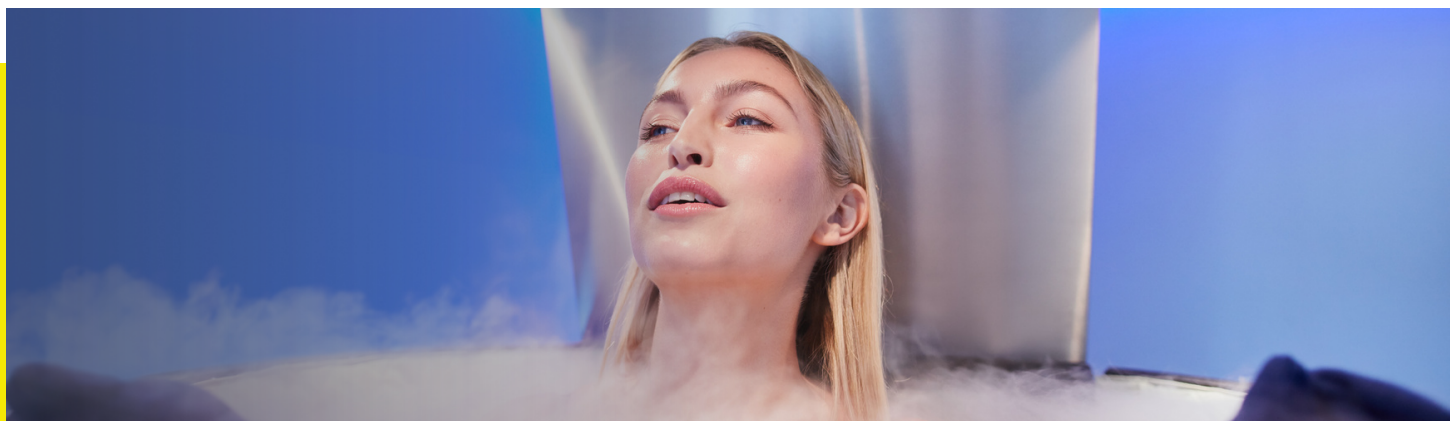
There are a few ways that help you increase how much brown fat your body activates and accumulates.

Cold exposure in a fasted state

Research shows that cold exposure in a fasted state increases the amount of browning and beiging of fat. The fasted state is when you have not eaten for a while. The most natural time for this is when you wake up as you have not eaten for several hours. Therefore, we recommend you do the cold exposure before eating breakfast to maximise the impact.

Let your body heat itself up

After your cold exposure, do not directly jump into a warm environment. This will force your body to reheat itself from the inside. It will do this by using calories and giving the body a clear signal that it needs more brown fat. It works similarly to exercise; when you exercise, your body will rebuild itself more robustly. When you expose yourself to cold and let the body heat itself up, it signals that the body needs more brown fat to manage this.



What Can You Eat to Increase Brown Fat?

There are several things you can eat to increase your brown fat:

- Curcumin
- Omega 3
- Capsaicin
- Resveratrol

For Curcumin and Omega-3 and any other supplements, we recommend British Supplements. Their supplements are of the highest quality.

Curcumin (Turmeric extract): [Link](#)

Omega-3: [Link](#)

When you use these links you will get a 20% discount on your purchase.

Disclosure: We will get a referral commission if you purchase through our links.

Curcumin

One of the best foods you can include in your diet to increase brown fat is curcumin. Curcumin is the active component of turmeric. Around 50-100mg/day of curcumin should help increase the browning of white fat. To reach this amount, you will need to take curcumin supplements as turmeric contains less than 10% curcumin and it would be hard to get to the right dosage with Turmeric alone.

A study has found that curcumin decreased body weight and fat mass without affecting food intake in mice. The study concludes that curcumin can potentially prevent obesity by inducing the browning of inguinal white fat. Curcumin promotes Beta3AR gene expression in inguinal white fat and elevates plasma norepinephrine levels, a hormone that can induce the browning of white fat.

Link to study: [PubMed](#)

Omega-3

Another great way to boost your brown fat levels is by increasing your omega-3 intake. It is the EPA part of the omega-3 fatty acid, which is important. So, to maximise the impact on brown fat, choose an omega-3 source rich in EPA. The dosage for humans is hard to determine however it's likely normal dosages of 1g of EPA/day will be sufficient.

A study suggests that the EPA induces remodelling of adipocyte metabolism, which prevents fat storage, promotes mitochondrial biogenesis, and makes white fat beige. Another study shows that omega-3 increases the activity of brown and beige fat.

Link to studies: [PubMed](#) and [PubMed](#)

Capsaicin

Capsaicin is a major component of hot pepper. It provides the hotness sensation and pungency commonly associated with chilli peppers. The amount required is small, so it should be sufficient to add a bit of chilli to your meal to reach the required levels.

A study has shown that capsaicin stimulates the browning or beigeing of white fat. It does this by inducing stress on the transportation system in the cell.

Link to study: [PubMed](#)

Resveratrol

Resveratrol has been widely researched as it has been to help with obesity management. This compound is commonly found in peanuts, grapes, red wine, and mulberries.

A study has shown that resveratrol improves brown fat activity and white fat browning. This effect is dependent on a good gut microbiome. If you have taken antibiotics, the impact of eating resveratrol is likely limited. Another study shows that oral resveratrol intake is associated with higher energy expenditure and decreased fat storage.

Link to study: [PubMed](#) and [PubMed](#)

Get Started!

Now that you know why some people stay lean and can't gain fat and what you can do to be more like them, it's time to take action.

Pick a cold treatment to treatment to use

Pick one of the cold treatments to use. When you choose which one, remember that it needs to be practical and easily accessible for you. Cold baths are the most effective version, but this doesn't matter if you struggle to access them, as it will lead to a lack of consistency. Cold showers are easier to come by for most and a more modest start which works well for most.

To make sure it actually happens, also outline a plan of when in the day you should do it and make sure there is time for it in your schedule. This way, you will be more likely to be consistent. Outline this plan now, don't postpone it. There's no time like the present!

Ensure you get 1-2 of the things to eat in your diet every day

Consider what you normally eat. Are you getting 1-2 of the curcumin, omega-3, capsaicin, or resveratrol in your normal diet? If yes, that's great keep on what you're doing. This, in combination with cold exposure, will increase your amount of brown fat.

If you do not normally get 1-2 of these compounds in your diet, consider how you can get more of these things in your normal diet. This could be to add more oily fish and make your food spicier with chilli. Taking supplements is also a very simple way to get enough of these things in your diet.

Finally, if you need to add any of the compounds to your diet, ensure you add them to your shopping list. Do this now!

