NOURISH TO FLOURISH

The nutrition you need to age-proof your performance

How to eat to thrive as you grow older? *Anita Bean* finds out

Go back a few generations and it was rare to see middle-aged and older people participating in high-level competition. Nowadays it's completely normal to want to retain a high level of fitness and remain competitive into our 50s, 60s and beyond. Even so, it's an inescapable fact that we experience a gradual decline in our performance as we age.

Muscle mass and strength decrease, affecting our power output and endurance. Maximum heart rate declines, as does our heart's ability to pump blood efficiently. This results in a lower maximum oxygen uptake – VO2 max – which is crucial for endurance cycling. While some of these changes are a normal part of ageing, they can be influenced by diet and training too. Here, we delve into some core nutritional and training strategies to counter the age-related decline and keep you fast and flourishing as you grow older.

"Many of the physiological changes you experience as you get older are underpinned by hormone changes – namely a decline in anabolic hormones," explains Dr Nicky Keay, honorary clinical lecturer at University College London and author of *Hormones, Health and Human Potential*. "These are gradual declines, but for women there is a drop-off of female hormones at menopause, which has a big impact on health and performance."

'Anabolic' is from 'anabolism' – the body's growing and building processes. Growth hormone (GH) is important for maintaining a favourable body composition. Reduced GH leads to a reduction in muscle mass and potentially an increase in body fat. This age-related loss of muscle mass ►

► and strength is called sarcopenia, which typically begins in your 30s and accelerates from around 50. Without intervention in the form of strength training, it can result in a very significant loss of muscle bulk.

By the time you are in your 70s, you may have only half the muscle weight you did in your 20s. Much of this muscle loss is accounted for by the attrition of your fast-twitch fibres – they are the fibres needed to produce power during high-intensity exercise. With this loss of fast-twitch fibres comes a loss of strength – typically 12-15% per decade from the age of 50. This loss of muscle mass, with fewer muscle fibres, erodes the power you can sustain on the bike.

Sarcopenia is partly caused by 'anabolic resistance' – a reduced ability of muscles to use dietary amino acids to build new muscle proteins. It is thought that older untrained adults require up to 60% more protein per meal to maximally stimulate muscle growth (more on this later).

This age-related muscle atrophy includes a reduction in heart muscle mass, which partly accounts for the drop in cardiovascular and respiratory function. "It is partly down to declining maximum heart rates. Older hearts simply can't beat as fast as younger hearts," explains Phil Cavell, bike-fit pioneer and author of *The Midlife Cyclist*. "Not so long ago [mid-19th Century] most people didn't live much beyond 40 but now we are living much longer lives, and the human body hasn't really caught up." A study by researchers from the University of Colorado School of Medicine, USA, found that one of the reasons maximum heart rate falls is that ageing depresses the spontaneous electrical activity of the heart's natural pacemaker.

Punctuate riding with coffee stops and squats

Strong focus

The good news is that losing muscle bulk and strength isn't inevitable and there are strategies to maintain your FTP. "The route out of sarcopenia is highly directed strength training post-50," says Cavell. "Targeted weight training causes the muscle fibres that remain to hypertrophy – increase in size – potentially retaining function and power close to that of someone in their 20s. Together with interval training, it's also one of the best ways to keep your VO2 max as high as possible for as long as possible."

Nicky Keay says that strength training has potent bone-building benefits, helping to ward off osteoporosis, a condition that, according to the Royal Osteoporosis Society, causes one in two women and one in five men aged over 50 to sustain a fracture. "Strength training massively helps bone health," Keay says, recommending at least two strength training sessions each week. "In my experience, many cyclists are reluctant to give up a bike session for a strength session, but in the long term that's far more beneficial for their health." Strength training doesn't always need to be lifting weights; body weight exercises will improve muscular endurance and help maintain muscle mass.

There's also evidence that regular strength training benefits your metabolism, so that even after you finish a workout you continue to burn calories and body fat more efficiently. "By increasing your muscle mass, you increase your resting metabolic rate – the energy your body burns at rest," Keay says. "If you add more muscle tissue, you will burn more calories even when sitting or standing still." Strength training also helps prevent fat storage around the midsection as we get older, as well as improving blood sugar control and reducing insulin resistance.

