



**NATIONAL WELLNESS INSTITUTE OF AUSTRALIA INC.**

ABN 29675516476

## February 2017 NWIA Members' Newsletter

### Events

22 Feb World Thinking Day  
25 Feb Quiet Day  
27 Feb International Polar Bear Day  
8 Mar International Women's Day  
13 Mar Good Samaritan Day  
15 Mar Ides of March  
20 Mar First Day of Autumn  
22 Mar United Nations World Water Day

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February Floral Emblem: Violet



## PRESIDENT'S MESSAGE

Recently I was in a friendly conversation with long time friends and family over beverages after a physical activity session when the weekly get together took an unusual turn. After one person spoke about an uplifting experience of attending a well known play, I casually noted that I knew of one person who did not find the same play uplifting due to their interpretation of the plot and of the role of one of the main characters. I immediately felt that I had said something wrong. A few days later I was to find out that the person's perception of what I had said was in fact an intention of mine to belittle in some way her excitement of the experience. This was a shock to me. I explained to her that was not my purpose in relating to the group, someone else's experience about the same play.

This incident got me to thinking about a lot of things.

One being that I recognised the exchange as being a classic example of one of Jack Travis's Ten Truth Skills:

Noticing your intent. Do you communicate to relate or to control? When your intent is to relate, you are most interested in revealing your true feelings, learning how the other feels, and connecting heart-to-heart. When your intent is to control, you are most interested in getting things to turn out a certain way - avoiding conflict, getting the person to like you, being seen as knowledgeable or helpful, etc.

(<http://www.thewellspring.com/wellspring/communicating/2117/ten-truth-skills.cfm>)

I asked myself, 'At that time was my communication skill below its usual level'? If so my training as a communication training facilitator perhaps needs a revision. But this is not the place to go into that or the other things that went through my mind. What I wish to focus on here is the one word of her explanation of why she was upset that resonated with me, it being less than a month into the new year. A time when many goals, aims, resolutions and intentions, formulated on the first day of the year, have already been lost in the mire of everyday life.

The person had used the word '**intention**' and I had replied that it was not my '**purpose**' in doing so.

While the concept of intention is not readily recognisable as a core tenant of Wellness, purpose is and much has been written about it from many different angles— some examples only:

Michael Arloski – *Meaning and Purpose: A Key to Wellness*

(<https://realbalancewellness.wordpress.com/2014/11/30/meaning-and-purpose-a-key-to-wellness>).

Don Ardell – (many) – one eg - *What's the Difference between Meaning and Purpose (2004)*

(<http://www.seekwellness.com/wellness/reports/2004-10-26.htm>)

James Hamblin – *Health Tip: Find Purpose in Life* (<https://www.theatlantic.com/health/archive/2014/11/live-on-purpose/382252>)

Peter Jaret – *Does your Life Have Purpose* (<http://www.berkeleywellness.com/healthy-mind/mind-body/article/does-your-life-have-purpose>)

Gregory Johnston – *The Effect of Meaning and Purpose in Life on Wellness and Life Satisfaction (Thesis)* (<https://ttu-ir.tdl.org/ttu-ir/bitstream/handle/2346/45304/JOHNSTON-DISSERTATION.pdf;sequence=2>)

Patrick Hill – *Having a Sense of Purpose May Add Years to Your Life*

(<http://www.psychologicalscience.org/news/releases/having-a-sense-of-purpose-in-life-may-add-years-to-your-life.html#.WKKpqYVOLx4>)

Richard Leider – *The Power of Purpose* (3<sup>rd</sup> Edition)

Now even though Intention and purpose are sometimes used in everyday language interchangeably and some resources list purpose as a synonym of intention (as below), the two do subtly differ.

*in'tent*

## **NOUN**

*intention or purpose:*

*"with alarm she realized his intent" ·*

*"a real intent to cut back on social programmes"*

*synonyms: aim · purpose · intention · objective · object · goal · etc*

## **ADJECTIVE**

*(intent on/upon)*

*determined to do (something):*

*"the government was intent on achieving greater efficiency"*

*synonyms: bent · set · determined · insistent · fixed · resolved · etc*

Some explanations of the difference:

"Intention" is the desire or a plan do something while "purpose" is the reason, the goal, the intended result why an action must be done or why something must be the way it is. "Purpose" answers the question "why?" whilst "intention" is the spark that triggers a person to ask the question "how?" **"intention"** is a course of action that a person intends to follow while **purpose** is an object to be reached; a target; an aim; a goal"

So, returning to why the timing of the incident struck a chord with me, the realization that: *"Just because something has a purpose doesn't mean that you intend to do it"* has relevance for those who make New Year resolutions. You may resolve to "do X, Y or Z" for the purpose of "A, B or C" but it seemsthe strength of your intention is also very important to the outcome later in the year.

In the words of Don Ardell: "If you want to resolve to do or not do something, get serious (but not grim) about it. Be *passionate* about your **intentions** and work to make them come to pass. Avoid trifling resolutions that are unworthy of you, that do not summon the excitement of your best performance. "(Down with Weenie Resolutions: How to Make Real, Sensible and Effective Resolutions! 2007 (<http://www.seekwellness.com/wellness/reports/2007-01-02.htm>)

This Year go forward Wellness Practitioners with strong intention for the purpose of improving your personal and your client's wellness status.



**Bob Boyd**  
**NWIA President**

# **International Wellness Connections**

**This is the 46th article of a series featuring information from International Wellness Practitioners about the state of Wellness in their country of residence. This and any previous International Wellness Connections monthly article has appeared in the National Wellness Institute (USA) monthly newsletter, at least 12 months previous to it appearing in this publication.**

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

**[Global Wellness Vocabulary: The Terms "Wellness" and "Healthy Lifestyle"](#)**

*Posted By NWI, Tuesday, February 2, 2016*

**Jana Stara**

**Doctoral student at the Masaryk University in Brno, Czech Republic**

We were sitting at our kitchen table the other day when my mum said to me, "I really struggle to answer my friends when they ask me what you do." My head started to formulate a sentence. *"Tell them I am a wellness promoter, trainer and a speaker, just as my LinkedIn says,"* but she kept talking, "So I tell them you promote healthy lifestyles, because that's

what they would understand!” I felt that this little comment requires a bigger answer, so I researched the use of terms wellness and healthy lifestyle in the current literature. In this article I want to share with you in brief what I found.

