

the magazine of Blood Pressure UK

ISSUE 50 > WINTER 2021

POSITIVE

pressure

TAKE PART IN NEW RESEARCH

Find opportunities
to get involved
in clinical trials

LEARN TO BAKE SALT-FREE BREAD

A wonderfully
simple way to
lower your
blood pressure

MEET OUR NEW CEO

Hear from our new
CEO, Phil Pyatt

HOW DO BLOOD PRESSURE MEDICINES WORK?


Professor Gareth Beevers
explains how medicines
lower blood pressure



**Blood Pressure
UK**

Helping you to lower your
blood pressure

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 **pressure** is the magazine of UK charity, Blood Pressure UK. We aim to significantly improve the prevention, diagnosis and treatment of high blood pressure in order to prevent death and disability from stroke and heart disease. We are an independent registered charity and rely on donations and grants to carry out our work. All views expressed within the magazine are those of the authors and do not necessarily reflect those of Blood Pressure UK. The information in this magazine is designed to support and supplement your relationship with your doctor, not to replace it.

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Welcome

From Phil Pyatt, Chief Executive Officer

This is my first issue of *Positive Pressure* as Chief Executive Officer for Blood Pressure UK since I joined the team in August, and I'm hugely excited to continue the fantastic work of Katharine Jenner in the months and years ahead.

COVID-19 has thrown up many challenges for all of us, and the impact the pandemic has had on other medical conditions is reported daily. With 16 million people in the UK with high blood pressure and one in three unaware they are one of them, there is a lot of work to do to improve the lives of people from all different backgrounds with much-needed awareness, advice and guidance.

None of the brilliant work the charity is doing would be possible without the support of our members, and I would like to take this opportunity to thank you all for continuing to support Blood Pressure UK. I'm enjoying getting stuck in and looking forward to the challenge ahead in helping people to Know Their Numbers! and take steps to healthier blood pressure and healthier lives.

You can read more on my ideas for the future of the charity on page 21, and I'd be delighted if you would join our patient panel to inform where we go from here – see page 18. You can also read about all the great research that's being done to improve the management of high blood pressure and even find opportunities to get involved in research yourself on pages 10 and 11.

I hope you enjoy this issue and seeing all the great work that's taking place on a national and global scale, and find ideas for the things you can do at home. It all counts. Together we will beat high blood pressure.

A handwritten signature in black ink, appearing to read "Phil Pyatt".A red circular graphic with white text. The text reads: "SIGN UP FOR YOUR COPY OF POSITIVE PRESSURE. If you've enjoyed this magazine but this isn't your own copy, then why not sign up to become a Blood Pressure UK member and have your own Positive Pressure delivered direct to your door, together with a host of other members' benefits? Visit www.bloodpressureuk.org/get-involved/become-a-member/".

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Blood Pressure News

“Age should be no barrier”

New research shows older adults still benefit from blood pressure-lowering medicines

Until now, there has been uncertainty about whether to offer blood pressure medicines to older adults, especially when their blood pressure is not substantially raised. Guidelines vary worldwide and UK guidelines don't recommend starting patients over 80 on medicines if their blood pressure is below 150mmHg.


Researchers from the University of Oxford have examined data on 350,000 adults aged 21-105 and found that blood pressure-lowering medicines help prevent heart attacks, strokes and other diseases in adults of all ages.

In the 75-to-84 year age group, a 5mmHg drop in systolic blood pressure (the top number) lowered the risk of major events by 9% no matter what



their blood pressure was to start with, down to 120/70mmHg. Those aged 85 and over could also benefit.

The authors said: “we believe that age should be no barrier to prescribing effective treatments” and argued for age-related thresholds to be removed from guidelines around the world.

 This study shows that blood pressure medicines should be an option for people of all ages.

A “new paradigm” in blood pressure management

Important new research shows ‘quadpills’ lower blood pressure more effectively than one medicine alone


The QUARTET study, published this September, has shown that treatment with a ‘quadpill’ containing four different blood pressure medicines at a quarter of the usual dose lowers blood pressure more effectively than starting with one medicine and building up.

Researchers in Australia split 591 adults with high blood pressure into two groups. One received a single blood pressure medicine at the usual dose and the other received the ‘quadpill’. The doctors could add in extra medicines if needed – known as ‘uptitration’.

After 12 weeks, more people in the quadpill group had their blood pressure under control (76% vs 58%) and it was lowered by an extra 6.9mmHg on average, without extra side effects. After a year, the effect was even stronger and, if maintained in the long term, would translate to an extra 11% lower risk of heart disease and 18% lower risk of stroke and heart failure.

Interestingly, more people receiving the single pill needed extra medicines and never caught up with the quadpill group.

The authors argue that this study could mark a “new paradigm” in blood pressure management and should inform future guidelines.

 This study adds to the research in favour of combination pills as a quicker and easier way to control blood pressure than building up multiple medicines step by step.

Out & about

A FEW THINGS WE'VE BEEN UP TO LATELY

SHARED DECISION-MAKING FOR PATIENTS AND PROFESSIONALS

A new pilot project we supported has shown that online training and an updated Heart Age tool can help health professionals and



patients share decision-making to lower blood pressure. The new model for improving communication and motivation, created by C3 Collaborating for Health, Younger Lives and Smart Health, is ‘pandemic-proof’ and has gained interest from health professionals in the UK and abroad.

THE YEAR OF HOME MONITORING

We made this the year of home monitoring as we took our 21st Know Your Numbers! Week online for the second time. Home monitoring provides a COVID-safe way to keep an eye on your blood pressure numbers, keep your blood vessels healthy, and take the pressure off NHS services at the same time. See page 8 for the highlights.

OUR FIRST ‘IN REAL LIFE’ APPEARANCE IN A YEAR

Our new CEO Phil and Marketing Manager Hemini attended the British and Irish Hypertension Society conference in Brighton this September where we presented our work and resources to health professionals and researchers. It was our first face-to-face event since November 2019 and we were delighted to be out talking to people again.



Blood Pressure News

NEWS ♥



720 million are untreated for high blood pressure


WHO updates their treatment guidelines for the first time in 20 years as number with high blood pressure doubles

1.28 billion adults now have high blood pressure according to new data from the World Health Organisation (WHO) and Imperial College London, doubling from 650 million 30 years ago. More than half of these – 720 million – are not receiving treatment, usually because they are undiagnosed.

The proportion of the population with high blood pressure has not changed much since 1990 but the total number has risen due to a growing and ageing population. Importantly, there has been a shift in prevalence from richer

countries to poorer. Now, 80% of those with high blood pressure are in poorer countries.

On the same day that the WHO published the figures this August, they released their new guidelines aiming to help countries improve the detection and management of high blood pressure. Importantly, they support a move towards pills which combine more than one blood pressure medicine, aiming to make it easier for people to take them every day.


 *In the UK and around the world, we need better ways to detect and manage high blood pressure. We welcome the new guidelines and their potential to improve both.*

High street pharmacies roll out free blood pressure checks

Pharmacies across England now offer free checks to over 40s

From this October, community pharmacies in England started offering free checks to people aged 40 and over so they can find out if they have high blood pressure. High blood pressure often goes undetected as it has no symptoms, so a blood pressure check is the vital first step in getting lifesaving treatment.

The NHS, who are funding the service, estimate that the tests could prevent 3,700 strokes and 2,500 heart attacks, and save 2,000 lives over the next five years. It forms part of the NHS long term plan to save lives by picking up on long term conditions while they're still in the early stages.