Big hitting proteins can be animal or plant based

The power of protein

We all know protein is important for muscle repair, and it's even more important as we age, especially after long or hard rides. Currently the recommended daily allowance (RDA) of protein is 0.8g per kilo of body mass (kg-BM) per day. Several expert groups have suggested older endurance athletes should consume twice this amount, 1.6-1.8g/kg-BM/day. Professor Daniel Moore of the University of Toronto, Canada, suggests 0.5g/kg-BM/day post-endurance training, and 0.3g-0.4g/kg-BM/day at other meals, equating to 20-30g per meal for a 70kg cyclist. A medium (125g) chicken breast or a serving (150g) of tofu contains 30g protein.

Which types of protein should we consume? Most studies suggest that leucine should be prioritised because it is a potent stimulator for muscle growth. Sources rich in leucine include eggs, milk, meat, fish and poultry. If you don't want to consume animal products, you can get plenty of leucine from plant-based foods such as tofu, tempeh, soya milk and legumes.

If you are eating a plant-based diet, it's entirely possible to get all the protein you need, provided it's from a variety of sources. In a 2023 study published in the *Journal of Nutrition* researchers showed that vegan and omnivorous diets containing the same amount of protein produced equal gains in muscle growth. Brazilian researchers comparing vegan and omnivorous diets found no difference in bench press, leg press strength and lean body mass gains after 12 weeks. The specific source matters less than hitting the 1.6-1.8g/kg-BM/day target.

"STUDIES SUGGEST LEUCINE SHOULD BE PRIORITISED"

Speed up recovery

With advancing years, your capacity to recover rapidly from hard exertion ►

AGEING BY NUMBERS

30s
The age when muscle mass starts to diminish

12-15%
Strength loss per decade after the age of 50, unless maintained by regular training

1%
The decline in VO2 max each year after age 30, unless maintained by training

1 in 5
The odds of men having a fracture after age 50, unless you maintain bone strength

30g
Target amount of protein per meal

1.6-1.8
Grams of protein per kilo of bodyweight per day – the recommended amount for athletes

5
Number of years you can reduce your biological age by strength training for just 90min a week

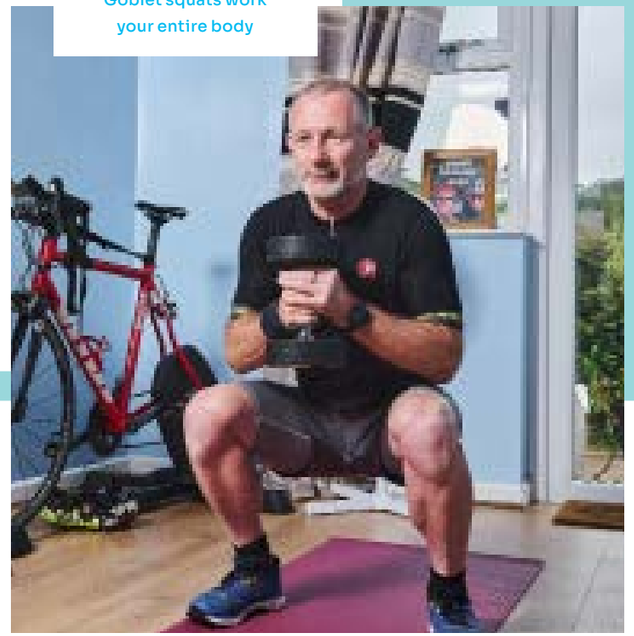
Photos: Andy Jones, Shutterstock, Phil Barker

► declines. You're more likely to suffer from post-exercise soreness. A 2016 study found that masters triathletes aged over 50 had slower muscle repair and remodelling after a bout of muscle-damaging downhill running than younger triathletes. "Masters cyclists should consider adjusting their training to be more recovery-focused," says Keay, who recommends taking at least one rest day a week. "Focusing on recovery can help you reduce fatigue and improve performance."

