Most of us never really think about our health while everything is going well. But, with Dementia, (including Alzheimer’s) considered to have reached epidemic proportions in Australia 5 years ago and with the number of sufferers expected to double to more than half a million by 2030 and more than one million by 2050, the reality of cognitive decline becomes very real for a lot of us. And dementia is only one aspect of disease which can affect the brain: there are many, many more diseases and disorders which can strike unexpectedly, and not all of them have an adequate treatment, let alone a cure.

This year, the Brain Foundation again took to the streets of Sydney and Brisbane during Brain Awareness Week in March, to raise the topic of Brain health and the importance of exercise for the brain. We were fortunate to have the support of Todd Sampson, CEO of advertising agency Leo Burnett and star of the ABC series ‘Redesign My Brain’ as a spokesperson for us in Sydney. Anyone who saw that TV series, would have seen Todd go through a series of ‘tests’ and ‘exercises’ to increase memory and his ability to do certain cognitive activities. It was certainly ‘food for thought’ and did show that it is indeed possible to ‘train the brain’.

Along with Todd in Martin Place, we had Table Tennis champions challenging the public to join in a game, and Tango dancing exhibitions. These activities are great for the brain, not only from an exercise point of view, but also from a concentration point of view. They make the brain think: that is, you are making your brain work, without really knowing it and the social aspects are also very important contributors to brain health.

We hope that these public events will make more people ‘Think about their brains’ and perhaps take up activities which require new learning and engage in exercise to boost memory and mood. It is never too late to ‘train your brain’.

This edition of Brainwaves has a wonderful memory test – why don’t you take up the challenge? See page 7.
Dystonia Europe President Comes to Australia

In January this year the group organised a patient event attended by Monika Benson, Dystonia Europe President, to update sufferers on latest treatments and to encourage everyone to join the support network. Following is the article on the Dystonia Europe website.

Read more about the research spoken about by Dr Lynley Bradnam later in this issue.

Party & Pizza = Fundraising Fun

In late November, sufferer Micheline Elasmar, assisted by her extended family, held a Pizza and Games night at the Intersection Café in Carlton, Melbourne. Attended by a large number of guests and also others who have this challenging condition, the night proved to be very successful, raising over $10,000. This will go together with the more than $20,000 raised earlier in the year to fund a Dystonia research project later in the year. Everyone is hopeful that research will help to unlock some of the keys to Dystonia, with the cause of this condition as yet unknown but the effects so limiting to quality of life.

Dystonia Europe at Dystonia Patient Event in Melbourne, Australia

At the Dystonia Treatment Congress in Hannover in May last year, Dr Lynley Bradnam, from Flinders’s University in Adelaide, met Dystonia Europe President Monika Benson. Over a conversation about the importance of physiotherapy for dystonia patients and dystonia patient advocacy work, Monika shared that she would be coming to Melbourne later in the year. After Lynley’s return to Adelaide, the first connections between Dystonia Europe and Australian dystonia patients were made.

Lee Pagan and Hariklia Nguyen organized a meeting and on Saturday January 11th, about 50 dystonia patients and family members from around Australia (Melbourne, Adelaide, Perth, Blue Mountains, Canberra, Brisbane and Cairns) gathered in Glen Waverly, Melbourne. Sue Kennedy, whose daughter has generalised dystonia, welcomed everybody and introduced the speakers.

Dystonia Europe Executive Director, Monika Benson, presented the work of Dystonia Europe and the activities of a national dystonia patient organisation giving the Swedish Dystonia Association as an example. Monika concluded with a greeting from Dystonia Europe and its President Robert Scholten with an invitation to the recently established DNA – the Dystonia Network of Australia, to become an associate member of DE.

Dr. Lynley Bradnam, presented her research on dystonia and physiotherapy, using and measuring the effectiveness of TMS (Transcranial Magnetic Stimulation) as a method for treatment of cervical dystonia. Lynley is a strong advocate for specialised physiotherapy for the best treatment results of cervical dystonia and she showed an interest in developing a programme to educate general practitioners and physiotherapists in Australia about dystonia.