 *High Street pharmacies have played a vital role during the COVID-19 pandemic, and we are encouraged to see that they are now taking action on another – high blood pressure. This service is especially important as we were not able to host Pressure Stations during Know Your Numbers! Week this year.*

Lifestyle changes lower blood pressure – even when medicines don't

New study shows potential of structured diet and exercise programmes

Resistant hypertension is where blood pressure isn't brought down to target even with three or more different medicines. It's a common problem that leaves people with a raised risk of strokes and heart attacks. Scientists are exploring treatment options and, surprisingly, there is almost no research into diet and lifestyle.

The TRIUMPH (Treating Resistant Hypertension Using Lifestyle Modification to Promote Health) trial included 140 people split into two groups. One received a programme of supervised exercise, dietary counselling, and weekly group sessions with a clinical psychologist. The second group received a one-hour counselling session including an individualised diet programme and the same exercise prescription, but without ongoing supervision. Both groups kept taking their medicines.

Encouragingly, both groups benefited during the four-month trial but the supervised group made the most progress, with lower blood pressure, greater weight loss, improved fitness and healthier blood vessels.

More people in the supervised group reached the target of <math><130/80\text{mmHg}</math> and their blood pressures dropped by more than 12mmHg on average, compared to 7.1mmHg in the second group.

Blood Pressure SAYS *The findings support the value of intensive, structured and supervised lifestyle interventions for resistant hypertension, providing a simple solution for better health.*



Potassium-based salt substitutes lower the risk of stroke

Major new study in China shows swapping regular salt for potassium-based alternatives lowers the risk of strokes and heart attacks

Salt is made of sodium chloride and the sodium directly raises blood pressure. Swapping regular salt for a low-sodium alternative is known to lower blood pressure, and now a landmark study has shown that it can help prevent the consequences of high blood pressure too.

The Salt Substitute and Stroke Study divided 600 villages in rural China into two groups. One continued to use regular

salt and the other used a potassium-based substitute.

After five years, the group using the salt substitute had a 14% lower risk of stroke, 13% fewer major events such as heart attacks, and 12% fewer premature deaths, with no difference in side effects.

The authors argued that the food industry should switch to salt substitutes, governments should promote them over regular salt, and people at home should make the switch. People taking medication for diabetes, or heart or kidney disorders, should speak to their doctor first.

Blood Pressure SAYS *Eating less salt is one of the simplest ways to lower your blood pressure but if you must use salt, go for a potassium-based substitute. It's time the food industry does the same.*



We have a long-standing partnership with reduced sodium salt alternative LoSalt®. Find more information on LoSalt on pages 22 and 23.



Berries, bacteria and blood pressure – what’s the link?

New research suggests certain fruits could help lower blood pressure, and the effects depend on your gut bacteria

A new study from Germany has found that certain plant foods could help lower blood pressure but seem to offer more protection to some people than others, and the difference could be down to variations in gut bacteria.

The study of 900 people showed that berries, red wine, apples and pears were all linked to lower systolic blood pressure. These foods are rich in plant chemicals called

flavonoids which scientists believe protect heart health, and gut bacteria play a part in the process.

The effects seem to be a two-way street – our gut bacteria affect the way our bodies break down and use foods, and what we eat affects our gut bacteria.

As can often be seen in dietary studies, the amounts are important. 1.6 portions of berries a day (nearly two handfuls) was linked to a 4.1mmHg reduction in blood pressure.



Though it may be tempting to reach for the red wine, there are better ways to lower blood pressure.



New data supports a lower blood pressure target

Additional data from 2016’s landmark SPRINT trial shows that aiming for 120mmHg rather than 140mmHg saves lives

Back in 2016, The Systolic Blood Pressure Intervention Trial (SPRINT) was the first major study to show that lowering systolic blood pressure (the top number) to 120mmHg rather than the usual target of 140mmHg further reduced the risk of strokes, heart attacks and other serious diseases.

The trial of more than 9,000 people showed that people receiving the more intensive treatment had a rate of serious outcomes of 1.77% per year compared to 2.4% in people with the usual treatment target. The study was stopped early because the intensive treatment was clearly saving lives, and those taking part were referred back to their GP.

Now, data collected in the months after the trial stopped have been analysed and the results further support the lower target of 120mmHg.

The SPRINT Trial was a landmark trial in demonstrating that lives can be saved with a lower blood pressure target. The new analysis adds to the case for intensive treatment.



Cornish Sea Salt remove misleading health claims

Salt retailer removes claims implying their salt is a healthy option after we raised concerns

Cornish Sea Salt have removed health claims from their website after we showed them the evidence that salt directly raises blood pressure.

Their Instagram account included the phrase ‘Naturally lower in sodium’, giving the product a healthy appearance, and their website noted the health benefits of the different micronutrients in salt, including calcium and potassium.

In reality, all salt is equally high in sodium, which raises blood pressure, and any other nutrients are present in such tiny amounts they can’t make any difference to your health.



We’re really pleased that Cornish Sea Salt took our concerns seriously so their customers aren’t choosing products based on false beliefs that any salt is a healthy choice.

From the sun and the soil to the till at the cornershop



2021's landmark National Food Strategy is an action plan for overhauling the food system to improve our health and protect the planet. Jenny Rosborough, Registered Nutritionist and Head of Nutrition at Jamie Oliver Ltd, explains why this plan is so important, and why we all need to get on board.

Over the last two years, Henry Dimbleby and a team of advisors have analysed the entire UK system. Their plan, published this July, aims to change the way people think about it and make recommendations to change it.

So, what is the food system? According to the National Food Strategy (NFS) it's "*the combination of all of the elements that produce, process, market and sell the food we eat and the connections between them... From the sun and the soil to the till at the corner shop.*"

One line that stands out to me is "*the food system we have today is both a miracle and a disaster*". Intensive farming enabled us to feed a growing population, but it comes at a cost: it's the second-biggest contributor to climate change after the energy industry.

It's damaging our health as well as the planet. In England, diet is the leading cause of avoidable harm to health. The most deprived areas suffer the most, with higher rates of heart

disease, preventable cancer, tooth decay, obesity and diabetes.

Most people believe that dietary health comes down to education, will-power and choice, but this idea is problematic. When it comes to food, our "choices" are heavily influenced by factors outside of our control, for example, money, accessibility, time and advertising.

Over half of our diets are made of ultra-processed food – junk food – and the average Brit consumes five times the volume of crisps that we did in 1972. We're hard-wired to seek out high calorie foods and, as they are

produced at such scale, they are the cheapest option. This means we buy more of them, and the junk food cycle continues.

Health policies have not worked until now either because they haven't been implemented or monitored well, or they've focused on individual change when the change we need is systemic. We need a level playing field for food manufacturers because many of them want to do the right thing, but unless the coffee shop next door gets on board as well, they're at a commercial disadvantage. The industry are caught in the cycle too.

The NFS makes 14 recommendations for improving health and protecting the planet. Importantly, they propose a tax for manufacturers of £6/kg on the salt and £3/kg on the sugar they add to foods. The idea is to incentivise manufacturers to lower the salt and sugar they add to foods, lowering the average salt intake by an estimated 0.2-0.6g per person per day and sugar intake by 4-10g per person per day. Enough to make a meaningful difference over time.

The government has six months from July 2021 to publish a White Paper detailing which recommendations it will take forward, so the next few months are critical. Policies need to be popular to gain government support, so we need enthusiasm from the public, organisations, and multiple government departments. No individual can make a systemic change, but together, we can.

Blood Pressure UK are going to work with other organisations to support the NFS – watch this space. You can read the full recommendations at www.nationalfoodstrategy.org

The NFS sets out four key objectives:

- 1 Escape the junk food cycle to protect the NHS
- 2 Reduce diet-related inequality
- 3 Make the best use of our land
- 4 Create a long-term shift in our food culture

For our 21st **Know Your Numbers! Week**, we got the nation checking their blood pressure at home to take on the forgotten pandemic of high blood pressure.

