Training

All UHN research trainees are required to complete the following mandatory training modules:

⇒ AODA Part 1: Customer Service Standard
⇒ AODA Part 2: Integrated Accessibility Standards Regulation
⇒ Workplace Violence & Domestic Violence Awareness
⇒ Worker Health & Safety Awareness
⇒ Privacy Training for Research Personnel
⇒ Fire Safety

The new training compliance report indicates that there is low compliance among UHN trainees.

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<tr>
<th># of Courses Completed</th>
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If you have not completed one or more of the above mentioned modules, please go to the Research Intranet and complete the outstanding training.
Accomplishment Bliss

By MW Freeman, ORT Science Writer and UHN Research Trainee

This week, I experienced the most incredible thing.

I was buried in work. I stayed up late and woke early. I researched and analyzed and drafted, then looped back, making huge and frightening adjustments to the project. Each time around the revisions became more nuanced and subtle, inweaving the finesse I had long-desired to see in this work.

With pride, I submitted the project. I was physically exhausted—my body battered by lack of sleep, caffeine saturation, and too many hours of eyeballs running over spreadsheets—but after turning in this piece of hard-fought work, my mind became nimble and more luminous than ever. Instead of recoiling from the idea of more work, I sprang toward it. I was overwhelmed by motivation to build on the skills I had just proven to myself, to take on new projects, and to connect with people who could enrich my experience.

In the midst of snatching these inspired ideas from the ether and painting them onto a page, I stopped to wonder, “How can I experience this feeling more often?”

For answers, I turned to my friendly neighborhood search engine. Unfortunately, the search terms required to capture this feeling escaped me, so “that great feeling when you finish a task” would have to do. This inspired me to coin my very own term to describe the sensation: ‘accomplishment bliss’.

According to neuroperformance expert Leslie Sherlin, accomplishment bliss may come as the result of small bursts of serotonin following the brain's shift from an intensely engaged state to a relaxed one. The accompanying sense of satisfaction and calm associated with the burst is known to encourage confidence, which makes digging into your next task seem simple, even pleasurable.

When in the throes of accomplishment bliss, it is critical to use the feeling to your advantage. Dustin Wax of LifeHack explains, “The end goal is [...] to capture the energy and momentum of one success and roll it into your next.” In other words, start your next project while you’re feeling unstoppable. In the 1920s, psychologist Bluma Ziegarnik found that humans recall unfinished tasks considerably better than completed tasks or ones that have yet to be started. In our minds, unfinished tasks stand out. So, if you are bursting with vigour (and serotonin) and can get the ball rolling on your next idea, research shows that you are more likely to see this idea through to fruition.

Online forums are brimming with advice that capitalizes on this effect, with bloggers extolling the merits of bite-sized tasks and approachable to-do lists. While many of these approaches were familiar, one concept stood out: accountability charts. For all tasks accomplished during productive intervals, productivity guru Gregory Ciotti encourages his readers to record the task’s name and when it was completed. At the end of the day, one can marvel at their accomplishments. Beyond acting as a reminder of daily achievements, accountability charts can help to reveal patterns in productivity. You may be able to correlate periods of high or low output with changes in diet, alterations in exercise regimen or prevailing moods. With strong enough correlations, you may look to optimize output by changing the way you work.

Accountability charts do sound effective, but they don’t sound fun. Human motivation is fickle. There has to be a goal.
Video game developers have long understood that people will not work for free, but they will expend tremendous sums of energy to achieve virtual rewards. ‘Gamification’ is the marriage of gaming and motivation hacking that has taken the world by storm. By offering nothing but good feelings, companies like Foursquare and FitBit engage with the public on unprecedented scales.

With an understanding of this power, some individuals have gamified their daily lives. Eric Boyd of Sensebridge and HackLab.to discussed his tactics at Toronto’s instalment of the Future. Innovation. Technology. Creativity. (FITC) conference. Boyd works with a low-tech ‘dashboard’ comprising a marker and a mirror to track data important to his personal progress. These data are always converted to points and these points are always associated with goals. For example, Boyd, a self-proclaimed introvert, aimed to ask 1000 good questions over one year; three per day. While pursuing the singular goal of boosting his score, Boyd simultaneously enhanced his social experience and was rewarded with an unparalleled degree of insight from his peers. “What gets measured gets managed,” says Boyd.

