

the med

In this issue:

FAKE MEDICAL NEWS AND MEDICAL FAKES

In the current day with widespread access to information through phones, how do we deal with the questionable validity of sources?

WHY EXERCISING ISN'T ENOUGH FOR WEIGHTLOSS

To shed those kilos, eating less may be easier than moving more – but physical activity bestows multiple health benefits, researchers say.

NANOTECHNOLOGY IN MEDICINE

An investigation in nanotechnology - a rapidly emerging sector in Medicine.

The inaugural edition!



EDITOR'S NOTE

Dear Medical Journal readers,

Thank you for reading the Inaugural edition of the FIS Medical Journal, returning from a one year hiatus!

I am honoured to introduce a new team consisting of 10 hard working Year 12 students to produce the FIS Medical Journal. We have been pushing to meet our fast-tracked deadline of October 2017. I would like to thank the team for putting so much effort and time in the past month (and also dealing with me nagging all the time!)

In this issue, we will showcase what will be presented every month from the team. Our 'What's the deal with...' section will be all about the purpose of the journal and the structure of the content we will be bringing every month. This will be followed by our four 'Featured Articles', consisting of original articles or discussions. In this issue, the articles are tasters of the top voted topics from our survey. Other than news articles, we will be showcasing 'Diagnosis of the Month', with Super Malaria taking the spotlight in this issue.

In addition, we will be analysing the results from our 'FIS Community Survey' which we were amazed by the sheer number of response! To top off this edition, a few members of the team will be sharing their work experiences over the summer, hopefully it will be inspiring to our younger students who aspire studying in this field.

Before embarking into the content of the Medical Journal, I would like to give a big thank you to Mr Williams for the support he has given the team in the past month, as well as our supervisor Mrs Relan ensuring our content is ready to be published. A final thank you to David Vacek who graduated from FIS in May 2017 for passing on the Medical Journal to the team.

Finally, the team would like to wish everyone a relaxing half term break and to stay safe in these two weeks.

All the best,
Hadrian Wong
Editor-in-Chief
FIS Medical Journal

PREFACE

So why should you consider studying medicine?

BY MR WILLIAMS

Ian Gilbert, independent thinker and educational guru, asks the question "Why do I need a teacher when I have got google?" "That's it!", I thought. "Google will help you to write this article. Now let's see..." So I started to type out "Why study m.....?" Much to my surprise the word medicine was not the most popular option for words beginning with the letter m.

In fact it was fifth after music, management, marketing andmathematics of course! Anyway I digress.....

So why is medicine such a popular and much sought after degree choice for students who

are moving on to university after their studies aged 16-18 years of age? As a British citizen of many years I came to appreciate the wonderful job done in the much maligned National Health Service, and so turned to them again for help. The website www.healthcareers.nhs.uk contains a section called "Real life stories – why I chose medicine." Here are a few pearls of wisdom that may resonate with future medics:

"Medicine offers such a mix. I wanted something where I could talk to a huge range of people, be challenged to leave my 'comfort

PREFACE

zone' and be humbled by what I saw. I also wanted a dynamic job that changed and improved over time, where 'cutting-edge' scientific innovation has a practical application in 'real-life' problem solving."

"I'm really happy to be studying medicine and I'm excited to eventually practice as a doctor, but medicine isn't for everyone.

Caring for the infirm is rarely glamorous and patients aren't always obliging and grateful - the decision to become a doctor has to be your own."

"I've always had a genuine interest in health and the causes of ill health, so I knew I'd find medicine intellectually rewarding.

I'm a people person, so I knew that I would enjoy working as part of a team with a host of other professionals to treat patients.

Medicine's a relatively secure career, offering a multitude of different areas of work - including opportunities for working in the developing world."

I hope these reflections made by current medical students can help you to decide if medicine is the right choice for you. If you need any more help in deciding I would advise that you go to the website www.conjunctivitis.com, but be careful as it is a site for sore eyes!

THE TEAM

BEHIND THE MED



Top row (from left to right):

Elliot Topping - Co-Editor

Hadrian Wong - *Editor-in-Chief*

Elena Meganck - *Co-Editor*

Esmé Seaver - Co-Editor

Hugo Wong - *Layout Editor*

Bottom row:

Aarmann Mohan - *Co-Editor*

Cloe Cheung - *Co-Editor*

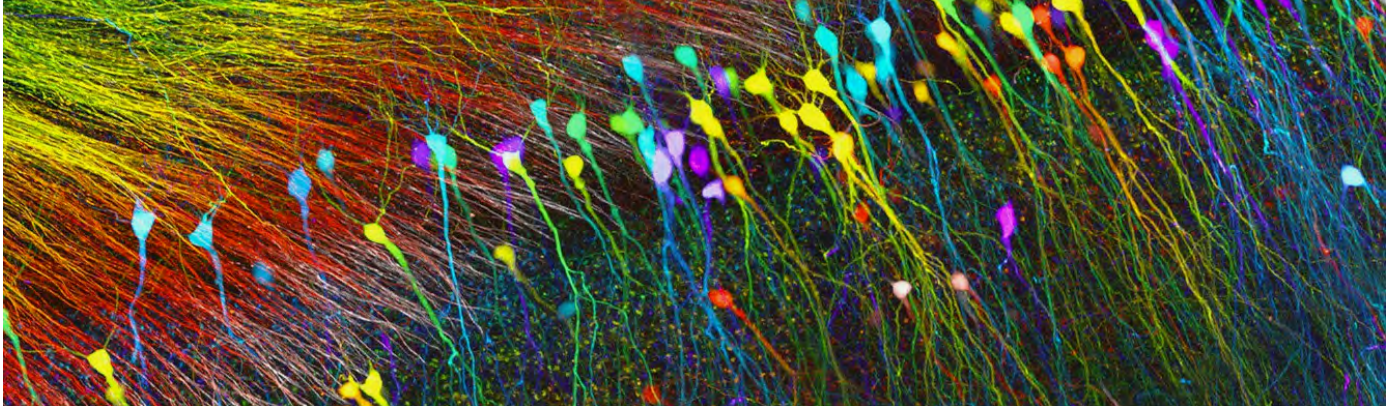
Andrea Tam - *Lead Designer*

Sacha Lee - *Co-Editor*

Ines Durand - *Co-Editor*

OCTOBER 2017

the med



What's The Deal With

What's The Deal With
The Med Journal? **9**

Featured Articles

Fake Medical News and
Medical Fakes **12**

Why Exercising Isn't
Enough to Lose Weight **15**

Nanotechnology in
Medicine **21**

Long Working Hours and
Digital Insomnia **24**

Diagnosis of the Month

Malaria **30**

FIS Community Survey

Topics Of Interest **35**

University Guidance

Courses During Summer
(part 1) **37**

ON THE COVER

3D rendering
of a Neuron
long-shot in
the brain





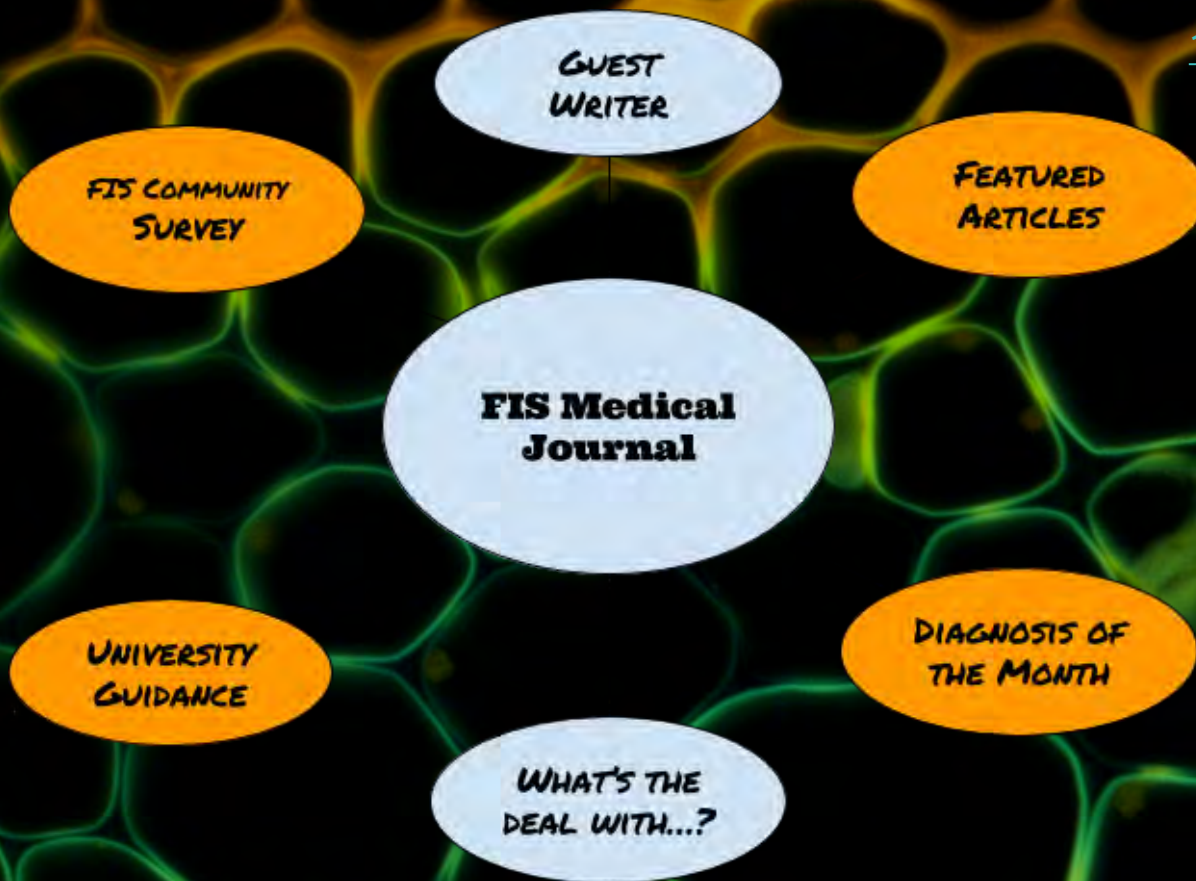
WHAT'S THE DEAL WITH THE FIS MEDICAL JOURNAL

The FIS Medical Journal is back, and it's the best it's ever been.

By Hadrian Wong

Our main aim of the FIS Medical Journal is to provide a light-hearted magazine-style medical journal for the FIS Community, whether it be reading for leisure or inspiration. It is an opportunity for research and collaboration amongst contributors and FIS Medical Journal team which includes students, teachers, FIS Alumni and parents. We also want to raise awareness of medical issues in the FIS community and to spark any interest and inspiration towards any younger students. We will also feature medical school guidance and advice.

The team will be following a more light-hearted approach towards our content, making it accessible to all ages in the FIS Community.



In every edition of the FIS Medical Journal, we will be following 6 separate sections to sufficiently cover the content of the topic in each month and in different point of views:

Guest Writer:

The 'Guest Writer' section will be a free form writing from an FIS Staff Member, Alumni, Parent or Physician. This may range from stories, anecdotes or the Writer's experiences with the topic. It should be a good opportunity to bring the FIS Community together.