The year of home monitoring

This September, we took our annual campaign online for a second year, providing the nation with the resources not only to check their blood pressure at home, but to get it under control. Here are some of the highlights.



This year's poster went down a storm

Our fabulous poster asked the question 'Are your pipes in good working order?' and was very popular on social media.

We reached tens of thousands on social media

We took to twitter and facebook to get the word out and received lots of support in return. Health professionals, researchers and politicians alike got involved, as well as those who simply want to Know Their Numbers!. NHS England and Trusts around the country spread the message, as well as health charities including BHF, the Stroke Association and May Measurement Month.

High-profile decision-makers got on board

We had support from Professor Jamie Waterall, National Lead for Cardiovascular Disease Prevention at Public Health England (PHE), and Dr Shahed Ahmad, National Clinical Director for Cardiovascular Disease Prevention at NHS England. Lowering high blood pressure is a key part of PHE's ambitions to prevent 150,000 heart attacks and strokes over the next 10 years.

BBC Morning Live featured Dr Xand van Tulleken talking about the campaign and how and when to measure your blood pressure, including a very helpful explanation of the things that raise your blood pressure in the short term and long term (see page 12 for more).



We welcomed the return of community blood pressure checks

While much of the campaign was online, we were delighted to welcome back a number of in-person events, where health professional volunteers were very happy to be out offering free blood pressure checks in their communities again.



Getting the word out with webinars

We hosted a series of webinars reaching people in the workplace. Katharine Jenner spoke to PHE, the London Metropolitan Police and an engineering company to explain why it's important to Know Your Numbers!, how to lower them, and how to measure blood pressure at home. The talks were very well received:

"Thanks Katharine. Great info. Receiving my new monitor tomorrow!"

"Thank you so much. Really informative."

"Thank you, my husband has just been diagnosed with high blood pressure so this has been very helpful."

We showed why the campaign is so important

We ran a survey which showed apathy is a silent killer, with over a third of respondents stating their blood pressure is not of concern. It also showed:

- four in ten ignore the need to check their blood pressure
- four in ten don't understand why they should know their blood pressure numbers
- two thirds said the pandemic has not made them want to improve their general health, despite heart disease, being overweight and other conditions being risk factors for complications of COVID-19.

Our Chairman Graham MacGregor, Professor of Cardiovascular Health, explains:

"Half of all strokes and heart disease are due to high blood pressure. It is vital that high blood pressure is detected early and treated. Everyone needs to take control of their health by checking their blood pressure either at home, at a pharmacy or with their practice nurse. This could save your life."

We made a splash in the media

Know Your Numbers! made headlines around the country. The Times led with "Ignoring blood pressure checks is a silent killer" and i news featured our supporter (and hero!) Steve Rebus who was left blind due to complications of high blood pressure. He now checks his blood pressure regularly – as well as everyone around him. You may remember Steve from last winter's *Positive Pressure* when he walked the equivalent of ten Marathons to raise money and awareness for Blood Pressure UK.

A huge thank you to all who have taken part, whether to share the message or to check your blood pressure at home.

Could you get involved in a research trial?



Our Trustee Dr Pauline Swift, Consultant Nephrologist at Epsom and St. Helier University Hospitals NHS Trust, explains the benefits of taking part in clinical trials

In medicine, in general, we have always been led by the science – a phrase that has become part of our lives while listening to politicians talking about strategies to deal with COVID-19. During the pandemic, hundreds of thousands of patients and volunteers worldwide took part in clinical trials to assess the benefits and risks of new treatments and prevention strategies with vaccines.

Some of the earliest and largest clinical trials in medical history were carried out in patients with high blood pressure. These trials are the reason we know that treatment with diet and medications reduces the risk of heart attack, stroke, heart failure and kidney failure.

It is still important that volunteers and patients take part in clinical trials today so that we can determine, in a proper and scientific way, if a new treatment or intervention for high blood pressure is worthwhile in terms of preventing disease and disability, and most importantly, if that treatment is safe.

Are your blood pressure tablets working?

We are investigating the effect of medication reviews on blood pressure control in patients with hypertension (high blood pressure). Taking part in the OUTREACH study may help you or someone you know.

For more information contact the OUTREACH research team based at your nearest participating hospital or e-mail: OUTREACH1@manchester.ac.uk

Dundee Ninewells Hospital tel. 0138 238 3119	Leicester Glenfield Hospital tel. 0116 258 3819	Manchester Manchester Royal Infirmary tel. 0161 276 5737
London:	Epsom and St Helier University Hospital tel. 0208 296 2891	Homerton Hospital tel. 0208 5105 568
Royal Free Hospital e: rs.renalresearch@nhs.com tel. 0792 207 6300	St Bartholomew's Hospital tel. 0207 882 5660	St Thomas' Hospital tel. 0207 188 4768

For more details, please go to www.sites.manchester.ac.uk/outreach

This study is funded by the British Heart Foundation and sponsored by The University of Manchester. IRAS no: 229352 V4.0 27/04/2021

There are two opportunities to take part in research at the moment: the OUTREACH study, above, which Pauline is part of which you can read about at www.sites.manchester.ac.uk/outreach and a new study exploring isometric exercises, on the next page.



Take part in new research into isometric exercise

Ben Wright is studying for a PhD at the University of Northampton and is running a series of studies exploring how isometric exercises can be used to lower blood pressure. He and a team of researchers are recruiting for a new trial this January, so we caught up with Ben about his research and how you can take part.

What are isometric exercises?

Isometric exercises are when muscles contract but don't change length. They're often referred to as 'static' exercise. An example is squeezing a ball in your hand and holding that squeeze, as the muscles of your forearm are isometrically contracting. This is opposed to isotonic contractions where the muscle lengthens and shortens, for example, a bicep curl.

In the past, isometric exercises were thought to be unsafe because they raised blood pressure, and there wasn't much research into them. However, research is emerging that suggests the size of the blood pressure response is determined by the intensity and duration of the exercise, and low-to-moderate intensities are safe. You do them in short sessions, typically at 20-30% of your muscles' maximum force, so they don't put too much stress on your heart and blood vessels.

What's known about isometric exercises so far?

The research has really taken off over the last ten years or so. Studies have now shown that just four weeks of isometric exercise

can lower blood pressure and may be just as effective as medication, and as good if not better than other types of exercise! There are now different methods of completing isometric exercise, common methods being using a hand grip device or bilateral leg extension, where you try to straighten both legs as you push against a specialist piece of equipment.

An advantage of isometric exercises is that they only take a short time. They have been shown to lower systolic blood pressure by about 5-8mmHg with only 12-14 minutes sessions performed three times a week over eight-weeks. With rest time, that's just eight minutes of contractions per session. It's more time-efficient than going for a run and you can do them seated at home, so it's a more attractive way to reduce blood pressure, and it's suitable for more people. The mechanism by which they work isn't completely clear, but recent studies looking at hand grip exercises have shown they may improve the function and structure of blood vessels locally, so it appears the blood vessels adapt to the repeated exercises.

What's the new research trying to find out?

We're looking at different ways of performing the exercises and how they affect blood pressure. We're also exploring biomarkers in the blood to understand the mechanisms.

We're recruiting for a new study from January exploring whether whole-body exercises using resistance bands are more effective than hand grip exercises, what effect they have on blood vessels throughout the body when larger muscle groups are used, and if the exercises can be done effectively at home.

The idea is to develop safe and effective exercises that people can do at home without supervision, the need to travel, or expensive equipment.

What's involved in taking part?

To take part, you will need to visit Northampton around five times over ten weeks and complete three short exercise sessions a week at home for eight weeks.

