

the magazine of the Blood Pressure Association

ISSUE 31 > Summer 2012

POSITIVE

pressure

Your questions about renal denervation answered

How to lower your salt intake, get your five-a-day and enjoy tasty, healthy meals every day

BON VOYAGE

SOME TIPS TO TAKING A SAFE AND ENJOYABLE SUMMER HOLIDAY

PLUS
Meet a tiny rodent with extreme survival skills



Blood Pressure Association
the blood pressure charity

POSITIVE
pressure is the magazine of UK charity, the Blood Pressure Association. 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 the BPA. The information in this magazine is designed to support and supplement your relationship with your doctor, not to replace it.

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Captiv8UK 01892 611500

Company number: 3251531
Company Limited by Guarantee

Registered charity in England and
Wales (1058944) and in Scotland
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Positive about your blood pressure



Welcome

From Paul Newman, Chief Executive Officer

Welcome to the summer edition of Positive Pressure magazine.

With summer we usually look forward to some sunshine and perhaps a holiday, so in this issue we highlight the do's and don'ts of going away on holiday with high blood pressure to ensure you have a safe journey and a happy holiday.

We introduce you to our recently launched campaign that aims to increase the amount of reduced salt foods available in our supermarkets, and team up with Consensus Action on Salt & Health to show you exactly how to reduce your salt intake, eat healthily and get your five-a-day.

We go underground to meet a tiny rodent with incredible natural adaptations that could help us understand how to prevent brain damage resulting from stroke and heart attacks, and also report on the world's longest ever kidney transplant chain.

Kidneys are closely and importantly associated with blood pressure and we continue our exposé of this relationship by taking a close look at renal denervation: what it is, how it works and how available it currently is. We first reported on renal denervation back in issue 27, two years ago. Since then, successful clinical trials have meant that the procedure has featured in the news many times, so Positive Pressure caught up with the man responsible

for the first operations in the UK to bring you right up to date with how use of this new technology is beginning to take its place in hypertension management.

Know your Numbers! Week runs from 10-16 September. Remember to pop along to your nearest Pressure Station for a free test. During Know your Numbers! Week, the BPA will change its name to become Blood Pressure UK to better reflect the reach of our important work as a charity.

Thank you for supporting the Blood Pressure Association through your membership. Thanks also to our supporters who are not members, but who donate nevertheless to help us in our valuable work. These supporters get a special mention on page 4 as does a young man who took part in a hair-raising sponsored event to raise money for us. See what he did on page 6.

Finally, if you have friends or family with high blood pressure who would benefit from BPA membership, please point them in the direction of our website. It's even easier to join now as we have a new direct debit system that takes all the worry out of remembering to renew.

With best wishes,

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 BPA member and have your own Positive Pressure delivered direct to your door, together with a host of other members' benefits?

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Blood pressure **news**



A novel power source for pacemakers

Engineering researchers at the University of Michigan have designed a device that harvests energy from the reverberation of heartbeats through the chest and converts it to electricity to run a pacemaker or an implanted defibrillator.

Currently, batteries for devices such as pacemakers need to be surgically replaced every five to ten years, but by taking the place of the batteries, the new energy harvester could save patients from repeated surgeries.

“The idea is to use ambient vibrations that are typically wasted and convert them to electrical energy,”

Said Amin Karami, a research fellow in the University of Michigan’s Department of Aerospace Engineering.

“If you put your hand on top of your heart, you can feel these vibrations all over your torso.”

Although still at the blue-print stage, the researchers have already run simulations

which demonstrate that the concept could work. A hundredth-of-an-inch thin slice of a special ceramic piezoelectric material would catch the heartbeat vibrations and convert them into an electric voltage.

Karami and his colleague Daniel Inman, Chair of Aerospace Engineering at the University of Michigan, have precisely engineered the ceramic layer to a shape that can harvest vibrations across a broad range of frequencies. Incorporated magnets provide an additional force field to drastically boost the electric signal that results from the vibrations.

They originally designed the harvester for light unmanned airplanes, where it could generate power from wing vibrations. Then it got another use.

“If you put your hand on top of your heart, you can feel these vibrations all over your torso.”

3-in-1 hypertension therapy launched

The first 3-in-1 combination therapy available in the UK for the management of high blood pressure has been launched by Daiichi Sankyo. Sevikar HCT combines ARB olmesartan medoxomil, CCB amlodipine and thiazide diuretic hydrochlorothiazide (HCT) into one single pill.

Professor of Medicine and Head of the Cardiovascular Research Group at Manchester University, Professor Tony Heagerty said,

“A simplified treatment regimen for those taking three or more tablets makes eminent sense for hypertension and could lead to improved compliance rates.”





DESIGNING HEALTHIER CRISPS

An investigation by UK scientists into how salt is released from crisps as you eat them could lead to a healthier crisp that tastes just as good.

Dr Ian Fisk and Master's student Tian Xing from the University of Nottingham found that a large proportion of the salt in crisps is only released into the mouth 20 seconds after chewing, by which time the crisp may have already been swallowed.

Dr Fisk believes that this salt burst is under exploited, as it could open doors to salt reduction in snack foods without compromising on taste. He says, "Our current aim is to develop a series of technologies that accelerates the delivery of salt to the tongue by moving the 'burst' from 20 seconds to within the time that you normally chew and swallow."

If this could be achieved, the saltiness of crisps could be achieved with less salt.

The salt release is complicated because the salt sits on both the crisp's surface and is also embedded in the surface oil. It has to be physically separated from the 'crisp bolus' (the chewed material), solubilised in saliva and then reach the tongue's salt receptors for perception to occur.

Commenting on the discovery, Dr Serafim Bakalis who investigates how to deliver low salt products without compromising their sensory attributes at the University of Birmingham said, "The work contributes to the fundamental understanding of the phenomena occurring during eating. It will aid in the development of healthier food products without compromising the sensory qualities."

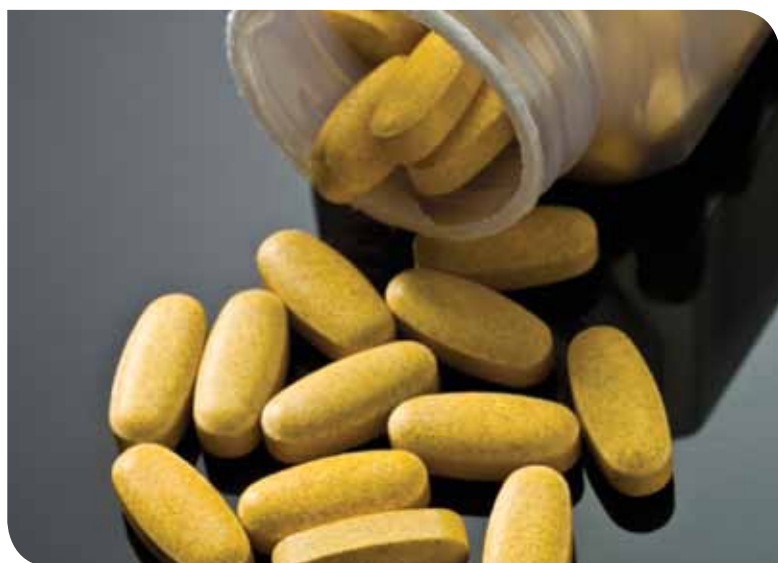
The BPA would like to thank the following supporters for their generosity:

Daniel Jaffe for his kind donation in memory of his late wife.

James Ford for his kind donations in memory of Mrs Jenny Leigh.

Matthew Webb for his kind donation, raised as sponsorship money.

Thank you also to online marketing agency, Atom 42, for helping us to increase our internet search results visibility.



Take your vitamins

A team at the University of Ulster has been looking at the elevated blood pressures in people with cardiovascular disease who have a specific genetic profile that appears to be responsive to vitamin B2, also known as riboflavin, and could affect as many as one in ten of us.