Scientists thrive on data, ever seeking to capture an elegant trend or pin down a causal relationship. Why not apply this hunger for numbers to ourselves? Why not use well-explored concepts of reward-based conditioning to hack our own motivation?

So, go ahead. Set up your whiteboard or mark up your fume hood window to track how many pipette tips you refilled today, or how many 96-well plates you’ve analyzed this week, or how many journal articles you have reviewed this month. See what those numbers add up to after six months, one year, or over the course of a PhD. Host contests with friends, colleagues and competitors. Mine the data to see if gamifying your life is encouraging productivity. Can you tweak your habits to optimize…everything?

Don’t expect equal degrees of accomplishment bliss to follow a great comprehensive exam versus a superb electrophoresis run, but the simple act of quantifying and celebrating achievements, whether grand or incremental, will ensure this mighty sensation’s frequent return.

P.S. For a beautifully rigorous example of ‘the quantified self’, check out Nicholas Felton’s ten years of annual reports.
Measuring the nature of rewards, one neuron at a time

By Shaalee Dworski, ORT Writer and UHN Trainee

Human behaviour revolves around rewards. Early in life we learn what tastes good, what feels good and what gets a positive response from those around us. As we navigate experiences, our brain calculates whether the action is worth repeating.

One area of the brain that may be involved in these calculations is the globus pallidus pars interna (GPi). Previous studies have shown that patients with strokes in the GPi have difficulty with tasks related to motivation and rewards. Classically, the GPi is associated with motor control: it is the area treated by deep brain stimulation to reduce involuntary motions in Parkinson’s patients.

Nicholas Howell, a former MSc student in Dr. William Hutchison’s laboratory, and colleagues, explored the GPi’s functions in rewards. The authors used a very unique methodology in their investigation - tiny microelectrodes were connected to individual neurons in the brain to record their activity in real time. Participants performed a reward simulation task, where they could win or lose virtual money based on click responses, while the electrodes recorded real-time activity in the GPi.

During the reward simulation task, they saw neurons activate in situations where the participant lost money or where nothing happened, but no activity when they won money. This suggests that the GPi is involved in reward calculations, but only by providing negative reward signals. However, only very few neurons fired in the area that the researchers tested, suggesting that the main cluster of neurons may be elsewhere nearby.

This study supports the proposed role of the GPi to integrate actions and motivations, where action-stimulating neurons also stimulate feelings of rewards. Interestingly, the neurons also responded to stimuli that were not related to involuntary motion or rewards, such as visual stimuli, opening the door to future studies that explore additional roles of GPi neurons.

Given the invasiveness of the microelectrode technique used here, it has been very rarely employed in humans. The authors were able to perform this experiment on consenting patients who were already undergoing neurosurgery to treat motor diseases. This creative approach could be employed in other studies to provide further insight into the functioning of specific regions of the brain.

Click here to access the full manuscript.

The ORT caught up with Nicholas Howell:
ORT: Can this knowledge be used to better understand addictive rewards, like gambling?

There has been much interest in the basal ganglia and addictive reward like gambling because some Parkinson’s patients treated with certain drugs, particularly a class called dopamine agonists, appear to cause compulsive behaviour, including excessive gambling. Perhaps these drugs are able to over-stimulate the subset of cells we have recorded. In addition, a few years back Dr. Frank published in Science about DBS patients with subthalamic nucleus (STN) stimulators that appeared to have compulsive behaviours—this is particularly relevant because the STN projects to the GPi and influences its activity.
The ORT would like to congratulate the winners of the 2016 Krembil Research day!!!
The ORT would like to thank all of the applicants for this award. It is our pleasure to announce the recipients of the March 2016 ORT Conference Travel Award:

Pictured above (Left to Right)
Swati Bhatawadekar, Daniel Vena, Kate Dupuis, Autumn Meek, Evelyne Lima-Fernandes, Alex Barnett

The winners are:

**PhD Program (alphabetical order):**
- Samih Alqawlaq, Supervisor: Dr. Jeremy Sivak, Krembil
- Alex Barnett, Supervisor: Dr. Mary Pat McAndrews, Krembil
- Mayilee Canizares, Supervisor: Dr. Elizabeth Badley, Krembil
- Shengrui Feng, Supervisor: Dr. Daniel De Carvalho, PM
- Halina Haag, Supervisor: Dr. Angela Colantonio, TRI
- Samah Hassan, Supervisor: Dr. Andrea Furlan, TRI
- Allan Martin, Supervisor: Dr. Michael G. Fehlings, Krembil
- Vladislav Sekulic, Supervisor: Dr. Frances Skinner, Krembil
- Daniel Vena, Supervisor: Dr. Azadeh Yadollahi, TRI