If you are interested in taking part, and for further details, contact Ben at Ben.Wright@northampton.ac.uk

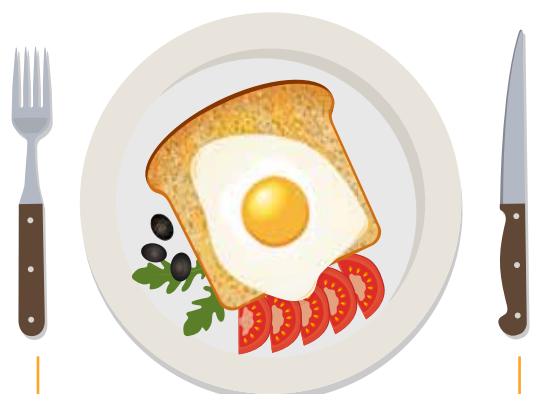
What raises your blood pressure throughout the day?



Many things can raise your blood pressure over time – an unhealthy diet, your genes, even getting older, but there are things that raise your blood pressure in the short term too. That’s why your GP will usually check your blood pressure on several occasions over a period of weeks or months before making a diagnosis. It’s also why we say there’s no need to worry if you have a one-off high reading – and if you do, take some time to rest and relax before taking some further readings a few minutes apart.

Take a look at some of the things that will cause a spike in your blood pressure, so you can get more reliable readings at home and at the doctor’s office.

You can get lots more advice on how and when to measure your blood pressure at home from www.bloodpressureuk.org plus advice on how to lower it.



Movement

Jogging, dancing, rushing to an appointment, even standing up... movement raises your blood pressure because your muscles contract and your heart works harder to pump blood around your body. Sit still for at least five minutes before taking your blood pressure, and wait half an hour after exercising.

Don’t worry, physical activity is safe for most people and doesn’t raise your blood pressure enough to cause any harm. Activity is good for you, especially aerobic exercise. Just avoid heavy weights, planks, and very intense exercise. You can also ask your GP what’s safe for you if you’re new to exercise and you’re not sure.



Eating

During a meal, your blood pressure will fall, as blood is directed to your digestive system and away from the rest of the body. This is why older adults sometimes feel dizzy straight after eating. After a meal, your blood vessels will contract to restore balance and your blood pressure will rise slightly.

It’s best to get into a routine of when to record your blood pressure – before breakfast for example – and avoid eating for 30 minutes beforehand.



Alcohol

Having a beer or a glass of wine will raise your blood pressure due to various effects on the body, but it should fall back down to normal within a couple of hours. Heavy drinking over time will raise your blood pressure in the long term, so stick to the recommended 14 units a week or less.

Feeling stressed

Stressful situations and anxiety cause a temporary rise in your blood pressure. Your body releases stress hormones which get you ready for fight or flight. Unhelpfully, even a visit to the doctor can cause a spike in your numbers. Take some deep breaths before your appointments and check your numbers at home to get a better idea of what your blood pressure is really like. And don't worry, it will go back to normal after the stress has gone.

Talking or laughing

Even talking or laughing will have an effect, possibly due to increased output from the heart, that's why we say don't talk or laugh while you're measuring your blood pressure.



Temperature

Cold temperatures will cause your blood vessels to contract so your blood pressure rises. Make sure you're warm and comfortable before you check your pressure.

Caffeine

There's no problem with drinking tea and coffee throughout the day, but don't have any for at least 30 minutes before you check your blood pressure because caffeine will cause your blood vessels to constrict, raising your numbers. Just avoid liquorice tea – it's a surprising cause of high blood pressure.

Body position

Your blood pressure changes with whether you are lying down, sitting or standing, because it affects how hard your heart has to work to pump blood around your body. Measure your blood pressure while sitting down with a back support, both feet flat on the floor and your arm resting on a surface at chest height.



Smoking

Smoking will cause a spike in your blood pressure in the short term because nicotine affects the nervous system and causes your blood vessels to contract. So, don't smoke for half an hour before a check. The chemicals in smoke damage your heart and blood vessels in the long term too, so it's best to quit altogether.

Time of day

Blood pressure varies with time of day. Generally speaking, it's lowest when you're sleeping, starts rising as you wake up, stays high during the day time, and may go down slowly in the evening. Always check your blood pressure at the same time of day so you don't get a shock unnecessarily.

A full bladder

Don't measure your blood pressure if you need to go to the toilet, as a full bladder pushes on the kidneys and raises your blood pressure. Go to the loo first.

A too-small cuff

Make sure the arm cuff of your monitor fits you properly – your doctor or nurse can show you if you're not sure. Make sure your cuff is over bare skin – wear loose clothes so that your sleeve isn't too tight around your arm when you roll it up.



How blood pressure-lowering drugs work

Millions of people in Britain are taking one or more drugs to lower their blood pressure, and thank goodness they are, because blood pressure reduction saves lives. Many people, however, probably do not realise that there are many different classes of drugs which work in very different ways.

In this review, Professor Gareth Beevers explains, in simple terms, the mechanisms that cause blood pressure to rise in the first place, and goes on to show how modern medicines block these pathways to lower blood pressure.

Our blood pressure is maintained by many interlocking mechanisms. One is the autonomic nervous system, which uses the hormones adrenaline and noradrenaline, but most modern medicines do not block this system. The other is the renin-angiotensin-aldosterone system, known as the RAAS. Most modern drugs block this system, so I will focus on this in this review. **To start with, take a look at figure 1, our current knowledge of how the RAAS works.**

The RAAS normally results in a healthy blood pressure. So, what makes things go wrong, allowing blood pressure to rise persistently, causing hypertension? The short answer is, we don't know.

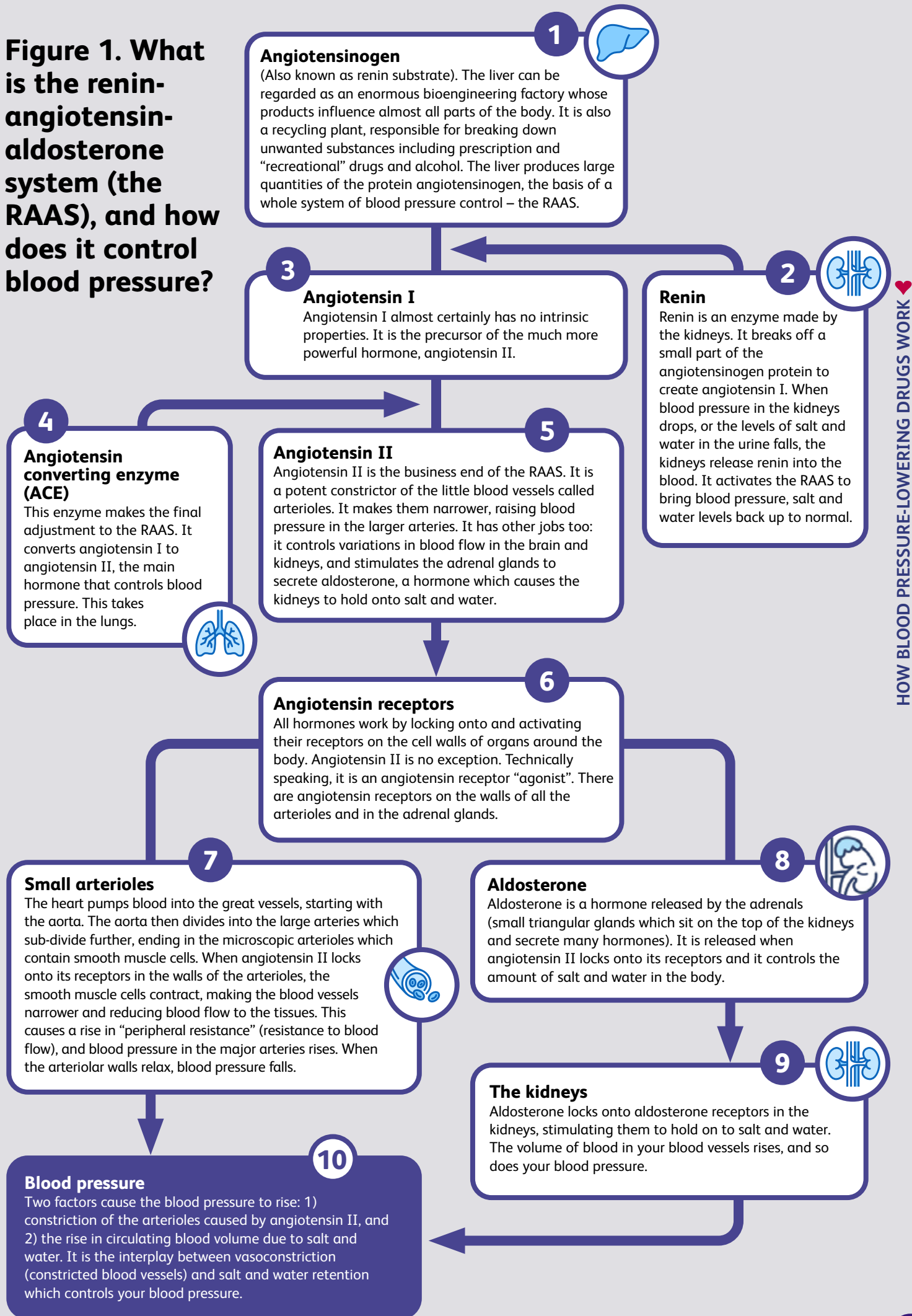
There are a few rare conditions where tumours produce large quantities of the hormones which raise blood pressure (renin- and aldosterone-secreting tumours were