I am aware that it is not only my mum who is challenged by the meaning of the term wellness. From the other side of the table my sister said, “I was just talking to a wellness manager and mentioned that you promote wellness and she asked if you know how all the spa procedures work, how to run a wellness center and to make your clients feel good.” I could maybe relate to the last point, so I realized that wellness manager obviously has a different frame of reference about wellness than mine.

I could understand that wellness manager’s question because in the Czech Republic wellness is associated with the traditional spa procedures, modern hotels, and basically anything that makes people experience pleasure that is supposedly unavailable in their daily lives. That’s why Czechs and many Europeans go to visit a wellness center. Yet my mum and my sister know that I don’t run a wellness center. I talk to people, talk with people, organize wellness seminars and we talk about health, that’s why my mum used the term “healthy lifestyle.”

This Sunday talk opened a topic I think is relevant not only for the wellness discussion in my country, but for wellness discussions all over the globe. If we want to clearly understand what all the wellness professionals do, it is important to first understand what the term wellness means and how it is different from the other words we have been using so far, especially healthy lifestyle.

So I did a little research, well in fact it was a bigger piece of research during which I reviewed couple hundreds of scientific resources published during 2015 with the purpose to clarify the terms wellness and healthy lifestyle currently and their current use in scientific articles, journals and books by outlining the basic concepts of those terms in the context of health. (No, I didn’t do it just for my mum to better understand, but also for my dissertation.)

So here are the results:

- Healthy lifestyle is defined as behavior that leads to better health; as such it is used in current scientific literature. This concept includes daily physical activity at optimal levels, healthy diet and nutrition, maintaining a healthy body weight, and preferably not smoking or abusing alcohol.
- Wellness is used as a broader term across different contexts. It is used as a synonym or accompanying term to health as defined by WHO, encompassing similar dimensions – physical, mental, social and spiritual (and many more). A lot of attention is given to wellness programming for various groups and methods being used. The term has also been used in the context of spa, ancient practices, and nature.

Wellness is a holistic model of health and as such broadens the former physical notion of health. It integrates the body, mind and spirit of an individual within the social context in which they exist while empowering them to take responsibility for their state of health at the very moment. Individual wellness is on the behavioral level manifested in that person’s lifestyle, but is inseparably connected to their internal cognitive and affective states. This makes wellness subjective by nature, and is thus conditioned by the actual situation of an individual.

Ultimately, when we promote wellness, it is necessary to do so with regard to an individual’s actual state and needs, using designs, strategies and methods that not only spread and support practices and knowledge about healthy living, but that empower inner motivation and responsibility across all dimensions of health and wellness.

So my mum (and I) can now explain wellness and my work better. And if you were having trouble before, then I trust you can also.



*Jana Stara is a speaker, trainer and doctoral student at the Masaryk University in Brno, Czech Republic. She dedicated her research and lecturing practice to promoting the concept of wellness in her country with respect to different cultural environment and traditions in Europe. She teaches at the university, empowers individuals, consults companies and believes that better times for European wellness are yet to come*

## Quote for the month



## What Your Mucus Says About Your Health

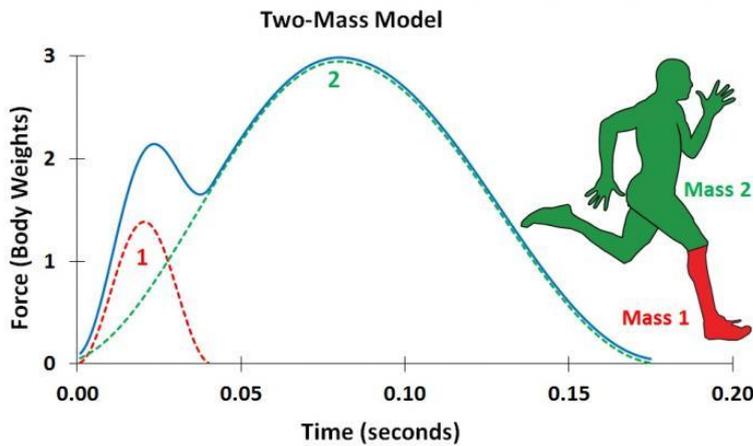
During peak cold and flu season mucus makes many of our lives miserable. But despite being a little icky, phlegm gets a bad rap. This germ-fighting goo contains cells and chemical compounds that help us power through a cold. You can also think of mucus as a traffic light for your health - what turns up in our used tissues can be a useful clue about the inner workings of our immune

systems. Reactions decodes the mysteries of mucus in its latest video: <https://youtu.be/RbcUcYDejks>.

Reactions is a video series produced by the American Chemical Society and PBS Digital Studios. Subscribe to the series at <http://bit.ly/ACSReactions>, and follow us on Twitter [@ACSreactions](https://twitter.com/ACSreactions) to be the first to see our latest videos.

The American Chemical Society is a nonprofit organization chartered by the U.S. Congress. With nearly 157,000 members, ACS is the world's largest scientific society and a global leader in providing access to chemistry-related research through its multiple databases, peer-reviewed journals and scientific conferences. The American Chemical Society does not conduct research, but publishes and publicizes peer-reviewed scientific studies. Its main offices are in Washington, D.C., and Columbus, Ohio.

<https://youtu.be/RbcUcYDejks>.



## New Study Connects Running Motion To Ground Force, Provides Patterns For Any Runner

**Concise scientific approach accurately predicts runner's patterns of foot ground-force application -- at all speeds and regardless of foot-strike mechanics**

Researchers at Southern Methodist University in Dallas have developed a concise new explanation for the basic mechanics involved in human running.