What's the deal with...?

This section will be a complete fact sheet about the issues topic.

This will provide the reader with everything they will need to know about the topic in a concise manner. It may include case studies and research, as well as links to media for readers to expand their knowledge, should they be interested.

Featured Articles

Each edition will consist of at least 4 articles. The articles could be research, news or breakthroughs. It will come in two forms: Original Articles or a commentary. Original Articles will be written by our students using multiple sources and compiling them, whereas Commentaries will feature an article from a news source (BBC, SCMP etc.) and the writer will comment

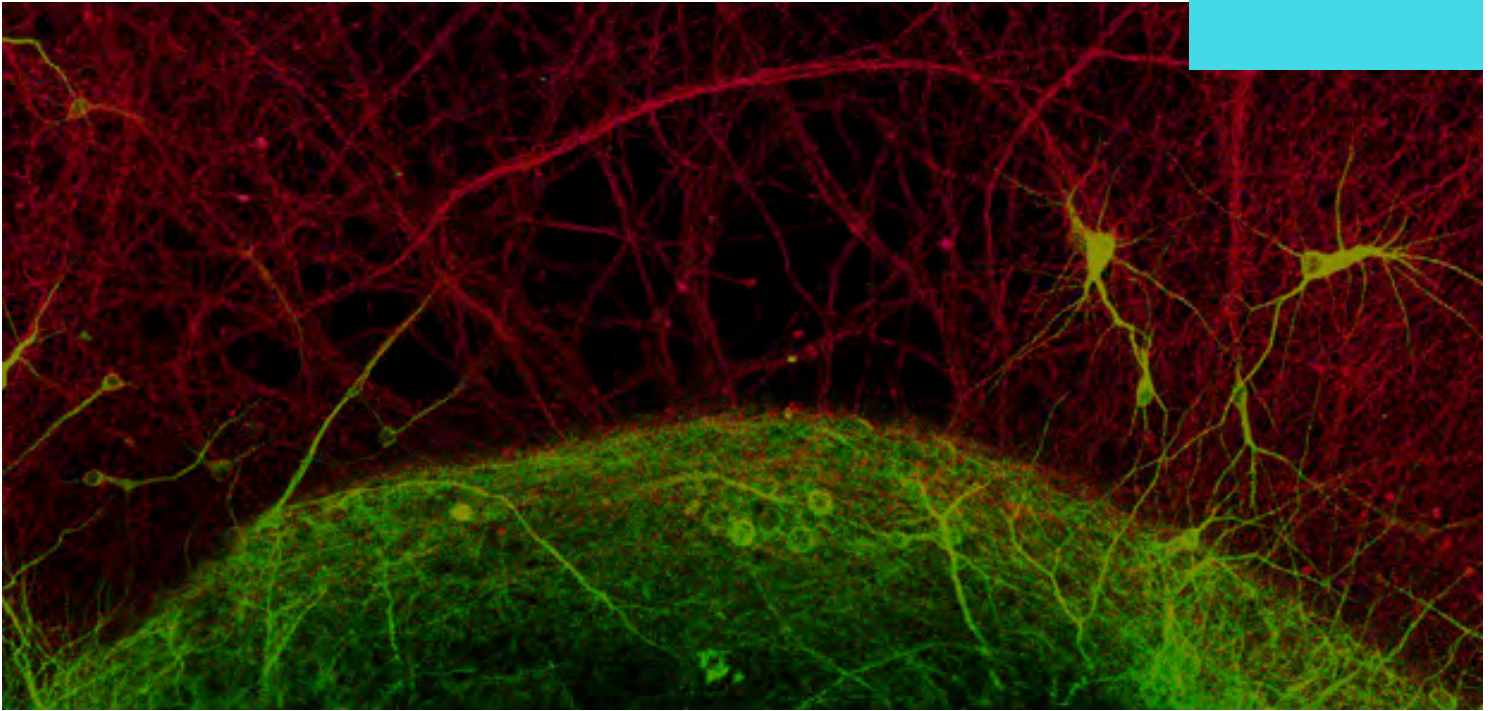
on the article, aiming to link it back to the FIS Community. Most articles are handpicked to be more relatable to FIS Students.

Diagnosis of the Month

This section will feature a fact sheet on a disease based on the issue's topic also written in a concise manner. It will usually feature the history, symptoms, cure and current situation of the disease. In some cases, multiple diseases will be featured.

FIS Community Survey

Surveys will be sent to FIS Students monthly asking questions based on the issue's theme. The team will then analyse the data,



I find any patterns, compare data with online statistics, and finally write a commentary based upon the results, giving any advice to the students.

University Guidance

This section will focus on any medical school advice for prospective students. It will feature a range of courses available, tips and advice, experience, and the 'dos and don'ts' when applying. In some cases, it will feature essay competition opportunities as well as information about forthcoming conferences.



FEATURED ARTICLE 1

FAKE MEDICAL NEWS AND MEDICAL FAKES

BY ELIOT TOPPING

In the current day with widespread access to information through phones, computers and tablets, more and more people are turning to the internet in order to learn more about medicine and alternative treatments. Whilst this easy access to information is generally seen as a good thing, it is not always the case due to the questionable validity of many sources, often resulting in people believing incorrect information.

This issue of fake news is very prominent in medical & science journalism and is often caused by journalists not completely understanding the topics they write about. This has led to articles, such as the ones frequently found in popular newspapers, suggesting people's intelligence relies only on 'smart genes', largely neglecting the effects of a person's environment, upbringing and other factors.

Other published articles on the web include ones titled: "Always sick? You're probably not very smart" and the great false articles claiming that fat Santa Claus is partly to blame for childhood obesity. These illustrate how causality is not always looked at in depth by reporters when research is done. In effect, they are saying a change in one variable (y) is caused by a change in another variable (x) despite the two possibly being completely uncorrelated.

FEATURED ARTICLE 1



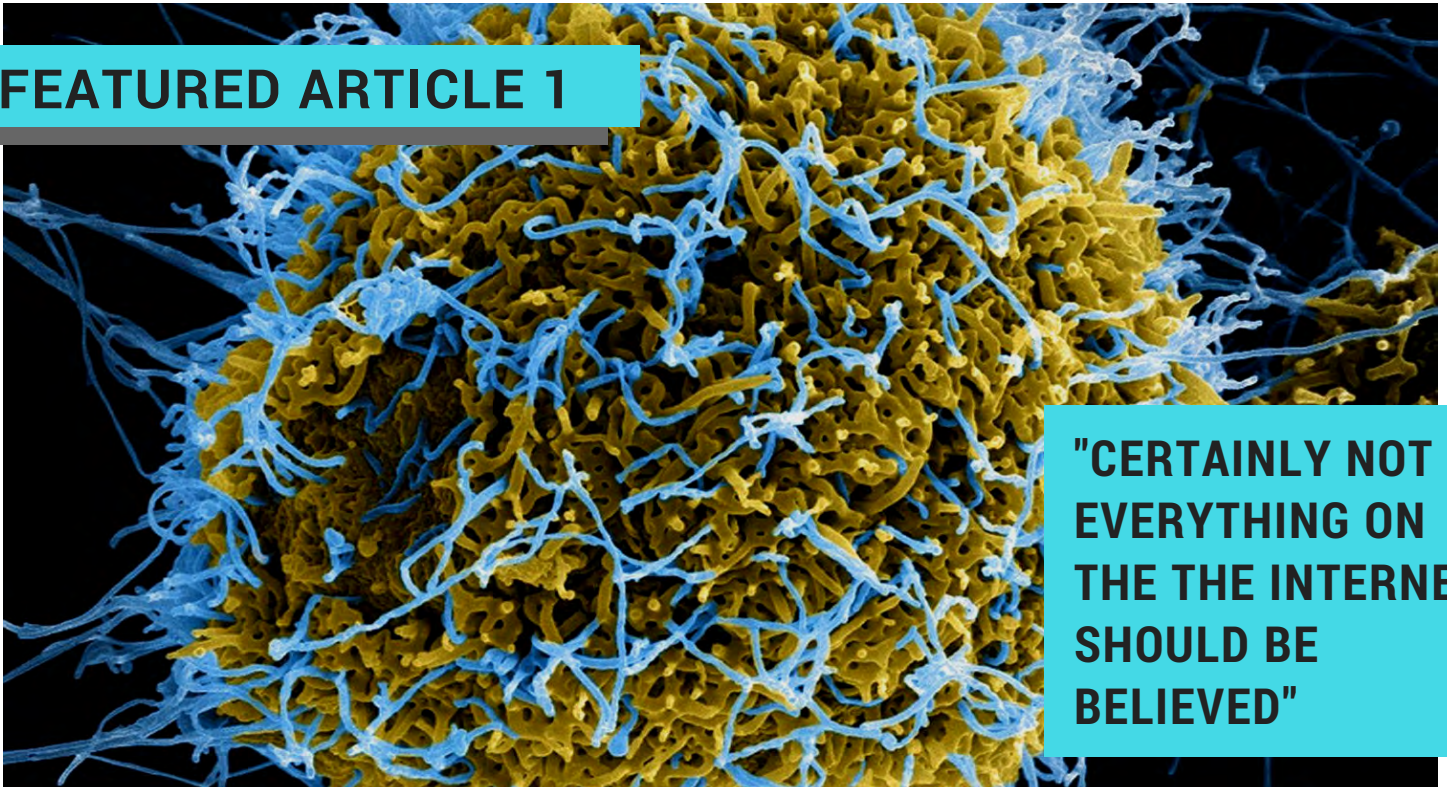
This could be what leads some reporters to grossly exaggerate information, or simply just make things up altogether.

A lot of fake news articles around on the web, such as those often seen on advertisements, claim their propositions are 'scientifically proven' methods. This may not be a completely untrue statement. However, these studies may not have been conducted under fair conditions, and have unreliable data with large errors or not a large enough data sample to draw conclusive findings, so the results only appear true in certain isolated studies.

The masses of incorrect information found all over the web is a large problem in health news as it could cause harm to a person's physical well-being via people following harmful, unproven medical practices, as well as potentially damaging people's mental well-being through scaremongering articles with crazy, misleading headlines such as the published article by Milo Yiannopoulos, "Birth Control Makes Women Unattractive and Crazy".

One of the possible explanations as to why fake news is so abundant in medicine is because for the most part, new advancements in most fields are not as extravagant or pleasing as the general public want them to be.

FEATURED ARTICLE 1



"CERTAINLY NOT EVERYTHING ON THE THE INTERNET SHOULD BE BELIEVED"

Some of these types of poorly conducted and reported studies have resulted in the publishing of the extensive list of things that the Daily Mail have, at some point, claimed cause cancer. This exhaustive list includes: age, air, alcohol, aspirin, calcium, ham, honey, eggs, dogs, dieting, soup, bubble bath, canned food, wearing bras, left handedness, fast cars, oestrogen, climate change, baby food, beef, pizza, pork, cereal, Worcester sauce, children, vitamins, bacon, chocolate, retirement, deodorant, and Facebook to name a few, so watch out!

In addition to all this fake news circulating, there have even been incidents of illegal unqualified medical practitioners using Google to (unlawfully) diagnose patients (sometimes successfully, sometimes not). Interestingly, there was even an instance whereby the fake practitioner using Google supposedly had higher success rates of diagnosis than the average certified GP. However whether this is fake news or not is debatable.