Your post-ride snack or meal should contain both protein, to help build and repair muscle tissue, and carbohydrates to replenish glycogen stores. A 2017 study found that masters triathletes who consumed 0.6g/kg-BM of protein following a 30-minute downhill run perceived significantly less subsequent fatigue compared to those who consumed 0.3g/kg-BM. These findings suggest that protein is particularly important for muscle recovery in older athletes. In terms of timing, it used to be thought there was a strict 30-minute 'anabolic window' for protein consumption after exercise, but this has been largely debunked. Total daily protein intake is now thought more important, ideally distributed across four or five meals and snacks.

To give your body the best chance of recovery, you may also want to rethink your alcohol habits. Cavell urges midlife cyclists to moderate, or even stop, drinking around training and racing to maximise their long-term health and performance. "Alcohol inhibits performance and recovery increasingly as you age. Your ability to break down alcohol drops, which means the beer or two you could drink without consequence in your 30s or 40s has more impact in your 50s or 60s."

"CREATINE HELPS BUILD MUSCLE MASS AND IMPROVES BRAIN FUNCTION"



Goblet squats work your entire body

Creatine boost

While strength training and protein provide the biggest anti-ageing benefits, there are a few supplements that may give you a small boost. One of these is creatine monohydrate, which has been shown to help build muscle mass, improve bone mass and increase brain function. In a 2015 study of adults aged 50-71, researchers found that those who supplemented with creatine along with strength training had significantly greater gains in muscle mass and strength than those taking a placebo. A meta-analysis highlighted the cognitive benefits of creatine, including improved memory and reduced mental fatigue in older adults. The recommendation is either a loading dose of 20g per day spaced out as four doses of 5g per day for five days, or a maintenance dose of 3-5g daily.

Meanwhile vitamin D, though not relevant to muscle building, is key for keeping your teeth and bones strong. It is also involved in muscle function. Low blood levels of vitamin D are common across all age groups, and is a greater problem as we get older because the skin's capacity to produce vitamin D from UV light diminishes. Public Health England advises taking a daily supplement containing 10mcg (400IU) of vitamin D during the autumn and winter – Keay goes further and advises year-round.

If you don't eat much oily fish, omega-3 supplements may help counter inflammation associated with sarcopenia and potentially reduce muscle loss. Chronic inflammation is believed to be a key factor in sarcopenia and the development of many chronic diseases, including heart disease. The British Heart Foundation suggests 450mg DHA and EPA combined per day, which is the equivalent you'd get from eating one portion of oily fish per week.

Strength to strength

As we age, natural declines in strength, power, muscle mass, bone mass and VO2 max contribute to a decrease in cycling performance. However, these changes can be counteracted by incorporating at least two strength training sessions into your weekly routine. Preserving or even building muscle tissue helps prevent a reduction in metabolic rate and improves blood sugar regulation.

Paying attention to your protein intake – aiming for at least 20-30g per meal – becomes even more important as we age. Allowing for longer recovery periods between workouts and prioritising post-training nutrition also supports optimal performance. By taking these steps, you can help maintain and even improve your physical health as you age, ensuring that you continue to feel strong and perform at your best year after year.

● **Anita Bean** is a former British bodybuilding champion turned sports nutritionist and author

Building a strong body will keep you out on the road

MASTERS RACER'S VIEW

Gavin Francis, 60, is a former masters national road race champion

Since reaching my 50s, I have become acutely aware that I'm not as fast as I used to be, especially up hills and in sprints. I know that anabolic hormone levels drop with age, so I try to give my body everything I can in terms of nutrition to stay ahead. I try to eat plenty of protein, mostly from chicken and fish. I make sure I'm fuelled properly on the bike, especially when racing. For any race longer than an hour I take two bottles of energy drink plus several gels.

If I've done a training session longer than an hour and a half, I'll have a recovery drink straight away – something I didn't do so diligently when I was younger. I prefer something natural such as a homemade banana milkshake with blueberries.

It definitely takes longer to recover than before. I've shifted to a three-week cycle: a two-week build then an easier week, as opposed to a four-week cycle that I used to do. Good sleep makes a massive difference to recovery too.

I do strength training – a climbing wall session and a weights session – at least once a week, plus exercises for my core. Another change I've made is adding a daily vitamin D supplement to make sure I keep my bones strong.