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OCTOBER 2021

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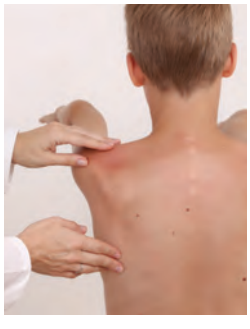

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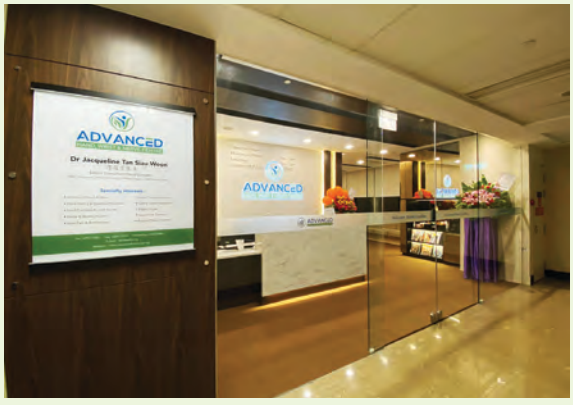

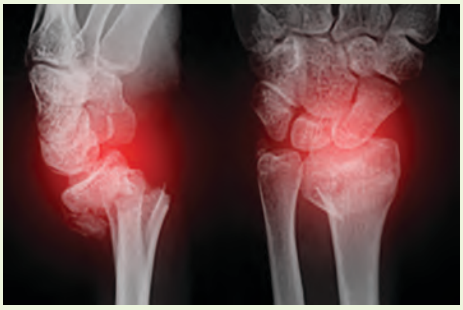

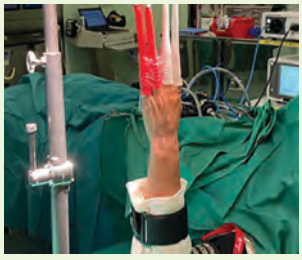

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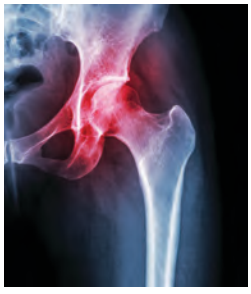

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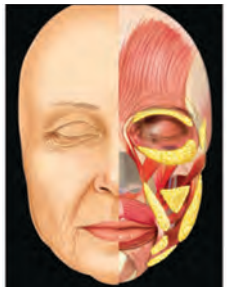

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LETTER FROM THE EDITOR

In this issue, we talked to the new CEO of the Malaysia Healthcare Travel Council (MHTC), Mohd Daud Mohd Arif, who tells us how the Southeast Asian nation is rebuilding its healthcare travel industry — a sector that was booming until the pandemic brought global tourism to a halt.

To soften the blow of travel restrictions, last July the country formed a medical travel bubble with other countries to facilitate the flow of international patients to its private hospitals. Mohd Daud believes that travel bubbles can be expanded to allow more foreign patients to visit the country once the pandemic is under control.

And in another innovative move, the MHTC struck a deal with DoctorOnCall, one of Malaysia's leading telehealth services platforms, to facilitate patient care online.

Despite all these efforts, Mohd Daud believes it will still take time for the health travel industry to rebound to pre-pandemic levels. He'll be looking, in particular, at several important factors playing a role, such as vaccination rollouts, the lifting of travel restrictions, and the return of tourist confidence in travelling again.

In a highly probing piece on regenerative medicine, we explain how the much-touted approach can be effective in treating several orthopaedic conditions, like knee arthritis. While it's still far from the magic bullet that a lot of marketing material makes it out to be, experts agree it can play an important role in reducing pain or complementing existing treatments to improve outcomes.

We also interviewed a surgeon who has pioneered a new procedure to fix spinal curvature in children to highlight the role it could play in the clinic. Called vertebral body tethering (VBT), the surgery promises to cure the problem while sparing patients from the limited mobility associated with spinal fusion, the standard surgical treatment. But it's still unclear who the best candidates are for this new approach.

Gabriele Bettinazzi
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You Ask, They Answer

Q: What is Lyme disease and how is it caught?

A: Lyme disease is caused by *Borrelia*, a spirochete or spiral-shaped bacteria. It's the most common tick-borne infectious disease in the northern hemisphere, with multiple strains. Lyme disease is endemic in many parts of the US, UK, and Europe, particularly in woodland or heathland areas, but disease-carrying ticks can also be found in cities and gardens. Although also found in northern and eastern parts of Asia, it is much less prevalent in Southeast Asia, with little evidence of occurrence in Australia.

Transmission of Lyme disease can occur after being bitten by an infected tick. Other modes of transmission include congenital transmission from mother to baby. Although Borrelia has been found in biting insects such as mosquitoes and spiders, there is not yet enough research to prove that they can also transmit the disease.

Transmission via blood, tissue, and organ donation, along with sexual activity, are all causes for concern, but again there is not enough research being done in this area. The US Centres for Disease Control and Prevention states that, "Although no cases of Lyme disease have been linked to blood transfusion, scientists have found that the Lyme disease bacteria can live in blood that is stored for donation."

Until more is known, it would be wise for current and historical Lyme patients to avoid donating their blood or tissue.

Q: What are the symptoms?

A: Symptoms can start with an erythema migrans rash, which is often described as a bulls-eye rash because of its circular shape, but it can also be more irregular. This sometimes leads to a misdiagnosis of ringworm, a fungal infection, or cellulitis, a condition caused when bacteria enter a crack in the skin. But it's important to note that not every Lyme disease patient will experience or remember a rash, as it appears in just two out of three patients. And the rash may not appear straight away.

Further symptoms can include malaise, unexplained flu-like symptoms, soreness and aches, light and noise sensitivity, cognitive problems, fatigue, stiff neck, facial palsy, numbness, and tingling. If left untreated, the infection can spread anywhere in the body, leading to around 70 recognised symptoms. For example, people can develop issues with their endocrine and neurological systems and experience musculoskeletal, cardiac, dermatological, and neuropsychiatric problems.

Q: How is it treated?

A: At present, there is no test that can rule out Lyme disease, as false negative results are possible with current testing. There is also no test to show if a patient has been cured. Lyme disease can be easy to treat if caught early, but complications can occur if the infection is left untreated. Chronic Lyme disease is not a medically accepted term in some countries, but practitioners who treat the disease use it to describe long-term symptoms and complications associated with the disease.

Research shows that the Borrelia bacteria can persist, even after treatment. Some experts believe that the presence of other infections could be a possible reason for the wide variation in Lyme disease patterns, progression, and treatment outcomes.

Lyme disease can be a complex condition, and many aspects of the illness are contested and debated. There is variability in knowledge among clinicians, with some having little or no understanding of the disease.

Responses supplied by Lyme Disease UK, a charity that supports people living with the effects of Lyme disease.

Q: Are people from tropical countries also at risk of heat-related illness?

A: People from tropical countries are at risk from heat-related illness as anyone else. However, they are likely to be better adapted. Malaysia is a tropical country, so heat is an environmental hazard that we're adapted to, as opposed to someone living in a more temperate region and visiting or moving here.

Prolonged heat exposure can have a great effect on our wellbeing. Preparation is the best response. Wear the correct clothing. Use sunblock. Be sure to hydrate well and often. In spite of the best preparation, be aware of the danger signs. Dizziness, difficulty breathing, and shivering even when it's hot out are an indication that things are not going the way they should. When these occur, take corrective action. Get in the shade, hydrate, and even dousing yourself with a bottle of cold water is a quick way to cool down before things get too bad.

We all have the same physiology. Adaptation however takes time. If you send somebody from Malaysia to Minnesota in winter, they won't be able to adapt to the cold very quickly. Similarly, if an Eskimo moves to the tropics, he will need some time to acclimatise.

Q: What happens to the body during prolonged exposure to heat?

A: When exposed to prolonged heat, our bodies will first thermoregulate. This means that we cope with the heat we're exposed to by sweating — our sweat evaporates and our body temperature comes down as a result. We also start to hyperventilate, we breathe faster which evaporates water in our lungs and this brings down our core temperature too. We do get to the point where we are no longer able to thermoregulate. That is when we become dehydrated. This leads in turn to hypovolaemia, a situation where we have very little circulating blood volume. At this point, our ability to compensate to heat fails. Typically the blood pressure then drops to a point that we begin to lose consciousness as well.

There is no established point when this breaking point happens. It is highly variable but depends on how fit you are, how hydrated you are, how much fluid you had to start off with, and how much heat you've been exposed to. It also depends on how old you are. For example, there have been cases when children left in bassinets in parked cars have died because their ability to withstand heat is much reduced as compared to an adult.

Q: Do underlying conditions pose greater risk from prolonged heat exposure?

A: Patients with heart disease, high blood pressure, or uncontrolled diabetes are more susceptible to heat-related illness because they tend to reach their tipping point earlier than healthier patients. If you have heart disease, your heart's ability to withstand extremes of heat is rather limited. If you have a leaking heart valve, for example, you likely to be unable to compensate as well as a healthy adult, so any deviation from that norm tips you over faster. If you have blockages in the arteries that supply the heart and if your blood pressure drops too much, you'll be at risk of a heart attack. This is likewise for patients with uncontrolled diabetes and those with respiratory illnesses, where you can't oxygenate as well as someone who does not have these underlying conditions.

Q: Does harm from heat exposure build up over time?

A: Additive harm from repeated exposure to heat does not occur. An exception to this is perhaps exposure to environmental radiation. Radiation does build up over time. For example, if I were to spend seven hours a day, out in the sun, over two years, then my risk of developing squamous cell cancer is much higher because of the accumulated radiation. But when it comes to heat, there's no such risk. Once you hydrate and get your body temperature down again, you'll be able to do it tomorrow.

Dr Alwi Mohamed Yunus

Dr Alwi Mohamed Yunus is head of cardiothoracic surgery at IJN, Malaysia's national heart institute, in Kuala Lumpur.

You Ask, They Answer

Q: When would prenatal screening usually take place for conventional pregnancies?

A: Normally, we would screen for chromosome problems between 11 and 14 weeks. This is first trimester screening, when we would measure nuchal translucency to determine the thickness of the unborn baby's neck and look for the presence of a nasal bone as both of these are markers for Down's syndrome and other genetic problems.

In recent years, what has become quite popular is non-invasive pregnancy testing which takes a sample of the mother's blood and assesses the placenta's DNA. This can tell us the presence of Down's syndrome in 99 percent of cases.

In high-risk cases, we will offer prenatal diagnostic tests such as amniocentesis and chorionic villus sampling where a small sample of cells is taken from the placenta. This has almost 100 percent accuracy in identifying the presence of abnormalities.

Q: Is prenatal testing done as a matter of course?

A: Non-invasive pregnancy testing has become popular only over the last three to five years, while first trimester screening has been available for about a decade. Procedures like amniocentesis have been around since I've been practicing obstetrics.

Based on best practices, we should always discuss Down's syndrome and chromosome screening with patients who are almost all offered the opportunity to screen for chromosomal abnormalities at 11-14 weeks, and there will always be a 20 weeks foetal abnormality scan. That is the standard of care, and almost all patients, at least in my practice, will take up some form of screening. Rarely do we have patients who will overlook genetic screening at 11-14 weeks.

Q: When are prenatal diagnostics performed?

A: Screening tests are considered general tests that are inexpensive and non-invasive, so there is no risk to the mother or foetus. However, these tests may show false positives. In other words, the foetus may not be afflicted with the disease in question, but screening still shows positive. With this group, we will perform diagnostic tests to confirm the diagnosis. A good screening test will have a reasonable rate of false positives, but hopefully we'll catch most of the true positives in the screening test. The mother could experience a minor scare during the testing process, but the important thing is that we won't miss some of the truly positive cases.

Q: What is preimplantation genetic testing in IVF pregnancies?

A: The crux of IVF is to always identify an embryo worthy of transfer — the best embryo. We would previously rely on morphology, or the appearance and growth of the embryos up to day three. But in recent years it's become popular to allow the embryos to culture up to day five — what we call blastocysts — and at that point, genetic testing may be performed. This involves taking a sample of the cells to screen for chromosomal abnormalities. After screening, we only transfer the chromosomally normal embryos, which hopefully improves the implantation rate and chance of a healthy live birth.

Whether this can be performed, however, is dependent on legislation in different countries. In Singapore, legislation to allow preimplantation genetic testing for use as a general routine procedure is still under discussion. The government is evaluating the pros and cons, such as its cost-effectiveness. Right now there is a large-scale study being performed to assess the effectiveness of preimplantation genetic testing in patients over 35 who have previously miscarried. The government is evaluating the results of this study before deciding if it should be allowed on a national level for prenatal care. Certainly preimplantation genetic testing is a useful strategy to have.

Dr Tan Heng Hao

Dr Tan Heng Hao is a consultant fertility specialist, obstetrician, and gynaecologist and also the medical director of Alpha IVF Centre in Singapore.

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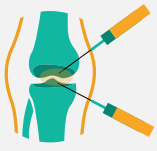

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You Ask, They Answer

Q: What causes nosebleeds and why are children more susceptible to them?

A: The nose functions as a conduit for getting air into the body and humidifying it before reaching the lungs. To do this, it requires an ample blood supply from the capillaries, which are little vessels just beneath the lining of the nose. Right at the front of the septum, which is the interior partition of the nose, there is a particularly large number of these capillaries.

Children, in particular, suffer from nosebleeds for various reasons. For a start, they pick their nose a lot. They're also more prone than adults to getting colds and runny noses. We're also seeing more kids these days with nasal allergies, which causes the lining of the nose to get inflamed and makes the capillaries more prone to bleeding.

Q: For what reasons might adults suffer from nosebleeds?

A: What you see more commonly in adults than children is a deviated nasal septum where the centre partition goes off centre to the right or left. When the deviation is at the front of the nose, where the air comes in, there may be turbulence in the airflow. This turbulence may cause drying of the mucosa where the deviation is, making the person more prone to ulceration and bleeding.

Some nosebleed sufferers may have had nasal trauma from a fall, sports injury, or accident. It could be something as simple as a break in the lining of the nose or a trauma involving the paranasal sinuses, which are the air spaces around the nose within the skull. Any structural injury involving these bones could lead to a nasal bleed.

Both benign and cancerous tumours can also lead to nosebleeds. In teenage boys, in particular, there is a particular benign tumour called a nasopharyngeal angiofibroma that can cause nosebleeds, although this is not common and we do not see it in adults.

Other tumours in adults and children include nasopharyngeal carcinoma, a malignant tumour seen in middle-aged people with a racial predominance among Chinese, and hemangioma, which is a benign tumour that is full of blood vessels that presents in children more commonly than adults.

Those with uncontrolled hypertension can suffer from nasal bleeding as high blood pressure can cause the capillaries to rupture. Medications can be a secondary factor that triggers the bleeding. For example, if the patient is on aspirin or warfarin, they will not naturally bleed from the nose, but a trauma or a procedure done to the nose will make them more prone to bleeding.

Q: How should a nosebleed be stopped?

A: The first thing to do would be to pinch the nose over the vestibule towards the septum in the middle and hold it with the thumb and index finger while looking downwards and keeping the mouth open. By doing so, the capillary is compressed and it stops the bleeding. Looking down is important because it prevents you from swallowing the blood that will come out through the mouth. It is better to know how much bleeding there is and then spit it out. If that doesn't stop the bleed, place ice over the bridge of the nose to cause the blood vessels to constrict. If that doesn't work, go to the hospital.

Q: Can nosebleeds be a cause for concern?

A: Regular prolonged nosebleeds may be a cause for concern, for all age groups. A regular nosebleed would be when it happens a few times a week over a period of weeks. Sudden onset nosebleeds should also be noted. This may happen in patients who rarely have nosebleeds who find they've started getting them over a period of time.

Dr Anura Michelle Manuel

Dr Anura Michelle Manuel is an otolaryngologist at Prince Court Medical Centre in Kuala Lumpur.

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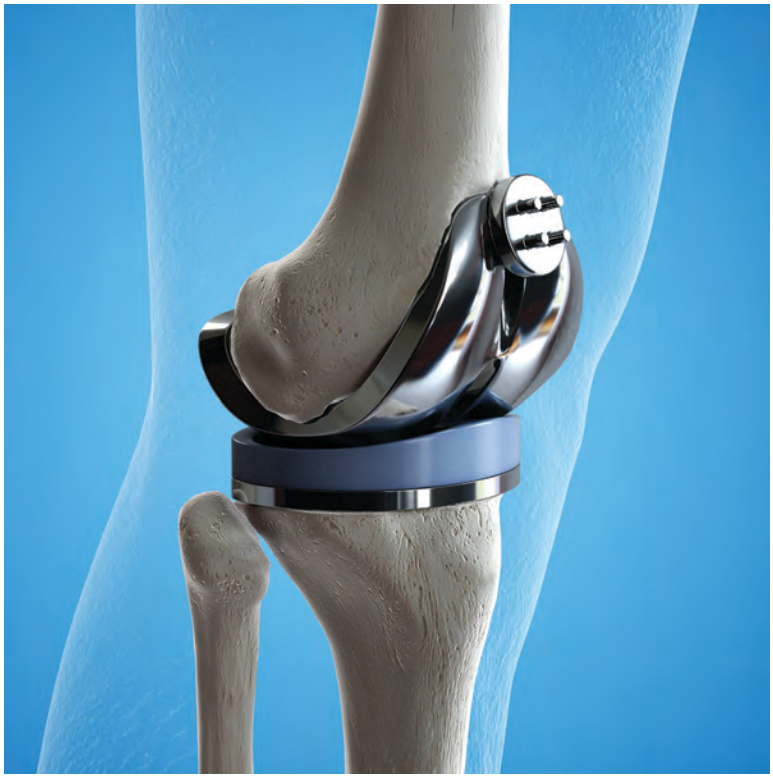
Singapore's pioneer of joint replacement

Dr Lo Ngai Nung has spent a career advancing the boundaries of joint replacement



Dr Lo Ngai Nung is an orthopaedic specialist at Gleneagles Hospital, Singapore. His areas of expertise include the management of complex degenerative conditions of the hip and knee joints. His interests include minimally invasive joint replacements and partial knee replacements, and accelerated recovery programmes after joint replacement surgery for early return to function.

Three decades ago, when orthopaedics became one of the most innovative surgical disciplines, Dr Lo Ngai Nung seized the opportunity to be trained as an orthopaedic surgeon. In 1991, he was selected for a year's sub-speciality training with one of the pioneers of joint replacement, Professor Ramon Gustilo, in the US state of Minnesota.

"Back then, joint replacement was not as advanced in my native Singapore as it is today. The patients tended to be older folks, and they were horrified at the idea of surgery.

"They accepted the disability as an inevitable part of ageing, whereas nowadays, patients are more informed; they want to enjoy their retirement years and are not willing to live with disability and pain. They live longer, want quality of life, and retain independent mobility in old age," said Dr Lo, who is now an orthopaedic and bone surgeon at Gleneagles Hospital in Singapore.

Surgery is also more accepted today due to improvements in techniques and technology. Better hip implants, improved pain control methods, and accelerated rehabilitation programmes make for a comfortable and faster recovery.

Dr Lo was one of the first orthopaedic surgeons from Singapore sent for formal training in joint replacement, and he has since participated in the training of younger orthopaedic surgeons.

In 2004, he participated in the design and evaluation of a minimally invasive modular mini keel knee implant.

"The idea was to design a knee implant that facilitates minimally invasive surgery. The implant could be inserted through a 2cm space and then extended by adding on modular parts. We also designed special instruments to accurately insert the implant. These are still in use, and the implant itself was used worldwide until recent years, until it was replaced by a newer design," he said.

Joint replacement surgery today is common and one of the most cost-effective treatments for degenerative arthritis in the elderly.

Demand for knee replacements has been seeing exponential growth in Singapore, while a recent trend has also seen a rise in hip replacements, which are increasingly being performed for hip fractures.

The two most common diagnoses for hip replacement surgery are hip osteoarthritis and hip osteonecrosis. Osteoarthritis arises from age-related degeneration, mostly affecting patients over 70. Osteonecrosis, which results from the death of bone cells caused by a damaged blood supply to the hip joint, arises from a variety of reasons, the most common being excessive alcohol consumption and use of steroids to treat other conditions.

A good candidate would be a patient who has a stiff, painful hip with significant deterioration of function resulting in poor quality of life, yet is still healthy enough to be an active community ambulator. Hip replacement surgery restores pain free hip function very quickly and predictably.

With the latest surgical techniques, patients are able to walk the next day and return home two or three days after an operation. Full recovery is often achieved by three months.

Thirty years after he began his training, Dr Lo continues to push the boundaries with the development of novel hip implants in Singapore.

"Together with a brilliant younger colleague and a bioengineer, we hold the patent for a new hip replacement implant that has enhanced stability," said Dr Lo.

"This reduces the risk of hip dislocation after surgery. The implant also has a damper that reduces wear of the bearings. We are planning for clinical trials."

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Living well with Parkinson disease

When performed early, deep brain stimulation can improve symptoms of movement disorders

Movement disorders describe a group of neurological diseases that predominantly affect a patient's ability to move and cause abnormal movements. The most well-known are Parkinson disease, essential tremor, and dystonia, which affect millions of people worldwide. Parkinson's alone affects seven million people globally and three in 1,000 above the age of 50. As the world population ages, this number is expected to double by 2040.

Medication can control the symptoms for Parkinson disease, such as tremors, in the initial years, but as it progresses, people can become resistant to higher doses of medication, which can also have intolerable side effects. As a result, the benefits from medication often decrease over time.

Another therapeutic option is deep brain stimulation surgery, a minimally invasive procedure.

"A commonly asked question by people with Parkinson disease is whether deep brain stimulation is suitable for them," said Dr Kon Kam King Nicolas, a specialist neurosurgeon at Mount Elizabeth Hospital in Singapore and an expert in deep brain stimulation surgery. "In general, people should consider deep brain stimulation if they experience decreased benefit from medication despite increasing doses or suffer side effects from medication."

The procedure involves two steps. A neurosurgeon will first place thin wire electrodes in the specific part of the brain that causes the symptoms. This stage can be done with the patient asleep or awake. Awake surgery allows for intra-operative testing to verify the clinical effects of the procedure, while asleep surgery is convenient and can be completed in a shorter time.

In the second step, the neurosurgeon connects the electrodes to a battery, which functions as a pulse generator. The device is placed under the skin, usually below the collarbone. This is typically done under general anaesthesia.

"The main symptoms of Parkinson disease, such as tremor, slowness and stiffness, will improve immediately upon switching on the battery. Medication can be reduced concurrently in a delicate balance with electrical stimulation," said Dr Kon.

Parkinson disease symptoms are caused by the loss of dopamine-producing neurons in specific parts of the brain. This leads to abnormal signalling between the different regions of the brain. Deep brain stimulation works like a pacemaker for the brain and helps to normalise these abnormal nerve signals, providing 24-hour continuous symptom control. Generally, patients will also need to be on medication but at a reduced dose.

Like any surgery, deep brain stimulation has its risks, which include infection and bleeding in the brain, but is generally a safe and effective procedure for Parkinson disease.

Having the right mindset is important for a successful deep brain stimulation surgery. The most important consideration is not to view it as a treatment of last resort and have it done too late during the advanced stages of the disease. The benefits of deep brain stimulation can be maximised when done early within the golden window of opportunity.

Dr Kon believes that living well with Parkinson's disease is possible with the appropriate treatment.

"Every individual should have a tailored plan for success. For some people, deep brain stimulation offers life-changing relief. Frequently, people are scared of the idea of brain surgery.

"Seeing a neurosurgeon doesn't mean you're committing to surgery. Arm yourself with information with which to make your decision. If the time is right for you to consider surgery, see a neurosurgeon to assess your eligibility," he said.

Dr Nicolas Kon is a neurosurgeon at Mount Elizabeth Hospital, Singapore. He has a special interest in neuro-oncology (brain tumours, awake surgery), minimally invasive brain surgery (deep subcortical tumours, brain haemorrhage), functional neurosurgery (trigeminal neuralgia, hemifacial spasm, spasticity, spinal cord stimulation), and deep brain stimulation (Parkinson disease, tremors and other movement disorders).

Thai beach ban raises concern about sunscreen safety

Sunblock is being blamed for environmental and physiological damage

Sunscreen use in Southeast Asia is nowhere near as widespread as it is in other parts of the world, which partly accounts for why skin cancer rates in countries like Malaysia and Singapore have been on a consistent rise over recent decades.

In Thailand, where its beaches register some of the world's highest levels of ultraviolet radiation, one of the main contributing factors for melanoma, a recent ban on some types of sunscreen may have a further impact on rising rates.

The ban stems from concerns over the harmful effects of sun protection chemicals on the environment, and in August sunscreens containing chemical substances that are suspected of damaging coral reefs were banned from the country's marine national parks.

The decision of the Department of National Parks, Wildlife and Plant Conservation follows a similar move by Hawaii that took effect earlier this year.

The banned sunscreens are those containing oxybenzone, octinoxate, 4-methylbenzylidene camphor, which are usually used as UV filters, and butylparaben, used as a preservative or as a fragrance. These substances are suspected of being endocrine disruptors and affecting the development of corals, even in small quantities.

