WHITE NOISE

#TINNITUSWEEK

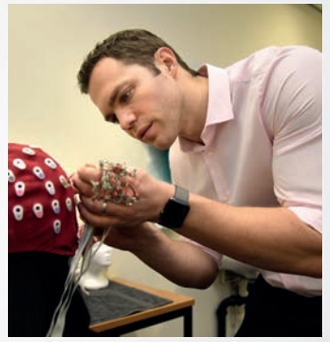
TOP 8
TINNITUS PRODUCTS

A NEW TEST
TO DETECT TINNITUS

TURNING
'SSHHH...'
INTO
'ZZZZZZ'
getting a good night's sleep

HOW JESS GOT HER
MOJO BACK

Cover girl, Jess



Dr Will, getting ahead

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THE LOWDOWN

Tinnitus is the name for hearing sound in one ear, both ears, or in the head that doesn't come from an external source.

Most often, tinnitus is linked to hearing loss caused by normal ageing or exposure to loud noise, but it can be a symptom of other ear conditions too. It's rarely a sign of a serious disorder, but do see your GP in the first instance if you think you have it.

THERE ARE MANY DIFFERENT TINNITUS SOUNDS. MOST PEOPLE DESCRIBE IT AS 'RINGING IN THE EARS', BUT IT CAN ALSO SOUND LIKE

hissing humming buzzing whooshing

There may be a single sound or two or more. It may be there all the time, or come and go. People of all ages get tinnitus, even children. But it's more common in older adults.

Many people have tinnitus for a short time – for example, after listening to loud music or when they have congestion because of a cold. But around 1 in 10 adults in the UK have tinnitus all the time or frequently. That's around 6 million people.

Tinnitus affects people in different ways. Most people with tinnitus aren't troubled by it, or find it only mildly annoying.

But some people find that tinnitus has a big impact on their life, and it can cause:

- ***DISTRESS***
- ***SLEEP DIFFICULTIES***
- ***HEARING DIFFICULTIES***
- ***GENERAL ANXIETY.***

The good news is most people find that their tinnitus slowly gets better over time. This is because the brain gradually learns to 'filter' it out and not pay attention to it. The process is called habituation and it's the main goal of tinnitus therapies.

There are different therapies and self-help techniques that can help you to manage tinnitus so that you're not aware of it all the time or distressed by it. Managing your stress levels is important, as stress can make tinnitus more noticeable. Most people find that their tinnitus improves over time.

IF YOU'RE STRUGGLING WITH TINNITUS, SPEAK TO YOUR DOCTOR OR AUDIOLOGIST (HEARING SPECIALIST). THE SUPPORT AND THERAPIES RECOMMENDED WILL DEPEND ON THE NATURE OF YOUR TINNITUS, HOW IT AFFECTS YOU, AND WHETHER YOU HAVE ANY OTHER HEARING PROBLEMS.

"RIGHT, LET'S GET THE BORING STUFF OUT OF THE WAY. I'M JESS, I LIKE TO TRAVEL WHEN FUNDS ALLOW, DABBLE IN ART WHEN THE MOOD TAKES ME AND HAVE A DRINK WITH MY FRIENDS OCCASIONALLY. I'M AN AVERAGE GIRL DOING AVERAGE THINGS."

Around two and a half years ago, my life changed forever. I woke up one day with a high-pitched noise filling my head and no idea where it came from. There was no big moment; no loud bang, no slap across the head with a fish, not even a big night out the night before. I wasn't worried. I'd had ringing ears for a day in the past and then it just disappeared – so why would this time be any different?

Except it was. Two weeks down the line and it hadn't stopped. My GP sent me to an audiology clinic (as I'd also mentioned my terrible hearing) and it was time to see the pros. After some questions and a hearing test, I was diagnosed with hereditary hearing loss (cheers Dad!) as well as tinnitus.

Having ruled out certain causes such as a virus or ear wax, the lovely doctor and I concluded that the big T, this terrible new soundtrack to my life, was most likely due to my exposure to loud music over a period of years. Loud, shouty, headbanging rock 'n' roll. Any music can be damaging, of course, but my flavour of choice – ye old rock – uh oh! Who knew Black Sabbath and The Doors could cause so much trouble?

FIGHTING ON ALL FRONTS

I'd crank up the volume in my car; stand next to speakers at gigs, whipping my head in every direction like a sweaty kid at a school disco; and my headphone volume would go straight into the red. Oh, how careless and naïve I was. I honestly never, in a million years, thought this would happen to me. Ear protection? Never heard of it, mate...

