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Uni NEWS

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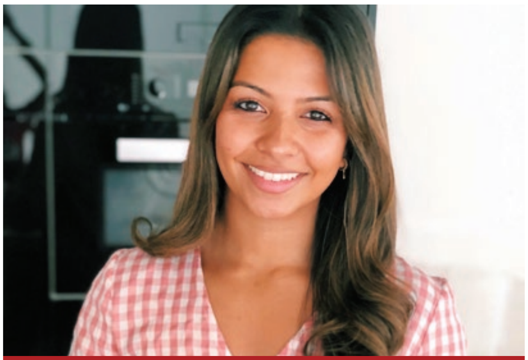

STRONG AND SPICY

Shehnaz Hussain is a medical student and a powerlifter whose recipes also pack a punch

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Professor Robert Scragg shines a light on Vitamin D deficiency in New Zealand, as winter kicks in

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IN THE **NEWS**

Just a few of the University of Auckland staff and student mentions in the media recently. Email: uninews@auckland.ac.nz

HERCULEAN PROJECT

Research fellow Dr Mahyar Osanlouy and Professor Thor Besier (pictured) from the Auckland Bioengineering Institute (ABI) appeared on TVNZ's *Seven Sharp* to talk about ABI gaining $15m funding to lead an international collaboration to create mathematical modelling of the human body. Funding for the '12 Labours' project came through the Ministry of Business Innovation and Employment's Catalyst Strategic Fund. **Link: tinyurl.com/seven-sharp-ABI**
Full story: **auckland.ac.nz/ABI-funding**


Professor Chris Bullen

COVID ARTICLE HAS MASSIVE REACH

An article on taming Covid-19, co-authored by Public Health Professor Chris Bullen, created a big impact with more than 1.1 million views. It first appeared in *The Conversation*, a not-for-profit publisher that teams academics with journalists for research-driven news articles and commentary. "New Covid variants have changed the game, and vaccines will not be enough," the article said, arguing for a global strategy of "maximum suppression". The piece was republished by around 30 other media outlets across the world, including *The Guardian*, Australia's ABC and the *South China Morning Post*. The University is trialling a publishing relationship with *The Conversation NZ*.
Link: tinyurl.com/chris-bullen-conversation

CRAY SITUATION

Research co-authored by Dr Nick Shears from the Institute of Marine Science, appeared in the *Herald* and *Stuff*. The study revealed that the Hauraki Gulf's marine reserves are failing to halt plummeting crayfish populations. Says Nick: "Inside reserves, crayfish have declined by 59 to 80 percent in the past ten to 15 years despite being inside a strict 'no-take' area."
Links: tinyurl.com/herald-crayfish
and **tinyurl.com/stuff-crayfish**


Dr Lara Greaves

POPULAR POLITICAL CHOICES

Political scientist Dr Lara Greaves was in *The Guardian*'s analysis of the 2021 Budget and also told RNZ's *Morning Report* the Budget allocation for Māori was "a great step in the right direction". She also appeared on RNZ's *Morning Report* about public servants' pay. Colleague, Professor Jennifer Curtin, appeared on TVNZ's Budget Special, noting the Finance Minister announced no explicit initiatives for women workers.
Links: tinyurl.com/guardian-lara-greaves
tinyurl.com/RNZ-budget-2021
tinyurl.com/lara-greaves-public-servants
Several commentators from the Public Policy Institute: **tinyurl.com/Public-Policy-Budget**


Professor Richard Easther

ROCKET MAN

Professor of Physics Richard Easther talked to several media on the occasion of the detached Chinese rocket re-entering the atmosphere. He told TVNZ's *Breakfast* that the uncontrolled re-entry to Earth of the Long March 5B rocket, which had launched a module for China's space station, appeared to be by design.
Link: tinyurl.com/richard-easther-tvnz

THIS ISSUE

The Autumn edition of *Ingenio*, the alumni publication of the University, is out now. See the stories online or download the PDF at auckland.ac.nz/ingenio

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SHEHNAZ **HUSSAIN**

Student Shehnaz Hussain is using her passion to help children in India.

Tell us about yourself.
I'm a med student in my final year and working as a trainee intern at Tauranga Hospital. At the moment, I'm in the Emergency Department. I'll graduate in November.

Where did you grow up?
I was born in Chennai, South India, before moving to England with my family for about ten years. I've lived in New Zealand for 12 years now and it's home.

Tell us about the cookbook.
It's called *Tang, Spice, Crunch*. In New Zealand's first lockdown I started working on my recipe-developing skills and also spent a lot of time watching chefs. Then I started an Instagram called @shehnazzy_cooks just for fun. Shehnazzy is my nickname. I got a bit of a following and people started asking for the recipes of the photos I put up. So I wrote them down and decided to make a cookbook because I had something in mind about the benefits of that.

What was your idea?
Before Covid, I would visit Chennai every second year with my family. We would visit a particular boys' orphanage there, which is always in need of help. It's partially government-funded, but relies heavily on donations. I decided to donate all the money from the sales of my book to that orphanage.

What kind of place is it?
It raises boys who don't have families and teaches them good values. A lot of them go to school and have ended up being really successful. They have a chance of life they wouldn't have otherwise had. There are around 500 boys there.

In between visits, do you keep in contact?
My grandma is actually in New Zealand now, but she's usually in India and regularly visits them. We have a tradition in our family where if it's any of our birthdays or someone graduates or there's any family celebration, we also get my grandma, or whoever is in India, to organise a feast for the boys in the orphanage. We have a really close connection with this orphanage and have done this since I was about five.

What about the impact on your family of seeing images from India at the moment?
We feel quite helpless being so far away. But we know we can make an impact by helping out in every way we can. The book is just one way.

How will you produce and sell the book?
I am having it printed in India to try to support business there, as so many are struggling because of Covid-19. Here I have a few stockists where my parents live and also where I work in Tauranga. Tamahere Four Square is going to stock it and Paper Plus in Cambridge. The Bay of Plenty Pharmacy in Tauranga Hospital has kindly agreed to stock it because it's where I'm doing my final year. I'm also looking for other outlets.