described in the Summer 2021 issue of *Positive Pressure*), but for the vast majority of people with raised blood pressure, no underlying cause can be found. Instead, the cause is due to the interplay of genetic factors (hypertension runs in families), lifestyle and the environment.

There is, however, overwhelming evidence that hypertension can be reduced or controlled if we all eat a low salt diet, more fruit and vegetables, avoid being overweight and take more exercise. It also helps to moderate alcohol intake.

Despite all the benefits of a healthy lifestyle, blood pressure may remain raised in some people, and antihypertensive drugs are necessary. **Most of the drugs used today block the RAAS, so in figure 2, let's see how they work.**

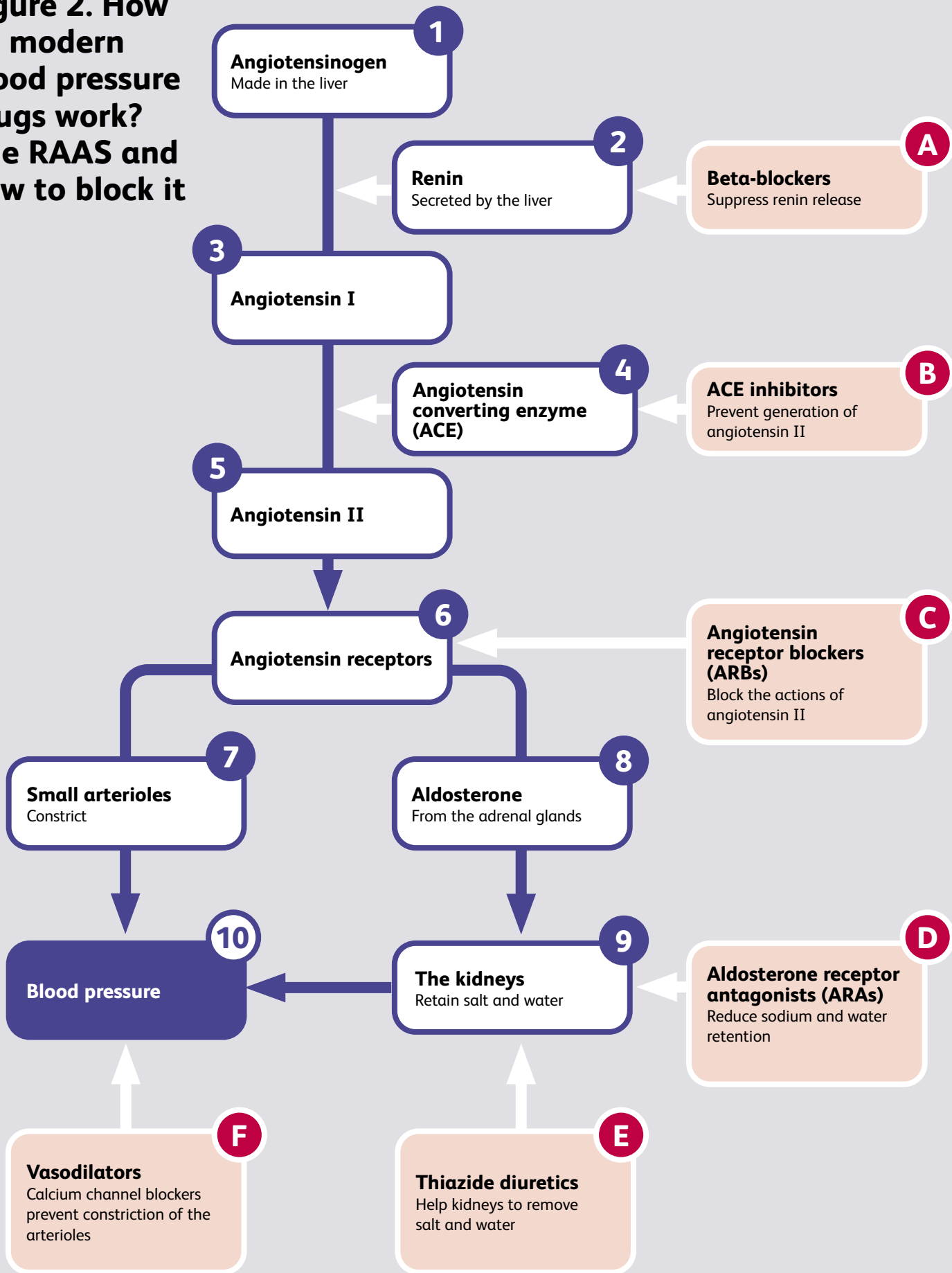
Figure 1. What is the renin-angiotensin-aldosterone system (the RAAS), and how does it control blood pressure?



HOW BLOOD PRESSURE-LOWERING DRUGS WORK

Figure 2. How do modern blood pressure drugs work? The RAAS and how to block it

HOW BLOOD PRESSURE-LOWERING DRUGS WORK ♥



A The beta-blockers (such as bisoprolol)

Their full name is “the beta-adrenergic receptor blockers”. Introduced in the 1960s, they were originally used to treat heart disease but were also found to lower blood pressure. This is partly due to reduced output of blood from the heart, but it became clear in 1972 that they also reduce renin release by blocking the beta-adrenergic receptors in the kidneys – hence their name.

Some beta-blockers can cause lethargy when used in high doses. Nowadays, they are most often used for hypertension where there is also evidence of coronary heart disease or atrial fibrillation (irregular heart rate).

B The angiotensin converting enzyme inhibitors (such as perindopril)

Commonly called the ACE inhibitors, their development in the late 1970s was a major breakthrough. They cause a fall in blood levels of angiotensin II, and therefore in blood pressure. They are also helpful in heart failure and many forms of kidney disease.

Their problem is that they can cause a dry irritating cough in up to 20% of people who take them. The cough is commonly worse at night, much to the irritation of the patient’s spouse. Much more seriously, they can also cause an allergic reaction called angio-oedema which leads to swelling of the lips and tongue. This occurs in 1 in 4,000 patients but is more common in people of African origin.