Well, I have now. I can safely say; ear protection is vital. For everyone. It's no good waiting until you get tinnitus to start protecting your hearing, because by then it's too late. So go on! Forget me; save yourselves!

LOVE MUSIC? USE PROTECTION!

More people are using hearing protection on a night out. Here's why a pair of quality filter earplugs is worth the investment:

THEY MAKE LOUD MUSIC SAFE
Listening to music at 85 decibels (dB) or above can cause damage if you're exposed to it for long enough. The music at the average nightclub is about 100dB.

THEY'RE MADE FOR MUSIC LOVERS
Earplugs with acoustic filters reduce the volume to a safe level, without spoiling the sound quality.

THEY'RE COMFORTABLE TO WEAR
They're also hypoallergenic and reuseable.

EARPEACE HD earplugs protect your ears without distorting the music you love.

- Medium, high and max protection filters
- Aluminium carry case

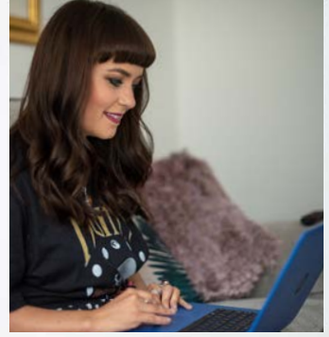
H188 £14.99
(not VAT exempt
see p15 for order details)

Next thing I know, I'm getting hearing aids fitted and a year's supply of batteries in my lap. There's even a programmed option that plays 'white noise' into my ears to combat the ringing sound of my tinnitus. I couldn't wait to test drive these babies! My excitement soon wore off, however, when I realised you do *not* get used to wearing hearing aids overnight. Let's just say things got bad (as they often do for people with tinnitus, as well as those with hearing problems). I changed from the person I'd been before: outgoing, sociable, confident and always on the go.

I started suffering with depression, feeling anxious if I had to speak to people, and my self-worth took a nosedive. I didn't know how to explain it to my friends and family, let alone employers or random strangers. I stayed home a lot, making up excuses as to why I couldn't see my friends. I struggled to get a decent job as I'd limited myself as to what I thought my abilities now were. Tinnitus was fighting me on all fronts, making everything I used to do feel impossible. Sounds absolutely rubbish, right? It was.

Until, that is, I agreed to go on an adventure... Some friends were planning a two-month trip driving from Wales to Russia in a little Fiat Panda. I had nothing to lose, so I agreed to join them.

This trip flipped everything back round for me. Although I still had some difficult days and sleepless nights (tinnitus stalked me around the world, the creep!), I also remembered what life was all about – having fun with my friends, meeting amazing new people and witnessing breathtaking scenery. As my self-esteem started to grow again, I realised I'd let tinnitus take over my life and I now refused to live that life. There's no magic pill yet, of course, so I've had to work very hard at pushing myself out of my comfort zone and just go for it. Now I'm very open with people about my tinnitus and hearing loss, as their understanding can totally change a situation. My new employer has given me a lot of support because I've asked for it – unashamedly and with absolute expectation of success.



Jess, at work...

...and at play

After persevering with my hearing aids, they're now a part of me, much like my contact lenses. I barely notice them. If only I could stop losing them like an irresponsible teenager...!

FIND WHAT WORKS FOR YOU

I've also begun to write a blog about my life with tinnitus, hoping to provide some hope and humour for others who have it, as well as raising awareness for those who don't understand the effects it has on everyday life. I make sure I take care of my mental health as well as physically protecting my ears from getting worse by using earplugs. There are, in fact, many things out there designed to help us, but one of the things I've learned about people with tinnitus is that we're all individual – and what works for one may not work for another. So, whether it's support groups, helplines, vitamins, noise-maskers, music, meditation or sacrificial cults... it's about being open to trying things out and finding your own unique way that helps you! Well, maybe not the sacrificial cult thing...

TO READ JESS' BLOG, GO TO MYTINNITUSLIFE.WIXSITE.COM/MYSITE

ACTION ON HEARING LOSS IS FUNDING DR WILL SEDLEY'S EXCITING PROJECT TO OBJECTIVELY 'MEASURE' TINNITUS – THE FIRST CRUCIAL STEP IN DEVELOPING EFFECTIVE TREATMENTS OR EVEN A CURE

HEAD CASE

I studied medicine at the University of Nottingham and, after graduating in 2007, took up a series of positions in Newcastle and nearby hospitals.