Will you sell it online too?
Yes, through my website tangspicecrunch.com. People can pre-order now on the website and it's selling fast! It's due here in late June. Hopefully Covid doesn't hold it up.

Are these your own recipes?
These are mostly my own recipes. The usual process I would go through is have a dream about it – yes, a literal dream in my sleep – and then the next day create, taste and edit the recipe. There is one recipe from NZ icon, The Caker (which she kindly donated to this book) and two recipes from Sarah Jampel, cook and editor of *Bon Appétit*. There are also recipes from my mum, dad and sister.

Is there a theme to the book?
Just delicious food. It's a mixture of cuisines – South Indian and Malaysian and a mishmash of everything. But if you go to @shehnazzy_cooks on Instagram, you can see the kind of food that is in the book. It's just healthy, colourful, vibrant and tasty.

Who helped you with the book?
My mum, dad and my grandma are all excellent cooks so it's been a bit of a family project. We've all been involved. They've been helping to edit it and liaise with the printers.

So they've passed on the cooking gene. What else have they passed on?
My mum is a GP and a rheumatologist. My dad is a surgeon. So I guess medicine is in the blood too. My 12-year-old sister wants to be an architect – but I did too at the same age.

What field of medicine do you hope to pursue?
I think sports medicine is my calling. I love encouraging lifestyle medicine and helping people stay active. It would be great if I could stay in Tauranga.

And you're certainly staying active yourself. Tell us about your sport.
I'm 23 and have been powerlifting since I was 17. I've managed to train hard through med school. For me, it is good to have that discipline. When I was in Auckland I was part of the Auckland University Strength Society and I've represented New Zealand three times, most recently at the Asia/Oceania Championships in Sydney 2019. I have also won two sports Blues Awards at the University, in 2018 and 2019.

What does powerlifting involve?
Squats, deadlifts and benchpresses make up your total score. Recently I competed in the Tauranga Classic Powerlifting Championships and I broke four New Zealand junior women's records in the Under 58kg category (123kg squat, 70kg benchpress and 160kg deadlift for a total of 353kg.) So that was really good. I just hope to keep pushing the limits.

Ihonuku Pro Vice-Chancellor Māori, Associate Professor Te Kawehau Hoskins (Ngāti Hau, Ngāpuhi)

MANAAKITANGA AT PŌWHIRI

The University's new Ihonuku Pro Vice-Chancellor Māori, Associate Professor Te Kawehau Hoskins (Ngāti Hau, Ngāpuhi) was accompanied by Ngāti Hau and Ngāti Wai whānau and elders, friends and colleagues past and present for her pōwhiri at Waipapa Marae on 17 May, to acknowledge her role.

Te Kawehau spoke about what might be required for mutually sustainable relationships between the University, iwi and Māori communities. Following the pōwhiri, a symposium, ka mua ka muri, took place, featuring senior Māori academics who spoke about iwi Māori futures in their respective fields. These included professors Margaret Mutu, Papaarangi Reid, Deidre Brown and Anthony Hoete, and associate professors Melinda Webber and Aroha Harris.

Says Te Kawehau: "The pōwhiri and symposium were an opportunity to build relationships with our communities through manaakitanga and showcase our relevance to iwi Māori interests. It was a fabulous day enjoyed by all."

The pōwhiri was held at Waipapa Marae.

Te Kawehau inside the marae.

LISTEN TO THE RAIN

An experiment has investigated whether tinnitus could be tamed by creating associations with noises such as rain, birds or cicadas.

Associate Professor Grant Searchfield

The results are promising, according to Associate Professor Grant Searchfield (Faculty of Medical and Health Sciences). In the study, 18 people with tinnitus listened for an hour a day over three months to recordings of a sound matched to their tinnitus, what Grant describes as a 'tinnitus avatar'. The sound morphed into real-world noises such as cicadas or birds chirping, a fan, water, rain or some combination of those sounds. Tinnitus is a condition where people hear a noise, such as a ringing or buzzing, that isn't really there. The condition can disrupt sleep and concentration, or trigger anxiety and depression.

Would that noise be less annoying for a brain trained to associate it with a natural sound? A third of participants in the study reported that their tinnitus became less noticeable or reduced in volume. Altogether, 11 of 18 noticed a change. Further study will be done.

- Full story: **auckland.ac.nz/tinnitus-research**

EDUCATION VITAL FOR REFUGEES

It's World Refugee Day on 20 June and the University will celebrate the success of our refugee students and graduates.

Former Kurdish refugee Rez Gardi is a shining example of education changing lives. Rez was born in a refugee camp in Kurdistan where she lived for the first six years of her life. She arrived in New Zealand soon after, speaking no English. She graduated in 2016 with a Bachelor of Law (Honours) and a Bachelor of Arts majoring in International Relations and Criminology and went on to do a Master of Law at Harvard. She graduated in 2019 and won a Human Rights Fellowship that took her to the Kurdish Region of Iraq to research the evidence against ISIS for their persecution of the Yezidi population.

New Zealand's first Kurdish female lawyer, she is the founder of Empower, a mentoring initiative addressing the under-representation in higher education of people from a refugee background.

The Young New Zealander of the Year (2017) is also the co-founder of the Centre for Asia Pacific Refugee Studies at the University, alongside Associate Professor Jay Marlowe. "Rez is an inspirational leader," says Jay. "She walks the talk and ensures that people from refugee backgrounds have a meaningful seat at the table."

The University is the United Nations Academic Impact (UNAI) Group Hub for Sustainable Development Goal 4, which is Quality Education. Vice-Chancellor Professor Dawn Freshwater will take part in an international online panel organised by the UNAI alongside the UN Refugee Agency (UNHCR). The event will be held at 8am, 23 June, NZT. (See intranet for details.)

- More about Rez: keanewzealand.com/rez-gardi/
- More about UNAI Group Hub: auckland.ac.nz/SDG-4

Rez Gardi

Always something interesting coming off the 3D printer in the Creative Design and Engineering Lab.