Thai authorities point to scientific data showing that these chemicals could "deteriorate coral reefs, destroy coral larvae, obstruct their reproductive system and cause coral reef bleaching."

According to several research studies, up to 14,000 tons of sunscreen end up in the world's oceans every year, and oxybenzone, in particular, can harm coral growth.

Major cosmetics companies dispute the evidence behind the marine bans. Ahead of Hawaii barring the use of sunscreens containing oxybenzone and octinoxate, L'Oreal published its own research findings conducted jointly with the Monaco Scientific Centre that contradicted the reasons for the ban.

Another cosmetics manufacturer, Japan's Shiseido, said the research on the effect of sunscreens on coral reefs is inconclusive.

In addition to environmental concerns, there has also been much debate about the health safety of chemicals used in the formulation of sunblocks when they're absorbed into the human bloodstream.

Last year, an American study warned that some of the active ingredients used in sunscreen — some of which are implicated in the Thai and Hawaii bans — may be leaching into the skin beyond recommended safety thresholds and called on health regulators to review their safety.

Skeptics, however, say that a number of the ingredients have been in common use for many years with no safety concerns.

"The study showed that higher levels of some sunscreen chemicals are absorbed through the skin than had been previously realised, but this doesn't necessarily mean that they're harmful. There just needs to be more research, which will take time, but it will get to the bottom of the matter," Dr R. Rajalingam, a dermatologist in Kuala Lumpur, told *Global Health Asia-Pacific.*

"It's still very important that people continue to use sun protection to prevent skin cancer because the benefits outweigh the perceived risk, which anyway needs to be tested further through research and assessment by regulatory bodies."

Up to 14,000 tons of sunscreen end up in the world's oceans every year, and oxybenzone, in particular, can harm coral growth

Balls take the bend out of hard-working backs

Exercise balls provide a cheaper way for office workers to straighten their spines than expensive ergonomic chairs

The easiest way for an office worker to transform from a turtle to a cobra is by sitting on an exercise ball for half an hour a day.

The "turtle" is what physiotherapists call the shape that many people on the nine-to-five grind have to show for years of sitting at their desks answering calls and writing emails.

It's a bent-forward, cramped pose caused by pressure building up over time on the neck, spine, and lower back that can also pinch the nerves that run down to the arms and hands to increase the risk of carpal tunnel syndrome and other musculoskeletal conditions.

Occupational health teams stress the need to reorganise workstations to make them more ergonomically sound in a bid to maintain staff productivity and mitigate employer liability. Such approaches can feature specially designed keyboards, mice, adjustments to desk height, and expensive orthopaedic office chairs.

Workplace strains are estimated to account for about a third of all worker injury and illness cases in the United States.

The US Department of Labor advises that employers are responsible for providing a safe and healthful workplace for their workers and that musculoskeletal disorders from physical overexertion can be substantially reduced using ergonomic principles.

According to physiotherapist Jeffry Sashitaran, founder of Platinum Physio in Malaysia, the easiest, most cost-effective way to trade the hunch of a turtle for a graceful, cobra-like pose is to exchange typical office seating for an exercise ball for at least 30 minutes a day.

These are the large, often brightly coloured plastic balls found in most gyms, and an extensive body of medical evidence says that they offer important postural benefits.

Research has found that balancing on an unstable surface requires engagement of the core muscles found in the abdominal, lower back, and pelvic areas, helping them grow stronger while improving posture and lessening back pain. That's why people do exercises on top of exercise balls while working out.

"Gym balls provide the easiest way to improve your posture. You can't sit slouching on a gym ball, and at the same time, it's also a natural way of strengthening the muscles without doing any exercise," Jeffry told *Global Health Asia-Pacific.*

But if a person already has back pain, and therefore inflammation, this should be treated first with ice packs and perhaps a visit to the physiotherapist. Once that's treated, exercise balls should start to have an effect, he says.

"You just have to use the gym ball for 30 minutes a day, and then get back to your usual chair. Sooner or later, many people will only want to use the gym ball. I know so many patients who say they're happy with the gym ball; they'll be on it forever," he said.

"You just have to use the gym ball for 30 minutes a day, and then get back to your usual chair"

The same can be done at home to improve posture by sitting on an exercise ball while reading the paper over breakfast or watching the television.

"It automatically straightens the spine and puts it in the most natural position. People laugh when I suggest it, but there really isn't a faster, easier way to get your spine back to where it should be."

Performance nutrition doesn't mean missing out on flavour

Elite athletes need to eat masses of protein, but doing so shouldn't be an ordeal

Speaking on television after picking up her Olympic silver medal in Tokyo this year, British weightlifter Emily Campbell described her diet as "anything, but a whole lot of it."

"For breakfast, I'll have eggs and toast, Weetabix and fruit. For lunch, it will be any sort of meal, particularly pasta, but it will be so much that I'm sweating afterwards," she told the BBC.

"When people say it's great being able to eat a lot of food, I'm like, just come and sit at the table next to me. My family will be cheering me on, saying, you can do it, come on, finish it!" she said.

When it comes to high stakes sports involving professional power athletes, once they've built up their muscles to a competitive level, the real challenge is keeping them fuelled with the right number of calories each meal and supporting their bodies during intensive training sessions.

According to UK Sport, a weightlifting training session can last up to two and a half hours, although the actual hands-on-the-bar time will amount to only five to 12 minutes. During this short time, however, a lifter may move anywhere from four to twenty tonnes.

During one training session, an elite lifter can burn 1,500 or more calories, meaning that the energy expended by elite athletes who train twice a day would eclipse the roughly 2,500 calorie intake recommended for adults in the UK.

Before reaching that level, a high-protein diet is recommended that allows the individual to build muscle, recover from training, and maintain energy levels.

The International Society of Sports Nutrition (ISSN) advises that consuming 1.4 to 2.0 grams of protein per kilo of body weight per day is sufficient for most exercising individuals to build and maintain muscle mass, although this should increase to 3 grams for high-intensity trainers, such as weightlifters.

On top of this, carbohydrate consumption is essential to replenish glycogen stores in the muscles and liver and help avoid fatigue during training. The ISSN suggests that consuming 45 to 55 percent of daily calories as carbohydrates is sufficient for a general fitness programme, but people who take part in high-volume training may require more than this.

While it's often believed that athletes live on a diet of steamed meat and plain pasta, it doesn't mean they need to give up flavour when power-eating, according to Malaysian nutritionist Joice Tan.

Combining the right ingredients in an imaginative way can keep performance food tasty, while still avoiding high-salt, high-sugar sauces.

"Greek yoghurt is a fantastic source of protein as it contains fast-digesting whey protein and casein protein, which digests slowly. Together, these have been shown to build lean mass.

"You can combine Greek yoghurt, which has about twice the protein of regular yoghurt with tuna, which not only has lots of protein but also a lot of vitamins and fatty acids, to make a nice topping for a pasta salad, which gives you the carbs you need, or even better, brown rice," said Tan.

Another great tasting dish for athletes that she recommends is eggs Benedict.

"Eggs have high-quality protein, healthy fats, vitamins, and fatty acids, just like salmon and turkey breast, which has almost no fat or carbs. Scramble the eggs and put it all on a base of tofu instead of bread for more protein and less carbs, although a wholemeal muffin would be perfectly good."

Carbohydrate consumption is essential to replenish glycogen stores in the muscles and liver and help avoid fatigue during training

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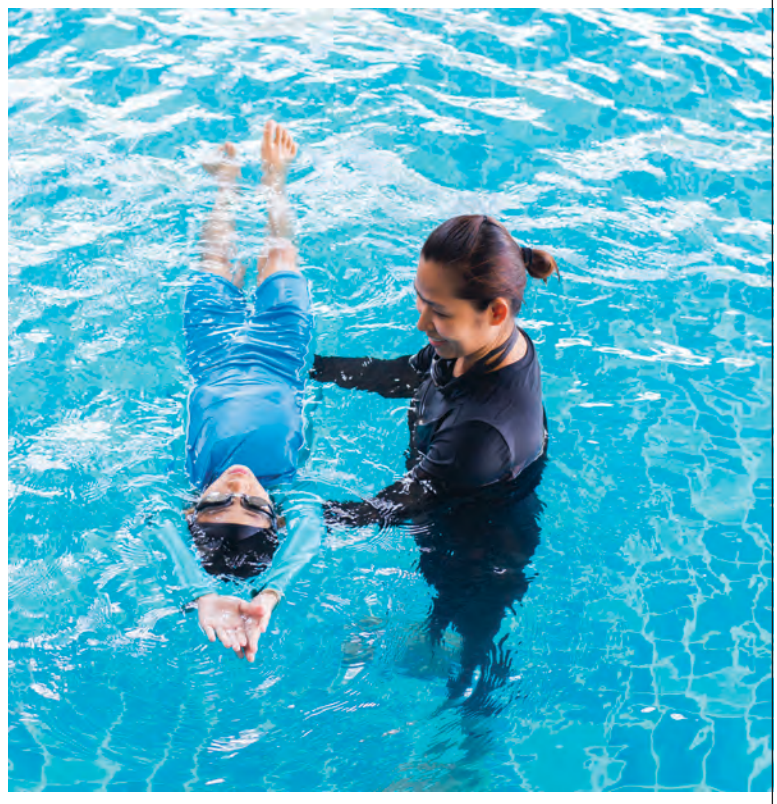
Parents should encourage children to swim when young

Water activities have a beneficial effect on people of all ages, though few in SE Asia take the time to learn



Experts say that swimming offers more health and safety benefits than virtually any other sport, but it's yet to take off in Southeast Asia.

The results can be tragic as the number of drowning deaths in Malaysia, for example, hovers at an average of 700 per year, and drowning ranks second after road traffic injuries as a leading cause of accidental death, according to the Malaysian Paediatric Association.

It's the norm in most countries for people to learn how to swim early in life. If they miss the opportunity at a young age, it's unlikely that they'll take to the water as adults and will miss out on its health and protective benefits.

That's according to Dr Solina Nazari, who founded the Summer Splash swimming academy in Subang Jaya, on the outskirts of Kuala Lumpur.

"Swimming is one of these things that you have to learn when you're young. It's rare to find adults taking swimming lessons; they probably think that they'll never need to swim if they aren't the sort of people who go to beaches and swim in the sea," she told *Global Health Asia-Pacific.*

"That's a shame though, because swimming can really help your health and fitness, as well as mend aches and pains in later life. It's so easy to find a pool in Malaysia, but you will rarely find one that's full of people," she added.

Many of the older generation who get introduced to swimming do so in a bid to perform low-impact exercise that's easy on the muscles and joints.

Sarkuna Devi, a consultant physiotherapist at Prince Court Medical centre in Kuala Lumpur, told *Global Health Asia-Pacific* that hydrotherapy and aquatic rehabilitation —treatment that involves physical movement and exercising in water — are suitable for people of all ages, especially mothers to be and older patients with chronic joint trouble.

"This is because the water supports the body's weight, which helps to relieve pain and increase the range of movement of joints in those who are recovering from mobility issues due to neurological or sports-related injuries.

"Our hydro pool is also used for antenatal and postnatal aqua fitness. Additionally, our sports aqua rehab programme is specifically designed to gather all sports injury patients for strengthening, flexibility, proprioception and endurance, and balance training in the pool," she said.

Swimming also has a legion of other benefits for people of all ages, from simultaneously building strength and cardio abilities to gaining more power in the lungs. Not only does it improve one's physical wellbeing, for many it's an opportunity to get closer to nature and help with mental welfare, in turn helping maintain a healthy weight and reducing stress. There are even studies showing that being around water has a positive effect on the brain.

"That's why we advise parents to get their children into the pool as soon as they can, even when they're toddlers. The sooner you come in contact with water and start swimming, the more comfortable you'll be in it, whether it's for exercise, recreation, or god forbid, if you ever find yourself in trouble," said Dr Nazari.

The number of drowning deaths in Malaysia hovers at an average of 700 per year

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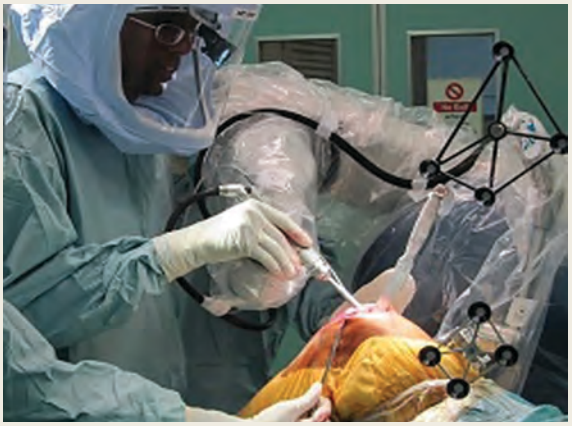
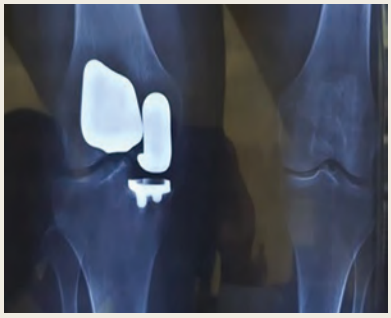
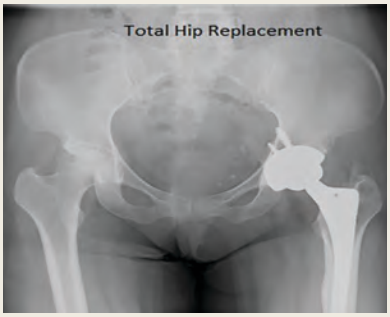
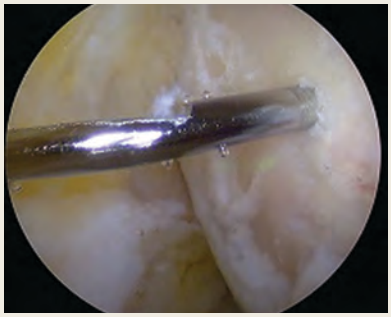


The essence of clinical practice is based on holistic care for our patients. The clinics team also includes Physiotherapy services pre-operatively and post-operatively. It can also provide robotic surgery such as Joint Replacements by using the latest robotic technology including MAKOplasty and allows patients to return to work early.







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Urological innovations in prostate treatments

Dr Colin Teo highlights the advancements in the field

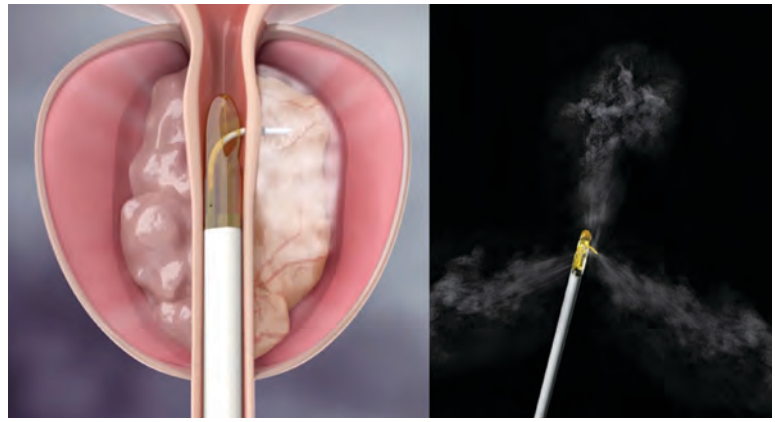
In recent years, we have seen the introduction of a wide spectrum of exciting new medical technologies for treating the prostate, the walnut-sized gland between the bladder and penis responsible for producing fluid that nourishes and transports sperm. These innovations are witnessing a rising trend of acceptance and preference among men (both young and old) as they're minimally invasive and safe while providing personalised options that cater to the different needs of individual patients.

Many of the new procedures can be performed under outpatient or day surgery with or without sedation. This is in contrast to traditional options where one had to choose between either taking multiple medications that could lose their effectiveness as the disease progresses and have compliance issues and side effects or undergoing the alternative of more invasive or radical surgeries.

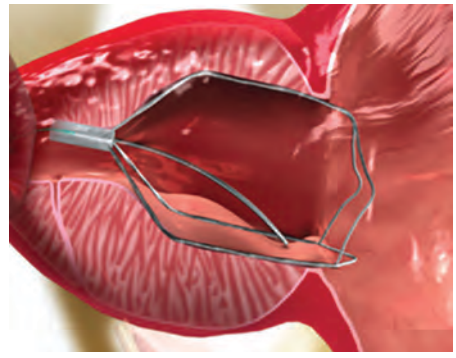
In the field of benign prostatic hyperplasia (BPH), which is a highly prevalent and bothersome benign condition in men resulting in an enlarged prostate, the exciting new innovations bring advantages of lower risk of complications with good preservation of sexual function important to many men. These innovations include:

- **Prolieve Thermodilatation** A truly outpatient procedure that can be done under local anesthesia, it shrinks the prostate using a microwave chip catheter with balloon dilatation creating a 'biological stent'.
- **REZUM water vapor therapy** A procedure that shrinks the prostate with a simple 10-minute endoscopic day surgery procedure.
- **Urolift** A system that cleverly inserts clip implants that spread open the obstructing prostate and prevent it from blocking the urethra, thereby improving flow without shrinking the prostate.
- **iTind (Temporary implantable Nitinol Device)** An alternative implant device that only requires temporary placement, it remodels the prostate over one week, after which it is removed.
- **Laser Ablation** An endoscopic vaporisation of large prostates that minimises bleeding, yet ensures a wide-open channel of unobstructed flow.
- **EXMINE Stent** A creative device that gives patients the option of avoiding a urinary catheter. When inserted, it is unseen and hidden in the body without the need for an external urine bag that can be bothersome and socially awkward. The stent can be changed or removed outpatient when due.

Prostate cancer has largely been treated by the minimally invasive and safe keyhole DaVinci robotic surgery which brought operative technology to a new level of precision and dexterity with faster recovery times and functional outcomes. For suitable patients, the latest developments provide personalised options for targeted therapy either through high intensity focused ultrasound (HIFU) or cryotherapy where cancer treatment may be designed to remove half or a part of the prostate gland if a visible tumour can be localized and thus avoid the comorbidities of cancer surgery.



BPH - REZUM Water Vapour Therapy



BPH - iTind Prostate Remodelling Temporary Implantable Nitinol Device

Although BPH and prostate cancers are not prevalent in younger patients, many suffer from chronic prostatitis, erectile dysfunction, and Peyronie's disease. While medications do bring relief, many younger patients find persistent or worsening disease progression despite taking them.

Low intensity shockwave therapy, which is performed painlessly in an outpatient clinic setting, has been shown to be effective. Shockwave treatment has been used for many years in sports medicine and has a good track record with no significant known side effects. Research and clinical studies have shown that it can also promote prostate and penile tissue healing through the release of beneficial growth factors that promote better vascular flow, decreased proinflammatory activities, endogenous stem-cell recruitment, and nerve repair.

We are indeed enjoying this era of translational innovations that have delivered a wide armamentarium of minimally invasive and effective therapy options for patients. And there is no doubt that newer technologies will continue to make their way into minimally invasive prostate therapy.

Low intensity shockwave therapy, which is performed painlessly in an outpatient clinic setting, has been shown to be effective.

Dr Colin Teo is a consultant urologist in Singapore. He's an expert in urinary stone disease and urological cancers as well as minimally invasive and robotic surgeries.

Center for Laparoscopic and Robotic Surgery

Colin Teo Urology is a center for Laparoscopic and Robotic Surgery, and provides progressive new technologies in urological treatments for both non-invasive procedures with Shockwave therapies, and minimally invasive procedures with Rezum Steam-Ablation, Prolieve Microwave Thermo-dilatation, Prostate HIFU, Bladder Botox, Endoscopic Stone Surgery, Lasers and Stents. With an experienced and well-trained team made up of Dr Teo and his urology nurses, the clinic provides a comprehensive range of urological services for:

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- Benign Urological Diseases
- Male Subfertility and Andrology

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Dr Colin Teo

Colin Teo
UROLOGY

WHO launches new blood pressure guidelines following landmark study

1.3 billion of the world's population now suffer from hypertension, with those in Southeast Asia least likely to receive medication

The number of adults aged between 30 and 79 years with high blood pressure has doubled over the last 30 years, according to the first comprehensive global analysis of trends in hypertension.

The research, by the World Health Organization and Imperial College London, took data from 100 million people in 184 countries and found that the burden had shifted from wealthy nations to low- and middle-income countries, with wealthy countries now having some of the lowest rates.

Switzerland, Canada, Korea, and the United Kingdom feature among the 10 countries with the lowest prevalence of hypertension among women, as does China, where 24 percent of its females have the condition. Bangladesh, Laos, and Cambodia make an appearance in the corresponding men's list, which shows a slightly higher prevalence in general.

"Nearly half a century after we started treating hypertension, it is a public health failure that so many of the people with high blood pressure in the world are still not getting the treatment they need," Dr Majid Ezzati, senior author of the study and public health professor at Imperial College London, said on release of the findings.

The study coincided with new WHO guidelines for hypertension treatment, which provide recommendations to help countries improve the management of hypertension.

They include what level of blood pressure to start medication, what type of medicine or combination of medicines to use, the target blood pressure level, and how often to have follow-up checks on blood pressure. In addition, the guidelines provide the basis for how physicians and other health workers can contribute to improving hypertension detection and management.

Zoning policies may be good for the heart

Affordable housing residents found to have lower blood pressure and cholesterol

Inclusionary zoning policies that increase the supply of affordable housing may be good for the heart. So says a first-of-a-kind study in the US that notes that such zoning programmes were associated with lower rates of heart disease.

It found that characteristics of inclusionary zoning programmes, which require that most new and some renovated residential developments include affordable homes for low-income residents, are associated with favourable municipal-level cardiovascular health. Further, such policies could also potentially address complex health challenges among economically vulnerable households.

"Many cities around the country are facing a severe shortage of affordable housing," Antwan Jones, a sociology professor at George Washington University and lead author of the study, said on its release. "Our study suggests that inclusionary zoning programmes can help not just boost the supply of safe, affordable housing, but may also reduce the risk of heart disease."

Dr Jones and his colleagues relied on zoning and demographic data to determine if there were links at the municipal level between so-called inclusionary zoning policies and coronary heart disease.

"Stable, affordable housing in healthy communities can reduce stress and increase access to fresh produce, parks, jobs, safe streets and other amenities that help people stay healthy," added Professor Gregory Squires, a co-author of the paper.

Mandatory inclusionary zoning programmes in which developers were required to prioritise rentals or set aside a larger share of affordable housing units had the biggest impact on markers of heart health.

While more research needs to be done to learn more about the links between inclusionary zoning and cardiovascular health, the study suggests that inclusionary zoning programmes can address some of the complex health challenges faced by struggling families in cities across the US, the authors said.

Family-based prevention is better than cure for cardiovascular health

Indian study uncovers the health and economic benefits of community interventions

Research from India has shown that family-based lifestyle interventions have the potential to improve the cardiovascular health of people living in low-and middle-income countries.

Doctors in Kerala looked at lifestyle interventions delivered by non-physician health workers to families and their effectiveness in reducing cardiovascular risk in people with a family history of premature coronary heart disease.

In their approach, the researchers exploited relationships and bonds among family members to promote the adoption of healthier choices and demonstrate that by promoting a stable family lifestyle and conducive environment, it's possible to effect positive lifestyle changes within families.

The study showed that 13 home visits and repeated reminders had a positive effect on adhering to therapy and controlling risk factors, such as unhealthy diets, tobacco cessation, home blood pressure monitoring, blood sugar monitoring, and an emphasis on daily exercise.

Because the family context can affect health-related behaviours, such as diet and exercise, it's often difficult to change them at an individual level without the mutual understanding and support of other family members.

Data suggest that recognising and attending to family relationships helps improve the health and wellbeing of family members struggling with management of a chronic disease. Furthermore, developing a mutually engaging relationship to support physical activity, diet, and other lifestyle changes within the family helps to regulate emotional distress due to coronary heart disease in one family member.

"Their study was an attempt to control risk factors for cardiovascular disease at the family level, either by the patient alone or with family members. Adherence to lifestyle and compliance of drugs is essential to control risk factors," wrote Dr JPS Sawhney, a noted cardiologist at the Sir Ganga Ram Hospital in Delhi in an accompanying editorial in *The Lancet.*

Radiation therapy reprogrammes heart muscle cells to be younger

Cancer technique found to be effective and long-lasting when used on the heart

Radiation therapy can reprogramme heart muscle cells to what appears to be a younger state by fixing electrical problems that cause life-threatening arrhythmia without the need for invasive procedures.

One such procedure, done by threading a catheter into the heart and burning the tissue that triggers irregular heart rhythm, creates scars that block the errant signals.

The new study, however, shows that non-invasive radiation therapy normally used to treat cancer can reprogramme the heart muscle cells to be younger and perhaps healthier by fixing the electrical problem in the cells themselves without needing scar tissue to block the overactive circuits.

The research also suggests that the same cellular reprogramming effect could be achieved with lower doses of radiation, opening the door to the possibility of wider uses for radiation therapy in different types of cardiac arrhythmias.

"Radiation does cause a type of injury, but it's different from catheter ablation," said co-author and radiation oncologist Dr Julie K. Schwarz of the Washington University School of Medicine at the launch of the research.