The approach offers direct insight into the determinants of running performance and injuries, and could enable the use of individualized gait patterns to optimize the design of shoes, orthoses and prostheses according to biomechanics experts Kenneth Clark, Laurence Ryan and Peter Weyand, who authored the new study.

The ground force-time patterns determine the body's motion coming out of each step and therefore directly determine running performance. The impact portion of the pattern is also believed to be a critical factor for running injuries.

"The human body is mechanically complex, but our new study indicates that the pattern of force on the ground can be accurately understood from the motion of just two body parts," said Clark, first author on the study and currently an assistant professor in the Department of Kinesiology at West Chester University in West Chester, Pennsylvania.

"The foot and the lower leg stop abruptly upon impact, and the rest of the body above the knee moves in a characteristic way," Clark said. "This new simplified approach makes it possible to predict the entire pattern of force on the ground -- from impact to toe-off -- with very basic motion data."

This new "two-mass model" from the SMU investigators substantially reduces the complexity of existing scientific explanations of the physics of running.

Existing explanations have generally relied upon relatively elaborate "multi-mass spring models" to explain the physics of running, but this approach is known to have significant limitations. These complex models were developed to evaluate rear-foot impacts at jogging speeds and only predict the early portion of the force pattern. In addition, they are less clearly linked to the human body itself. They typically divide the body into four or more masses and include numerous other variables that are hard to link to the actual parts of a human body.

The SMU model offers new insight by providing concise, accurate predictions of the ground force vs. time patterns throughout each instant of the contact period. It does so regardless of limb mechanics, foot-strike type and running speed.

"Our model inputs are limited to contact time on the ground, time in the air, and the motion of the ankle or lower limb. From three basic stride variables we are able to predict the full pattern of ground-force application," said Ryan, who is a physicist and research engineer at SMU's Locomotor Performance Laboratory.

"The approach opens up inexpensive ways to predict the ground reaction forces and tissue loading rates. Runners and other athletes can know the answer to the critical functional question of how they are contacting and applying force to the ground." added Ryan.

Current methods for assessing patterns of ground force application require expensive in-ground force platforms or force treadmills. Additionally, the links between the motions of an athlete's body parts and ground forces have previously been difficult to reduce to basic and accurate explanations.

The researchers describe their new two-mass model of the physics of running in the article, "A general relationship links gait mechanics and running ground reaction forces," published in the *Journal of Experimental Biology* at <http://jeb.biologists.org/content/220/2/247>, bitly <http://bit.ly/2jKUCSq>.

"From both a running performance and injury risk standpoint, many investigations over the last 15 years have focused on the link between limb motion and force application," said Weyand, who is the director of SMU's Locomotor Performance Laboratory. "We're excited that this research can shed light on this basic relationship."

### **Overall force-time pattern is the sum of two parts**

Traditional scientific explanations of foot-ground forces have utilized different types of spring and mass models ranging from complex to very simple. However, the existing models have not been able to fully account for all of the variation present in the force-time patterns of different runners -- particularly at speeds faster than jogging. Consequently, a comprehensive basis for assessing performance differences, injury risks and general running mechanics has not been previously available.

The SMU researchers explain that the basic concept of the new approach is relatively simple -- a runner's pattern of force application on the ground is due to the motion of two parts of the body: the lower portion of the leg that is contacting the ground, and the sum total of the rest of the body.

The force contributions of the two body parts are each predicted from their largely independent, respective motions during the foot-ground contact period. The two force contributions are then combined to predict the overall pattern. The final prediction relies only upon classical physics and a characteristic link between the force and motion for the two body parts.

### **New approach can be applied accurately and inexpensively**

The application of the two-mass approach is direct and immediate.

"Scientists, clinicians and performance specialists can directly apply the new information using the predictive approach provided in the manuscript," Clark said. "The new science is well-suited to assessing patterns of ground-force application by athletes on running tracks and in performance training centers."

These capabilities have not been possible previously, much less in the inexpensive and accurate manner that the new approach allows for with existing technology.

"The only requirement is a quality high-speed camera or decent motion sensor and our force-motion algorithms," Clark said. "It's conceivable that even shoe stores would benefit by implementing basic treadmill assessments to guide footwear selection from customer's gait mechanics using the approach."

A critical breakthrough for the SMU researchers was recognition that the mass contribution of the lower leg did not vary for heel vs. forefoot strikes and was directly quantifiable. Their efforts lead them to recognize the initial force contribution results from the quick stopping of the lower part of the leg -- the shin, ankle and foot -- which all come down and stop together when the foot hits the ground.

### **Olympic sprinters were a clue to discovery**

The SMU team discovered a general way to quantify the impact forces from the large impacts observed from Olympic-caliber sprinters. Like heel strikers, the patterns of Olympic sprinters exhibit a sharp rising edge peak that results from an abrupt deceleration of the foot and lower leg. However, sprinters accomplish this with forefoot impacts rather than the heel-first landing that most joggers use.

"The world-class sprinters gave us a big signal to figure out the critical determinants of the shape of the waveform," said Weyand. "Without their big impact forces, we would probably have not been able to recognize that the ground-force patterns of all runners, regardless of their foot-strike mechanics and running speed, have two basic parts."

When the researchers first began to analyze the seemingly complicated force waveform signals, they found that they were actually composed of two very simple overlapping waveforms, Ryan said.

"Our computer generated the best pattern predictions when the timing of the first waveform coincided with the high-speed video of the ankle stopping on impact. This was true to within a millisecond, every single time. And we did it hundreds of times," he said. "So we knew we had a direct physical relationship between force and motion that provided a critical insight."

### **New approach has potential to diagnose injury, rehab**

The SMU team's new concise waveforms potentially have diagnostic possibilities, Weyand said.

For example, a runner's pre-injury waveforms could be compared to their post-injury and post-rehab waveforms.