ENGINEERS IN AWARDS PIPELINE

The Faculty of Engineering is represented in six of the nine categories at Engineering New Zealand's awards ceremony, to be livestreamed on 1 July.

The ENVI awards celebrate the work being pursued by the engineering community across various disciplines – from education to innovation and leadership.

The Faculty of Engineering Te Herenga Mātai Pūkaha's Building 405 is up for the Engineering Education Award. People were placed at the centre of the building's planning, design and construction. Its physical form reflects that, including visible labs and multi-disciplinary learning spaces. Acting Dean of Engineering Professor Gerard Rowe says: "We've put our students first and what we can now provide is an educational experience unlike any other. They are surrounded by engineering in practice, discipline diversity and the breadth of possibilities within our five departments every day."

Chemical and materials engineering student Omar Mustafa is one of two finalists in the Student Engineer of the Year category. His research project involves developing and designing milk-cooling technology.

Professor Olaf Diegel is a finalist for the Engineering Creativity Award with the Creative Design and Engineering Lab. One of their latest experiments, a world first, involves the creation of full-colour 3D anatomical visualisations. The figures are extremely detailed, down to the colour of a person's eyes, and show the capacity for 3D printing to blur the lines between art and science.

The University is also up for an Engineering Partnership Award for its work with Waka Kotahi (NZ Transport Agency). Several of our transportation engineering researchers are involved with Waka Kotahi's strategy involving infrastructure, specifically 11,093kms of State Highway networks. Involved are Engineering lecturer Dr Theuns Henning, Sujith Padiyara, a technical team leader in the Transportation Research Centre, and Anissa Hasanah, a now-PhD student who was a part of the research team while pursuing her Master of Engineering in Transportation Engineering.

Civil Engineering lecturer Professor Pierre Quenneville and Structural Engineering PhD graduate Dr Pouyan Zarnani are in the running for the Engineering Innovation Award for Tectonus and its Resilient Slip Friction Joint, which is used to protect buildings in earthquakes.

The University also has three finalists in the Young Engineer of the Year category: alumni Akshat Malhotra, Dany Rasaam and Jonathan Chambers.

Read more at: **auckland.ac.nz/engineering-finalists**

Building 405: already a winner on campus.

GOOD TO KNOW

VACCINE STUDY

UniServices has been awarded nearly NZ$8 million by the U.S. Centers for Disease Control and Prevention (CDC) to lead the largest global vaccine monitoring study ever undertaken. It will be conducted by the Global Vaccine Data Network (GVDN), an international consortium for vaccine monitoring.

Formed in 2019, months before the Covid-19 pandemic, the GVDN uses big data to assess vaccine safety and effectiveness across large and diverse populations around the world and over time. It has 21 partners in 17 countries and will lead the international effort to monitor and assess Covid-19 vaccines over three years.

The University will act as the global coordinating centre for the study, which will follow 300 million people. "This project puts the University of Auckland, UniServices and New Zealand at global centre stage for the ongoing management of vaccine follow-up data," says Andy Shenk, CEO of UniServices.

Associate Professor Helen Petousis-Harris, who is co-director of the GVDN, is the principal investigator for the project.

KAI TIME

A team from the Department of Nutrition and Dietetics in the Faculty of Medical and Health Sciences is helping people make better food choices on campus.

'Better Kai' is an initiative that encourages the University community to make healthy food choices easily. The team has put Better Kai labels on menus to help people identify healthier options. A pilot was run in 2019 in two campus food outlets to test if simple labels on the menus would increase sales of healthier foods and raise consumer awareness of the symbols. The results from the study were published in a peer-reviewed journal in 2020 and provided evidence that the implementation of Better Kai labels resulted in increased sales of healthier foods over time.

"The Better Kai programme doesn't use specialised nutrition software for analysis; it is all very simple," says Jessica Malloy, student dietitian lead for the creation of Better Kai.

"It really can be as simple as seeing what in the cabinet has more veges, or brown instead of white bread/rice/pasta."

For more information on the initiative and a complete list of participating outlets and Better Kai options, visit: **auckland.ac.nz/better-kai**

Dr Malvindar Singh-Bains in front of Pat Hanly's artwork, part of his The Seven Ages of Man. *Photos: Elise Manahan*

STILL HUNTING FOR A CURE

Dr Malvindar Singh-Bains from the Centre for Brain Research would like greater awareness of how Huntington's Disease affects families – even those who don't know if they'll get the hereditary disease.

Dr Malvindar Singh-Bains was presenting her research at the National Huntington's Disease Conference a few years back, when she was brought down to earth.

"My PhD project detailed the patterns of cell loss in regions of a brain with Huntington's Disease and linked them to symptoms these patients had when they were alive," says Malvindar, a research fellow in the Centre for Brain Research (CBR).

"The findings highlighted the importance of the community's input because the donation of the brains of people with Huntington's Disease is the key to unlocking why there are different symptoms.

At the end of her presentation, a member of the public stood up and said, "OK, so you're showing us the secrets of the post-mortem brain, but what are you doing for our kids who are alive?"

"I didn't have an answer."

That prompted Malvindar to set up Huntington's Disease Youth Organisation NZ (HDYO-NZ), a support group for young people affected by Huntington's, which is a sister organisation to the international Huntington's Disease Youth Organisation. HDYO-NZ is a registered charitable trust that educates, advocates and supports anyone affected by Huntington's, from children to adults before the onset of symptoms.

Surprisingly, there have been no proper incidence and prevalence studies of Huntington's Disease in New Zealand. "We know that in Auckland/Northland we have about 900 people with it – either symptomatic or impacted by the gene – as they're on the books of the Huntington's Disease Association for Auckland. New studies show it could be as many as one in 10,000 people affected. But there's under-reporting because of the stigma. People don't want to be included in these kinds of prevalence studies."

