



Headache Australia, a division of the Brain Foundation, would like to welcome all our new members to the Headache Register. Your support is vital to help us achieve better research outcomes for the many sufferers of Chronic Headache and Migraine in Australia. Read about recent research and the new migraine iPhone app on page 2.

No Swollen Head for Prestigious Brain Prize Winner

Young South Australian Neurologist wins the Elizabeth Penfold Simpson Prize – 2011 – for ground breaking research into minimising brain damage after haemorrhage.

This biennial prize has been awarded to Dr Timothy Kleinig, a Consultant Neurologist at the University of Adelaide. The Prize comes from a Trust set up in 1988 by Tom Simpson as one of his many philanthropic endeavours supported by his wife Elizabeth and himself. The Brain Foundation is the appointed trustee of the Elizabeth Penfold Simpson Prize Trust.

"The Brain Foundation is delighted to honour the memory Elizabeth Penfold Simpson and her late husband, Tom Simpson, who were tremendous supporters of the Brain Foundation over many years, with the announcement of this Award.

"Intracerebral haemorrhage is a common, devastating illness without proven therapies," said Gerald Edmunds, Secretary General of the Brain Foundation.

"We congratulate Dr Kleinig and his research and hope this Award will make it possible for additional advances in the treatment of this condition that affects so many Australians and their families."

The prize is awarded to the author of the best piece of original research in any of the neurosciences published in South Australia

over the preceeding two years. The prize is judged by three or more judges nominated by the Brain Foundation. Dr Kleinig's work was part of his PhD thesis, an outline of which follows:

"Each year in Australia, thousands of people either die or are seriously disabled by a brain haemorrhage – from a burst artery or an accident. Blood is like an atomic bomb in the brain - just like an atomic bomb, delayed damage can occur distant from the site of initial impact."

"In brain haemorrhage, if you can limit this secondary damage – such as life threatening brain swelling - then hopefully you can prevent patient death or disability, and that's what my research has been aiming to do. I studied a curious chemical brain messenger called Substance P which is released following brain injury. Substance P seems to be involved in causing brain swelling.

"My research has shown that Substance P is raised after brain haemorrhage. In my experiments I blocked the action of Substance P after a brain haemorrhage and found that a lot of the swelling is reduced. The importance of reducing this swelling is that the brain has little room to swell inside the skull, so when the brain does try to expand after an injury, the rise in pressure causes further damage.



Dr Timothy Kleinig receiving his award from Brain Foundation President, Professor Michael Halmagyi.

"The next step with this work is to see if a medication can be developed which does the same job and whether it prevents the disabling consequences of this kind of brain injury," says Dr Kleinig.

The Simpson family was represented on the day by Professor Don Simpson AO and the presentation was held at the National Wine Centre of Australia, University of Adelaide, in February this year.

Contact the Brain Foundation

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Fax: 02 9437 5978

Email: info@brainfoundation.org.au

Visit our websites www.brainfoundation.org.au and www.headacheaustralia.org.au

Sir Charles Bright Scholarships

The Sir Charles Bright Scholarship was established in 1985 to honour the memory of Sir Charles Bright. Sir Charles was a judge of the Supreme Court, Chancellor of Flinders University and Chairman of the Committee into the rights of the disabled.

The scholarships are awarded to disabled persons undertaking post secondary education, whether at University, TAFE or other recognised educational institutions.

The Scholarship Trust is administered by a Board of Trustees and managed by Rosemary Penn AM whose husband

initiated the Trust. The Brain Foundation has been happy to support this important opportunity with an emphasis on those in rehabilitation from brain and spinal diseases, disorders or injuries. This year, the Brain Foundation supported Reuben Zalups who is making a strong recovery from an industrial accident in which he suffered brain injuries. He has been making good progress with his studies in Certificate 1V in Building and Construction and hopes at the end of his course to re-enter the building industry.