This type of incident has also occurred in India where a self-proclaimed doctor, Subhendu Bhattachary, was even awarded a lifetime achievement award by President Pranab Mukherjee for his work and efforts in providing free treatment to the poor, before later being arrested and exposed as a fake doctor with no legitimate qualifications.

Certainly not everything on the the internet should be believed, so whilst it can be useful to do a quick google on why your toe hurts or how to get rid of a sore throat, it is always good to check multiple credited sources before acting upon any information. As always, if in doubt or when you are investigating anything important related to your own health (or for those around you) it is always imperative to speak to a doctor and do as they say. They are qualified for a reason!

FEATURED ARTICLE 2



THE WASHINGTON POST: WHY EXERCISING ISN'T ENOUGH TO LOSE WEIGHT

To shed those kilos, eating less may be easier than moving more – but physical activity bestows multiple health benefits, researchers say.

This is not to say that exercise isn't good for you; it is, in fact, great for you. It conveys an astonishing array of health benefits.

But – and we all hate hearing this – many experts, while extolling the benefits of exercise, say the primary villain when it comes to

excess weight is what's on our menu. To lose weight, we have to cut calories.

"I think the role of exercise in weight loss is highly overrated," says Marc Reitman, chief of the diabetes, endocrinology and obesity branch of the US National Institute of Diabetes and



FEATURED ARTICLE 2



Digestive and Kidney Diseases, or NIDDK. “I think it’s really great for being healthy, but I’m a strong believer that overeating is what causes obesity. To exercise your way out of overeating is impossible.”

Michael Joyner, a Mayo Clinic researcher who studies how people respond to the stress of exercise, agrees. “The key for weight loss is to generate and maintain a calorie deficit,” he says. “It’s pretty easy to get people to eat 1,000 calories less per day, but to get them to do 1,000 calories per day of exercise – walking 10 miles – is daunting at many levels, because of lack of time and motivation,” he says.

To be sure, some people can work weight off, experts say. These include those who exercise vigorously for long periods, and professional athletes, who typically engage in high-intensity workouts.

But they are the exceptions. Those high-level workouts are “not something most people do,” says Philip F. Smith, co-director of NIDDK’s office of obesity research. “Walking for an hour won’t do it.”

Joyner agrees. “Theoretically, people can exercise enough to lose without changing what they eat, but they have to exercise a lot,” he says.

Moreover, moderate exercise doesn’t really burn all that many calories, especially when you think about a single piece of chocolate cake, which has between 200 and 500 calories. Most people burn only about 100 calories for every mile of running or walking, although this can vary depending on the person, according to Joyner. Put another way, to lose one kilogram, you must run a deficit of about 7,700 calories – meaning that if you burn an excess 500 calories a day, it would take more than two weeks to shed that weight.

Kevin D. Hall, an NIDDK scientist who studies how metabolism and the brain adapt to diet and exercise, agrees that a modest degree of weight loss would require large amounts of exercise. However, “high levels of physical activity seem to be very important for maintenance of lost weight,” he adds, defining “high” as more than an hour of exercise daily.

FEATURED ARTICLE 2

In a recent study, Hall concluded that exercise “typically result[s] in less average weight loss than expected, based on the exercise calories expended,” and that individual weight changes “are highly variable” even when people stick to exercise regimens.

The likely reason is that people tend to compensate for changes in food intake and non-exercise physical activities, Hall wrote. Or, as Joyner puts it: “If people replace non-exercise – but otherwise active – time with sedentary time, sometimes things cancel out.”

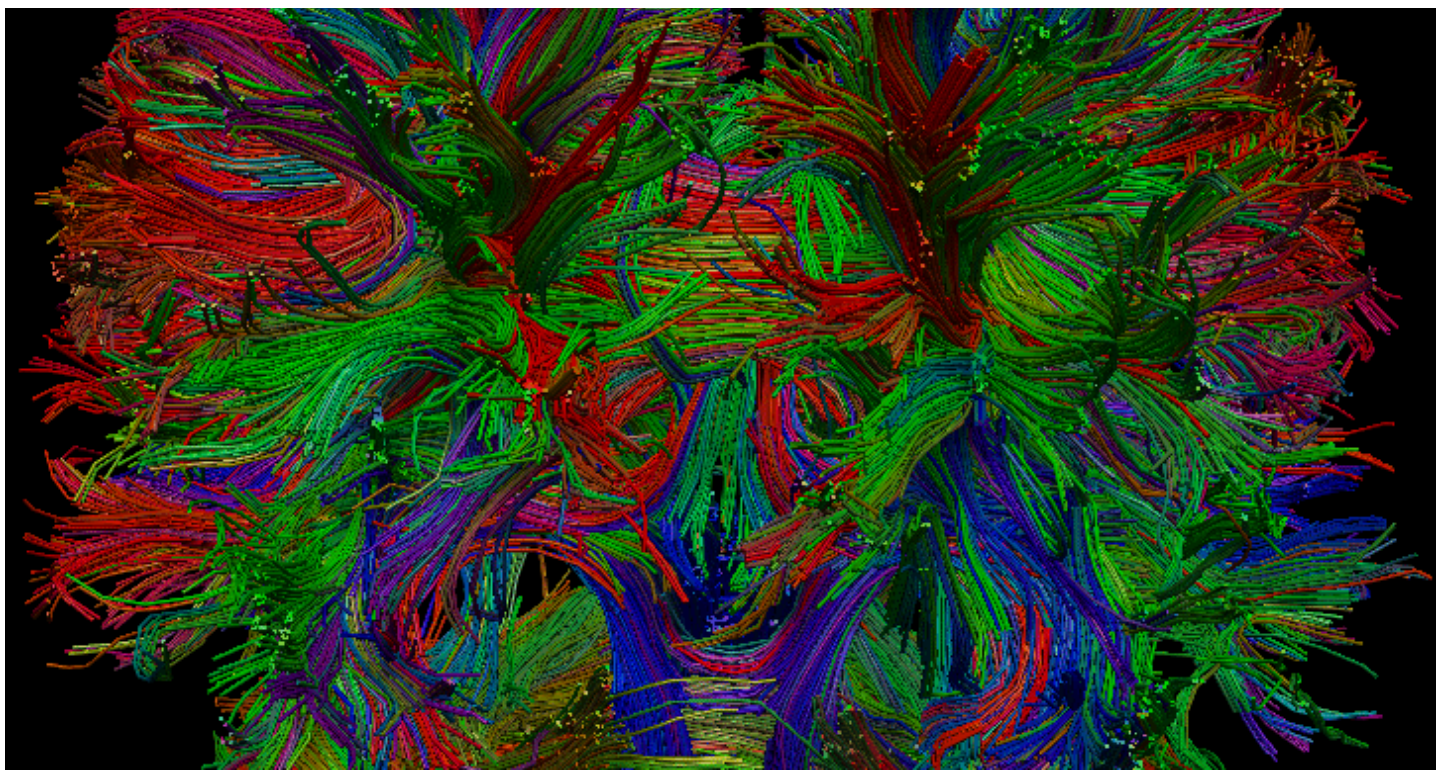
Strength training or resistance training – lifting weights, for example – is important for overall health, but, as with other forms of exercise, it doesn’t prompt weight loss. (In fact, it may cause the reading on the scale to inch up a bit, because muscle is denser than fat.) Nevertheless, “strength training is good to maintain lean tissue,” Joyner says.

And you can’t count on exercise to increase your metabolism for several hours after.

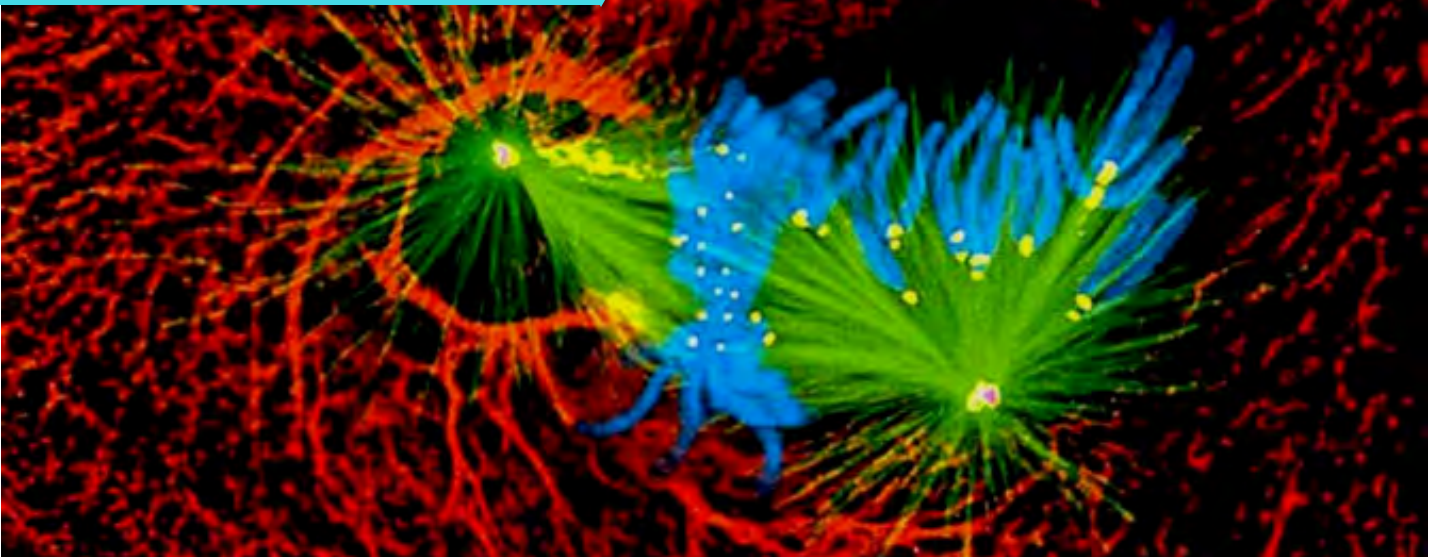
“Exercise, if hard enough and long enough, certainly can do this,” Joyner says. “But again, it depends on how much, what type and how hard. A two-mile (3.2km) stroll, while a good thing, will not do too much to resting metabolism.”

But now the good news: exercise remains one of the best things you can do for yourself. It enhances health in numerous ways.

It strengthens the heart and lungs. It reduces the risk of Type 2 diabetes and metabolic syndrome, a collection of symptoms that include hypertension, high blood sugar, excess body fat around the waist and abnormal cholesterol or triglyceride levels.



FEATURED ARTICLE 2



Weight-bearing activities, such as running, strengthen bones and muscles. Having strong bones prevents osteoporosis, helping to avert bone-breaking falls in the elderly. “For older people, exercise facilitates the capacity for them to stay engaged in life,” Joyner says.