Huntington's Disease symptoms don't generally show up until a person is between 35 and 55. People can have a test at 18 to find out if they have inherited the gene or live their lives not knowing for sure. Everyone has the HTT gene itself – it's needed to make a protein called huntingtin which is vital for life – but people with a rogue HTT gene have one that is much longer, expanded and repeated, which leads to a build-up of "bad" protein in the brain.

The mutation that causes Huntington's Disease involves a DNA segment known as a CAG trinucleotide repeat, made up of three DNA building blocks (cytosine, adenine and guanine) that appear multiple times. Normally, the CAG segment within the gene is repeated 26 times or fewer, but in people with Huntington's Disease it has kept repeating.

"Whether you get it depends on the number of repeats. If you have 40 CAG repeats or more, you're going to get Huntington's Disease. If you have between 26 and zero, you won't. There's an intermediate group, 27-39 repeats, where you may or may not show Huntington's in your lifetime but if you have children you may pass on the disease.

"What we know is that when you're born, you don't show symptoms," says Malvindar. "Through adolescence, you still have no symptoms. But researchers hypothesise that there are switches being turned on throughout life, and the last switch is the one that triggers the disease. It's like an accumulation of insults over time."

Malvindar says 70 to 75 percent of the disease onset is due to the gene, but researchers also believe around 25 percent is caused by other factors that trigger that switch.

"It could be ageing, it could be chemicals, it could be medication, it could be environmental exposures ... there are many possible triggers."

Huntington's Disease has been around for a long time. In 1872, American physician George Huntington reported seeing patients who looked intoxicated, walking along the street. This was the original description of Huntington's Chorea.

"Chorea is Latin for dance and these people were walking with writhing and convoluted dance-like movements," explains Malvindar.

"George Huntington's article also reported on a genetic inheritance pattern, but it wasn't until the Huntington's Disease Collaborative Research Group, which included Professor Russell Snell from this University, started studying the genes of patients from Lake Maracaibo, Venezuela, that there was a Eureka moment. They found a gene that was common between all those patients in Lake Maracaibo, where there is a high incidence."

Malvindar says she was drawn to research Huntington's because of Distinguished Professor Sir Richard Faull, the renowned neuroscientist in the Centre for Brain Research who was awarded the Rutherford Medal in 2007 for his ground-breaking work in understanding the human brain.

"What channelled me towards brain research was that Richard used to give five lectures in a paper called MedSci 142," says Malvindar. "In that lecture series, it was pin-drop silence from all the students. He was so passionate about the brain being the last frontier for medical research.

"You can replace a heart, you can replace a liver, you can replace a kidney, but you cannot replace a brain. That really hooked me in."

She began working with him around three years later for her PhD. "Richard explained how

> ***“Huntington’s looks to be the most curable of all of the incurable neurodegenerative conditions, because we have its unique molecular signature.”*** *– Dr Malvindar Singh-Bains*

Huntington’s has a key genetic feature that is unique to all of the patients with the disorder, but the myriad symptoms can sometimes be more dementia-like or more motor-like.

“If we want to glean more about other disorders, such as Parkinson’s Disease and Alzheimer’s, Huntington’s is a great ‘model disorder’ because those diseases have similar pathophysiology. What’s common in the diseases is the death of brain cells, accompanied by an increase in bad proteins that build up in those brains.

“We have many donor cases in our Human Brain Bank that show this. We have more than 700 brains and around 150 of those are Huntington’s, thanks to the amazing families of these people. Because of the genetic cause, families donate in the hope science can change the outcomes.

“Huntington’s does look to be the most curable out of all the currently incurable neurodegenerative conditions, because we have its unique molecular signature. Motor neuron disease, for example, is incredibly complex because there are so many different genes that can cause it.”

There was also a personal reason Malvindar ended up deciding on brain research. Both her maternal and paternal grandmothers had died with dementia. While she didn’t know her mother’s mother, who died when Malvindar was around two, she did see the progression of her paternal grandmother’s dementia.

“She lived in California and every two years I would go through California to Boston to go to the Hereditary Disease Foundation Conference to present my Huntington’s PhD work.

“I’d stop at my grandma’s en route. I saw that progression and the impact it had on my family. My uncle was her main carer and he would talk about the challenges. Seeing her decline just reinforced how much I want to help people with brain disease have a better quality of life.”

That’s also where the Sikh concept of ‘seva’ comes in. Seva means ‘selfless service’ and Malvindar incorporates it into all that she does.

That includes the work of the HDYO NZ charity.

“We don’t take care of symptomatic individuals. Instead, we support the people who are at risk. They might have specific questions about clinical trials that they might be eligible for in the future, or IVF if they’re thinking about having a family. We collate resources and provide information.

“If or when a person decides to be tested, they’ll get a result and we take the ride with them, if they want us to, and link them with other people who have been through similar journeys, whether they test positive or test negative.

“I’ve had the privilege of being mentored by Sir Richard and he has instilled values in me that have come from his close association with families impacted by Huntington’s. Although I’m very keen to help patients who are symptomatic, my heart lies with the youth who are impacted by Huntington’s that don’t know their fate.”

Malvindar, who was born and raised in West Auckland, also spends time in her community delivering brain health education.

“I’ve held talks in rest homes, and in places of worship such as Sikh temples, and I try to get more children involved in STEM, especially girls. I’m trying to show that being a scientist can make a huge difference to people’s health and lives.”

She says your parents don’t have to be scientists or to have even completed a traditional education for you to succeed in any field.

“My dad works for Tegel as a machine operator. My mum has had a variety of administration jobs, and now runs a community organisation, the Waitakere Ethnic Board. Neither had the opportunity to finish school. They were part of that generation of getting married young, and had an arranged marriage. Their whole lives were dedicated to providing for us. My brother is a pharmacist.”

Growing up, Malvindar was leaning towards arts. “I played the drums and the clarinet. I used to love woodwork, and was the only girl in the class. I also enjoyed history and debating.

“I’m a natural extrovert; I love to be around people – they give me energy. I also love travelling with my parents, my family, on road trips together.”