Vitamin B2 is a micronutrient that is a key to good health. In Western societies, milk and other dairy products account for more than 50 per cent of our riboflavin intake, along with some fortified products such as breakfast cereals and other foods.

In the study, riboflavin supplementation reduced the blood pressure of participants with the specific genetic factor irrespective of the antihypertensive drug therapy they were prescribed.

Dr Carol Wilson said, "These findings are so exciting because they focus on a novel non-drug treatment for high blood pressure, targeted at individuals with a particular genetic factor.

"In the genetically at-risk group, vitamin B2 was able to lower blood pressure to within recommended target values while having no adverse

effects on individuals who didn't have the gene," she explained.

Principal investigator Dr Mary Ward, a Senior Lecturer in Human Nutrition at Ulster, said,

"This is an excellent example of personalised nutrition, i.e. nutrition advice tailored to an individual based on their genetic characteristics."

"Increasing vitamin B2 intake through improved diet, fortified foods or supplements could lower blood pressure in the 10% of the population with the relevant genetic factor without causing harm to those who do not have it."

The research was conducted in conjunction with staff at Antrim and Altnagelvin Hospitals and Trinity College Dublin. The findings have been published in the American Journal of Clinical Nutrition.

World's Longest Kidney Transplant Chain Completed

The world's longest chain of organ donations has taken place in America with 30 patients receiving a kidney from 30 living donors.

The chain connected people who had wanted to donate a kidney to a family member or friend, but were incompatible, with a suitable stranger. Their loved one then received a kidney from someone else along the chain.

The complicated process lasted for four months and involved 17 hospitals across 11 states of the USA.

Currently in the UK there are around 7,000 people waiting for a donor kidney with around 3,000 operations carried out each year.

Uncontrolled high blood pressure is a leading cause of kidney failure. Although transplantation is by no means a cure for kidney failure, it is by far the best



treatment method available to us at this time.

Patients can wait many years to receive a kidney from a deceased donor. Having a living donor can reduce the wait, but in around one-third of such cases a transplant can not be carried out because the immune systems of the patient and their willing donor don't match.

A kidney pool or chain can provide a solution. The first pooled kidney transplants in the UK took place in 2009. The transplants involved a donor and recipient couple, who were known to each other but incompatible for transplantation, so were paired with two other donors and recipients in the same situation.

Let's get physical

People in the UK over the age of 55 with long-term health conditions are being encouraged to lead a more active lifestyle by a new national awareness campaign inspired by the 2012 Olympic and Paralympic Games.

The Your Personal Best campaign is supported by patient and healthcare professional groups from across the UK. It encourages everyone aged over 55 with long term health conditions to set personal and realistic activity goals in order to lead a more active lifestyle and help patients to achieve their personal best.

The campaign has been developed in line with the Department of Health's Let's Get Moving activity care pathway, aimed at embedding the promotion of physical activity within primary care.

To learn more and pick up new tips on staying active, visit www.yourpersonalbestcampaign.co.uk

KNOW YOUR NUMBERS! WEEK 2012

September 10 - 16 will see the twelfth Know your Numbers! week take place.

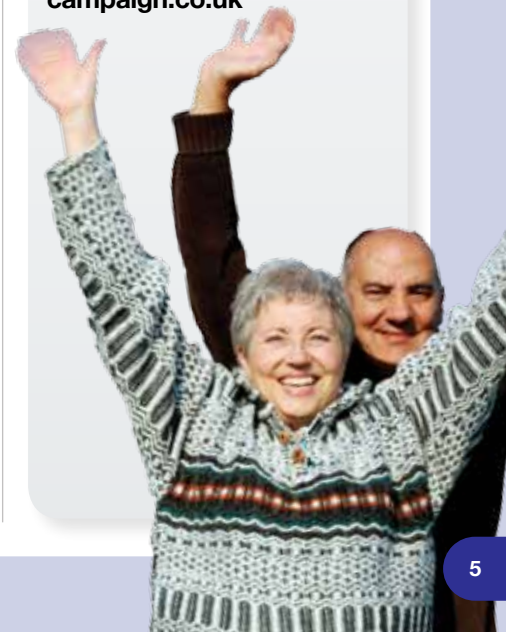
Every September, thousands of organisations and health professionals take part in the event



which aims to test the UK's blood pressure and raise awareness about the dangers of uncontrolled high blood pressure.

Last year there were over 1,500 Pressure Stations. Community pharmacies, supermarkets, shopping centres, mosques, gyms and occupational health departments turned themselves into Pressure Stations to help test the blood pressure of over 100,000 people. Each person was given a card with their blood pressure on and an explanation of what the numbers meant.

For more information, please visit the Know your numbers website at: www.bpassoc.org.uk/microsites/kyn/Home



HEALTHY DIET AND EXERCISE EXTENDS LIFE IN WOMEN IN THEIR 70S

Women in their seventies who exercise and eat healthy amounts of fruits and vegetables may have a longer life expectancy, according to research published in the *Journal of the American Geriatrics Society*.

Researchers at the University of Michigan and John Hopkins University studied 713 women aged 70 to 79 years who took part in the Women's Health and Ageing Studies. This study was designed to evaluate the causes and course of physical disability in older women living in the community.

They found that the women who were most physically active and had the highest fruit and vegetable consumption were eight times more likely to survive the five-year follow-up period than the women with the lowest rates.



EMA launches new website

The European Medicines Agency (EMA) has launched a new website, which will detail reports of suspected side effects of medicines.



The reports come directly from the European Union (EU) medicines safety database, and have not been made publicly available before.

The European Medicines Agency is publishing this data so that its stakeholders, including the general public, can access information that European regulatory authorities use to review the safety of a medicine or active substance. The launch of the new website is part of

the Agency's continuing efforts to ensure EU regulatory processes are transparent and open.

Currently the site contains information relating to approximately 650 medicines, and it can be searched either by the generic name of the medicine or the proprietary product name. These are all substances approved through the central EU procedure, which grants approval in all EU member states plus those in the European Economic Area (EEA).

Information on suspected adverse drug reactions (ADRs) for products approved nationally in individual EU countries is not included on the new website, but it is hoped that it will be possible to incorporate this within the next year.

The new website www.adrreports.eu also gives advice on how to report a side effect.

What a ripper

'Plucky' Gosport man, Matthew Webb had a ripping time having his chest waxed to raise money for the BPA back in April.

Matthew 26, a sales-rep and keen sportsman is only too aware of the devastating effects of high blood pressure. Some years ago his grandfather died as a result of a heart attack and recently a close friend and colleague suffered a stroke.

Matthew said, "I was quite apprehensive beforehand and was told I looked quite scared. I did quite a lot of wincing and at times I had to hold onto the side of the bed."

And on whether he would do it again, "It is not something I would do again in a hurry but I would never rule it out!"

Blood Pressure Association Chief Executive, Paul Newman said, "We rely



upon membership and donations to do the work we do. A sponsored chest wax is a brave way to raise money. Many thanks Matthew; I hope it didn't sting too much!"

Anyone wishing to support Matthew should visit: www.justgiving.com/MATTHEW-WEBB6

SCIENTISTS UNCOVER ANOTHER HYPERTENSION GENE

Scientists from the Max Planck Institute for Heart and Lung Research in Bad Nauheim, Germany have identified a gene responsible for sodium dysregulation; a condition that can cause hypertension in those people who don't eat too much salt, but whose bodies retain too much.

Blood pressure control is complicated, but one factor is the volume of blood circulating – the more blood, the higher the pressure.

The 'volume control' is located in the kidneys, where blood volume and in turn blood pressure, are regulated by the excretion of water and sodium by the kidneys into the urine.

The amount of sodium we retain does vary; it depends largely on how much salt we take in from the foods that we eat. The more salt we take in, the less is reabsorbed back into the blood and more is excreted in urine.

This also works the other way around, so the less salt consumed the greater the amount of sodium reabsorbed back into the blood, with less being excreted in urine.

In people with sodium dysregulation, this fine

balancing act goes wrong and can lead to either hypertension or hypotension.

