



NATIONAL WELLNESS INSTITUTE OF AUSTRALIA INC.



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April 2016 NWIA Members' Newsletter

News & Events

22 April Earth Day
25 April ANZAC Day
26 April Hug a Friend Day

Upcoming Conferences

27-29 June Annual National Wellness Conference <http://www.nationalwellness.org>

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April Floral Emblem: Daisy

PRESIDENT'S MESSAGE

Hello Members and Readers,

Last month my message centred around the book 'Firms of Endearment: How World-Class Companies Profit from Passion and Purpose' by Sisodia, R., Sheth, J. and Wolfe, D. (2nd Edn 2014 Pearson Education NJ). The message delivered that modern day great companies, titled by the authors as Firms of Endearment (FOE's), are "fuelled by passion and purpose, not cash and earn large profits by helping all their stakeholders thrive: customers, investors, employees, partners, communities and society". I drew attention to the fact that despite strong criticism from the financial sector about the style of leadership and operation, FOE's outperformed S&P500 companies over 3, 5, 10 and 15 year timeframes - eg 83% vs 57% (3 yrs, US FOE's) and 1180% vs 117% (15 yrs, International FOE's).

I also mentioned, but did not elaborate, that FOE's Stock Price Annualised Returns, (Table 6.2, p114), demonstrated a similar comparison as that for Financial Performance - for example 18.53% vs 5.32% (15 yrs, International FOE's vs S&P500). The recently released report by the Global Wellness Institute "The Future of Wellness at Work" (<https://yw217.infusionsoft.com/app/linkClick/3199/595ddf4865922f0b/73153/4a3babba491293b>) similarly highlights that companies recognized by the C. Everett Koop National Health Awards for "nurturing a culture of health...have outperformed the stock market by a factor of 3:1 from 2000 – 2014". The report also mentions that companies appearing on Glassdoor.com's best places to work list (ratings derived from employee feedback) "outperformed the S&P500 by 115.6% from 2009 – 2015.....while those with the lowest employee ratings significantly underperformed the market" (p26).

The authors of FOE refer to Society as the 'Ultimate Stakeholder' (ch5). They relate that FOE leaders 'facilitate, encourage, reward, recognise, and celebrate their employees for being of service to their communities and the world at large' as they see their responsibilities as extending beyond their immediate world. Despite John Kay (economist) stating in the past that 'the values of business are different from, and inferior to, those of other human activities' the authors warn that today "business values cannot continue to be fundamentally divergent from the more humanistic values held by a more mature and increasingly conscious population" (p143). Such a wide divide causes stress, reduces productivity and perhaps ultimately reduces the life expectancy of both the company and the humans who work there.

The authors list, discuss and provide case studies of the following as some of the ways that FOE's fulfil their keenly felt societal obligations: Encourage Employee Involvement, Nurture Local Communities, Cultivate Global Community, Focus on Sustainability and Cooperate with Governments.

It is interesting to note that this evolving paradigm shift in business philosophy has progressed to the level of academic interest and involvement. For example - The Sustainability and Health Initiative for NetPositive Enterprise (SHINE) at the Harvard T.H. Chan School of Public Health exists to assist corporations across all sectors measure and accelerate the ways in which they help the world become a healthier, more sustainable place. (<http://www.chgeharvard.org/category/corporate-sustainability-and-health-shine-0>).

Their website explains: "In the spirit of NetPositive impact—doing more good than harm—we work with companies to measure their current positive impacts that benefit people and the planet, while also helping to identify new opportunities to create positive change. A "positive impact" may include striving to raise population well-being via healthy workplaces and meaningful work, or improving the health of the planet through aiding the conservation and regeneration of natural resources". They claim that SHINE companies go beyond reducing their environmental footprint and pay equal attention to how they can also make positive contributions to the environment *and* our health—they call these positive impacts *handprints*.

They believe the pursuit of better health and well-being—as well as the measurement of positive impacts that benefit people and the planet—is the next frontier of corporate sustainability.

Through academic and business demonstration projects, they wish to generate the evidence to move the needle forward on sustainability and health by:

- **Empowering businesses and their stakeholders to identify priorities, leverage points, and hot spots:** Cutting-edge life cycle assessment involves identifying all the ways in which a corporation can reduce its footprint. Growing a handprint works the same way, and corporate leaders can reap the same

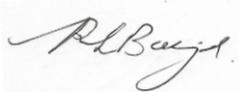
benefits of using resources more efficiently and effectively.

- **Considering workforce well-being as a driver for performance.** Going beyond wellness programs and health and safety standards, and measuring the impact of the workplace structure on the health and well-being of workers. A strong corporate commitment to people means striving to make employees and their families better off because of their employment and their quality of work life.
- **Managing through measurement:** Applying a rigorous framework to sustainability reporting enables businesses to compare their shrinking footprint with their growing handprint, and manage for NetPositive sustainability on a growing set of impact dimensions.
- **Engaging more of the business in sustainability:** Tapping, rewarding, and stimulating more success from divisions whose work already addresses employee health, community health, operational, or supply chain efficiency will lead to faster change on a much greater scale.
- **Aligning sustainability with core business goals:** By embracing sustainability as a core business principle, corporate leaders pave the way to business innovation and customer loyalty, and put into place a powerful approach to managing reputational risk. Considering all business decisions through the lens of sustainability helps solidify the brand as a global corporate citizen.
- **Transforming sustainability into the pursuit of boundless opportunity:** With handprinting, unwanted impacts anywhere on earth are fair game for creative entrepreneurship.

