

*Dr Carlo Rinaudo is the clinic director of Brain Hub in Sydney, a clinic focused on vestibular neuro-rehabilitation. He is a chiropractor with post-graduate training in both Australia and overseas and is also undertaking a PhD from the University of New South Wales and Neuroscience Research Australia in Vestibular Rehabilitation. He is a frequent speaker at national events, as well as lecturer in the field of vestibular rehabilitation and dizziness conditions to other health practitioners. His clinic focuses on dizziness and vertigo conditions, poor balance, migraines, whiplash and concussion symptoms.*

### **When was the Brain Hub established?**

Brain Hub commenced in 2015, although Carlo has been the clinic director and practitioner for nearly 20 years within the neuro-rehabilitation field

### **Can you tell us about the Brain Hub and the services that are available?**

Brain Hub is focused on providing the most comprehensive assessment and tailored therapies for patients suffering vestibular and neurological impairments. We integrate nutritional, physical and vestibular neuro-rehabilitation services through neuro-based Chiropractic and Occupational Therapy

### **What diagnostic equipment do you use to determine your treatment plan?**

We believe that successful outcomes start with accurate diagnosis. We can spend up to 3 hours providing a detailed assessment and explanation in plain English. Our goal is to ensure that patients understand what has happened, the impact its having on their function, and most importantly what we can go to provide a solution to achieve their goals. We do this by evaluating

1. Balance system with computerized posturography
2. Eye movements with VNG (video nystagmography)
3. Vestibular function with video-oculography
4. Autonomic function with heart rate variability and vagus nerve function
5. Neurological screen of cranial and peripheral nerves
6. Neurocognitive function with computer test
7. Brain mapping with QEEG (quantitative electroencephalogram)
8. Spinal control and body awareness

Once we collate all the test results, we can identify the areas that are potentially contributing to the patient's symptoms/conditions and prescribe a specific care plan. Re-evaluations are frequently performed to measure progress.

### **A question that is often raised is the safety of chiropractic methods. Can you comment on this and also tell us about the techniques you practice?**

Chiropractic is exceptionally safe and well-regarded in the management of neuro-musculoskeletal conditions. Some people prefer a more gentle approach to spinal care and there are many techniques Chiropractors employ to assist patients. My suggestion is to find

a Chiropractic that is recommended, experienced and is patient-centric in their management approach. Finding a Chiropractor that you can trust and see results from is a valuable asset to your health team

### **Your field is vestibular rehabilitation and dizziness conditions. What is the difference between dizziness and vertigo**

They're words that are often interchangeable by patients, although there is a distinction. By definition

**Dizziness:** A non-specific term often used to describe unsteadiness, lightheadedness, and giddiness, but not vertigo. Dizziness is the sensation of disturbed or impaired spatial orientation without a false sense of motion

**Vertigo:** Vertigo is the sensation of self-motion (of head/body) when no self-motion is occurring. Can be experienced as rotational (spinning), linear or tilt

### **What are the causes of dizziness and vertigo?**

There are many causes to dizziness and vertigo, broadly divided into

- a. Peripheral vestibular conditions that affect the inner ear and nerve, these include – BPPV, Meniere's, neuritis, labyrinthitis, fistulas, neuromas
- b. Central vestibular and brain conditions that affect the pathways in the brain, these include – vestibular migraine, concussion, stroke, MS
- c. Other, these include – anxiety, medication, cardiovascular and cervical spine

### **What is vestibular rehabilitation therapy (VRT)?**

VRT has solid evidence to help people with dizziness, vertigo and poor balance conditions. It typically involves helping 're-calibrate' dysfunction between the eyes, inner ear and postural control systems. Specific exercises and manoeuvre are used to help retrain the body so the person feels more grounded with themselves and their environment. Treatments are normally prescribed based on the patient's function, areas of concerns and goals. They are repetitively applied until symptoms reduce and function is restored. At Brain Hub, we add some cutting-edge applications that combine neuroplasticity to other areas of the brain, along with updated VRT

### **What has chiropractic to do with an inner ear problem?**

Vestibular conditions and VRT are typically not taught as part of the normal Chiropractic education process, so most won't be too familiar with it unfortunately. I have been teaching healthcare practitioners, including Chiropractors, Physiotherapist, Occupational Therapist and Osteopaths, over the last few years how to understand and manage vestibular conditions.