"As part of the body's response to that injury, cells in the injured portion of the heart appear to turn on some of these early developmental programmes to repair themselves. It's important to understand how this works because, with that knowledge, we can improve the way we're treating these patients and then apply it to other diseases," she said.

The researchers also found that the beneficial effects of radiation continued for at least two years in surviving patients. And importantly, they were able to demonstrate in mice that a lower dose of radiation produced the same effect.

A 360 DEGREES HOLISTIC PERSPECTIVE FOR REHAB & RECOVERY

RECOVER FASTER PERFORM BETTER

TRAINE specialises in sports injury and post-surgery recovery. With vast experience in physiotherapy, rehabilitation and sports performance, it combines this with fully-equipped state-of-the-art equipment and technology to enhance the recovery process and improve performance of each individual, no matter the background.

Since its inception in 2018, TRAINE has been focused in bridging the gap between physiotherapy and physical training. TRAINE has undertaken major assignments in sports medicine and athlete preparation and recovery at the highest level throughout the world from Korea, China, Japan and Switzerland to Germany, Indonesia, Vietnam, Singapore and now Malaysia.

Through these experience and refined methods, TRAINE experts are able to bridge the gap between rehabilitation and performance – targeting not only the patient's recovery, but also the prevention of future injuries. They have then ability to simultaneously analyse, treat, and prevent movement-related dysfunctionality while improving peak performance of individuals.

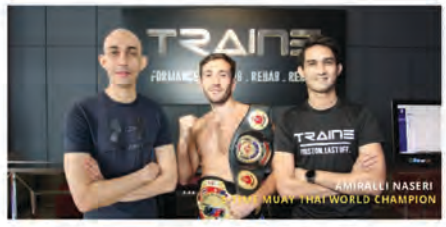
As such, it is no surprise TRAINE has been known in the industry as the "movement specialists" and has spent countless hours studying and implementing the intricacies of the neuromuscular and musculoskeletal systems. Their study and practice include a deep understanding of the anatomy, arthrokinematics (joint surface interactions), osteokinematics (movement of bones), walking and running gait analysis, exercise physiology, and therapeutic exercise, just to mention a few. Physiotherapists at TRAINE are trained with the skills and knowledge to work in various therapy settings ranging from clinical physiotherapy and recovery, sports and performance physiotherapy, orthopaedics and joint injury management, inpatient, acute and sub-acute care and chronic cases for the general public of all ages as well as sports professionals.

BRIDGING THE GAP
PERFORMANCE PHYSIOTHERAPIST ORTHOPAEDIC SURGEON

In several studies, the professional role of physiotherapists has reduced greatly due to an imbalance in the referral rate and the information provided to them. The inconsistency of communication between the physiotherapist and the orthopaedic physicians with regard to the provision of specific diagnoses and therapeutic procedures is very common.

In Malaysia, many physicians perceive therapists as technicians rather than professional colleagues, causing a gap in the treatment and recovery of patients as vital information and progressive assessment of each individual are often unavailable, leading to poor long-term outcomes for patients with traumatic lower-extremity injuries. At TRAINE, we are looking to change that perception once and for all, exploring and comparing the factors associated with orthopaedic surgeons and physiotherapists assessments of patients with traumatic injuries over a long-term ongoing process. This begins with a thorough and ongoing communication process toward understanding treatment practice and implementation.

Performance Physiotherapist is a blend of physiotherapy and strength and conditioning combined, providing detailed programmes which include the areas of mobility/recovery, strength/power, and energy systems development.



THE TRAINE APPROACH

At TRAINE, the key method for rehabilitation and recovery is not to only fix what is "broken," but also to study why each particular injury occurs and causes discomfort, getting to the root of the problem. The aim is to find ways to assess not only the specific pain points but also to evaluate each individual from a broader musculoskeletal perspective, from their body posture to all its connecting muscles and joints that may lead to future injuries. This is TRAINE's philosophy as its experts believe every injury will eventually return and cause discomfort over time if it's fixed without identifying the root cause for it.

Pain is a way in which our body is trying to communicate with us. With the advancement of technology, today we have a better understanding of the musculoskeletal system, hence it is possible to look at any dimension of an injury without consulting each particular connection of the system in isolation. It is more essential than ever to see each treatment holistically in order to optimise it and diagnose and avoid any future re-occurrence through a 360 outlook at the "cause and effect" implications of these injuries. Identifying the root cause is crucial for determining the origins of a particular injury or pain and for preventing any future discomfort that may be caused by the same musculoskeletal deficiency.

In addressing clients' requirements, TRAINE focuses on areas of specialization that will enable its experts to provide added and lasting value through a breakthrough methodology in rehabilitation and recovery. Unlike other physiotherapy centres out there, we pride ourselves in handling our patients with total and wholesome care, spending 3-4 hours with each individual patient to allow for a complete and thorough recovery process.

The stages of recovery from physiotherapy to rehabilitation and performance training is defined precisely for each individual depending on their needs, and we have never failed time and again to prove our centre offers the best recovery programme in Malaysia.

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- INJURY PAIN TREATMENT

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- PHYSICAL EXAMINATION
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- IN-BODY COMPOSITION TESTING

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- SAUNA THERAPY
- SHOCKWAVE THERAPY
- LASER THERAPY
- OXYGEN THERAPY
- GOLD BAR HEAT THERAPY
- RAINBOW HEAT THERAPY
- GRASTON TECHNIQUE
- DRY / WET CUPPING
- ACUPUNCTURE
- PAIN POINT REMEDIAL MASSAGE
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Access to essential cancer medicines unequal across different countries

Patients in most countries of the world do not have access to basic cancer medicines

Patients in most countries of the world do not have access to basic cancer medicines, according to new research from King's College London, Kingston University London, and the World Health Organization.

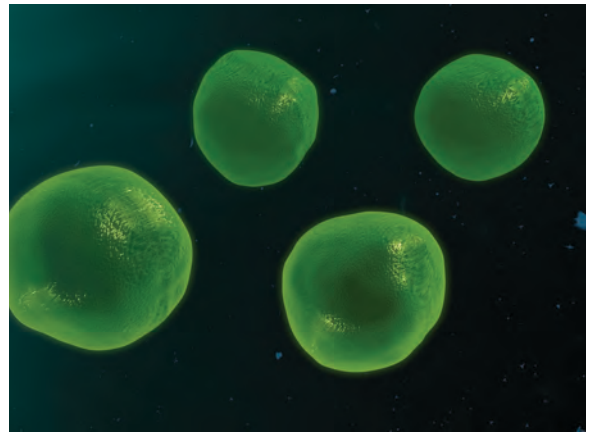
Their paper, published in *The Lancet Oncology*, asked oncologists worldwide to list the most important cancer medicines and describe whether patients could access them in their home country.

As a reference, the researchers used the WHO's Essential Medicines List, which has been updated every two years since 1977. The list helps policymakers worldwide prioritise which medicines to provide for patients.

Dr Richard Sullivan of King's College's Global Oncology Group and the international team surveyed 948 frontline cancer doctors from 82 countries to learn which cancer medicines they considered the most important for patient care.

The paper reported that in most health systems patients were unable to afford even the most basic cancer medicines. In lower and middle-income countries, most patients faced major financial barriers in accessing anti-cancer medications, even those that were older, generic and inexpensive chemotherapy drugs. Financial barriers also existed in many high-income countries.

"The primary reason why medicines are not available to patients is because they are not affordable. This is tragic as most of these medicines are older generic drugs and provide major benefits to patients. These problems are most pressing in low-middle and upper-middle income countries where the rates of cancer are most rapidly escalating," Professor Sullivan said on the launch of the report.



Rapid counting of T cells can help predict patient response to cancer therapy

Scientists have developed a new tool that can rapidly estimate the number of T cells in a cancerous tumour

Scientists in London have developed a new tool that can rapidly estimate the number of immune cells in a cancerous tumour, enabling them to more accurately predict a patient's response to immunotherapy. The findings give hope that more targeted and effective cancer therapies will be identified.

As part of the Cancer Research UK-funded TRACERx project, scientists analysed DNA sequencing data from cancerous tumours in an attempt to quantify the fraction of T cells, which are produced by the body's immune system, within a sample.

"DNA sequencing is frequently performed on cancer patient's tumours for patient stratification and to understand how a cancer has developed," explained corresponding author Dr Nicholas McGranahan of the University College London Cancer Institute in Nature.

"Estimation of immune cells, which are important for controlling cancers, influencing patient survival and guiding treatment, has in the past not been possible to estimate solely from DNA sequencing data. We aimed to explore whether we could develop a novel method to elucidate immune cells directly from DNA sequencing, without the need for more data," he wrote.

DNA sequencing allows scientists to see the evolutionary history of how individual tumours have developed. In the current study, the researchers developed a tool to "look back" and calculate levels of T cell "VDJ recombination", a process through which T cells are reassembled or altered and enabled to identify and attack invaders.

Specifically, they found a "signal" that enabled them to estimate accurately the number of T cells present in the tumour and to predict a patient's response to immunotherapy.

COLUMBIA ASIA

Columbia Asia Hospital - Tebrau

Management of Knee Osteoarthritis Without Surgery

Knee osteoarthritis causes significant pain and discomfort to a lot of people in the middle to older age group. This happens due to cartilage degeneration which occurs as one grows older due to wear and tear of the joint. When this occurs, patients normally will take oral painkillers, joint supplements, injections into the joint including steroid or Hyaluronic acid and even regular physical therapy. Chronic pain in osteoarthritis can significantly limit your movements and despite all of the treatments above, you feel defeated. Fortunately there is an alternative procedure which can help alleviate your pain without involving joint replacement surgery. This procedure is called Radio-frequency ablation.

What is Radio-frequency Ablation?

RFA is a non-surgical, minimally invasive procedure which is done under minimal sedation that uses heat to ablate pain-transmitting nerve fibres around the knee. These radio-frequency targets 3 specific nerves in the knee joint; genicular nerves, rendering it ineffective. This in effect decreases the transmission of pain to the brain from the knee.

How is RFA done?

RFA knee can be done as a Daycare procedure. Patient will be brought to the operation theatre under conscious sedation during the procedure. Local anaesthesia will be injected into the area before introducing the RFA needle. RFA needle will be guided by fluoroscopy or ultrasound-guided to reach the location of the nerves. The procedure will take about 20 to 30 minutes per knee.

How does RFA differ from injections into the knee?

Injection requires a needle to penetrate the capsule and enter the knee joint. RFA needle does not need to enter the joint, just to the nerves around the knee.

Is there any complications to this procedure?

As with any procedure, there is always risks of infection, bleeding or bruising post procedure. Due to the close proximity of the nerves to the blood vessels of the knee region (Genicular arterial system), there is a risk of injuring those vessels but the risk is very small.

How long does pain relief from RFA knee last?

It varies between patients, but most studies have shown pain relief for at least 6 months.

Who is suitable to undergo RFA knee?

RFA is suitable for those patients who are not fit for surgery, those who do not want surgery and those who are too young for joint replacement surgery. RFA may be an option in between intraarticular knee injections and knee replacement surgery.

Dr. Gunaseelan Ponnusamy &
Dr. Hazli Sufian Sulaiman

Consultant Orthopedic Surgeons

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Older patients with non-small cell lung cancer can benefit from latest treatments

Study shows elderly can benefit from immune checkpoint inhibitors, a new cancer immunotherapy

A new study suggests that age does not negatively impact the survival benefits that elderly patients with stage 4 non-small cell lung cancer (NSCLC) get from immune checkpoint inhibitor therapy, a form of cancer immunotherapy.

The inhibitors work by preventing the immune system from turning off before cancer is completely eliminated.

Because elderly patients with NSCLC are likely to be excluded from clinical trials due to their lower functional capacity or comorbidities, survival benefits from immune checkpoint inhibitors remain unclear.

Immune checkpoints are a normal part of the immune system. Their role is to prevent an immune response from being so strong that it destroys healthy cells in the body.

Immune checkpoints engage when proteins on the surface of immune cells called T cells recognise and bind to partner proteins on other cells, such as some tumour cells. These proteins are called immune checkpoint proteins. When the checkpoint and partner proteins bind together, they send an "off" signal to the T cells. This can prevent the immune system from destroying the cancer.

Immunotherapy drugs called immune checkpoint inhibitors (ICIs) work by blocking checkpoint proteins from binding with their partner proteins. This prevents the "off" signal from being sent, allowing the T cells to kill cancer cells.

In patients with NSCLC, ICIs have become one of the standard pharmacological therapies, but elderly patients may be denied these in clinical trials.

In the latest study, scientists at the Kyushu Cancer Centre in Japan analysed over 86,000 patients with stage 4 NSCLC. They found that "chronological age does not appear to impact on survival benefit of ICIs in stage 4 NSCLC". These findings should be validated in future prospective studies.

The findings are important because the need for immune checkpoint inhibitor therapy is increasing, and as the population ages, many patients receiving such drugs will be older adults.

Intellectual disabilities linked to increased risk of cancer

Nordic study's findings indicate a need for extended surveillance and early intervention

People with intellectual disabilities are at an increased risk of any cancer, but particularly a number of specific cancer types, according to a Nordic study.

Due to this link, the researchers have suggested that people with intellectual disabilities (IDs) undergo extended surveillance and early intervention for cancer.

The results were presented by Dr Qianwei Liu of the Karolinska Institutet in Stockholm at the European Society for Medical Oncology Congress 2021.

Dr Liu explained that there was a large gap in knowledge about the risks of cancer in people with IDs. Together with colleagues, he conducted a population-based cohort study of more than 3.5 million children of whom 27,956 had clinically confirmed cases of ID.

To examine the association between ID and cancer, the team assessed the severity and type of intellectual disability and also looked at the mental health of siblings.

The researchers found a statistically significant increased risk for any cancer as well as for specific cancer types, in particular cancer of the oesophagus, stomach, small intestine, colon, pancreas, uterus, kidney, central nervous system, and other unspecified sites.

ID is subdivided into syndromic ID, in which intellectual deficits associated with other medical and behavioural signs and symptoms are present, and non-syndromic ID, in which intellectual deficits appear without other abnormalities. According to the study, excess cancer risk was not modified by severity of ID or sex but was higher in those with syndromic ID.

PANTAI HOSPITAL
Kuala Lumpur

OUCH, MY BACK HURTS!

Dr Sureisen Mariapan

SITTING too long and concentrating on working using a computer with incorrect posture can cause back pain. Two common condition seen in office workers are spinal disc syndrome and spinal stenosis.

SPINAL DISC SYNDROME AND SPINAL CANAL STENOSIS

Spinal disc disease ranges from disc tear, slip disc to aging disc (degeneration). With progression, pain and numbness will radiate to the hips, knees and foot , a condition known as sciatica. Further progression of this disease can lead to urinary and defecation difficulties.

Pantai Hospital Kuala Lumpur Orthopedic Consultant and Spine Surgeon, Dr Sureisen Mariapan, said back pain with radiation to hip and leg could occur because of torn disc due to the injury, with resultant disc herniation compressing the nerves.

Dr Sureisen said the cause of the pain can also be attributed to spinal stenosis where nerves are squeezed together in a narrowed spinal canal.

"This is associated with reproducible leg pain with walking and other activities. Typically, pain subsides with cessation of activity and rest," he said. Spinal stenosis predominantly seen in those aged 40 years and above. However due to 'office syndrome' contributed to prolonged sitting, it is commonly seen in individuals in the mid-30s.

EARLY MEDICAL ATTENTION

"Those with back pain due to aging spine would be advised for short course of anti-inflammatory medications and physiotherapy up to six weeks to recuperate."

"Cause for the pain will be identified with further imaging modalities like X-rays and Magnetic Resonance Imaging. Currently, a lot of minimally invasive options are available to treat this conditions. Back pain can be treated with radiofrequency ablation of facet joints, intradiscal therapy like laser with epidural steroid injections. Radiculopathy (pain radiating to leg) responds well to transforaminal epidural steroid injection, pulsed radiofrequency of dorsal root ganglion and endoscopic decompression surgery.

"For more advanced disc disease, fusion surgery would be advised," he said.

RADIOFREQUENCY PROCEDURES

He said that if the back pain is due to degenerative facet joints, radiofrequency procedure is a good option of treatment.

"This procedure is done by inserting needles to numb the sensory nerves that supplies the affected facet joints at your back, thus reducing the pain sensation transmitted to the brain. This can be done as day care procedure" he said.

ENDOSCOPIC SPINE SURGERY

Spinal stenosis and intervertebral disc problem can be addressed effectively with endoscopic decompressive or discectomy surgery. This surgery is performed using spinal endoscope via 1cm wound.

"Using spinal endoscope, the image of the spinal structures are magnified 10x. We are able to remove the bone or ligament that is squeezing the nerve safely and effectively. Blood loss, wound infection and pain after surgery can be reduced significantly. Patient able to return to work and resume their activities faster. I believe this makes surgery in elderly patients feasible and safe," he said.

FUSION SPINE SURGERY

In advanced disc disease, fusion surgery is advised. The disc has degenerated and incompetent to absorb the pressure loaded on the spine. Painful movement together with severe leg pain necessities fusion surgery to replace the painful, compressive disc and stabilize using titanium pedicle screws.

"Minimally invasive spinal fusion is effective and safe. Newer technologies like navigation and robotic assisted surgery able to increase the accuracy and safety of the procedure."

RECOVERY PERIOD

Dr Sureisen said the period for a patient to fully recover depends on the surgery and severity of the disease. Usually, patient can be discharged in 2-3 days after surgery. Patient able to perform mild physical activities 2 weeks after discharge. Rigorous physical activities and driving is advised to be avoided during the first 4-6 weeks after surgery.

He advised individuals who have symptoms of back pain or radiating pain to leg, to consult spine surgeon early.

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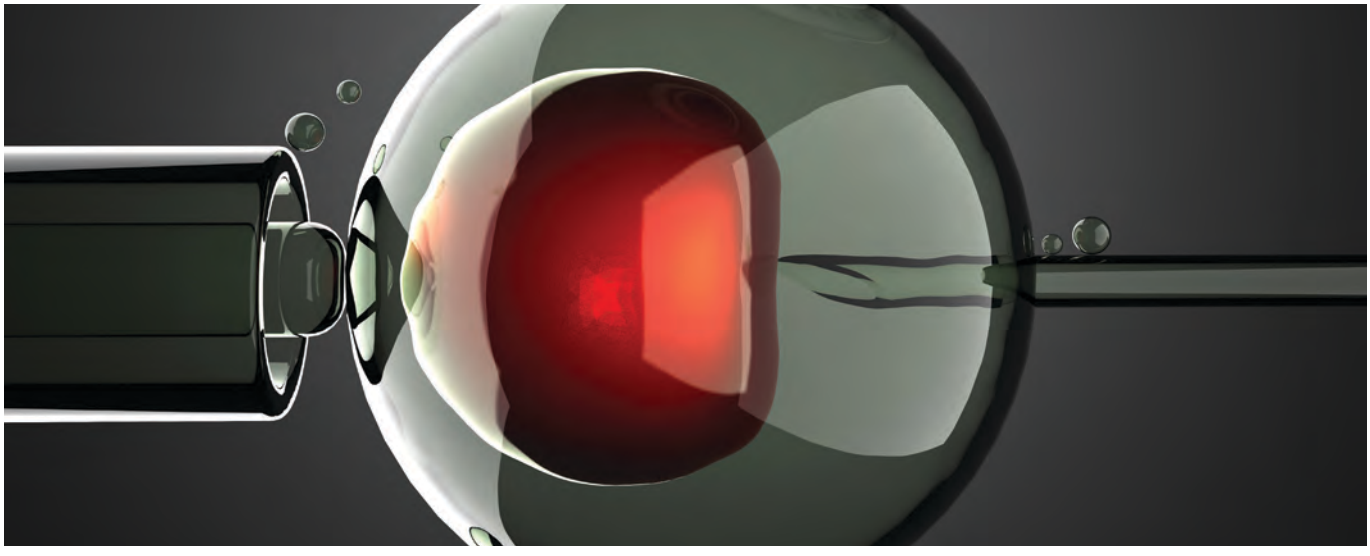
Scientists get a step closer to producing babies from stem cells

The dream of in vitro gametogenesis is getting closer, but scientists and ethicists will have to wait decades before it becomes a reality



One of the most exciting — and ethically challenging — concepts in reproductive medicine has been given a boost after Japanese scientists managed for the first time to artificially form eggs wholly from stem cells that would go on to be fertilised and gestated into newborn mice.

By doing so, they have crossed another frontier on the way to achieving in vitro gametogenesis (IVG), a longstanding ambition to create offspring from artificial eggs and sperm.

Until recently, sperm could only be made inside a testis and eggs from an ovary. A decade ago, Dr Hayashi Katsuhiko of Kyushu University was the first to produce functional mouse sperm from stem cells, and in 2016, he produced the first functional eggs in mice, although these required fresh ovarian tissues taken from mice to enable them to mature. In his latest experiment, Professor Hayashi successfully recreated this ovarian support tissue to give rise to viable, egg-producing ovaries.

These could then be used in human assisted pregnancy for infertile heterosexual and same-sex couples with each partner being a genetic parent to their children. It could also even allow women to become pregnant without the need for a third-party donor.

Given that the research only represents a very early breakthrough, scientists believe it will make it easier to study the causes of infertility and provide an alternative source of gametes, or reproductive cells, for research.

While scientists have been seeking ways to achieve IVG, ethicists have been considering the moral suitability of the approach.

In a commentary written in *Science Translational Medicine*, three Harvard scientists argued: "While IVG carries a promise to unravel the fundamental mechanisms of devastating genetic forms of infertility and to pave the way to a range of new therapies, the technique also raises a number of vexing legal and ethical questions that society should address before IVG becomes ready for prime-time clinical use in human patients."

Using IVG to allow infertile heterosexual couples to have genetically related children has generally been accepted by bioethicists. Other potential clinical applications, such as enabling same-sex reproduction, postmenopausal motherhood, and solo genetic parenthood have attracted significantly more criticism. IVG also raises the potential for eugenics, or selective breeding, to enter the mainstream.

"There's something considerably worrying about allowing an infinite supply of gametes that can be used as an inexhaustible supply of embryos," Nor Azlina Mohamed, a bioethicist at the University of Malaya, told *Global Health Asia-Pacific.*

"It could be said that IVG could enable the selection of embryos that have desired traits, but even though the creation of so-called designer babies is worrying, it's a separate issue altogether to the moral acceptability of IVG, which would potentially be beneficial for couples who cannot conceive on their own but who want to have their own genetic offspring," she said.

In the meantime, it looks like ethicists, lawyers, and regulators will have plenty of time to formulate their responses to the idea of IVG. Experts believe it will be decades before Professor Hayashi's latest findings are developed into something workable, and that's assuming it can be practically translated from mice into humans. In the meantime, he's continuing his research on marmoset monkeys. As he told *STAT*: "The issue is the quality of the in vitro oocyte (egg). That could take a long, long time to verify."

Changing antibiotics could lower cases of neonatal sepsis

Infant deaths could be prevented following new research into choice of drugs in poor countries

Neonatal sepsis is a blood infection that occurs in infants younger than 90 days old. According to a wide-ranging study of tens of thousands of infants in Africa and South Asia, current methods of antibiotic treatment for the condition differ in different parts of the developing world, resulting in higher death rates in certain countries.

The new research could potentially save countless lives by increasing the effective treatment of a condition that causes an estimated 2.5 million infant deaths annually, particularly in low- and middle-income countries that often have reduced access to resources such as laboratory facilities.

The British study also highlighted how economic issues can affect treatment costs and raise other barriers to dealing with neonatal sepsis.

Researchers from Oxford University and an international network of microbiologists combined microbiological, genomic, epidemiological, pharmacodynamic, and economic data for the first time to study the efficacy of various antibiotic treatments in Nigeria, Pakistan, Bangladesh, Rwanda, South Africa, Ethiopia, and India. They assessed what sepsis-causing pathogens were present in these countries in order to learn more about associated antimicrobial resistance.

"Usually, the causes of sepsis vary between regions, and there is different susceptibility. For example, the causes of fever in Africa may be quite different from what we see in New Zealand, with different comorbities and population structures," Dr Nigel Raymond, chair of the New Zealand Committee of the Australian Society of Infectious Diseases, told *Global Health Asia-Pacific.* "That is why different antibiotics are used in different parts of the world."

The World Health Organization recommends ampicillin and gentamicin for the treatment of neonatal sepsis. While these may be effective in wealthier nations, there has long been speculation that they were less effective in poorer countries due to different levels of antibiotic resistance and variation in common pathogens.

The researchers discovered that some sites are already using different antibiotics to those endorsed by the WHO due to high resistance against these antibiotics. Infants who were prescribed the recommended combination of ampicillin and gentamicin had a survival rate of 75 percent over 60 days. In contrast, infants prescribed ceftazidime and amikacin had a survival rate of over 90 percent over the same period.

Previous research found that globally an estimated 214,000 neonatal sepsis deaths are attributable to resistant pathogens each year, so changing the

recommendations to ceftazidime and amikacin could drastically reduce this number.

The study also investigated the frequency of resistance to various antibiotics. While a variety of antibiotics has been suggested for neonatal sepsis, this is the first study that has incorporated frequency of resistance data, allowing insight into how quickly a certain antibiotic could become redundant following extensive use. The results will enable more accurate recommendations to be made on which antibiotics to use.