"You could potentially identify the asymmetries of runners with tibial stress fractures, Achilles tendonitis or other injuries by comparing the force patterns of their injured and healthy legs," he said.

And while medical images could suggest the injury has healed, their waveforms might tell a different story.

"The waveform patterns might show the athlete continues to run with less force on the injured limb. So it may offer an inexpensive diagnostic tool that was not previously available," Weyand said.

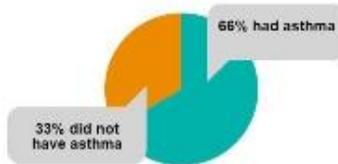
Weyand is Glenn Simmons Professor of Applied Physiology and professor of biomechanics in the Department of Applied Physiology and Wellness in SMU's Annette Caldwell Simmons School of Education and Human Development.

<http://jeb.biologists.org/>

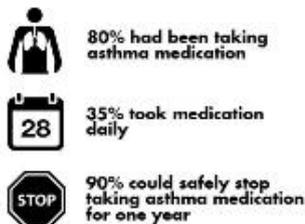
## Study finds one third of adults recently diagnosed with asthma do not have it

Source: <http://www.cchr.ca/newsroom/newsstory.asp?ID=876>

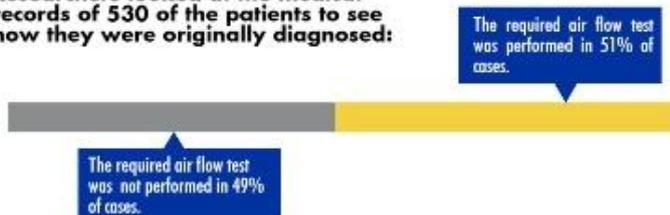
**613 Canadian adults diagnosed with asthma in the last 5 years were retested:**



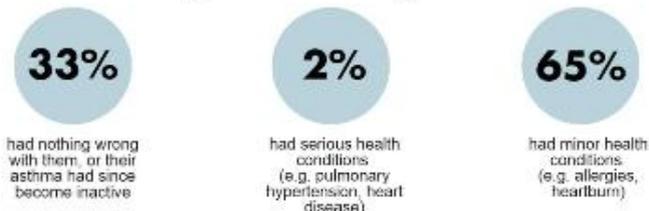
**Of the 33% without asthma:**



**Researchers looked at the medical records of 530 of the patients to see how they were originally diagnosed:**



**So what did these patients have if they didn't have asthma?**



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# Study Finds 33% Of Adults Recently Diagnosed With Asthma Do Not Have It

A new study published in the *Journal of the American Medical Association* found that 33 percent of adults recently diagnosed with asthma by their physicians did not have active asthma. Over 90 percent of these patients were able to stop their asthma medications and remain safely off medication for one year.

“It’s impossible to say how many of these patients were originally misdiagnosed with asthma, and how many have asthma that is no longer active,” said lead author of the study Dr. Shawn Aaron, senior scientist and respirologist at The Ottawa Hospital and professor at the University of Ottawa. “What we do know is that they were all able to stop taking medication that they didn’t need – medication that is expensive and can have side effects.” Eighty percent of the participants who did not have asthma had been taking asthma medication, and 35 percent took it daily.

The study also found that doctors often did not order the tests needed to confirm an asthma diagnosis. Instead they based their diagnosis solely on the

patient’s symptoms and their own observations.

“Doctors wouldn’t diagnose diabetes without checking blood sugar levels, or a broken bone without ordering an x-ray,” said Dr. Aaron. “But for some reason many doctors are not ordering the spirometry tests that can definitely diagnose asthma.”

The study looked at 613 randomly selected patients from 10 Canadian cities diagnosed with asthma in the last five years. After a series of detailed breathing tests followed by consultation with a lung specialist, asthma was ruled out in a third of these patients.

The research team was able to access the medical records of 530 of the patients to see how they were originally diagnosed. They found that in 49 percent of these cases, physicians had not ordered the airflow tests required by medical guidelines.

When the patients that were found not to have asthma were re-diagnosed, most had minor conditions like allergies or heartburn, and 28 percent had nothing wrong with them at all. Two percent had serious conditions like pulmonary hypertension or heart disease that had been misdiagnosed as asthma, and went on to receive proper treatment.

“It wasn’t a surprise to most patients when we told them they didn’t have asthma,” said Dr. Aaron. “Some knew all along that their puffer wasn’t working, while others were concerned that they might have something more serious. Thankfully, the majority of the conditions were mild and easily treated.”

Retired nurse Becky Hollingsworth was diagnosed with asthma two years ago. While participating in this study she learned that her shortness of breath was actually a temporary breathing problem left over from a bout of pneumonia.

“I was delighted we could verify that I did not have asthma,” said the 72-year-old grandmother. “Even if it’s falsely diagnosed, you still have to deal with the consequences of having a chronic illness. You have to take medication and if you want to take a trip somewhere the insurance can be higher.”

This study confirms and expands on the findings of Dr. Aaron’s [2008 study](#) which suggested that 30 percent of asthma patients had been misdiagnosed. According to a 2010 [Statistics Canada](#) survey, 8.5 percent of Canadians aged 12 and over have been diagnosed with asthma. In many cases asthma is a life-long condition, but sometimes it can become less active or go away entirely.

“We need to educate physicians and the public to get the diagnosis right in the first place,” said Dr. Aaron. “Patients who have difficulty breathing should ask their doctor to order a breathing test (spirometry) to determine if they might have asthma or even Chronic Obstructive Pulmonary Disease (COPD). Similarly, if patients think they may have been misdiagnosed with asthma or that they no longer have asthma, they should ask their doctor for a spirometry test. Asthma can be deadly, so patients should never go off their medication without speaking to a doctor first.”