Thomas Böttger and his team of researchers from the Max Planck Institute for Heart and Lung Research in Bad Nauheim have been investigating sodium dysregulation, and have demonstrated a link between a specific gene, sodium retention by the kidneys and high blood pressure.

The gene, known as SLC4A5, is responsible for the development of a protein that transports certain salt compounds to prevent an excess of salt and water in the blood.

In their research, the scientists were able to show that a defect in this particular gene leads to excessive retention of sodium and water by the kidneys and increased blood pressure, suggesting a specific role for SLC4A5 in blood volume and pressure control.

The Max Planck scientists hope that they have revealed a potential new approach to treating hypertension in some patients.

The findings were published in the journal *Human Molecular Genetics* in March.

Gel to repair tissue damaged caused by heart attack

Researchers at the University of California, San Diego have developed a remarkable new gel that could one day be used to treat tissue damage caused by heart attacks.

The injectable hydrogel is made from the cardiac connective tissue of pigs that has been thoroughly cleaned to ensure no muscle cells are sticking to it, freeze dried, milled into powder and then liquefied into a fluid which can easily be injected into the heart via a catheter.

The way it works is that the liquid is injected into the body at room temperature and when it hits body temperature it becomes semi-solid. Essentially, the connective tissue re-assembles

to form a scaffold which draws healthy cells into areas of cardiac damage to repair the heart and preserve heart function.

It has been developed by Professor Karen Christman and colleagues in the university's Department of Bioengineering.

High blood pressure causes forty percent of heart attacks in the UK and there is still no established treatment for repairing the resulting cardiac tissue damage.

Karen says, "Based on our studies, we think the hydrogel has significant potential to prevent heart failure in heart attack patients."

This potential therapy is particularly advantageous because it can be delivered in a minimally invasive catheter-based procedure and would not require surgery.

The research was published in the *Journal of the American College of Cardiology* in February.



Hold your nerve – renal denervation explained

In 2007 Gael Lander became the first person in the world to undergo a new treatment involving surgery to treat high blood pressure.

Gael was 68 years old; a retired teacher from Melbourne, Australia who had suffered from resistant hypertension for three decades, living under a cloud of uncertainty. Both Gael's parents had high blood pressure and its effects had devastated all their lives – her mother had suffered multiple disabling strokes and she lost her father to a fatal heart attack.

The forty minutes that changed Gael's life involved a ground-breaking piece of experimental surgery. It was a world

first and was performed at Melbourne's IDI Heart and Diabetes Institute.

In Gael's procedure, known as renal denervation, doctors slid a catheter into an artery connected to each kidney and then seared the nerves in the artery wall with radio-frequency energy.

At the time, the Institute's Markus Schlaich co-authored a paper on the procedure which appeared in the *Lancet* including his belief that it would 'be a part of medical practice in the relatively near future'.

Since Gael's operation, some 4,000 other patients with resistant hypertension have also had the surgery, many with positive results.

How does renal denervation work?

The sympathetic nervous system which is involved with our fight or flight reaction has a significant role in blood pressure control and it appears

The first UK patient to undergo renal denervation did so as part of a study in 2011. He was Anthony Henry, 68, a retired chef from east London. The first UK patient to have the treatment privately was Bill Bigginton, 50, a solicitor from Bromley, south London who had the surgery earlier this year after trying 30 different types of medication over 8 months to try and bring his blood pressure under control without success.

The Consultant Physician and Clinical Hypertension Specialist behind both procedures was Dr Mel Lobo in conjunction with his team from Barts Health Trust.

Dr Lobo says,

“Renal denervation is a novel and tremendously exciting development in the treatment of hypertension. We are however at a very early stage in our understanding of the true benefits of renal denervation therapy and in particular are still trying to comprehend which patients may benefit the most and why it has not worked well in several of our patients. There are still many different patient groups needing to be studied including those patients who seem not to tolerate their antihypertensive medications and were unable to get into the previous trials of renal denervation as patients had to be on 3 or more drugs.

At present we have to be cautious in informing our patients about the benefits of treatment as it does not necessarily result in reduced antihypertensive medication and so we cannot aim to use it as a means of getting patients onto fewer drugs. Also we are not yet able to explain why, in some patients, the full blood pressure lowering effects are not seen until one year following denervation and it is also important to recognise that although the data looks good for both safety and effectiveness of renal denervation, we do not have true long term data as yet (i.e. more than 5 years).

In order for patients to benefit and learn more of the treatment,



particularly if their blood pressure control is very problematic for any reason, they should really be under the care of hypertension specialists. Unfortunately there are not many in the UK but most of the major teaching hospitals have some and one or two of these centres are also trying to engage in upcoming clinical trials of denervation.”

that the greater part it plays, the higher the pressure.

When we are anxious, we experience a temporary rise in blood pressure and it is the effect of the sympathetic nervous system on the kidneys and arteries throughout the body that causes this increase. Kidney activation by the sympathetic nervous system causes the enzyme renin to be produced, reduces urinary sodium excretion, and induces renal blood vessels to constrict.

The result is an increase in blood pressure, which should subside if sympathetic nervous signalling is reduced. If the nerves responsible for this are constantly switched on though, the blood pressure will stay high.

By cauterising the renal nerves, an overactive system can be calmed down, relaxing the arteries and lowering blood pressure.

How is it done?

Renal denervation has its roots in crude but effective nerve-severing operations performed in the 1930-40s. These did often lower blood pressure but at the expense of permanently injuring patients.

Only in recent years have researchers revisited the technique, after companies developed easy-to-use catheters that can transmit radiofrequency energy to burn away

More effective than drugs, the treatment doesn't necessarily replace medicines but could become a future option though for when the drugs don't work.

specific nerves without damaging the surrounding blood vessel.

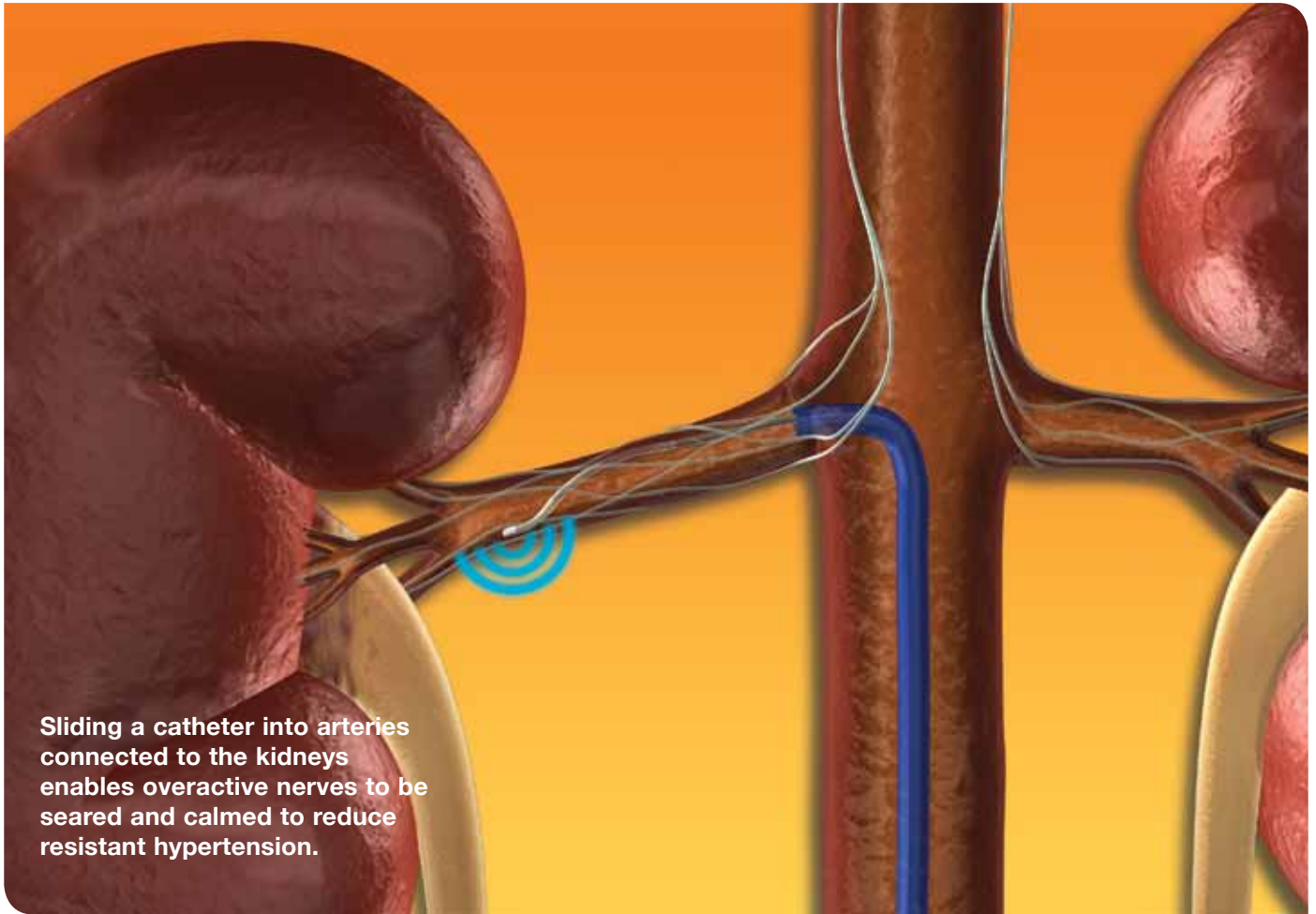
A catheter (fine tube) is passed into the femoral artery in the groin and advanced into the arteries supplying the kidneys one at a time.