I (and I am sure other readers) would be interested in reading of any businesses that you are/have been involved with/know of which you would classify as an FOE or a SHINE – email bobbyd4@bigpond.com with your examples and I will include them in next month's newsletter – let's give recognition to the 'locals' who deserve the mantle.

Look to continue your effort to maintain/increase your Wellness despite the on-coming cold weather (Mother Nature will ensure it does arrive sometime).

Cheers



Bob Boyd
President NWIA

International Wellness Connections

This is the 37th article of a series featuring information from International Wellness Practitioners about the state of Wellness in their country of residence. This and any following International Connections monthly articles have appeared in the National Wellness Institute (USA) monthly newsletter, at least 12 months previous to them appearing in this publication.

NWIA extends a sincere thank you to the authors for their contributions to the NWIA newsletter.

[Workplace Wellbeing in the United Kingdom](#)

Posted By NWI, Tuesday, April 07, 2015

By Chris Andrews

**Managing Director, Personal Touch Fitness
United Kingdom**

Employee health and wellbeing is a hot topic for employers. “Employee Engagement” is finally more than just a buzz-phrase. Health & Wellbeing Strategy and Employee Engagement falls under one of these departments in corporations; Human Resources, Facilities, or Occupational Health. Having distinguished where it sits, the focus is influenced by different regions and varying budgets. Corporations have different rates with different budgets and so have developed levels of emphasis. The importance of wellbeing within companies is changing as the years go by. Change is constant and all around us in every way. People’s lives are busy. Employers are accepting this and reframing wellbeing. It is wonderful to see how many companies are feeling a bit left behind if they are not offering wellbeing of some type. There are two extremes for what is offered: from subsidized onsite gyms with aerobic studio, swimming pool, sauna, squash court(s), dentist, doctor, nurse, physiotherapy, osteopathy, holistic treatments, beauty treatments and hairdressers to just offering occasional desk massages (possibly where the employee pays) or a ‘Cycle to Work’ scheme. Across the spectrum, there are numerous options depending once again on budget. However, the importance is to get the ‘buy in’ from the decision maker who holds the purse strings and a lot of time if that person feels wellness is a personal priority.

The government initiatives continue to evolve. “Health, Work & Wellbeing” is a cross-departmental government program to improve the health and wellbeing of working age people. The goal is working for a healthier tomorrow and improving the working population general health. Ultimately, prevention is better than cure. Other government initiatives are Change4Life (National Health Service, or NHS) which promotes the family changes to lead better lifestyles. It works with national partners, including commercial brands, and government departments to reach more people and spread the word. These brands talk in different ways to help and influence people’s behavior. Workplace Challenge is a national program from County Sports Partnership Network funded by Sport England (government led) which aims to engage workplaces into greater levels of sport and physical activity. The program tracks what you do via a website. They also provide different scheduled events that you and your colleagues can participate in such as netball, volleyball, football (soccer), table tennis (ping pong) and business games (20 teams from counties across the UK gather together for an evening of multi-sports including dodgeball, softball, and volleyball) which was inspired by the 2012 Olympic Games.

The Barclays Cycle hire scheme started in 2010 and is a public bicycle hire scheme in London. In April, Santander will be the new sponsor for the next 5 years. The scheme’s bicycles are popularly known as “Boris Bikes,” after Boris Johnson, the Mayor of London when the scheme was launched. Now, “Boris Bikes” are being introduced across cities in the UK. CitiBike mirrors the London scheme and launched in 2013 in New York with Citibank as the sponsor. New York’s and London’s schemes have a few things in common: both are sponsored by a major banking group, both operate on a similar system (users purchase access keys to release cycles from docking stations and can buy access on a 24-hour, seven-day or annual basis) and both attracted a mixture of support and hostility when they were proposed. Change tends to bring resistance even when the initiative is a positive initiative on many different levels, health, wellbeing, environment etc. Something to think about: Did you know bike-share began in Europe in 1965? As of June 2014, public bike sharing systems were available on five continents, including 712 cities, operating approximately 806,200 bicycles at 37,500 stations.

The “Cycle to Work” scheme is growing throughout UK companies. The government introduced the scheme as a tax

exemption initiative in 1999 to promote healthier journeys to work and to reduce environmental pollution. Environmental initiatives and reducing carbon footprint is of high importance for the government and corporations. Employers can help employees purchase cycles and cyclists' safety equipment to employees as a tax-free benefit.