**Full reference:** Reevaluation of Diagnosis in Adults with Physician-Diagnosed Asthma. Shawn D. Aaron, Katherine L. Vandemheen, J. Mark FitzGerald, Martha Ainslie, Samir Gupta, Catherine Lemiere, Stephen K. Field, R. Andrew McIvor, Paul Hernandez, Irvin Mayers, Sunita Mulpuru, Gonzalo G. Alvarez, Smita Pakhale, Ranjeeta Mallick, Louis-Philippe Boulet, for the Canadian Respiratory Research Network. Journal of the American Medical Association. January 17, 2016

**Funders:** The Canadian Institutes of Health Research

### **The Ottawa Hospital: Inspired by research. Driven by compassion**

The Ottawa Hospital is one of Canada’s largest learning and research hospitals with over 1,100 beds, approximately 12,000 staff and an annual budget of over \$1.2 billion. Our focus on research and learning helps us develop new and innovative ways to treat patients and improve care. As a multi-campus hospital, affiliated with the University of Ottawa, we deliver specialized care to the Eastern Ontario region, but our techniques and research discoveries are adopted around the world. We engage the community at all levels to support our vision for better patient care. See [www.ohri.ca](http://www.ohri.ca) for more information about research at The Ottawa Hospital.

Source <http://www.ohri.ca/newsroom/newsstory.asp?ID=876>



## **Don't Be So Hard On Yourself! UBC Study On First-Year Student Stress**

Stressed out university students, take note: self-compassion may be the key to making it through your first year, according to new research from the University of British Columbia.

Researchers from the faculty of education's school of kinesiology found students who reported higher levels of self-compassion felt more energetic, alive and optimistic during their first semester of university. When the students' sense of self-compassion levels rose, so too did their engagement and motivation with life.

"Our study suggests the psychological stress students may experience during the transition between high school and

university can be mitigated with self-compassion because it enhances the psychological needs of autonomy, competence, and relatedness, which in turn, enriches well-being," said Katie Gunnell, the study's lead author and a junior research scientist at Children's Hospital of Eastern Ontario Research Institute in Ottawa. The study was part of Gunnell's PhD work at UBC.

Self-compassion interventions can involve exercises to avoid negative self-judgment or feelings of inadequacy. One example involves writing self-compassionately about a negative experience. Self-compassion emphasizes self-kindness, which means to not be overly critical of oneself; common humanity, which means to recognize failure is universal; and mindfulness, which means being present and calm in the moment.

"Research shows first-year university is stressful," said co-author and UBC kinesiology professor Peter Crocker. "Students who are used to getting high grades may be shocked to not do as well in university, feel challenged living away from home, and are often missing important social support they had in high school. Self-compassion appears to be an effective strategy or resource to cope with these types of issues."

Crocker said his research group has previously shown that self-compassion interventions lower self-criticism and negative ruminations in high performance female athletes.

The researchers said their findings highlight the potential for colleges and universities to enhance self-compassion for first-year students through the development of workshops or campaigns.

## **Background**

The study is "Don't be so hard on yourself! Changes in self-compassion during the first year of university are associated with changes in well-being," by Katie E. Gunnell, Amber D. Mosewich, Carolyn E. McEwen, Robert C. Edlund, Peter R.E. Crocker (doi: 10.1-16/j.aogh.2016.11.032). It appears in *Personality and Individual Differences*, Volume 107 (2017), published by Elsevier. The study is available online and is forthcoming in print. Copies of this paper are available to credentialed journalists upon request. Please contact Elsevier's Newsroom at [newsroom@elsevier.com](mailto:newsroom@elsevier.com) or +31 20 485 2492.

The observational study took place over a five-month period with 189 first-year UBC students who completed self-report questionnaires.

Gunnell and Crocker's co-authors are Amber Mosewich at the University of Alberta, Carolyn McEwen at UBC and Robert Eklund at the University of Stirling.

## **About *Personality and Individual Differences***

*Personality and Individual Differences* is an academic journal devoted to the publication of articles (experimental, theoretical, review) which aim to integrate the major factors of personality with empirical paradigms from experimental, physiological, animal, clinical, educational, criminological or industrial psychology or to seek an explanation for the causes and major determinants of individual differences in concepts derived from these disciplines.

<http://news.ubc.ca/2017/01/30/dont-be-so-hard-on-yourself-ubc-study-on-first-year-student-stress/>



## **Low Socioeconomic Status Reduces Life Expectancy And Should Be Counted As A Major Risk Factor In Health Policy, Study Says**

Low socioeconomic status is linked to significant reductions in life expectancy and should be considered a major risk factor for ill health and early death in national and global health policies, according to a study of 1.7 million people published by *The Lancet*.

The study, using data from the UK, France, Switzerland, Portugal, Italy, USA and Australia, is the first to compare the impact of low socioeconomic status with other major risk factors on health, such as physical inactivity, smoking, diabetes, high blood pressure, obesity and high alcohol intake.

Although socioeconomic status is one of the strongest predictors of illness and early death worldwide, it is often overlooked in health policies.

"Given the huge impact of socioeconomic status on health, it's vital that governments accept it as a major risk factor and stop excluding it from health policy," said lead author Dr Silvia Stringhini, Lausanne University Hospital, Switzerland. "Reducing poverty, improving education and creating safe home, school and work environments are central to overcoming the impact of socioeconomic deprivation. By doing this, socioeconomic status could be targeted and improved, leading to better wealth and health for many." [1]

In the study, researchers compared socioeconomic status against six of the main risk factors defined by the World Health Organisation in its Global Action Plan for the Prevention and Control of Non-Communicable Diseases. The plan aims to reduce non-communicable diseases by 25% by 2025, but omits socioeconomic status as a risk factor for these diseases.

The study included data from 48 studies comprising more than 1.7 million people. It used a person's job title to estimate their socioeconomic status and looked at whether they died early.

When compared with their wealthier counterparts, people with low socioeconomic status were almost 1.5 times (46%) more likely to die before they were 85 years old. Among people with low socioeconomic status, 55,600 (15.2% of men and 9.4% of women) died before the age of 85, compared with 25,452 (11.5% of men and 6.8% of women) of people with high socioeconomic status.