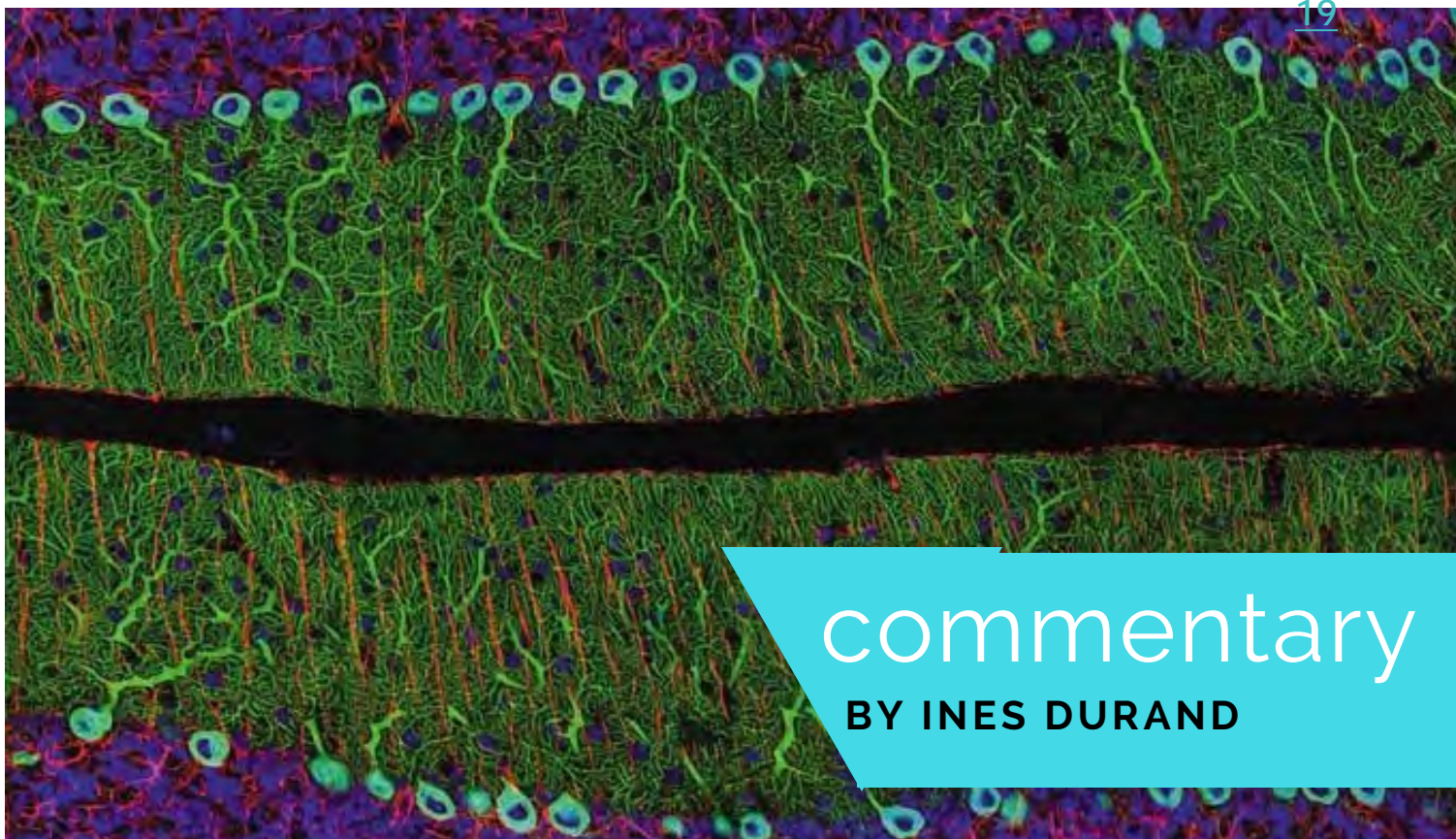
Exercise also reduces the risk of certain cancers, including breast and colon cancer. It elevates mood, and it keeps thinking and judgment skills sharp.

Overall, it helps you live longer. People who work out for about seven hours a week have a 40 per cent lower risk of dying early compared with those who exercise less than 30 minutes a week, according to the Centres for Disease Control and Prevention.

Joyner agrees. “Theoretically, people can exercise enough to lose without changing what they eat, but they have to exercise a lot,” he says.

Moreover, moderate exercise doesn’t really burn all that many calories, especially when you think about a single piece of chocolate cake, which has between 200 and 500 calories. Most people burn only about 100 calories for every mile of running or walking, although this can vary depending on the person, according to Joyner. Put another way, to lose one kilogram, you must run a deficit of about 7,700 calories – meaning that if you burn an excess 500 calories a day, it would take more than two weeks to shed that weight.

Kevin D. Hall, an NIDDK scientist who studies how metabolism and the brain adapt to diet and exercise, agrees that a modest degree of weight loss would require large amounts of exercise. However, “high levels of physical activity seem to be very important for maintenance of lost weight,” he adds, defining “high” as more than an hour of exercise daily.

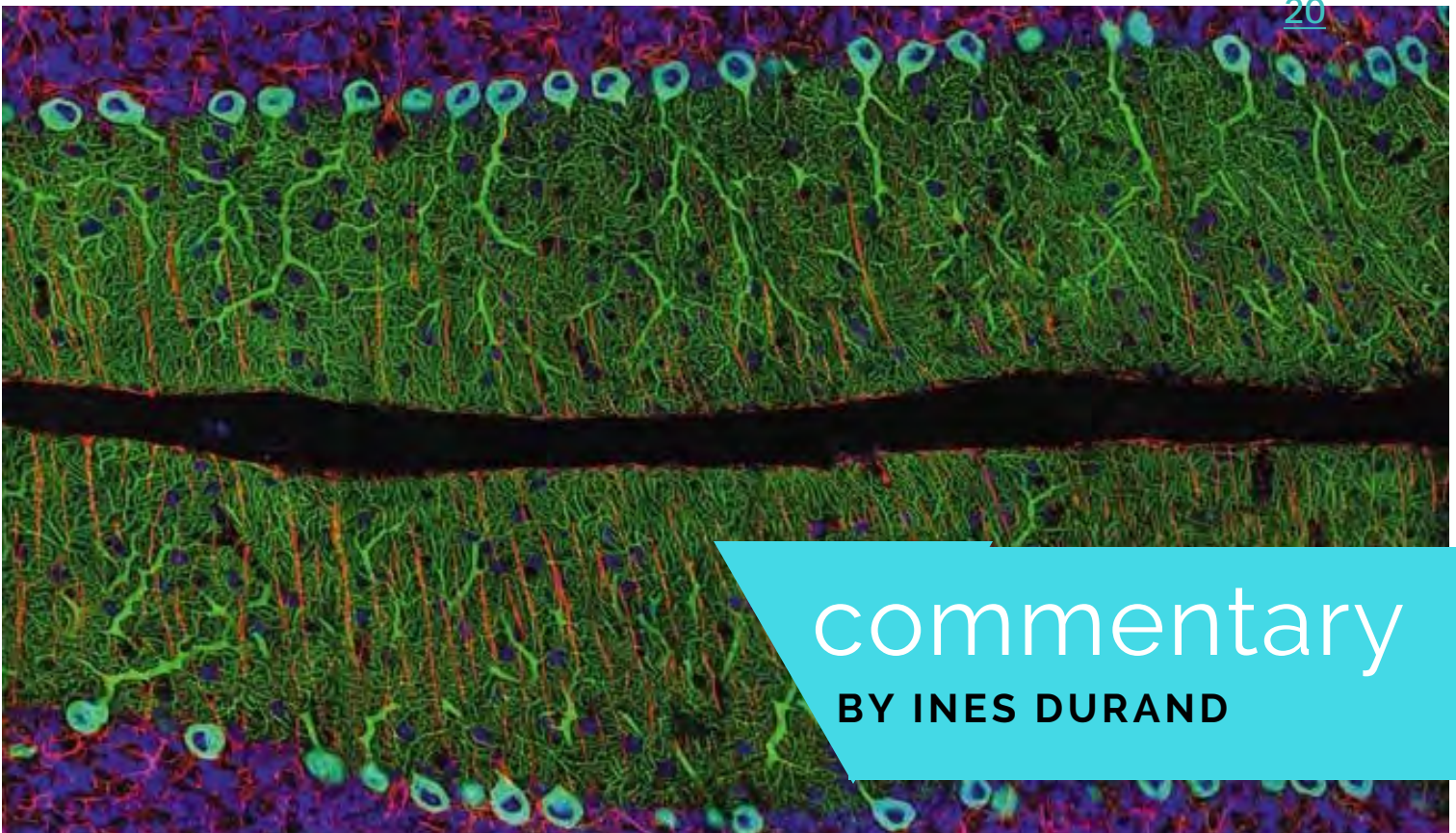


Everyone at some point in their life has been told that eating more healthily and doing more exercise would help lose weight, but as this article explains, it is more than just that: we have to get those proportions right to lose weight faster and more effectively.

Most people think that exercising is the key to losing weight, and that dieting plays a lesser role. Examples of these beliefs are frequently propagated in the media and in the advertising industry, for example, people are portrayed as being 'in good shape' due to working out or going to the gym a lot, and in advertisements where the models promoting sports brands are nearly always lean, muscular and generally fit. However, the idea of dieting and eating healthily is not given as much attention as doing sports, and could be a reason why it is not practised as much.

This idea of doing exercise to lose weight and become fit directly relates to FIS, where, in the stage of life where appearances and how people come across to others matter a lot, many students look towards exercising as their primary way to be and be seen as physically healthy and fit. Although this is an excellent way to stay healthy in the long run, according to the article it won't help to lose weight per se (unless you train like an athlete with very strenuous, frequent, intensive workouts), and I feel that the habit of eating healthier should be strengthened in FIS.

Students have a conscious part in deciding whether or not to eat healthily- lunchboxes can be brought to school and they can determine what to bring and eat.



commentary

BY INES DURAND

As with the canteen students it is a little trickier: a suggestion concerning healthier eating has already been implemented. 'Green Monday' is a project where once every two Mondays the canteen serves a vegetarian lunch. However, this is not enough if we want to eat healthier on a daily basis, and a suggestion could be for the canteen to offer nutritious, better-tasting foods (especially the vegetables as by personal experience there are not many people who eat them in meals) and plate them in the right proportions.

The matter of snacks provided at FIS can also be questioned- should we offer more healthy snack choices and/or eliminate the 'unhealthy' ones to promote healthy eating, or keep them as it is?

All in all, exercising is still very beneficial to you so carry on doing sports, but keep in mind that eating healthily will also contribute a lot to managing your weight, and will help you out in the long term with skills like self-control and responsibility. It's a win-win situation!

FEATURED ARTICLE 3

NANO- TECHNOLOGY IN MEDICINE

BY CLOE CHEUNG

When you think of the future of medicine, what exactly comes to mind? Robots? Well, you're not too far off.