The congestion charge for London was introduced in 2003 to reduce traffic congestion, and to raise investment funds for London's transport system. This policy encourages people to use public transport whilst helping the environment and getting people more active by thinking about cycling, running or walking.

The variety of choice for employers is wide. It is up to the corporations to get 'buy in' from top management and to ensure there is a Wellbeing strategy in place. Once this is done then it needs continual review to help it evolve and allow employee voices to be heard through.

We are not machines and need workplace wellbeing. Encouraging engagement is the key to success and ultimately a happier, healthier workplace. This is vital for personal wellbeing, central for organizational success and vital for growth.



Chris has been the MD of Personal Touch Fitness (PTF) for 15 years in the UK, having completed her Wellness studies at the University of Wisconsin-Stevens Point campus. Chris prides herself in her passion, enthusiasm and expertise in providing fitness services in the corporate environment which is extended through the company values, ethos and to the employees. With almost 20 years of experience, many leading PTF, she has learnt what works and what does not. Her energy drives her tireless quest to improve her clients' health and fitness. Chris has given PTF clients the confidence to harness her skills to lead Facilities and Service Provider workshops as well as formulate and promote client Wellbeing Strategies.

Tags: [April 2015](#) [International Wellness](#) [United Kingdom](#) [\(add +\)](#)

Quote for the month





Conservation Research Is Not Happening In The Right Places

Conservation research is not being done in the countries where it is most needed – a situation which is likely to undermine efforts to preserve global biodiversity.

That's the conclusion of a new international collaborative study published in [PLOS Biology](#) led by Associate Professor Kerrie Wilson from The University of Queensland's [School of Biological Sciences](#) and the Australian Research Council [Centre of Excellence for Environmental Decisions](#) (CEED).

Associate Professor Wilson said the analysis revealed that less conservation research was undertaken in the world's most biodiverse countries, such as Indonesia and Ecuador.

The study analysed more than 10,000 conservation science papers from more than 1000 journals published in 2014.

The researchers compared the countries where these studies were done with the world's most important countries for biodiversity conservation.

What they found suggested a mismatch between need and effort.

"If you dig a little deeper, it gets worse," Associate Professor Wilson said.

The science conducted in these countries is often not led by scientists based in those countries and these scientists are also under-represented in important international forums.

"This adds up to a widespread bias in the field of conservation science.

"If research is biased away from the most important areas for biodiversity conservation, then this will accentuate the impacts of the global biodiversity crisis and reduce our capacity to protect and manage the natural ecosystems that underpin human well-being.

"Biases in conservation science will also undermine our ability to meet Target 19 of the Convention on Biodiversity (CBD).

"Target 19 states that, *by 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.*

"Our comprehensive analysis of publishing trends in conservation science literature suggests we won't meet this target if these biases aren't addressed."

The researchers believe that a range of solutions is needed, including reforming open access publishing policies, enhancing science communication strategies, changing author attribution practices, improving representation in international processes, and strengthening infrastructure and human capacity for research in countries where it is

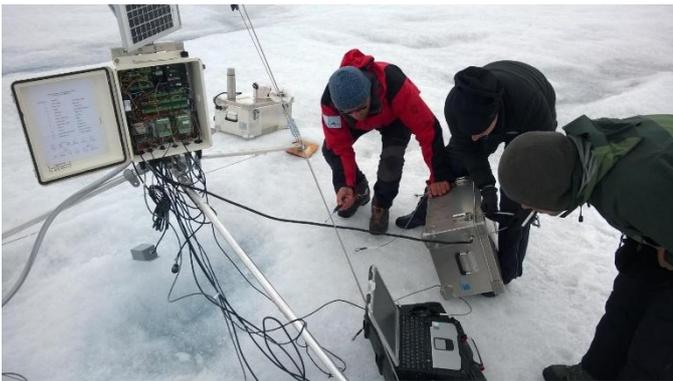
most needed.

"We won't change the situation by simply ignoring it," Associate Professor Wilson said.

"Researchers need to examine their own agendas and focus on areas with the greatest need."

The research partners are Biology Centre CAS and the University of South Bohemia in Ceske Budejovice, Czech Republic, KPMG Botswana, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Germany, Indonesian Institute of Sciences, Indonesia, Borneo Futures Initiative, Indonesia.

<http://www.uq.edu.au/news/article/2016/03/conservation-research-not-happening-right-places>



New Cause Of Exceptional Greenland Melt Revealed

A new study by researchers from Denmark and Canada's York University, published in *Geophysical Research Letters*, has found that the climate models commonly used to simulate melting of the Greenland ice sheet tend to underestimate the impact of exceptionally warm weather episodes on the ice sheet.

The study investigated the causes of ice melt during two exceptional melt episodes in 2012, which occurred from July 8 to 11 and from July 27 to 28. During these exceptional melt episodes, which can be regarded as an analogue to future climate, unusually warm and moist air was transported onto the ice sheet. During one episode, the researchers measured the ice sheet melting at more than 28 cm per day, the largest daily melt rate ever documented on the ice sheet. While the two brief melt episodes only lasted six days combined, or six per cent of the melt season, they contributed to 14 per cent of the total melt.