The study also estimated that that 41% of men and 27% of women had low socioeconomic status and that this was associated with reduced life expectancy of 2.1 years, similar to being inactive (2.4 years). The greatest reductions were for smoking and diabetes (4.8 and 3.9 years, respectively). Comparatively, high blood pressure, obesity and high alcohol consumption were associated with smaller reductions in life expectancy (1.6, 0.7 and 0.5 years, respectively) than low socioeconomic status.

"Education, income, and work are known to affect health, but few studies have examined how important these socioeconomic factors actually are. Our study aims to compare the effect of socioeconomic status with the major risk factors targeted in global health strategies." said Professor Mika Kivimaki, University College London, UK, one of the senior authors of the study. [1]

"Socioeconomic status is important because it is a summary measure of lifetime exposures to hazardous circumstances and behaviours, that goes beyond the risk factors for non-communicable diseases that policies usually address. Our study shows that it should be included alongside these conventional risk factors as a key risk factor for ill health." said Professor Paolo Vineis, Imperial College London, UK, senior author of the study and leader of the EU LIFEPAATH consortium in which this study is embedded. [1]

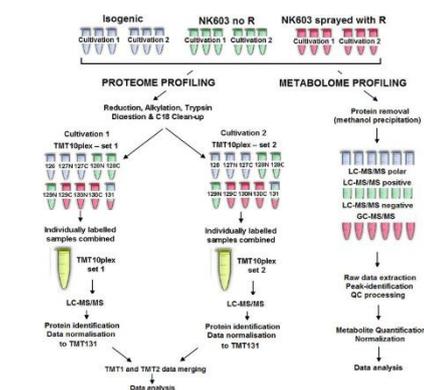
Limitations of the study include that the researchers only used occupational position as the indicator of socioeconomic status. While it is a commonly used measure, it can risk over simplifying the complexity of socioeconomic status. Although the study analysed and controlled for low socioeconomic status as an independent risk factor, the authors say it is difficult to separate the effects of socioeconomic status from other risk factors, highlighting the importance of targeting it alongside conventional risk factors for health included in global health targets.

Writing in a linked Comment, Dr Martin Tobias, Tobias + Cheung Consulting, New Zealand, said: "Having low social rank means being powerless to determine your own destiny, deprived of material resources, and limited in the opportunities open to you, which--the authors imply-- shapes both your lifestyle and your life chances... Whatever the exact effect and impact of low social rank on the health of individuals and populations might be, the authors' key message is clear: social rank deserves consideration alongside the established 25 × 25 risk factors... Moreover, the UN Sustainable Development Goals, which have replaced the MDGs and will run from 2016 to 2030, provide a timely opportunity to go beyond the WHO 25 × 25 goal and place social determinants squarely at the centre of sustainable development."

The study was funded by the European Commission, Swiss State Secretariat for Education, Swiss National Science Foundation, the UK's Medical Research Council, NordForsk and the Portuguese Foundation for Science and Technology. It was conducted by scientists from the Lausanne University Hospital, University of Helsinki, King's College London, Harvard T H Chan School of Public Health, Columbia University, Imperial College London, ASL TO3 Piedmont Region, University of Porto, University of Porto Medical School, INSERM, Universtiy of Turin, Université Toulouse III Paul-Sabatier, Paris Descartes University, Cancer Council Victoria, Melbourne, Fondazione IRCCS Istituto Nazionale dei Tumori, Trinity College Dublin, University College London and Erasmus University Medical Center. [1] Quote direct from author and cannot be found in the text of the Article.

[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)32380-7/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)32380-7/fulltext)

## Integrated Multi-Omics Analysis Of NK603 Roundup-Tolerant GM Maize Reveals Metabolism Disturbances Caused By Transformation Process



### ABSTRACT

Glyphosate tolerant genetically modified (GM) maize NK603 was assessed as 'substantially equivalent' to its isogenic counterpart by a nutrient composition analysis in order to be granted market approval. We have applied contemporary in depth molecular profiling methods of NK603 maize kernels (sprayed or unsprayed with Roundup) and the isogenic corn to reassess its substantial equivalence status. Proteome profiles of the maize kernels revealed alterations in the levels of enzymes of glycolysis and TCA cycle pathways, which were reflective of an imbalance in energy metabolism. Changes in proteins and metabolites of glutathione metabolism were indicative of increased oxidative stress. The most pronounced metabolome differences between NK603 and its isogenic counterpart consisted of an increase in polyamines including N-acetyl-cadaverine (2.9-fold), N-acetylputrescine (1.8-fold), putrescine (2.7-fold) and cadaverine (28-fold), which depending on context can be either protective or a cause of toxicity. Our molecular profiling results show that NK603 and its isogenic control are not substantially equivalent.

## INTRODUCTION

The application of genetic engineering (GE) to modify edible crops is often advocated as one of the most important scientific advances to improve farming systems and feed the world in a more sustainable manner<sup>1</sup>. GE has been used to create crops adapted to abiotic stress, resistant to pathogens, with a longer shelf life, or with enhanced nutritional properties. However, commercialization of these traits is currently minor. Agricultural genetically modified (GM) crops are dominated by plants engineered to tolerate application of a herbicide or/and to produce their own insecticides<sup>2</sup>. A total of 180 million hectares of GM crops are currently cultivated worldwide on around 1.5 billion hectares constituting approximately 10% of global arable land<sup>3</sup>. Approximately 80% of GM crops have been modified to tolerate application of and thus accumulate glyphosate-based herbicide residues without dying in order to facilitate weed management.