The nerves the surgeon wants to cauterise lie within the outside wall of the artery and are amenable to being destroyed with radio-frequency energy. A series of tiny little burns, done in a spiral pattern within the artery at 5 mm intervals eventually kills many of these nerves to prevent them raising blood pressure.

The procedure takes about forty minutes under local anaesthetic with painkillers also given and may require an overnight stay in hospital.

Who can have the treatment?

The procedure is aimed at only the hardest-to-treat patients;



Sliding a catheter into arteries connected to the kidneys enables overactive nerves to be seared and calmed to reduce resistant hypertension.

Image: Medtronic

patients with what is termed resistant hypertension, whose blood pressure control is poor despite being on several anti-hypertensive agents (three or more) and looked after by blood pressure specialists.

This could be as many as 10% of patients with known high blood pressure.

Suitable candidates have to be thoroughly screened by a hypertension specialist to ensure no identifiable cause of hypertension has been missed (such as adrenal gland problems) and that their treatment with tablets has been optimised. They also have to have their kidneys and associated arteries scanned to ensure that their artery is anatomically suitable for treatment.

Like all surgery, it isn't risk-free and doctors don't yet know if the nerves will grow back with time or if long term adverse effects could show up years after the treatment.

For now though, the results are very promising. To date there have been no serious complications in any of the patients treated with renal

denervation worldwide and there is no evidence that the procedure causes any problems with kidney function. The commonest problems which have only occurred in a minority of patients have included bruising or discomfort in the groin or leg.

A landmark clinical trial published in The Lancet showed that it is both highly effective and very safe with an average BP lowering of 32/12 mmHg in treated patients at 6 months after treatment.

The first patients, including Gael Lander, have now been followed for three years, and increasing numbers eventually responded to

“Renal denervation is a novel and tremendously exciting development in the treatment of hypertension. We are however at a very early stage”

the treatment, with a reduction in medications in about 20% of patients.

More effective than drugs, the treatment doesn't necessarily replace medicines but could become a future option though for when the drugs don't work.

How widely available is it?

Currently, the procedure is not widely available and is not available under the NHS, although it is approved by NICE (National Institute for Health and Clinical Excellence).

Most of the patients who have undergone the surgery have done so as part of a study, but things are beginning to change.

Where it is available privately to those who fulfil the eligibility criteria though the treatment isn't cheap, costing around £8,000.

Patients wanting to know more should ask their doctor for details of specialist hypertension referral centres throughout the UK.

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If you've enjoyed this magazine but this isn't your own copy, then why not sign up to become a BPA supporter and have your own Positive Pressure delivered direct to your door? You'll receive two issues of Positive Pressure a year and a host of other benefits, including:

- Our jargon-busting 'A-Z of blood pressure'
- Optional e-mail news and information updates
- Special offers with partner organisations
- An opportunity to take part in our research and help develop future resources for the charity.

You'll also be supporting our charity to help us raise awareness of high blood pressure and support those living with the condition.



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www.bpassoc.org.uk/Supportingyou

Holidays and high blood pressure

We all enjoy a summer holiday and people with high blood pressure travel all of the time and enjoy themselves without complications. It is worth doing a bit of forward planning and preparation before going away on holiday though, just in case things don't quite go as expected. With a little preparation and monitoring, you can have a safe and healthy holiday.



Preparing to travel

Inform your doctor that you are going on a trip, ask if you should take any special precautions and take their telephone number with you in your hand luggage in case of an emergency.

Pack your blood pressure medications in your hand luggage in case your suitcase gets lost.

Do take your blood pressure monitoring device and some spare batteries to continue to monitor your blood pressure while on holiday. Most are small enough and lightweight enough to pack easily. Just as at home, this could warn of a potential problem and also helps keep a consistent record for you and your doctor.

If you are planning to fly to your holiday destination, speak to your doctor about this. If you have other complications as well as high blood pressure, or your blood pressure is not under control, this is especially important. If you are going to need oxygen during your flight, organise this well in advance with the airline who may ask for a written statement from your doctor saying that you are fit to fly.

It is rare, but very occasionally people with high blood pressure along with other medical complications are not able to fly.

Taking your medicines abroad

To avoid breaching import restrictions or laws of overseas countries you should contact the embassy/consulate of all of the countries you will be visiting and confirm any special requirements.

Some countries do not allow certain drugs to be imported regardless of the documentation held. It is important that you check the importation requirements of the countries you will be visiting before you leave the UK.

Many countries will require you to complete a declaration form for their Customs and Border Control. These may be distributed by cabin staff during your flight for you to fill in and hand to border control staff at your destination airport. If the form asks whether you are carrying any

prescription medicines, tick the 'yes' box if that is the correct answer. It is totally legal to take most medicines abroad, but if asked to declare them, it is illegal not to do so. If you are randomly selected for a bag search, which is not uncommon in these days of heightened airport security, and undeclared medicines are found, you could face a hefty fine.

Make sure your medicine is in the original packaging and with any dispensing labels intact. For prescription medicines, a doctor's prescription or letter should be available to be presented if requested to confirm that the drugs are required for your medical treatment or another person under your care. Be aware that there may be restrictions on how many doses you are able to take with you also. For example, if your holiday visa is for a maximum period of three months, you may only be permitted to take three months supply of medicines.

Air travel

Many people who travel on planes are familiar with the symptoms of swollen feet and ankles during or after a flight. Swelling in the lower extremities is a common complication of airline flights, especially those that are more than a few hours long.

If you have high blood pressure or other circulatory disorders, this kind of problem can be exacerbated. To avoid discomfort and swelling on flights, encourage circulation by regularly shifting your sitting position, don't cross your legs, move and flex your limbs regularly and stand up and move around the plane every two hours as permitted. Also drink plenty of water and stay away from salty snacks such as salted peanuts that are all too often handed out during flights; the salt will encourage swelling and fluid retention and increase blood pressure. Avoiding alcohol and sedatives during the flight will also help alleviate swelling and pain.

Pregnant women with gestational hypertension and high blood pressure patients who have been advised against air travel by their doctor should avoid air travel. The altitude could bring on complications that are difficult to address in the air.

What about travel insurance?