In terms of the economic impact of antibiotic use, the study examined average earnings versus the costs of certain antibiotics in different countries. It found, for example, that piperacillin-tazobactam costs US$2.60 per day in India, which is a massive 76 percent of the average daily wage. By contrast, it costs US$20 a day in Nigeria, representing between 219 and 741 percent of the average daily wage, depending on the area of the country.

The economic data raises questions about who should be responsible for the costs of antibiotic treatment, given that more effective alternative antibiotic treatments are often inaccessible to the poor who also have no access to universal healthcare.

Six of the seven countries studied stated that the cost of antibiotics influenced which are prescribed. This is shown by the continued wide use of ampicillin and gentamicin, as they are consistently the most affordable antibiotics, despite having been long considered less effective than other antibiotic regimes.

SOURCE: COTESYS.ORG

Neuroprosthetics gives hope to the paralysed and amputees

Science mimics sensory feedback in real time by stimulating nerve signals

Neuroprosthetics researchers in America have successfully enabled a man with severe paralysis to communicate in sentences, translating signals from his brain to his vocal tract directly into words that then appear as text on a screen. Using a rapidly evolving science that blends neurology with engineering, the scientists are developing devices that can enhance the input or output of the human neural system.

In the study, Dr Edward Chang, a University of California neurosurgeon, surgically implanted a high-density electrode array over the patient's speech motor cortex. After the participant's full recovery, his team recorded 22 hours of neural activity over 48 sessions and several months. In each session, the patient attempted to say each word many times while the electrodes recorded brain signals from his speech cortex.

To translate the patterns of the recorded neural activity into specific intended words, Dr Chang's team used artificial intelligence to distinguish subtle patterns in brain activity to detect speech attempts and identify which words he was trying to say.

"To our knowledge, this is the first successful demonstration of direct decoding of full words from the brain activity of someone who is paralysed and cannot speak," said Dr Chang on publishing the study in the New England Journal of Medicine.

Neuroprosthetics researchers have also identified crucial techniques that go beyond speech and communication to restore sensation for amputees and help paralysed people walk again. In one study, a Swiss-led team created a leg neuroprosthesis that mimics sensory feedback in real time by stimulating nerves in the remaining limb.

This mimicking helps overcome a shortcoming in current leg prostheses in that they do not restore the sensation of touch in lower-leg amputees and can leave patients at higher risk of falls and poor mobility, as well as with the perception that the prosthesis is an external object instead of part of the body.

"It's very difficult for above-knee amputees to climb stairs quickly or cross obstacles when they're wearing commercial prosthetics," Dr Stanisa Raspopovic of ETH Zurich, told *Global Health Asia-Pacific*. "That's why we developed a prosthetic leg to give them the level of feeling they need because a commercial prosthetic is not connected to the brain, it doesn't feel like it's part of the body."

His team at the public Swiss university implanted tiny electrodes in the thigh nerves of three people, after which they were able to recognise when different spots on their prosthetic feet were touched and were better at climbing stairs and navigating obstacle courses. The trial participants also had greater ownership of their bodies and were less mentally occupied with the prosthesis, adding to a greater sense of freedom.

Other research from Switzerland has succeeded in helping a monkey walk again after its spinal cord was severed. Researchers at Ecole Polytechnique Federale de Lausanne developed a neuroprosthetic system, what they called a "brain-spine interface", to bypass the injury and restore communication between the brain and the region of the spinal cord.

The interface bridges the spinal cord injury, in real-time and wirelessly, by decoding spiking activity from the brain's motor cortex and relaying this information to a system of electrodes located over the surface of the lumbar spinal cord, a complex network of neurons that activates leg muscles to walk.

But the researchers say it may take a number of years before all the components of the intervention can be tested in people.

WHO launches initiative to boost community integration for dementia sufferers

Global dementia-friendly 'toolkit' helps build on local initiatives

Having recently launched a "toolkit for dementia-friendly initiatives", the World Health Organization is hoping to scale up integrative initiatives for people with the disease globally.

The toolkit is in the form of a booklet that guides readers from governments, civil groups, and interested parties through methods to raise public awareness and understanding of dementia and support people living with it to "be a significant part of their communities."

It's been designed to assist people working in communities to plan, implement, and evaluate dementia-friendly programmes or integrate dementia into other initiatives, such those relating to age-friendly environments and the Decade of Healthy Ageing, the United Nations initiative to develop strategies to improve the lives of older people, their families, and the communities in which they live.

Globally, there are already more than one billion people aged 60 years or older, and most of them live in low- and middle-income countries. Many do not have access to even the basic resources necessary for a life of meaning and of dignity. Many others confront a range of barriers that prevent their full participation in society, according to the UN.

The dementia-friendly booklet is one of a growing number of toolkits that the UN agency has been putting forward to tackle a wide range of health issues from AIDS awareness to measuring quality of life.

It provides an additional resource for the work of organisations such as Dementia Singapore and will be a useful tool for countries that are starting to introduce more dementia-friendly activities.

"All toolkits are prepared with good intentions and are usually meant to provide assistance. How one uses the toolkit depends on the individual, and toolkits are never all encompassing so its usefulness varies between users," Stanley Ho, the charity's director of advocacy and communications, told *Global Health Asia-Pacific.*

Dementia initiatives are not new to Singapore, which has established 14 dementia-friendly communities across the country where residents learn more about dementia and persons with dementia and their caregivers feel included and supported to continue living well at home.

Dementia Singapore has also recently introduced dementia-inclusive practices to the business community by launching its own dementia-inclusive business toolkit.

"The localised toolkit acquaints companies with a three-stage framework of awareness, friendliness, and inclusiveness," said Ho.

By following the framework, each company is first able to understand the gravity of dementia as an issue that needs to be addressed in the workplace, followed by the next steps it can take to make dementia-friendly changes to its business environment. The aim is to eventually become dementia-inclusive where it can effectively render support to staff with dementia or those who are carers to loved ones with dementia.

"To make our business toolkit truly inclusive, key stakeholders such as persons with dementia, caregivers, and businesses — in particular, specific departments of businesses such as HR departments — were actively involved in its development. This ensures that the recommendations are pragmatic for implementation and beneficial to both businesses as well as those impacted by dementia," he added.

After 10 years, Alpha IVF is just getting started

A reknown fertility centre in Kuala Lumpur celebrates their first decade by preparing for the next

Looking back over the impact his clinic has had on Malaysia and the global fertility sphere over the past 10 years, Dr Colin Lee believes there's still more to come.

A principal obstetrician and gynaecologist and founder of Alpha IVF and Women's Specialists in Kuala Lumpur, Dr Lee is well known for embracing the latest techniques and technologies as soon as they're available, and in the fast-paced world of fertility where breakthroughs occur with formidable speed through global research and development, there are many more "toys", as Dr Lee calls them, and regional and global "firsts" around the corner.

When Alpha opened in 2011, it achieved the world's first delivery of a healthy baby from a frozen egg and frozen sperm followed by a frozen embryo transfer.

Last year, the fertility centre made history after delivering the world's first baby conceived using a new type of genetic sequencing aimed at saving the life of his sibling.

In between, Alpha's doctors have achieved a long list of national, regional, and international firsts, mastered techniques that are not available elsewhere in Malaysia, and maintained a world-class IVF success rate.

But still Dr Lee says the 10-year-old centre is just getting started.

"When I opened Alpha, my mission was very simple," he told *Global Health Asia-Pacific*. "I had already gained a reputation for success in fertility in my previous roles; now it was time to build something even bigger so that even more couples who had been struggling with their fertility can achieve their dream of having a baby."

"I think we've achieved that well, but it's just the tip of the iceberg. It's not in my nature to slow down, and there are still many more couples to help," he said.

Compared to its current palatial surroundings, Alpha took shape at a far more humble location as just a tenant of a larger group of clinics. Dr Lee's clinic there had a very functional and to-the-point aesthetic, with plastic chairs and cramped rooms.

By 2019, it had expanded to its own premises that now resemble the foyer of a five-star hotel. Patients are greeted under an ornate light fixture depicting golden sperms meeting eggs above the reception area. The new centre had been opened by the then queen of Malaysia, who herself had been a patient of Dr Lee's.

The centre now has five specialists in addition to state-of-the-art labs and highly qualified personnel.

"As a team, I would say that we can be proud that we have reached the forefront and been able to lead and innovate in the field of IVF on an international standing. To me that is important," said Dr Lee. "We continue at the forefront of technology, including spearheading the implementation of technology for IVF as well as ovarian

PRP, despite the slowing down of operations caused by COVID-19 pandemic."

Alpha is the first centre in Malaysia to offer ovarian PRP, a newly pioneered procedure where platelet-rich plasma is injected directly into the ovaries of women who suffer from a variety of ovarian conditions or poor egg quality.

The centre is also one of very few worldwide that have run field testing for the development of an artificial intelligence embryo selection system. In an IVF cycle, an embryologist will assess and select the best-formed, most viable embryo that's most likely to develop into pregnancy. However, since this is done manually, the process is imperfect, even though the approach is guided by an international scoring standard.

Now, using the newly launched artificial intelligence-enhanced embryo selection system, which uses machine learning to identify the best embryos through their appearance at a microscopic level, the process is faster and more accurate and helps reduce the number of IVF cycles required.

Another breakthrough technology for embryo screening used by Alpha, but not available in many other countries, is high-definition direct human leukocyte antigen (HLA) typing using next-generation sequencing, which allows for much more accurate genetic analysis of embryos than the conventional method.

High-definition HLA can identify with certainty which embryos are suitable for implantation into the mother's womb. In addition, the embryo will have a higher chance of resulting in a successful full-term pregnancy, since fewer cells need to be taken from the embryo for analysis.

"We like to be first with techniques and technologies like these because we understand how important it is for parents to conceive but also how necessary it is for them to feel confident that the pregnancy will be successful and the resulting baby will be healthy.

"One of the most exciting things about fertility treatment is how quickly new technology becomes available, and I always make sure we invest in the latest, most reliable equipment," said Dr Lee.

The last year and a half has been a challenge for all healthcare operators, not least for Alpha. Since fertility treatment is ideal for patients who fly in from abroad, complete the treatment, and hopefully deliver their child back at home, the Kuala Lumpur centre has typically catered to couples across Asia, in particular those from Indonesia and China.

Nevertheless, Alpha IVF continues to receive health travelers that arrived via special channel and of 40 patients who were seen by Alpha's Specialists since November 2020 to August 2021, 35 underwent frozen embryo transfer, and 32 achieved pregnancy, making a pregnancy success rate of 91.4% for this category.

But when borders closed for much of the last year, many couples were forced to wait until the region returned to normality before they could access fertility treatment. Now Alpha's specialists are bracing for a new wave of patients seeking their help.

"We're excited about returning to normal and welcoming more of our overseas patients, and more broadly, finding out what's in store for the next decade," said Dr Lee.

"We want to embrace all challenges by delivering the best possible treatments to our patients by sticking to our core values of excellence, innovation, quality, and integrity. ■

Air travel body endorses EU's digital passport for use around the world

IATA has encouraged all nations to use established digital COVID certificate

In a move that suggests the world is getting closer to restoring global travel, the International Air Transport Association (IATA) recently urged countries to make the EU Digital COVID Certificate (DCC) their global standard for digital vaccine certificates.

The 27 EU member states are currently using the certificate, and a further 60 countries are looking to adopt its specification in their own certification.

"The Digital COVID Certificate was delivered in record time to help facilitate the reopening of EU states to travel. In the absence of a single global standard for digital vaccine certificates, it should serve as a blueprint for other nations looking to implement digital vaccination certificates to help facilitate travel and its associated economic benefits," said Conrad Clifford, IATA's deputy director general, in a statement.

The EU certificate meets several key criteria that have been identified as important if a digital vaccination certificate is to be effective, including a flexible format that can be made available in either hard or soft copy form.

Another includes making use of a QR code, which the EU approach uses in both digital and paper formats. It contains essential information as well as a digital signature to ensure the certificate is authentic.

In addition, the EU certificate enables verification and authentication, since the European Commission has built a gateway through which the encrypted data used to sign DCCs and authenticate certificate signatures can be distributed across the EU.

The gateway can be also used to distribute encrypted data of non-EU certificate issuers to other issuers. The EU has also developed a specification for machine readable validation rules for cross-country travel.

PM announces India's new digital health system

During digital tourism address, Modi redoubles efforts to attract more health visitors

India's prime minister, Narendra Modi, has launched a programme to connect the digital health solutions of hospitals across the country with each other.

Called the Ayushman Bharat Digital Mission, it will not only simplify the processes for hospitals but also increase ease of use, said Modi during a digital address to mark World Tourism Day on September 27.

The initiative's digital ecosystem will enable a range of activities, including digital consultations and enabling patients to give medical practitioners permission to access their records.

The prime minister stated that the nation was entering a new phase after seven years of efforts to strengthen its health facilities.

"The Ayushman Bharat Digital Mission will play a big role in eliminating problems in medical treatment of the poor and middle class. Through technology, work done by Ayushman Bharat to connect patients with hospitals across the nation is being further expanded and given a strong technology platform," he said.

Modi used the address to the nation to highlight the importance of having good health facilities in the country as a means to raise tourist numbers, both for pleasure and for treatment.

He stated that the emergence of COVID-19 had led to countries' health infrastructure to be considered the top priority for travellers when planning a trip. He added that India had a strong medical and health foundation that was respected across the world.

"Moreover, Ayushman Bharat will align with the digital mission with the help of advanced technology so that people from around the globe will be able to take consultations from our skilled doctors."

Chinese health zone boosts its supply of international medicines

Hainan medical hub has been seeing increasing numbers of health visitors

Lecheng International Medical Tourism Zone in the east of China's Hainan Island intends to increase its supply of foreign pharmaceuticals, according to local media.

The zone has concluded agreements on regular supplies of medicines with more than 40 foreign drug manufacturers.

Officials also specified that work continues on forming an effective health insurance system. Since last August, more than 360,000 people have joined the programme.

"We have signed a cooperation agreement with the Beijing Health Insurance Administration ... and special pharmaceuticals will now be available outside Hainan," Gu Gang, head of Lecheng's administration, told the press. He added that Hainan's free trade port was becoming increasingly attractive to consumers thanks to the medical tourism zone.

Lecheng's foreign partners include Swiss pharmaceutical corporation Novartis, which plans to increase its supply of drugs to the province, most of which are not yet on the Chinese market.

In February 2013, the Chinese State Council approved an initiative to establish an advanced health cluster in eastern Hainan. Lecheng is a short car journey from the annual Boao Forum for Asia and is considered the region's medical hub.

In 2019, the special zone received about 75,000 tourists, with total income from its main activities of hospitals, sanatoriums, and other institutions exceeding 640 million yuan (US$99 million), an increase of 75 percent on the year.

Thailand and UAE allow medical tourists

Successful vaccination programmes have prompted more open borders

More health tourism hubs are opening up in line with rising global vaccination rates.

Bangkok plans to follow Phuket in enabling the entry of vaccinated medical tourists in October. However, these will not include visitors from Australia for the foreseeable future due to outbound and returning quarantine rules.

The plan is to allow fully vaccinated travellers to enter Thailand quarantine-free, which is already the case in Phuket. Fully vaccinated travellers from 70 countries have been able to travel to the island quarantine-free since July 1, subject to strict conditions.

For 2022, the government is also looking to implement travel bubbles between border provinces and its four neighbouring countries of Cambodia, Myanmar, Laos, and Malaysia. The partner country will have to have a vaccination rate of 70 percent and receive mutual approval from local administrations and local health authorities before reopening. Many medical tourists are from these countries.

Elsewhere, the UAE is now welcoming fully vaccinated tourists and medical tourists from all nations, including countries previously banned.

Also, UAE residents and citizens can now travel abroad for medical treatment, although those over 70 or people suffering with chronic diseases are still advised not to travel, except if they're travelling to receive urgent medical treatment abroad.

Inbound travellers and returning residents must have a negative PCR test at the airport.

Unvaccinated visitors from green list countries will also be allowed in with no quarantine measures but will be required to show a negative PCR test taken a maximum of 48 hours before departure and take another PCR test on arrival.

New health tourism chief expects Malaysia to rebuild strongly

The pandemic may have ravaged the healthcare industry, but the agency charged with promoting it is undaunted and planning for recovery

It's been less than eight months since Mohd Daud Mohd Arif was appointed chief executive of the Malaysia Healthcare Travel Council (MHTC), and the journey has been every bit as challenging as he anticipated.

Prior to joining the government agency charged with developing and promoting the Malaysian healthcare travel industry in the global market, Mohd Daud served as a senior director of Tourism Policy and International Affairs Division at the Ministry of Tourism, Arts and Culture Malaysia. He was also the "lead shepherd" of the APEC Tourism Working Group, a platform for Asia-Pacific tourism administrators to share information, exchange views, and develop areas of cooperation.

Now at MHTC, he's responsible for leading and overseeing all aspects of the organisation's operations, including promoting Malaysia's healthcare travel industry and raising its profile as a leading global destination for healthcare.

With his considerable experience in the tourism sector, he believes his most critical function will be leading the sector's recovery in the aftermath of the pandemic.

"I would say that my most important task is to ensure that MHTC as an organisation contributes its best and works hand in hand with public-private healthcare players in Malaysia to eradicate the COVID-19 pandemic once and for all for the betterment of our people and the global nation," Mohd Daud told *Global Health Asia-Pacific.*

"From the get-go, I've been aware of the work cut out for us owing to the damage that COVID-19 continues to wreak over the industry globally," he added. "Having worked with MHTC during my previous stint, I walked into my new role with a firm grasp of Malaysia Healthcare's capabilities and potential. This understanding quickly blossomed into a vision which I firmly believe can drive the industry back to its former glory."

Malaysia has built a strong reputation as a safe and trusted leading global destination for healthcare travel over the past decade. The growth and progress of the industry are chiefly attributed to its healthcare's proposition that offers world-class quality, ease of accessibility, and competitive affordability.

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Malaysia's position as a favourable healthcare travel destination has also been buttressed by its seamless end-to-end services, strategic position as a Muslim-friendly nation, and warm hospitality and tourism attractions. These will continue to be important factors as the country anticipates the reopening of international borders. The industry's main focus will be on patients from Indonesia, China, Vietnam, Cambodia, Singapore, and Brunei.

"As an industry that relies heavily on international travel, the COVID-19 pandemic has certainly put a dent in the industry and players in the value chain, owing to lockdowns and border restrictions," said Mohd Daud. "More concerning is the inability to provide continuity of care to those who travel frequently from other countries for timely treatments, such as cardiac and cancer patients."

While numbers are still being finalised, MHTC expects that in 2020, Malaysia will have earned around RM780 million (US$186 million) in health tourism revenues, which is around 60 percent lower than its pre-pandemic projection for the year. Based on new

Malaysia has built a strong reputation as a leading healtcare travel destination

Mohd Daud Mohd Arif, chief executive officer of the Malaysia Healthcare Travel Council

projections, the agency estimates that as the industry recovers, health tourism has the potential to contribute up to RM10 billion (US$2.34 billion) to the economy by 2025.

Since the outbreak of the pandemic, MHTC has been playing a pivotal role in facilitating the arrival of international patients at Malaysian private hospitals. It's also been working closely with the country's hospitals to determine other areas or markets to focus on, such as the Middle East. The aim is to leverage public-private partnerships to spur the sector as a key economic growth driver for post COVID-19 economic recovery.

To maintain continuity of patient care, especially for those who require urgent medical treatments, such as cardiac and cancer patients, Malaysia was among the first countries globally to implement a dedicated medical travel bubble last July.

This was a concerted effort involving various public-private stakeholders, including the National Security Council, the Ministry of Health Malaysia, the Immigration Department, MHTC, and its member hospitals, to foster economic and industry-wide recovery.

"The formation of a travel bubble not only benefits the current healthcare travel industry but also contributes to the nation's economic growth as part of recovery," said Mohd Daud.

In addition, Malaysia is now in the process of increasing vaccination rates in order to reopen the borders gradually and safely in the near future.

"Once we are cleared, MHTC will be more aggressive in our approach to push and expand the healthcare travel bubble," he added. "This will allow us to help facilitate the needs and continued care to our international healthcare patients."

An example of Malaysia's success in using travel bubbles can be seen in the efforts of the Langkawi Development Authority to reopen the holiday island for tourism. Courses have been held for 1,238 industry figures closely linked to the tourism sector who, upon completing their evaluations, will receive certificates of compliance recognised by the local state health department.

Despite these efforts, though, it will take time for the health travel industry to recover to pre-pandemic profitability, Mohd Daud believes. Its recovery will depend on various factors such as domestic and global vaccine rollouts, easing of Malaysian interstate and international border restrictions and closures, and a

Kuala Lumpur is a major healthcare travel destination in Malaysia.

return of confidence for tourists to start travelling again.

"Our optimistic target for 2021 is to achieve more than RM520 million (US$124 million) in revenue, subject to these factors. Should the industry experience a slower recovery period, we aim to earn closer to RM480 million (US$114 million) in revenue in 2021," he explained. "Overall, our optimistic projection is to return to pre-pandemic figures by the year 2025. Of course, we would definitely welcome an earlier recovery."

Throughout the pandemic, healthcare operators have been forced to respond to the new situation. For example, MHTC's member hospitals have taken steps to stay digitally connected with patients through live discussions and by turning to virtual consultations to ensure continuity of care.

MHTC's member hospitals have taken steps to stay digitally connected with patients through live discussions and by turning to virtual consultations to ensure continuity of care

Mohd Daud believes it's crucial that the sector takes the lessons learnt from COVID-19 and looks into improving practices to provide an enhanced patient experience to international healthcare seekers.

"This is where integrating digital touchpoints in the patient experience plays a key role in ensuring access to healthcare services, even with persisting travel restrictions. The effectiveness of prompt decisions will result in maintaining patient trust which has been carefully earned over the years," he said.

Malaysia's healthcare sector is already working on ways to establish a digital infrastructure that builds trust in patients and ensures their safety while delivering high-quality healthcare services at the same time.

For example, MHTC recently signed a memorandum of understanding with DoctorOnCall, one of Malaysia's leading telehealth services platforms, to facilitate patient care online amid the current travel restrictions.

The partnership will allow MHTC's member hospitals to access the platform's digital healthcare capabilities to provide telehealth services and enable existing patients to consult their doctors. It will also further enable Malaysia Healthcare to enter into digital healthcare, an area that will enhance patient experience, especially for its healthcare travellers.

Private hospitals have also stepped in to assist public healthcare facilities in managing the patient burden and resource strain by taking in non-COVID-19 patients and providing trained nurses.

At the same time, operators expect to face changing long-term dynamics in the healthcare industry and are anticipating that fewer people will be willing to go overseas for medical care.

Mohd Daud expects that, overall, healthcare destinations could be met with more reluctance as patients look for alternative treatment plans but suggests that operators can overcome this with the appropriate tools for success.

"Healthcare facilities and destinations can encourage healthcare travel activity by arming themselves with necessary procedures and infrastructure to support and deliver a much safer

patient experience and communicate the assurance of patient safety from arrival, throughout treatment, and upon returning home," he said.

By building trust among healthcare travellers, through constant and effective communication and dedication to providing a safe patient experience, he feels confident that there will be a more positive attitude towards healthcare travel once restrictions have been lifted.

This confidence comes from the fact that Malaysia has over the years successfully built a global reputation as a preferred healthcare destination, hosting 1.2 million healthcare travellers in 2019 alone.

Once dubbed the "hidden jewel of Asia" for healthcare, Malaysia remains positioned as the "world's healthcare marvel." As such, it's crucial for it to "stay warm" within its markets, both in and outside Southeast Asia, if it wants to remain at the top of patients' minds as a destination for their healthcare.

"As a globally recognised and award-winning destination for healthcare travel, we remain optimistic that Malaysian healthcare will rebound owing to the reputation we have carefully built over the past ten years and our value propositions of world-class quality, ease of accessibility, and affordability for healthcare treatments," said Mohd Daud.

Even before the pandemic emerged, MHTC had begun pursuing niche branding initiatives to establish Malaysia's identity as the Cardiology and Fertility Hubs of Asia and as a Cancer Centre of Excellence. It had also been working to launch Malaysia's first Flagship Medical Tourism Hospital programme and establish a framework for aged care. These initiatives will continue as borders reopen and it becomes easier for international patients to travel for their care.

Over the last decade, Malaysia gained a solid reputation for cardiac treatment due to the strengths of its practitioners and healthcare infrastructure. The National Heart Institute, for example, was lauded globally last year for becoming the first hospital outside of the United States to implant a Micra AV pacemaker, an implantable device for the treatment of a slow heart rate via pacing. Mohd Daud believes that such expertise will continue to attract a niche group of patients to Malaysia.

Another area where Malaysia will continue to attract patients is in its fertility treatments. The country boasts a success rate of one in two fertility patients for IVF — a statistic matching some of the leading fertility destinations in Europe and North America. It also provides advanced treatments including oncofertility and artificial intelligence for fertility viability testing, areas that have strengthened the country's position as the fertility hub of Asia. Furthermore, of the 30 fertility centres worldwide that have International RTAC accreditation, which is seen as the gold standard in the field, eight are in Malaysia.