Using the Programme for Monitoring of the Greenland Ice Sheet (PROMICE) automatic weather station data, the researchers ranked the energy sources contributing to surface melt during 2012 at twelve PROMICE sites around the ice sheet periphery. While ice sheet melt is usually dominated by the radiant energy associated with sunlight, the researchers found that the energy associated with air temperature and moisture content, rather than radiant energy, was responsible for more melt during the 2012 exceptional melt episodes.

As Robert Fausto of the Geological Survey of Denmark and Greenland, lead author of the study, says, "When we were analysing our weather station data, we were quite surprised, that the exceptional melt rates we observed were primarily caused by warm and moist air, because ice sheet wide melt is usually dominated by radiant energy from sunlight. "

This finding has implications for how the scientific community projects future ice sheet melt using climate models. In the study, the researchers also show that while the models presently used to project ice sheet melt can accurately simulate melt due to radiant energy, models tend to systematically underestimate melt due to the non-radiant energy processes they document.

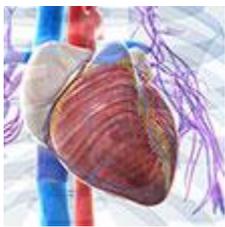
"Glaciological instrumentation capable of automatically recording the daily rate of melting in exceptional melt circumstances, where the ice surface lowers by close to 10 m in a few months, has only emerged in the last decade or so, thanks to PROMICE. The detail of PROMICE observations is permitting new insights on brief, but consequential, exceptional melt events," says William Colgan of the Lassonde School of Engineering at York University, a co-author of the study.

Fausto adds that, "Exceptional melt episodes dominated by non-radiant energy are expected to occur more frequently in the future due to climate change. This makes it critical to better understand the influence of these episodes on ice sheet health."

*Photo available. Cutline: Researchers service one of PROMICE's automatic weather stations on the Greenland ice sheet that was used in the study. Photo by William Colgan, York University

York University is known for championing new ways of thinking that drive teaching and research excellence. Our 52,000 students receive the education they need to create big ideas that make an impact on the world. Meaningful and sometimes unexpected careers result from cross-discipline programming, innovative course design and diverse experiential learning opportunities. York students and graduates push limits, achieve goals and find solutions to the world's most pressing social challenges, empowered by a strong community that opens minds. York U is an internationally recognized research university - our 11 faculties and 24 research centres have partnerships with 200+ leading universities worldwide. As Canada's only fully bilingual campus, Glendon is one of the faculties of York University dedicated to excellence in bilingual postsecondary education.

<http://yfile.news.yorku.ca/2016/04/03/new-cause-of-exceptional-greenland-melt-revealed>



Elevated Troponin Linked To Mental Stress Ischemia In Heart Disease Patients

Higher baseline levels of heart muscle damage marker

Some people with heart disease experience a restriction of blood flow to the heart in response to psychological stress. Usually silent (not painful), the temporary restriction in blood flow, called ischemia, is an indicator of greater mortality risk.

Cardiologists at Emory University School of Medicine have discovered that people in this group tend to have higher levels of troponin -- a protein whose presence in the blood that is a sign of recent damage to the heart muscle-- all the time, independently of whether they are experiencing stress or chest pain at that moment.

The results are scheduled for presentation by cardiology research fellow Muhammad Hammadah, MD at the American College of Cardiology meeting in Chicago on April 3, as part of the Young Investigator Awards competition. Hammadah works with Arshed Quyyumi, MD, and Viola Vaccarino, MD, PhD, and colleagues at the Emory Clinical Cardiovascular Research Institute.

"Elevated troponin levels in patients with coronary artery disease may be a sign that they are experiencing repeated ischemic events in everyday life, with either psychological or physical triggers," Hammadah says.

Doctors test for troponin in the blood to tell whether someone has recently had a heart attack. But the levels seen in this study were lower than those used to diagnose a heart attack: less than a standard cutoff of 26 picograms per milliliter, in a range that only a high-sensitivity test for troponin could detect.

The Emory team studied 587 people with known coronary artery disease who were asked to undergo both a mental stress test, involving public speaking on an uncomfortable topic, and a conventional exercise test on a treadmill. Blood flow to the heart was monitored by SPECT imaging. A few people were unable to exercise at a high heart rate and had to have a pharmacological stress test with a drug that dilates the coronary arteries.

Sixteen percent of the study participants developed mental stress-induced ischemia and 35 percent developed conventional -- either exercise or pharmacological -- stress-induced ischemia. In the mental stress ischemia group, the average baseline (that is, before stress) levels of troponin were markedly higher than in the rest: 5.9 picograms per milliliter compared to 4.1.

"This is the first study to date showing the effects of mental stress-induced ischemia on a marker of myocardial

damage, however subtle that damage may be," Hammadah says. "Although this difference in troponin levels between those with and without ischemia is small, the difference has been shown by other investigators to predict increased risk of future heart attacks and death."