Her parents are second-generation Kiwis, but she still feels connected to the culture. “I’ve started playing the dhol, which is a large Punjabi drum. I’ve always been into percussion so when I need to make some noise I belt that out.”

That hasn’t extended to having to beat the drum for funding, although most researchers at the CBR rely on grants if they aren’t staff.

“Our main sources of funding include the Neurological Foundation, the Auckland Medical Research Foundation and the Health Research Council. There are also philanthropists who have a particular interest in brain disease and help fund our research too. My first postdoctoral fellowship was funded by the Freemasons Foundation because I was doing research work on Alzheimer’s and they have a strong interest in that field.”

Malvindar wants people to know what Huntington’s Disease is, just as they do about Parkinson’s and Alzheimer’s.

“People understand Parkinson’s because you have Michael J. Fox. There is no Michael J. Fox of Huntington’s. The only famous person we know of was American singer Woody Guthrie, who died of Huntington’s at the age of 55.

“Huntington’s shouldn’t be hidden. Lillian Hanly, granddaughter of late New Zealand artist Pat Hanly, recently contacted me because she’s making a documentary on Huntington’s. Her grandfather, who died in 2004, had it, as does her mother. Pat Hanly’s artworks *The Seven Ages of Man* are hung on seven floors of Building 501.

“Lillian can become our hero of Huntington’s Disease with this doco because it pushes it into the limelight to help with research funding.”

Malvindar tries to push it into the limelight too. During Huntington’s Disease awareness month in May, she has dyed her hair blue, done a bungee jump and got a blue tattoo.

Malvindar says a cure could involve refining a treatment where you shut down the faulty part of the gene. “Gene-silencing therapy is a really viable candidate as a treatment for Huntington’s in the future. But you need to understand what silencing one part of the gene will do to the rest of the gene. Because we need huntingtin, the protein that’s the product of the HTT gene, to live. If you completely turn off the HTT gene, you die.

“The challenge for scientists is to turn down that faulty expanded repeat in the gene just enough so that it doesn’t affect the other part.”

You can be sure that if Malvindar is involved in figuring out how to do that, there will be a loud Punjabi drum roll and a louder cry of Eureka.

■ Denise Montgomery

Malvindar with students. Back, L to R: Adelie Tan (PhD student), Ieuan Sargent (Biomed Hons), Florence Layburn (Biomed Hons). Bottom right: Henry Liu (Biomed Hons).

DRILLING INTO THE DATA ON **VITAMIN D**

It's winter so do we need to take vitamin D supplements? Professor Robert Scragg sheds light on the subject.

Professor Robert Scragg describes himself as a bit of a data nerd, but it's a vital skill to have in the field of health research.

"There are huge opportunities working with big data," says Robert, Head of the School of Population Health.

"We have a core group of researchers and staff who can analyse data, but we need to grow that, through our training of undergraduates."

From 2022, a new introductory paper to teach students how to analyse health data, called Quantitative Methods for Health Sciences, will be compulsory for all second-year Health Science students.

Robert, who has been at the University since 1984, has spent a lot of time over his career teaching students to analyse data so they can support the work of researchers. His own research, including cardiovascular disease and cot death, has moved recently into vitamin D.

In simple terms, vitamin D is important for bone and muscle health. It is needed to regulate the body's calcium and prevent a reduction in bone density. It may have a role in improving non-skeletal diseases and cancer mortality but definitive results are not yet available from clinical trials. While there have been observational studies showing that people with seasonal affective disorder (SAD) have low vitamin D levels, the jury is out until randomised clinical trials are done.

Vitamin D is mainly produced in the skin after exposure to UVB from sunlight, and then processed by the body to become metabolically active. The most recent Ministry of Health data available, from the Adult Nutrition Survey but now more than a decade old, shows around five percent of people have vitamin D deficiency – that is, less than 25 nanomoles per litre (nmol/L) of blood – and should take supplements. A further 27 percent have levels of 25-50 nmol/L, which is considered vitamin D insufficiency. The prevalence of vitamin D deficiency is higher in Māori (six percent) and Pacific (ten percent). South Asian people aren't included in that study but it's known that more than 15 percent are vitamin D-deficient. The figure is higher during winter and spring.

Robert was involved in what's believed to be New Zealand's largest clinical trial carried out by one research group, known as the Vitamin D Assessment (ViDA) study, which ended in 2015. In it, international researchers investigated whether high doses of supplementary vitamin D could reduce incidence of heart attacks, fractures and respiratory infections, among other health issues.

There were several significant findings along the way, although many weren't so clear-cut.

"This was an intervention study, where you actively change something, i.e. give vitamin D to see if there's a benefit," says Robert. "We did a large trial with a high dose. We picked a dose we knew would take people up to a vitamin D level that was associated with the lowest risk of disease."

What the ViDA study showed, as did a similar study in the US called VITAL, was that vitamin D has no effect against the main diseases in people who already had good levels of the vitamin.

"But in the subgroup, who had low vitamin D levels to start with, we see a bona fide range of effects. For instance, in people taking non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen, there were beneficial effects for those who initially had low vitamin D and were then supplemented. There was a reduction in the need to take these drugs in those people, but no effect in the total sample."

The same was true in measures of bone mineral density, lung function and arterial function.

"So if the people in this study had low vitamin D levels, we saw a health benefit for some outcomes after receiving the vitamin D supplements."

The findings are of potential importance and more research is being done overseas to corroborate the ViDA results.

In sunny New Zealand it's hard to believe people would have low vitamin D levels, but we do. The required level for good health at all ages is deemed to be at least 50 nanomoles per litre (nmol/L) of blood. The ViDA study showed that

NAVIGATOR'S LEGEND COMES TO LIFE FOR KIDS

The voyage of Polynesian navigator Nukutawhiti, from Hawaiki to Aotearoa, has been brought to life in a ground-breaking online narrative for children.

Associate Professor Melinda Webber (Ngāpuhi, Ngāti Kahu, Ngāti Whakaue), from Education and Social Work, co-wrote the graphic story *Te Taunahatanga o Te Puna i te Ao Marama* with doctoral student Kapua O'Connor. She says the collaborative project is "Vision Mātauranga in action".