Kerry Jackson from the Blue Mountain Support Group, presented her story of living with dystonia. She shared her painful struggle during many years before getting correct diagnosis and treatment. Laraine McAnally, a nurse with an interest in dystonia, continued and explained the history and background of the various dystonia support groups/organisations in Australia. Kerry and Laraine have now formed a national dystonia patient organisation on January 6th, the Dystonia Network of Australia – DNA, was registered.
Have You Tried Cefaly Yet?

The Brain Foundation has been able to offer the new Cefaly migraine treatment and prevention machine at a reduced rate to our supporters, and we have had some very positive feedback. We have sold about 24 of these neurostimulators, and have only had one negative comment. Most people have reported firstly, a reduction in the severity of their migraine and then a reduction in the frequency of their migraines. They have reported that it does take a little while to become used to it, and you’ may need to turn it down to begin with’, but that it is well worth persevering with and the results are ‘worth it’. Others have used it to help come off painkillers, which themselves may be causing headaches. Cefaly is clinically proven and totally safe. It is an evolved TENS machine and so purchasers may be covered by their Health Fund. Cefaly is now FDA approved in the USA.

So, if you are interested or would like to order, please give our office a call or go to headacheaustralia.org.au.

Tension Headaches: Triggers and Treatments

Secretary General, Gerald Edmunds was invited to an international conference on “Tension Headaches, Triggers and Treatments” by Reckitt Benckiser who arranged and sponsored the meeting.

There was a very impressive list of speakers ably chaired by Dr Sarah Jarvis, a GP, writer and broadcaster and clinical consultant for the health website, Patient.co.uk.

Professor Lars Bendtsen from the University of Copenhagen explained treatment guidelines, and this was linked to the role of Pharmacy by Dr Terence Maguire from Queen’s University of Belfast. Professor Andrew Moore from John Radcliffe Hospital, Oxford, went on to explore analgesic safety followed by Julie Sugrue from the Beaumont Hospital Clinic, Dublin, who addressed postural techniques. Finally, Dr Mark Forshaw from Liverpool’s John Moores University, set out behavioural change techniques vital to any change to move away from total reliance upon analgesics.

Even the very distinguished speakers, eminent researchers and clinicians with special interests ranging from tension headache, muscle triggers, pathophysiology, psychology and analgesics, confirmed that ordinary or common headache is poorly understood and there remains a substantial lack of research and investment to understand the causes.

However, recent advances suggest that 80% of tension headaches can be traced back to muscles as their source! This will have a significant impact upon current thinking about headache and the types of treatments to improve outcomes and promote self-care.

A conclusion was reached that Pharmacy is perfectly placed to be the centre of excellence for headache management in the community by becoming the conduit for headache information, community health education and self-help advice. There is great potential to reduce the current pressure upon primary care health systems (GPs) and improve patient outcomes.

Vanessa McCutcheon, Marketing Manager for Health Care Professionals, Australia, ably supported by Charlotte Scholesing had also invited Joyce McSwan, (medrn.com.au) a Medication Education Specialist and Pain Educator, and Matthew Squires (physiogym.net.au), a Physiotherapist who specialises in headaches (as well as other areas as shown on his website). Together, we will form the nucleus of a group to support a developing role for Pharmacy in headache management throughout Australia.

Interim reports, between Brainwaves editions, will be sent to all those on our Headache Register. If you suffer migraine or headaches and have not yet registered, please do. If you know someone who suffers please ask them to join the register and refer them to headacheaustralia.org.au.

Botox® Now PBS Approved

Great news for Chronic Migraine Sufferers who may wish to try an alternative treatment and for those who have been using Botox® as a treatment for their migraines. Botox® has been approved by the national PBS.

To access this benefit, you must be diagnosed by a neurologist as being a chronic sufferer of Migraine – this is headaches for 15 days or more per month with migraine on at least 8 of those days – and you must have the treatment by a neurologist registered to administer it. You will receive benefits for the first two treatments. Continuing treatments will be funded if the first two produce a reduction. If you are looking to access this treatment, speak with your neurologist. If you would like to source a neurologist, then visit chronicmigrainehelp.com.au and enter your postcode.

