Cambs Tinnitus Support Group

No. 167 NEWSLETTER June 2023

MEETING

Saturday 17 June

at

10.00 for 10.30 am

"Evidence-based research behind a tinnitus app"

Speaker: **Dr James Jackson**
Reader in Psychology
Department. of Psychology and Therapeutic Studies
Leeds Trinity University

James is a Chartered Psychologist and holds a BSc (Hons) degree in Psychology from the University of Sheffield as well as MSc and PhD degrees in Psychology from the University of Hull. His doctorate considered the effects of tinnitus on concentration and task performance. Research interests include how tinnitus affects individuals, how personality affects tinnitus distress, and whether objective measurement of tinnitus is possible. He is also interested in the concept of 'resilience' and how personality and the environment moderate pain tolerance.

New Meadows Community Centre

299 Arbury Road, Cambridge, CB4 2JL

(The car park is located off Arbury Road between the new Community Centre and the apartment block)

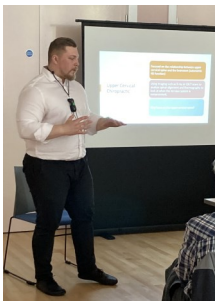
(Details of the vehicle barrier entry protocol will sent out before the meeting)

CONTENTS

Refreshments and Raffle

EDITOR'S CHAT

Our June meeting saw 28 members plus our speaker at the new Meadows Community Centre for the first time, and we also happened to be the first group to use the building. It's an impressive facility which will provide a really attractive social centre for the local community. Coincidentally we were the guinea pigs to try out the facility, and assuming there will always be teething problems with a new building, so it proved. The ventilation in the room we had been allocated had a volume & frequency that several members found unpleasant, so the staff relocated us to the large hall next door. They worked miracles to set up all the gear that would be needed from scratch for Elliot, our speaker, and the meeting got under way. Unfortunately other problems centred on the 'intelligent' loop system which didn't function properly, plus the echo in the spacious hall meant some members struggled during the session. [*I call the new system 'intelligent', because unlike the previous system, this apparently doesn't require a neck or hand mike to support it . No one I've spoken to has a clue how it works*- Ed].

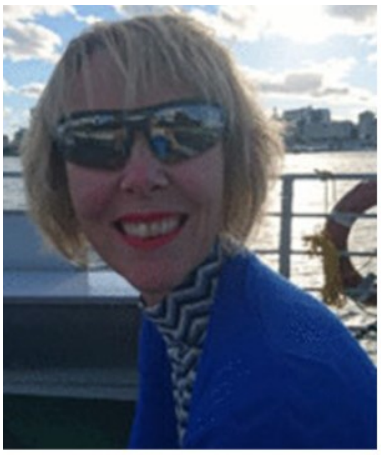


Our speaker at work!

Elliot was an oasis of calm during these distractions, and gave us what turned out to be an absorbing if technical talk about chiropractic care and tinnitus. If you find my report similarly technical, I can only say that after many hours of listening to my audio recording, and trying to match our speaker's words to 37 slides, I ended up with over 1500 words (without slides!), which is about double the count I usually have. It was easily the most intense reporting task I have undertaken, but having said that it taught me a lot about the spine and nervous system and how they can influence one's tinnitus. In my defence, Rachel tells me that Christian from the same practice gave the same talk to nursing colleagues and herself, and they similarly struggled! On your right is a shot of Elliot doing his stuff.

By the time of our next meeting in June, Dan Mitchell at the Centre hopes to have everything sorted. I hope I will have found a couple of volunteers to go along to the Meadows to check whether the described problems have been sorted to their satisfaction.

Welcoming Caroline Savage as Tinnitus UK's new CEO!



Tinnitus UK are delighted to announce that, after a successful period as interim CEO, Caroline Savage has been appointed as their new Chief Executive Officer from 10 March 2023. Caroline has 25 years of broad charity and voluntary sector experience, including working with health, arts and international development organisations.

Caroline has extensive leadership and Director level expertise in defining and delivering strategies that grow income and service development, and increase the reach and impact of organisations.

