

Media Release

Monday June 1, 2015

**HEALTH AND MEDICAL RESEARCH – NSW LEADS THE WAY
ANNUAL NSW SCIENTIFIC MEETING – POWERHOUSE MUSEUM**

High Carb Healing

Paleo, Atkins, South Beach... it feels like a weekly occurrence that a new diet emerges, espoused by healthy-looking celebrities. Yet the impact of dietary intake of different nutrients cannot be understated; the ratio of protein to carbohydrate to fat has a profound influence on various aspects of human physiology. Jonathan Hew and colleagues from the ANZAC Research Institute have examined various different formulations to determine the optimal diet for healing skin wounds. Mice fed a diet low in protein and high in carbohydrate showed the best response, with wounds healing twice as fast as mice fed a high fat, high protein diet. These findings suggest that diet may be an important consideration in the healing process of severe burns or other wounds.

Regressing to the foetal position to treat blood diseases

We leave a lot behind when we are born, including our ability to produce a protein called foetal γ -globin, which has similar function to the oxygen-transporting molecule haemoglobin. Defects in adult haemoglobin cause serious blood conditions such as sickle-cell disease and thalassemia, and there is evidence that restoring production of foetal γ -globin may be able to compensate for these defects and protect against these diseases. Beeke Wienert and colleagues at the University of New South Wales are exploring a sophisticated new technique to modify the foetal γ -globin gene to allow it to become re-activated in adults. If successful, this technique could be readily applied to help patients with haemoglobin diseases regress to the foetal position of globin production.

WiFi stimulation of the brain

'*Electroceuticals*' is an emerging field of medicine involving the electrical stimulation of cells within the body, with the aim of restoring health with+out flooding the body with drugs and medicines. While electrical stimulation is already used for the treatment of brain disorders such as Parkinson's disease, epilepsy and schizophrenia, this requires the use of invasive wires and cables. Tian Zheng and colleagues from the University of Wollongong are addressing this problem by developing wireless implantable electrodes that can be stimulated via remote control. This groundbreaking research instead uses magnetic fields, rather than wires, to drive electrode activity, potentially removing the need for cumbersome devices that currently limit the widespread use of electroceuticals.

Interview and Photo Opportunities

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