Malaysia is also gaining an international reputation in oncology, having emerged as the third most prepared country in the Asia-Pacific region to battle cancer in a study conducted by The Economist Intelligence Unit.

The National Heart Institute is a popular facility among healthcare travellers

As a sector heavily reliant on international travel, the health tourism industry has been hit hard by the COVID-19 pandemic, owing to lockdowns and border restrictions. This has greatly impacted many links within the healthcare travel value chain, including travel and tour agencies, hoteliers, health facilitators, tour guides, and logistics providers. How does Mohd Daud hope to revive their fortunes and achieve MHTC's projected goals?

"When leading an industry which almost entirely depends on international travel, we must be quick on our feet to develop contingency plans. Our agility, adaptability and creative thinking resulted in Malaysia being one of the first of a few countries to open a medical travel bubble back in 2020," he said.

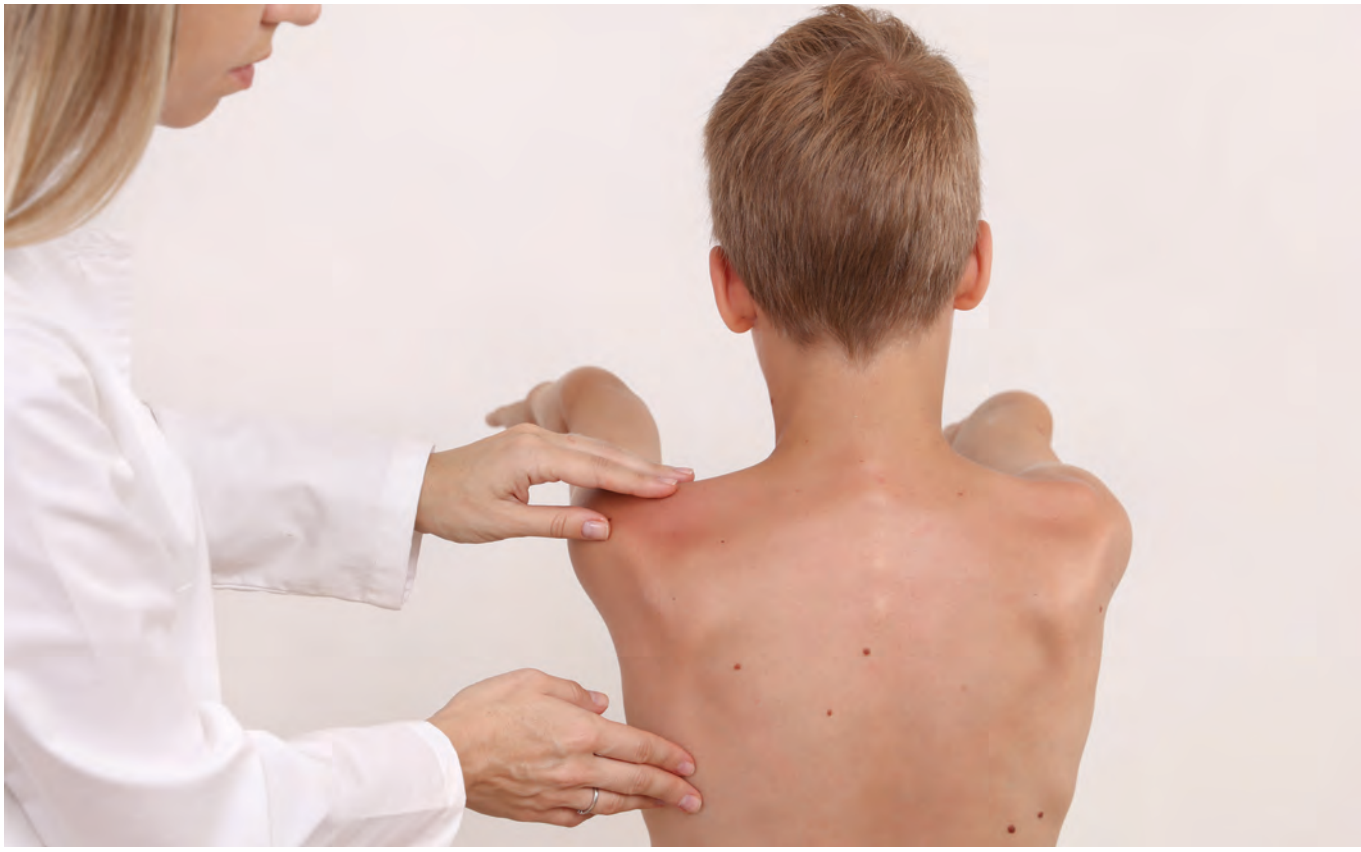
"The pandemic has accelerated the implementation of telemedicine and catalysed the adoption of digital healthcare services into existing healthcare services. For Malaysia, maximising its digital potential will be an ongoing challenge, but for a good reason."

The MHTC also plans to launch the Malaysia Healthcare Travel Industry Blueprint 2021-2025, a document that aims to guide the industry forward, and to continue working closely with the Ministry of Health to prepare standard operating procedures that make healthcare travel safe for all the parties involved. ■

Malaysia is also gaining an international reputation in oncology, having emerged as the third most prepared country in the Asia-Pacific region to battle cancer in a study conducted by The Economist Intelligence Unit

Innovative scoliosis surgery presents a conundrum for patients

Vertebral body tethering could become the new gold standard treatment for curved spine if we figure out the right candidates



A novel surgical technique for the abnormal curvature of the spine, or idiopathic scoliosis, is offering some patients a refined treatment that spares them from the limited mobility that can result from standard surgery, but it's also exposing others to multiple interventions that increase the risks of post-operative complications. And we still don't know how to predict who's going to benefit and who's not.

A common type of spine deformity that often presents in adolescents, idiopathic (from an unknown cause) scoliosis can lead to uneven hips and shoulders as well as back pain. In severe cases, it could be disabling, affecting lung function and making breathing difficult.

In most instances, the condition either requires no treatment or can be managed by having children wear braces to prevent the curvature from getting worse, but a minority of patients have to undergo major surgery to correct the deformity.

In such severe cases, the standard procedure is spinal fusion, where surgeons straighten and then screw metal rods to the spine to hold it in place. The approach is often a powerful way to fix scoliosis once and for all, but it can also affect mobility, raising fears in some patients and their families.

"If you remove the motion from a portion of the spine, you've changed what the body can do and what the body was designed to do by eliminating some of the flexibility that we were built with and designed to have," said Dr Peter Newton, chief of the Division of Orthopedics & Scoliosis at Rady Children's Hospital in San Diego, in an interview with *Global Health Asia-Pacific.*

But in practical terms, this loss of mobility often has little impact on daily life, he added, with limitations ranging from the inability to fully bend into a ball or perform a somersault to difficulty extending the back

in extreme ways.

"The more elite athlete or the more flexibility required for a specific activity, the more effect patients appreciate. But we clearly have people who participate in nearly every sport you can imagine at quite high level who had spinal fusion done," he said.

Even if the impact on routine activities turns out to be minimal, it's understandable that young patients, who have their entire life ahead of them, would want a curative treatment that preserves complete mobility.

"In a perfect world, we would be able to fix scoliosis without having to fuse the spine," emphasised Dr Newton, who has toyed with the idea of replacing spinal fusion with a better approach his entire career and has pioneered a new procedure that promises to fit the bill.

Meet vertebral body tethering

A surgical technique that has been developed over the last decade or so, vertebral body tethering (VBT) aims to correct the deformity caused by scoliosis in a way that preserves the full flexibility of the spine.

It involves screwing a tight cord to the curved area of the spine in order to apply pressure on the curvature and gradually make it straight. This US FDA-approved system, called tether, is left in after surgery to limit growth on the side of the curved spine while allowing the other side to catch up. Typically, this process takes a few years and harnesses the growing process that makes the spine longer, allowing children to become taller. With the tether preventing any further curvature, the spine can grow only in a straight line over time, thus reshaping itself into an orderly form that doesn't cause problems.

"This approach has the potential to be game-changing if we can use it in patients young enough to use their growth to truly drive permanent shape change in the vertebral bodies which have become deformed as a result of scoliosis," said Dr Newton.

Unlike spinal fusion, VBT affects mobility to a limited extent during the growing process but after that allows patients to regain it completely as soon as the cord breaks down or is removed.

"When growth is finished, we don't need the tether to be performing any function because it did its job, it changed the shape of the spine," he explained.

Despite its clear potential to become the new treatment of choice for severe scoliosis, a key challenge around VBT is identifying the patients who can benefit from it.

"The ideal candidate remains unknown and controversial," said Dr Newton, who describes them as those who have "enough growth remaining to fully correct the deformity present at the time of surgery, which is unfortunately very difficult to predict."

On the one hand, if you do the surgery too late, there's not enough time for the spine to correct itself and is still dangerously curved when patients stop growing. On the other, if you put the tether in too early there will be an overcorrection, meaning that "the spine will straighten, because the growth causes the curve to straighten, and then it will actually start to curve in the other direction."

This explains why VBT has led to both "amazing successes and very disappointing failures," acknowledged Dr Newton, noting that surgeons who select patients for VBT need to pinpoint the "sweet spot based on growth remaining and amount of

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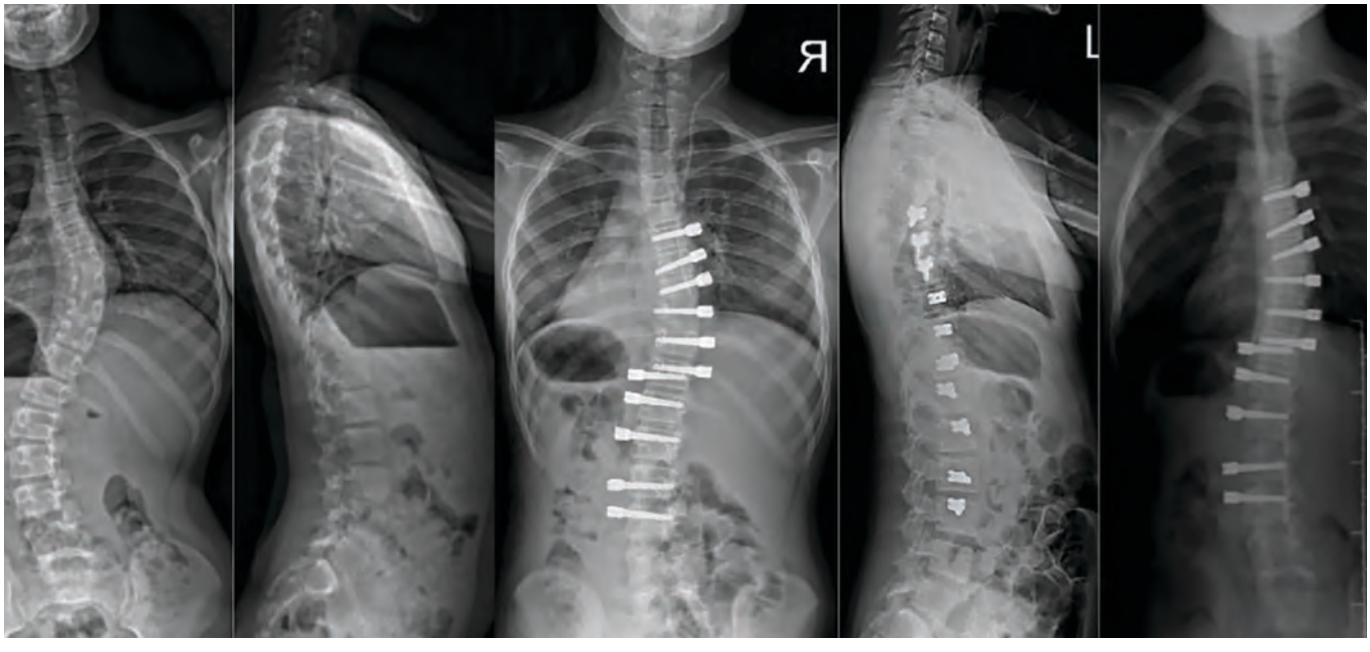

PHOTO: ORTHOISTCOM

Pre-op and post-op images of the spine of a patient who underwent VBT

Scoliosis is more prevalent in girls

deformity" to make the procedure a success.

In his view, the right patients have a considerable deformity (curves between 40 and 60 degrees) and are usually 11 or 12 because you need two to three years of growth to make VBT work, and most girls, who have higher prevalence than boys, will grow until 14. The assessment varies by sex and curve magnitude, with some boys being good candidates even if they're 13.

"So, for a given patient, it's really difficult for us to predict with certainty whether the outcome of VBT will be really ideal or not at this point in time," he stressed.

"So, for a given patient, it's really difficult for us to predict with certainty whether the outcome of VBT will be really ideal or not at this point in time"

The terms of the dilemma

Opting for either spinal fusion or VBT is therefore a dicey affair that patients and their families have to disentangle based on their preferences, though doctors will have to play a crucial role in advising them honestly.

"Advising patients and their parents requires the surgeon to have a realistic discussion of what we know and we don't know," said Dr Newton.

Since it's been around longer than VBT, spinal fusion is backed up by much more evidence that helps prognosticate both its good and negative outcomes. "If you have a spinal fusion, I can give you a very precise number of what your curve correction and rate of revision surgery will be, and what outcome you can expect at 10 and 20 years because we have data on it," he explained.

Though spinal fusion can often cure scoliosis for good, in rare instances it fails and needs to be repeated due to a variety of reasons, including infection and implant misplacement. This happens in about two percent of cases two years after the operation, while the failure rate increases to six percent at 10 years.

The same level of certainty is not yet there for VBT because it's still a fairly new and experimental procedure, with doctors struggling to quantify with accuracy how likely patients are to require a second operation. Two years after VBT, only about five percent of patients require either a revision operation to remove the tether and avoid overcorrection or a spinal fusion to fix the problem, according to Dr Newton, who has performed more than 100 VBT surgeries so far. But this jumps to about 50 percent at five years, and we don't have any numbers to predict outcomes after 10 or more years.

"Some people hear those data and say, 'I don't want an unknown outcome with unknown risk of revision surgery, that just sounds crazy to me.' Other people say, 'I don't want to have my spine stiffened if I don't need it stiffened, even if it's going to have only a modest effect on my functions and maybe no effect on my daily life. I just don't think that's normal, and I'm willing to try this new technology,'" he said.

It's worth noting that undergoing a second surgery exposes patients to increased risks. All scoliosis surgeries are invasive operations and VBT involves opening up the chest and possibly damaging vital organs like the lungs and the heart. "That shouldn't be taken lightly by any patient on the first go and particularly on the second go because there's now scar inside that chest," said Dr Newton, highlighting that the life-threatening risks associated with revision VBT surgeries are small but several folds higher than those of the first procedure, though it's hard to translate that into clear-cut numbers.

One challenge patients and families might encounter while picking one procedure over another is the hype surrounding VBT as well as the negative side effects of spinal fusion.

"All the nonsense and rhetoric around the benefits of VBT that exist on the internet, both in social media and promotional information from surgeons, are disgraceful because they suggest to families and parents that we have clear answers about the outcomes of the procedure and we don't. They just sell it as a panacea that it isn't," cautioned Dr Newton.

By contrast, spinal fusion is sometimes mistakenly portrayed as a procedure that will cause a lifetime of pain due to disc disease, together with major mobility

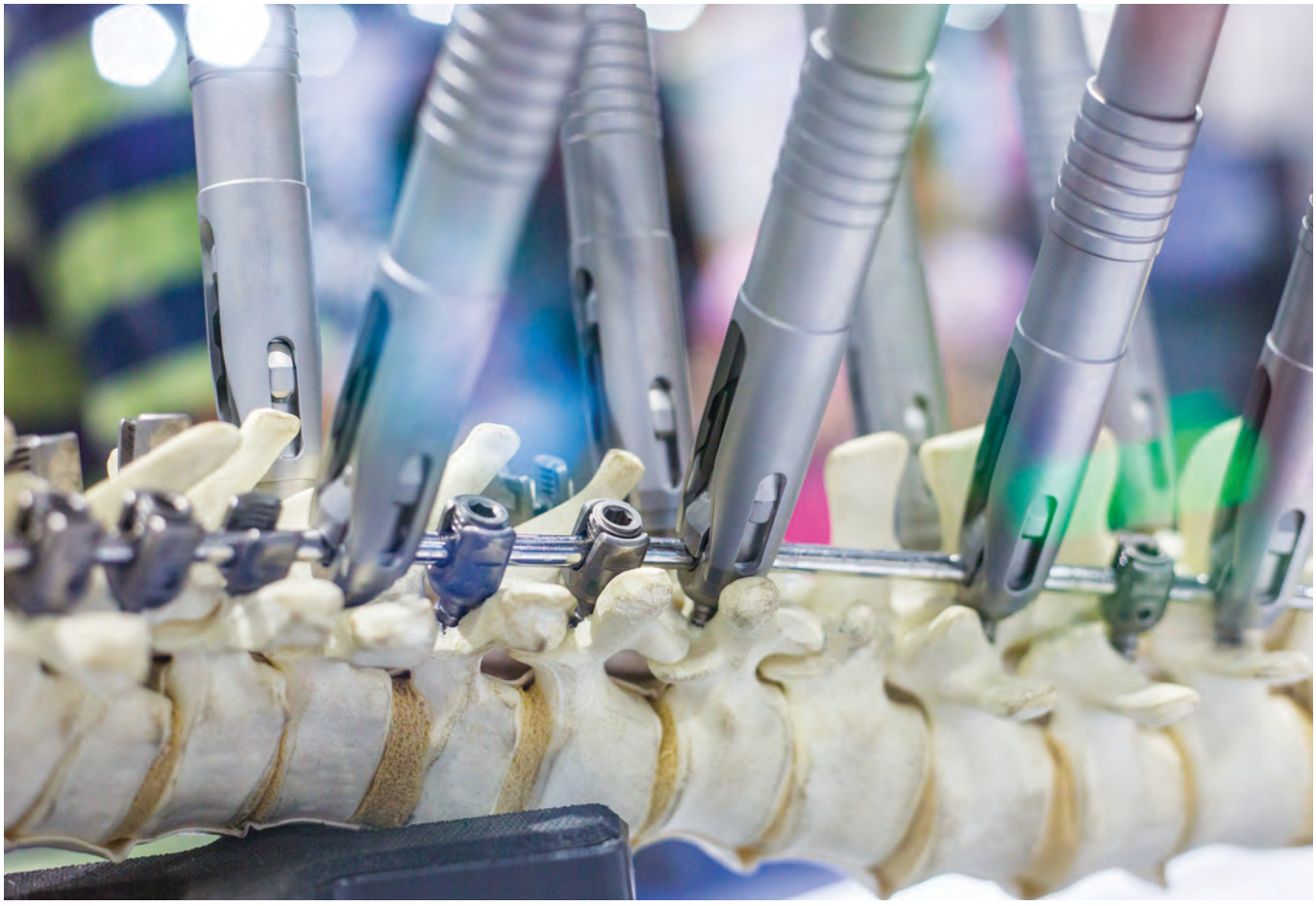

Photo file of simulated human spine samples for spinal cord treatment

impairment. "Some patients believe that after a spinal fusion they will never be able to bend over, touch their toes, or even walk in adult life," but nothing could be further from the truth, he said.

What's next for VBT?

The hope is that better tools to predict the period of growth remaining in children with scoliosis will improve VBT outcomes.

Currently, standard methods to quantify how much kids will grow look at both the pelvic and hand bones, but they're rudimentary and sometimes contradictory. However, researchers are working towards improving predictions.

"We really need to be able to transfer duration of growth into prediction of final height based on parents and other variables, and we don't have precision in this right now," explained Dr Newton, noting that better predictors of growth based on hand bones analysis are being developed and look promising.

Researchers at Montréal University have already managed to predict the final scoliosis curvature in half of the patients enrolled in a trial based on parameters including curve size, age, menstruation status, and a combination of information from the standard methods called Sanders and Risser scores, said Dr Stefan Parent, the lead researcher, to STAT.

Others are looking into both blood and genetic tests to gather more clues into growth and curve progression over time. For instance, the levels of the protein collagen X, which is involved in bone formation, could help understand how long children will keep growing.

If we are able to translate all this information into an accurate predictor of final height or length in the spine, Dr Newton said, then VBT success rates will rise significantly by improved patient selection. Though he believes the novel procedure will eventually become the gold standard in scoliosis surgery for some patients, it's not going to happen any time soon.

"We've been at it for a decade, and it will probably take another decade." ■

Behind the hype surrounding regenerative medicine in orthopaedics

Its use is limited to certain conditions but its potential is huge

Look up "regenerative medicine" online and you'd be forgiven for thinking it's a quick fix for almost any orthopaedic condition.

That's because many in the medical profession are now touting the almost unlimited benefits of this new medicine. For example, it's now common to see clinics splash on their websites the powerful effects that both stem cell and platelet-rich plasma (PRP) treatments — the two most common regenerative techniques in orthopaedics — can have on a host of problems ranging from Achilles tendinitis, arthritis of the joints, hip, knee, and shoulder pain to ligament sprains, degenerative disc disease, nonunion fractures, and nerve injuries.

Regenerative medicine is said to be able to regenerate cartilage in the joints and disc tissue in the spine, reduce knee pain, and heal nonunion fractures and inflammation in the Achilles tendon at the back of the ankle. In some instances, PRP is hailed as a potential alternative to surgery to treat rotator cuff tears and shoulder arthritis.

Regenerative medicine is said to be able to regenerate cartilage in the joints and disc tissue in the spine, reduce knee pain, and heal nonunion fractures and inflammation in the Achilles tendon at the back of the ankle

While some claims may be true, many are profoundly misleading because they tend to portray regenerative therapies as established approaches that can work effectively on their own to fix a host of orthopaedic problems. Others are outright false.

"In general, there's too much exuberance about what regenerative therapies can do right now," Dr Shane Shapiro, a medical orthopaedist and director of the Regenerative Medicine Therapeutics Program at the Mayo Clinic in Florida, told *Global Health Asia-Pacific.*

In his view, a minority of patients with orthopaedic conditions could definitely benefit from either PRP or stem cells therapies, but by and large these are still new treatments that can't replace older ones. "In general, thinking that regenerative medicine is a distinct alternative to conventional standard of care would be incorrect in the current time," he said.

The basic idea behind regenerative medicine is to use human cells and tissues to treat diseases, or "turning the body into its natural drug store," in Dr Shapiro's words. In orthopaedics, this translates into injecting platelets (blood components involved in clotting) and adult stem cells (special human cells that can generate multiple types of cells) into diseased joints and tissues to help them heal.

In fact, platelets are thought to contain growth factors, or substances needed for cells to grow, that might contribute to cellular regeneration, inflammation reduction, or overall health in the joints, the structures that connect different bones in the body. The problem is that these effects are not consistent across the board, meaning that just some orthopaedic issues can be treated with regenerative techniques, and in most instances are far from curative or even well-researched.

"The most important thing to recognise is that regenerative medicine is still a field of translational research. Even if we can use some of the treatments in clinical practice, most of it still needs more study, and that's what we, who work in this field, are focused on," said Dr Shapiro.

He explained that the term itself can be confusing because not every regenerative treatment actually regenerates tissues. That's why in the orthopaedic community many experts refer to these as 'orthobiologics' to highlight that they are simply biologic products useful in treating some orthopaedic problems. While experts can debate terminology, what most agree on is that it's an addition to the orthopaedist's toolbox but in no way a one-size-fix-all therapy that can reverse tissue degeneration with quick injections.

When patients are injected with their own biologic products without any manipulation, regenerative medicine has shown to be safe, explained Dr Shapiro. But he also cautioned that patients have been harmed after receiving orthobiologics from unknown cell sources and banked cells.

Regenerative medicine at its best

The good news is that short-term research suggests that a couple of orthopaedic conditions could be cured by regenerative treatments.

Lateral epicondylitis, commonly known as tennis elbow, is one example. Caused by overuse of the elbow muscles, the condition leads to pain and difficulty extending the arm but can be effectively treated with PRP, which in this specific case regenerates the inflamed tendon, thus improving its health and often sparing patients the discomfort of long-term medications or surgery.

Similarly, stem cells have managed to fix avascular necrosis of the hip, where the bone cells in the hip joint die due to a lack of blood supply often triggered by the use of steroid medications. In such cases, the diseased bone is cut out and the injected stem cells can repair and stabilise it, avoiding the need for a hip replacement.

Orthobiologics can play a role in treating rotator cuff tear in the shoulder

"Those are two examples where the orthobiologic treatments that we have available to us right now are actually curative," said Dr Shapiro.

But since these are relatively new therapies, more studies are still needed to confirm the promising results in the long term.

Orthobiologics are complements, not magic bullets

In the vast majority of cases, orthobiologics are combined with other treatments to improve overall outcomes.

"In most of the things we treat, orthobiologics are not curative nor regenerative, but they are used to relieve pain and maybe alter the natural course of orthopaedic disease," explained Dr Shapiro.

In the vast majority of cases, orthobiologics are combined with other treatments to improve overall outcomes

Osteoarthritis of the knee, an age-related problem that causes pain due to the wear and tear of the cartilage tissue, is a good case in point. Half of the patients who present with the condition usually end up having a knee replacement, a major surgery to cut away damaged bone and cartilage to replace them with metal and plastic implants.

