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Middle East

Feature

Migraine-More than just a Headache? Get the facts and find out

Healthcare destination

Turkey: A Booming Market for Healthcare Technologies and Services

Medical Research

German scientists develop tumor-targeting microrobots using bacteria

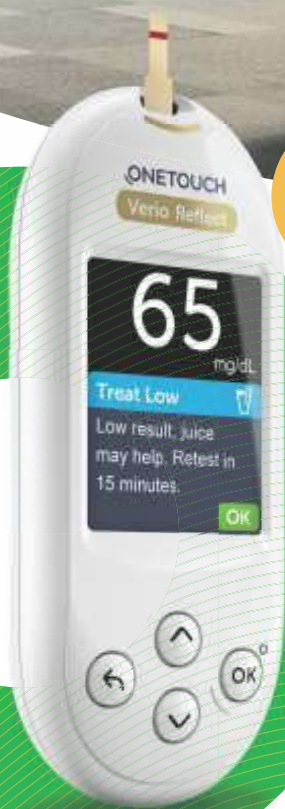
News & Update

Healthpoint introduces cutting-edge technology to eliminate spider veins

**Technology
a game changer
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Editorial

Ongoing monkeypox outbreak a Public Health Emergency of International Concern

The global health care sector's efforts rises to new challenges presented by the ongoing pandemic are nothing short of valiant. They continue to prioritize the human experience of their workforce, swiftly scaling virtual health services for patients, and forging partnerships to produce and procure the required vaccines, treatments and supplies. At the same time, they are also keenly aware of the heightened importance of addressing inequities of health care, sustainability, and the environment.

The recent outbreak of monkeypox represents a global health crisis, WHO Director-General Tedros Adhanom Ghebreyesus said. This classification is the WHO's highest level of alert and allows for coordinated international response and funding to collaborate on sharing vaccines and treatments.

To date, there have been over 16,000 monkeypox cases in more than 75 countries, with five deaths in Africa. The recent outbreak has been primarily among men, outside of Africa where the disease is endemic.

Health experts welcomed the WHO's decision to issue the PHEIC declaration, which until now had only been applied to the coronavirus pandemic and ongoing efforts to eradicate polio. The decision, said Josie Golding, head of epidemics and epidemiology at the Wellcome Trust, should help contain the spread of the viral disease.

The WHO and national governments have been under immense pressure from scientists and public health officials to take more aggressive action against monkeypox.

Since the committee first convened in June, there has been a significant increase in the number of cases, with over 3,000 reported.

At the time, the expert group agreed to reassess their position on the emergency declaration if the outbreak were to worsen.

One of the primary concerns driving this decision was the potential for the virus to spread to other groups, particularly children or others who have been shown to be vulnerable to the virus in past outbreaks in endemic countries.

WHO officials have said that they were investigating the potential for the virus to spread through new modes of transmission.

If you would like to be featured in our magazine, you can get in touch with me at ayesha@mediworldme.com. Don't forget to LIKE and SUBSCRIBE to all our social media channels to stay updated with what's happening in the medical industry.

Sincerely,

Ayesha Rashid
Chief Editor, MediWorld ME

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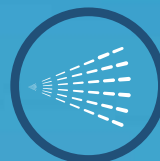
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Do not use : In children less than 2 months of age.

On open skin wounds. When using this product keep out of eyes, ears and mouth.

In case of contact with eyes, rinse eyes thoroughly with water. Stop use and ask a doctor if irritation or rash occurs. These may be signs of a serious condition.

Keep out of reach of children. If swallowed, get medical help.

Directions : Place enough product on hands to cover all surfaces.

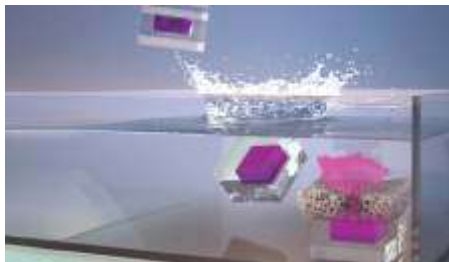
Rub hands together until dry. Supervise children under 6 years of age when using this product to avoid swallowing.

Other information : Do not store above 30°C

Avoid freezing and excessive heat above 40°C.

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A woman with long blonde hair, wearing blue medical scrubs and a watch, stands in a clinical setting.

Technology a game changer in dermatology

“The role of light-based technologies in dermatology has expanded dramatically in recent years. Lasers and intense pulsed light have been used to safely and effectively treat a diverse array of cutaneous conditions, including vascular and pigmented lesions, tattoos, scars and undesired hair, while also providing extensive therapeutic options for cosmetic rejuvenation and other dermatologic conditions. Dermatologic laser procedures are becoming increasingly popular worldwide, and demand for them has fueled new innovations and clinical applications,” says Nicole

Nicole Zysk
Aesthetics and Micropigmentation Specialist



The study of skin, otherwise known as dermatology, has changed a lot over the centuries. Ancient Egyptian papyrus scrolls and Hippocratic writings provide some of the first recorded descriptions of skin diseases. In more recent history, key individuals and discoveries have shaped the field of dermatology into what it is today. Classification of skin conditions, diagnostic methods and drug treatments all began to develop in the 18th and 19th centuries, solidifying dermatology as its own medical specialty.

The 20th century saw a scientific and technological revolution that transformed dermatological practice, incorporating new therapeutic resources, as well as surgical and aesthetic procedures. In the face of such a vigorous process, it is important to provide a historical synthesis for the medical community to recognize and understand the origins that supported one of the most relevant specialties in

the current medical scenario.

The global dermatology devices market size was valued at over \$12.5 billion in 2021 and is anticipated to grow at a CAGR of 11.9% over the forecast period. The increasing prevalence of skin cancer and other skin diseases is contributing largely to the high product demand. Furthermore, the growing awareness among people about the esthetic appeal and technological advancements in dermatology devices are also increasing the adoption of these devices significantly. A rise in disposable income is also considered as one of the important factors driving the market growth (Grand view research 2022 – 2030).

Furthermore, the incorporation of technological advancements in dermatology has also been the driving force behind the many changes experienced in the field.

Nicole Zysk, celebrity skin expert and CEO of Nicole Zysk Aesthetics explains to Ayesha Rashid of Mediworldme the role of technology in the dermatology industry and at the same time highlighting her expansion plans in the UAE.

Tell us about the UAE dermatology industry?

The demand for dermatology services is expected to grow rapidly in the UAE over the next five years. This is due to an increase in early diagnosis of skin conditions and diseases, which allows for early treatment and reduces the risk of ageing, skin disorders and cancer.

What is the role of technology in the dermatology industry?

The application of technology is continually evolving and the resulting changes across all industries are significant. This is a great advantage for the industry as it aids in improving various skin concerns that patients may have. The global market players in the UAE healthcare industry is further aiding the growth of the UAE dermatology devices market.

Is technology driving the evolution of dermatology? Your opinion?