Caroline said: "The growing critical need for what Tinnitus UK does, combined with the drive, commitment and expertise of the team made my decision easy. Together with our award-winning support resources we have a strong foundation to build on for the years ahead. We will develop and deliver even better services and work even harder to increase investment in tinnitus research."

Tinnitus UK snippets

- Tinnitus UK can assist with sourcing external speakers for support groups. We just need to provide dates and a topic of the session.
- Biobank – currently in the feasibility phase. Tinnitus UK will share the recording from the UoM (unit of measure) shortly which will provide a detailed update on the project.
- Dr James Jackson recently delivered a counselling session for the Tinnitus UK team. The link has currently expired, but if anyone is interested I will apply to get the link extended

---

JIM'S PIECE

As I write my chairman's piece for you, I am very fortunate to be soaking up the sun and relaxing, something that doesn't come naturally to me. This beautiful and cared for garden, not mine, is serene and all one can hear is the pleasant chirping of different birds, and no ugly traffic noise. Now of course, if I give it my attention, there is the background hissing, so I don't! Why spoil the peace? Normally, being an active person, I'm completely unaware of my tinnitus, and with time I've mastered it.

You will be somewhere along this journey, and for some it's a much greater challenge. I wish you courage and patience, never give up hope, you will arrive at that place where this unwanted thing no longer dominates your mind, and that time may not be far off.

Best wishes

Jim Infield
CTSG Chair

Chiropractic Care and Tinnitus Report by Alan Yeo

On a pleasant April morning, at the brand-new Meadows Community Centre, we welcomed Elliot Swepson from TOPCHIRO, who provide Upper Cervical Chiropractic services in London and Birmingham. This talk was organised as a follow-up to last February's excellent talk on somatosensory tinnitus by Mark Smith from Addenbrookes.

Chiropractic is a healthcare profession concerned primarily with the upper cervical (neck) spine and how that impacts the nervous system (NS). It is regulated in the UK by the General Chiropractic Council, and is usually practised privately. When available on the NHS it normally focuses on musculoskeletal issues, such as neck and back pain.

History

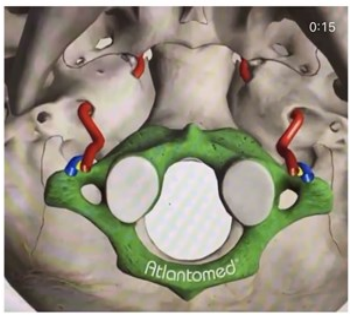
Chiropractic came about in 1895, when Daniel David Palmer, who was a magnetic healer at the time, was visited by a certain Harvey Lillard, complaining that he had lost his hearing in one ear. His deafness seemed to coincide with a cracking noise in his upper back when negotiating a narrow space, and Daniel surmised that manipulating the spine might relieve the problem. After 5 visits, Harvey's hearing returned – chiropractic as we know it today, was born!

In detail

TOPCHIRO work differently to some chiropractors in that they specialize in upper cervical chiropractic, which covers the area between the base of the skull and the top three vertebrae in the neck, called C1, C2 and C3. Structurally this is a very movable part of the spine, and is therefore more likely to misalign. This has implications for the NS as this controls every single cell tissue and organism in the body, and every signal from the brain passes through the neck region. The blood flowing to the brain passes through this area. Neurologically, the most important part is the brain stem, which contains the cranial nerves that supply the head, neck and face, including the ears. The lower part of the brain stem particularly is protected by the top half of the neck. So they look at any misalignment in that part of the neck that may affect the way the nerves are functioning, and what could have an effect on the ears.

Anatomy

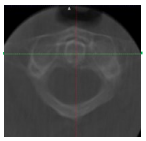
Elliot explained some basic anatomy using the cross-sectional picture of the base of the skull (below). The jugular consists of three pairs of veins which are vital as they return blood from the brain towards the heart. The carotid arteries are a pair of blood vessels each side of the neck and deliver blood to the brain and head. These veins pulse and can be involved the onset of pulsatile tinnitus.