Medical costs abroad can be very expensive, so it is a good idea to purchase travel insurance as soon as your holiday has been booked. Check that it is possible to obtain full travel insurance for the area of the world to which you intend to travel before arranging your holiday and use an insurance company sympathetic to people with pre-existing medical conditions or a company specialising in such clients.

Companies may need a statement from your doctor stating whether you have your high blood pressure under control and how long you have been taking medications for it.

If you do not insure a pre-existing condition such as high blood pressure, anything arising from it, either directly or indirectly, will not be covered by your insurance and the result could be a very big, unanticipated expense.

Your holiday

If you are thinking about going on a holiday at high altitude, you should first check with your doctor. At high altitude blood pressure may rise, so take advice before booking.

If you develop food poisoning, check your blood pressure. Vomiting/diarrhoea can cause it to fall. If this happens, stop your medicines and seek medical help. This is particularly important if you take an ACE inhibitor or ARB.

Do wear sunscreen. The dangers of over exposure to the harmful UV rays of the sun are well known and we should all use sunscreen when exposed to the sun. Some drugs though, including some antihypertensives, can actually make you more sensitive to sunlight and therefore even more likely to burn. Read the patient information leaflets for all drugs you are taking and if in doubt check with your GP before you go on holiday. If there is a possibility of drug-induced photosensitivity, pack a high factor sunscreen and use it at all times.

The Blood Pressure Association's preferred insurance provider for clients with pre-existing medical conditions is Freedom Travel Insurance www.freedominsure.co.uk

YOUR EUROPEAN HEALTH INSURANCE CARD

The European Health Insurance Card (EHIC) replaced the old E111 in 2006.

Your EHIC lets you get state healthcare at a reduced cost or sometimes for free during a visit to the European Union. It will cover you for treatment that is needed to allow you to continue your stay until your planned return and includes treatment of a chronic or pre-existing medical condition that becomes necessary during your visit.

The EHIC is valid in all European Economic Area (EEA) countries, including Switzerland.

Any person who is ordinarily resident in the UK, and is of British, other EU/EEA or Swiss nationality, is eligible for an EHIC. You can apply online and free of charge via the official EHIC application form. It will expire after 5 years at which point you simply apply for a new one. You can apply online at www.ehic.org.uk or get an application pack from your local Post Office. Avoid unofficial websites which may charge you if you apply through them.

The EHIC is not an alternative to travel insurance. It only covers the cost of state provided medical treatment. It will not cover any private medical healthcare or the cost of being flown back to the UK. Therefore, it is important to have both an EHIC and a valid private travel insurance policy. Some insurers now insist you hold an EHIC and many will waive the excess if you have one.





Getting your nutrition right!

Hannah Brinsden, Nutritionist at Consensus Action on Salt & Health, shares some of her secrets to a healthy diet.

My store cupboard essentials ...

1 Tins of tomatoes: Great for a quick pasta sauce or casserole.

2 Dried fruit, frozen peas and tins of sweetcorn: Good additions to get you your 5-a-day, particularly when you haven't been to the shops in a while!

3 Pulses e.g. Chickpeas, butter beans: Brilliant addition to salads, chilli or pasta for extra veg portions, protein and nutrients.

4 Black pepper, dried herbs and spices to flavour your food. Say good bye to the salt cellar once and for all!

5 Kallo low salt stock cube: Great for making casseroles, soups and risottos.

When you were first diagnosed with raised or high blood pressure you were probably told to 'improve your lifestyle' or to 'follow a healthy diet'. And rightly so as what you eat and drink can have a real impact on your blood pressure. Having a healthy, balanced and varied diet comes with many health benefits as well as lowering your blood pressure and should leave you feeling healthier and more energised. But what exactly does having a 'healthier diet' or 'improved lifestyle' mean?

Less Salt!

First and foremost you need to eat less salt as a high salt diet is the main cause of raised blood pressure. By reducing your intake of high salt foods, particularly processed foods which contain a lot of hidden salt, you can reduce your blood pressure in just a few weeks.

Many of you will probably be thinking 'I don't add any salt to my food so I'm fine'. Unfortunately however this isn't the case as three quarters of the salt

we eat is hidden in the food we buy; bread and processed meats such as bacon, sausages and ham are the biggest sources of salt in our diet. Cheese, breakfast cereals, restaurant meals, coffee shop snacks, fast food, cooking and table sauces and ready meals are also key sources of salt in our diet.

The maximum recommendation for salt is 6 grams per day, that's just a teaspoon's worth! Most of us are eating much more than this (closer to 9g) and when you look at the list of foods that contain hidden salt you can really see why!

By checking food labels and cooking more at home it is possible to choose lower salt foods and reduce your intake (and therefore your blood pressure). A daunting prospect maybe, but it takes just 3 weeks for your taste buds to adjust to less salt.

More Fruit & Veg!

People who have a diet high in fruit and vegetables typically have an increased intake of potassium and

How I get my 5-a-day

Breakfast:

Glass of juice; porridge with a small handful of dried fruit. **2**

Lunch:

A sandwich with carrot/cucumber/celery sticks. **1**

Dinner:

Loads of opportunities here! Try to have one portion of veg (e.g. courgette, broccoli, peas, salad) on the side; mix another (eg mushrooms, sweetcorn, courgette) into a sauce **1** or have a stir fry **2**. Add pulses such as chickpeas or butter beans for an extra portion! **1**

Snacks:

Fruit such as an apple, orange, banana, pear or grapes. **1**

Total:

3 fruit and 3-4 vegetables – this amount of fruit and veg will cost approximately £1.50-£2.00 per day depending on what you choose and where you shop.



Have fruit juice at breakfast, an apple mid morning and banana mid afternoon and that's already **3 OF YOUR 5-A-DAY**

My top tips for lowering salt intake

- 1** Avoid using salt when cooking and don't add it at the table. Your taste buds will adapt to less salt in a couple of weeks.
- 2** Avoid using high salt ingredients such as ham, cheese, soy sauce, cooking sauces and smoked fish. Instead opt for fresh meat and fish, with salad or vegetables.
- 3** Use flavours such as herbs and spices to flavour your food.
- 4** Read the labels when shopping and find low salt versions, particularly for every day products such as bread.
- 5** Be careful when eating at restaurants or getting a takeaway - an Indian meal with all the extras for instance could contain double your daily salt recommendation!



Common calorie traps

Morning coffee

A medium coffee shop latte could contain 200kcal and 7g of saturated fat. Make sure you go skinny or get a filter coffee!

Breakfast on the run

A muffin or pastry from a coffee shop could top 500kcal. Plan time for your meals as part of your routine, or keep some yogurt and oats at work.

Muesli bars

Although contain fibre and protein, they can also contain as much sugar and calories as a chocolate bar. Check the labels!!

Nuts

A great source of protein and minerals, but be careful as a 30g portion contains about 200kcal so watch your portion size.

Alcohol

A glass of wine here and there won't do you any harm, but it can be a source of hidden calories. A standard glass of wine contains 120kcal, while a pint of lager contains 250kcal!

fibre and decreased intake of fat. Potassium is particularly important for lowering your blood pressure; it is a mineral which helps to counteract some of the effect that salt has on increasing water retention and blood pressure.

You should be aiming to eat at least 5 portions of fruit and vegetables per day, ideally more. Don't forget that fresh, frozen, dried and juiced all count and it's ok to have half portions too, for instance in a casserole or curry... There's really no excuse not to be getting your 5-a-day! Remember that variety is key - try to vary what you have each day.

Lose weight!

If you're overweight, you may find that losing a few pounds will help to reduce your blood pressure. Gradual weight loss of 1-2 lbs per week can be achieved healthily with exercise and a calorie controlled (but not restricted!) diet. Choosing nutrient rich foods such as wholegrains, low fat dairy and lean meat will help to fill you up for longer while cutting down on calories and fat. Reducing your portion sizes can help as well - why not try using a smaller plate.

The good news is that you don't have to say goodbye to snacking! I'm personally a big snacker, but it's all about choosing the right snacks and not filling up on crisps and chocolate. Fruit, nuts, yogurt, carrot sticks and oatcakes are my favourite!