C The angiotensin receptor blockers (such as losartan)

Their name is abbreviated to the ARBs, and they were introduced in the mid-1990s. They block the angiotensin II receptors in the arteriolar walls, thus relaxing the arterioles and reducing blood pressure in the larger vessels. They also block the receptors in the adrenal glands, lowering aldosterone levels.

They are as effective as the ACE inhibitors at lowering blood pressure and treating heart failure and kidney disease, and there are hardly any reports of angio-oedema or cough.

The ACE inhibitors and the ARBs are often grouped together as the “angiotensin blocking drugs”, although they are chemically very different. Many experts think the ARBs should replace the ACE inhibitors in routine clinical practice.

D Aldosterone receptor antagonists (such as spironolactone)

Introduced in the 1960s, these drugs prevent aldosterone from stimulating the kidneys to hold on to salt and water, by blocking the aldosterone receptors. They have proved very effective as third-line drugs added on to other blood pressure medicines. They are useful when treating heart failure.

When first introduced, they were used in very high doses and often caused side effects of breast tissue enlargement and impotence in men, as well as gastric irritation. With much lower doses, these side effects are uncommon.

The ACE inhibitors and the ARBs are often grouped together as the “angiotensin blocking drugs”, although they are chemically very different. Many experts think the ARBs should replace the ACE inhibitors in routine clinical practice.

E The thiazide-type diuretics (such as indapamide)

Since their introduction in the 1950s, these drugs have been the mainstay of blood pressure treatment and must have saved countless lives. They do not affect the RAAS but work independently by stimulating the kidneys to release salt and water into the urine and thus lower blood pressure.

In the early days, they were used in high doses and side effects such as impotence, excessive loss of sodium and potassium, and raised cholesterol levels were common. These side effects are much less common with the newer versions used in lower doses.

The thiazides are rarely used alone

nowadays but are the preferred option to use alongside ACE inhibitors or ARBs.

F The calcium channel blockers (such as amlodipine)

These drugs (the CCBs, sometimes called the calcium entry blockers), were introduced in the early 1980s. When the sodium content of the smooth muscle cells in the small arteries and arterioles is high, calcium can enter the cells and cause them to contract, causing the vessels to constrict and raise blood pressure. The CCBs block this calcium entry and lower blood pressure.

The main side effect of the CCBs is ankle swelling. This is not due to heart or kidney problems and is not serious, although it is unacceptable. It can be minimised with low doses. It is most common with amlodipine and related drugs and is much less common with the non-dihydropyridine CCBs like verapamil and diltiazem. The CCBs can also cause swelling of the gums but this can be minimised with scrupulous dental hygiene.

So that’s it. I have not included some other drug classes as they are now rarely used except in special circumstances. All of the drugs in this review have been tested in long-term randomised clinical trials in many thousands of patients. They prevent heart attacks, heart failure and strokes. They also save lives.

There is a body of opinion that holds we do not need new types of blood pressure-lowering drugs and what we need to do now is to persuade doctors to use them and to use them correctly. I don’t agree; we can always achieve better, and we must always strive to do so.

Professor Gareth Beevers is a Trustee and Medical Advisor for Blood Pressure UK. He is Emeritus Professor of Medicine, University of Birmingham and retired consultant physician, City Hospital, Birmingham.

You can read more about the different blood pressure medicines at www.bloodpressureuk.org



Join our new PRESSURE PANEL

Take a seat on our patient panel
to help influence blood pressure care

You are an expert in your own experience, and your perspective can help guide our work to influence blood pressure care in the UK. We are setting up a Pressure Panel and we would like to invite you to join. This will be a small group of people affected by high blood pressure who are willing to share feedback every now and then, by questionnaire every few months, for example.

If you would like to join our Pressure Panel,
email us at info@bloodpressureuk.org

TOPICS WILL INCLUDE:

- Your experience of treatment.
- The language we and healthcare professionals use.
- What you think of the advice we give.
- Our campaigns.
- Your experiences with GPs, pharmacists and other health professionals.
- Co-signing letters we send to politicians and decision makers.

It's very important to us that our work and recommendations involve the experience of people living with high blood pressure. We'd love for you to get on board.

Shop from our charity cards and gifts

Do you have a special occasion coming up? Choose from our range of Christmas cards, greetings cards, wrapping paper and gifts for all occasions, available from Care Cards. You can personalise presents with the special person's name, such as notebooks for adults and playful placemats for children. 25 % goes to fund our life-saving work.



Visit www.care-cards.co.uk/shop/?charity=blood-pressure-UK

Positive Pressure Book Club

With so many books about health and wellbeing available, we thought it was about time we reviewed some. Here's what we've been reading.



WHY CALORIES DON'T COUNT

BY DR GILES YEO

Review by Katharine Jenner,
Director of Action on
Salt and Sugar



We are used to seeing books about nutrition with shocking titles from all sorts of celebrities and 'wellness' experts, but you don't expect to see them from leading Cambridge University geneticists accompanied by extensive PR, with podcasts, interviews and news headlines. My interest was piqued!

The first thing you notice about this book is the language. If you are unfamiliar with Giles' presenting style, I recommend that you watch his 'Trust me I'm a Doctor' program where he interviews our very own Professor Graham MacGregor. He speaks in a very open, upbeat, and colloquial American way and his writing style is exactly the same.

The second thing you notice is, despite this being a lockdown project he has certainly done his desk-based (kitchen table-based) research! He covers a fantastic array of historical nutrition research and makes it fully understandable, and that's no easy feat. The science of nutrition is notoriously hard to navigate because the research is never black and white.

Giles explains the history of the humble calorie and all its intricacies in such an interesting way (put simply, it is a unit with which we measure the

energy from food and drink) that I enjoyed it immensely – but then again, I am a nutritionist. It seems that the calories we see on our food labels are largely based on measurements done by Wilbur Atwater in the 1900s using a calorimeter (an apparatus that measures human respiration), which was built to precisely measure the energy provided by food.

So, why call the book 'Why Calories Don't Count'?

It's difficult to know exactly how many calories come from each item of food because we all metabolise them in slightly different ways, and so, even though the calculations have been refined over the years, Giles argues that what's on the label is not always entirely representative of the calories each individual is able to extract from their food. Which is true and very interesting. But the nitty-gritty detail of whether a slightly higher protein food releases less calories than it says on the label, vs whether a slightly higher fat food releases slightly more than it says on the label, seems to be missing the point somewhat. Most of the population are eating excessive calories, and not from avocados and nuts, but from highly-processed, salty, sugary, fatty foods.

Calories do count. We have a huge problem with overweight and obesity in this country, and what is the cause? The simple answer is that we eat too many calories. The slightly more nuanced answer is that we eat too many calories from foods that aren't giving us nutritional benefits.

What is missing from this book is

practical solutions. One of the reasons we eat too many calories is that the food industry mercilessly targets us with adverts, special offers and misleading packaging to trick us into thinking we are buying healthier food than we actually are. Giles suggests adding an extra calculation to nutrition labels to account for the 'thermic effect' of foods! But this is at odds with the public health calls for clear and transparent labelling that's easy for everybody to understand.

This is a fantastic and interesting book which is relevant for assessing personal calorie intakes, but I must argue that calories do count.

The final word must go to Atwater himself, the father of calorimetry (the science of measuring calories), who believed that "*the cheapest food is that which furnishes the largest amount of nutriment at the least cost; and the best food is that which is both most healthful and cheapest*". In other words, make good food affordable for all – now that's a message that might not grab headlines, but will never date.