Yes of course. In this fast changing and tech savvy environment, technology is playing a massive role in the evolution of dermatology. We are now able to improve so many skin concerns ranging from pigmentation, surgical scars, melasma and vascular problems to name a few.

What are the common devices used in dermatology industry & why?

The role of light-based technologies in dermatology has expanded dramatically in recent years. Lasers and intense pulsed light have been used to safely and effectively treat a diverse array of cutaneous conditions, including vascular and pigmented lesions, tattoos, scars and undesired hair, while also providing extensive therapeutic

options for cosmetic rejuvenation and other dermatologic conditions. Dermatologic laser procedures are becoming increasingly popular worldwide, and demand for them has fueled new innovations and clinical applications.

I greatly admire the latest laser technologies and have been reaping their benefits for some time now. I highly value the excellent results they provide and their non-invasive nature.

What role does AI and Mobile applications play in the dermatology industry?

Artificial intelligence has become a prominent area of research in dermatology. Although AI has been accessible for a while and been used in many fields of medicine, its integration in dermatology is comparatively new & limited. A comprehensive understanding of AI concepts is critical for dermatologists because skin conditions, with their ample clinical and dermatoscopic data and images, have the potential to be the next big opportunity for AI in medicine.

Moreover, with its help, doctors and therapist are now able to better distinguish between different types of moles and skin conditions. The technology also helps with choosing the best treatment plan for the patients, record keeping & communication.

What made you choose dermatology and come into aesthetics?

Aesthetics is a fantastic field with many possibilities. Helping people was always my priority. For many years I've worked with cancer patients and alopecia. The greatest reward for me is always seeing my patients happy and I'm very grateful for my work. I have expanded my knowledge to many other skin concerns which gives me even better understanding of human insecurities and the ways to address them. Aesthetics was a great contribution to what I have accomplished and has put me even in a better position to achieve outstanding results and make those who needed me happy and content with themselves.

Do you plan on expanding further within the UAE?

The UAE remains a lucrative market for me as the visionary leadership of this country has given me many steps to make UAE a global business hub. Few steps like allowing 100% foreign-owned businesses offering extended visas for entrepreneurs, providing funding and support for smaller businesses and attracting international businesses to the region. This has led to the entrepreneurs like me to come and explore the aesthetics market in The UAE.

Moreover, we see a lot of potential in the UAE market, and will start expanding in the glamorous and progressive city of Dubai in September 2022. The primary goal of this expansion strategy is to introduce the most innovative techniques in stretch marks and scar revision including post-surgical scars, as well as the latest laser technology



to treat various skin concerns ranging from any form of pigmentation and other complex skin deformity. The brand aims to upscale the market as it consistently provides high-quality service and experience to its customers.

I am always receptive to working with the government and private sector when a chance to do something great comes up.

What kind of technology are you using in your clinic & why?

I am using the latest and most innovative technologies and techniques on the market to help people with various skin conditions such as pigmentation, Melasma, skin rejuvenation, scars and vascular problems.

In your opinion how is digital innovation shaping the dermatology industry?

Digital innovation has had a great impact on the dermatology industry. For instance, Artificial Intelligence has changed the game and simplified it for doctors to detect breast cancer and tuberculosis in initial stages and treat such illnesses. Now we can get outstanding and accurate diagnosis with digital equipment helping us to save lives and prevent illnesses or to slow down ageing process.

What are the common machine-based treatments that your customers come for and why?

The laser machines are the most popular among my patients, they can deliver variety of treatment to suit any skin type and color. My patients love the permanent results that I can achieve from it with no downtime or side effect. Many patients are also very interested in skin camouflage treatment to help with post-surgical scarring or more common treatment for stretch marks which has been my signature treatment for the last few years, earning me my fame.

Do you have any skin imaging technology, tele-dermatology in your clinic?

Having such a technology would be my next step forward, as it would allow me to help patients on a different scale and make a significant contribution to society, leaving behind a great legacy for future generations.



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Migraine-More than just a Headache? Get the facts and find out

Over a billion people worldwide suffer from migraine headaches – roughly 12% of the population- that holds true for the United Arab Emirates as well. It is a very common condition and is much more frequently found in women than in men. Migraine headaches peak incidents occur in patients between their 20s and 30s but children, as well as older adults, can be diagnosed

M

migraine is a common health condition that affects millions of people

around the world. In the United Arab Emirates, migraines are a major health concern, with a reported prevalence of 8-10%. Migraine sufferers in the UAE often face challenges in access to diagnosis and treatment, due to a lack of awareness and understanding of the condition.

The global sales for migraine drugs have been valued at \$4.6 billion in 2020 with a CAGR of more than 9%. The US has dominated the migraine market, contributing to more than 80% of the sales in the seven major pharmaceutical markets (7MM) covered – the US, 5EU (France, Germany, Italy, Spain, and the UK), and Japan. A high market share in US is attributed to the large migraine prevalent population, the costliness of branded drugs, and the number of drugs marketed exclusively in the US compared to other countries in the 7MM. Steady growth has been observed across the European countries over the forecast period.

Dr. Deeb Maxwell Kayed, Medical Director & Consultant Neurologist, Integrated Rheumatology & Arthritis Center, Dubai explains to Mediworldme what exactly is migraine and the latest scientific advances in the management of migraine.

Can you tell us in detail what exactly is a migraine?

Migraine is a neurological disorder that affects the brain. It manifests with multiple complaints, the most prominent of which is pain.



Dr. Deeb Maxwell Kayed, Medical Director & Consultant Neurologist, Integrated Rheumatology & Arthritis Center, Dubai explains to Mediworldme what exactly is migraine and the latest scientific advances in the management of migraine.

There is a multitude of other complaints that may also accompany a migraine headache. These include light sensitivity, referred to as 'Photophobia,' or sound sensitivity, which is referred to as 'Phonophobia.' Occasionally, there may be 'Osmophobia,' which refers to the patient's heightened sensitivity to smells. These symptoms are often associated with nausea and vomiting. Specific cravings precede the headache, and there can also be disturbances in the neurological function that may precede the migraine. This is referred to as 'Migraine Aura'; its most common symptoms are visual disturbance consisting of zig-zag lines, scintillating lights or loss of vision or restricted vision that is fully reversible.

How is it different from all the other common headaches?

Migraine represents a state of hypersensitivity of the brain, wherein normal stimuli such as sound and light suddenly become intolerable.

Migraine is diagnosed according to the diagnostic criteria developed by the International Headache Society. These criteria are outlined in the International Classification of Headache Disorders. There are over 200 different varieties of headaches. A migraine headache is a headache that lasts between 4 hours and three days. To be classified as having a migraine headache, the patient must fulfill two of the four criteria. For a headache to classify as a migraine headache, the patient must satisfy two of the four criteria, which are –

- 1. The headache is one-sided**
- 2. The headache feels like a pulsating or throbbing pain**
- 3. The pain is of moderate-to-severe in intensity**
- 4. The pain is aggravated or worsened by routine physical activity such as climbing stairs or walking around.**

Additionally, you must also fulfill at least one of two criteria which are –

- 1. The patient must have a feeling of nausea that accompanies the migraine attack. It is important to note that the nausea may or may not result in vomiting.**
- 2. Sensitivity to light and sound**

If you fulfill the above criteria and your examination is otherwise regular, and there are no other alarming signs to the examining physician, then the diagnosis of migraine is confirmed. Unfortunately, there is no biomarker to establish a diagnosis of migraine that can be conducted through blood tests or scans, which are usually done to exclude other causes.