Headache & Migraine Week

September 15-21, 2014

Come and say hello!

We will be in Sydney – QVB forecourt, opposite Town Hall, on Tuesday 16th September and in Brisbane Queen St Mall on Wednesday 17th.

Interim reports, between Brainwaves editions, will be sent to all those on our Headache Register. If you suffer migraine or headaches and have not yet registered, please do. If you know someone who suffers please ask them to join the register and refer them to headacheaustralia.org.au.

Are you on the Headache Register?

Our register members receive regular email updates of current information as we receive it. Don’t miss out, join now! headacheaustralia.org.au
Non-invasive stimulation of cerebellum in focal dystonia

Dystonia is a poorly understood disorder affecting around 20 people per 100,000 of the population in Australia. There are few treatment options making Dystonia a frustrating condition both for people with the disorder and their treating clinicians. This study, led by Dr Lynley Bradnam of Flinders University and supported by the Brain Foundations Paul Ainsworth Dystonia Award in 2011 investigated a novel treatment intervention for focal Dystonia affecting the hands or neck. Dr Bradnam has applied research findings from animal models and neuroimaging in humans demonstrating dysfunction in the cerebellum may contribute to the symptoms of Dystonia. Using non-invasive brain stimulation, the excitability of the cerebellum was manipulated in a pilot study in people with focal hand or cervical dystonia. The cerebellum, positioned at the base of the brain, is an important region for motor control. It is known to play a role in learning new skills, task sequencing and controlling automatic, well learned movements. Cerebellar excitability can be increased or decreased using a painless, non-invasive brain stimulation technique called transcranial direct current stimulation (TDCS).

Eight people with focal hand dystonia attended for three sessions over three weeks and were compared to healthy control adults. Dystonia severity was rated using the Dystonia Severity Scale and hand writing was assessed using the writer’s cramp rating scale (WCRS). Participants attended for three sessions. At each session, TDCS was used to either increase (anodal) or decrease (cathodal) cerebellar excitability and compared to sham stimulation. Participants and researchers assessing outcome measures were blinded as to the type of stimulation at each session. The outcomes were neurophysiological measures of brain function using transcranial magnetic stimulation (TMS) and hand writing task. The functional tasks were performed using a digitizing board connected to a computer that allowed kinematic measures that were assessed were the coefficient of variation of the peak vertical velocity of the strokes (CV), the average pen pressure (APP) and the mean stroke frequency (MSF). TMS was used to assess the excitability of neural connections between the cerebellum and the motor cortex (cerebellar-brain inhibition). The results showed that anodal and cathodal TDCS over the cerebellum improved the measures MSF in the handwriting task. There was no effect of sham stimulation. TDCS over the cerebellum also decreased the degree of inhibition applied by the cerebellum over motor cortex (CBI).

Hypothesis vs. Findings

Our hypotheses were:

1. Non-invasive cerebellar stimulation will normalize inhibitory tone by the cerebellum over contralateral M1
2. Motor behavior of the affected hand will be improved by cerebellar TDCS.

We actually found there was little difference in inhibitory tone by cerebellum over M1 at rest in people with FDH compared to controls, in contrast to a previous report. We found that TDCS reduced CBI and proved our hypothesis that motor behavior of the affected hand can be improved by TDCS to cerebellum.

Unanswered Questions

We only know that a one-off acute session of TDCS has transient effects on handwriting. We still need to elucidate what a therapeutic dose is if this research is to translate into the clinical setting. Furthermore, emerging research that cerebellum is involved in cognitive as well as motor deficits need further investigation in the dystonia patient population.

What this Research Means to You

This research is very important to me as it is my first independently funded project that I have conducted from idea conception to completion (and publication) after my PhD. As an early career researcher, it is difficult to get a research program up and running. The belief of the Brain Foundation in me and my ideas has given me confidence, and ‘standing’ in the neuroscience research world. I have been able to pilot experiments and collect data that have informed an NHMRC grant application in 2013. The exposure I gained via media coverage of my award has helped to give me a profile as a researcher in the field of dystonia in Australia.