**HAVE YOU FOUND
A BOOK THAT'S INSPIRED
YOU TO CHANGE YOUR
LIFESTYLE?
LET US KNOW AT
info@bloodpressureuk.org**

Bake your way to lower blood pressure

Susan from Essex is a bread-making enthusiast and here she shares her salt-free bread recipe – a heart-warming way to lower your blood pressure

Bread is a big source of salt in people's diets because we eat it so often, and salt raises blood pressure. All recipe books will tell you to add a teaspoon of salt but you don't need salt to make fantastic bread – I haven't added it for years. The bread tastes better and even rises better because salt actually slows down the rising.

You can use any bread recipe and simply cut out the salt, but here is my basic recipe. You can use any flour that contains gluten – wheat, rye, spelt, emmer or einkorn. You can use half white or brown flour and half rye or spelt flour – any mix you like. You don't need any special things, just an oven and, if possible, a large bowl.

I hope that breadmaking will bring you as much pleasure as it has brought me. It's absolutely wonderful – so simple and relaxing – and fun for kids too.

TIP: You can make rolls too. Simply cut the dough into eight pieces after it's risen and re-shape into balls, then cook for 20 minutes.



TIP: Bread-making flour rises well because it contains more gluten, but you can use plain flour. Just don't use self-raising flour, that's for cakes!

SUSAN'S EASY SALT-FREE COB LOAF

Ingredients

500g flour
1 tsp dried yeast
1½ tsp sugar or honey
Approx. 300ml warm water (not hot)

Method

1. Put the flour in a bowl or on a board or flat plate. Punch a hole in the middle with your fist, then add the dried yeast and sugar to the hole but don't mix them in. Pour some of the 'hand-hot' water into the hole to make a well. Leave for about 20 minutes – the warm water and sugar will 'wake up' the yeast, and the water will bubble when it's awake.
2. Mix the flour and water together with your hands. Then add more hand-hot water a little at a time.

Keep mixing until the flour makes a ball that is firm but not sticky. You might need a little more water, or a little less. Your ball is now dough.

3. Put the dough on a floured surface and punch it, then stretch it out with both hands. Fold the dough back in on itself and repeat – this is kneading. Do this for about five minutes, then shape your ball into a rounded shape. Cover your ball with a clean tea towel and leave for about two hours. It should be twice the size by then.

Many recipes say to knead it again, but you don't have to.

4. Put the dough on a greased tray (metal or clay) and put it in a hot oven for 35 minutes. That's 220°C, 420°F, or gas mark 7. You can even cook it on a griddle or BBQ.

Your bread should stay fresh for about four days if you put it in a metal or wooden bread bin.

Editor Kay says: "I've never made bread before and I can't believe how simple and fun it is, and cheaper too. I couldn't even taste that it didn't have salt added. I'll definitely make it again."

Meet the CEO

Introducing Phil Pyatt, our new Chief Executive Officer



Q WHAT HAS LED YOU TO BLOOD PRESSURE UK?

After finishing my degree in marketing, I started my career in interactive TV and BBC World News but quickly realised I wanted to work in the voluntary sector.

I worked in several roles focused on young people, giving back to communities and making small charities sustainable. I became CEO of Action for Stammering Children, supporting children who stammer and their families. Most recently, I became CEO of Timebank, a charity that recruits and trains volunteers to deliver mentoring projects to tackle complex social problems. We had many different projects on the go, such as delivering English workshops to Muslim women who spoke little or no English so they could talk to their doctor or their children's teachers.

Q WHAT ARE YOU MOST PROUD OF?

I always aim to get an organisation in better shape than when I started so it can make a bigger impact, and do as much as I can with limited resources. At Action for Stammering Children I managed to get someone from our youth panel onto The One Show's Rickshaw Challenge during BBC Children in Need.

Q WHAT DO YOU HOPE TO BRING TO BLOOD PRESSURE UK?

Blood Pressure UK is running on really strong foundations with great Governance, and it's focused on one theme which is really effective. There are about 18 million people in the UK with high blood pressure, including six million who don't know it, so there's huge potential to make a really big

I'd like to do more awareness work, especially in communities who don't always have access to mainstream healthcare messages. I'd also like to reach more people at a younger age so they can do more to prevent high blood pressure.

impact. I'd like to reach as many of those six million people as possible.

Lots of people have heard of high blood pressure and might have even had a blood pressure test, but they don't know what their numbers mean. I'd like to do more awareness work, especially in communities who don't always have access to mainstream healthcare messages. I'd also like to reach more people at a younger age so they can do more to prevent high blood pressure.

So, I'd like to continue all the fantastic work that's going on for people who've been diagnosed and bring in more focus on those who haven't, particularly those who are harder to reach.

Q WHAT ARE YOUR GOALS FOR BLOOD PRESSURE UK?

I'd like to work with more health professionals and community leaders so they can support their communities, and with more corporate organisations so that they can educate their employees and help keep them healthy.

I'd like to champion blood pressure monitoring at home which has been

increasing since the pandemic, and lobby the government to make monitors available on prescription. I'd also like more people to become members to benefit from all that we offer. I'm looking forward to getting the patient panel up and running (see page 18) to draw on the expertise of people who have high blood pressure.

Q HOW DID YOU FIND YOUR FIRST KNOW YOUR NUMBERS! WEEK?

It went really well with lots of engagement on social media, which works brilliantly on a national scale. Going forward we might also run local events throughout the year – watch this space.

Q WHAT DO YOU DO TO MANAGE YOUR OWN BLOOD PRESSURE?

I try to eat healthily and I don't add any salt. I do a lot of walking with my young daughter and I measure my blood pressure at home – it's OK!

Q WHAT DO YOU LIKE TO DO WHEN YOU'RE NOT BUSY LEARNING ABOUT BLOOD PRESSURE?

I have a 20-month old daughter and another one on the way, so my free time is spent on family life. We have lots of trips to the park so she can see the world. We've also been watching a lot of 'Love Monster' on TV. She keeps us busy.

Have you thought of including Blood Pressure UK in your Will?

A lasting way to help others with high blood pressure

Finding out that you have high blood pressure can be traumatic, particularly if you are young. Most people don't know anything about the condition and worry about how it will affect them and those around them.



Blood Pressure UK

Helping you to lower your blood pressure

Blood Pressure UK is here to help.

With our information packs, range of leaflets and our helpline, we provide reassurance and support to those who need it. All of this work is expensive, and while membership subscriptions and donations help enormously, leaving a gift in your Will can help us make a bigger difference.

Leaving a gift isn't as complicated as you might think. It doesn't have to be a large amount, and it will give you the assurance that our work will continue long into the future.

Obviously, providing for your family and friends comes first, but once that is done please consider leaving a gift to Blood Pressure UK in your Will.

We have put together a simple leaflet to guide you through the process. You can get a copy by telephoning (020) 7882 6255, visiting our website at www.bloodpressureuk.org or by writing to Blood Pressure UK, Wolfson Institute, Charterhouse Square, London, EC1M 6BQ.



The healthier alternative to salt



SEASON TO TASTE, SEASON WITH SENSE

Award-winning chef Gary Maclean has partnered with LoSalt, the UK's leading reduced sodium salt, to encourage people to #SeasonWithSense.

Salt is the biggest source of sodium and too much sodium contributes to high blood pressure, which affects 1 in 4 adults worldwide, often has no symptoms and increases the risk of heart disease and stroke. One of the easiest ways to combat this risk is being aware of how much salt is in your diet, as well as using a reduced-sodium alternative when cooking, baking or seasoning.



"Having been a professional chef for almost 35 years, I have seen a real change in the eating habits of people. Dining out is no longer a once-a-month event, so it's vital that chefs think about the long-term effects of their food and cooking, as people put trust in their hands. Often people think that 'low in salt' means 'low in flavour', but this isn't the case. Used exactly the same way as regular salt - without any recipe adjustments necessary - switching to LoSalt is a simple change to improve your diet and health. Plus, it's a small Scottish company with over 35 years of heritage in a single tub, so I know it's expertise I can trust and a business I can support at a local level also."