Why is the migraine rate so high in the UAE?

Over a billion people worldwide suffer from migraine headaches – roughly 12% of the population – that holds true for the United Arab Emirates as well. It is a very common condition and is much more frequently found in women than in men. Migraine headaches peak incidents occur in patients between their 20s and 30s but children, as well as older adults, can be diagnosed.



What are the common causes of migraine? And to what extent does our daily common stresses trigger migraine?

The exact cause of migraine is unknown, however, in patients suffering with migraine, we often see some common triggers such as stress. Other triggers include irregular eating and sleeping habits and changes in the weather. In about 30-40% of individuals with migraines, there may also be a food trigger, however this is not a very common trigger that we have seen amongst most of our patients.

Common diagnosis and when to see a neurologist?

If the migraine headaches are infrequent and easily controlled using over-the-counter simple analgesics such as paracetamol or ibuprofen, it is not often required to consult with a physician. However, suppose the headaches do not fully respond to over-the-counter medications and are increasing in intensity, severity, and frequency. In that case, an evaluation by a physician is recommended to exclude other ominous causes and optimize the management of the migraines.

As neurologists, we often see patients who have been managing their migraines sub-optimally for many years and they end up in our office with severe intractable migraines simply because they have not been treating them as they should.

Scientific advances in migraine management?

We can think of the treatment of migraine as treating the acute attack and preventive treatment for people with frequent and severe headaches. The evolution in the treatment for acute migraine attacks came along in the early 1990s with the approval of sumatriptan for the use of acute migraine therapy. Triptans are a group of medications that are specific for migraine treatment and include medications such as painkillers that were used to treat patients who had suffered for many years with migraine headaches and we're getting inadequate responses to the available treatments at the time.

The next revolution in the care of migraine patients came in the late 1980s when a molecule called CGRP was discovered. It was found that patients experiencing an acute migraine attack had elevated levels of CGRP in their bloodstream and when these patients were treated with acute specific migraine therapies such as sumatriptan, their CGRP levels would come down. Since then, scientists have been trying to develop medications that work on this CGRP pathway to control migraine headaches.

The first such agent was released in 2018; since then, several more are available in the market.

The currently available CGRP-based therapies are used for migraine prevention in patients who are experiencing frequent, severe and debilitating headaches. Interestingly CGRP-based agents have also been approved for acute migraines-specific therapy.

Over a billion people worldwide suffer from migraine headaches. Studies have shown us that almost half the people suffering from migraine headaches are unaware of their condition and diagnosis. They may not have sought medical attention or been misdiagnosed with conditions such as tension or sinus headaches. The importance of recognizing migraine and receiving a proper diagnosis is that migraine-specific therapies are now available that can tremendously improve a person's quality of life by reducing the burden of migraine symptoms. This will help patients enjoy good social lives with their families and be able to perform their jobs adequately without undue pain and suffering.

Importance of Chronic Migraine Awareness Day?

The World Health Organization (WHO) has rated the severity of these disabilities that results from migraines as being similar to the disabilities experienced by patients with quadriplegia. Approximately two to three percent of patients who suffer from migraines suffer from chronic migraines – a much more disabling condition. Chronic Migraine Awareness Day is an important event to highlight the importance in patients recognizing that migraines can be highly disabling and that chronic migraines are not something to be taken lightly.

Treatments are available to help with the patients' disabilities and improve their quality of life.

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Turkey: A Booming Market for Healthcare Technologies and Services

Turkey's popularity as a medical tourism destination is attributed to the high-quality healthcare services offered at more economical prices. According to the MoH, in 2019 approximately 662,000 international patients visited Turkey, contributing nearly \$1 billion to the economy. This industry was significantly impacted by the COVID-19 pandemic in 2020 but rebounded in 2021



The Republic of Türkiye, commonly known as Turkey, is a transcontinental Eurasian country located mainly in Western Asia, with a smaller portion in Southeast Europe. Turkey shares borders with the Black Sea to the north; Georgia to the northeast; Armenia, Azerbaijan and Iran to the east; Iraq to the southeast; Syria and the Mediterranean Sea to the south; the Aegean Sea to the west; and Greece and Bulgaria to the northwest. Cyprus is located off the south coast. The Turks, who form the vast majority of the nation's population, are the largest ethnic group, while the Kurds are the largest minority.

Ankara is the capital of Turkey, while Istanbul is its largest city and financial center.

The country is a regional powerhouse and a newly industrialized country, boasting a geopolitically strategic location. Its economy is classified among the world's emerging and growth-leading economies, and it is the twentieth-largest in the world by nominal GDP. Additionally, it is a charter member of the United Nations, an early member of NATO, the IMF, and the World Bank, and a founding member of the OECD, OSCE, BSEC, OIC, and G20.

As one of the founding members of the Council of Europe in 1950, Turkey acceded to the European Economic Community in 1963. In 1995, it joined the European Union Customs Union, and in



2005 started accession negotiations with the European Union. Boasting a rich cultural legacy shaped by centuries of history and the multiple peoples that have inhabited its territory across millennia, Turkey is home to 19 UNESCO World Heritage Sites and is a popular tourist destination.

Turkey's healthcare sector

Healthcare in Turkey is delivered through a combination of public and private providers. The Ministry of Health (MOH), universities and the private sector all play a role in delivering healthcare services.

There are two options available to foreigners and expats living in Turkey when it comes to health benefits; Universal Health Insurance and private health insurance.

The Health Transformation Program was adopted in 2003 in order to bring about change in the healthcare system. The process of EU accession has also provided additional motivation for the implementation of a more efficient healthcare system. By October 2008, the task of harmonizing the benefits package was completed and all insured citizens were finally brought under the single insurance umbrella of UHI.

The new health insurance program was introduced as a temporary solution until the adoption of the Health Insurance Certificate ('Sağlık Karnesi'). The Health Insurance Certificate served as a formal document to prove health insurance coverage. The new health information system uses patients' identity card numbers to make records more easily accessible. There is also a plan to issue employees with credit card-like social security cards. These cards can be easily swiped to provide hospitals and pharmacies with insurance details.

The HTP was introduced in some cities and the aim is to generalize its implementation across Turkey. A Performance-Based supplementary Payment system was initiated to distribute revolving funds to healthcare personnel based on the comparative level of deprivation of their workplace. Preventive care practices are also emphasized as performance criteria.