By clicking on **nukutawhiti.co.nz** readers can scroll through several landscapes to follow the adventures of Nukutawhiti, the tohunga of the *Ngātokimatawhaorua* waka, his trusty dog and the four taniwha who guide him on his way across the Pacific Ocean. The story weaves science, technology and tikanga Māori with animated illustrations and avatars layered with taonga pūoro (traditional musical instrument) soundscapes, all created with web technology.

Melinda says Nukutawhiti's story is highly relevant even in the modern age.

"Learning about inspirational tūpuna from their own whakapapa can teach and remind Māori students that they descended from greatness."

Full story: **auckland.ac.nz/nukutawhiti-online**

Associate Professor Melinda Webber

An image from Te Taunahatanga o Te Puna i te Ao Marama.

20 percent of Pākehā participants, 39 percent of Māori, 47 percent of Pacific and 72 percent of South Asian participants had less than 50 nmol/L.

"Pacific people have higher vitamin D levels than South Asian even though their skin colour is similar, largely because they have a higher meat consumption. South Asian people are primarily vegetarian, but there's a lot of vitamin D in meat."

He says it's a misconception that there's a lot of vitamin D in eggs.

"Hardly any, and also the types of fish that have it are in the northern Atlantic, fish such as mackerel, which we don't eat a lot of."

Robert says there are several ways to deal with that. The first would be to find everyone with low vitamin D levels and supplement them. The second is to try to get the whole population to move in a particular direction and increase their vitamin D levels.

"Some countries have active vitamin D fortification programmes for food, but we don't. That would be an easy way to reduce the number of people with very low levels."

There's also a tricky conflict between avoiding the sun for its skin-cancer dangers and getting enough of it for a vitamin D boost.

"Our studies indicate you can't get enough sunlight in Christchurch, for example, to boost vitamin D levels, particularly in winter. So, the other population-based strategy is increasing sun exposure, but of course that's controversial."

He says sunblock doesn't stop your body making vitamin D because we don't apply it evenly or thickly enough. It can get through the gaps on the skin. "The problem is the time of day that we go out. The advice from the Cancer Society and the Ministry of Health is we should only be in the sun at the beginning and end of the day.

"The problem is, UVB makes vitamin D and the proportion of UVB in sunlight is maximal when the sun is directly overhead. It's tricky."

People can also buy vitamin D supplements over the counter fairly cheaply, and they don't need to have a blood test to determine if their vitamin D levels are low first.

"Vitamin D is very safe and you need to take more than 40,000 IU (1,000 mcg) a day for many months before you start getting signs of toxicity. The dose of 3,300 IU a day (about 80 mcg) used in the ViDA study was shown to be safe.

"If a person is only taking 2,000 IU a day, it's very unlikely to have an adverse effect, although if their vitamin D levels were already good they won't get any benefit."

He says people who are indoors a lot, such as those in retirement villages, should take supplements.

"If residents can't get outside at least weekly, then they would likely benefit from vitamin D supplements, particularly in winter. The evidence is convincing that vitamin D slows bone mineral density loss which is a risk factor for fractures. I would recommend 1,000 to 2,000 IU per day (25 to 50 mcg), particularly in winter when benefit from supplements will be greatest."

Professor Robert Scragg. Photo: Elise Manahan

> *"The types of fish that have vitamin D are in the northern Atlantic, such as mackerel, which we don't eat a lot of."*
>
> *– Professor Robert Scragg, Head of the School of Population Health*

He says if a person is outdoors regularly, there is no need for supplements in summer.

Some people may have been put off vitamin D supplementation because of bad press from one overseas study.

"There was one large US study called the Women's Health Initiative that followed about 36,000 American women for seven years. They were given vitamin D and calcium together, versus placebo. Some women got kidney stones.

"I believe it was the calcium that did it, but unfortunately vitamin D got bad press because of that. Our ViDA data didn't find any adverse effects from vitamin D."

One of the University's former doctoral students, Arezoo Malihi, now a research fellow, has also analysed adverse events reported in a four-year trial of people taking vitamin D supplements and done a meta-analysis of all clinical trials.

"Her work has shown that vitamin D does not cause kidney stones."

Robert's vitamin D expertise sees him called on to peer-review research and he says it can be frustrating when poorly constructed studies are amplified through the media.

"For example, there have been observational studies published that show people with Covid-19 have low vitamin D levels," says Robert.

"But they don't go into the factors as to why they have low levels. Having dark skin contributes to lower vitamin D, for example.

"As well, being overweight or poor can contribute to low levels.

"There was a big international trial I was asked to review that had major methodological flaws in it. This is an example of where you can do a study, and call it a trial, but you may have introduced biases into it. Next thing you know, it's being quoted as gospel."

Robert was born in Sydney but spent his early years in Papua New Guinea. He did his medical training and PhD in Adelaide and worked in hospitals as a resident medical doctor in Australia for three years before taking the epidemiology path. In July 2019 he took over as head of the School of Population Health after Professor Ngaire Kerse became the Joyce Cook Chair in Ageing Well.

Outside of work, he has a choice of scenic spots to ensure his own dose of vitamin D.

"There are several acres of native bush where I live in the Waitākeres that I like to maintain – exotic weeds are a continuous challenge," says Robert.

"And when time permits I'm lucky to have the west coast beaches close by."

■ **Denise Montgomery**

Amy McDaid will read from her novel in Auckland City Hospital as part of a new creative collaboration.

ARTS TONIC FOR **AILMENTS**

Literature is just what the doctors ordered in new creative event.

A creative collaboration between the Faculty of Arts' School of Humanities and the Auckland District Health Board will get underway in early July.

It's aimed at bringing a spark of humanity into the hospital, and setting up an environment in which people can gain deeper insight into the healthcare experience through poetry and prose.

The 'Literature in Situ' series will start with Master of Creative Writing graduate Amy McDaid reading from her book *Fake Baby* at the hospital on 15 July at midday in the A+ room on Level 5 of Auckland City Hospital. All are welcome to attend.