Comparison of handwriting before and after a single session of TDCS to the cerebellum in a person with focal hand dystonia. Top shows that the participant could not complete the task in the time allowed, while after TDCS (bottom) they were able to complete the sentences in the allotted time. Participants reported that their hand felt more relaxed after the stimulation and handwriting was easier to perform.

Comparison of Mean Stroke Frequency during handwriting after TDCS to the cerebellum. Both anodal and cathodal stimulation reduced MSF, indicating better handwriting skill after stimulation. There was no change after sham TDCS.
Developing mathematical models to analyse postural stability data from Deep Brain Stimulation of the Pedunculopontine nucleus for treatment of Parkinson’s disease

Chief Investigator: Dr Wesley Thevathasan
Co Investigator: Dr Thushara Perera

The muscles in the upper body act to keep balance and prevent falls when standing or performing tasks such as walking. The brain receives information from the visual and vestibular (spatial orientation) systems about balance – then commands the muscles to perform corrective actions. This process happens continuously without any forethought.

Sometimes the brain loses the ability to keep perfect balance (e.g., alcohol intoxication or neurological disorder). This causes the body to sway from side to side – the brain is too slow to respond to postural variations. The amount of sway can be used as a measure of postural stability. In our study, we did this by asking patients with Parkinson’s disease to stand on a measurement platform for 30 seconds per trial. The recorded data were then analysed by computer algorithms to calculate sway distance and velocity.

We found that sway velocities increased in patients treated with Deep Brain Stimulation (DBS) of the Pedunculopontine nucleus (PPN), when compared to both healthy subjects and control subjects (who had Parkinson’s but no DBS). This means that DBS therapy is helping to speed up the process of balance control and helping to improve postural stability. This is true when the patient is standing and maintaining balance, but in reality they would be faced with other day-to-day postural challenges.

Our research further examined dynamic postural stability: what happens when the patient is faced with an unexpected challenge? At present, this question is answered by using the Neuropsychological Pull Test. During the Pull Test, the neurologist pulls the patient backwards and subjectively grades the corrective response. In the worst-case scenario, the patient is unable to keep balance and falls backwards (the patient is caught to prevent injury). Unfortunately, the subjective rating used in the Pull Test does not have enough sensitivity to show small changes in stability.

We plan to place electronic sensors on the patient to quantify the Pull Test response. We now have a custom-made hardware/software system that can measure the pull force, knee angle, muscle activity and upper body acceleration. Ethics approval was received recently to enrol suitable patients into this study.

We plan on completing the study within the next six months and publish our findings from both the standing test and the pull test in a relevant medical journal. We have presented our interim results at the Asia-Pacific Centre for Neuromodulation DBS Symposium held on the 8th of November 2013. It is hoped that our in-house developed Pull Test response measurement system will be used in further studies that investigate postural stability in Parkinson’s patients.

Furthermore, based on our findings, this system can be translated into routine clinical assessment to provide objective measures used for fine-tuning DBS parameters or dose of medications, thereby providing added benefits to patient’s suffering from Parkinson’s disease.

Do metallothioneins promote and direct regenerative growth of epidermal nerve fibres in diabetic peripheral neuropathy?

Chief Investigator: Professor Adrian West
Co Investigators: Prof. Bruce Taylor, Dr Lisa Foa

Aims (from application):

We will establish whether administration of the protein, metallothionein (MT) can promote regenerative growth of epidermal nerve fibres following the onset of diabetic neuropathy in a rat model of diabetes. We will assess separately the ability of MT to promote regenerative growth, and also, to chemoattract regrowing epidermal nerve fibres. We will establish an innovative biopsy model which will allow administration of MT so that its ability to regulate axonal pathfinding will be revealed in vivo.