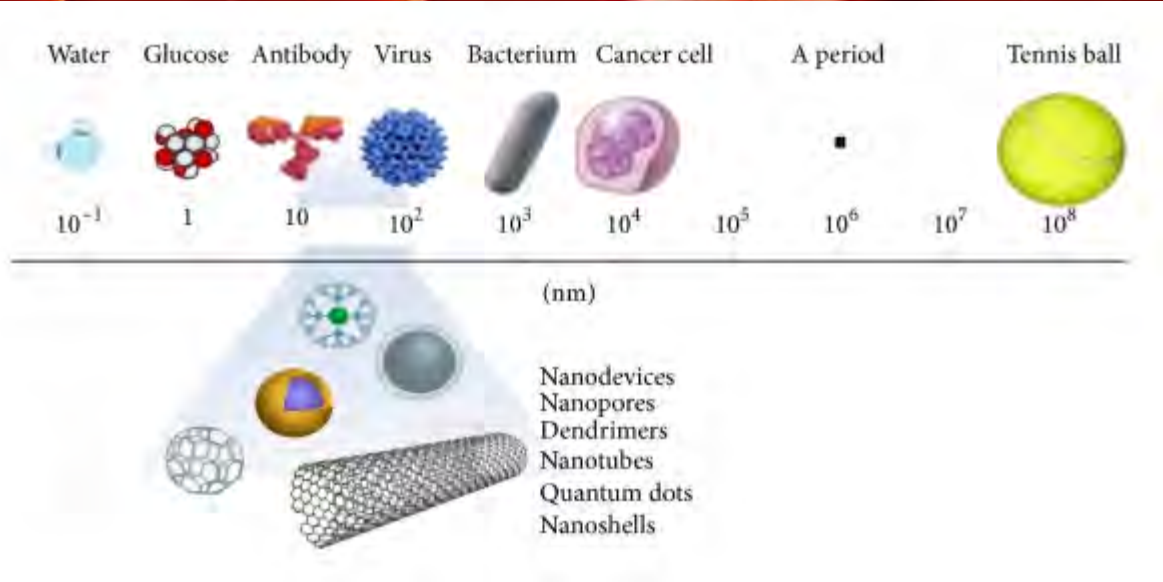
Nanotechnology is a rapidly emerging sector in Medicine, which is the technology and engineering conducted at a molecular scale. Mostly, these nanoparticles are used in delivering drugs to specific cells in the patient, but there are some areas where nanotechnology is integrating rapidly, especially in cancer treatment and regenerative medicine.

One of the ways that nanotechnology will be incorporated into Medicine is through anaesthesia drug delivery. By filling nanobots with anaesthetic and injecting patients with it, doctors can potentially use computers to control where the nanobots go and administer the drug. This would be much more useful than how it is currently being done because doctors would be able to control the dosage of anaesthesia more effectively as well as lowering the risks of overdosing. By using

computer-controlled nanobots, it would be much safer and efficient in terms of dosage.

Another field in where nanotechnology is developing quickly is in cancer therapy. Scientists are trying to fill nanoparticles with chemotherapy drugs and delivered directly to cancerous cells. One type of treatment under development is called Cytimmune: nanoparticles made of gold is filled with a chemical called PEG-THIOL which can hide from

FEATURED ARTICLE 3

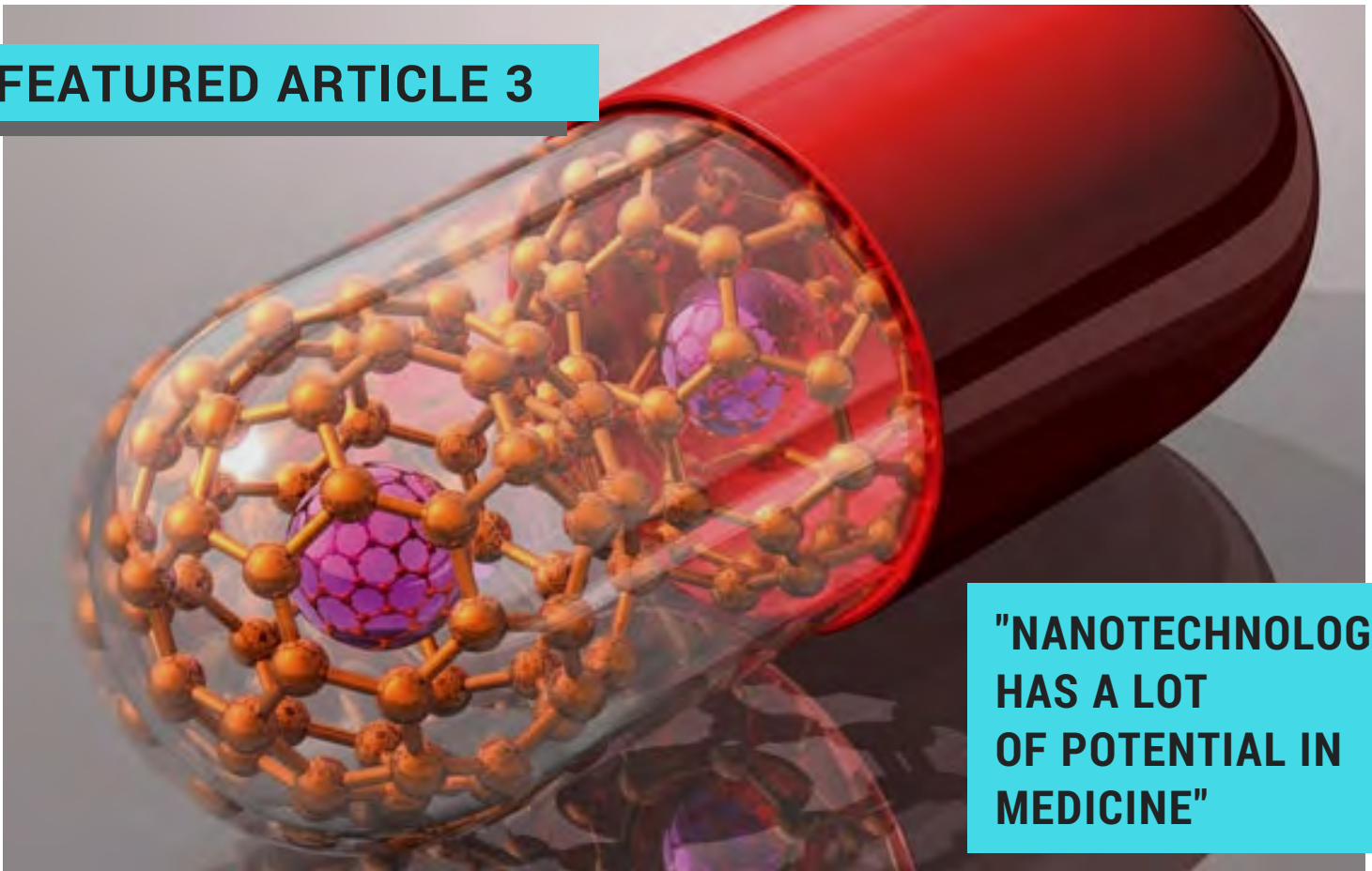


the body's immune system to prevent it being accidentally destroyed by our own white blood cells.

This way, the nanoparticles can safely deliver the chemical to the cancerous cells and destroy them. But it's no use just to be able to give treatment - we need to find ways to detect it early on before it gets to the terminal stage. For some types of cancers, detecting it earlier on gives a higher chance of recovery. Therefore, another thing that scientists are working on is a type of magnetic nanoparticle which is inserted with a microchip that would be injected into the blood. Once inside, it would be able to sense all the cancerous cells and faulty DNA by detecting the cancer-associated proteins or biomarkers in the blood, making it easier for doctors to treat the cancer. It is currently being tested in California, where it has been successful in detecting multiple lung and prostate cancer.

A third use of nanotechnology is in regenerative medicine, in particular tissue engineering. This is "used to create, repair, and/or replace cells, tissues and organs by using cell and/or combinations of cells with biomaterials and/or biologically active molecules..." (Danie Kingsley et al., 2013). How does nanotechnology tie into this? Well, nanofibers (a specific type of nanoparticle) can be manufactured in the laboratory, which have biochemical properties similar to the body's tissues. Therefore, when injected into specific tissue of the body, these nanofibers could enhance cell growth in order to repair the damaged area. Apart from repairing damaged skin cells of burn victims as an example, tissue engineering can be used in many other ways, such as repairing damaged organs in our body.

FEATURED ARTICLE 3

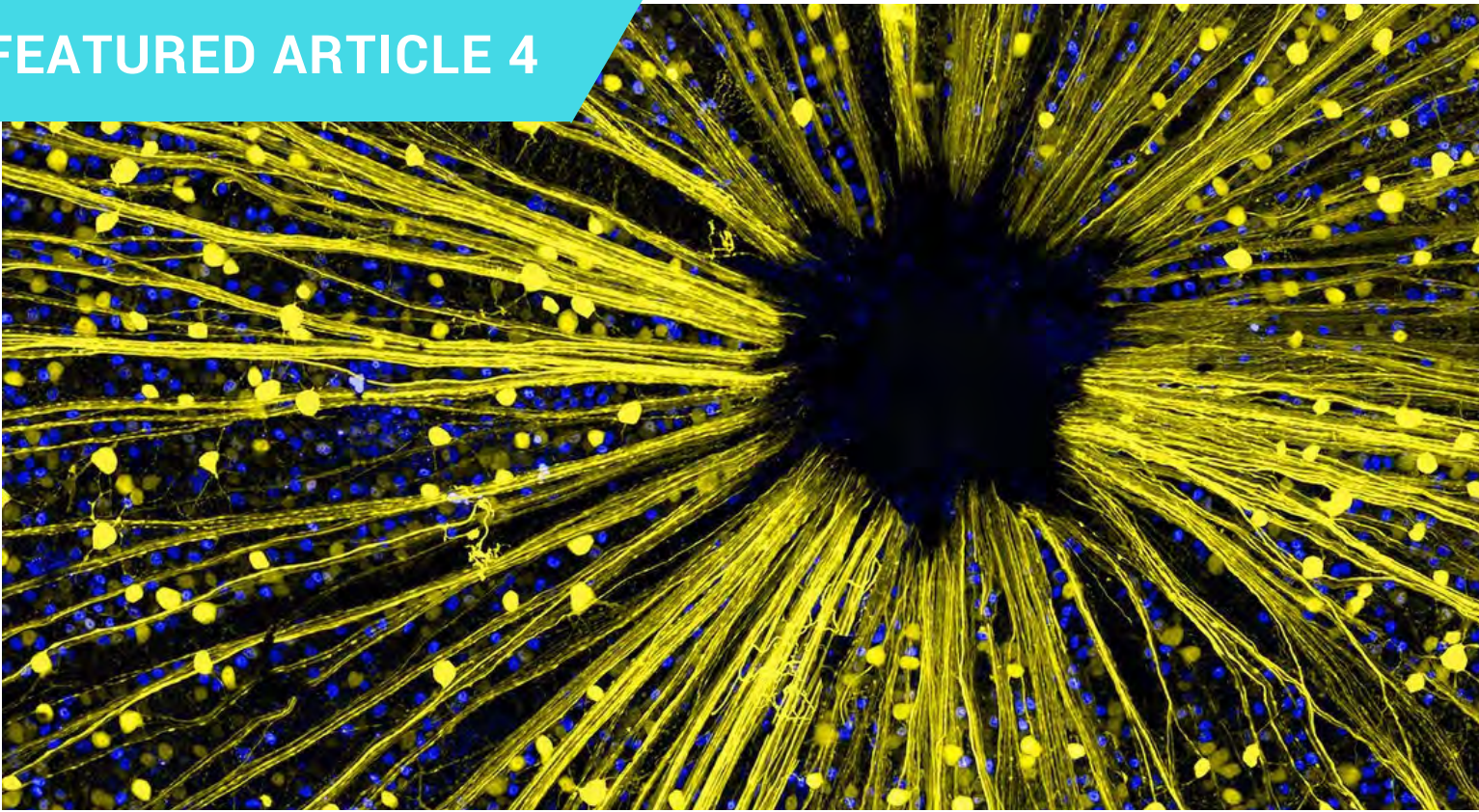


**"NANOTECHNOLOGY
HAS A LOT
OF POTENTIAL IN
MEDICINE"**

While this sounds very cool, there are many people who are skeptical about nanotechnology being used in their treatment. It's understandable - would you like to have small computer-controlled machines inside you? In response to rising concerns of the safety of nanotechnology, the National Cancer Institute of the US has issued a statement saying that "most engineered nanoparticles are far less toxic than household cleaning products, insecticides and over-the-counter dandruff remedies." On the bright side, most of the nanoparticles manufactured for medical use can be digested or biodegraded in our body, so there are few long-term harmful effects.