I'm fascinated by how the brain works, and why we see, hear and feel the things we do. When I came across tinnitus, I realised that this captured every fascinating aspect of perception – and, most importantly, presented a massive unsolved problem in modern medicine.

I completed my PhD into brain mechanisms for tinnitus in 2015. I currently work as a specialist registrar in neurology, and as a postdoctoral research scientist, in Newcastle University's Institute of Neuroscience.

THE SEARCH FOR TREATMENT

At the time of my PhD, there were two competing schools of thought about tinnitus. All we really knew for certain was that it's usually caused, in some way, by hearing loss.

One view was that the hearing loss causes the brain to 'turn up the volume' to compensate – and that this inadvertently turns up the volume on spontaneous, random brain cell firing. In other words, the tinnitus sound that people hear.

The other view likened tinnitus to 'phantom limb' pain – the lack of hearing input in the higher frequency ranges means that the brain has to fill in the missing input from somewhere. Our brains are constantly weighing up what our senses are telling us against our predictions of what we expect to hear. So it was thought that these predictive mechanisms were going into overdrive and making up the missing input from the brain's memories of sound, or from sound inputs in undamaged frequency ranges.

The two accounts seemed mutually exclusive and also there were a lot of paradoxes that neither could explain. I developed a framework which incorporates aspects of both but with the fundamental difference that the brain is *not* using predictive mechanisms to make up the tinnitus sound. Instead, it's usually successful in using predictions of silence to overrule the tinnitus signal – and tinnitus occurs when these mechanisms fail to fully override it. This opens up a number of testable hypotheses about how tinnitus is caused. It might even help in the search for treatment, if we can find ways to modify the relevant predictive mechanisms.

My new project, funded by Action on Hearing Loss, tackles the issue of trying to come up with a convenient, accurate and objective test for tinnitus. The lack of such a 'biomarker' has been a massive barrier to tinnitus research up to now. The method of examining a type of electrical brain response to sounds started out as an attempt to test my theory of how predictive mechanisms may cause, or suppress, tinnitus.

HAPPY VOLUNTEERS

A range of different sounds are played to a volunteer, and the pattern of these responses across different conditions (such as sounds that are louder than expected versus others that are quieter than expected) can reveal whether the brain's predictions of sounds are being skewed in a particular direction.

I've seen a very different pattern of results in people with tinnitus compared to people without it. The brain recordings can be used to categorise people as having tinnitus or not with fairly high accuracy. Importantly, this method is also quick, cheap, and requires no training, so it has the potential to transform the way tinnitus research is conducted internationally.

From the volunteers' point of view, it's really simple; they wear an electrode cap and headphones and we play some beeps to them, which they ignore while watching a subtitled film. The work so far is almost ready for scientific publication and now, with this new funding, the next stage will be to improve the accuracy and efficiency of the method (as well as learning more about the brain mechanisms of tinnitus). While it's not in itself a treatment, an accurate and quick test for tinnitus is essential for developing effective treatments for the condition in future. If it lives up to expectation, it will be a major step towards treatment, or even a cure.