Finally the vagus nerve is the main artery of our parasympathetic NS, controlling specific body functions such as heart rate and digestion. Unlike 'fight and flight' you cannot consciously control these functions.

Imaging

In our practice we use imaging techniques such as



CBCT scan

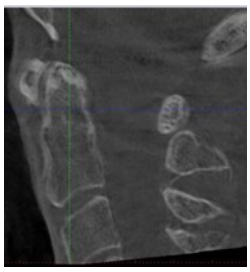
CBCT (often used in dental work) to provide a 3D image of the neck, and from these images we look for any misalignment that may have occurred that may require correction. For the other part of the equation we use paraspinal thermography (using an infrared camera to measure heat differentials either side of the spine) which is a really good baseline indicator of nervous system function. If the nervous system becomes more stressed, this indicates that there is something going on in the spine, and a correction maybe necessary. We measure this pre and post so we can objectively judge whether any correction has been successful. When the NS functions properly, then so does everything else.

Elliot was now onto his favourite topic - imaging.

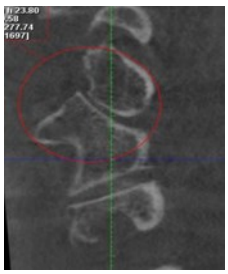
< This X-ray shows a a normal spine with the characteristic back-ward C-shape, whereas this shows >

it has lost its curve, which indicates a possible injury. A nice C-shape curve keeps the spinal cord and brain stem upright and suspended within the spinal canal, as it should be. When the cervical spine comes forward it causes tension in the spinal cord, which make matters worse. The loss of the curve relates to the situation in the bones at the neck which are supporting the skull, which in an adult can weigh around 5Kg. (11lb).

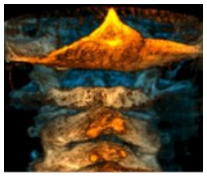
Misalignments can occur in two different places, at the top bone in the base of the skull and between the C2 and C3. Below is an image of how the cervical spine

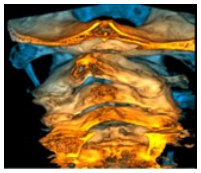


should look (L), and one out of alignment (R) Below are two more images that illustrate this even better. You should be able to draw a



straight line up the spine (L). Whereas (R) there is a misalign ment (plus regeneration of bone tissue which probably means it has been there for some time. There can be several causes, e.g. head trauma, possibly from contact sports, whiplash from car crashes etc.





Proprioception

This is the ability to close our eyes and touch the base of our nose with our index finger, or stand on one leg! Special somatosensory receptors give this information to the brain, and the highest density of these are in the muscles in the top of the neck. So apart from a neurological assessments, we look at how proprioception is

Cont. on page 4

Cont. from page 3

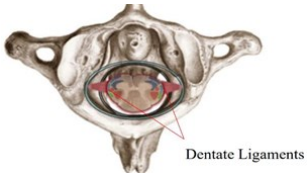
working, along with vestibular input into the ear regarding balance.

Cervical spine movements

We also look at the motion of the cervical spine, taking X-rays of spine-bending postures to observe whether the patients cervical spine is moving as it should.

Flowing round the spine and brain is cerebral spinal fluid (CSF), which supplies blood and nutrients as well has removing the brain's waste products. A lack of flow of CSF in either the brain or spine can cause problems.

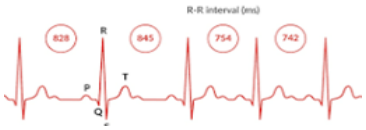
Looking at the spinal chord



Looking down on a C1 vertebrae, the dentate ligaments are attached and stabilize the spinal cord within the vertebral canal, and if you get a twisting motion without everything moving properly this can cause problems, both above and below. Additionally, within the canal there are very small blood vessels barely one cell thick which if compressed by movement can restrict blood flow. If this is the part where vestibular nerves or brain functions related to the ears are involved, then they could be affected.