Seventy-five percent of the study participants who developed mental stress ischemia developed ischemia in response to exercise as well. Baseline troponin levels were also higher in the exercise-induced ischemia group: 5.4 pg/mL compared to 3.9.

When doctors tested for troponin 45 and 90 minutes after the mental stress test, they detected a small average increase in the mental stress ischemia group that was not statistically significant. The exercise test did result in a significant increase in troponin in the exercise-induced ischemia group. This may be because the exercise test lasts longer and puts more demands on the heart, Hammadah says.

The mental stress ischemia study was supported by the National Heart Lung and Blood Institute (5P01HL101398).

<http://www.acc.org/#sort=%40originalz32xpostedz32xdate86069%20descending>



Red Raspberry Research Abounds At 2016 Experimental Biology Conference

Six new studies point to red raspberry's potential anti-inflammatory properties and role in cardiovascular, blood glucose and liver function

A flurry of new research on red raspberries is set to be presented this week at the 2016 Experimental Biology conference in San Diego. Initial findings from six animal model studies reveal the potential effects of red raspberry consumption on cardiovascular disease risk reduction, maintaining normal blood glucose levels and liver function as well as potential anti-inflammatory effects related to bone health.

Recently, the January issue of *Advances in Nutrition* published a comprehensive review of the available scientific literature on the potential role of red raspberries in helping to reduce the risk of metabolically-based chronic diseases, including cardiovascular disease, diabetes mellitus, obesity, and Alzheimer's disease: all of which share critical metabolic, oxidative and inflammatory links.

"The new research being presented at Experimental Biology contributes to the growing body of nutrition research around the potential role of red raspberries in helping to reduce the risk factors associated with metabolically-based chronic diseases," said Tom Krugman, Executive Director of the National Processed Raspberry Council. "While further research in humans is needed, these animal studies provide important insights that will drive future research."

Red raspberries contribute a number of valuable essential nutrients, including providing an excellent source of vitamin C and nine grams of fiber per cup. They are also among the few plant foods that provide a source of ellagitannins and anthocyanins in the same package. While in vitro and animal studies suggests that these phytochemicals may help to reduce risk for some chronic diseases, additional research is needed to test similar hypotheses and possible effects in human metabolism.

Animal and in vitro (cell) research on red raspberries being presented at Experimental Biology includes:

Cardiovascular

Dr. Ara Kirakosyan of the University of Michigan investigated the potential effects of red raspberry intake on obesity-prone rats.

Kirakosvan, A., et al. Cardioprotective Effects of Red Raspberries in Obesity-prone Rats. *The FASEB Journal*, April 2016, vol. 30, no. 1 Supplement lb284 <http://tinyurl.com/zht8d5j>

Metabolic Syndrome

Dr. Neil Shay and colleagues from the Food Science and Technology department of Oregon State University, studied the effects of red raspberries in mice fed a high-fat, high-sugar Western diet.

Shay, N.F., et al. Intake of Whole Raspberries and the Raspberry Phytochemicals, Ellagic Acid and Raspberry Ketone Reduces Adiposity, Improves Glucose Control and Changes Hepatic Gene Expression Profiles in High-fat Fed Mice. *The FASEB Journal*, April 2016, vol. 30 no. 1 Supplement 692.6 <http://tinyurl.com/hs44hsb>

Dr. Mei-Jun Zhu and colleagues at Washington State University looked at the potential effect of red raspberry consumption on metabolic syndrome in male mice with diet-induced obesity.

Zhu, M.J., et al. Dietary raspberries ameliorate metabolic syndromes in diet-induced obese mice. *The FASEB Journal*, April 2016 vol. 30 no. 1 Supplement 907.21 <http://tinyurl.com/hgtav6x>

Diabetes

Principal investigator Dr. Giuliana Noratto of the Department of Food and Nutrition Science at Texas A&M University studied the effects of red raspberry consumption on diabetes-related complications and heart disease in obese diabetic mice.

Noratto, G., et al. Effects of Raspberry Dietary Supplementation on Risk Biomarkers of Diabetes Related Complications and Heart Disease in Diabetic Mice *The FASEB Journal*, April 2016, vol. 30 no. 1 Supplement 692.23 <http://tinyurl.com/jcrq5pr>

Liver Function

Dr. Geoff Sasaki and colleagues at Oregon State University looked at the capacity for ellagic acid quercetin to bind to the peroxisome proliferator-activated receptor-alpha (PPARα).

Sasaki, G., et al., Ellagic Acid and Quercetin are High-Affinity Ligands of Human Peroxisome Proliferator-Activated Receptor Alpha in an In-Vitro Competitive Binding Assay. *The FASEB Journal*, April 2016, vol. 30 no. 1 Supplement 691.7 <http://tinyurl.com/jconyn7>

Inflammation and Bone Health

Dr. Amber Thomas, of the Department of Nutrition and Food Sciences at Texas Woman's University and colleagues, using mouse macrophage cells, studied the anti-inflammatory effect of polyphenols in red raspberries in the production of osteoclasts, the cells associated with the breakdown of bone.