Pictured is Mr Reuben Zalups with his mother Carol and Gerald Edmunds of the Brain Foundation.

Headache and Migraine Awareness Week 2011

18 - 25 September

Headache and Migraine Awareness week is supported by Headache Australia, a division of the Brain Foundation.

Latest Migraine Impact Survey

Earlier in the year, Headache Australia partnered with Merck Sharp and Dohme (MSD) to assess the impact of migraine within the community. The study, 'MIA' – Migraine Impact in Australia, looked at the impact of migraine on all aspects of life – from work to leisure and even mental well-being. This is current information, but I'm sure that some of the findings will come as no surprise to our sufferers.

Here are some of the results:

- One third (33%) of migraine sufferers experience an episode every two weeks or more.
- 31% experience migraines that last half a day
- 42% experience migraines that last a full day
- 63% felt physical or emotional stress was a key trigger
- 63% felt lack of sleep to be a key trigger
- 32% believed bright lights to be a key trigger
- 81% sought a more effective treatment with the biggest issue being that they are slow to work
- 21.7 was the average number of lost days per year

- 87% reported that the highest treatment satisfaction came from pharmaceutical products
- Only 10% keep a migraine diary, but when they do, 67% found it helpful
- Only 2% in this survey are on the Headache Australia migraine register

Why be on the Headache Australia register?

Free to sign up!

Be informed of research projects – such as the one above – so you can choose to be involved

Be informed of the latest research results.

Larger numbers allow us to provide more reliable research.

Be available to pharmaceutical companies for any new treatment options

Participate in the online forum.

A fresh approach to Migraine Management

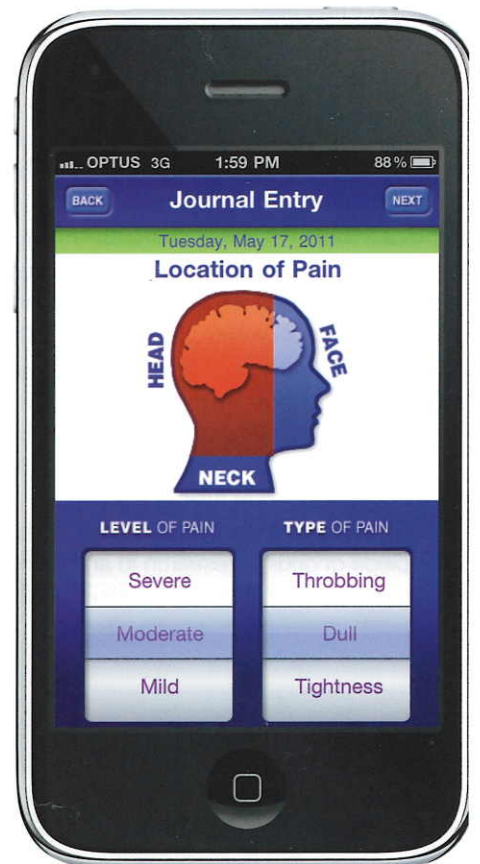
A new iPhone and iPad App called iManage Migraine is now available to help sufferers keep track of their symptoms and learn more about the condition.

The user friendly App is free to download and is designed to help you monitor migraine patterns, frequency and symptoms that can be shared directly with your doctor or printed so you can bring along to your next visit.

The iManage Migraine App is also full of helpful hints and tips to support you in the management of your migraine.

Below is a snapshot of what iManage Migraine is all about. You can download the app via the Headache Australia website or by visiting iTunes.

www.headacheaustralia.org.au



Individual Fundraisers for 2010 / 2011

The Brain Foundation would like to thank the following 3 fundraising heros. All three have had close family members diagnosed with Brain Tumours and chose to raise funds to support research into this area.

Jennifer BOSWELL, from Cookshill near Newcastle, held a luncheon at the Carrington Bowling Club last November. Jenny put in a lot of effort raising raffle items and lucky door prizes for the lunch and the club also contributed so that more funds could come our way. Jenny raised just under \$6,000 for Brain Tumour research. A fabulous effort and greatly appreciated.