PRP in particular has pushed the envelope in treating knee osteoarthritis, one of the most studied conditions when it comes to orthobiologics, perhaps because it affects about 30 million Americans and 240 million people worldwide.

"Our patients are getting one to two years of pain relief from their knee arthritis, and that's a lot more than we usually see from a cortisone or hyaluronic acid injections, which are the standard of care," he stressed.

Though the therapy triggers no tissue regeneration and has to be repeated regularly, it can dramatically help patients by sparing them knee replacement, but only if it's complemented by physical therapy, knee bracing, or over-the-counter pain relievers like Tylenol. In other cases, it can put off surgery until patients are old enough to benefit from it.

"For a lot of people in their 50s, PRP can provide a number of years of solid treatment to delay a costly and invasive surgery until their late 60s or early 70s," he said. This is the age group that usually undergoes knee replacement since the implant has a variable shelf life and needs to be replaced after wearing out.

Although in lab experiments stem cells have shown an even stronger therapeutic potential than PRP in relieving pain, there's not as much evidence of their effect in patients to support their use against knee osteoarthritis with a similar degree of confidence.

"If you're making a recommendation to the patient, you would always say, 'we have 10 years of experience studying PRP and we know that works and what it does,' therefore it's a good recommendation to tell patients to try that. When it comes to stem cell treatments, it's harder to make that recommendation because they've not been studied as much," he acknowledged.

Another condition where orthobiologics can play a role is the rotator cuff tear, a common injury to the muscles and tendons of the shoulder joint that in about 25 percent of cases requires surgery.

Some studies have shown that adding PRP or stem cells to the site of the injury during surgery speeds up healing of the tendons and lowers the rate of retear in the future. Patients usually face three to four months of recovery and won't be able to play sports for at least eight months, but orthobiologics can reduce healing time in the order of a month or so as well as the risk of retear by 15 to 20 percent.

"Even a month faster is real value to people," stressed Dr Shapiro, who nonetheless cautioned that PRP didn't prove to be an effective standalone approach for the condition. "PRP is not commonly used for a torn rotator cuff without surgery because it's not an adequate treatment — another example showing that orthobiologics are not a magic cure but are used to complement standard treatments."

But in addition to tennis elbow, there is another condition where PRP can also help avoid surgery altogether, for example, when a patient has a ligament injury to the connective tissue that connects bones to each other. Lots of baseball pitchers, for instance, get their elbow ligament injured and may require a surgical fix taking almost a year to recover. But PRP, when followed by physical therapy, can promote repairing of a partial ligament tear that has previously failed to heal and get patients back to doing sports in a matter of weeks or months.

"That's an example of orthobiologics that has revolutionised sports medicine," said Dr Shapiro, noting that the approach has not yielded the same results in treating all ligament injuries. Ankle sprains, for example, are a common problem that's not responded well to PRP.

PRP can relieve pain caused by knee arthritis

Similarly, not all tendon injuries have improved with orthobiologics. "We haven't seen any great benefit for Achilles tendinitis, so we don't use either PRP or stem cells to treat it," he said.

The road ahead for orthobiologics

More research is required to strengthen the evidence backing up current regenerative treatments and expand the pool of conditions that can be treated with them.

"There are many people who are still sceptical about orthobiologics and for good reasons," acknowledged Dr Shapiro. "We test vaccines on thousands of patients and these orthobiologics sometimes have only be tested on 25 or 50 patients — that's not good enough evidence."

Putting together data from multiple studies, he added, will make a stronger case for the use of orthobiologics, thus allowing them to gain more traction.

One successful example is the use of PRP during rotator cuff surgery. "Initially, all the studies were negative and it looked like it didn't work, and it was only after researchers were able to combine larger numbers of patients, up to a thousand, that allowed the statisticians to determine that there was an actual benefit," he said.

What this means is that we're going to need specific studies to determine which orthopaedic condition is potentially amenable to which orthobiologic treatment before jumping to conclusions about what works against certain diseases.

"We have a stem cell study for shoulder arthritis because most of the research has gone into looking at knee arthritis, and then you just assume that everything that works for knee arthritis also works for the hip and the shoulder, but that's not actually the case," explained Dr Shapiro. "The orthopaedic community needs to conduct the same clinical trials in the shoulder, the hip, the wrist, and the ankle as we do in the knee, so we're working on that for the shoulder."

Another goal pursued by many researchers is to use orthobiologics to regrow knee cartilage, a breakthrough that could potentially help millions of people improve their mobility, decrease pain, and avoid knee replacement procedures.

One study at the Mayo Clinic looks promising, said Dr Shapiro, with early results hinting that patients' stem cells that have been expanded in the lab (a technique not currently used in the clinic) can plug small defects in knee cartilage.

If successful, this approach could treat people who have signs of early cartilage degeneration before they reach a point where the knee joint is compromised and the only option is to replace it through surgery.

Dr Shapiro believes this prospect is not far-fetched.

"This trial just goes to show you that the treatments we're using right now are our first effort at using cells to cure orthopaedic disease, but we anticipate, with better research, more trials, and novel therapies, we'll be able to do even better." ■

Another goal pursued by many researchers is to use orthobiologics to regrow knee cartilage, a breakthrough that could potentially help millions of people improve their mobility, decrease pain, and avoid knee replacement procedures

Malaysia can do more to help children with autism

The rapid rise in cases means more measures should be taken beyond those of NGOs and private facilities

In Malaysia, more children are being diagnosed with autism spectrum disorder (ASD) each year, but the country still has a long way to go to fully address the rise in cases.

Although there is no official registry for the number of individuals diagnosed with ASD in the country, according to the National Autism Society of Malaysia, an estimated 8,000 to 9,000 babies born annually may have autism, out of a population of nearly 32 million.

The World Health Organization believes that globally one in 160 children has ASD, and its prevalence appears to be increasing, although this number is disputed in different countries due to the wide variance in diagnostic techniques. For example, the US Centers for Disease Control and Prevention puts the figure higher, at about 1 in 59 children.

One possible reason for the ongoing rise of reported cases in Malaysia could be that parents are becoming more aware of the condition, especially in mild cases.

ASD is a complex developmental disability that typically appears during the first three years after birth and is caused by a neurological disorder that affects the functioning of the brain

ASD is a complex developmental disability that typically appears during the first three years after birth and is caused by a neurological disorder that affects the functioning of the brain. Although it shows no racial or social prevalence, it is four times more prevalent in boys.

Parents usually see symptoms in their child by the age of six that most often include lack of fear and being either too sensitive or not sensitive at all to pain. Children with ASD will commonly avoid eye contact, have difficulty expressing themselves, establish a strict or obsessive routine for themselves, and find interacting with others challenging.

As they progress through life, children and adults with ASD have difficulties in verbal and non-verbal communication, social interaction, and relating with the outside world, as ASD affects the normal development of the brain in the areas of social interaction and communication skills.

Aggressive and/or self-harming behaviour may also be present, and people with ASD may exhibit repeated body movement, unusual responses to others, and resistance to changes in routines. They possibly will experience sensitivities across all five senses.

Since children with the condition sometimes do not understand what is right or wrong or cannot tell good from bad behaviour, the rising incidence of ASD in Malaysia has led to greater demand for early intervention centres and specialist pre-schools.

Experts say that early intervention should occur when the child's mind is at its most receptive and teachers can educate a child with autism on how to conform with society.

The problem is that public and government-run early intervention centres specifically for children below seven with autism are limited in Malaysia. While the government provides pre-school options for special needs students in general, it operates only one purpose-built early intervention centre catering specifically for children with autism in Kuala Lumpur.

The slack is taken up by organisations such as the National Autism Society of Malaysia, which has been opening up centres across the country but complains of struggling with funding and logistical issues.

The non-profit has seen a 30 percent rise in the number of patients seeking its services across all age groups since it was established in 1987 and says it would like to do more, especially in the remote and under-served districts, but its resources are limited due to its dependence on public charity.

Another challenge is that private options can be expensive, meaning that parents from modest backgrounds may find it difficult affording professional assistance for their children.

One prominent organisation, the Early Autism Project, was set up by an American ASD researcher who brought his successful approach to educating children with the condition to Malaysia. It charges for its services but also operates non-profit initiatives and scholarships for children. It uses applied behavioural analysis (ABA), which can improve social, communication, and learning skills through positive reinforcement. Many experts consider it to be the gold-standard treatment for children with ASD.

In addition, a small but growing number of centres are offering stem cell therapy for ASD patients in Malaysia that aims to trigger brain development and prepare children for a normal adult life.

The technique is a topic of ongoing research and is considered experimental by the medical community, although last year alone, there were more than 80 publications related to the use of stem cells in autism, and clinical trials have been established to investigate the treatment's potential.

Although the treatment is expensive — costing thousands of dollars — the cost varies depending on the number of stem cells used, and potential benefits from the therapy include better food habits, digestion,

In Malaysia there's a limited number of centres for children with autism

and metabolism, improved eye contact, more appropriate behaviour, and enhanced verbal, writing, and self-care skills.

One such centre, Stem Cell Malaysia, supplies a network of specially trained doctors providing regenerative medicine treatments at clinics and private hospitals including Pantai, Subang Jaya Medical Centre, and Gleneagles Kuala Lumpur.

For government's part, new regulations for special education were issued in 2013 that offered equal education support to the disabled, including those with ASD. There is also financial aid provided to all disabled students in primary and secondary school for purchasing books, paying tuition for school, and university.

In 2019, the then-Malaysian health minister acknowledged a general lack of support for people with ASD beyond their teens and pledged to seek partnerships with other ministries to identify ways to provide support in later life.

"We see the needs of those with autism, as a lot of focus is given on early intervention but not much activity after they complete secondary education at ages 17 or 18," said Hannah Yeoh at the time. "Whether it is in jobs related to agriculture, job matching or job coaching in other careers under the human resources ministry, we are considering all these suggestions."

Despite her positive comments, very little more has been said about the plans since, which have no doubt been slowed by a change of government and the pandemic.

Inadequacies in Malaysia's medical and education systems have also contributed to a significant amount of parental stress, according to one study of ASD in Malaysia. It said that ASD parents found it difficult to find support, interventions, and therapies, in part due to a lack of knowledge about autism among health professionals. Poor information and lack of resources characterised their journey, from diagnosis to trying to access treatment and support, according to the study's lead author, Dr Kartini Ilas.

"Because they didn't know enough about autism when their child was diagnosed, most of the parents had to inform themselves, and it was only when they gained enough knowledge that they felt they could cope," the clinical psychologist at Universiti Teknologi MARA told *Global Health Asia-Pacific.*

The study also noted that parents felt they faced stigma due to their child's ASD and said they often felt labelled as being bad parents by their community. One father reportedly said: "In Malaysia, we can see that people were not so comfortable with my son's tantrums and difficult behaviour. From the way they stared at us, we know."

But through hard work by learning more about the condition and enrolling in autism workshops provided by public and community groups, the hope is that parents will eventually thrive and even gain a new perspective from their child's condition.

"It is only by understanding it more that they are able to take away positive experiences from having a child with ASD. In this way, parents will learn to rely on each other more and become closer, and their ability to communicate better with each other, with family members, and with institutions that are supporting them will give them more resilience," said Dr Ilas. ■

For government's part, new regulations for special education were issued in 2013 that offered equal education support to the disabled, including those with ASD

Down syndrome support in Malaysia left mainly to associations

The country's approach to the condition is lacking, and its education system fails to distinguish between different special needs

Born with Down syndrome, a genetic condition caused by an extra chromosome, Irene Lim's son, Zi Reng, has had to endure a miserable 18 months since the onset of the pandemic.

The 26-year-old would normally spend three days a week working as a shop assistant in Kuala Lumpur and volunteer for another day at a charity, but he's been forced indoors by a combination of lockdowns and fears over his health, since Down syndrome makes him more susceptible to sickness from COVID-19.

Around one in 800 babies born in Malaysia has Down syndrome, which is also known as Trisomy 21 due to patients having three copies of chromosome 21 in all cells, instead of the usual two copies. The condition is caused by an abnormal cell division during the development of the sperm cell or the egg cell which produces 47 chromosomes rather than the normal 46, or two pairs of 23 chromosomes, in the human body. The affected child is born with characteristic physical features and may have several associated medical problems.

Rehabilitation programmes for Down patients are available in community-based rehabilitation centres and facilities run by non-governmental organisations and voluntary organisations

Confirmation of Down is done through a blood test to detect the extra chromosome 21. It is also possible to diagnose the condition during pregnancy with blood tests, detailed ultrasonography, or amniotic fluid analysis.

Characteristic physical features include short stature, small head size, flat facial features with upward slanting eyes, and a protruding tongue. People with Down also have a single transverse skin crease on the palms, broad hands, short fingers, and a wide gap between the first and second toes. The condition is related to delayed development and mild to moderate mental disability.

Children with the condition also have a higher incidence of being born with heart defects. Doctors will normally screen the child for congenital heart disease, which would then require medical treatment or surgery.

Rehabilitation programmes for Down patients are available in community-based rehabilitation centres and facilities run by non-governmental organisations and voluntary organisations. The aim of rehabilitation is to help the child achieve their maximum developmental potential and learn to be independent.

Children with Down will benefit from early intervention programmes, special education, and speech therapy. In Malaysia, the child should be registered as early as possible with the state social welfare and education department to ensure they receive proper health, welfare, and special education benefits.

After they're registered, the child is entitled to receive medical benefits from government health facilities and enrolment in schools with special education classes. Other benefits include tax relief or rebates, an incentive allowance when studying or employed, transportation concessions, immigration fees waiver, and an extended pensions payment.

But Irene Lim believes more should be done for Downies, as those with the condition are affectionately called, starting with the realisation that their needs are different from their classmates who are also in special education classes.

"The government unfortunately has mixed all types of disability," said Lim, who is a member of the Malaysian Down Syndrome Association, known by its Malaysian initials PSDM. "Down syndrome and autistic children should have separate education systems, but they're mixed with slow learners and physically handicapped children, so these are comparatively higher functioning compared to those with autism and Down syndrome. There's a tendency for teachers to neglect these two groups."

Also, many teachers who provide special needs education in government schools are not trained for the purpose.

"They're just normal teachers and allocated to our kids without training. This is why there's such a need for centres for children with Down syndrome," Lim said.

Organisations such as PSDM are needed because of the lack of specialist Down syndrome support for children in Malaysia. Founded in 2001, it's run by parents of children with the condition and provides early intervention programmes and training for career skills, while also teaching older Downies lessons on living alone. Beyond Malaysia's main cities of Kuala Lumpur, Johor Bahru, and Penang, however, there are few other associations for Down children.

One is the Kiwani's Down Syndrome Foundation, another well-known organisation that primarily focuses on providing critical early intervention programmes for children with Down.

Its five centres are run like kindergartens and provide a range of programmes including infant stimulation, toddler programmes that emphasise skills development such as early language, enhancement of motor skills, and social development, and a special education programme for pre-school children that's run in a similar way to kindergarten programmes.

After school age, it's important for people with

In Malaysia children with Down syndrome are entitled to receive enrolment in schools with special education classes

Down syndrome to find work, if their condition allows them to. Finding an occupation enables them to leave the house and develop their communication and concentration skills through wider interaction. For instance, by working, Zi Reng has been encouraged to speak out more and has learned to be braver and more vocal, his mother said.

Employment also helps people with Down syndrome to earn their own income and move towards independent living.

They can work in different settings according to their abilities, ranging from hotel management and restaurants to retail, in particular. Experts say that those who are equipped with pre-vocational, vocational, and job training skills can excel at work, although it's important for employers to make reasonable adjustments when hiring and recruiting persons with disabilities.

This is one area where the government has helped lead the way. According to the social welfare department, there are around 500,000 registered persons with disabilities in Malaysia, and since 2010, it has implemented a policy for hiring one percent of these in the public sector.

Its programmes include supported employment opportunities, sheltered employment, and competitive employment, but it's still important for the private sector to accommodate the skill sets of people with Down and give them the support they need to move towards self-management and independence.

Since the condition is highly visible through the appearance of Downies, those with it are often treated differently than patients with other conditions, such as autism.

"With Down syndrome, their features already spell out that they're special needs children, so as Down syndrome parents, we face lesser obstruction than those who have autism kids. People will straight away not reject our kids," said Lim.

But a report by Unicef, the United Nations children's agency, on childhood disability in Malaysia highlighted the ongoing wariness among the general population toward working with people with disabilities. Many families of special needs children also believe that employment in the corporate sector is still unattainable, despite the government's programme.

All this means that Malaysia still has a long road ahead in bringing more inclusivity into the lives of people with Down syndrome. It doesn't help that its official estimates of special needs children appear to be wildly inaccurate.

Even the Education Ministry, in its blueprint for the years up to 2025, has acknowledged this, writing: "In Malaysia, only one percent of the population has been identified as having special education needs, versus this global estimated average of 10 percent. This suggests an underestimation of the number of special education needs children in the country."

The hope is that if the government were to recognise that there were 10 times more children in need of special education schools, integration programmes, and inclusive education, perhaps more emphasis could be placed on the requirements of children with Down syndrome and autism.

"Malaysia is unlike many other countries where governments do subsidise special needs education," said Lim. "Over here, it's all done through fundraising, and if your organisation's funds are limited, you just cannot supply the right professionals." ■

Employment also helps people with Down syndrome to earn their own income and move towards independent living

Single-speciality healthcare on trend in KL

New specialist orthopaedic hospital is due to open early next year

While the global pandemic has led to disruptions in the healthcare industry, it has also acted as a catalyst for revisiting conventional operational strategies to ensure their sustainability.

These include how best to improve patient management and address their urgent needs at a time when many hospitals are overburdened. One result is a new focus on single-speciality hospitals as effective delivery models.

"When you have a single-speciality centre, things become more efficient," said Dr Suresh Sivananthan, a consultant orthopaedic, arthritis and sports surgeon who is one of the surgeons behind the launch of TE Asia Healthcare's new venture in Kuala Lumpur, the single-speciality ALTY Orthopaedic Hospital.

TE is the Singapore health services brand behind several speciality hospitals in the region including CVS KL, a major cardiovascular hospital in the Malaysian capital, and the Luma breast care and women's specialist imaging facility in its home country.

"Big general hospitals are not as efficient, but with a single-speciality hospital, it's slimmed down. You have one single set of instruments. The staff are all geared towards doing the same procedures again and again and again, so it becomes super-efficient," said Dr Suresh.

The name ALTY, which stands for 'Adding Life to Years', was chosen because people are living longer and they want to be active in their silver years

The name ALTY, which stands for 'Adding Life to Years', was chosen because people are living longer and they want to be active in their silver years. One way to do this is to make sure that their joints and spines are working well so that they can lead active lifestyles into their later years.

The new hospital is currently taking shape, with roots in the former HSC Medical Centre, which TE acquired in late 2019 and will continue to operate as a general screening division within the new speciality orthopaedic facility. A full renovation of the existing hospital has begun and will include a wide range of orthopaedic equipment.

Once the renovation is completed in early 2022, ALTY will have Malaysia's first weight-bearing MRI machine, its first EOS machine which is a special three-dimensional x-ray that can be used for scoliosis detection, and the first Hana table for Direct Anterior Approach hip replacement. Another national first will be a three-dimensional computed radiography machine for the five orthopaedic operating theatres.

"We have had to do a gut renovation to get all these things in. The ground floor, where there used to be a restaurant, we had to transform that into the emergency department. A lot of work had to be done, and lockdowns haven't helped," he said.

HSC, which opened in 2003, carved out a niche for itself particularly among expat patients and medical tourists from Indonesia. Located in a part of Kuala Lumpur where most of the city's embassies are situated, it was considered more reasonably priced than most of the nearby international hospitals and provided a more personal service.

In its new, single-speciality guise, it will call on the services of eight of Malaysia's leading orthopaedic specialists, which will be central to ALTY's bid to persuade patients with musculoskeletal and joint conditions to consider its services. Although he has 15 years' experience and has performed more than 3,000 hip and knee replacements, Dr Suresh considers himself one of the younger members of the surgical staff, relative to his colleagues' experience.

In addition to reaching out to sports teams and embassies, the hospital's marketing team hopes to attract those who follow its specialists on social media and entice them to send the messages on to their families and friends. The main pitch of ALTY's marketeers centres on value.

"The best way to compete with big, full-service hospitals is by providing high-quality care at a much lower cost. Cost is a factor. If you compare the full-service hospitals with ALTY, the first thing you'll see is that we're more economical because of our efficiency.

"Alongside value is outcomes. We will track our

The surgical team

outcomes very closely, and as a group practice, our patients will get the opinions of all doctors for the price of one. I think that group practice adds a lot of strength, and it's something we have learnt from the UK and US systems," said Dr Suresh.

He expects that medical tourism will play a major part in delivering patients, especially from Indonesia, once borders are fully reopened. Although Indonesian health authorities have embarked on a campaign to persuade patients in the country to use the medical facilities there, ALTY believes that there are not enough orthopaedic specialists and facilities for the population. This, in turn, has raised the cost for bone and joint surgery in Indonesia, which will make ALTY more attractive as a treatment destination.

In addition, Malaysian expats in Singapore and patients in Vietnam will also be targets for the new hospital.

"Once Malaysia opens its doors again, we expect to see an influx of patients. Hip and knee replacements are very successful procedures these days, so you come over for a week or two and get your joint replacement done, and then you fly back to your home country. Once everyone is vaccinated, it will be a matter of time before people come back," he said.

TE believes that single-speciality facilities are the future of healthcare in Malaysia, although it maintains that there will always be a role for full-service hospitals. This is backed up by data from the US, which have shown that the number of beds in hospitals there peaked in the 1990s and has been falling over the last three decades.

Part of the attraction for patients to single-speciality hospitals, and in particularly orthopaedic hospitals, is that there is less risk of complications from infections that can be picked up in general hospitals.

Patients are also drawn by the efficacy of facilities that practice a narrow band of medicine and are able to bring high levels of efficiency to their treatment.

"Malaysia is now going down the route of opening more specialised hospitals. I don't think general hospitals will go completely out of fashion, but they'll lose some business to us," said Dr Suresh.

"If you're a 50-year-old man who wants to come in, have joint surgery, and leave, you just want personalised care, and ours would be the type of hospital you choose. If you're an 80-year-old with multiple medical conditions, you will still want to go to a big hospital where lots of specialists can look after you.

"The single-speciality model of healthcare delivery will ultimately continue to grow, and it offers a long-term alternative to reducing the burden on healthcare systems and improving medical outcomes for both patients and healthcare professionals." ■

PHOTOS: ALTY

SPECIALIST ORTHOPAEDIC CENTRE

Your Trusted Orthopaedic Practice

With many years of experience in orthopaedic surgery, our patient-centric approach to specialist care provides comprehensive treatment for both routine and complex orthopaedic conditions. Our emphatic way of providing medical care to our patients is the pride of our orthopaedic clinic. Let us help you on your road to recovery.

Specialist Orthopaedic Centre is committed to delivering quality care and treatment to patients of all ages for numerous orthopaedic conditions. We treat musculoskeletal ailments that affect the hip, knee, foot, and ankle, as well as degenerative conditions such as arthritis and osteoporosis.

Dr Kannan is a fellowship trained orthopedic surgeon with a subspecialty interest in Lower Limb (Leg) and Foot & Ankle disorders.

He obtained his postgraduate qualification from the Royal College of Surgeons in Edinburgh. He was awarded the prestigious MOH Scholarship by the Ministry of Health (Singapore) to pursue further training in the field of Lower Limb Reconstructive Surgery.

He completed his subspecialty training in Switzerland and in the Netherlands, subspecializing in **lower limb** reconstruction and in Minimally Invasive Surgery (MIS) where he was involved with the surgical teams treating elite European athletes.

He currently is the Medical Director at the Specialist Orthopedic Centre, Singapore.

Knee Surgery

Robotic partial & total knee replacement
Sports arthroscopic knee ligament & tendon injuries
Cartilage preservation surgery
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Meniscus & ACL Reconstruction

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Limb length management
Gait(walking) correction
Flatfeet correction
Prescription of Orthotics & Insoles
Pediatric Trauma

Ankle & Foot Surgery

Keyhole MIS Bunion & Forefoot correction surgery
Arthroscopic keyhole ankle ligament repair
Flatfoot / high arch correction
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Achilles & Hindfoot heel pain treatment
Ankle cartilage / arthritis treatment

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Lower Limb Fracture care & surgery
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Geriatric trauma fixation
Osteoporosis management

WHY CHOOSE US

Professional

With more than 18 years of **Orthopaedic experience**, beginning from his initial consultation, Dr Kannan's patients and their families are always assured with his patience and detailed explanation of their diagnosis and recommended treatment plan.

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Stemming from the clinic's philosophy, Dr Kannan believes strongly in caring for his patients in the same way he would care for a family member. His specialized expertise lead to **good outcomes** for patients in an area which cannot be compromised.