Progress

We have made substantial progress on both major aims. We have successfully developed the blister biopsy method in rats as a methodology for establishing the density of epidermal nerve fibres during diabetic neuropathy, although this technique was less useful for administering MT to animals. Instead, we developed a sensitive method of direct injection of MT and emtin into the epidermis and dermis. We have successfully developed our rat model of diabetic neuropathy, with animals allocated to the following groups:

- 5x High fat diet + STZ with Emtin injection
- 5x High fat diet + STZ with saline injection
- 5x Normal diet, no STZ, with saline injection

We have collected nociception data for each of these groups using Von Frey fibres, which has confirmed functional allodynia in the STZ treated animals. The effects of MT and emtin treatment are being analysed at present.

We have collected biopsies from all animals (punch biopsies and blister biopsies), and these are undergoing histochemical analysis to i) confirm the pathological degeneration of epidermal nerve fibres in STZ treated animals and ii) to examine the effect of MT or emtin treatment. We have currently completed analysis of about 25% of the 160 biopsies we have collected.

Fig 1 shows some preliminary outcomes. The graph indicates the development of mechanical allodynia (a heightened sensitivity to touch), characteristic to some forms of diabetic neuropathy, in STZ treated animals. At the initiation of testing, all animals are sensitive to the Von Frey fibres, but in control animals this sensitivity is rapidly lost. In contrast, STZ treated, diabetic animals retain the initial sensitivity. This outcome is confirmed at the histopathological level by a decrease in the density of epidermal nerve fibres, and an increase of inappropriate terminations in the dermis (thought to be the cause of the allodynia). This preliminary work will form the basis of an oral presentation at ANS (Adelaide, Jan 2014) by Ms Lila Landowski.

Our project was delayed by issues around the availability of suitable animals, and technical issues with the development of the blister biopsy. However, now that animal experimentation has been completed, we expect that analysis of biopsy specimens will be finished in the following 6-8 months.
Glioblastoma multiforme (GBM) is the most common malignant brain cancer and has a very poor survival (7-15 months) despite current best treatment (surgery, chemotherapy (temozolomide) and irradiation). Glioma stem cells (GSC) are a new concept in glioma research described as representing the ‘life source’ of GBM by providing the tumour with an unlimited capacity to regrow. Preliminary studies in the Royal Melbourne Hospital Department of Surgery Brain Tumour Laboratory have established a number of these human tumour-derived GSC lines. These cells have been confirmed to possess the quality of self-renewal/immortality making them an ideal platform to further investigate this form of brain cancer. In addition, the majority of these cells contain mutations in their survival pathways, including the PI3K/Akt signalling pathway. The PI3K pathway forms the ‘final common pathway’ of many of these ‘survival events’, and thus may represent a more universal and rational therapeutic target in GBM. Furthermore, PI3K signalling may also be involved in glioma cell invasion – another reason for treatment resistance. Therefore, PI3K inhibitors are of intense interest for the treatment of glioma. We have demonstrated that current standard chemotherapy (temozolomide) has no appreciable cytotoxic effect on GSC but that in vitro treatment of GSC with a selective PI3K inhibitor (BKM120) can induce moderate levels of cytotoxicity (up to 50%).

Some of our GSC lines have been incorporated into a ‘glowing’ GSC biological model that allows real-time assessments of tumour growth and response to treatments. This is achieved using in vivo bioluminescence (CaliperTM IVIS system). These intracranial GSC brain tumour models have the potential to more closely mimic human GBM when compared to tumours injected under the skin. We will be using this in vivo intracranial brain tumour model to study the effect of BKM120. A Phase I clinical trial investigating the effect of BKM120 is already underway and patients at RMH have been enrolled. The in vivo results will be reported in conjunction with the human clinical trial, to help establish translational validity of the GSC xenograft model, and therefore establish if it has a role as a preclinical drug screening model.

Investigating new genetic causes of Muscular Dystrophy

Chief Investigator: Dr Nigel Clarke
Co-Investigator: Prof Kathryn North

This research project uses two approaches to help doctors diagnose the genetic mutations causing muscular dystrophy in different patients. The muscular dystrophies are a group of over 30 different conditions, each caused by mutations in a different gene. Muscular dystrophies are further grouped into different types depending on when symptoms first start and which muscles are most affected. One such category is Limb-Girdle Muscular Dystrophy (LGMD) and is used when muscle weakness begins after age 2 years mainly affects the large muscles around the shoulders and pelvis. There are over 20 different known causes of LGMD, which makes it a major challenge to identify the specific cause in each family.

