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# The anti-inflammatory plan that tackles midlife weight gain and tiredness

Award-winning science writer and biologist Maria Borelius shares the health revolution that helped her put an end to her midlife decline

By Maria Borelius

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With Covid raging through our societies, medical advice has focused largely on washing our hands and keeping a social distance. This advice is essential, but there is a deeper mystery. Why do certain people get more ill than others? Why do some people end up in ICUs and even die, whereas others barely notice being infected?

As the lives of millions are affected, this deeper story requires wider attention. It is [a tale of the immune system](#) and inflammation. Data show that diseases connected to high inflammation, such as obesity, diabetes and cardiovascular disease, are also linked to poorer Covid-19 outcomes. A new question warrants our attention. How can we lower the risk of diseases which make us more vulnerable? Could certain foods, movements and even emotions support your chances for a better outcome in this pandemic and possibly a next one too?

## Midlife pain

Some eight years ago, way before Covid-19, I was experiencing severe midlife decline; I had fatigue, pain in my lower back, a wobbly muffin-top and was feeling blue. I had constant infections. Doctors could neither explain nor treat these varied symptoms.

I found a personal trainer Rita Catolino with a new approach, developed by fitness athletes in North America. She had me change my eating and exercise habits, following a specific protocol that at that time had no name. After just a few months my life was transformed. I was starting to feel bright and pain-free. My infections melted away. [My skin had a new glow, my body was on the move and under the muffin top](#), I discovered a waist I had not seen since giving birth to four children. As an individual I was elated. As a science journalist, I was mystified. Had all my symptoms been inter-connected?

By chance, I bumped into an innovative scientist, Professor Inger Bjorck, who led a team at the Anti-Diabetic Centre at Lund University in Sweden. Prof Bjorck and her team were studying if there were certain foods that could actually lower the risk of disease and metabolic syndrome, the triple whammy that includes obesity, diabetes and high blood pressure. She had conducted studies where mice that were fed a high-fat diet, could be prevented from gaining weight if they were also fed berries at the same time, the berries seemingly stopping weight gain by lowering inflammation.

The team decided to put together a revolutionary study. They scanned through years of research and put together a list of all known anti-inflammatory foods, and created an anti-inflammatory diet for a group of 44 people during four weeks, with a control group eating a Nordic nutrition recommendation diet. Midway the groups switched diets. The results were so staggering that the doctor conducting the study could not believe his eyes.

Bad cholesterol was down 33 per cent, blood lipids were down by 14 per cent and blood pressure down eight per cent. There was also an increase in cognitive ability, with an increase in memory. I was gobsmacked when I also realized Prof Bjorck had provided her study participants with exactly the same foods that I had been eating.

Unbeknownst, had I been eating anti-inflammatory foods and this was why my body was affected so deeply? There was more to come.

I have spent the last eight years talking to scientists and health gurus globally, digging into the scientific frontier, connecting the dots. A longitudinal study of 70,000 people in Sweden over 16 years was published in 2018, where the principal investigator, Professor Alicja Wolk of Karolinska Institute, Sweden, concluded that an intake of anti-inflammatory foods was related to increased longevity.

Professor Satchin Panda at the Salk Institute, California, showed me his research whereby intermittent fasting will lower inflammation and weight long term. Professor Bente Klarlund Pedersen at Rigshospitalet, Copenhagen, Denmark, showed me how she discovered the myokines, whereby our [muscles speak to our immune system](#). So exercise lowers inflammation.

To my surprise, I also discovered how Dr Jennifer Stellar and her team at Toronto University, Canada, were proving that our emotions can lower inflammation. When we experience strong positive emotions, and especially the feeling of awe, when we encounter something large, holy or wonderful in nature or music, it affects our immune system in a positive way. I have visited the Blue Zones in Okinawa and Loma Linda, US, where people live exceptionally long lives, to study how longevity, lifestyle and inflammation-busting techniques are connected.

The anti-inflammatory lifestyle turns out to be holistic, reaching into all aspects of life.

From diet to exercise, emotional life and stress-busting techniques. Perhaps this mirrors the actions of the immune system?



Maria Borelius found salvation in an anti-inflammatory diet | CREDIT: Andrew Crowley

## Good and bad inflammation

Unlike other organs, the immune system is not in one place. Immune cells meander freely through the blood and into most of our tissues. It connects everything to everything else. Some scientists call it the body's brain.

The immune system has co-developed with humanity for millions of years, as a valuable ally. It repairs infections and trauma by inflammatory processes. There is good and bad inflammation. Good inflammation is the response to pathogens or trauma. An acute cascade of molecules will create the typical five signals of inflammation; red, swollen, hot, achy and hard to move. Think about that sprained ankle, and how it feels. This acute inflammation is our ally. It repairs and heals, has a beginning and an end.

However, the bad inflammation is a low degree version with no clear ending. This is

inflammation gone berserk, induced by the wrong foods, sitting still for long periods, stressful lifestyles and toxins. The body will react by trying to protect itself, and use its long honed strategy; inflammation. But now the initial phase of the inflammation just lingers on a low level which will “speak” to the whole body.

Early signs are tiredness, a bloated tummy, feeling blue, joint ache, blotchy skin, weight increasing. My symptoms, I understood, read like a catalogue of early inflammation.

And now medical science has started to unravel inflammation as a catalyst for manifest diseases, reading as a catalogue of something worse, of How to Grow Old and Die in the West.

From cardiovascular disease, certain cancers, obesity and metabolic syndrome, high cholesterol to joint problems. Age itself is linked to higher inflammation and immunity decline, as is Alzheimer's. And [obesity turns out to be an inflammatory disease too](#). Because fat is not a dormant tissue, but highly active immunologically, especially around the abdomen.