Make sure you have a stash of healthy snacks at your desk and around your house to reduce temptation of cake and chocolate!

Most importantly, stay realistic. You won't be able to sustain too much too soon with none of your favourite foods. So think about balance, eat enough so you feel full and treat yourself occasionally!

Get Active!

Being active also helps to reduce your blood pressure - try to incorporate some walking, cycling, swimming or even housework and gardening into your daily routine. Use the fact that summer is upon us to get into some good habits! You should be aiming for about 30 minutes of exercise per day. Why not get off the bus or tube a stop early and get an easy 10-15 minutes of exercise before or after work.

A note about the DASH diet

The DASH diet is especially recommended for people with raised or high blood pressure. It is based on a diet which is low in fat and high in fruit, vegetables and fibre... Actually not all that different to a standard 'healthy diet'.

Key to the diet is having plenty of fruit and veg, 2-3 portions of low fat dairy such as semi-skimmed milk and yogurt, 2-3 servings of whole grains such as brown bread, pasta, rice and breakfast cereals such as oats. Ideally also include 1-2 portions of oily fish per week such as salmon, mackerel or trout. The diet is low in salt and high in potassium, calcium and magnesium. More information about the diet can be found here: http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/new_dash.pdf

What is a portion?

Fruit

80g of fruit which is equivalent to one medium fruit such as an apple, 2 small fruits such as satsumas or about seven strawberries.

Dried Fruit

A portion of dried fruit is around 30g or a tablespoon.

Fruit juice

200ml of juice or smoothie. Juice can only count as one portion a day.

Salad

One medium tomato or seven cherry tomatoes, three sticks of carrots or a 5 inch piece of cucumber.

Vegetables

Three heaped tablespoons of cooked vegetables, two broccoli spears or four heaped tablespoons of green vegetables such as spinach.

Pulses

Three heaped tablespoons of pulses such as kidney beans, butter beans or chickpeas. Pulses can only count as one portion a day.



Healthy choices - low salt shopping guide

Struggling to read food labels in supermarkets? Use this guide to reduce your intake of salt and saturated fat. Remember to keep an eye on your portion.

Limit these foods

Eat only occasionally or as a treat

Bread, cereals and starchy foods

Sandwiches filled with cheese and/or processed meat, Pizzas; Pot noodles and instant noodles.

They are usually high in salt and/or saturated fat

Eggs and dairy.

Whole milk, cream, soured cream and crème fraiche; Coconut cream/milk; Most cheeses e.g. cheddar, brie, stilton, parmesan, cream and processed cheese; Quiches.

Fats and oils

Some fats e.g. butter, ghee, dripping, lard and suet; Some oils e.g. palm and coconut oil. Pastry.

Meat, fish and vegetarian alternatives

Processed meat e.g. pâté, ham, bacon, gammon, corned beef, burgers, sausages. Meat pies and sausage rolls. Smoked fish; Prawns & shellfish; Tinned anchovies & tuna in brine Vegetarian and meat free sausage rolls, pies and bacon.

Fruits and vegetables

Vegetable pies. Some pre-prepared vegetable dishes.

Desserts and sweet snacks

Cakes, cheesecake and ice-cream; Most pastry- or cream-based desserts; Hot chocolate made with milk or cream. Confectionary e.g. fudge, chocolate, toffee, sweets; Sweet biscuits.

Savoury snacks

Salted popcorn, crisps and salted or roasted nuts. Sour cream- and mayonnaise-based dips and cheese dips. Cheese flavoured biscuits. Olives; sundried tomatoes.

Cook-in sauces, table sauces and seasonings

All types of salt e.g. rock, sea and table salt; Stock cubes; Spreads e.g. -yeast extract (Marmite), chocolate spread, peanut butter; Table sauces e.g. soy, horseradish, bread and BBQ sauce, ketchup, mayonnaise, salad cream and mustard; Tabasco sauce Curry paste; Pesto.

Check the label!

Choose lower salt options

Bread, cereals and starchy foods

Most breakfast cereals e.g. puffed rice, corn flakes, bran flakes, muesli and wheat biscuits Bread including rye and soda; Most sandwiches Processed pasta e.g. tinned in sauce, filled and pasta salad.

These foods can contain some salt and/or saturated fat

Eggs and dairy

Semi skimmed milk, soya milk including flavoured and soya cream yoghurt and low fat crème fraiche. Cottage cheese and low fat cream cheese; Mozzarella, Eggs.

Fats and oils

Low fat spreads.

Meat, fish and vegetarian alternatives

Breaded poultry; Extra lean mince; Meat-based soup and ready meals. Fish cakes, fish in batter or crumbs, fish in sauce; Tinned fish in oil. Vegetarian sausages and burgers and meat free ready meals; Quorn.

Fruits and vegetables

Pickled vegetables; Processed potatoes e.g. croquettes, waffles and oven chips; Baked beans; Tinned vegetables with salt added; Tinned fruit in syrup Prepared salads; Vegetable soup and ready meals.

Desserts and sweet snacks

Fruit buns; Frozen yogurt; Fruit crumble; Jelly; Fruit trifle; 'diet' desserts e.g. light chocolate mousse. Some sweet biscuits e.g. jaffa cakes, rich tea; reduced fat biscuits. Cereal bars, breakfast pots (yogurt-based).

Savoury snacks

Flavoured breadsticks and low salt crisps; Crispbreads, oatcakes and flavoured rice cakes; Savoury crackers and biscuits. Dried wasabi peas. Most vegetable- or pulse- based dips e.g. hummus and guacamole.

Cook-in sauces, table sauces and seasonings

Low salt stock cubes; Gravy Pasta and curry sauces; Packet sauces e.g. bread, cheese and onion sauce; Chutneys & pickles.

Low salt options

Try and choose these foods

Bread, cereals and starchy foods

Some breakfast cereals e.g. shredded wheat, porridge oats and muesli with no added salt. Grains e.g. couscous, bulgar wheat, quinoa, gnocchi, rice and pasta. Potatoes and plantain.

Lower in salt and/or saturated fat

Eggs and dairy

1% fat milk, skimmed milk, light soya milk and light soya cream; Low fat/ fat free yoghurt, soya yogurt.

Fats and oils

Some oils e.g. olive, rapeseed, canola, peanut/groundnut, sunflower, sesame and corn oils.

Meat, fish and vegetarian alternatives

Fresh, lean meat and white and oily fish; Tinned fish in water. Soya mince and tofu.

Fruits and vegetables

Fresh, frozen and dried fruits, vegetables and pulses. Tinned fruit and vegetables with no added salt.

Desserts and sweet snacks

Sugar free jelly; low fat yoghurt; rice pudding. Fruits and fruit salad, ready prepared fruit snacks; dried fruit. Meringue.

Savoury snacks

Unsalted popcorn; Rice cakes; Plain breadsticks. Unsalted nuts and seeds (in moderation); No added salt crisps. Salsa dips.

Cook-in sauces, table sauces and seasonings

Vinegar, lemon juice and wine. Herbs and spices; Tomato puree; Apple, cranberry and mint sauce.

A spotlight on the community pharmacy

As someone with high blood pressure you probably visit your local pharmacy on a regular basis so we thought we'd give you the low-down on what it's like to be a community pharmacist.



Geoff Ray and his wife Rachel have run Total Pharmacy, the local community pharmacy in Watton, Norfolk for six years.

With the support of a highly trained and experienced team, they have developed it into a modern community pharmacy giving local access to excellent healthcare services.

The Rays have taken part in Know your Numbers! Week for the past five years too.

We caught up with Geoff Ray to ask a few questions about life as a community pharmacist.

What does a pharmacist do on a typical day?

In summary, the pharmacist is responsible for the prescription service ensuring safe and accurate provision of medication. The pharmacist is always available to provide advice on a range of healthcare concerns and is in regular liaison with other healthcare professionals to resolve queries. Key to the day to day role is the face to face contact with the general public, being available without appointment to resolve queries and reassure patients concerning their medication and other issues. The pharmacist has a wealth of training, knowledge and experience and increasingly additional services such as health checks and smoking advice are available from your local pharmacy.