The proportion of those working full time has increased from 11 percent to 75 percent as a direct result of these implementations (OECD/Organization for Economic Co-operation and Development, 2008).

Medical technologies and Health IT

Turkey is a burgeoning market for medical technologies and healthcare services. This is due, in part, to a population of over 84 million. The Ministry of Health (MoH) is tasked with planning and implementing healthcare policy and is also the largest healthcare service provider in Turkey. According to Turkish Statistics Institute's Health Expenditure 2020 report, Turkey's healthcare expenditure increased by 24.3% in 2020. The public sector was responsible for 79% of Turkey's healthcare-related expenditure. The public



and private sector together spent \$2.4 billion on healthcare infrastructure investments.

The 2003 healthcare initiative in Turkey aimed to improve access to healthcare for everyone. Through this initiative, the Social Security Institute (SGK) began reimbursing private hospitals that agreed to treat public insurance patients at public reimbursement rates. The MoH also used a public-private partnership model to build new public hospitals and renovate existing ones.

As of now, there are 895 public hospitals, 63 universities, and 575 private hospitals in Turkey that combined provide 237,500 hospital beds. The public-private partnership model was used to construct thirteen new public hospitals, with five more that are currently under construction. In total, this comprises approximately 10% of Turkey's total hospital bed capacity.

Today, the majority of advanced medical technologies are present in Turkish hospitals. With 43,488 ICU beds, 75% of which have ventilators, Turkish hospitals are well-equipped to handle many medical needs. The table below provides data on the equipment stock of key medical technologies in public hospitals as of 2020.

Medical Tourism

Turkey's popularity as a medical tourism destination is attributed to the high-quality healthcare services offered at more economical prices. According to the MoH, in 2019 approximately 662,000 international patients visited Turkey, contributing nearly \$1 billion to the economy. This industry was significantly impacted by the COVID-19 pandemic in 2020 but rebounded in 2021.

Turkey has sought to increasingly use health IT solutions in the country's healthcare structure. The MoH employs software developers for many of the health IT tools it uses. Citizens' healthcare information is recorded in an Electronic Health Record (EHR) and centrally stored on MoH servers. The system produces e-prescriptions and allows pharmacies to claim receivables from the SGK online. The MoH uses its centrally stored healthcare data to forecast the population's health and to analyze illness patterns.

The vast majority of Turkey's medical devices are imported, with around 20% coming specifically from the United States. In the past, the Turkish government had been able to navigate currency depreciation against the US dollar by keeping reimbursement prices for medical devices stable in Turkish lira. However, this created difficulties for foreign companies who ceased selling or introducing certain products in Turkey

Today, the majority of advanced medical technologies are present in Turkish hospitals. With 43,488 ICU beds, 75% of which have ventilators, Turkish hospitals are well-equipped to handle many medical needs. The table below provides data on the equipment stock of key medical technologies in public hospitals as of 2020.

altogether.

As a direct result, the SGK increased the reimbursement prices of medical devices by 85% in TL at the beginning of 2022.

To sum it all up, the last few years have seen a rapid reformation of the healthcare system in Turkey. The health transformation program and the European Union harmonization / accession process have been the leading pressures on this reformation. In order to reach the expected quality levels and complete the transformation program, future steps must be taken towards overcoming the deficiencies in Turkey's healthcare system and accelerating the accreditation process of healthcare organizations and their services.



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German scientists develop tumor-targeting microrobots using bacteria

Scientists at the Max Planck Institute for Intelligent Systems in Germany have developed tumor-targeting microrobots using bacteria. The team exploited the tendency of bacteria to naturally gravitate towards areas of low oxygen and low pH, which both tend to occur in the vicinity of a tumor. Once near the tumor, the bacteria aggravate the immune system, with the tumor experiencing some collateral damage. However, the researchers also turbo-charged the ability of the bacteria to target the tumor by binding magnetic nanoparticles to their surface, letting them control bacterial movement using magnetic fields. If that wasn't enough, they also attached light-sensitive drug-loaded nanoliposomes onto to the bacterial surface, allowing them to illuminate the tumor with near-infrared light when the bacteria are nearby, triggering anti-cancer drug release and further damaging the tumor.

Using bacteria to target tumors may seem a little bizarre, but when you consider the characteristics of bacteria it make a lot of sense. They are highly motile swimmers,

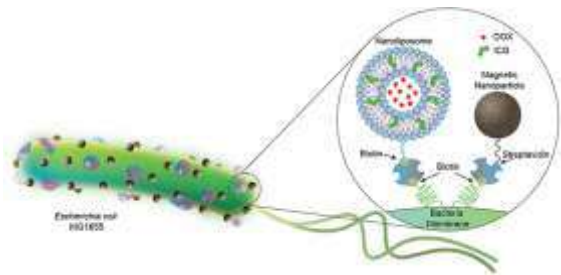
and can navigate various environments including flowing blood in the vasculature and even dense tissues.

They are also naturally attracted to areas of low oxygen and high acidity in the body, both of which tend to occur near tumors. They also tend to aggravate the immune system, which can be beneficial if it also results in some tumor cells being destroyed along with them.

However, researchers have been attempting to make bacteria even more effective as anti-tumor agents by equipping them with greater targeting and tumor destroying abilities. This latest approach illustrates this concept quite well. "Imagine we would inject such bacteria based microrobots into a cancer patient's body. With a magnet, we could precisely steer the particles towards the tumor. Once enough microrobots surround the tumor, we point a laser at the tissue and by that trigger the drug release. Now, not only is the immune system triggered to wake up, but the additional drugs also help destroy the tumor," said Birgül Akolpoglu, a researcher involved in this latest study. "This on-the-spot delivery would be minimally invasive for the patient, painless, bear minimal toxicity and the drugs would develop their effect where needed and not inside the entire body."

So far, this team has managed to fine tune their technique so that they can equip a high percentage of bacteria in a sample with both nanoliposomes and magnetic nanoparticles. They also showed that they could use magnetic fields to steer the bacteria through narrow channels that are intended to mimic the vasculature.

"Bacteria-based biohybrid microrobots with medical functionalities could one day battle cancer more effectively. It is a new therapeutic approach not too far away from how we treat cancer today," said Metin Sitti, another researcher involved in the study. "The therapeutic effects of medical microrobots in seeking and destroying tumor cells could be substantial. Our work is a great example of basic research that aims to benefit our society."