**Postdoctoral Fellow (alphabetical order):**
- Agata Bartczak, Supervisors: Dr. Armand Keating & Dr. Ian McGilvray, Krembil & TGRI
- Swati Bhatawadekar, Supervisor: Dr. Azadeh Yadollahi, TRI
- Helen Burston, Supervisor: Dr. Robert Rottapel, PM
- Kate Dupuis, Supervisor: Dr. Kathleen Pichora-Fuller, TRI
- Victor Ferreira, Supervisor: Dr. Atul Humar, TGRI
- Evelyne Lima-Fernandes, Supervisor: Dr. Cheryl Arrowsmith, PM
- Autumn Meek, Supervisor: Dr. Donald Weaver, Krembil
- Yekaterina Poloz, Supervisor: Dr. Vuk Stambolic, PM

Congratulations to our awardees!
**Trainee:** Julio Furlan, Clinical Fellow  
**Supervisor:** Dr. Cathy Craven, TRI  
**Abstract:** 1. Intravenous Immunoglobulin versus Plasma Exchange in the Management of Patients with Myasthenia Gravis: A Cost-Minimization Analysis.  
**Conference:** Annual Meeting of the American Academy of Neurology, Apr 15–21, 2016, Vancouver, BC, Canada  
Click here to read Julio’s conference report!

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**Trainee:** Murtaza Nagree, PhD Candidate  
**Supervisor:** Dr. Jeffrey Medin, TGRI  
**Abstract:** Differential acyl chain storage of multiple glycosphingolipids in Fabry mice  
**Conference:** WORLDSymposium 2016, Feb 29–Mar 4, 2016, San Diego, CA, USA  
Click here to read Murtaza’s conference report!

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**Trainee:** Dene Ringuette, PhD Candidate  
**Supervisor:** Dr. Peter Carlen, Krembil  
**Abstract:** Multi-modal in vivo imaging of brain blood oxygenation, blood flow and neural calcium dynamics during acute seizure  
**Conference:** SPIE Photonics West 2016, Feb 13–18, 2016, San Francisco, CA, USA  
Click here to read Dene’s conference report!
Trainee: Sue Tsai, Postdoctoral Fellow

Supervisor: Dr. Daniel Winer, TGRI

Abstract: Treating obesity-related insulin resistance with bowel-specific anti-inflammatory therapy

Conference: EASL International Liver Congress, Apr 13–17, 2016, Barcelona, Spain

Click [here](#) to read Sue’s conference report!

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Trainee: Hideki Ujiie, Postdoctoral Fellow

Supervisor: Dr. Kazuhiro Yasufuku, TGRI

Abstract: Development of a Novel Ex-Vivo Porcine Laparoscopic Heller Myotomy and Nissen Fundoplication Training Model

Conference: SAGES 2016 Annual Meeting, Mar 16–18, 2016, Boston, MA, USA

Click [here](#) to read Hideki’s conference report!
UPCOMING EVENTS & FUNDING CALENDAR:

30/06  TGRI Postdoctoral Fellowship Support Award
TGRI is happy to announce another internal competition for the Postdoctoral Fellowship Awards. Each award is valued at $25,000 and up to six (6) will be awarded within the Research Institute. Click here for details.

01/07  ORT Travel Award
ORT is pleased to offer a limited number of travel awards to enable research graduate students and postdoctoral fellows to participate in national or international conferences. The guidelines and the application form can be found here.

01/08  Science & SciLifeLab Prize for Young Scientists
The Prize is awarded annually to one young scientist (who has been awarded a doctoral degree in the past two years) for outstanding life science research. Click here for details.

Visit wwwuhntrainees.ca for more events and funding information.

QUESTIONS?
Please contact: ORT Coordinator
University Health Network
ort.admin@uhnres.utoronto.ca
t. 416-634-8775

Journey to Conquer Cancer

Sunday, June 19, 2016

JOURNEY TO CONQUER CANCER
Click here to join The ORT’s Team, SCIENTIFIC STRIDES. You can run, walk, or virtual walk 1K, 3K, 5K!

Donations will be used to fund trainee scholarships in cancer research.

• No minimum donations
• Family friendly with children’s events
• Virtual walkers welcome

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