We suspected that some patients who were given an overall diagnosis of LGMD by their doctors in fact had another condition called myotonic dystrophy type 2 (DM2), which can affect individuals in a very similar way but which requires a specific type of genetic test. DM2 is a common cause of muscle weakness in adults in some European countries but is not often diagnosed in Australia, perhaps because it is under-recognised. The first aim of this research project was to screen a large group of LGMD patients enrolled in INMR research studies who still didn’t have a genetic cause identified for their muscle condition, for DM2. A research collaboration we developed with Professor Garth Nicholson, Concord Hospital has enabled us to screen many more LGMD patients than originally planned.

So far we have screened 158 LGMD patients for DM2 and two patients have tested positive (1.3%). These families have been grateful to find an answer for their muscle weakness. It is reassuring that Neurologists are not often missing this condition in their patients but it shows that sometimes DM2 is mistaken for LGMD, which is an important message for doctors.

The second part of this research study is to screen the DNA of patients with muscular dystrophy for mutations in two new genes that may be new causes of muscle disease. We are using both whole exome sequencing (in which all the regions of DNA that code for proteins are screened) and traditional gene sequencing methods (Sanger sequencing) to screen patients with muscle weakness for mutations in these genes. We are excited to have recently found a second family with changes in one of the genes and we are performing further tests to confirm this finding.

What these research outcomes mean

If we are right, the finding of two families with mutations in the same gene makes it very likely we have found a new genetic cause of muscular dystrophy, which will enable further families with this condition to reach a genetic diagnosis. Finding the genes responsible for all genetic muscle conditions is a very important goal that will allow all families to receive accurate genetic counselling for their condition in the short term, and that in the long term will allow doctors and scientists to understand the basis of the muscle weakness in each disorder, and begin the task of developing treatments.
Exercise your brain

Remember all brainiacs... an active brain is a healthy brain!

The 7 Day Memory Test

For this test, you will need a small notebook or pad, and a pen.

Pictured you will see five objects and five words. On the morning of Day 1, sit quietly for fifteen minutes and commit them to memory and then don’t look at them again. Once you have done this, label seven sheets of paper Day 1, Day 2 etc up to Day 7. Each night before going to bed, write down the words and objects that you remember on the daily sheet of paper, then put it away. When you complete Day 7 bring out all the sheets including this one and compare your results.

If you have managed to remember all the words and objects by Day 7 your memory is excellent, forgetting one to four would be normal. If you have forgotten more, then you should start doing some memory training exercises.

Fabulous Fundraisers

Sports people know the importance of exercise for the Brain

Some of our best fundraising support comes every year from these great events.

Golf – Charity Challenge Cup
Gary Dawson and Matt Laverty from Bullant Sports run the Charity Challenge Cup every year. Supporting several charities, these events culminate in a wonderful Gala Dinner. The Brain Foundation is most grateful to be included in this event and for the funds it raises for us year after year.

Are you a golfer? Would you like to come along too? Call our office for details.

Sailing – Moreton Bay 24 hour race
After dismal weather in 2013, we are surprised at the number of intrepid sailors who returned for the 2014 race. However, this year sunny Queensland was at its best and in light conditions, 40 boats started the big lap and 6 continued in the 24 hour race with 4 finishing. Our sincere thanks to all the sailors and the organisers at Moreton Bay Trailer Boat Club and all who supported the Brain Foundation.

Others Trash is our Treasure
Regular supporter, Charmaine Hollywood and her partner Scott and extended family have been fundraising again, this time at Prestons Trash ‘n Treasure. Many will remember Charmaine as the cake eating Zombie, well, now they have decided they need to name the whole fundraising hoard.

Keep a look out for ‘Team eat Brains’ at an event near you!

Exercise boosts the brain!