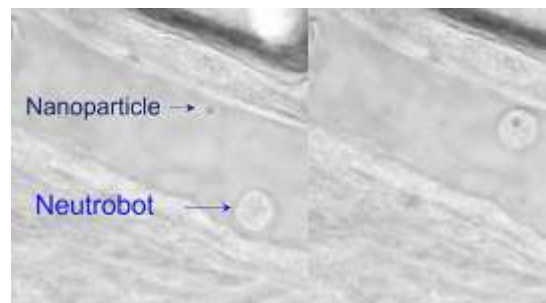


Chinese researchers developed method to control and move white blood cells within living organism

The possibility of using our own cells to perform medical tasks within the body is tantalizing, as it would avoid the immune responses that can occur with synthetic objects. Researchers at Jinan University in China have now developed a method to control and move white blood cells within a living organism. The technology relies on optical tweezers consisting of highly focused laser beams that can grab and hold tiny objects. The researchers showed that they could manipulate neutrophils within the tails of zebrafish using such tweezers, and performed tasks using the "neutro-bots". These included picking up and transporting nanoparticles, leaving the vasculature and entering nearby tissues, and engulfing cellular debris. The technology could be useful for drug delivery and other medical procedures involving microrobots.

Microbots have enormous clinical potential, from delivering drugs to precise locations within the body to performing surgical tasks. However, while microrobots are edging closer to a clinical reality, many such devices consist of synthetic components, putting them at risk of immune attack and potentially limiting their effectiveness. If a large portion of delivered microrobots end up inside a white blood cell or hopelessly covered in antibodies, the robot revolution could grind to a swift halt.

To address this, these researchers have turned to our own cells as a potential source of microrobots, and they chose a cell type that might otherwise cause trouble for microrobots – white blood cells. This choice



makes a lot of sense, since white blood cells can travel through the vasculature, engulf objects, and leave the vasculature to enter nearby tissues. These highly motile cells are therefore well-suited to act as our agents of change in the body.

To manipulate the cells, the Chinese team used optical tweezers, which are a set of focused laser beams. Previous work had shown that it was possible to move neutrophils about in a Petri dish using lasers, but this latest study translated that to a living organism, the zebrafish.

The researchers showed that they could move the neutrophils within zebrafish tails at a speed of 1.3 $\mu\text{m/s}$, which is three times faster than normal speeds for this cell type. They also showed that the manipulated neutrophils could engulf cellular debris and the cells were also able to engulf and transport nanoparticles, and leave the blood vessels to enter nearby tissues.

New method to create small-scale biosynthetic left ventricle to pump blood within bioreactor

Biomedical engineers at the University of Toronto have developed a method to create a small-scale biosynthetic left ventricle that can pump blood within a bioreactor. While the construct is too small to act as replacement for a human heart, it could lead to full-sized biosynthetic organ transplants. In fact, the man-made ventricle already showed a significant level of sophistication and biomimicry with a multilayered structure and the ability to pump blood. In the meantime, the artificial construct can help researchers to better understand heart disease and test new treatments. The researchers created it by seeding cardiac cells onto a flat scaffold and then rolling it around a tube, creating a multilayered construct that can beat spontaneously.

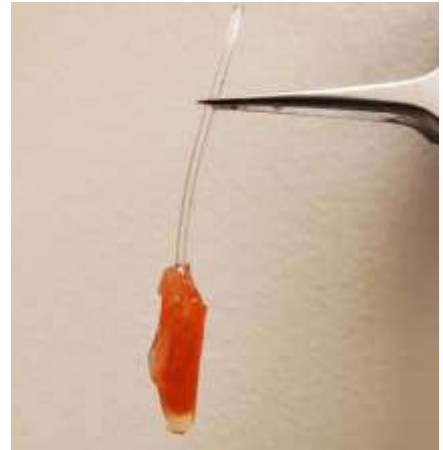
Replicating the natural complexity and sophistication of our organs in the lab is no mean feat. However, the potential rewards are enormous – imagine a world with no transplant waiting lists and the ability to grow a custom organ using your own cells that is perfectly primed to replace a diseased organ within your body. While there is likely a relatively long road before we reach this point, there are certainly some interesting milestones along the way.

This latest method to create a biosynthetic ventricle is one such milestone. This approach makes an effort to replicate the layered nature of the heart wall. “Until now,

there have only been a handful of attempts to create a truly 3D model of a ventricle, as opposed to flat sheets of heart tissue,” said Milica Radisic, a researcher involved in the study. “Virtually all of those have been made with a single layer of cells. But a real heart has many layers, and the cells in each layer are oriented at different angles. When the heart beats, these layers not only contract, they also twist, a bit like how you twist a towel to wring water out of it. This enables the heart to pump more blood than it otherwise would.”

To achieve a multilayered ventricle, the researchers started with a flat biocompatible polymer scaffold that they seeded with cardiac cells. The scaffold contained three panels with grooves aligned at different angles, which helps to recapitulate the twisting motion of the heart when the ventricle is fully assembled. Once the cardiac cells had settled on the scaffold and began growing, the researchers wrapped it around a hollow tube, forming a multilayered structure that can beat spontaneously and pump blood in a bioreactor system.

“Our model has three layers, but a real heart would have eleven,” said Radisic. “We can add more layers, but that makes it hard for oxygen to diffuse through, so the cells in the middle layers start to die. Real hearts have vasculature, or blood vessels, to solve this problem, so we need to find a way to replicate that.”



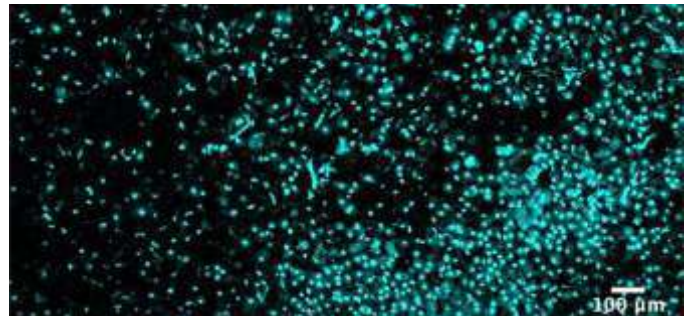
New technique to rapid dissociate tissue sample into individual cells

A team of scientists at Brown University has developed a technique that allows them to rapidly dissociate a tissue sample into individual cells. The approach involves placing a tissue sample, such as a tumor biopsy, between two electrodes. Electric field fluctuations then help to pull the cells in alternating directions, eventually culminating in their dissociation. Current approaches typically involve using enzymes to digest bulk tissue samples, which takes longer and is more complex. The technique will be very useful for single cell analyses, such as the genetic analyses performed on tumor samples for diagnosis and treatment planning.

Assessing the genetic characteristics of a tumor is frequently crucial in choosing the most appropriate treatment and assessing prognosis. However, current methods typically involve using enzymes to digest a bulk tumor sample containing many cells, & then performing genetic analysis on the resulting alphabet soup.

This leads to a lack of specificity and increased noise in the data, potentially obscuring rare cell types within the tumor and even leading to an incorrect diagnosis and/or choice of treatment. Isolating single cells from a tumor and then analyzing them individually could lead to better results, but it is difficult to separate cells from each other. These researchers have developed a device that will help.

“From a technology standpoint, there's nothing like this available on the market right now,” said Anubhav Tripathi, a researcher involved in the study. “This technology will



be useful for those looking for answers using genomics, proteomics, transcriptomics — it will not only make those diagnostic and therapeutic investigations easier, but will also save researchers time and effort.”