As it's a field that requires further training, I would suggest to find a practitioner who has completed post-graduate coursework and competency.

That being said, we know that spinal (and proprioceptive) function influences the integration of inner ear function. Ensuring the spine, posture and balance systems are working as best as they can only help a person with a vestibular condition

### **What steps do you take to assess a Meniere's sufferer?**

We always start with a detailed history of the complaint and timeline of symptoms. We request audiological reports, which typically show hearing loss at certain frequencies. We perform an arrange of quantitative testing that allows use to accurately measure and re-test. These include computerized balance testing, video head impulse test (vHIT), video nystagmography (VNG), sound localization, autonomic (heart rate variability), spinal and jaw movement and control, amongst others

### **I read that Meniere's, vertigo and all types of balance disorders may be related to how the entire body communicates with the brain and the most critical area for this is the spine, especially the upper portion of the neck. Can you expand?**

That is correct. A 'sensory mismatch' model has been gaining more momentum in the rehab field. The body doesn't work in isolation, rather is the sum of its parts connected, with the vestibular system one of the most connected systems there are within the nervous system. In many ways this connectivity develops from a very young age, allowing the baby to integrate many sensory and tasks, like lifting its head up, visually focusing on a target, controlling our balance and spine and allowing us to turn our head to explore the surroundings.

The upper cervical spine has the greatest density of motion detectors (called proprioceptors) that enable us to move our head accurately and synchronized with our vestibular and visual systems. Most of the research in this sensory mismatch model has come from whiplash. When someone injures their neck in a whiplash accident they often complain of dizziness, poor balance, fatigue and blurred vision. Not surprising when care, such as that from a Chiropractor can help people with these sorts of symptoms.

### **From a chiropractic view, what are the solutions for vertigo and dizziness relating to Meniere's disease?**

As mentioned above, ensuring the proprioceptive (spinal and postural) system is working as best as possible with assist in the common symptoms experienced in Meniere's disease. There is no/little direct affect on the labyrinth through Chiropractic or other physical therapies, apart from lifestyle and dietary advice. Consideration into other influences like autoimmunity, stress, sleep quality and others need to be discussed.

### **Is the chiropractic method generally ongoing for Meniere's sufferers?**

Chiropractic care should be aimed at assisting in the management of symptoms and generally musculoskeletal support. This can continue as long as the patient sees benefit and objective targets are been met. This may be a short period or may continue for an extended time. Patients in our experience often note they feel better and experience less symptoms in between attacks when undergoing regular check ups

### **What can a Meniere's sufferer do to get the best results alongside your treatment?**

Consider other potential contributing conditions like autoimmunity, as well as discuss dietary and medication for symptom control. Managing stress and anxiety, as well as ensuring a good nights sleep invaluable. I often encourage my patient to partake in normal daily activities and engage in social activities as quick as possible

### **At what stage of Meniere's would a sufferer need to visit a chiropractor?**

I would suggest to see a suitably trained Chiropractor as soon as possible, although not during a Meniere's attack, when the vertigo is severe.

### **Do you need a referral?**

You don't need a medical referral to see us, although most of our patients are sent to us from medical and allied practitioners

### **Brain Hub is located at both Gladesville and Leichhardt. Do you work at both clinics?**

Yes, we have 2 clinics, although our Gladesville office is where we do our new patient assessments

Gladesville: 20/1 Jordan St

Leichhardt: 216 Norton St

1300 770 197 [www.brainhub.com.au](http://www.brainhub.com.au)

### **Are patients covered under Medicare and/or a private fund?**

We have HICAPS facility so can process for Chiropractic and Occupational Therapy services through private health funds