Rebecca BURGESS (pictured) from Kalgoorlie and formerly the UK. Rebecca's mother has spent the last year fighting a Brain Tumour and is finally winning the race! In order to support her mother,

Rebecca decided to climb Mt Snowdon in the Snowdonia Mountain Range in Wales. The time chosen was between Christmas and New Year, right when the UK had the worst snow falls for many years. Needless to say, the climb had to be postponed and Easter was chosen. Successfully reaching the summit and raising \$1,100 for doing so, Rebecca is currently enjoying her honeymoon in Antigua. Seems like a lot



of hard work to me, but as Rebecca says, not as hard as the fight her mother has put up! Thank you so much for this fabulous effort.

Alexandra GAVEL – through Go Fundraise. Alexandra's boyfriend Nick was diagnosed with a (thankfully) benign brain tumour early in 2008. Following successful surgery to remove the massive tumour, Nick has made a complete recovery. To honour Nicks strength and fighting spirit through this tough time, Alexandra decided to shave her beautiful long hair to raise funds for Brain Tumour research. Raising over \$1,300 in her quest, I hope she is not too cold now winter is coming on. Another fabulous effort.

Many thanks go to these 3 fundraisers who, in the last 6 months have contributed nearly \$8,500 to our next Brain Tumour Research project.

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We sincerely thank all our supporters who helped to achieve this remarkable result.

To all our golf playing supporters; why not play on our fundraising day? Held at Pymble Golf Course, the Brain Foundation day this year will be on September 19th. Your support would be greatly appreciated. Contact our office for further details.



Gary Dawson from Bullant Sports presents the cheque to Val Gibson, Director, Brain Foundation and Sue Waters, Communication Manager, Brain Foundation.

2011 City 2 Surf - Entries are now open!

Entries are now open for the 2011 City to Surf on August 14. Some of our members may remember the wonderful account of the 2010 race in our last newsletter submitted by our fabulous fundraiser, Darren Fredrickson.

Darren raised over \$3,000 for us, which was a phenomenal individual effort.

Why not get a team together and see what you can raise?

See the Everyday Hero web site for instructions on how to get started.



2011 Brain Foundation Research Grants

Applications are now open for the 2011 Brain Foundation Research Grants.

The primary objective of these grants is to attract and support individual researchers and research teams to conduct research projects with the greatest potential into neurological

diseases and disorders and injuries to the brain and spine.

Applications come from around the country and are assessed by a team of prominent neurologists and neurosurgeons.

These grants are made possible each year by the generosity of our donors,

corporate sponsors and bequests.

In 2010 we were able to support 17 Research Projects and allocated over \$430,000.

Applications for this years grants close on June 30. Please see our web site for information on how to apply:

www.brainfoundation.org.au

Apology

Dr Clement Loy 2010 Award Winner for research into Huntingtons Disease

The Brain Foundation would like to sincerely apologise to Dr Clement Loy who was awarded a research grant for :

A statewide study of Huntington Disease in New South Wales, Phase 1.

The description of the research project was unfortunately transposed with another project in our Summer 2010 Newsletter. We reprint the correct information below:

A statewide study of Huntington Disease in New South Wales, Phase I

Dr Clement Loy

Co-Investigator: Dr Elizabeth McCusker

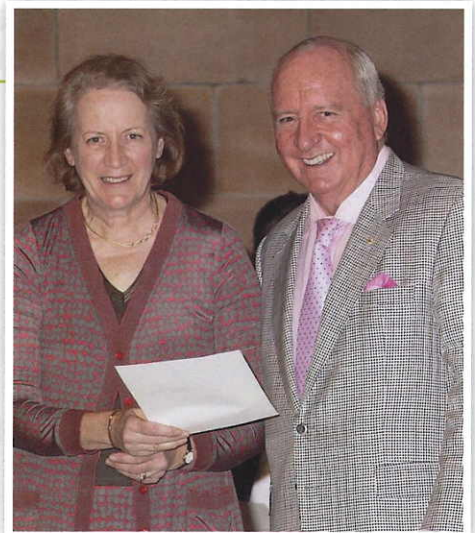
Huntington Disease (HD) is a neurologic and degenerative disease due to a genetic mistake, for which there is no cure. It can affect people's movement, cognition and mental health. Movement, or motor, symptoms are the most visible parts of HD. These include chorea- which is an involuntary jerky movement that can involve any part of the body. People with HD can also be unsteady in their gait, have a twisted posture of their limbs or trunk, and have difficulty with speech and swallowing. Unfortunately as a result, it is not uncommon for the public- or even the Police- to mistake people with HD to be drunk or intoxicated, thus adding to the stigma associated with the disease.

While chorea, or involuntary movement, is the best known symptom of HD, we now know that people can have subtle cognitive difficulties up to 15 years before a formal diagnosis of HD. Cognitive problems in a later stage include difficulty multi-tasking, poor memory, impaired judgment, personality changes and behavioral disturbances. Behavioral symptoms can be particularly difficult to manage at home. Last but not least, HD can also lead to a range of mental health issues- including

depression and psychosis. Depression is particularly common and needs to be treated adequately, because there is an increased risk of suicide in HD.

The first symptoms of HD typically occur in one's 30s or 40s- although the age of onset can range from childhood to the 90s. Typically, people would have had subtle cognitive and movement symptoms for a few years before diagnosis, and there may be limited insight. Unfortunately HD is a neurodegenerative condition, and people with HD invariably deteriorate over time. The typical period of survival from diagnosis is about 20 years- although the speed of progression can vary. People with childhood onset of HD tend to do worse, and people with a late onset (over 65 years of age) tend to progress more slowly.

The HD-NSW study builds on a study conducted by the Huntington Disease Service at Westmead in 1996, where the number of people with HD was counted all over the State of New South Wales. Since then, genetic testing for HD has become more accessible, and a recent commentary in the journal Lancet also suggested that HD can be more common in the community than we originally thought.



Dr Elizabeth McCusker representing Dr Clement Loy

The HD-NSW study aims to re-count the number of people diagnosed with HD, at the time of the 2011 National Census, to establish whether the number of people with HD in the State has changed on a per capita basis. Importantly, Phase I of HD-NSW will also provide a solid basis for Phase II of the study- where people with HD are assessed and followed over time. The detailed clinical and genetic data collected will improve our understanding of HD, and ultimately contributing towards better treatment for people with HD.

Project: Establishing BDNF Genotype as a Risk Factor for Dyskinesias in Parkinson's Disease

Chief Investigator: A/Prof. David Williams, Van Cleef Roet Centre for Nervous Diseases, Monash University

Co – Investigator: Perdita Cheshire, Van Cleef Roet Centre for Nervous Disease, Monash University

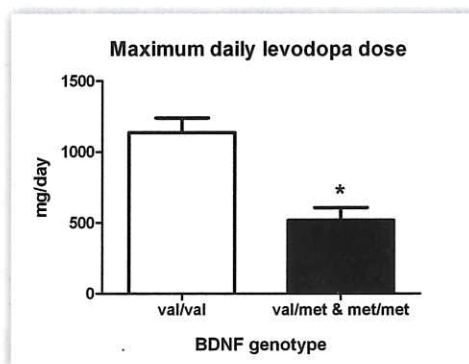
Parkinson's disease (PD) is caused by degeneration of dopamine-releasing (dopaminergic) neuronal circuits in the brain. Treatment involves dopaminergic medications, but the effectiveness of these medications is drastically limited by the onset of abnormal involuntary movements (dyskinesias) in more than 50% of patients. Once dyskinesias develop there are few treatment options available, short of reduction in medication or neurosurgery.