The technology involves using fluctuating electric fields to gently tease cells apart, and takes as little as five minutes, which is faster than existing methods to dissociate tissues, such as those using enzymes or mechanical techniques. Strikingly, the dissociated cells are not just suitable for genetic analysis, but they survive the process relatively unscathed and viable, suggesting that the approach may lend itself to various research approaches that require a single cell suspension and then further cell culture.

“There is a tremendous need for a technology that allows for the removal of tissue from the patient and, within minutes, results in viable, healthy single cells from which RNA can be isolated,” said Nikos Tapinos, another researcher involved in the study. “That is exactly what this new process does.”



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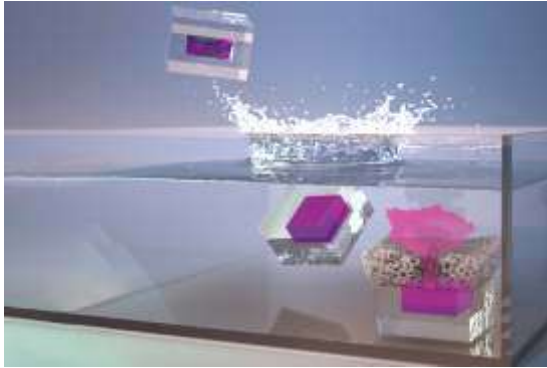
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Researchers at MIT have created a microparticle vaccine that can provide booster doses automatically. The hollow microparticles resemble a coffee cup with a lid, and are made using poly(lactic-co-glycolic acid), otherwise known as PLGA. The polymer breaks down over time in the body, releasing the contents of the hollow particles. By changing the composition of the polymer and the chemical groups attached to it, the researchers can tweak the release time, allowing them to deliver an assortment of particles that release at different times.

This would allow them to deliver the particles subcutaneously, and then as the particles break down the recipient would receive their initial dose and then booster doses at later dates. The technology could help to provide long-term immunity without the need to attend a clinic on multiple occasions and could help with the logistics of large-scale vaccination campaigns, such as those initiated during the COVID-19 pandemic.

UK scientist create surgical dressing to facilitate and enhance photothermal therapy following melanoma resection

Scientists at the University of Nottingham in the UK have created a surgical dressing that is specifically designed to facilitate and enhance photothermal therapy following melanoma resection. The dressing allows for near-infrared photothermal therapy that lasts just 15 seconds every 48 hours. The concept involves killing any remaining melanoma cells, while encouraging healthy cells to regenerate within the resection site.

The dressing contains graphene oxide (a photothermal agent, which converts the energy from light to heat, killing cancer cells), elastin, and ethanol. Combining the graphene oxide with elastin reduces its cytotoxicity, meaning that it does not pose a threat to healthy cells, but still enables photothermal therapy to kill residual melanoma cells. The ethanol acts to help chemically reduce the graphene oxide, making photothermal therapy more efficient, and also forms an antiseptic component within the dressing.

Melanoma is a highly aggressive cancer, and once detected, surgical resection is the most common option. However, surgeons frequently err on the side of caution and remove a large portion of tissue to ensure that they have excised all the cancer and help to prevent recurrence. Another option is to use photothermal

Microparticle vaccine to provide booster doses automatically

Vaccines are a cornerstone of public health initiatives, and have helped us to avoid the worst effects of many serious diseases and even eradicate certain diseases, such as smallpox. During the COVID-19 pandemic, vaccines have provided some much-needed protection from the worst effects of the SARS-CoV-2 virus. However, the need to receive multiple doses of the vaccine, along with follow-up boosters, is a sticking point in terms of logistics. Missed appointments for second doses are always a possibility, and it would be easier (and likely cheaper) to just use a one-dose system.

This technology aims to achieve this, with booster doses becoming available within a vaccine recipient's tissue over time. "This is a platform that can be broadly applicable to all types of vaccines, including recombinant protein-based vaccines, DNA-based vaccines, even RNA-based vaccines," said Ana Jaklenec, one of the lead researchers that created the new technology. "Understanding the process of how the vaccines are released, which is what we described in this paper, has allowed us to work on formulations that address some of the instability that could be induced over time."

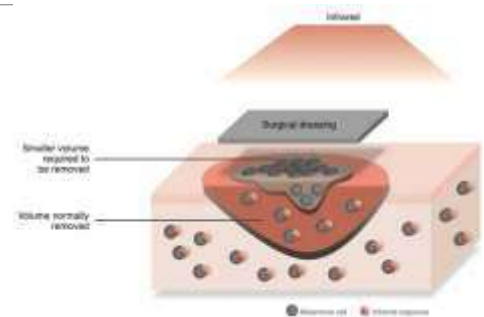
To create the particles, the researchers use silicone molds to form the 'cup' shape out of the polymer mixture, and then fill the hollow structures with the vaccine. They then apply a polymer "lid" and heat the particles slightly to fuse the lid and cup together, sealing the vaccine inside. The researchers can tweak the release profile of the particles by using polymers with slightly different chemical properties. "If you want the particle to release after six months for a certain application, we use the corresponding polymer, or if we want it to release after two days, we use another polymer," said Morteza Sarmadi, another researcher involved in the study. "A broad range of applications can benefit from this observation."

therapy, where the resection site is exposed to light and a photothermal agent converts the energy from the light to heat, helping to kill

residual cells. If performed effectively, this approach could potentially allow surgeons to be more conservative in their resection.

"Given the aggressive nature of melanoma, surgical resections to remove it have to be significantly larger than the size of the tumors to minimize the presence of residual cells," said Yuanhao Wu, a researcher involved in the study. "This creates a new wound and delays healing. Beyond the prevention of tumor recurrence and promotion of tissue healing, our dressings could also lead to smaller surgical resections and practical post-surgery treatments that are non-invasive and could be delivered at home."

It can be difficult to deliver photothermal agents to tumors through the bloodstream, as they can have an erratic blood supply and tortuous vasculature, and some photothermal agents can have negative effects on healthy cells. This latest technology aims to place the photothermal agent, in this case reduced graphene oxide, directly onto the resection site. So far, the researchers have shown that the dressings only require 15 seconds of irradiation with near-infrared light every 48 hours to produce effective photothermal therapy. Patients could even administer the light therapy by themselves at home.



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Geltec Healthcare officially rebrands as Bioventure Healthcare to reflect strengthened position in supplements and pharmaceuticals manufacturing

Specializing in dietary supplements & pharmaceutical products in soft gelatine capsules and gelatine-coated tablets, Bioventure Healthcare's world-class production facility in Dubai has a manufacturing capacity of 1.5 billion units per annum, making it the largest soft gelatine capsule manufacturing and packaging facility in the region. It is approved by the UAE Ministry of Health and Prevention and certified by GCC and European Union Good Manufacturing Practices.



GlobalOne Healthcare Holding (GHH), recently announced the rebranding of its subsidiary Geltec Healthcare FZE as Bioventure Healthcare FZE, as part of its strategy to strengthen its business and drive growth in the pharmaceutical and supplement manufacturing industry.