Obese children and adults are both shown to have high levels of inflammatory markers such as C-reactive protein, produced by the liver as a reaction, and interleukin-6, an early warning of the inflammatory cascade. The link is so strong that some doctors even call obesity “an inflammatory disease”. Obesity affects our immune system, changes it. And makes Covid survival less likely.

The World Obesity Federation published a study in March, examining almost 100 countries, estimating that 88 per cent of all deaths occurred in countries with high levels of obesity. At the Royal College of Physicians, Professor Rachel Batterham has pointed out that three out of four critically ill Covid patients are overweight or obese. And the risk for a bad Covid-19 outcome rises by 50 per cent when a person is overweight (BMI over 25).

Further risk factors for severe Covid are diabetes-2 and cardiac disease, which are also diseases clearly linked to low-degree inflammation.

## **Take anti-inflammatory action**

It is evident that no one becomes infected because of inflammation, but diseases linked to inflammation seem to hinder our capacity to defend ourselves, as the immune system is off balance. But here and now there is good news. We can work directly to lower the risk of inflammation and diseases which in themselves are clearly linked to worse outcomes. The good news is that this lifestyle will improve your overall health, and help you find your best weight. It will promote go but also glow. (Yes, good skin also begins with lowering inflammation.)

Here are some key strategies I have found on my knowledge journey.

Boost your intake of anti-inflammatory foods. Eat food as close to nature as possible. Boost polyphenol-rich green veggies and berries, as they are rich in fibres and polyphenols which will promote a healthy gut microbiome.

Increase your intake of omega-3 fats, which you find in oily fish, nuts and seeds. Add more probiotic-rich foods, such as yoghurt, miso soup, Kombucha and sauerkraut to boost your microbiota.

Research on animals show how gluten-rich foods can increase inflammation by damaging the lining of the gut, however, on humans the research is not yet conclusive. A wise strategy is to listen to your body. If you get bloated or feel stomach pain after a meal of pasta or bread, it can be a sign of inflammation, and it can be wise to lower your intake of gluten-rich foods.

A [glass or two of red wine during weekends is fine](#), as this contains powerful polyphenols. Look for Pinot Noir or Merlot wines with a higher resveratrol content.

Tea is your best friend, as it is very rich in polyphenols. Dairy is widely discussed but the research there is yet again non-conclusive.

A wise way forward could be to listen to your gut-feeling, and choose dairy if it agrees with your digestion. Yoghurt is a great choice, as the lactose is semi-digested, and it brings you probiotic gold. Choose full fat and no sugar, for a rich and satisfying treat.

Lower your sugars. Eat less sugary foods, as it spikes NF-kB activity and sets off genes that promote inflammation. Stabilize blood sugars levels in general having more good sourced protein and good fats, such as nuts and fish. Eat fruit with nuts or yoghurt. Or the French way, add vinegar to your salads, to lower the glycaemic index of the meal.

Intense exercise every day. Each bout of exercise sets off myokines from the muscles, which induce a signal to lower inflammation. A combination of aerobic and muscular exercises have the best effects. Take a brisk walk with some push-ups if nothing else. Go for it, try to exercise most days, but give yourself a rest day a week.

Stillness. Sleep lowers inflammation. So does regular meditation and yoga, working on that NF-kB activity, downregulating the gene expression of inflammation.

Seek out experiences that induce awe in you. Seek out nature, music, art, literature, drama and spiritual experiences that widen your heart. Linger in the feeling. This will lower inflammation. So will charitable actions and watching sports, as long as you go to the arena and cheer your team on with your mates, Corona regulations permitting.

Intermittent fasting. Short burst of fasting supports the microbiota, as it repairs itself, promoting beneficial bacteria that lowers inflammation. Be it Mosley's 5:2 or 16-8, find a routine that works for your lifestyle. Food window regulation turns out to be one of the best anti-obesity strategies around.

Practise 80/20. All lifestyle change has to allow for a bit of flexibility to be sustainable. The purpose of this lifestyle is to have a fabulous and healthy life. Food is a beautiful gift. So allow for weekly treats, joy and celebration to make a healthy life workable in the human village

## **An anti-inflammatory day**

Early morning: hot water with lemon and omega-3 pills, a cup of tea or coffee. Short meditation. Take a 15 min brisk walk with stunning music in your earphones.

Breakfast: Wait until 14 hours have passed since your evening meal. Break your fast with either a Good Looking Smoothie (one cup almond milk, one scoop vegan protein powder, one handful of blueberries, one tbsp flaxseeds, one tbsp walnuts, one handful spinach) or some scrambled eggs and berries.

Exercise: A 30-40 min session with some cardio and muscle training. Get your pulse up, use those muscles.

Lunch: Quinoa with stir-fried shrimp, carrots, green peppers and fresh herbs. Leafy greens, vinaigrette.

**Dinner:** Grilled salmon with chillies and rosemary, grilled sweet potatoes, green beans with garlic and olive oil and large green salad.

**Snacks during the day, if hungry:** Choose from full-fat natural yoghurt with chia seeds, fruits with nuts, a few hard-boiled eggs with cocktail tomatoes.

**Drinks:** Water, mineral water. Tea and coffee are both naturally rich in polyphenols and belong in this lifestyle without sugar. One to two glasses of red wine per evening during weekends.

**Evening:** Use a gratitude journal and give thanks for at least three things during the day.

***Health Revolution by Maria Borelius (HarperCollins) is out April 29. Preorder for £9.99 at [books.telegraph.co.uk](https://books.telegraph.co.uk) or call 0844 871 1514***

***Maria Borelius is an award-winning science journalist, biologist, best-selling author and podcaster who has been a board member at various pharmaceutical and tech companies since the mid-Nineties. She can be found on Instagram [here](#).***

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