WHY OUR TINNITUS RESEARCH MATTERS

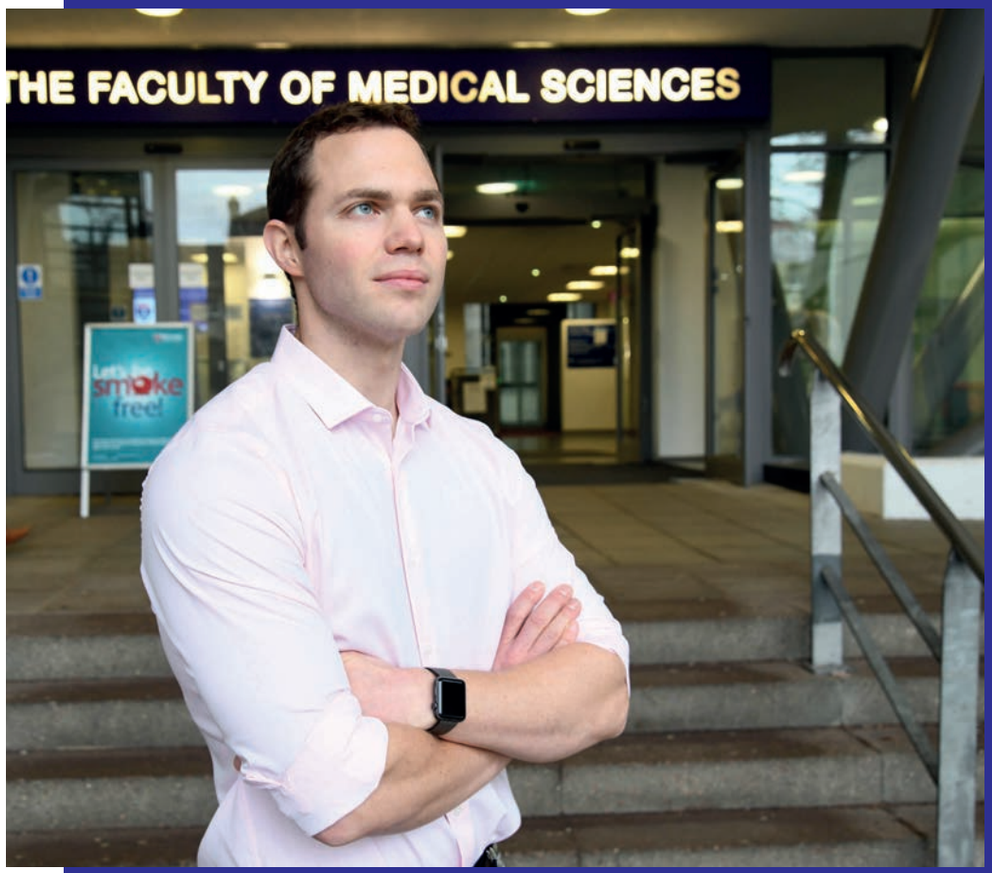
TINNITUS AFFECTS MILLIONS OF PEOPLE In the UK, around one in 10 of us have tinnitus. For 600,000 people, tinnitus causes serious anxiety and stress

PEOPLE WANT TREATMENTS TO SILENCE IT There are a number of approaches to help people manage their tinnitus but there are no curative treatments as yet

TINNITUS COSTS SOCIETY AND THE NHS MILLIONS A recent study suggests that the UK's annual healthcare bill for treating tinnitus is £750m (Stockdale 2017)

RESEARCH INTO TINNITUS IS UNDERFUNDED compared to other conditions.

We've funded £2.3m of tinnitus research worldwide since 1999. We now know far more about which parts of the auditory system are involved in tinnitus – but there's still much we don't know. A better understanding of the biological mechanisms involved will give us clues towards developing treatments for all types of tinnitus. We're funding a number of projects, including one at UCL to investigate how glia and neurons communicate in the auditory nerve, and how these processes might change when tinnitus is present. Another study, at John Hopkins University in the US, will look at how high levels of anxiety and stress might affect the chance of developing tinnitus and also its severity.



Dr Will Sedley (above) will lead the three-year project at Newcastle University to hone a fast and accurate biomarker test for tinnitus

Human studies of tinnitus are vital if we're to understand it better, and for developing effective treatments. We rely heavily on the goodwill of lots of people with tinnitus who give generously of their time. Happily, almost every one of my volunteers has found the experience interesting. Often, they feel that tinnitus isn't taken all that seriously by health practitioners, so they appreciate the experience of meeting people who are deeply interested in it.

Tinnitus can seem a very unattractive condition to study, either because the symptom can sound rather boring, or because it's not really seen as a big problem compared to, say, cancer or dementia.

In reality, to truly understand tinnitus, you need to understand perception – which means getting to grips with a range of some of the most fascinating aspects of neuroscience, including the unsolved problems remaining. In terms of the importance of the condition, 1% of the population are suffering for years (or even decades), because of it. They may not talk about it much – or even at all – but we probably all know people who struggle with tinnitus.

Early on in my career, things were rather all-or-nothing. I would work on one research project at a time, and commit everything to it. When things went well, it was incredibly rewarding, and when experiments or whole studies failed, it would feel like the bottom had fallen out of my world. Now I have so many things going on at once (research, clinical work, family) that there's just not enough hours in the day. But it's great, because I enjoy every aspect of what I do in life.

Research is one of the most rewarding long-term 'hobbies' to have. The feeling of being able to apply your own creativity to tackle important challenges and fascinating puzzles is wonderful. The downside is that the research progresses much more slowly than I'd like.

NO TELLING WHEN

I don't want to fall into the trap of saying we're on the cusp of curing tinnitus, or speculating about when we will cure it. I think it can, and will, be cured eventually – but there's really no telling when, or how.