A strategic partner of multi-national companies and a key exporter to the U.S., Bioventure Healthcare FZE plans to expand the production capacity of its manufacturing plant by introducing new products such as oral solid tablets, capsules and sachets lines by 2023. This will lead to an increase in the company's market share in the therapeutic categories of antihypertensive, anti-diabetes, anti-hypercholesterolemia, cardiovascular (CV), gastroenterology, gastrointestinal (GIT) health, immunity, men and women's health products, and other critical specialty products. It also plans to add more unique dosage forms to increase the range of delivery systems, with the aim of catering to the growing pharmaceutical needs of the UAE and the wider region.

The rebranding is aligned with GlobalOne Healthcare's commitment to delivering healthcare outcomes and patient quality of life, as well as the UAE Government's 'Operation 300bn'. An initiative that aims to develop the country's industrial sector and enhance its role in stimulating the national economy, 'Operation 300bn' is set to raise the industrial sector's GDP contribution from Dh133 billion to Dh300 billion by 2031. Its primary focus is on future industries that implement advanced technology and Fourth Industrial Revolution (4IR) solutions and applications aimed at sustainable development.

Ashraf Radwan, CEO of GlobalOne Healthcare Holding, said: "The rebranding reflects our role in the regional healthcare industry, while capturing our approach for the future of pharmaceutical manufacturing through innovation and advanced technologies deployment, in light of market growth expectations."

Specializing in dietary supplements and pharmaceutical products in soft gelatine capsules and gelatine-coated tablets, Bioventure Healthcare's world-class production facility in Dubai has a manufacturing capacity of 1.5 billion units per annum, making it the largest soft gelatine capsule manufacturing and packaging facility in the region. It is approved by the UAE Ministry of Health and Prevention and certified by GCC and European Union Good Manufacturing Practices.

"We will continue to invest in the future and the growth of the region's healthcare industry, while ensuring a stable supply of dietary supplements and pharmaceuticals, as we strengthen our contribution to the economy and continuously improve access to quality healthcare," Ashraf Radwan added.

In 2021, Bioventure Healthcare FZE (formerly known Geltec Healthcare FZE) was acquired by GlobalOne Healthcare Holding. Located at the National Industries Park in Dubai, the company has a state-of-the-art manufacturing facility, which is the largest soft gelatine capsule manufacturing and packaging facility in the region, and has plans to expand into various other dosage forms. Over the last two years, GlobalOne Healthcare also acquired WellPharma Medical Solutions, an IV solutions manufacturing plant, Gulf Inject, a leading player in the fluid management therapy, and Al Ittihad Drug Store (IDS), a major UAE pharmaceutical distributor. Together, this now makes GlobalOne Healthcare Holding among the top three regional players in medical distribution.

GluCare.Health, a hybrid digital Therapeutics Company focused on diabetes, has announced it has become the first provider globally to have met the criteria of value-based practices by fulfilling the International Consortium of Health Outcomes Measurements (ICHOM) certification process.

"GluCare.Health is, at its core, a behavioral change engine. We deliver this behavior change and our consequent outcomes through a hybridized virtual/physical clinical service, powered by a robust healthcare data and analytic platform" said Ali Hashemi, Co-Founder and Chairman at GluCare.Health

ICHOM is a not-for-profit founded in 2012 by Professor Michael E. Porter of Harvard Business School, Stefan Larsson, Senior Advisor, Boston Consulting Group, and Martin Ingvar of the Karolinska Institute. ICHOM's mission is to unlock the potential of value-based health care by defining global Sets of Patient-Centered Outcome Measures and driving adoption and reporting of these measures worldwide to create better value for all stakeholders. As of 2022, ICHOM has produced 40 Sets of Patient-Centered Outcome Measures that have been adopted by hundreds of healthcare organizations across the globe. Dr. Ihsan Almarzooqi, GluCare.Health's Co-Founder and Managing Director first became interested in value-based healthcare after attending a Harvard Business School course by Professor Michael Porter. Inspired by the course, Dr. Almarzooqi began his quest to introduce value-based healthcare in the UAE.

"At GluCare.Health, we actively and continuously manage our patients while transparently reporting our outcomes - it is how we have proven that our model of care works better than traditional care. We know, objectively, that patients we manage are better engaged because we provide them with all the necessary tools to engender sustainable behavior change. We see vastly better outcomes under our platform compared to traditional care and, on average, our patients are well-controlled in as little as 90 days with fewer prescribed medications. Outcome reporting has been a core value at GluCare.Health from day 1, and utilizing ICHOM's reporting standards has been critical in showcasing the power of our platform," added Dr. Almarzooqi.

GluCare.Health has re-invented diabetes care from a first-principles basis, combining the virtual digital therapeutic (DTx) with the physical clinic in a seamless patient experience. It incorporates an outcome-based approach to delivering healthcare within its hybrid treatment model and started seeing patients in September 2020. By combining in-clinic treatment with

GluCare achieves world's 1st value-based practice recognition



Remote Continuous Data Monitoring (RCDM) through wearables, patients are in continuous contact with their care team in the cloud. This team consists of physicians, educators, nurses, dietitians and coaches, and provides real-time support when the patient needs it most, not just during their quarterly visits.

GluCare.Health has remained committed to accountability and transparency in reporting the outcomes of its novel model of care and has embedded the ICHOM Sets from the vast amount of clinical data it captures. At its essence, GluCare.Health's model is simple - shifting diabetes management away from archaic, fragmented and episodic care to a cutting-edge continuous-care and behavioral-change-based approach that is measured and reported.

GluCare.Health has also advocated shifting current fee-for-service reimbursement to a fee-for-performance mechanism that rewards providers who are transparent and report better outcomes.

40% of UAE men state they are determined to lose weight (Allurion)

Weight stigma is pervasive amongst the population dealing with obesity, and contributes to both physical and emotional health problems in those affected. Allurion found in their June 2022 research survey* that men's health may be more compromised by this stigma in the UAE. The survey reported that half of the male population define themselves as overweight, with 40% intending to lose weight over the next 12 months. The report further stated that only 23% of men have open conversations about their health and weight concerns with a medical professional. With the stigma around weight loss and men having to deal with existing gender stereotypes, the journey to being a healthier version of themselves gets a lot harder.

Weight management, loss and obesity are issues often associated with women, as there is a tendency to think that the problem is much worse for them as opposed to men due to social narratives. However, while men in the UAE recognize being overweight, they often dismiss it due to various reasons, one of which is not considering excess body weight a health issue. The survey also sheds light on a lesser-known, yet significant barrier for men,



which is the feeling of shame associated with speaking about their weight with a professional.

For Allurion, weight loss and management are important to all affected, irrespective of gender. With 59% of men willing to talk about their weight issues with their peers, compared to 68% of women, Allurion highlights the need to create a healthy space for men which helps them tackle their weight loss issues successfully.