The goal of Literature in Situ is to present creative writing related to healthcare and hospitals. It's hoped the works will provide insight into the human aspects of the mundane and life-changing experiences that occur when people encounter illness and seek treatment. Through reading, writing and reflective discussions, these human aspects will be explored and shared, adding richness and warmth to the way participants think and talk about health.

There are two components to the Literature in Situ programme. The first is Written Windows, where graphically appealing framed poems and literary excerpts from New Zealand writers will be placed in public spaces around Auckland City Hospital in the six weeks leading up to National Poetry Day, Friday 27 August. This will culminate in an in-hospital National Poetry Day event, showcasing the writers featured in the posters alongside other New Zealand poets, who will present readings and discussions.

The second aspect is Authors Off Script, a quarterly series of reader/writer events where published authors, who write about or from experiences within medicine and healthcare, read from their work, followed by a facilitated conversation with a clinician and an open discussion with the audience. The dates for Authors Off Script are still being finalised.

The first presenter in that programme is also Amy McDaid, who in 2017 completed the Master of Creative Writing programme taught by Associate Professor Paula Morris. Amy is a neo-natal intensive care nurse at Starship Children's Hospital who worked part-time on her debut novel *Fake Baby* for nearly four years before it was published by Penguin in 2020. Darkly humorous, the novel deals with themes of grief and loss.

This creative series is aimed at staff as well as students training for clinical roles, along with interested community members, patients and whānau. The idea is that creative engagement supports the experiences of giving and receiving healthcare. It will also pilot a forum for bringing creativity into the workplace and be a test for future opportunities to connect the humanities and medicine, as well as championing creativity and diversity in our community. – *Linda Tyler*

Literature in Situ, 15 July, midday,
A+ room, Level 5, Auckland City Hospital

WHERE THERE IS **LIGHT**

Master of Architecture student Iman Reza Khan recently won two prizes for her stunning photo, 'Light at the end of the tunnel'.

The photo was entered in Universitas 21's competition 'Images of Hope', and Iman took joint second prize as well as the People's Choice Award, as voted for by U21 members at the Annual Network Meeting and conference in May.

Iman says the photo was taken on an evening walk in her neighbourhood on the North Shore.

"It's the entrance of a tunnel that was going to be demolished. As a local of the area, every change that happens around us has a big impact on us whether we realise it or not, just as Covid-19 has had over the whole world. But the light at the end of the tunnel suggests hope, no matter the bumps and cracks along the way."

The rest of the photos can be seen online at: **universitas21.com/images-results**

Jenny Zhong, left, and Celia Lee, right, with Nikita Sharma.

MOST BEAUTIFUL AIR VENT IN TOWN

University of Auckland creative arts students, local artists and iwi collaborated to create a large-scale street mural (pictured above) in Auckland City.

Celia Lee and Jenny Zhong, from the Elam School of Fine Arts, were chosen with Unitec student Nikita Sharma to design the mural, working with artist Ross Liew and Hana Maihi of Ngāti Whātua Ōrākei, the local iwi. The artwork is on one side of a three-sided 12-metre air vent in the Te Tōangaroa precinct downtown. The land is owned by Ngāti Whātua Ōrākei, who are committed to reinvigorating the area.

Full story: auckland.ac.nz/mural-design-city

Professor Kim Phillips at her inaugural lecture.

ELUSIVE MERMAIDS

Professor Kim Phillips' special interest is the history of women, gender and sexuality from c.1100 to c.1500.

The medieval historian from the Faculty of Arts has always been fascinated by the evolution of the mermaid. These days we think of the mermaid as half-female with a fish tail but it hasn't always been that way. Its earliest incarnation was as a Siren – a half-woman/half-bird creature in Greek mythology busy luring sailors to ruin with enchanting music.

Kim recently held her inaugural lecture 'Of mermaids and men: A chapter in the history of women's bodies', at Old Government House and it seems plenty of people were also interested in mermaids – it was booked out.

"The mermaid is so familiar, in heraldry, painting, fairy tales and movies, it feels like she has always existed," Kim says. "But I'm interested in what broader social and cultural changes prompted her emergence and how they remain relevant for women in the 21st century."

From the earliest books and visual art, mermaids were depicted as deceitful and dangerous to men. "In *Physiologus*, for example, an illustrated textbook of beasts where each beast had its own moral lesson (written in Greek in the second century AD), the Siren is said to be 'very wild', 'double-hearted' and 'double-tongued'."

And early Christian authors were also quick to adapt Sirens to their theology, connecting their appeal to the temptation of Satan, luring the soul from the path of salvation to heresy.

Kim says it wasn't until the Romanesque period, a style of architecture prominent in Europe from c.900 to c.1200, that the Siren's metamorphosis into the 'sea-girl' with a tail or two, was complete.

"One of the earliest known depictions of a fish-tailed mermaid in Britain is carved into a pillar in the Norman chapel at Durham Castle, around 1078. It was possibly used as a kind of 'early PowerPoint slide' for the priest to point to in the course of his sermon," she says.

Although a lot was said about their low morals, little was said about mermaids' bodies as erotic objects until around the 12th century when a catalogue of female physical attributes, what would in the Renaissance become the 'blazon', emerged as a poetic preoccupation.

"Writers offered detailed visual portraits of their heroines and their beauty requirements, and these judgements all circled around the preferences of the heterosexual males of the day; the cultural power of the 'male gaze' is indisputable," says Kim.

From then on, perceptions of women's faces and bodies, and what constituted beauty, changed forever.

"Desirable women possessed golden hair, curving dark eyebrows, gleaming white skin, rosy cheeks, a delicate nose, sparkling grey or blue eyes, a small red mouth, a long white throat, sloping shoulders, long slender arms and fingers, small, high breasts, a rounded belly, long graceful legs and dainty feet."

Kim believes it's no coincidence that the mermaid, as a replacement for the Siren, came into prominence at about the same time as poets were wanting to define female corporeal beauty.