What is the most rewarding thing about your job?

The patient contact. The pharmacist is often in a very privileged position having insight into the issues that exist in a patient's life. There is a real relationship of trust and it is very rewarding to see improved health with a patient.

How has the role of pharmacy changed in the last 5 years?

There is greater involvement in local healthcare provision with the introduction of various professional

services. Your local community pharmacy is likely to be open between 5 and 7 days a week often until late into the evening making the availability of advice and pharmacy service key to providing healthcare services locally.

What future changes would you like to see in pharmacy?

More co-ordination between the GPs and pharmacy for the provision of services. With the accessibility of local pharmacies, there are a number of routine issues that can be dealt with by the pharmacist without the need to refer to the GP e.g. minor ailments. The pharmacist is experienced to know when to refer a patient to the GP. There needs to be an increased awareness of what a pharmacy can deliver for patients locally - it is an underused local resource. Pharmacists do so much more than put pills in bottles!

Why did you decide to take part in the BPA's Know your Numbers! Week?

It is very important to screen for high blood pressure as untreated it can be a silent killer. We have been delighted to be involved with Know Your Numbers! Week since the pharmacy opened 6 years ago and it is without doubt the most rewarding thing we have been involved with. We have identified many unsuspecting people with blood pressure issues and have made a real difference to their lives. Without Know Your Numbers! Week they may have suffered future ill health. We offer and publicise free blood pressure checks all year round as well as getting involved in Know Your Numbers! Week. It's a No-Brainer!

What proportion of people have high blood pressure readings during Know your Numbers! Week?

Difficult to say but probably 30-40% have higher than average readings. Not necessarily immediate cause for concern. Generally a small number



have dangerously high readings so in the main we are giving advice to people about diet and lifestyle. We always encourage people to return to the pharmacy to monitor their blood pressure regularly.

What's the best tip for getting people to remember to take their medications?

Education is key. Patients need to know what medication they are taking, why they are taking it and the importance of it. Armed with that knowledge they are more likely to be happy to take it. Your pharmacist will spend time with you answering your questions about your medication, how and when to take it. Patients often don't like to

ask the GP so should be reassured that the pharmacist can answer their concerns.

If you had one piece of advice for readers, what would it be?

Aside from visiting during 'Know Your Numbers! Week', utilise the skills of your local pharmacist in the management of your healthcare. The pharmacist will always know when to refer to the GP which ensures that you have a good team of healthcare professionals locally looking after your health.

And finally, do you know what your blood pressure numbers are?

Yes! About 125/80.

Our war on

SALT

Earlier this year, the Blood Pressure Association launched a new salt campaign. We take a look at why the campaign is needed before delving into the campaign itself.

Most adults in the UK are eating around 50% more salt than is recommended every day, and need to cut down. Salt intake is a major risk factor in high blood pressure and lots of us would benefit from eating less of it. In fact, reducing the average daily consumption of salt from 8.5g to 6g a day would save 14,000-20,000 lives a year in the UK.

Cutting down on salt is much more than just not adding it to your cooking or at the table though. A staggering 75% of the salt we eat every day is hidden in processed foods such as bread, cakes, processed meats and ready-meals.

To detect this salt we need to look at food labels, and the labels themselves need to be clear, honest and visible.

Some labels may not say how much salt the food contains, but may say how much sodium it contains. To convert sodium to salt multiply by 2.5. 1g sodium is the same as 2.5g of salt.

If the label does not say how much salt or sodium the food contains, look at the ingredients list. As a rule of thumb, the closer to the top of the list salt appears the more salt it is likely to contain.

DID YOU KNOW...
Reducing the average daily consumption of salt from 8.5g to 6g could save 20,000 lives a year in the UK?



"I support the Blood Pressure Association's salt reduction campaign. A third of adults in the UK have high blood pressure and lowering salt intake is one of the best ways to combat this."

John Baron, MP for Basildon and Billericay

The campaign

Recognising that people find it hard to find low salt goods in supermarkets and with the government not yet having set new salt reduction targets beyond the end of this year, we launched a campaign to help everyone reduce their salt intake. The campaign has three key aims:-

- To get supermarkets to stock more no and low salt food products
- To ensure the government sets salt reduction targets beyond 2012
- To ensure traffic light labeling is introduced for online food shopping

We designed a new microsite for the salt campaign, giving you lots of helpful tips on reducing your salt intake, including a top 5 ways to reduce your salt consumption, together with some mouth-watering low salt recipes. The site also allows you to download our campaign poster and sign a petition asking for

75%
of the salt we eat is already in the food we buy

supermarkets to introduce a 'no salt' category within their 'free from' range and is asking the government to set salt reduction targets beyond 2012.

A number of MPs have pledged their support to the campaign and we were also invited by Lord Rea to make a presentation to the Associate Parliamentary Food and Health Forum in May.

As well as discussing the new campaign, the BPA highlighted the dangers of salt in food and showed the lack of choice in supermarkets for no salt and low salt food.

We'd really like your support for the campaign, so please visit the salt campaign website at www.bpassoc.org.uk/microsites/saltcampaign/Home and add your signature to our petition.

If you would like a hard copy of the petition to print and put in a local community centre, library, shop etc., please email info@bpassoc.org.uk or call 020 8772 4994 and we'll email you a copy.

Download and display a salt campaign poster from the campaign website.



"I'm happy to support the Blood Pressure Association's salt campaign. Lowering your salt intake is one of the best ways to reduce your blood pressure. By asking supermarkets to add 'no salt' foods to the 'free from' category, every day shopping decisions for consumers with high blood pressure would be made easier."

John Leech, MP for Manchester Withington

Is your shopping trolley driving you to a stroke or heart attack?

- 75% of the salt we eat is already in the food that we buy.
- The average Briton eats over 3kg of salt a year!
- A high salt diet increases blood pressure, which causes stroke and heart attack.
- We should eat less than 6 grams (a teaspoon) of salt a day.

Sheffield feels the pinch!

Residents of the steel city should be more aware of the dangers of a high salt diet after NHS Sheffield decided to display our campaign poster in 118 community pharmacies within their PCT boundaries. A hard copy of the petition was also given to each pharmacy.

Visit our salt campaign website and find out:-

- How salt puts up blood pressure
- What salt and sodium levels actually mean
- How to eat less salt
- Why potassium helps to lower blood pressure
- How to eat more potassium

www.bpassoc.org.uk/microsites/saltcampaign/Home

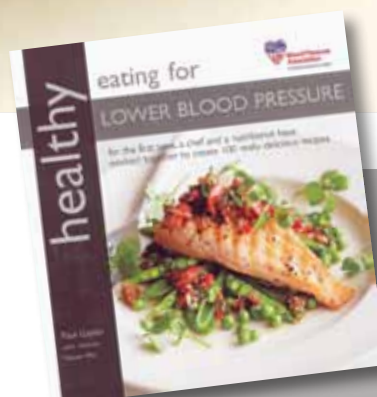
Chargrilled Tuna with squash

A great dish for a summer barbecue, the vinaigrette can be made well in advance and the rest put together very quickly. I often serve this with some steamed couscous or new potatoes. Asparagus, in common with other vegetables, is a good source of potassium, which can help lower blood pressure. Onion squash is a bright orange squash similar in shape to an onion. If unavailable use the more readily available butternut squash instead.



4 PORTIONS:

KCALS	407
PROTEIN	44G
FAT	19G
SATURATED FAT	3.4G
CARBOHYDRATE	15G
SUGAR	10.1G
FIBRE	2.5G
SALT	0.22G
SODIUM	89MG



- 1 onion squash
- 16 asparagus tips, trimmed
- 1 tablespoon olive oil
- 1 garlic clove, crushed
- 1 red chilli, deseeded, finely chopped
- 4 x 175g sustainably sourced tuna steaks
- freshly ground black pepper

For the vinaigrette

- 3 tablespoons olive oil
- 2 small red onion, finely chopped
- 1 tablespoon honey
- 2 tablespoons balsamic vinegar
- 2 tablespoons chopped fresh mint

Serves 4

Cut the onion squash into 12 wedges, discard the inner seeds and, using a small knife, remove the outer skin.