Regulations for the release of genetically modified organisms (GMOs) of any kind in a country are covered by the national biosafety regulations of that nation. Guidance on risk assessment (RA) aim at identifying and avoiding adverse effects by early detection and proper evaluation of intended and potential unintended changes in a GMO. These should be detected and identified at early stages of RA, often referred to as “hazard identification”. Hazard identification is essential to the RA process as it sets the foundation of what is considered or observed in later steps in the risk assessment process<sup>4</sup>. In the US, the Food and Drug Administration considers GM technology as an extension of conventional breeding and GMO crops are deregulated once nutritional and compositional “substantial equivalence” is demonstrated<sup>5</sup>. The set of parameters and analyses necessary to declare a GMO as substantially equivalent to its conventional counterpart is still vague and focuses on a restricted set of compositional variables, such as the amounts of protein, carbohydrate, vitamins and minerals. GMOs are then declared substantially equivalent when sufficient similarities appear for those selected variables<sup>6</sup>. Remarkably, while a majority of GMO crops have been modified to withstand and thus accumulate a herbicide without dying, analysis for residues for such pesticides are neglected in compositional assessment<sup>7</sup>.

Recent technologies used to ascertain the molecular compositional profile of a system, such as transcriptomics, proteomics, metabolomics, epigenomics and mirnomics, collectively referred to as “*omics* technologies”, are used extensively in basic and applied science<sup>8</sup>. Comparative *omics* analyses have been performed comparing GMO crops and their isogenic counterpart. A number of them have shown metabolic disturbances from potential unintended effects of the GM transformation process in Bt maize<sup>9,10,11,12</sup>, glyphosate-tolerant soybean<sup>13,14,15</sup>, potato<sup>16</sup>, cotton<sup>17</sup> and rice<sup>18</sup>. However, these studies do not report consistent or coherent results, which can be explained by the use of a variety of genetic backgrounds and/or different growth conditions, as well as variations in the technologies and threshold levels applied<sup>19</sup>. Indeed, the majority of authors of these types of studies conclude that the statistically significant changes observed between the conventional and the GM varieties are not biologically significant because they fall into the range of variations obtained in the comparisons between different conventionally-bred varieties, and under different environmental conditions<sup>11</sup>. However, other authors conclude that observed differences could reflect biologically significant, GM transformation process induced changes in protein profiles<sup>12</sup> or metabolism<sup>20</sup> when appropriate near-isogenic controls were applied and test crops grown at the same time and location to avoid differences brought about by variable environmental conditions<sup>20</sup>. Currently, no regulatory authority requires mandatory untargeted molecular profiling *omics* analysis to be performed but some acknowledge their potential relevance for food and feed derived from GM plants with specific metabolic pathways modified, or in situations where a suitable comparator is not available<sup>4,21</sup>.

Despite being declared to be ‘substantially equivalent’, off target effects have been observed in non-target species for Bt toxin-producing GMO crops<sup>22,23,24</sup>. Additionally, laboratory animal feeding trials performed with some GM plants in comparison to the non-GM counterpart have been proposed to provide evidence of ill-health effects. Several laboratory studies consisting of 90-day feeding trials in rodents have been conducted to evaluate the safety of GMO crop consumption<sup>25,26</sup>. These investigations have frequently resulted in statistically significant differences in parameters reflective of disturbances in various organ systems and in particular liver and kidney biochemistry, but with interpretation of their biological significance, especially with respect to health implications, being controversial<sup>27,28,29</sup>. Such differences in outcome in such laboratory animal feeding studies could have multiple sources including the presence of GMO-associated pesticide residues<sup>30,31</sup>.

In an effort to provide insight into the substantial equivalence classification of a Roundup tolerant NK603 GM maize, we have performed proteomics and metabolomics analyses of NK603 (sprayed or unsprayed with Roundup) and isogenic maize kernels (Fig. 1). We used a TMT10plex™ isobaric mass tag labelling method and quantified proteins by Liquid chromatography-tandem mass spectrometry (LC-MS/MS). The metabolome profile was determined by ultrahigh

performance liquid chromatography-tandem mass spectroscopy (UPLC-MS/MS). Altogether, our integrative analysis shows that the GM transformation process used to generate NK603 maize caused deep alterations in the proteome and metabolome profiles of this crop and results in marked metabolic changes. We conclude that NK603 maize is not compositionally equivalent to its non-GM isogenic counterpart as previously claimed.

Source <http://www.nature.com/articles/srep37855#auth-1>



## Acute Dietary Fat Intake Initiates Alterations In Energy Metabolism And Insulin Resistance

**BACKGROUND.** Dietary intake of saturated fat is a likely contributor to nonalcoholic fatty liver disease (NAFLD) and insulin resistance, but the mechanisms that initiate these abnormalities in humans remain unclear. We examined the effects of a single oral saturated fat load on insulin sensitivity, hepatic glucose metabolism, and lipid metabolism in humans. Similarly, initiating mechanisms were examined after an equivalent challenge in mice.

**METHODS.** Fourteen lean, healthy individuals randomly received either palm oil (PO) or vehicle (VCL). Hepatic metabolism was analyzed using in vivo  $^{13}\text{C}/^{31}\text{P}/^1\text{H}$  and ex vivo  $^2\text{H}$  magnetic resonance spectroscopy before and during hyperinsulinemic-euglycemic clamps with isotope dilution. Mice underwent identical clamp procedures and hepatic transcriptome analyses.

**RESULTS.** PO administration decreased whole-body, hepatic, and adipose tissue insulin sensitivity by 25%, 15%, and 34%, respectively. Hepatic triglyceride and ATP content rose by 35% and 16%, respectively. Hepatic gluconeogenesis increased by 70%, and net glycogenolysis declined by 20%. Mouse transcriptomics revealed that PO differentially regulates predicted upstream regulators and pathways, including LPS, members of the TLR and PPAR families, NF- $\kappa$ B, and TNF-related weak inducer of apoptosis (TWEAK).

**CONCLUSION.** Saturated fat ingestion rapidly increases hepatic lipid storage, energy metabolism, and insulin resistance. This is accompanied by regulation of hepatic gene expression and signaling that may contribute to development of NAFLD.

**REGISTRATION.** ClinicalTrials.gov NCT01736202.

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Foundation, and German Diabetes Association. Portugal: Portuguese Foundation for Science and Technology, FEDER – European Regional Development Fund, Portuguese Foundation for Science and Technology, and Rede Nacional de Ressonância Magnética Nuclear.