Thomas, A., et al. Inhibitory Effects of Red Raspberry Polyphenols on Osteoclastogenesis in RANKL-Stimulated RAW264.7 Murine Macrophages. *The FASEB Journal*, April 2016, vol. 30 no. 1 Supplement 691.31 <http://tinyurl.com/zohm4pv>

About National Processed Raspberry Council

Created in 2013, the National Processed Raspberry Council (NPRC) represents the processed raspberry industry and is supported by assessments from both domestic producers and importers. NPRC's mission is to conduct nutrition research and promote the health benefits of processed raspberries. The NPRC is responsible for marketing processed raspberries in the U.S. and is committed to promoting the growth of the entire industry. Processed raspberries are frozen at the peak of ripeness to lock in flavor and nutrition. Visit redrazz.org for more information, and follow us on our social media channels:

on https://twitter.com/red_razz https://instagram.com/red_raspberries or <https://www.pinterest.com/razzrecipes>



Certain Type Of Training Can Improve Driving Skills Of Older Adults

Although vision issues, physical limitations and other health problems are associated with driving limitations, declining cognitive performance may be the strongest indicator of declining driving skills

Older drivers can see their driving abilities improve by participating in certain types of training that improves the brain's processing speed and how the mind reacts when attention is divided, according to a new study by a researcher from the University of South Florida and colleagues from several other universities.

The research team designed a study to assess the effects of cognitive "speed of processing" training (SPT) among older adult drivers and determined that training not only improved mental quickness and attention, but also had the potential to help prevent declines in a range of driving skills (driving mobility) among older drivers.

Although vision issues, physical limitations and other health problems are associated with driving limitations, cognitive performance may be the strongest indicator of potential declining skills.

"One of the most important predictors of driving mobility is cognitive speed of processing - how quickly people can process information and act on it," said study co-author Jerri Edwards, associate professor in USF's School of Aging Studies in the College of Behavioral and Community Sciences. "For those older adults who had experienced some slowing in their ability to process information, more training sessions increased their driving frequency among other behaviors related to maintained driving mobility."

The researchers said the training used is a computerized, adaptive cognitive intervention designed to increase the speed at which participants can accurately decipher increasingly complex information. The exercises are targeted at enhancing the brain's processing speed and improving divided attention. The tasks required combinations of visual and auditory target identification, discrimination and localization. The study included both participants in training activities and controls who either completed a training program that targeted memory, or did not get any training. The average age of participants in the study was 73 years old.

Data collected and analyzed by the researchers included measures of driving mobility, such as frequency of driving (number of days driven in a week), driving exposure (variable driving maneuvers and conditions) and driving space (how far from home participants drove in a given week) over five years. Baseline data was collected on their driving frequency, exposure and space. Those receiving training completed up to 18 training sessions over a three-year period.

"Our results show that greater amounts of SPT - larger 'doses' - prolonged some measures of driving mobility for at-risk older adults with poor baseline processing speed," explained Edwards. "Given the importance of driving for older adult well-being and independence, these findings are noteworthy." Driving frequency was the "most robust" outcome, meaning that SPT enabled participants to drive more often in a given week.

"Ours is the first study to show that SPT can improve driving mobility across a five-year period," said Edwards. "It also highlighted the importance of 'dosage,' the number of training sessions received. Further research should look at the exact amount of training needed to maintain driving mobility among older adults who are at-risk for driving cessation or reduced driving mobility."

The researchers recently published the results of their work in the Gerontological Society of America's *Journal of Gerontology: Psychological Sciences*. <http://psychogerontology.oxfordjournals.org/content/current>



State-Level Public Corruption Affects Firm Value, Transparency

State-level public corruption in the United States affects firms' value and disclosure policies, according to a new study from The University of Texas at Dallas.

Dr. Steven Xiao, assistant professor of finance, and Dr. Vikram Nanda, O.P. Jindal Distinguished Chair in Finance, studied state-level corruption in the U.S. and its effect on publicly listed firms.

The study, published in the *Review of Corporate Finance Studies*, found that firms have significantly lower value and informational transparency when located in areas that are more corrupt.

Using the Department of Justice's data on corruption-related convictions of public officials, the researchers found that from 1990 to 2011, firm value was substantially lower in more corrupt states and federal districts.

"We found that even if you compare neighboring counties on different sides of a state border, firms on the more corrupt side of the state have a lower firm value compared to firms on the other side," Xiao said. "The main differences are driven by the political environment."

The study also determined that local corruption has a less negative effect on industries that sell primarily to the government, suggesting a quid pro quo relationship in which firms pay bribes to public officials with the understanding that they will benefit in some way.

"It's surprising in the way that most people won't argue that public corruption plays a very significant role in the economy," Xiao said. "In the U.S., we tend to believe we have a strong institution in place."

Despite the high quality of legal and political institutions in the U.S., corruption can result in these firms becoming informationally opaque. The study found that in more corrupt areas of the U.S., firms provide less frequent managerial guidance on earnings, have lower financial reporting quality, and their stocks are less liquid.