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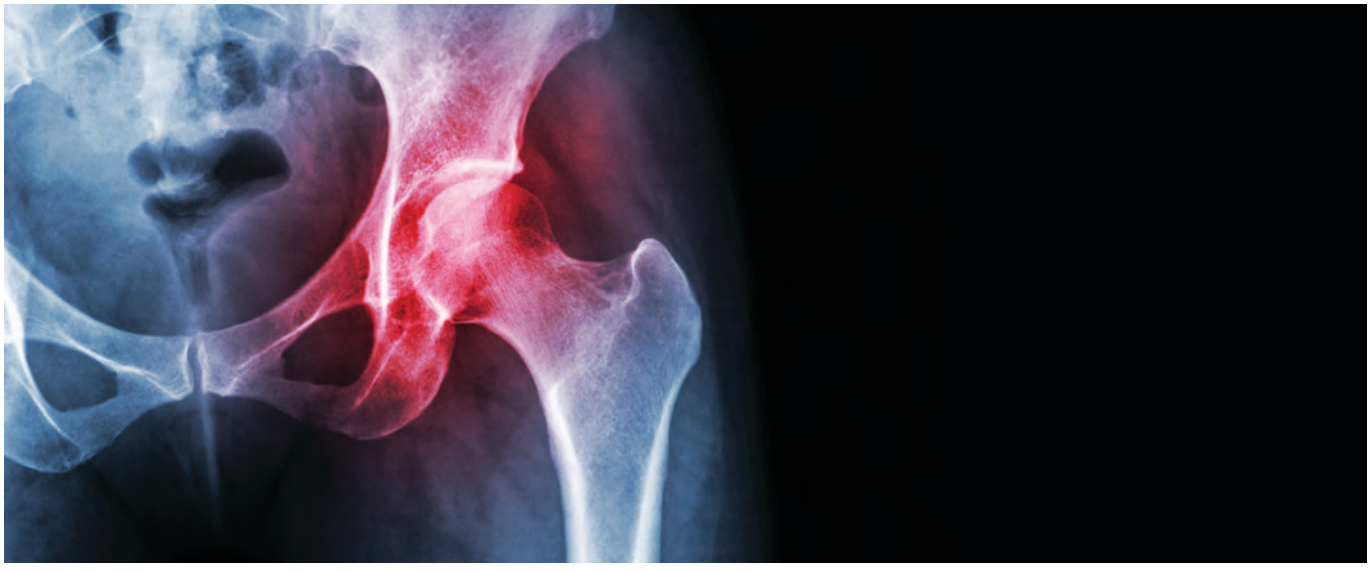
SPECIALIST ORTHOPAEDIC CENTRE



Total Hip Replacement: A solution for young arthritic hip

Dr Deepak Kumar Mishra goes over the benefits of the procedures

Arthritis in one's hip joint can lead to difficulty walking and performing life's daily chores. Primary arthritis of the hip joint is uncommon in Asian, Hispanic, or black populations. Patients in these ethnicities will mostly suffer from secondary arthritis due to trauma, hip dysplasia, avascular necrosis, inflammatory arthritis, or an infection in the hip joint. Due to the secondary nature of the disease, they often appear at an earlier age, maybe as early as one's 20s. This early onset poses increased morbidity for the patient and a surgical challenge for the orthopaedic surgeon. The inability to perform normal activities at a young age produces feelings of hopelessness in patients and worsens their physical and financial output. Due to a lack of awareness, and at times remote access to healthcare systems, patients will delay seeking medical advice from an orthopaedic surgeon.

Total hip replacement surgery, since its inception in the 1960s, has been a reliable and proven technique for underlying arthritis. It's been called the "operation of the century" as it's helped improve the lives of countless patients suffering from debilitating arthritis. There's also been a continuous improvement in design and material for acetabular and femoral components, along with the method of fixation to the host bone. The success rate for total hip replacement has improved from approximately 77 percent survivorship for Charnley's arthroplasty to almost 92-95 percent for modern day implants. Over the last four or five decades, total hip replacement surgery has gradually improved outcomes and patient satisfaction. Continuous advancements in metallurgy and bearing technology have made this success possible. Advancements in surgical techniques and in the field of anaesthesia have improved the pain management and post-op rehabilitation in these patients.

Total hip replacement implants mainly fall into two categories – cemented and uncemented. In cemented implants, antibiotic laden polymethyl-methacrylate is used to fix the implant to the bone. In uncemented implants, it directly fixes to the bone. Uncemented implants have larger global acceptance today. Another major advancement has occurred in the "bearing surface" between the acetabular and femoral implant. This is the surface on which the hip joint moves after surgery. Sir John Charlney introduced high density polyethylene as a bearing surface and revolutionized replacement surgery as a result. Later, metal-on-metal bearing was introduced in the 1960s. Failure rates were higher than acceptable with these two bearing surfaces. The bearings commonly in use now are highly crossed linked polyethylene with cobalt chrome metal, highly crossed linked polyethylene with delta ceramic, and delta ceramic on delta ceramic. All three have a proven record and are used worldwide. There is a general consensus for using ceramic on ceramic in younger patients and in older patients who are physically active.

Patients with hip arthritis present with pain around their hip joint and have difficulty walking. They also have difficulty sitting on the floor or squatting. Few patients present with complaints of being unable to perform marital obligations. When first seeing a patient, a detailed history is taken to ascertain the underlying cause, and a proper examination is performed to assess movements in the affected

hip joint. Radiological and blood investigation are performed as per the requirements. An MRI and a CT scan (with 3D reconstruction) will provide the detailed anatomical extent of the disease and any associated loss of bony architecture. It's very important to get as much information as possible before planning treatment options.

Patients presenting in the early stage of the disease are given a course of analgesics and physiotherapy for the hip joint. They're also advised to do cycling or swimming. These measures help strengthen hip muscles and keep the joint mobile. Patients with advanced disease have minimal movement in their hip joints, hence they should opt for surgical options for their underlying arthritis.

What is the cause for hip joint arthritis in young patients?

It usually occurs due to trauma to the hip joint, avascular necrosis (lack of blood supply to the ball of the femur), infections (tuberculosis/septic), childhood hip problems (congenital hip dislocation, Perthe's disease, slipped capital femoral epiphysis, etc.), and inflammatory arthritis like rheumatoid arthritis or ankylosing spondylitis.

What problems can hip arthritis give patients?

A damaged hip can cause patients to experience pain in day-to-day activities. They have difficulty sitting crossed leg, squatting, or using stairs. As the disease progresses with time, the deformities appear in the hip joint leading to reduced mobility, and subsequently these patients become bedridden. Increasing deformity also produces changes in the spine and knee joints, if not treated on time. Few patients present with complaints of being unable to perform marital obligations.

How is hip arthritis diagnosed?

Your doctor will do a clinical examination of the hip joint, spine, and other joints of your body. A radiological examination (X-rays and MRI) and blood investigations will be performed based on clinical findings. This will vary from patient to patient depending on their underlying problem.

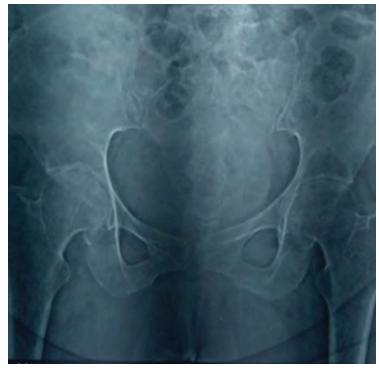
What is total hip replacement surgery?

In total hip replacement surgery, we remove the damaged femoral head (ball) and cartilage of acetabulum (cup) and replace it with metal implants. During surgery, the size of the acetabulum and femoral head are measured to optimise the size of the implant.

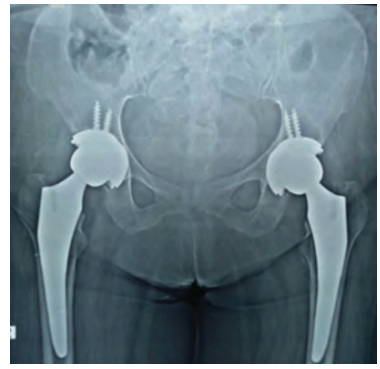
Is this surgery successful in young patients?

Yes, it is very successful. More and more young population are now undergoing total hip replacement surgery across the globe. This has been made possible due to:

(a) better surgical techniques
(b) advancements in implant designs
(c) improvements in metal quality
(d) improvements in ball-socket material (e.g., ceramics)



Before surgery



After surgery

When should one undergo total hip replacement surgery?

Patients should seek surgery when their hip pain limits day-to-day activities, hip pain interferes with their sleep, there is no relief from any medications, or the deformity appears to set in.

How is the surgery planned after admission?

You will be admitted one day before surgery. You would already have seen the anesthesia team with your routine reports so that you get fit for surgery. Your anesthetist will make you numb at your operating area. You will remain awake throughout the procedure. You can listen to songs if you wish to. The surgeon will perform the surgery as per the protocol and insert a new hip joint which fits best in your joint. Once you're transferred to the recovery room, you'll be started on an oral diet.

When can one start walking after total hip replacement?

You can start to walk with the help of a walker once the effect of the anesthesia wears off completely. That can happen on the same day evening or the next day morning, depending on the time of your surgery. A physiotherapist will help you in walking and teach you a few exercises.

When do patients get discharged from the hospital?

Once you've completed the "post-operative pathway" as per the hip replacement surgery protocol, you're fit to go home. It can vary from 2-4 days after surgery.

Do I need to take any special care after surgery?

Yes, you should be very careful and protect your new hip joint so that it lasts a long time with you. You should avoid sitting crossed leg, sitting on floor, squatting, high impact activities, and bending forward. These can cause damage to the ball and socket or may cause the ball to pop out of your socket.

Dr Deepak Kumar Mishra is a consultant in orthopaedics at Dr. L H Hiranandani Hospital in India.

Total Hip Replacement implants mainly fall into two categories – cemented and uncemented

Is beauty skin deep?

An aesthetic specialist's view on how deep beauty really is

As an aesthetic specialist, I frequently hear patients' laments on how, with age and consequent collagen loss, they've come to dislike how they look. Collagen seems to be getting way more attention than it deserves, with treatments like collagen injections and oral collagen supplements springing up in all shapes and sizes, sometimes with dubious clinical evidence. I would like to finally put collagen in its place.

Collagen is essentially a protein and is found in many places in the body: muscles, bones, tendons, ligaments, organs, blood vessels, skin, intestinal lining, and other connective tissues. Within the skin, collagen probably makes up 75 percent of the supporting structures, along with elastin, forming what can be likened to springs in a mattress. Using the same mattress analogy, hyaluronic acid is like the foam, in-between the springs, filling up the rest of the skin structure. Other essential structures such as nerves, blood vessels, and glands weave their way in-between these layers.

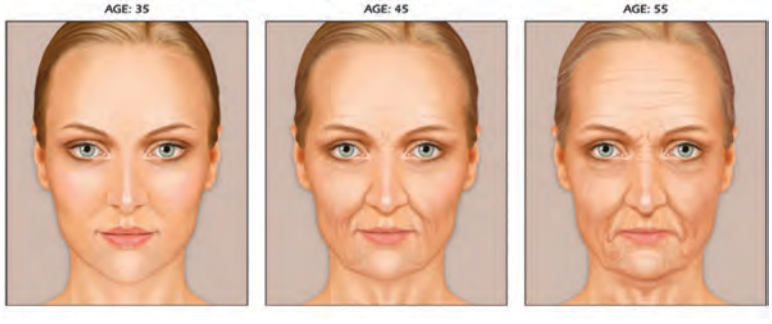
Collagen is essentially a protein and is found in many places in the body: muscles, bones, tendons, ligaments, organs, blood vessels, skin, intestinal lining, and other connective tissues

That makes collagen very important doesn't it? Not really. That's because the skin is extremely thin. Much thinner than you think. The epidermis of the skin is on average 0.1 millimetres thick, which is about the thickness of one sheet of paper. The dermis on the other hand, averages about two millimetres thick, but from experience, many are about 1.5 millimetres thick. That's probably the size of this full stop.

With skin only being a very thin layer, certainly not all of the signs of ageing can be attributed to the skin. Our beauty truly is not just skin deep. Gaining a better understanding of how your face becomes altered over time may help you and your aesthetic specialist decide on the best treatment options to address your individual concerns.

What is the triangle of youth and the inverted triangle?

Lines and wrinkles are some of the signs of ageing, but ageing also occurs beneath the skin. Signs of ageing exist at every layer of the facial structure, including skin, fat pads, connective tissue layers, muscles, and bone.



Triangle of youth

Back in our youth, facial features were defined and well contoured. This is commonly described as the triangle of youth.

As we age and lose facial volume, the contour of the face changes, causing shadow patterns to develop, while youthful highlights fade. The triangle becomes inverted.

Inverted triangle

Generally as we age, facial bone changes, soft tissues fall due to gravity and lack of support, and skin sags and droop downwards. Facial fat-pads shift, we lose fats in some places, and gain in other areas. For instance, we lose fats under the eyes, while the fat pads beneath the chin can increase in prominence, causing fullness between the neck and chin, also known as a "double chin." The effect of the lower face getting fuller can be described as the pyramid of age.

Ageing is also unique to each individual. Genetics play an important role in ageing. As such, how your mother ages can provide a glimpse into how your face may change over time. Other factors like sun exposure and diet can also play a role in determining when ageing begins and how fast it progresses.

Ageing skin

Youthful skin is soft, supple, smooth, well hydrated, and rich with cells that renew relatively rapidly.

As we age, we experience a loss of facial oil glands, which results in less oil produced, contributing to less moisture in the skin. We lose collagen and elastin, which can contribute to the formation of dynamic wrinkles, like laugh lines, frown lines, and crow's feet. Due to repeated facial movement, dynamic wrinkles eventually become static lines that are gradually etched into the skin over time. Additionally, sagging can occur because skin is no longer able to bounce back as it did in our youth.

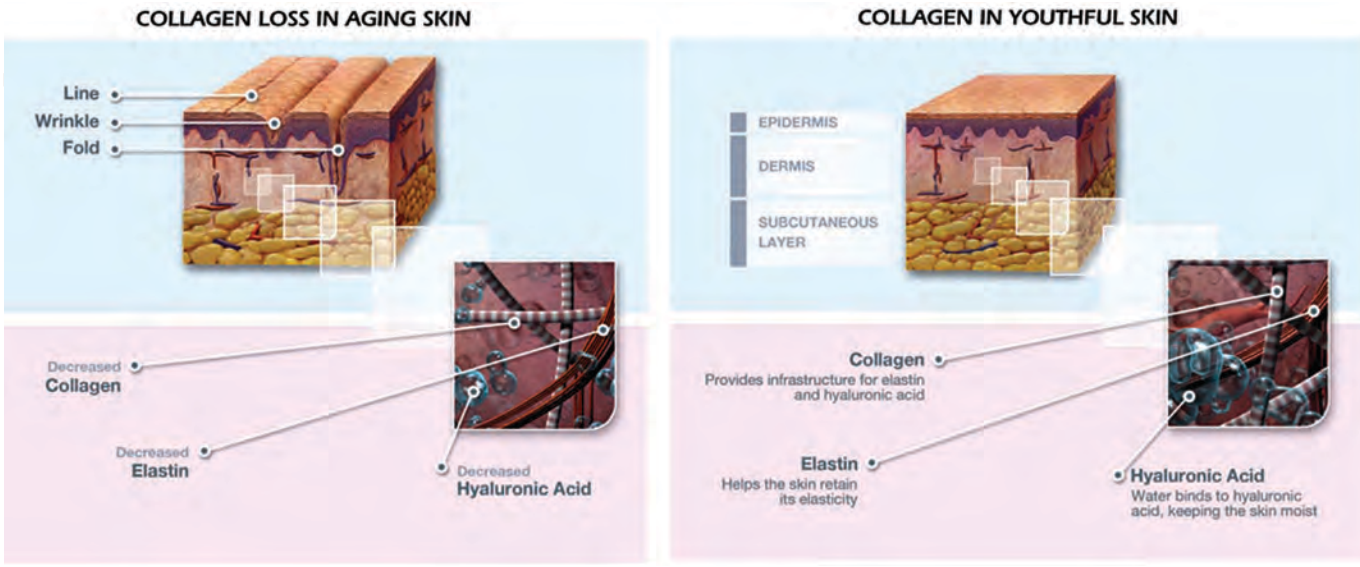
Many factors impact the way our skin ages, including lifestyle choices and genetics.

- Lifestyle choices, like sun exposure, smoking, alcohol use, diet, and stress, can cause brown spots, rough skin, and wrinkles, as well as the premature onset and progression of ageing.
- Genetics affect all layers of the skin and contribute to thinning, dryness, and loss of elasticity of the skin during the ageing process.

Fats and ageing

A youthful look depends on having the right amount of facial fat in the right places. Redistribution, accumulation, and atrophy of fat lead to facial volume loss.

- Some areas lose fat. Examples are the forehead and cheeks.
- Other areas gain fat. Examples are the mouth and jaw.



- Modification of the fat pads leads to contour deficiencies.

This creates an illusion of the face migrating downwards and sagging. But it's also the redistribution of fats with net loss in the upper face and net gain in the lower face. In addition, the areas of fat tend to become farther apart. Instead of a smooth, almost continuous layer, the fat pads appear as separate structures.

Muscles and ageing

Our facial muscles lie beneath our facial fat-pads. They are in repeated motion as we eat, laugh, smile, and frown.

As we age, loss of facial fat, combined with gravity and repetitive muscle activity, can lead to deep wrinkles in the face. As a result, crow's feet form at the outer corners of our eyes, and creases form between our brows.

Facial muscles also get weaker over time. The loss of muscle tone and thinning skin can give the face a loose, sagging appearance. Our jawline loses its contour, and our profile becomes less defined.

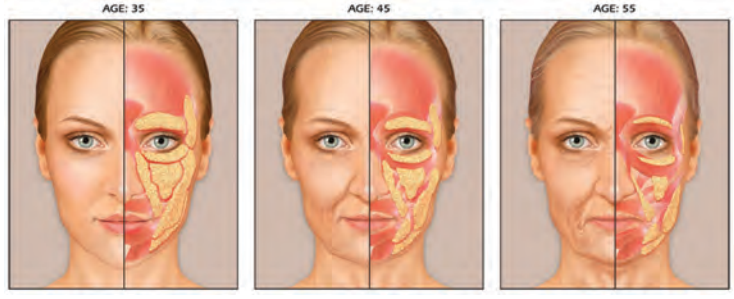
Bones and ageing

Facial bones provide the foundation for muscle, fat pads, and skin. This bone structure is what gives us our unique facial shape and contour. A youthful bone structure has full and high cheeks, as shown in the triangle of youth, and defined brow bones and less sunken eye areas.

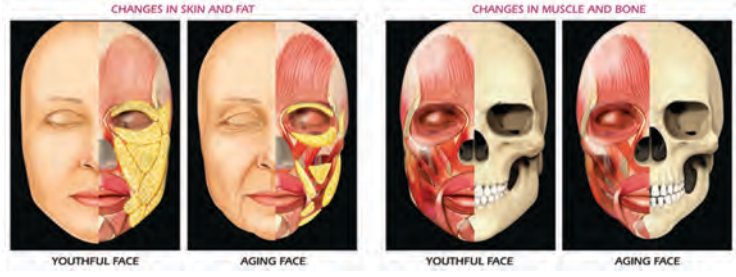
With age, we experience facial bone loss. This type of bone loss changes the dimensions and contour of our face, causing areas around our eyes to get larger, a decrease in the angle of our brow bone, and a less sculpted jawline.

Treatment options to address signs of ageing

The ageing process has an impact beyond the facial wrinkles and lines that form on the skin's surface. Ageing occurs in multiple layers, including the bone, muscles, fat-pads, and skin. This is important to understand, as it will help you and your aesthetic specialist decide on the treatment option that's right for you. The goal of facial aesthetic treatment is to help temporarily restore facial volume and correct age-related shadow patterns inherent to the ageing face.



How has your appearance changed over time? Talk to your aesthetic specialist today about a facial assessment and discuss customised treatment options for your facial structure, genetics, and ageing process and learn how you can increase your satisfaction with your appearance and achieve your desired aesthetic goals.



Dr Vicki Leong is the founder and director of VIDASKIN Medical Aesthetic Clinic and VIDASKIN Aesthetics. Both are located at Wheelock Place, Orchard Road, Singapore. She specialises in minimally invasive anti-ageing treatments and is a trainer for Allergan.

Do women get lung cancer?

Dr Chin Tan Min explains the risks women face and how to reduce and manage them

When one thinks about cancers in women, one tends to think of breast, uterine, and ovarian cancers. Is this association accurate? With lung cancer being the third most common cancer in Singaporean women, some may ask if women are equally at risk of the disease as men.

Over a period of five years between 2014 and 2018, 2,862 women in Singapore were diagnosed with lung cancer compared to 5,083 men.

In absolute numbers, the statistics for women show that fewer of them get lung cancer compared to men. They also tell us that a smaller percentage of all women get cancers, at 7.5 percent of all cancers, in contrast to 14 percent of all men with cancers. Whether this is related to a higher prevalence of smoking in men or other gender-related factors is not currently well understood.

The definite risk factor of smoking for lung cancer applies to both women and men. But while men are more likely to have smoking-related lung cancer, women tend to be diagnosed more often with lung cancers that are non-smoking-related.

On the one hand, non-smokers tend to have a higher chance of harbouring certain mutations in their cancers, such as epidermal growth factor receptor (EGFR) and ALK fusion. The presence of these mutations or aberrations allows patients to be treated with oral targeted medications.

Smoking-related cancers, on the other hand, tend not to be driven by these mutations and hence may not be responsive to oral targeted medications. We have found, however, that smoking-related lung cancers tend to be more responsive to immunotherapy, a relatively novel group of medications that harnesses the body's own immune system to help control cancers.

Survival rates for lung cancer

As a whole, survival rates have improved for cancer patients. For lung cancer specifically — especially for those with advanced stage 4 cancers — the novel effective treatment options have significantly improved the survival outlook.

Chemotherapy, for instance, used to improve survival by months in the past, but we're now beginning to discuss survival benefits in terms of years with patients.

Generally, women with lung cancer appear to do better than men, partly because those who have specific mutations have targeted therapy as an additional treatment option.

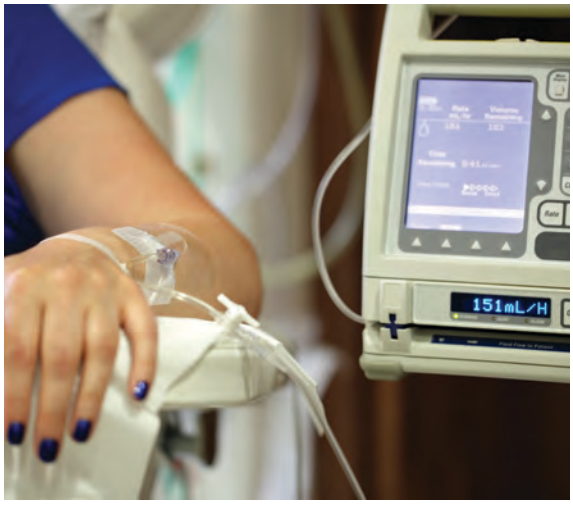
Other reasons may be attributed to the accompanying heart and lung problems that male smokers may have. These conditions may add additional burdens to their overall health and may result in them not being able to tolerate treatment as well as their female counterparts. At this point, the reported 5-year survival rate following the diagnosis of lung cancer in a woman is 26.5 percent, compared to 14.4 percent in a man.

Management of lung cancer

There are no real gender-specific differences when it comes to the management of lung cancers. Rather, the treatment is dependent on each patient's reserves, general health condition, and the molecular make-up of their cancers.

Based on this information, the managing doctor can decide on the most appropriate first-line and subsequent treatment options.

Typically, most patients — male and female — are worried about cancer progression and the side effects from treatment. Women are not more prone to side effects but may potentially be more concerned about the social and emotional impacts of certain side effects such as hair loss, which can happen with chemotherapy.



Chemotherapy

Survival rates have improved for cancer patients

Such side effects are usually transient and reversible. Hair, for instance, usually grows back after chemotherapy is stopped. Certain types of treatment, such as targeted and immunotherapy, may also result in a rash, although these can generally be effectively managed with creams such as emollients. In younger women, the issue of fertility and pregnancy occasionally comes up. Thankfully, lung cancer is not often diagnosed in child-bearing age women.

Taking steps towards prevention

Fortunately, like many diseases and health conditions, taking steps towards prevention can help greatly in lowering your risk of potential disease.

It's highly recommended to not take up smoking if one is a non-smoker and to stop smoking if one is a smoker. I always advise that it's never too late to stop smoking. The longer one has stopped smoking, the lower the risk of developing lung cancer. In addition, it's crucial to avoid second-hand smoke as much as possible, as any form of long-term exposure may be detrimental to overall health.

While there's no sure way to prevent cancer, eating healthy foods and leading a more active rather than sedentary lifestyle can go a long way in risk reduction — whether you're a man or woman. ■

Dr Chin Tan Min is a senior consultant in medical oncology at Parkway Cancer Centre in Singapore.

It's highly recommended to not take up smoking if one is a non-smoker and to stop smoking if one is a smoker

Liver cancer – Are you at risk?

Dr Mark Fernandes advises early and simple screening can reduce risks of malignancy

A 50-year-old gentleman recently saw us for abdominal bloating. He was diagnosed with advanced multi-focal liver cancer. He passed away within a month. He was not aware that he had any risk factors associated with liver disease.