"Her mirror and crown, which became her dominant attributes in the late Middle Ages, represented the mortal sins of vanity and luxury, and she became prettier but, just like the Siren, continued to represent peril to the Christian man's soul."

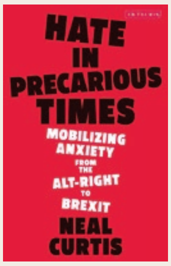
Despite getting terrible press, the mermaid remained elusively beyond male control.

"They were powerful, and they were free, which fascinated and enraged medieval men in equal measure," says Kim. "After teasing men a little, the mermaids simply turned away and dived deep into the blue oceans from which they'd come."

■ Julianne Evans

Mermaid, marginal illumination. Breviary, Use of Besançon. Rouen, Late 15th Century.

BOOKS



Hate in Precarious Times: Mobilizing Anxiety from the Alt-Right to Brexit

In the age of Brexit and Donald Trump, the radical right has gained significant popularity. This book examines why the politics of hate and ideologies of the far right are rising and what can be done to counter it.

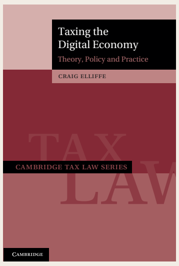
Read more: **auckland.ac.nz/neal-curtis-book**

Neal Curtis, I. B. Tauris & Company, $40 (paperback price)

Women & Money: Mastering the Struggle

Janet Xuccoa did a BCom/LLB at Auckland and these days is a successful professional and investor. The book aims to empower women with their money and apply 101 economics to make intelligent proactive financial decisions, including investing in super funds and buying shares as well as creating a financial retirement plan.

Janet Xuccoa, Cheshire Publishing, $35



Taxing the Digital Economy: Theory, Policy and Practice

Professor Craig Elliffe (Law) explains the problems with the existing international tax system and its inability to respond to challenges posed by highly digitised companies, including the taxation of multinational companies.

Event: The book will be launched on 15 June at the Law School Staff Common Room, 5.30pm.

Craig Elliffe, Cambridge University Press. $173 (hardback)

THOUGHT NEEDED TO **TICK A BOX**

> *"As humans we put a lot of faith in our ability to make rational decisions."*
> *– Professor Ananish Chaudhuri*

At any point in time, a large number of people around the world are waiting for an organ transplant.

There are also a lot of people who could choose to donate their organs, especially in the event of their death. But the majority of us who can donate organs following death choose not to.

Take a look at the figure below. This is based on data from a 2006 paper written by two Harvard economists and shows the differing rates of organ donations across European countries at the time. (The rates will be similar today.) Even if you look at countries located next to each other, such as the Netherlands and Belgium, you will see big differences. Belgium is doing better than the Netherlands and has access to many more organ donors.

You may be tempted to frame these differences in terms of these countries' culture, history and demographics. But it turns out these differences are caused by a single question on driver licence forms. Some countries ask applicants: "Would you like to be an organ donor? If so, check the box below." Other countries state: "We will assume that, in the event of your death, you will be willing to donate your organs. If you are not willing to do so, then check the box below."

It may be surprising but the fact is that, in the first case, people do not check the box, and therefore, do not become organ donors. In the second case, people also do not check the box, and therefore, become organ donors by default. Now look at the figure again. Guess what is common to all the countries that have higher rates of organ donation? They all provide the second option: "check the box if you do not want to donate your organs". This is the presumed consent or the 'opt-out' option. You are automatically an organ donor unless you opt out by checking the box. The countries that do not do well on the organ donation scale are the ones that provide the first option: "Do you wish to donate?" You are not an organ donor unless you specifically opt in. All of this over a simple decision (or the lack of one) to check a box!

Similar issues of choice arise when people plan for their retirement. Most organisations around the world have a system for matching employee contributions to a pension fund. So, if you make $100,000 per year, contribute 6.5 percent toward your superannuation and your employer matches it, then you end up with $13,000 at the end of the year. Of course, typically, you cannot touch this money until you retire. But given compound interest, amounts saved grow quickly. For most, if not all of us, it makes perfect sense to sign up to such plans. But by now, you know where I am headed. A lot of people do not sign up.

Is it because the ones not signing up are financial wizards who have better ideas on how to invest their money? No. It is simply because around the world, some employers choose the 'opt-in' option: they ask the employee to check a box if they wish to join. Many employees do not check this box and do not join. Other employers rely on the 'opt-out' option. They enrol employees automatically.

Employees can check a box if they don't wish to join. Most employees do not check this box and therefore remain enrolled. A 2013 report in *The Guardian* found that a year after Britain introduced automatic enrolment with an opt-out feature, there were 1.6 million more savers in workplace pensions. Only nine percent opted out. This is a serious issue because around the world many people do not manage to save enough for retirement, hence poverty rates among the elderly are quite high and the aged are often overly reliant on social safety nets.

As humans we put a lot of faith in our ability to make rational decisions; yet evidence suggests that our rationality is 'bounded'. There are limits to our cognitive abilities to think through problems, especially problems that are complex or that we experience infrequently. And such 'bounded' rationality makes a difference in myriad circumstances. Thinking of buying a house? If I took a group of buyers and showed half of them an asking price that is $200,000 higher than the other half, it is nearly certain that the former group will bid a higher amount than the latter. And no, even seasoned real estate agents are not immune to such framing effects. The rapidly advancing field of behavioural economics infuses psychological insights into traditional economic models to better understand the nuances of human decision-making and figure out how we can design institutions for greater good, and at the same time prevent people from falling victim to a wide range of cognitive errors that characterise many of our day-to-day decisions.

■ Ananish Chaudhuri is Professor of Behavioural and Experimental Economics in the Business School. He has two new books out, *Behavioural Economics and Experiments* (Routledge, 2021) and *A Research Agenda for Experimental Economics* (Ed.) (Edward Elgar, 2021)

Differences in deceased organ donations across 36 Western countries
Source data from Abadie and Gay (2006)