Ideally, my ultimate goal would be to conclusively work out how tinnitus occurs (including, along the way, how perception in general works), and develop a cure or a safe, non-invasive and effective treatment – perhaps one that can be freely downloaded as a smartphone app.

Realistically, I'd be pleased to move the field of research in any direction that eventually benefits people struggling with tinnitus.

FOR MORE ABOUT OUR RESEARCH PROJECTS, ACTIONONHEARINGLOSS.ORG.UK/RESEARCH

AROUND 10% OF PEOPLE IN THE UK ARE THOUGHT TO HAVE PERSISTENT TINNITUS – AND FOR 1% OF THE POPULATION, THE CONDITION IS SO INTRUSIVE THAT IT SEVERELY AFFECTS THEIR QUALITY OF LIFE, LEADING TO ANXIETY, DEPRESSION – AND PROBLEMS SLEEPING.

Sleep AND Tinnitus

We know that tinnitus causes sleeping problems for some people; usually when they're dropping off or trying to go back to sleep if they wake in the night.

We also know that the brain has very different levels and patterns of activity when it's asleep than when it's awake – but we don't know how this different activity interacts with tinnitus and its development. For example, does the brain still perceive tinnitus when we're asleep or does it somehow 'switch off'?

What we *do* know is that sleep is essential for health, and recovery from illness or injury. It also plays a role in learning and memory formation.

So, could it have a role in tinnitus? Could the time of day (that is, the stage of someone's 'sleep-wake' cycle) when their hearing is damaged affect whether tinnitus develops, how severe it is, or if it will become permanent? Can sleep help to protect against tinnitus, and does sleep-deprivation make you more susceptible to tinnitus in the first place – or make it worse?

We're funding PhD student Linus Milinski at the University of Oxford to tackle some of these questions.

We hope his research will help to identify when and where in the brain tinnitus develops. Linus will look at how brain activity changes as tinnitus develops, and investigate how sleep and tinnitus are related.

Ultimately, this could lead to the design of better, more effective treatments for tinnitus. It could also help to identify sleep, or a change in sleep pattern, as a novel way to treat the condition – and potentially benefit thousands of people.

TINNITUS AND THE BRAIN

New research suggests that the default state for the brain, if there's no external sound present, is to predict silence – and so that's what we 'hear'.

But when someone develops tinnitus, this somehow 'resets' the brain so that its default state is to predict sound instead. If this is proven to be correct, it could radically improve our understanding of tinnitus – and help us to develop more effective treatments.

Linus will track how brain activity changes before and after tinnitus develops, looking for specific patterns that indicate the condition. He'll do this by monitoring the brain activity of animals with tinnitus, 24/7, awake and asleep. He will also study whether these changes only occur in the hearing areas of the brain which process sound, and/or elsewhere (such as in the areas that process emotions or control higher cognitive processes like attention and working memory).

Finally, Linus will monitor the timescale of these changes – tracking when they start to occur, and how long they take to develop – looking for the point at which the brain switches from silence as a default to producing tinnitus symptoms instead.

ILLUSTRATION BY ANNIE RICKARD STRAUS

TIPS FOR SLEEPING WELL

GET UP AT THE SAME TIME EACH DAY **even at weekends. But try not to miss out on sleep during workdays.**

CLEAR YOUR MIND **before bedtime – if you have particular worries, set aside around half an hour earlier in the evening to think about how to resolve your problems. Write your ideas down.**

'WIND DOWN' AN HOUR BEFORE BED – **have a warm bath, listen to relaxing music or read. Avoid bright lights, including screens and smart phones before going to bed. This helps to draw a line between daytime and bedtime.**

DON'T EAT JUST BEFORE BEDTIME **as it will boost your energy levels and make you more alert, which can increase your awareness of tinnitus.**

TRY TINNITUS RELEAXERS **or sound pillows. Listening to calming sounds can help you to relax and get you ready for sleep (see p15).**

HELP YOURSELF

There are many simple things that may help you to manage tinnitus – from listening to soothing sounds to sharing your experience with others going through the same thing. Your audiologist or tinnitus specialist may support you with one or more of these techniques to manage your tinnitus, but you can also try them without professional support:

USE CALMING MUSIC AND SOUNDS – this can help to take your mind off your tinnitus by making it less noticeable. It can help you to relax and fall asleep. See 'The top 8' (p15) for information about sound therapy systems and other devices available from our online shop