The truth is though, liver cancer is curable if detected early, and regular screening is an essential part of detecting liver cancer early. There are also now many non-invasive methods for assessing one's liver to understand if they are at risk of liver cancer at all.

Liver cancer accounted for the sixth highest number of new cases of cancer globally and the third highest number of deaths due to cancers globally in 2020. Asia remains the region with the highest incidence for liver cancer in the world, largely due to the prevalence of hepatitis B.

Symptoms of liver cancer

A common misconception is to wait until one has symptoms before seeing a doctor. Unfortunately, patients with symptoms due to liver cancer are usually in the advanced stages of the disease. These include jaundice, abdominal pain and distension, and weight loss. Liver cancer in its early stages usually is asymptomatic and hence screening is essential in patients at risk.

Risk factors for liver cancer

The most common risk factor for liver cancer in Asia is hepatitis B, with the prevalence in many Asian countries above 10 percent. Other risk factors around the world include hepatitis C and fatty liver disease, particularly in the developed world. Hepatitis B and C can be detected through a simple blood test. Fatty liver disease is associated with obesity and the metabolic syndrome and can be detected through an ultrasound scan. These risk factors either increase the risk of liver cancer on their own or as a result of continued inflammation in the liver over many years, resulting in liver disease progression and cirrhosis (scarring of the liver).

Screening for liver fibrosis and cirrhosis

Screening for liver fibrosis (or scarring) and cirrhosis (chronic degeneration) is an essential part of knowing whether you are at risk for liver cancer or not and whether you require screening for liver cancer. Many different modalities exist to evaluate liver fibrosis and cirrhosis. In the past, the primary method was using a liver biopsy. However, today there are tests, such as the Fibroscan liver stiffness measurement and MRI elastography, that can non-invasively detect liver fibrosis and cirrhosis accurately.

Liver cancer screening

Patients with hepatitis B or liver cirrhosis should be followed up by a doctor and screened regularly for liver cancer. This usually involves an ultrasound scan of the liver every six months. New nodules or lesions detected on ultrasound require further characterisation with either a CT or MRI scan.

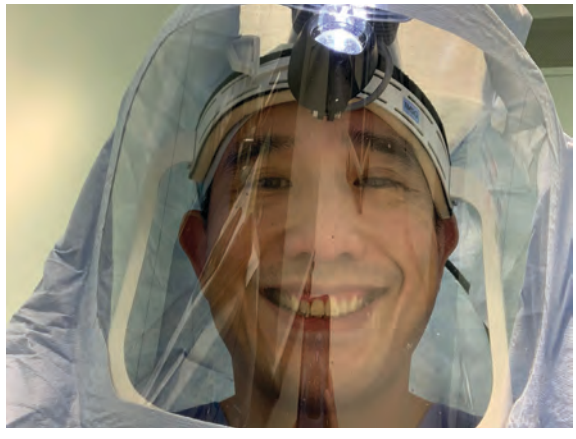
Methods of treatment for liver cancer

Liver cancer in its earliest stages can be treated ideally with either surgical resection or liver transplantation. However, patients who are not suitable for either due to age or existing medical conditions can be treated with minimally invasive techniques such as radio-frequency ablation or trans-arterial chemoembolization. Patients with more advanced disease now also have access to molecular targeted therapies or immunotherapy.

Unfortunately, patients with symptoms due to liver cancer are usually in the advanced stages of disease.

Dr Mark Fernandes is a Gastroenterologist at gutCARE • Digestive • Endoscopy Liver Associates. His main clinical interests are in liver disease including fatty liver, hepatitis B and C and liver cancer. Find out more at www.gutcare.com.sg

INTERNATIONAL ORTHOPAEDIC CLINIC



"The secret to IOC's success is that we aim to truly understand our patients, and to tailor our treatments to fit their needs. Coupled with the use of robotic technology and well trained staff who deliver excellent customer service, this leads to consistently high patient satisfaction rates."

International Orthopaedic Clinic (IOC) is an award-winning Orthopaedic Clinic based at Mount Elizabeth Novena Hospital, Singapore.

IOC has established its reputation through Robotic Hip and Knee Replacement, and through treatment of sports injuries of elite athletes.

IOC is twice winner of the Singapore Expat Choice Award for Best Orthopaedic and Sports Clinic in Singapore, it was awarded the prestigious Singapore SME500 status, and it is a finalist for the British Chamber of Commerce Best Customer Service Award in 2021.

The Director of IOC, Dr Alan Cheung, is a British born and trained Consultant Orthopaedic Surgeon. "The secret to IOC's success is that we aim to truly understand our patients, and to tailor our treatments to fit their needs. Coupled with the use of robotic technology and well trained staff who deliver excellent customer service, this leads to consistently high patient satisfaction rates," says Dr Cheung.

Dr Cheung has trained extensively around the world in Joint Replacement Surgery and Robotic joint Reconstruction in centres in Sydney, the USA and South Korea. He is an exponent of the Stryker Makoplasty Robotic system and believes that this technology is key to improving the lives of patients with severe pain from worn out hips and knees.

Dr Cheung is also a firm believer of understanding what his patients go through. He suffered numerous injuries playing Rugby in Cambridge, England, as a youth and has since gone on to train in martial arts at the world renowned Evolve Mixed Martial Arts gym in Singapore. He is also a keen cyclist. This ties in well with his positions as Team Doctor for the Wrestling Federation of Singapore, and Events Team Doctor for the Singapore Cycling Federation.

He is one of the few American College of Sports Medicine Certified Ringside Physicians in Asia, and was formerly the local medical lead for the One Championship and One Warrior Series martial arts competitions in Singapore. He is a World Rugby Educator and has been Matchday Doctor for international rugby events such as the HSBC Rugby Sevens and SuperRugby.

Prior to COVID, Dr Cheung also practiced in Shanghai, China and is keen to expand IOC within the region when travel is freely available.

"At International Orthopaedic Clinic, we believe it is a great privilege to be able to relieve the pain and suffering of others, and to allow patients to have a better quality of life, and return to the sporting activities that they love most."

A bitter pill to swallow

Dr Kan explains how a common problem might turn into cancer of the oesophagus

Most of the time, we just take a short trip to the local pharmacy for an acid remedy or make an appointment with the local family doctor for treatment

Cancer of the food pipe or gullet (oesophagus) is the eighth most common cancer and the sixth most common cause of cancer-related-deaths worldwide.

Most of us will experience a few episodes of heartburn or the sensation of bitter taste or acid in our mouth on a monthly basis, and this is a common aspect of modern life that should cause us no concern. It may be triggered by the food we eat, poor eating habits, stresses in life, medication, being overweight, or habits such as smoking and alcohol. Most of the time, we just take a short trip to the local pharmacy for an acid remedy or make an appointment with the local family doctor for treatment.

However, when the problem becomes intractable and constant, it can be cause for concern as this may be the first sign of oesophageal cancer. When the cancer develops and enlarges, there will be a sensation of food begin stuck in the throat or centre of the chest. Eventually, it may lead to the inability to swallow anything (dysphagia) as the cancer grows and the opening of the food pipe becomes completely blocked. Swallowing water, food, or pills becomes impossible. It may also present with vomiting blood or unintentional weight loss.

There are two main types of oesophageal cancer: “squamous cell carcinoma” and “adenocarcinoma.”

In developed Western countries, being overweight is a major problem, often causing abdominal obesity and a large rotund stomach. At the lower part of the oesophagus, there is a muscular valve which keeps the stomach acid away from the oesophagus. Being obese puts pressure on the stomach, leading to acid refluxing back into the oesophagus and producing the symptoms of heartburn or pain in the chest. This is commonly referred to as acid reflux. If this damage from the acid is persistent and severe, it can lead to inflammation and subsequent changes in the cells’ lining (Barret’s oesophagus) with the potential development of cancer (adenocarcinoma) at the lower portion of the oesophagus.

In Asia, squamous cell carcinoma is the predominant cancer. It’s considered more aggressive and occurs higher up in the oesophagus than adenocarcinoma. The main risk factor for developing this type of cancer is smoking, but others include:

1. Age (increased incidence over the age of 60)
2. Gender - men are more likely than women to get oesophageal cancer
3. Obesity
4. Persistent chronic acid reflux leading to Barrett’s oesophagus
5. Alcohol – chronic and heavy drinkers
6. Ethnicity (Caucasian – adenocarcinoma)
7. Caustic injury to the oesophagus
8. Infection with human papillomavirus (HPV) - squamous cell carcinoma
9. Diet high in processed meat and lacking fresh fruit and vegetables
10. Previous history of other cancers
11. Other conditions – Achalasia, Tylosis, Plummer-Vinson Syndrome

When the symptoms of heartburn persist despite medication or if dysphagia occurs, it will warrant

immediate investigation in the form of an upper endoscopy (gastroscopy). This procedure uses a flexible camera which is guided down into the oesophagus to allow direct imaging and a biopsy to be taken of any tumour or cancer. Early treatment is imperative for a better outcome and prognosis and to enhance the chance of survival.

Staging of the cancer is the next step with CT scans to determine whether the cancer is localised or has already spread. The only cure is surgery to excise the cancer. However, if the cancer has spread to distant organs, it will unfortunately mean that the only treatment is palliation with chemotherapy and maybe placing a stent across the tumour to allow the passage of food. If the cancer is more advanced but still localised, then chemotherapy with or without radiotherapy and immunotherapy may be given before or after surgery. This helps to increase the potential of a cure with surgery.

Surgery is a major undertaking involving operating in both the abdominal and chest cavity to remove cancer from the long oesophagus. Traditionally, this operation is performed by open surgery with a large incision in the chest (thoracotomy) and a similar long incision in the abdomen. Once the oesophagus is removed, the stomach is made into a thin tube (two-finger width) and pulled up into the chest to reconnect the remaining oesophagus to the stomach.

With the technical advances in medical equipment and surgical techniques, keyhole surgery (minimally invasive laparoscopic or thoracoscopic surgery) has been demonstrated to be superior in outcome compared to conventional open surgery, and this is also true for oesophageal cancer. With keyhole surgery, there's a shorter hospital stay, less requirement for intensive care unit admission, lower overall complication rates, and a faster return to normal function. The risk of pneumonia is also reduced by as much as 40 percent with this method.

After surgery, eating large meals will no longer be possible since the stomach, which previously acted as a large reservoir bag (normally holding up to 1.5 litres of fluid and food), has been reduced to a long narrow tube. However, the type of diet can remain the same, and recovery is dependent on eating healthily with a good amount of proteins and nutritional supplements over the following four to six weeks. Further treatment such as chemotherapy may be needed after surgery if the cancer has been found to have extended outside the oesophagus to the lymph glands that were removed and examined.

Unfortunately, the prognosis for patients with advanced oesophageal cancer is poor. If it can be detected early and surgery undertaken, the five-year survival rate will be more than 90 percent. For more advanced cases, the survival rate reduces to 47 percent for bigger cancers, 25 percent if the spread is nearby, and less than five percent if the cancer has spread to distant organs. Early detection along with surgery are crucial to surviving from this disease.

Dr Kan Yuk Man

- **Stage I**: Five-year survival is 55 percent
- **Stage II**: Five-year survival is 30 percent
- **Stage III**: Five-year survival is 15 percent
- **Stage IV**: Sadly, many people don't live beyond a few months

The chance of the cancer recurring after surgery even with additional treatment is ever present for every patient over the following 5-10 years. Patients should still live a healthy life but will require very close follow up with yearly gastroscopy and CT scans to ensure that the cancer has not returned.

Early detection is paramount to surviving this disease and to enable a cure. Any worrying symptoms of persistent heartburn or dysphagia should ring alarm bells and signal the need to seek a medical opinion. Prevention is always the key-point with any condition, and therefore avoiding any risk factor is crucial. In preventing oesophageal cancer, risks factors which we can control are smoking, excessive alcohol, obesity, reflux, and dietary risks. Living and working in modern society should not negate one's health, so keeping healthy remains important for enjoying our lives with our family and loved ones. Keep safe and well.

Dr Kan Yuk Man is a senior consultant surgeon specialising in surgical oncology at Farrer Park Hospital and Mount Elizabeth Hospital in Singapore.

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Age-related macular degeneration in a nutshell

Dr Claudine Pang gives the low-down on the eye condition

What is age-related macular degeneration (AMD)?
It's an age-related eye disease that causes central vision loss, more commonly in people over 50.

Why does AMD occur?
Degenerative changes due to ageing can occur in the macula, which is the central portion of the retina located on the inside, innermost layer of the eye. This results in loss of central vision and usually occurs in both eyes, although it may affect the eyes asymmetrically.

Who is at risk of AMD?
- Age — those over 50 are more at risk
- Smokers – cigarette smoke increases the risk by two to four times
- Race – Caucasians tend to be at higher risk
- Genetics – those with a family member with AMD
- Systemic health problems including hypertension and high cholesterol
- Excessive UV exposure
- Low dietary antioxidants intake

What are the symptoms of AMD?
1. Blurring of central vision
2. Wavy lines (metamorphopsia)
3. Floaters (could signify bleeding)

How many types of AMD are there?
There are two main types – dry and wet.

Dry age-related macular degeneration is more common and occurs when degenerative material accumulates as drusen (yellow deposits) in the macular, and eventually the macular tissue becomes atrophic, or decreases in size, and stops working effectively. Dry AMD usually progresses slowly. There is currently no cure, but steps can be taken to slow its progression and prevent blindness, including cessation of smoking and dietary supplementation with lutein and zeaxanthin, which are retinal pigments.

Wet age-related macular degeneration occurs when fluid or bleeding from abnormal blood vessels under the macula occur. It's less common, and vision loss can be rapid and severe. If detected early, treatment with appropriate eye medications may prevent blindness. If discovered too late, bleeding beneath the retina leaves permanent scarring of the macula with irreversible visual loss.

Dry AMD can eventually convert into wet AMD with time. The goal, therefore, is to detect dry AMD early and prevent it from converting to the wet form.

How to prevent AMD?
1. Avoid smoking
2. Exercise regularly
3. Maintain healthy blood pressure and cholesterol levels
4. Eat a healthy diet rich in green, leafy vegetables and fish
5. Get regular eye checks once a year
6. Protect your eyes from excessive UV exposure from sunlight

Treatment for AMD
Treatment of dry age-related macular degeneration includes simple lifestyle changes and regular monitoring for the disease to slow the progression from turning into the wet form. Cessation of smoking will definitely help. Patients can take supplements high in lutein and zeaxanthin to further enhance the level of antioxidants in the eye if their dietary intake of vitamins and minerals is low.

The treatment for wet age-related macular degeneration should be customised by your retinal eye doctor and aimed at stopping the leakage of blood and fluid for as long as possible. Your doctor may give injections, laser, or a combination of both treatments depending on your eye condition.

Do I have age-related macular degeneration?
Sometimes in early disease, there's little to no symptoms. So it's best to have an eye exam by a retinal specialist who will be able to scan your eye with an optical coherence tomography (OCT) machine. This will be able to show almost microscopic details of the retina and can detect early changes of dry age-related macular degeneration. At Asia Retina, we use the OCT machine with the highest resolution quality in order to offer the best diagnostic and therapeutic solutions for our patients. If you're keen for an eye assessment, contact our team in Singapore at 6732 0007 or 9118 0007 for an appointment today.

Dr Claudine Pang is an eye specialist based in Singapore.

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Regency has begun work on a new hospital extension block which will more than double existing capacity with additional inpatient beds, clinical services, operating theatres and medical suites. Upon its completion, Regency will become a 380-bed tertiary hospital with the capacity to expand to 500 beds.

Regency, along with its sister hospital Mahkota Medical Centre in Melaka, are part of Health Management International Ltd (HMI Group).

Doctor, my knee *hurts...*

One of the most prevalent symptom that occurs across the age groups is knee pain. It is so commonly encountered to the extent that many patients and even doctors may regard knee pain to be trivial. As a result, it is frequently underdiagnosed and undertreated.

Are they all the same?

Not all knee pain are the same. The cause of knee pain in a 25 year old man is very likely to be different from a 65 year old lady. Treatment may vary from person to person, depending on the diagnosis and patient factors.

What could it be due to?

The knee is the largest joint in the human body. One of the most complex joint, there are many structures (bone, muscle, cartilage, ligament, tendon, meniscus, nerve and blood vessel) that may contribute to pain. Think of the all the structures as components of a car engine. A malfunctioning component may invariably lead to car engine breakdown.

Common causes of knee pain are:

- Ligament and tendon strain/injury
- Meniscus injury/disorders
- Osteoarthritis and cartilage disorders
- Patellofemoral tracking disorders
- Gout

Less common, but equally important causes not to be missed are:

- Inflammatory arthritis
- Tumours
- Infections

Written by:

Dr Soh Chiang Joo

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How do I get to the bottom of it?

Acknowledging the symptom and seeking medical attention would probably be first and most important step in the cascade of management. The premise of treatment is to get the exact diagnosis and formulate the appropriate management plan for any particular patient.

The treating doctor would perform a thorough clinical examination after obtaining relevant information from the patient. Further tests such as imaging and/or blood profile may be required to confirm the diagnosis.

In many instances, simple X ray is all that is needed. However, certain ligamentous and meniscus disorders may warrant more complex imaging, such as MRI or CT scan.

So, what next?

The good news is that most patients can be treated with lifestyle modification, medication and physiotherapy. Some may require intra articular knee joint injections.

Surgery is indicated for patients who do not respond well to non operative measures or with more severe conditions. Commonly performed procedures are arthroscopic surgery (key hole surgery) and knee replacement surgery. Arthroscopic surgery is minimally invasive with the advantage of lesser pain and faster wound healing. Ligament reconstruction, meniscal repair and cartilage regeneration are among the many conditions that are treated by arthroscopic surgery.

Knee replacement surgery is performed for severe debilitating osteoarthritis that significantly impairs the quality of life. Over the years, advancement in medical technology has refined the techniques of knee replacement. Computer assisted navigation has been successfully incorporated to improve the surgical outcome.

Take home message

Take the first step by seeking medical attention when you have knee pain. Always discuss with your doctor when formulating the treatment plan that works best for you.

Warm Greetings from Malaysia Healthcare!

Dear Readers,

I trust that all of you are keeping well and staying safe from wherever you are situated. While we are still navigating through a pandemic, it is great to see many parts of the world steadily returning to normalcy and easing restrictions. For us in Malaysia, rampant rollout of the National COVID-19 Vaccination Programme (PICK) has shown positive progress in several areas including the number of cases admitted to our public hospitals and, as I am writing this, more than 70% of our adult population have been fully inoculated. According to COVIDNOW, a platform initiated by the Government of Malaysia for data and insights on COVID-19, more than 200,000 doses are administered per day. The newly appointed Minister of Health Malaysia, The Honourable Tuan Khairy Jamaluddin announced recently that COVID-19 is expected to become an endemic in Malaysia within this year. These are certainly encouraging signs for recovery. Our current priority remains in ensuring the safety of our nation is given utmost importance. I am optimistic that in due time, Malaysia too will steadily go back to normalcy, and welcome back all eager travellers waiting to come to our shores once again to experience Malaysia Healthcare.

Forging Resilience for Industry Recovery, Together

It is undeniable that the global severity of COVID-19 has posed several challenges for the healthcare travel industry. If there's one thing we can take from the pandemic, it is that cross collaboration is crucial in accelerating industry recovery. Concerted efforts from both the public and private healthcare players during this pandemic must be commended for their agility and adaptability in handling a health outbreak of this scale. An effort and momentum that must be continued moving forward.

The healthcare travel industry can and has certainly benefitted from this. At Malaysia Healthcare, together with our stakeholders, we have established a strong foundation for healthcare service delivery through our seamless end-to-end patient journey since our inception over 10 years ago. This is comprised of collaborative efforts from government entities, industry players, and our network of 73 member hospitals. As we navigate through the pandemic, public-private partnerships will continue to assume a crucial role in accelerating our recovery and rebuild efforts.

In forging industry sustainability and resilience, we will continue to build trust for Malaysia Healthcare through continuous engagement with industry stakeholders. On that note, one of our main engagements for the year, insigHT2021, the region's leading medical travel market intelligence conference will take place again this coming November. insigHT 2021 gathers experts from across various sectors to share perceptions on post pandemic recovery strategies and industry sustainability. Centred on the theme '*Forging Resilience*', this year's event will be held virtually from 16th – 18th November (visit **www.mhtc.org.my/insigHT2021** for details).

Leading Global Healthcare Destination

As a globally recognised and award-winning destination for healthcare travel, we remain optimistic that Malaysia Healthcare will rebound owing to the reputation we have carefully earned over the past ten years, and our value propositions of world-class quality, ease of accessibility, and affordability of healthcare treatments. Our current mission is to revive the sector by building upon the existing confidence in Malaysia as a safe and trusted healthcare travel destination.

Journeying together with us are our member hospitals, consisting of private healthcare facilities that promote healthcare travel to foreign patients. These hospitals possess at least one accreditation from international healthcare accreditation bodies, such as the Joint Commission International (JCI), Malaysian Society for Quality in Health (MSQH), Reproductive Technology Accreditation Committee (RTAC) and other agencies under the International Society for Quality in Healthcare (ISQua) and represent the best of Malaysia Healthcare.

Our healthcare facilities are well-monitored and strongly regulated by the Ministry of Health Malaysia, with expertise in a wide range of medical fields such as cardiology, oncology, fertility and including in the field of orthopaedics. We are proud to say that Malaysia is home to award-winning healthcare providers in this field, including KPJ Healthcare (2018, 2019, 2020) and Prince Court Medical Centre (2019), who have both received the coveted title of 'Orthopaedic Service Provider of the Year' at the Global Health and Travel Awards. These are just some of the many recognitions received by our healthcare providers in Malaysia, showing our commitment in providing the best healthcare experience to our patients.

Like any other industry globally, the healthcare travel sector will also take time to recover. Lessons learnt from COVID-19 has enabled us to be better equipped in providing a seamless experience to all international healthcare seekers for long-term industry sustainability. I am confident that in diligently creating opportunities for patients to receive affordable and accessible treatment and enjoy continuity of care in a manner which exemplifies patient safety, we will further propel Malaysia into the global landscape as the leading destination for healthcare. Malaysia Healthcare remains dedicated in providing quality healthcare services in a safe and trusted environment. On behalf of Malaysia Healthcare, I look forth to welcoming you back to our shores.

Thank you.

Mohd Daud Mohd Arif
Chief Executive Officer
Malaysia Healthcare Travel Council

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Meniscus
Tear of The Knee

This community message on Meniscus is prepared by Dr. Bae Kia Chuang, Consultant Orthopaedic Surgeon, and brought to you by KPJ Johor Specialist Hospital.

What is Meniscus?

The meniscus is a C-shaped piece of soft and fibrous cartilage cushions and acts as a shock absorber and stabilizer to the knee. You have both an inner and outer meniscus that help distribute the forces in the knee when you are weight-bearing. Without meniscus tissue, knee cartilage is more likely to degenerate and cause knee osteoarthritis.

The Symptoms

Pain and swelling are the most common signs of acute injury to your Meniscus. You may also feel like your knee is "locked" when you tried to move it if the damaged meniscus tissue is caught within the knee joint.

The Treatment

Initial treatment for a meniscus injury should include conservative management, such as rest, ice, compression, elevation, and anti-inflammatory medication. Physical therapy can help reduce pain and swelling by increasing mobility and stability.

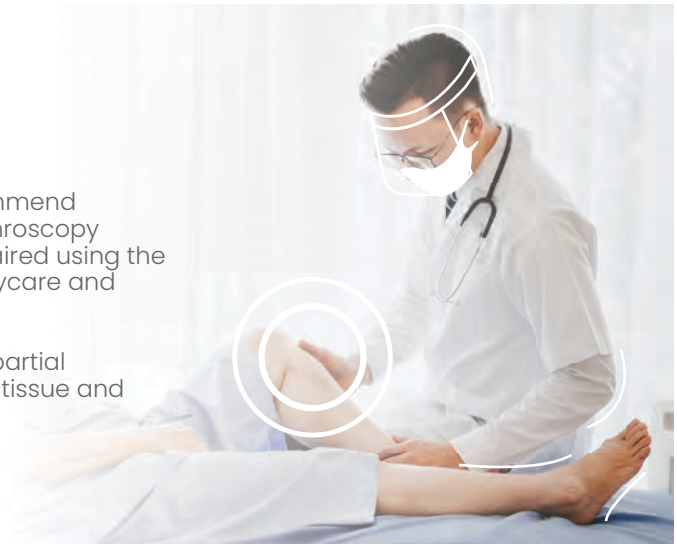
Diagnose Meniscus Tear

If a meniscus tear is suspected, your physician will conduct a thorough health history and physical examination of the knee. MRI is the test of choice to confirm the diagnosis of a torn meniscus.

When To Consider Meniscus Surgery?

If conservative treatment fails, your physician may recommend arthroscopic surgery. With the advancement of knee arthroscopy techniques, most damaged meniscus tissue can be repaired using the key-holes method. This operation can be done under daycare and take weeks of rehabilitation to recover fully.

If the meniscus tissue is badly damaged beyond repair, partial meniscectomy might be performed to relieve the locked tissue and improve pain.



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