Cook the asparagus in a pan of boiling water for 2–3 minutes, then remove with a slotted spoon and set aside.

For the vinaigrette, heat 1 tablespoon of the olive oil in a pan, add the onion and fry for 4–5 minutes until lightly coloured and softened. Add the honey and caramelize lightly in the pan for a further 15 minutes. Remove to a bowl and cool. Add the balsamic vinegar, remaining oil and chopped mint, season with black pepper and set aside.

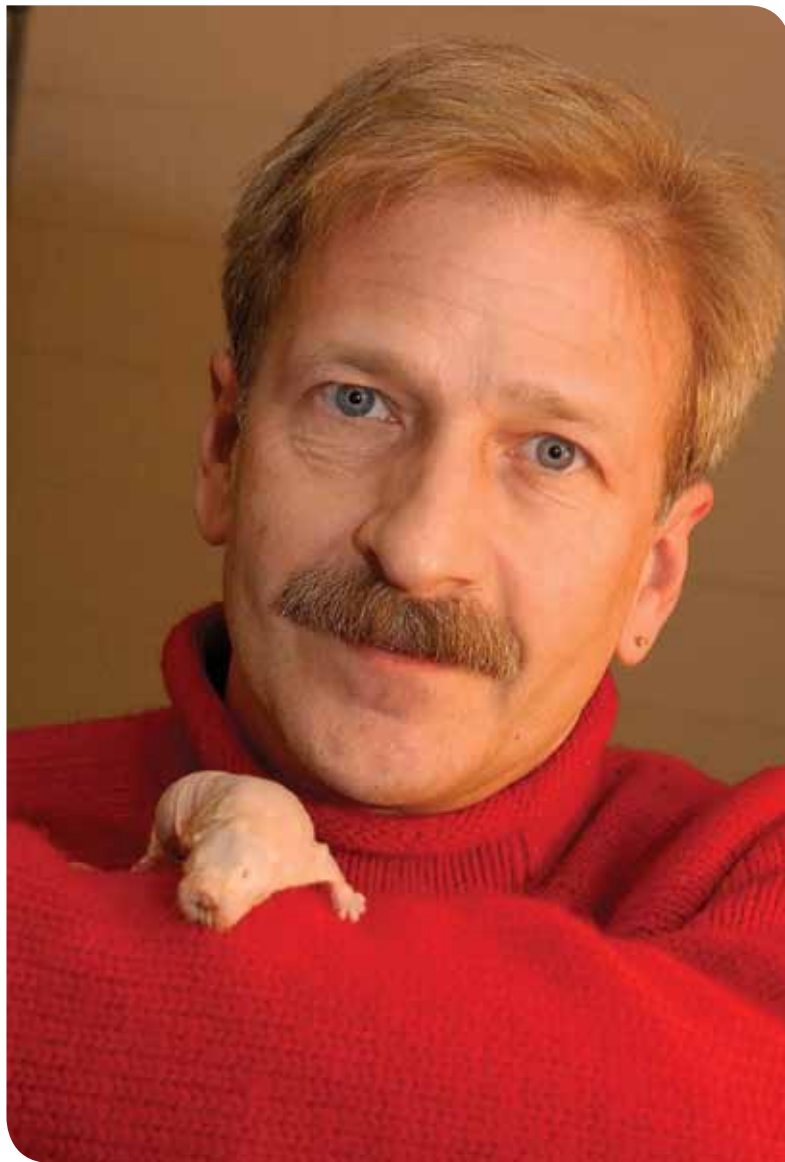
Preheat a chargrill or grill pan until hot. Toss the onion squash wedges and asparagus with a little oil, garlic and chilli and place the squash on the grill to cook for 10–12 minutes, then add the asparagus, cook for a further 5 minutes, or until the vegetables are golden and lightly caramelised. Remove and keep warm.

Season the tuna steaks then brush with a little olive oil. Place on the grill for 2–3 minutes until the tuna is cooked rare (a little longer if you prefer it more well done).

Place the tuna steaks on a bed of the chargrilled squash and asparagus, spoon over the onion and mint vinaigrette and serve.

This recipe is from **Healthy Eating for Lower Blood Pressure** (by Paul Gayler with Gemma Heiser MSc. Published by Kyle Cathie, photography by Will Heap) available from our webshop at: <http://bpassoc-shop.org.uk/>

MEET THE NAKED MOLE RAT



The naked mole rat with its hairless, tubular wrinkled body and oversized incisors looks a little like a tiny walrus.



Weighing in at between one and 2.4 ounces, it has tiny eyes, no external ears and is about three inches long. With a massive life-span of up to thirty years though, it is also possibly one of the most important rodent friends we currently have as it is believed that they could harbour in their brain cells a survival secret that might lead to better heart attack or stroke treatments.

Thomas Park and colleagues, biologists at the University of Illinois at Chicago and the University of Texas Health Science Centre at San Antonio, think the subterranean lifestyle of the odd-looking rodents may hold clues to keeping brain cells alive and functioning when oxygen is scarce.

Adult naked mole-rats however are very tolerant to oxygen deprivation. So are human newborns.

This could one day lead to an understanding of how to reduce cell death following heart attack or stroke.

When a heart attack or stroke prevents oxygenated blood from reaching the brain, brain damage or death results. This is because brain cells starved of oxygen can't control how much calcium enters the cells, and too much calcium in a cell is lethal.

The brain cells of human newborn babies have a mechanism that protects them from the damage caused by low oxygen levels; their brain cells have calcium channels that close during oxygen deprivation, protecting the cells from calcium overdose.

Professor Park thinks this strategy is an evolutionary adaptation by mole-rats, which live in their hundreds, underground, in oxygen-deprived conditions. He believes that he and his colleagues have identified a novel potential mechanism for protecting the adult brain at times of oxygen deprivation.

"We knew the adults of this unusual mammal had brains that, like infant humans, were very tolerant to oxygen deprivation," he said. "We wanted to know if the adult naked mole-rats used the same strategy as babies to prevent calcium entry. This is exactly what we found."

This research could pave the way for the development of novel ways of reducing brain damage that results from heart attack or stroke. If researchers can find a way of triggering brain calcium channels to close when oxygen is in short supply, the cells wouldn't die.

Information & publications

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 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.



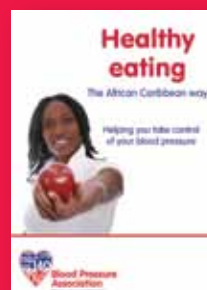
Measuring your blood pressure at home

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.



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.



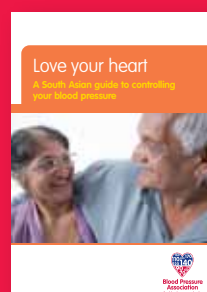
Healthy eating: the African Caribbean way

People of African Caribbean origin are more likely to develop high blood pressure. This booklet looks at how you can help lower your blood pressure by eating healthily. Traditional African Caribbean cooking can be high in salt and fat, so this booklet looks at how to prepare healthier alternatives.



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.



Love your heart: a South Asian guide to controlling your blood pressure

High blood pressure is a major cause of heart disease and stroke. People of South Asian descent are much more likely to develop these health problems than other people. This booklet looks at how to lower your risk by keeping your blood pressure controlled.



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.

Our medicines information sheets provide information for patients about the different blood pressure medications that are used to treat high blood pressure. They are all available to download from our website and titles include:

- ACE inhibitors.
- Angiotensin receptor blockers (ARBs).
- Calcium channel blockers.
- Diuretics.
- Beta-blockers.
- Non-standard medicines for high blood pressure.