Having talked about the brain stem, we have 12 pairs of cranial nerves going to different regions: nose, eyes, ears, back of the throat etc. In our clinic we look at all of these bits of neurology, getting a 'global' view of things, we don't just focus on the ears. For instance, the Eustachian tube is really important for pressure normalization, which can prevent fullness in the ears, and possibly damage to the eardrum. It is also sometimes involved with tinnitus.

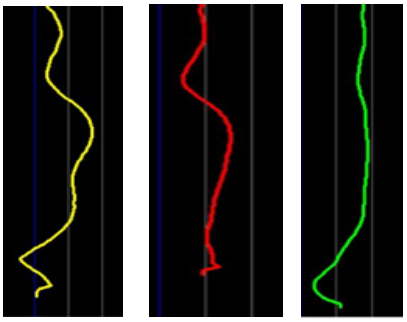
We also look at the vagus nerve, which controls the parasympathetic NS function (often referred to as 'rest and digest') or as Elliot described it, the brake-pedal for the heart. We measure this via the Heart Rate Variability (HRV), which is literally the time between beats of your heart that fluctuates slightly by a level of milliseconds. It's one of the newest ways to measure physiology, and produces some really good data. The vagus nerve runs past the C1 vertebrae, so if there is any pressure on the nerve we will see a variation in the HVR. This variability is caused by the two competing branches of the autonomic NS, and the more 'complex' and variable your HRV, the more resilient and adaptable you are.



A typical HRV trace

Thermography

As mentioned earlier, we use thermography to measure the temperature either side of the spine. A variation of 0.3˚C is considered normal; anything > 0.8˚C is an indication of pathophysiology (abnormal changes in bodily function). Patients who have normal neurological function will have no difference in thermal emissions, and graphs should be a straight line.



PRE **PATTERN** **POST**

Patients with abnormal neurological function will give static differences in thermal readings – this is when the patient is said to be in pattern. The graphs above illustrate pre, pattern and post stages. showing the adjustment has straightened the graph line and helped improve the neurological condition. These readings show whether an adjustment is either necessary or not, and whether an adjustment has been accepted or not.

Thermography used in this way is NOT used as a method of finding the location of neural dysfunction (Where an adjustment is needed)

Lifestyle choices

The TOPCHIRO clinic also gives general advice to clients with tinnitus, much of which is familiar to our members, such as being aware of anything that stimulates the nervous system, keeping stress levels low and trying to get sufficient sleep etc.

To sum up, Elliot says the clinic's function is to allow the nervous system to function correctly by analysing the cervical spine to find if there is a neurological problem causing a problem. If there is, then adjustments are made to try and improve the situation.

He emphasised that tinnitus is the hardest thing to resolve because of the lack of objective measurements - he reminded us he cannot get inside our heads! So they measure the condition of the upper cervical spine and look to make adjustments to try and improve the situation.

Elliot then hosted a lively Q & A session before being thanked in the usual way (plus a nice bottle of wine!).

(Use the link https://tinyurl.com/4yn44r75 to access their Chiropractic Tinnitus page)

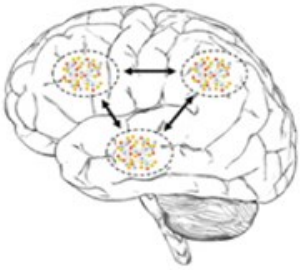
CHUCKLES

- Simon goes to the funfair and takes his girlfriend through the Tunnel of Love. At the tunnel's exit a staff member sees Simon and his young lady wading through the water. 'Did your boat sink?' he asks. Simon replies, 'You mean there was a boat?'
- A man in a fish restaurant is waiting for his meal. The waiter comes over and says 'I'm sorry for the delay in your order, sir. It should be with you shortly.' The man replies, 'That's okay, but if you don't mind me asking, what sort of bait is the chef using?'.

Scientific Principles (edited from article in Tinnitus Clinic)

The Brain

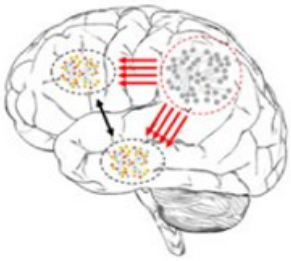
The brain consists of approximately 100 billion nerve cells (so-called neurons); each neuron is connected to approximately 1,000 other neurons. The result is a giant network with billions of connection routes that are used to convey messages and information through the brain to control our entire organism. Like a computer, neurons form switching circuits, whereby different switching circuits have different tasks. For instance, some switching circuits are for storing information, whilst others are responsible for processing signals.