## INTRODUCTION

The pandemic of obesity, type 2 diabetes mellitus (T2DM) and nonalcoholic fatty liver disease (NAFLD) has frequently been associated with dietary intake of saturated fats (1) and specifically with dietary palm oil (PO) (2). According to current paradigms, chronic insulin resistance is the common feature of these diseases (3, 4) and relates to intracellular concentrations of triglycerides (TG) and lipotoxins (5). There is evidence that a chronic high-fat diet in mice and humans leads to insulin resistance via similar mechanisms (6, 7). Chronic insulin resistance comprises not only impaired muscle insulin action but also increased rates of endogenous glucose production (EGP) and gluconeogenesis (GNG) in obese and T2DM patients (8–10).

Still, only a few studies have addressed the initial effects of high-fat loading using either intravenous or enteral administration of lipids. These studies mainly focused on the role of skeletal muscle by assessing intramyocellular TG content (11), substrate oxidation, glycogen synthesis (12), or glucose disposal (13–17). Studies using parenteral administration of unsaturated lipids (18) or high-calorie mixed meals yielded conflicting results with regard to hepatic energy metabolism. One mixed-meal study found greater de novo lipogenesis without affecting hepatic glycogen metabolism (12), while an intravenous lipid infusion study failed to detect any effect on hepatic insulin sensitivity (19). Another study comparing subacute oral ingestion of fatty acids with different compositions found an increase in the glucose infusion rate only after polyunsaturated fatty acid ingestion (20).

To overcome possible limitations of the previous studies, such as the use of nonphysiological routes of lipid administration or mixed meals, which introduce protein and carbohydrates as confounders, we designed a translational study concept comprising a clinical trial involving healthy humans and a corresponding study involving nonobese nondiabetic mice. The randomized crossover clinical trial examined the effects of a single oral challenge with PO, which is mainly composed of saturated fatty acids (2), versus vehicle (VCL) ingestion on whole-body insulin sensitivity (WBIS) and hepatic insulin sensitivity. Moreover, the contributions of hepatic glucose fluxes, i.e., GNG, net glycogenolysis (GLYnet), and the futile exchange between glycogenogenic and glycogenolytic pathways (glycogen cycling) to EGP as well as the effects of these fluxes on hepatocellular lipids (HCL) and phosphorous-containing metabolites were analyzed using combined in vivo multinuclear  $^{13}\text{C}/^{31}\text{P}/^1\text{H}$  and stable isotope tracers to assess plasma glucose appearance rates and sources of EGP. In the mouse study, we examined the effects of a similar oral saturated fat challenge on insulin sensitivity and hepatic transcriptome changes. Source <https://www.jci.org/articles/view/89444>



## Recipe Of The Month: Tuscan White Bean Stew

### Dietitian's tip:

The white beans (cannellini), along with garlic and rosemary or sage, are traditional ingredients in many soups and stews in Tuscany. Serve as a main course with a simple salad of mixed greens.

Serves 6

### Ingredients

For the croutons

1. 1 tablespoon extra-virgin olive oil
2. 2 cloves garlic, quartered
3. 1 slice whole-grain bread, cut into 1/2-inch cubes
4. 2 cups dried cannellini or other white beans, picked over and rinsed, soaked overnight, and drained

5. 6 cups water
6. 1 teaspoon salt
7. 1 bay leaf
8. 2 tablespoons olive oil
9. 1 yellow onion, coarsely chopped
10. 3 carrots, peeled and coarsely chopped
11. 6 cloves garlic, chopped
12. 1/4 teaspoon freshly ground black pepper
13. 1 tablespoon chopped fresh rosemary, plus 6 sprigs
14. 1 1/2 cups vegetable stock or broth

## Directions

To make the croutons, heat the olive oil over medium heat in a large frying pan. Add the garlic and saute for 1 minute. Remove from the heat and let stand for 10 minutes to infuse the garlic flavor into the oil. Remove the garlic pieces and discard. Return the pan to medium heat. Add the bread cubes and saute, stirring frequently, until lightly browned, 3 to 5 minutes. Transfer to a small bowl and set aside.

In a soup pot over high heat, combine the white beans, water, 1/2 teaspoon of the salt and the bay leaf. Bring to a boil over high heat. Reduce the heat to low, cover partially and simmer until the beans are tender, 60 to 75 minutes. Drain the beans, reserving 1/2 cup of the cooking liquid. Discard the bay leaf. Place the cooked beans into a large bowl and save the cooking pot for later use.

In a small bowl, combine the reserved cooking liquid and 1/2 cup of the cooked beans. Mash with a fork to form a paste. Stir the bean paste into the cooked beans.

Return the cooking pot to the stove top and add the olive oil. Heat over medium-high heat. Stir in the onion and carrots and saute until the carrots are tender-crisp, 6 to 7 minutes. Stir in the garlic and cook until softened, about 1 minute. Stir in the remaining 1/2 teaspoon salt, the pepper, chopped rosemary, bean mixture and stock. Bring to a boil, then reduce the heat to low and simmer until the stew is heated through, about 5 minutes.

Ladle the stew into warmed bowls and sprinkle with the croutons. Garnish each bowl with a rosemary sprig and serve immediately.

## Nutritional analysis per serving

**Serving size :About 1 1/4 cup stew and 1/6 of the croutons**

- Total carbohydrate 48 g
- Dietary fiber 12 g
- Sodium 450 mg
- Saturated fat 1 g
- Total fat 8 g
- Trans fat 0 g
- Cholesterol 0 mg
- Protein 16 g
- Monounsaturated fat 6 g
- Calories 328
- Added sugars 0 g

This recipe is one of 150 recipes collected in "The New Mayo Clinic Cookbook," published by Mayo Clinic Health Information and Oxmoor House, and winner of the 2005 James Beard award.

Source <http://www.mayoclinic.org/healthy-lifestyle/recipes/tuscan-white-bean-stew/recipe-20049889>