LEARN MORE ABOUT IT – understanding what tinnitus is, what causes it, how common it is and how you can manage it, can be reassuring. Visit the Tinnitus section of our website, download our Tinnitus factsheets or contact our Tinnitus Helpline (see below)

USE HEARING AIDS IF YOU ALSO HAVE HEARING LOSS – not only will hearing aids help you hear better, but a background of environmental sounds can help to mask the sound of your tinnitus. Find out more in the Hearing aids section of our website

LEARN TO RELAX – stress can make tinnitus worse, so knowing how to reduce your stress levels can help you to manage it. Find out about helpful therapies and activities in our factsheet, Stress and tinnitus

CHAT TO OTHERS – sharing experiences and tips with others who have tinnitus can be really useful. You can join the latest discussions on our online Tinnitus forum, or visit a support group. The British Tinnitus Association has a list of independent tinnitus support groups on its website at www.tinnitus.org.uk

LET FAMILY AND FRIENDS KNOW HOW IT AFFECTS YOU – then they'll be better equipped to support you. Our factsheet 'How to help friends and family with tinnitus' has useful information

TAKE STEPS TO IMPROVE YOUR GENERAL HEALTH – a well-balanced diet and regular exercise will improve your overall wellbeing and may help you to cope with tinnitus more easily. Your GP can give you more advice.

ILLUSTRATIONS BY ANNIE RICKARD STRAUS

TINNITUS HELPLINE
Phone 0808 808 6666
Email tinnitushelpline@hearingloss.org.uk
Textphone 0808 808 9000

S680-02 TINNITUS SLEEP SOUND THERAPY SYSTEM

Sound therapy can provide a welcome distraction from tinnitus. This system has 24 pre-loaded sounds (including woodland, ocean and white noise), or you can opt to customise.

L536 **£65.99**

BST-100 BLUETOOTH SOUND SPEAKER

Portable, rechargeable tinnitus relaxer with 10 non-looping sounds. It also doubles as a sound speaker, so you can stream your own music from a smartphone or any other Bluetooth-enabled device.

L457 **£43**

STEREO SOUND PILLOW

Lightweight and as comfortable as a normal pillow but with two speakers inside. Connect it to a tinnitus relaxer, stereo or personal music device to alleviate your tinnitus and drift off to sleep – without disturbing others.

L257 **£32.99**

NATURECARE TINNITUS RELAXER

Simple but effective tinnitus relaxer with seven soothing sounds to help relieve the troublesome symptoms of tinnitus. Opt for 30-minute timer or continuous play.

L238 **£23.99**

The top 8

TINNITUS PRODUCTS FROM OUR SHOP TO HELP YOU MANAGE YOUR SYMPTOMS

10% OFF

*all featured products until 31/12/19. Quote **TINNITUS10** when you order by phone or shop online*

S550 SOUND OASIS TINNITUS RELAXER

A great quality, easy-to-use tinnitus relaxer. Choose from six therapy sounds: ocean surf, stream, rain, white noise, summer night and wind. Volume decreases gradually and you can set the timer for 30, 60 or 90 minutes.

L397 **£46**

S850 TRAVEL SOUND THERAPY SYSTEM

Portable tinnitus relaxer that's ideal for travelling. A choice of 18 sounds, including one specifically developed to help your body adapt to new time zones.

L331 **£61**

SOUND OASIS PA-200 AMPLIFIED STEREO PILLOW SPEAKERS

Ultra-thin under-pillow speakers, with built-in amplification. Use with a tinnitus relaxer, MP3 player, radio, smartphone or any device with a standard 3.5mm headphone socket.

L600 **£29.99**

DUAL PILLOW SPEAKERS

Slip this pair of speakers under your pillow, then plug them into your stereo or a tinnitus relaxer.

L399 **£19.99**

How to order: Call us on **03330 144 525** (telephone) or **03330 144 530** (textphone) or email: **solutions@hearingloss.org.uk**. See our full range of products online: **actiononhearingloss.org.uk/shop**

None of the featured products are VAT exempt

#DONTLOSETHEMUSIC

The music in an average nightclub is loud enough to put you at risk of hearing loss and tinnitus – ringing or buzzing in your ears – after just 15 minutes. So grab yourself some earplugs to protect your hearing, before it's too late.

Find out more at actiononhearingloss.org.uk/dontlosethemusic

ACTION ON HEARING LOSS

A national charity since 1911