Neurons communicate with each other via electrical signals – that is why brain activity can be examined by measuring brain waves (EEG = electroencephalography) or the electrical fields produced by the brain (MEG = magntoencephalography).

Synchronous nerve cell activity and neurological diseases

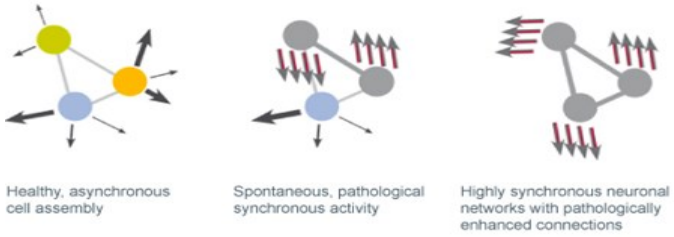
In principle, neurons that belong to the same switching circuit can "fire" simultaneously or asynchronously. This differs depending on the process or activity. There are certain diseases where the asynchronous nerve cell assemblies of a switching circuit suddenly start to synchronise: the neurons are permanently and excessively engaged in synchronous activity and they all fire at the same time.



It is this pathologically synchronised "firing" that causes the typical symptoms – the tremor of Parkinson's and the phantom sound of tinnitus.

Pathologically synchronous activity and natural synaptic plasticity

Unfortunately, some neurological diseases are accompanied by the sudden occurrence of pathologically "enhanced" synchronous activity of a nerve cell assembly that is the start of a vicious circle:
The brain's natural synaptic plasticity causes the pathologically synchronous neurons to strengthen their connections
The stronger the network between the cells, the better the synchronous alignment! The result is the occurrence of defective processes in the brain that lead to the formation of highly synchronous neuronal networks with pathologically enhanced connections.
The brain has learned "pathological firing".



For their theme during Tinnitus Week this year, Tinnitus UK emphasised the importance of protecting ourselves from sources of loud noise. 35% of people believe their tinnitus is caused by loud noise, and with I in 7 of adults in the UK experiencing tinnitus, they know something has to be done.

I thought these two photos, which you might not have seen, were rather charming.

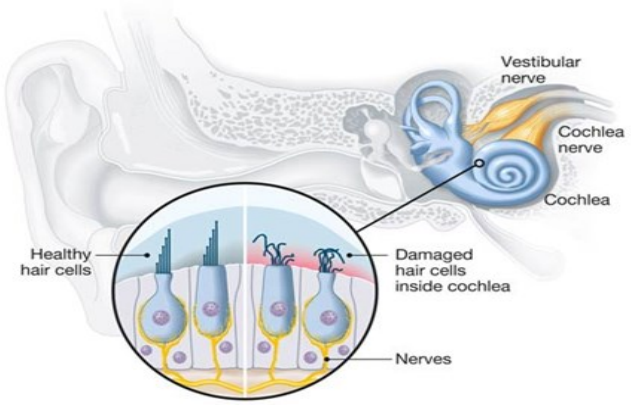
TRI 2023: Bridging Academia, Industry, Medicine & Society: Engineering the future of tinnitus

While tinnitus is a common symptom, current-day treatments reduce the impact than specifically address the percept itself. Globally, tinnitus sufferers demand a permanent solution to this problem. Although market research demonstrates a strong commercial opportunity, the amount of scientific research and financial investment is small compared to other chronic health conditions. This year's Tinnitus Research Initiative conference in Dublin aims to bring together world-class scientists, industrialists, clinicians, policymakers, patients and caregivers to address these impending issues, thereby seeking to bridge the gap between academia, industry, medicine & society (AIMS). We aspire to join hands with experts from emerging scientific fields such as big data science, personalized medicine, neuroinflammation, genetics etc., who can give us insights about their successful translations from bench to bedside. Through this meeting we intend to open new avenues of research, clinical practices, patient engagement and strategies in tinnitus, setting us on a path of disruptive innovation. Hence the title.