"Transparency is an important factor for firm value for public firms," Xiao said. "If you are an investor, you feel more comfortable if you know more about the company -- you're more willing to invest."

The researchers also examined market reaction to news of public corruption.

For example, Jack Abramoff's illegal lobbying conviction in 2006 generated a great deal of media coverage at the time, Xiao said, and the stock market reacted.

"We see that firms located in areas of corruption have a greater drop in stock prices in response to the news, and we believe this is because of the media coverage of the scandal and the public scrutiny," Xiao said.

In their follow-up study, the researchers are investigating whether public corruption is symptomatic of a local "culture" in which corruption is endemic in both public and private spheres. They hope to provide more of a complete picture of the role corruption plays in the U.S. and how it affects the overall economy.

Dr. Nishant Dass of the Georgia Institute of Technology is a co-author of the paper.

http://www.utdallas.edu/news/2016/3/31-31973_Study-State-Level-Public-Corruption-Affects-Firm-V_story-wide.html?WT.mc_id=NewsHomePage



Massive Deforestation Found In Brazil's Cerrado

Cerrado region deforestation surpasses Amazon, rainfall at risk

Agricultural expansion in Brazil's Cerrado is quickly chewing up rainforests and savannas - even altering the region's water cycle, a new study finds.

The study shows that dramatic deforestation, previously prevalent in the Amazon, has shifted to the neighboring Cerrado, where cropland is rapidly replacing native vegetation.

"This is the first study to show how intense the deforestation and agricultural expansion in the Cerrado has been in the past decade," says Gillian Galford of the University of Vermont, co-author of the study in *Global Change Biology*. "It's clearly a new hotspot for tropical deforestation."

Using ten years of satellite data, researchers from the University of Vermont, Brown University and Woods Hole Research Center studied land use changes in the Cerrado's Matopiba region, where the bulk of recent agricultural expansion has occurred.

The researchers found that agricultural land has doubled - from 1.3 million hectares in 2003 to 2.5 million hectares in 2013 - within the 45 million-hectare study area. Nearly three quarters of this expansion occurred at the expense of native Cerrado vegetation.

RAINFALL AT RISK

Researchers used satellite data to model estimates of the amount of water from soil and plants that gets recycled back into the atmosphere. In the growing season, cropland recycled roughly equal amounts of water as native vegetation. However, during the dry season, agricultural lands recycled 60 percent less water than native vegetation.

Continued agricultural growth, which Brazil's government has promoted, could reduce rainfall or delay the onset of critical rainy periods, researchers say.

"As agriculture expands, it could affect the rainfall regime that supports both natural vegetation and agricultural production - not just in the Cerrado, but also the Amazon," says lead author Stephanie Spera of Brown University.

"Timing of rains is a big deal," adds co-author Jack Mustard of Brown University. "This is nearly all rain-fed agriculture in this region. If you start delaying the onset of rainfall, that has implications for what you can grow."

RISKS TO AMAZON

These impacts are not necessarily confined to the Cerrado, which is Brazil's second largest region after the Amazon. That's because prevailing winds carry Cerrado air masses westward toward the Amazon, and their moisture contributes to rainfall there.

"Half of the rainfall in the Amazon is recycled water," Spera says. "So a decrease in moisture in those air masses could cause a decrease in rainfall there, too."

SILVER LINING

If the study has a silver lining, it's the finding that "double cropping" - the planting of two crops in the same field in a single growing season - can help to mitigate the overall decrease in water recycling.

The study showed that, in terms of evapotranspiration - water from soil and plants that recycle into the atmosphere - double-cropped land behaves more like native vegetation. It extends the growing season, when cropland evapotranspiration rivals that of native vegetation.

Double cropping increased from just 2 percent of cropland in 2003 to more than 26 percent in 2013. Without that increase, the reduction of water recycling in croplands would have been as much as 25 percent worse, the study showed.

According to the researchers, policies that encourage double cropping could help to blunt the effect of agricultural expansion on the Cerrado water cycle.

Galford is a researcher in UVM's Gund Institute and professor in UVM's Rubenstein School of Environment and Natural Resources. Galford, Spera and Mustard co-authored the study with Michael Coe and Marcia N. Macedo of Woods Hole.



Feeding The World: Uncovering A Key Regulator Of Flower Head Development In Rice

*Understanding how wind-pollinated flowers in rice develop
may lead to increased crop production*