We live in an age where technology is developing rapidly, faster than we can even keep up with. Not only is technology part of our daily lives, but it is now slowly ingraining into our health care as well. Nanotechnology has so much potential in Medicine, with more of its prospective uses being tested every day. We can definitely expect more of nanotechnology to emerge in Medicine in the coming future!

FEATURED ARTICLE 4



SCMP: LONG WORKING HOURS AND DIGITAL DEVICES BLAMED AS MORE THAN 2 MILLION HONGKONGERS SUFFER FROM INSOMNIA

Sleep expert says people in Asia suffer from insomnia more “because of hard-working” culture, while all-night restaurants and overnight sports events in other parts of the world also a factor

From restaurants operating round the clock to nighttime sports events, Hong Kong is proud to be a city that provides a vibrant life all day long. But experts have warned that the nighttime economy could be one of the main reasons why more than 2 million Hongkongers are suffering from insomnia,

which can trigger a number of mental health problems such as depression.

Experts have also said the number of insomniacs is expected to grow at an “alarming rate” due to long working hours and the increasing use of digital devices that affect sleeping patterns.



FEATURED ARTICLE 4



A 2012 study led by Dr Wong Wing-sze, associate professor in the Education University's department of psychological studies, showed that four out of 10 adults in Hong Kong, or 2.2 million people, suffered from insomnia. The poll of 5,001 adults also found Hongkongers on average slept 6.46 hours per day, slightly lower than the Japanese average of 6.88 hours per day. People on the mainland, however, slept 8.07 hours per day.

"I don't think the situation has improved since the 2012 study," said sleep expert Dr Esther Lau Yuet-ying, assistant professor in the same Education University department. "Generally speaking, the lifestyle of Hongkongers doesn't seem to have changed much over the years. Our leisure time on weekdays tends to start pretty late at night, which means our normal sleep time is often delayed," she said. Dinner time is sometimes pushed to only a few hours before bed time, which can affect the quality of sleep, according to Lau.

Echoing her views, psychiatrist Dr Tony Lai Tai-sum said six out of 10 patients who came to him for help had sleeping problems. His youngest patient was a Primary Two student.

Dr Lai attributed the problem to the increasing use of digital devices. On the impact on society, both Lau and Lai said insomnia could lead to depression. According to the US-based National Sleep Foundation, people with insomnia are 10 times more prone to developing depression compared with those who sleep well.

Lau pointed out that in Asia people tended to suffer from insomnia more than those in other regions "because of the hard-working" culture. "There's a common saying in South Korea that if you sleep more than four hours, you can't get into university," she said. "Society needs to understand that sleeping is a basic health necessity. It's not a luxury," she said.

FEATURED ARTICLE 4

Three most sleep-deprived jobs in Hong Kong

Psychiatrist Dr Tony Lai Tai-sum says shift workers usually are at a higher risk of insomnia due to their irregular working schedules. Those working in the banking and finance industries are also more likely to have sleeping problems. Here are some of the most sleep-deprived jobs:

- *Finance analyst*

The job nature of a finance analyst can be very stressful as they have to deal with millions of dollars or more every day. Those who need to take care of overseas stock markets are required to adjust their work to a different time zone.

- *Accountant*

At the end of a fiscal year, it is common to see accountants work overnight. Similar to finance analysts, they have to deal with lots of numbers every day, which can be nerve-racking.

- *Medical personnel*

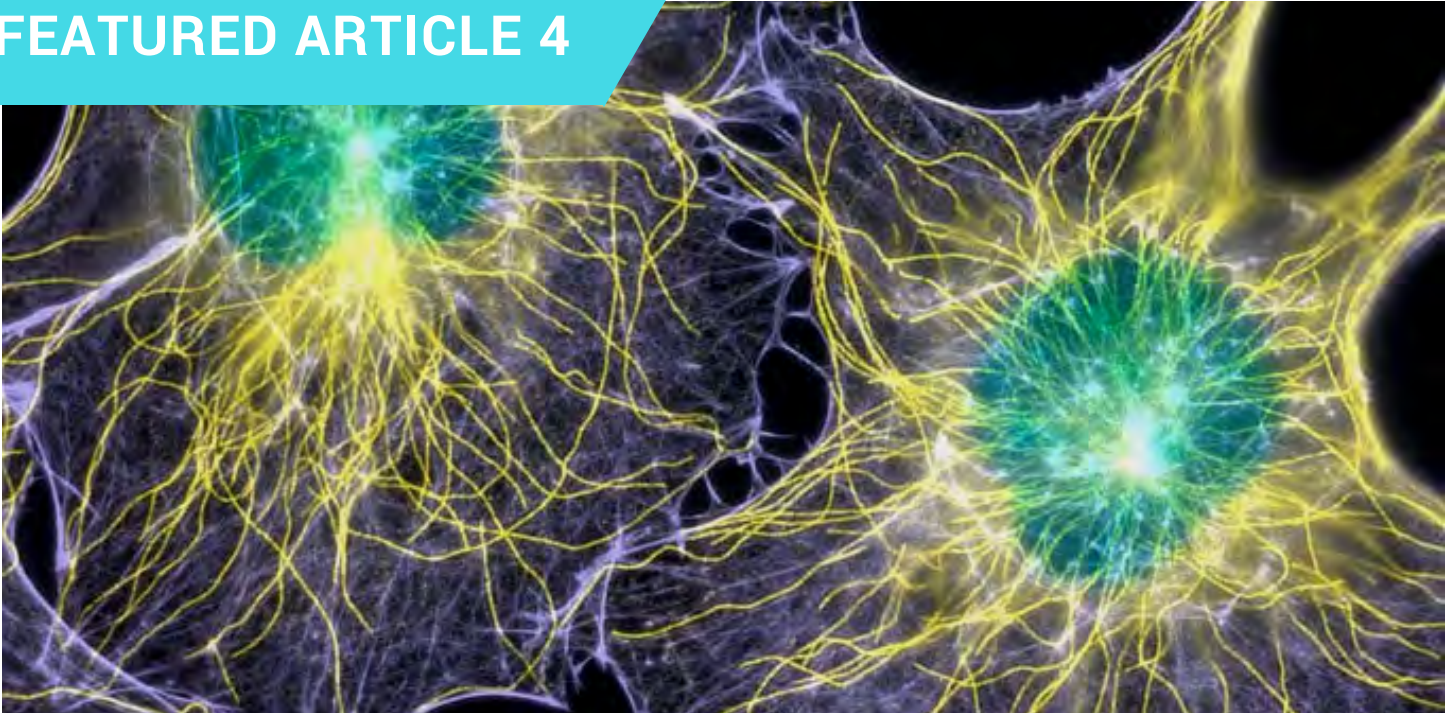
Nurses and doctors working in hospitals are more likely to suffer from insomnia due to irregular working hours, which can disrupt their biological clocks.

Common causes of insomnia

- Poor daily habits such as eating too much or not enough and consuming caffeinated beverages
- Environmental factors such as room lighting and temperature
- Stress
- Physical discomfort or disease
- Emotional disorders



FEATURED ARTICLE 4



People who are prone to insomnia in Hong Kong

- *Women*

According to the Department of Health in Hong Kong, 23.6 per cent of women have insomnia, compared with 17.1 per cent of men. Insomnia can occur in association with hormonal changes unique to women, such as those going through menopause, a study by the US Library of Medicine says.

- *People aged from 55 to 64*

This age group has the highest rate of insomnia (25.2 per cent) compared to those aged from 18 to 24 (16.9 per cent), according to the Department of Health. This might be due to certain biological changes as we age, according to the National Sleep Foundation.

- *People who are divorced, separated or widowed*

Experiencing some major life events can be highly stressful. Health Department figures show 36.2 per cent of people in this category suffer sleep problems, compared to 18.2 per cent of those who have never been married.

- *People who failed to complete secondary school*

Health Department figures show those with tertiary education had the lowest insomnia rate at 15.4 per cent, compared with those who did not complete secondary school at 25.1 per cent. Dr Lau believes that people with low education levels face more stress making ends meet. Another possibility is that they have less control of their work hours and are more likely to work shifts and extended hours.

- *Frequent drinkers (drinking at least four days a week)*

Studies have shown alcohol contributes to poor sleep, even though it may help you fall asleep faster.

commentary

BY MAXINE DEN HARTOG

When it comes to sleep, there are many different ways we approach it. Some take a quick nap when they arrive home after a 5:30 pm finish and end up sleeping until the morning. Some claim that 'sleep is for the weak' and spend the entire night furiously cramming in for the Biology test they had forgotten about. Some spend the night, and practically part of their day, binge-watching their latest favorite TV shows under the covers of their bed. However, a serious sleep-related condition is rapidly affecting not only adults but students in Hong Kong. Sleeping may be considered a hobby for some, but it is much more than that. When you sleep, your body removes any toxins and allows for the body to regenerate and rejuvenate itself - much like a computer. Claiming that sleep is not a necessity, but getting an A* or a 7 on your exam is, can be more damaging than you imagine.

In addition, drinking a coffee or two before school starts to stay awake can actually lead to more problems in sleep and acts more as a catalyst to insomnia than a cure. Biological and psychological studies have proven that people who get less than 6 hours of sleep a night for 2 weeks have the same cognitive ability as someone who hasn't slept for two days straight, so no, even though 4 hours of sleep a day may be a pattern, it isn't necessarily a healthy one. Furthermore, every hour of sleep before midnight is actually worth two hours of sleep after midnight, therefore it is important to ensure that you are asleep before 12, and I don't mean getting in bed at 12 am but ensuring that you give yourself enough time to fall asleep beforehand. If you need to work, wake up earlier! Don't sleep later. I, as a student, understand that asking you to sleep more than you study

commentary

BY MAXINE DEN HARTOG

may come off as ridiculous, however, it is extremely important to have a regular and efficient sleep cycle in order to get the grades you deserve.

In fact, insomnia is a very real and potentially life-threatening condition. Often overlooked, it leads to depression a large majority of the time and can result in very severe consequences. In order to ensure that your body is getting the sleep you need, it is important to shut off your electronic devices as they can have a very powerful effect on not only the length, but the quality of your sleep. I, like many of the students at FIS, spend my last minutes before I go to bed refreshing Facebook or checking through messages. However, in order to keep up your academics, both strong mental and physical health are essential.