New Drug Prospect Stimulates the Growth of Inner Ear Hair Cells

Biotech company Frequency Therapeutics is seeking to reverse hearing loss with a new form of regenerative therapy. The company is using a series of small molecules to induce progenitor cells, a stem cell derivative, to change into hair cells within the cochlea (hearing organ) in order to restore lost hearing function. As hearing loss is a key factor linked to the emergence of tinnitus this may prove to be a useful therapeutic approach for preventing and reducing this symptom.

In the company's initial proof of concept clinical study, the sponsor reported statistically significant improvements in speech perception, in some participants, with some responses lasting for nearly two years.



The company has now announced a new clinical trial and will be recruiting for 124 participants with preliminary results being expected to be published next year Frequency Therapeutics is an MIT spinout. They are aiming to reverse hearing loss not with the existing technology of implants or hearing aids, but by regenerating tiny hair cells in the ear. These cells are part of what allow us to hear. This treatment for hearing loss can also be seen as a potential treatment for tinnitus, as the two are closely related. They have studies published in reputable scientific journals showing some early promise about how their FX-322 injection works.

The main condition in which people have hearing loss is called sensorineural hearing loss (SNHL), which affects over 90% of all people who have hearing loss. This happens when hair cells in the inner ear are damaged. They are unable to regrow themselves naturally. This leads to hearing loss.

FX-322 proposes to repair these tiny hairs by drug injections into the ear. There are no FDA-approved treatments to repair these cells as of yet. Studies done so far show mixed results in patients who received the FX-322 dose. Studies in the future need to be expanded to more patients to see if this drug will show significant improvement in those who have tinnitus.

WICKED WIT

- New ideas pass through three periods: 1) It can't be done. 2) It probably can't be done, but it's not worth doing. 3) I knew it was good idea all along! - *Arthur C. Clarke*
- In everything that relates to science, I am a whole encyclopaedia behind the rest of the world. *Charles Lamb*
- In science there are many matters about which people are agreed; in philosophy there are none. - *Bertrand Russell*
- A bachelor never quite gets over the idea that he is a thing of beauty and a boy for ever. - *Helen Rowland*
- Good but rarely came from good advice. – *Lord Byron*
- The politician who never made a mistake never made a decision. - *John Major*
- Life levels all men. Death reveals the eminent . - *George Bernard Shaw*

Mnemonic

Thirty days has September,
April, June and November:
Unless a leap year is it fate,
February hath twenty eight.
All the rest hath three days more,
excepting January,
which has six thousand,
one hundred and eighty-four.

Brian Bilston

Please remember

This is your newsletter and all comments, letters, contributions or editorial copy relevant to tinnitus or CTSG, or anything you think maybe of interest to our members would be very welcome. Please send to:- Alan Yeo, c/o Newsletter Editor, 4 Claygate Road , Cherry Hinton, Cambridge CB1 9JZ (Tel. 01223 243570 alanyeo70@gmail)

CONNECTIONS CTSG website: **www.cambstsg.com** Facebook: **Cambs Tinnitus Support Group** TINNITUS UK REGISTERED TINNITUS SUPPORT GROUP

CTSG is an independent voluntary organisation with a good supporting relationship with the Audiology Department at Addenbrookes Hospital. It is also a Tinnitus UK-registered tinnitus support group. We receive no financial support other than from membership subs, donations and sales. This pays for the hire of the meeting room, printing and postage of newsletters, replacement equipment and associated activities. Reports and comments expressed in this newsletter do not necessarily reflect the views of CTSG.

Our next meeting is on Saturday 16 September at the new Meadows Centre, where our speaker is Kim Bee from the Cambridge Acupuncture Centre. Her talk is entitled " "Acupuncture for balance and health – discover the benefits of this as part of tinnitus management". Acupuncture is a topic we haven't explored for some time, so don't miss it!