A recent clinical study on PD patients has implicated a genetic risk factor for the development of dyskinesias. Patients homozygous for the "met" allele of the brain derived neurotrophic factor (BDNF) gene were shown to be at greater risk of developing dyskinesias than those carrying the alternative "val" allele. Although this study provides compelling evidence for the "met" allele as a potential risk factor for developing dyskinesias, it is limited to a single centre without pathological

confirmation of PD. Our project aims to explore this genetic risk factor in a large cohort of PD cases and to compare BDNF genotype to biochemical markers of synaptic changes within brain tissue.

Interestingly our results to date have in fact shown the opposite to the previous study, in other words that patients homozygous for the "val" allele develop dyskinesias earlier than those carrying the "met" allele, but significantly "val" homozygotes also received higher daily doses of dopaminergic medication (see figure) and demonstrated a faster escalation in their medication dose. This increase in dopaminergic medication may well explain the earlier time to onset of dyskinesia, but it raises an intriguing question as to whether "val" homozygotes in fact have more a more severe disease progression than those carrying the "met" allele. In order to address this question we have formed a collaboration with the Institute of Neurology, University College London

to include an extra 300 cases to the 70 we are currently investigating, which will enable us to determine whether our initial findings are replicated in this much larger cohort. Thanks to the support of the Brain Foundation we are able to continue our research in this field and look forward to reporting our results in the future.



Patients with the val/val BDNF genotype reached a higher maximum daily medication dose (mean dose of 1137mg/day) compared to patients who carried a met allele (mean dose 518mg/day).

These results are statistically significant ($p = 0.0028$, Student's t-test).

Project: Modelling mechanisms of migraine in vitro: a platform for testing anti-migraineous drugs in normoxic and hypoxic conditions

Chief Investigators: Dr L Shabala, Prof A. West and Dr R. Chung

The Tasmanian research team of the Menzies Research Institute (Dr Shabala, Dr R. Chung and Prof A. West) were awarded a Brain Foundation Grant to study mechanisms underlying migraine.

Cortical spreading depression (CSD) has been implicated in migraine and as a headache trigger with ion homeostasis being strongly associated with generation and propagation of CSD. Despite extensive studies, the cellular mechanisms underlying CSD are far from being understood. It has been shown that glutamate triggers CSD-like

events and disturbances in K^+ and Ca^{2+} homeostasis implicated in migraine. Dr Shabala has developed an in vitro model of CSD in which she used a non-invasive ion flux measuring (MIFE) technique to observe the kinetics of these key ions simultaneously in real time in response to glutamate. The work was presented at the primary scientific meetings in the area such as SfN (Chicago, 2009), IonChannelRetreat (Vancouver, 2010), and ANS/AuPS (Sydney, 2010) with acknowledgement of the Brain Foundation support. A paper was also

published in a peer reviewed journal "Molecular Neurodegeneration" (Shabala et al., 2010) showing a dramatic K^+ efflux and Ca^{2+} uptake in primary neurons in response to glutamate application.

The models established during the project will be used in further studies.

Brain Foundation funding received was essential for Dr Shabala's research performance and also positively affected her long term research plans with a NHMRC grant application being planned for the next year.

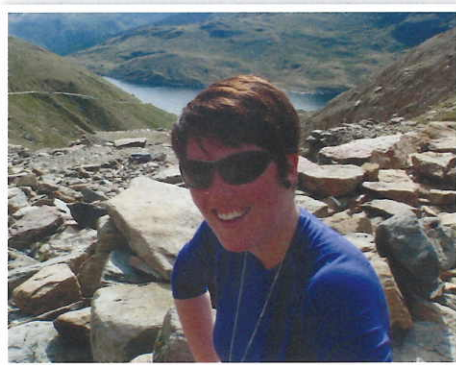
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