Those who are aiming to establish a career in any of the professions mentioned above should manage their sleep patterns effectively now, as it will have a direct improvement on the way they work and their ability to focus in school.

DIAGNOSIS OF THE MONTH

SUPER MALARIA

By Esmé Seaver

What is malaria?

Malaria is a disease caused by a parasite. There are 5 parasites that infect humans: *Plasmodium falciparum*, *P. vivax*, *P. ovale*, and *P. malariae*, *P. Knowlesi*. The *Plasmodium falciparum* parasite is the deadliest of the five as it can cause the most severe symptoms.

How do people get malaria?

People get malaria by being bitten by an infected female *Anopheles* mosquito. The mosquitoes are infected by taking blood from a person with malaria.

Later when the mosquitoes feed, the parasites mix with their saliva and enter the bloodstream of the person being bitten. Only females transmit malaria since they need substances from blood to nurture their eggs. Since males don't need these substances they don't feed on humans

Malaria can also be transmitted through:
blood transfusion
organ transplant
shared use of needles or syringes (contaminated with blood)
from a mother to her unborn infant before or during delivery

Once in the bloodstream, the parasites travel to the liver where they develop and multiply. Later, the parasites re-enter the bloodstream and invade red blood cells. The parasites continue to multiply within the red blood cells. When these cells burst, the person will feel symptoms of malaria.

Malaria Statistics:

- A child dies from malaria every two minutes
- Southeast Asia:
- In 2015:
- 1.5 million people infected with malaria
- Over 600 deaths
- Worldwide:
- In 2015:
- 212 million cases
- 429,000 deaths
- 90% of deaths caused by malaria in 2015 occurred in Africa
- 3.2 billion people live in areas at risk of malaria transmission
- Malaria is present in 106 countries and territories

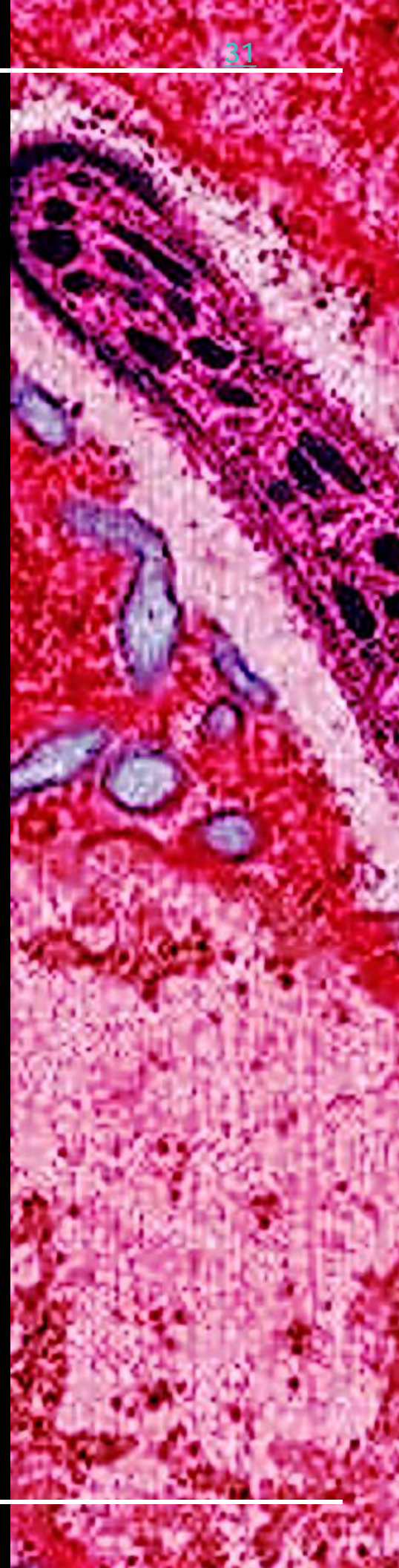
Symptoms:

- Mild (called uncomplicated malaria) symptoms include:
- flu-like symptoms including:
- fever
- shaking chills
- sweats
- headache
- muscle aches
- fatigue
- nausea, vomiting, and diarrhea may also occur

Severe malaria symptoms include:

- Seizures, coma (known as cerebral malaria since it affects the brain)
- Severe anemia (large decrease in number of red blood cells below normal range)
Since there is a lower number of red blood cells, not enough oxygen reaches muscles and organs
- Can cause weakness and faintness
- Abnormalities in blood clotting

(cont.)



- Kidney failure
- Excessive acidity in the blood and tissue fluids (Metabolic acidosis)
- Liver failure and jaundice (yellow coloring of the skin and eyes)
- Abnormally low blood sugar (Hypoglycaemia)
- A buildup of fluid in the lungs (pulmonary oedema)
- Inflammation of the lungs (Acute Respiratory Distress Syndrome)
- Dehydration
- Sudden drop in blood pressure

Prevention and precautions:

Bite prevention

- Use insect repellent (also when sleeping). High strength DEET repellents most effective. Should cover any areas of exposed skin.

- Stay in places with effective air-conditioning
- Wear loose, light colour clothing covering arms and legs (normally feed from dusk to dawn)
- Sleep under a mosquito net treated with insecticide

If risk is high, antimalarial pills can be taken to prevent malaria. However, they only reduce your risk of infection by about 90%

Symptoms can occur a year after traveling so it is important to get checked out if experiencing symptoms after a trip to an affected area even if months later.

Recent developments and current situation:

Resistant malaria spreading in South-East Asia:

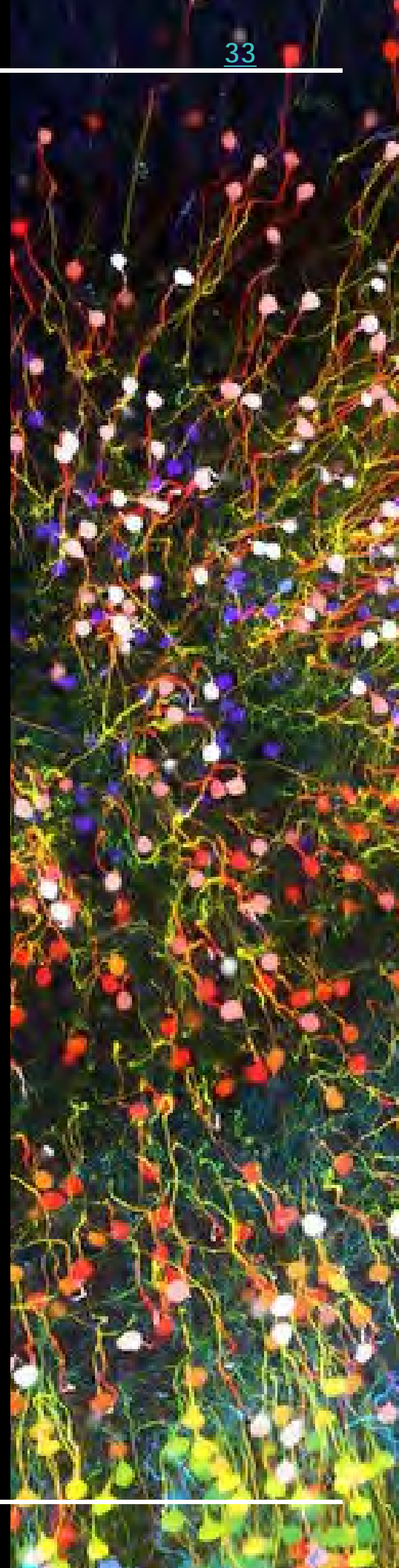
The most effective first-line treatment of malaria is a drug called Artemisinin. It is usually used in combination with another "partner" drug e.g. piperaquine. This type of treatment, using multiple drugs, is called Artemisinin-based Combination Therapy. The reason behind taking a combination of drugs is that it was thought that the parasites would not develop resistance to two drugs at once, but they did.



Figure: Transnational spread of multidrug resistant PfPailin
The artemisinin resistant *Plasmodium falciparum* C580Y lineage (PfPailin) was detected first in Pailin, Western Cambodia, in 2008.² It later acquired piperaquine resistance and spread east. 8 years later it has now reached the south of Vietnam encompassing all four countries of the Eastern Greater Mekong subregion.

Resistance to both Artemisinin and Piperaquine, by the parasite *Plasmodium falciparum*, has emerged in recent years. Artemisinin resistance was first discovered in 2008, in Pailin, Western Cambodia. However, an even more dangerous strain emerged that was also resistant to piperaquine. As of March 2017, this multi-drug resistant strain of the parasite has spread to northeastern Thailand, southern Laos and the south of Vietnam. It has also become the dominant strain in some of these areas. Treatments in some areas of Cambodia have reached frightening rates of failure- at around 60%. In Vietnam, reportedly 33% of treatments are failing. Fears are escalating that malaria could become completely untreatable with current medications in these regions.

Another frightening factor is that alternative drugs are not likely to be available soon since it takes a long time for drugs to go from being developed to actively used. Also these drugs might be similar to artemisinin which means the parasites might still be resistant to them. To combat this problem, people are turning their efforts to wiping out all the malaria in the region through other methods, by 2030. While some countries have eliminated malaria in the past, the fast-spreading nature of this drug-resistant strain throughout the area makes it a "race against time" to try and manage the outbreak before it gets out of hand. It has the potential to be "international concern" as scientists fear the development or the spread of this strain into other parts of the world where it could have disastrous effects. For example, if this strain were to develop or spread to Africa, it would be devastating as 92% of all malaria cases occur in Africa.



- However, this might not be as bad as it seems. Even though the first-line treatments for these countries have failed in some cases, there are still alternative medicines that can be effective against the resistant strain; not all of the antimalarials have been exhausted in this region. Also, the number of cases and deaths caused by malaria have been steadily decreasing over the years.

All in all, while this is still a serious issue that must be treated as such, we must remember there is no need to exaggerate the risk. There is still much hope that this will not spiral into a global issue.