Exercise not only keeps your body fit, it keeps your brain sharp too. Physical activity improves memory, mood and brain function. Research shows that keeping active assists successful brain aging and can help combat progressive brain disease such as Alzheimer’s.

How does exercise benefit your brain?

- Increases levels of brain chemicals that encourage new nerve cells to grow in the hippocampus
- Enlarges blood vessels and increases heart rate, letting more oxygen and blood into the brain
- Amplifies brain blood flow to the hippocampus – the key brain region affected by Alzheimer’s
- Boosts levels of brain-derived neurotrophic factor (BDNF) which supports and nourishes brain cells and rewires memory circuits so they work better
- Heightens the number of glia, brain cells that support neurons and speed neural processing
- Encourages brain plasticity by stimulating the growth of new connections between cells
- Counteracts depression and anxiety, and improves mood

What kind of exercise?
The best brain health exercise for you depends on your own fitness level. For the elderly even a gentle walk has been shown to increase brain connectivity, memory and hippocampus size.

For those in good shape, regular moderate intensity exercise is recommended. The best brain health exercise gives you both a mental and physical workout by integrating different parts of the brain, such as co-ordination, rhythm and strategy.

How much exercise?
All physical exercise is beneficial. Even a short session facilitates memory function and processing. Ideally experts recommend 30 minutes of moderate intensity exercise 5 days a week, which can be broken into 10 minute bouts.

Exercise is the best way to get the blood pumping to your brain. It’s never too early, or too late, to start getting the benefits.

With thanks to Prof Michael Halmagyi, President, Brain Foundation.
Get Involved

Zombie’s Never Sleep

Yes, the Annual Zombie Hoards will be rising from the dark spaces they inhabit all year and walking the streets of Australia’s capital cities again this year. People of all ages come to participate or as spectators. The **Sydney Zombie Walk** is on November 1 and there will be others in **Brisbane, Canberra and Perth**. Please call or email the Brain Foundation for dates and further information.

It is not necessary to “dress up”, or is that “down” to participate? Come along to be a spectator and be amazed at the detail and trouble that the ‘Zombies’ and others from movie genres of that type take with their make-up and costumes. It is like visiting a Hollywood Set. Show your appreciation by donating.

Mind & it’s Potential – October 2014

**What is your true potential? Can you really train your brain? How can you thrive?**

Explore the latest science of neuroplasticity and discover how individuals, organisations and companies can do extraordinary things to improve wellbeing and productivity. World renowned, international and local speakers.

If you are interested in attending this conference, there is a 20% discount for our supporters. Book online using promotion code BF or call (02) 87195118 to register.

For more information visit [mindanditspotential.com.au](http://mindanditspotential.com.au)

Supporting Brain Research – treatments for the future

You may not be aware, but it takes, at the very least 5 years from a research breakthrough to an approved treatment. Therefore, it is even more important to increase brain research now, so that people can be helped to enjoy health in older age and younger people with brain disorders have a greater quality of life.

If you would like to help contribute to our annual research programme, raise funds on our behalf or join a public event, like the City2Surf, and ask your friends to sponsor you. It is made very easy if you visit: the Brain Foundation portal, [gofundraise.com.au](http://gofundraise.com.au), [everydayhero.com.au](http://everydayhero.com.au), or [mycause.com.au](http://mycause.com.au)

Regular Giving

If you would rather make a donation than join an event, it may be worth thinking about making a monthly or quarterly donation. Contact our office or download a form and mail it in; we will do the rest for you.

**Workplace Giving:**

Workplace Giving is one of the best and easiest options. The tax refund is credited to you every pay and a small amount every pay becomes a significant amount over a year. Many companies now match contributions made by employees. See your paymaster and they can advise you.

**Estate Planning and Bequests:**

Estate Planning and Bequests: Our benefactor, Australian Executor Trustees can offer reduced fees for Brain Foundation supporters. For more information, call Gerald in our office on 1300 886 660.

Thank you for supporting brain research through the Brain Foundation

To make a donation please visit our website [brainfoundation.org.au/donate](http://brainfoundation.org.au/donate) or use the donation form on the letter enclosed.