GARY MACLEAN'S BRAISED SHOULDER OF BEEF STEW Serves: 4 Prep: 15 mins Cook: 2hrs 45 mins

INGREDIENTS:

- 800g diced beef shoulder
- 2 carrots, peeled and chopped
- 2 sticks celery, peeled and chopped
- 100g baby onions, peeled
- 100g mushrooms, quartered
- ½ head celeriac, peeled and chopped
- ½ bulb garlic, chopped
- 25g tomato puree
- ½ tsp **LoSalt**
- 25g plain flour
- 175ml red wine
- 2ltr beef stock
- 2 sprigs rosemary
- 2 sprigs thyme
- ½ savoy cabbage, shredded
- 400g butter beans

METHOD:

1. Preheat your oven to 150°C / Gas Mark 2.
2. In a large casserole dish, brown the beef then remove from the pan and set aside.
3. Add the carrots, celery, baby onions, mushrooms and celeriac to the pan. Once softened, add garlic and cook for a further 2 minutes.
4. Add into the pan the tomato puree, **LoSalt** and flour to create a sticky mix.
5. Add the red wine and reduce down so that the wine incorporates into the vegetables.
6. Add the beef stock and the herbs.
7. Pop the browned beef back into the casserole dish, cover and put in oven for about 2.5 hours.
8. Once the beef is tender, remove from oven and then add the savoy cabbage and butter beans.
9. Place back onto the hob, bring to the boil and check the seasoning.

INSPIRATION:

For more simple, healthy meals, please visit our new look website: www.losalt.com

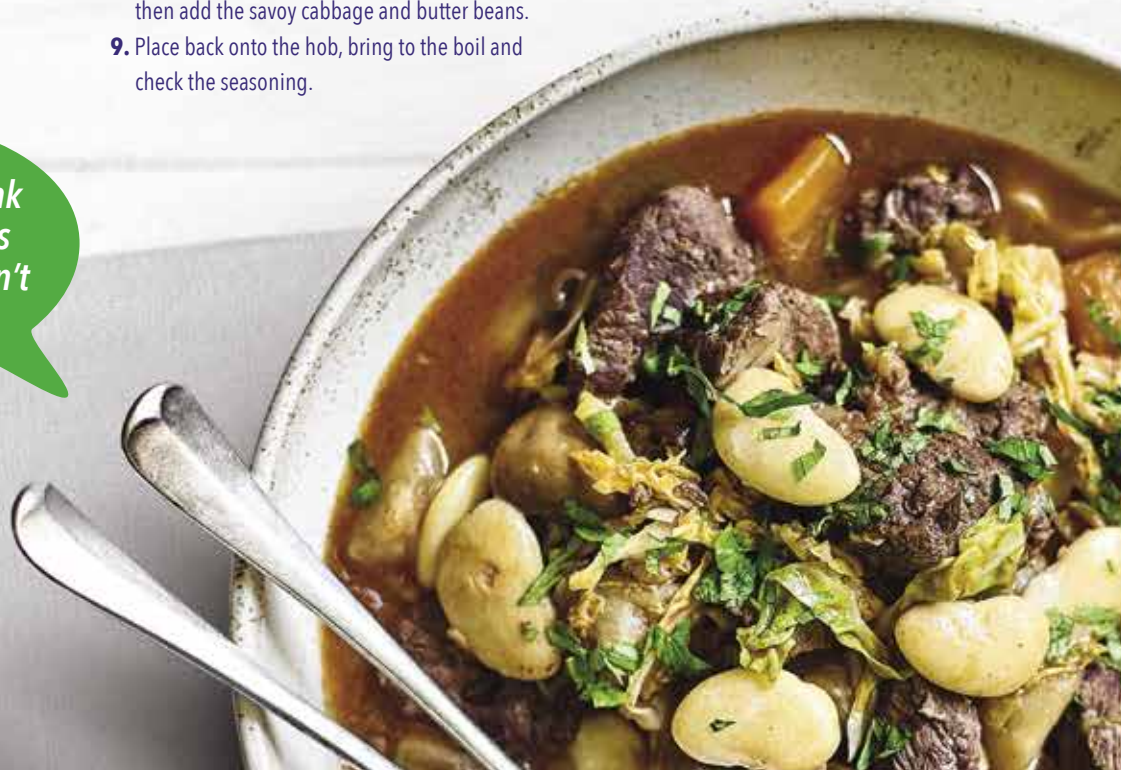


Season With Sense is a public health awareness campaign, which educates people on their salt habits and urges people to take control of their health by looking for lower in salt food options, and 'seasoning with sense' both in and out of home.

 www.seasonwithsense.com

 www.instagram.com/seasonwithsense

"Often people may think that 'low in salt' means 'low in taste', but this isn't the case."

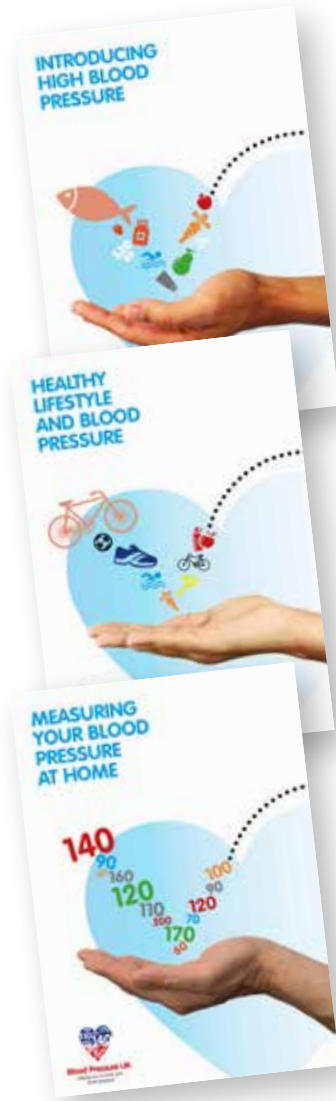




Information & publications

LOTTERY FUNDED

We have a range of booklets and fact sheets giving valuable information about living with high blood pressure to help you understand it, lower it and manage it.



Introducing high blood pressure

This booklet explains what high blood pressure is, who gets it and why. It gives basic information on lifestyle changes to lower blood pressure, and about measuring your own blood pressure at home.

Healthy lifestyle and blood pressure

This booklet shows how getting more active and keeping to a healthy weight can help lower your blood pressure. It looks at how you can start to build more activity into your day, and what types of activity may be best for you. It also talks about sensible approaches to losing weight if you need to.

Measuring your blood pressure at home

This booklet can help you decide whether measuring your blood pressure at home is right for you, and how to choose the right type of monitor. It also gives you tips about how and when to measure your blood pressure to be sure you are getting reliable readings.



Getting the most from blood pressure medicines

Most people with high blood pressure will need to take medicines to control it. This booklet talks about the different medicines for high blood pressure and about how you can get the best results from them. It also looks at side effects of blood pressure medicines and what you can do to avoid these.

Healthy eating and blood pressure

This booklet looks at how what you eat can affect your blood pressure. It shows you how you can start to eat less salt, and how to get your five daily portions of fruit and vegetables. It also explains how alcohol, fats and sugar can all affect your heart and body.



With great thanks to the Big Lottery Fund, we have been able to translate our award-winning 'Introducing high blood pressure' leaflet into 32 languages. They are all available to download from our website only.



Blood Pressure UK

Helping you to lower your blood pressure

Our full range of resources includes 'Love your heart: a South Asian guide to controlling your blood pressure' and factsheets on all the common blood pressure medicines.

All these publications are free to Blood Pressure UK members. Visit www.bloodpressureuk.org for your copy.