AMERICAN SOCIETY OF PLANT BIOLOGISTS

Rice is a staple food for more than 3.5 billion people worldwide. Meeting the demand for high-yielding rice is an urgent task for breeders. Superior, high-yielding hybrid plants are often produced by crossing two diverse parental lines. This task is quite complicated in rice, a self-pollinating plant. One approach to solving this problem originated in the 1970s, when Chinese scientists figured out how to produce male sterile (MS) rice lines. The use of MS lines allows breeders to perform controlled pollination, leading to successful hybrid rice production. Unfortunately, in these MS lines, the panicle (flower head) often remains enclosed in the surrounding leaf sheath because the region of the stem that supports it (the uppermost internode) is short, leading to blocked pollination and reduced seed production. To allow panicles to elongate and emerge from the leaf sheath, breeders use rice plants with a mutation in the gene *ELONGATED UPPERMOST INTERNODE1* (*EUI1*), which encodes an enzyme that deactivates the plant hormone gibberellin (*GA*). This deactivation allows *GA* to stimulate uppermost internode extension, leading to panicle extension, as well as increased plant height. Understanding what regulates the enzyme *EUI1* in normal (wild type) plants is crucial, as according to Dr. Chengcai Chu of the Chinese Academy of Sciences, "A further understanding of the molecular mechanism through which *EUI1* activity is regulated during development will provide a more flexible way to fine-tune panicle extension, which may greatly help breeders improve hybrid rice seed production".

By isolating and exhaustively analyzing a dwarf mutant with impaired panicle extension, Dr. Chu and colleagues uncovered a critical regulator of *EUI1* gene expression in rice, as discussed in this week's issue of *The Plant Cell*. This regulator, *HOX12*, binds directly to regulatory elements of the *EUI1* gene, functioning as a transcription factor, or central regulator. The scientists propose that *HOX12* helps regulate plant growth in response to environmental cues through its effect on *EUI1*, which acts as a switch to regulate the migration of floral-derived *GA* from the panicle to the stem. The next step will be to determine the upstream initiators of the *HOX12*-*EUI1* regulatory cascade and the physiological conditions under which these modulations occur.

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Full citation: Gao, S., Fang, J., Xu, F., Wang, W., and Chu, C. (2016). Rice *HOX12* Regulates Panicle Exsertion by

Directly Modulating the Expression of ELONGATED UPPERMOST INTERNODE1. *Plant Cell* 10.1105/tpc.15.01021.

Publication date: March 14, 2016, at <http://www.plantcell.org/content/early/2016/03/14/tpc.15.01021.full.pdf+html>

About the researchers: To arrange an interview with Dr. Chengcai Chu of the Chinese Academy of Sciences, please contact ccchu@genetics.ac.cn

About *The Plant Cell*: Published monthly by ASPB, *The Plant Cell* is the highest-ranking primary research journal in plant biology. *The Plant Cell* publishes novel research in plant biology, especially in the areas of cellular biology, molecular biology, genetics, development, and evolution. The primary criteria for publication are that the article provides new insight that is of broad interest to plant biologists, not only to specialists, and that the presentation of results is appropriate for a wide audience.

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Figure credit: Nam-Chon Paek, Chinese Academy of Sciences.

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Recipe: Brown Rice Pilaf With Asparagus And Mushrooms

By Mayo Clinic Staff

Dietitian's tip:

Pilaf is a Middle Eastern dish that is made by sauteing rice or other grains in a bit of oil, and then adding seasonings and various vegetables. This version uses brown rice — rice that has its nutritious bran coating. Brown rice contains more natural minerals and vitamin E, compared with fiber-free white rice.

Serves 6

Ingredients

- 1 tablespoon olive oil
- 1 cup brown rice
- 3 cups water
- 1 teaspoon low-sodium chicken-flavored bouillon granules
- 1 small onion, chopped
- 1/2 pound fresh mushrooms, thinly sliced
- 1/8 teaspoon ground nutmeg
- 1/2 pound asparagus tips
- 2 tablespoons finely grated Swiss cheese
- 1/2 cup fresh parsley, chopped

Directions

In a large saucepan, heat the olive oil over medium heat. Add the rice and saute until it begins to "toast." Grains will begin to turn golden brown.

Slowly, add the water, bouillon granules, onion, mushrooms and nutmeg. Bring mixture to a boil, reduce heat, cover and simmer for 30 minutes. Add water as needed to keep the mixture from drying out.

Cut asparagus into 1-inch pieces, discarding the woody stems. Stir asparagus into the rice mixture, cover and cook another 5 minutes.

Stir in the grated cheese and garnish generously with parsley. Serve immediately.

Nutritional analysis per serving

Serving size :About 2/3 cup

Total carbohydrate 28 g
Dietary fiber 2 g
Sodium 25 mg
Saturated fat 1 g
Total fat 5 g
Trans fat 0 g

Cholesterol 4 mg
Protein 6 g
Monounsaturated fat 2 g
Calories 180
Sugars 0 g

[Mayo Clinic Healthy Weight Pyramid Servings](#)

Fats 1
Vegetables 1
Carbohydrates 1.5

- [Sample menu](#)

[Diabetes Meal Plan Choices](#)

Fats 1
Nonstarchy vegetables 1
Starches 1.5

[DASH Eating Plan Servings](#)

Grains and grain products 1.5
Fats and oils 1
Vegetables 1

- [DASH recommended servings](#)
- [Sample DASH menus](#)

<http://www.mayoclinic.org/healthy-lifestyle/recipes/brown-rice-pilaf-with-asparagus-and-mushrooms/rcp-20049647>