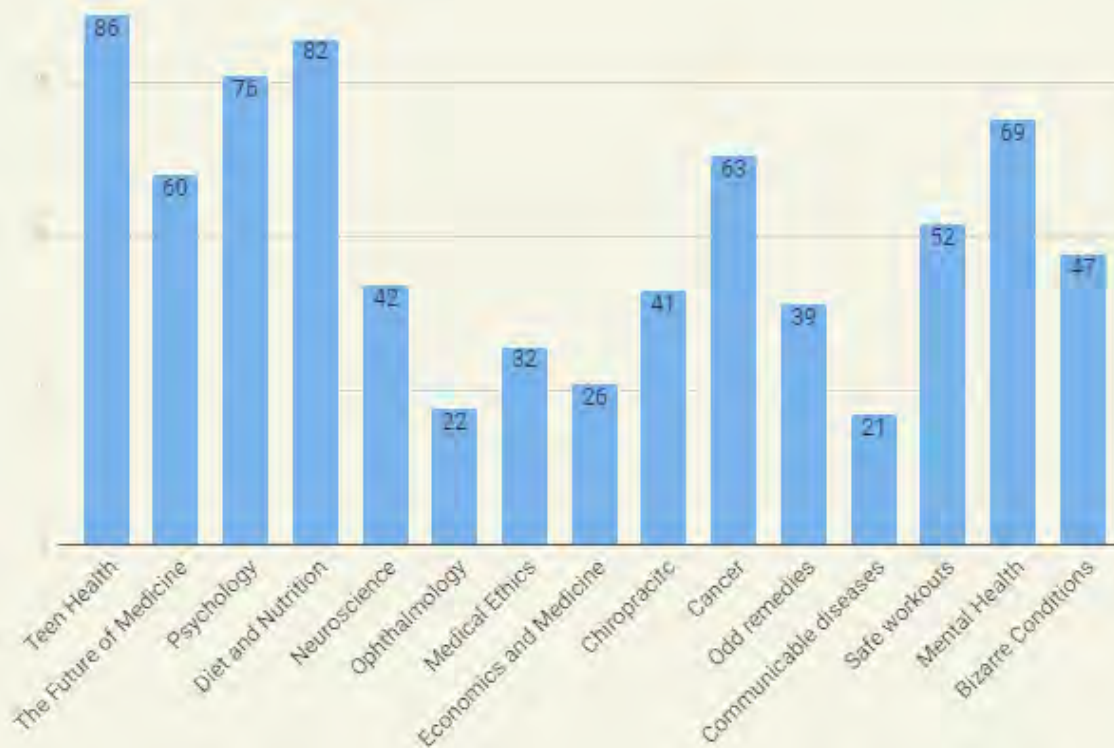
Thankfully, as of today, there is no threat of malaria in Hong Kong.



FIS COMMUNITY SURVEY

TOPICS OF INTEREST

By Sacha Lee



Many thanks to the respondents who have completed our survey. We appreciate those who took the time to give us feedback about the topics you were interested in and also those who gave suggestions.

With the inaugural edition of the FIS Medical Journal, the team has decided to run a survey in order to keep the FIS students active in the content produced by the medical journal, by collecting information on the topics best suited to be featured in the journal, and also inquiring as to whether any other students would be interested in contributing to our medical journal issues.

The aim of the medical journal is to provide an interesting and informative resource for topics concerning medicine and scientific advancements.

The results of the survey showed that teen health is the most popular topic that students are interested in (with a 69% interest rate).

This was followed closely by diet and nutrition (with a 66% interest rate) and psychology (with a 61% interest rate).

Results from the survey showed that topics which directly affect the students at the school are the most popular, for example: teen health and diet and nutrition.

The results were mostly expected due to the above topics being most relatable to the school community and the students. Many students also voted for safe workouts (with a 42% interest rate) showing our students interest in health and fitness, which has been taken into account and will be a recurring theme in numerous journal issues.

Many of the topics presented can be related to topics taught in IGCSE and IB and so the articles written can be used as extra reading materials for students to use to gain a well-rounded understanding of the topic.

The survey also showed FIS students' interest in other aspects of medicine. Some suggested more specific information from previously suggested topics such as: depression, mental health, effects of alcohol on growing teens, which ties in with teen health and herbalism which can be classified as odd remedies.

Following the responses from the survey, we have arranged the plan for each edition of the medical journal according to interests as the table below.

Please do take note that this the plan is provisional. We believe that by following this plan we would meet the interests and requests of everyone.

Our next survey will be a study on the sleep of FIS Students. Stay tuned for the next survey!

Month	Theme
November	Teen health
December	The future of medicine
January	Psychology
February	Diet and nutrition
March	Neuroscience
April	Ophthalmology
May	Medical ethics
June	NO ISSUE
July	Economics and medicine



University Guidance: Courses During Summer

Personal insight into medical internships/summer courses for aspiring healthcare students.



PREMED PROJECTS

BY AARMANN MOHAN

We visited St. George's University (a high ranking medical university) in which we met Dr. Johns, who gave us insights into neurological diseases such as strokes, dementia, multiple sclerosis and Parkinson's. We also gained skills, which are more clinical in nature, such as learning facts about human anatomical positions and philology (e.g. basic tissue types). These are skills which are needed by doctors to communicate with each other when describing anatomical locations within the body.

Later on during the course, we visited Hammersmith Hospital, in which we met Dr. Dami. She introduced us to hospital safety to dealing with agitated patients.

She also gave us insights into clinical skills: cannulation, blood glucose monitoring and subcutaneous injections. We also acquired various skills, which link to hygiene and how to efficiently scrub up in an event of an emergency. This was for sure one of the most informative days during the course!

After several days of clinical skills, we had a long bus ride to the south of London, where we visited St. Christopher's Hospice. This was one of the highlights of the trip, we learnt all about palliative care and how the hospice aims to keep all patients happy and fulfill their patients last wishes. We had a guided tour of the hospice and spoke to some patients there.

"Throughout the course, I learnt a huge amount of information about being a doctor and took part in several practical tasks which could not have been done in school laboratories."



PREMED PROJECTS

BY AARMANN MOHAN

Each patient had a personalised diet and exercise routine to meet their needs. Staff at the hospice treated each patient very caringly to make sure their last days prior to death is peaceful and as happy as possible. This was quite a sorrowful experience, however it was amazing to bring smiles upon the faces of the patients by simply just speaking to them and giving them company. For sure a touching experience!

During the last two days of the course, we had an anatomy lab at Whittington Hospital, in which we were teamed up dissecting once living organisms and learning everything about anatomy. We learnt all the scientific

terminology used to describe the different locations both on and within the body. It ended with the dissection of the extremities in order to gain more insight about tissues, organs and organ systems.

University Perspective:

We visited Imperial College London, where we spoke to junior doctors and third year medical students who have all sat on panels for Imperial College London School of Medicine interviews.

This was by far one of the most informative experiences during the trip. We were able to connect very well with the younger doctors/ students which was very enjoyable. By the end of the day, we gained tips on how to write a personal statement and how to ace a medical school interview. We also learnt about ethics that need to be addressed whilst treating patients in a clinical environment.



PREMED PROJECTS

We once again visited St. George's university in which we spent time learning about the different routes into medicine, having further clinical skills sessions with current medicine students, and they gave us a tour of their university to get a real feel for life as a medical student in London. We also got a real feel of the MMI (multiple mini-interview) process.

End Result:

Throughout the course, I learnt a huge amount of information about being a doctor and took part in several practical tasks which could not have been done in school laboratories. I learnt that in addition to just knowledge, doctors have a huge role in the curing of patients: leadership roles towards the team, keeping the team happy, keeping the

patient physically and psychologically healthy, making the family feel secure, and being ethical.

Being a doctor is definitely not an easy occupation as it is not always glamorous as it is said to be, because it's not about the money, it is more about being able to be there for your patients at all times and developing a personal bond between them and guiding your team for the wellbeing of the patient.

In the course, I was one of the youngest students who attended. Being with older students guided me as to how the next few years of my academic life would be like.

They gave me advice of how to apply to universities through their own personal experiences and gave me tips on how I should prepare for my future examinations.

I made various friends and it was amazing meeting people who have very similar interests as me as we were able to connect and bond instantly! Up to this date, I still keep in contact with a handful of the new friends I made and I wish to see them once again in the future. I recommend this course to other students between the ages of 16-18 who wish to study a field in medicine in university.

The course gives great insight to university life, clinical experience and it provides excellent advice on how to approach university applications.

For enquiry:

Address: Premed Projects, 15 Queen Square, Leeds, LS2 8AJ,, UNITED KINGDOM.

Phone: (+44) 0113 880 0152

Email: info@premedprojects.co.uk

Website: www.premedprojects.co.uk

MEDICAL INTERNSHIP

Ulaanbaatar Shastin Central Hospital, Mongolia

BY ELENA MEGANCK

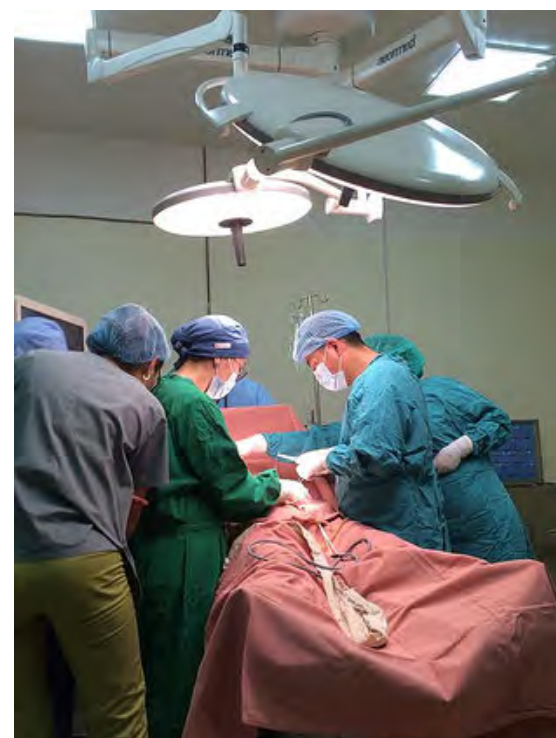
Over the summer I completed a medical internship abroad in Ulaanbaatar Shastin Central Hospital, Mongolia. Upon my daily arrival at the hospital, I would change into my outfit and take the stairs to the 3rd floor. Placed in the department of cardiac surgery by my affiliated organisation, Projects Abroad, I had the advantage of being able to pass through the infamous doors with imprinted red warning signs. Usually, there would be a considerable amount of shuffling around in the largely empty department before the planned surgery would take place at around 9 am. I happened to arrive on the same week as a reputable Korean team which came to assist in terms of knowledge and medical materials,

and it gave me a greater understanding of medicine within developing countries.

Apparently, Mongolian hospitals do not always have the resources to adequately treat congenital heart disease, which is specifically why the Korean team flew over to lend a hand. The surgery would then last around 5 hours, during which I passed in and out of the surgery room, attempted to start a conversation with whomever seemed available and willing, observed the surgery whenever there was a gap between two individuals of the operating team or made notes. I must admit it was sometimes difficult to converse with the staff. Thankfully, information about every single one of the

cases was printed on a series of A4 sheets in the hallway.

Complemented with my personal online research and my questioning, I managed to decipher the information which was all in abbreviated form. After some initial struggle to understand these new concepts, I did acquire a significant amount of knowledge.



MEDICAL INTERNSHIP

Ulaanbaatar Shastin Central Hospital, Mongolia

BY ELENA MEGANCK

How long was it?

My placement covered a two week period, although it is possible to select any desired time-span. The working hours lasted from 9:00 in the morning until 5:00 in the afternoon, with a one hour break for lunch at noon.

Why Mongolia?

It is paramount to recognise Mongolia as a developing country. Accordingly, this country gave me an extraordinary insight into the medicinal world of developing countries. The fact that Ulaanbaatar (the capital of Mongolia) is a developing city also implies that volunteers are allowed within exclusive zone boundaries in hospitals, which is inconceivably challenging to get to in more advanced cities.

Where did you stay?

I had requested to find accommodation at a host family's place. The organisation acted accordingly and I stayed with a local host family. There was also another option available for consideration, which was to stay in a hotel.



Projects Abroad