With the mission to end obesity worldwide, the Allurion Program continues to change the approach to weight loss by having conversations that contribute to destigmatizing the issue and providing a full-stack, holistic solution that reinforces that no weight loss program is a magic bullet. Long-term success can be achieved with a combination of science and healthcare.



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Healthpoint, a Mubadala Health partner, is consigning cosmetic veins, or spider veins as they are often known, to the history books. The latest innovative technology is exclusively available to Healthpoint patients to access.

The 'Veingogh' vein treatment is a safe and minimally invasive procedure that has a successful history of use throughout the United States. Healthpoint has introduced this in line with its commitment to use the latest technologies to deliver the best possible clinical patient outcomes.

The treatment enables the removal of small spider veins and networks of veins called telangiectasia - which are often less than one millimeter in diameter but highly recognizable due to their bright blue or red appearance. The treatment uses a process called ohmic thermolysis, rather than the more traditional techniques using needles.

Healthpoint introduces cutting-edge technology to eliminate spider veins

A current of electricity is delivered directly into the vein that results in bursts of heat, collapsing the vessel wall, which is quickly absorbed into the body and the 'blemish' disappears immediately.

Dr. Khalil Afsh, a consultant in Lipidology & Phlebology at Healthpoint, with over twenty years of experience, said: "While spider veins are not dangerous as such, they are a cause for discomfort as they can appear vividly anywhere on the body - including on the face, legs, and chest."

He added: "People are often uncomfortable by the appearance of these veins. This new way of removal is better than laser, which can leave scars or pigmentation. It is, however, important to note that spider veins may sometimes signal an underlying larger vein disease, so it is always important to speak to a physician prior to undergoing this treatment."

The 'Veingogh' vein treatment is considered faster and more reliable than other treatments, with minimal discomfort or marking, as it often feels like little pin pricks. Patients who receive the treatment typically take between four to six weeks to heal. Postoperative care involves applying specific creams for a few weeks until the healing process is complete.

Although spider veins are more often seen in women, they also affect men. Dr. Khalil explained that the treatment is open to both men and women from different age groups. It is worth noting that the procedure is not suitable for pregnant women, anyone fitted with a pacemaker, patients with a history of seizures, or anyone displaying an open wound or showing signs of an infection.

Amana Healthcare receives 3 year CARF accreditation for amputee rehabilitation services

Amana Healthcare, has received a three-year accreditation from the US-based Commission on Accreditation of Rehabilitation Facilities (CARF) for its highly specialized Amputee Rehabilitation Program.

The sought-after CARF accreditation requires the strictest levels of accountability and adherence to internationally accepted standards within the health and human services fields. Following the rigorous audit of Amana Healthcare's inpatient rehabilitation facility, programs, and services, CARF awarded the health provider with a three-year specialty accreditation for its Amputee Rehabilitation Program. Accreditation by CARF assures patients that the organization has undergone extensive auditing and inspection to ensure that its services are the best-in-class.

With the new specialty accreditation, Amana Healthcare, which was the first in the UAE to receive accreditation in Comprehensive Intensive Inpatient Rehabilitation from CARF in 2016, and the first provider in the country to be specifically accredited in rehabilitation after stroke in 2019, is now, uniquely, the first provider in the UAE to receive a three-year CARF accreditation for amputee rehabilitation. This fulfills a key part of its mandate to provide residents with healthcare of the highest international standards.

In addition to CARF's accreditation for amputee rehabilitation services, Amana Healthcare also earned a three-year reaccreditation for Comprehensive Intensive

Inpatient Rehabilitation, and a three-year reaccreditation for its Stroke Rehabilitation Program.

Dr. Jason Gray, Senior Director, Amana Healthcare, said, "We are incredibly proud to have been awarded the three-year Amputee Rehabilitation accreditation by CARF International, one of the world's leading independent, nonprofit accrediting bodies. At Amana Healthcare, our specialized inpatient rehabilitation facility caters to patients who require intensive rehabilitation after a life-changing event, such as an amputation, and other neurological conditions. We offer our patients access to a wide range of multidisciplinary specialists who collaborate closely to provide holistic care as part of our Amputee Rehabilitation program. Amana Healthcare strives to empower patients throughout their recovery journey so that they can return to normal and continue leading happy and fulfilling lives. This CARF accreditation reinforces the trust we have earned from our patients and the larger community and recognizes the hard work and dedication of our specialists and caregivers."

Dr. Gray added, "This accreditation also underpins the UAE's vision to ensure that the community receives world-class specialized comprehensive healthcare services locally, without having to seek treatment abroad."

The CARF accreditation demonstrates Amana Healthcare's ongoing commitment to patient care through its team of internationally trained rehabilitation physicians, a clinical neuropsychologist, general practitioners, internal medicine physicians, therapists, a prosthetist, and specialist rehabilitation nurses, supported by a dedicated patient and family experience team. Conducted within a specialized facility with state-of-the-art therapy equipment and technology, Amana Healthcare provides comprehensive care plans that are tailored to individual patient needs.

Saudi German Health's newest hospital in the Al Jamea District, welcomed its first new-born without any complications. Both the mother and child are both healthy and safe as they received the utmost care under the supervision of an excellent multidisciplinary team of obstetricians, anaesthesiologists, and nursing staff who ensured a painless delivery.

The hospital pledged one-year free medical care for the new-born named Gaith, including routine check-ups and medical services.

The new hospital was opened in line with the expansion strategy of Saudi German Health with an aim to match the growing demand of medical services and provide the highest standard of healthcare. SGH seeks to strengthen the hospital's presence all over region, as well as promote the transformation of the healthcare system in line with the "Saudi Vision 2030".

Makarem Sobhi Batterjee, President and Vice Chairman, Saudi German Health, said: "we opened this new hospital to support our vision to increase access to high-quality healthcare to more patients in the region and in KSA. We aim to strengthen our efforts in offering a unique healthcare approach based on decades of experience, top medical talent and the latest medical technologies. The branch at Al Jameah District in Jeddah is our eighth medical facility in KSA. The opening of this branch marks a milestone in our achievements and reflects on our commitment to develop the healthcare sector in alignment with "Saudi Vision 2030" of transforming the healthcare sector."

The new hospital covers major specialties and subspecialties including obstetrics and gynaecology, endoscopic surgery, hysteroscopy, general paediatrics, thoracic disorders, and surgical procedures, ICU services, cardiovascular diseases, endocrine pathology and kidney diseases, gastroenterology, pulmonology and allergies, neurological diseases,

Saudi German's new facility welcomes its first new-born



general surgery, orthopaedics, cardiology, gastrointestinal diseases, dermatology, endocrinology, urology, and ENT.

The branch comprises highly qualified and experienced doctors, consultants, and latest medical technology which will facilitate a qualitative model of healthcare. The hospital will offer a comprehensive healthcare service for patients ensuring best international practices, which is reflected by the brand's ethos of 'Caring Like Family'.



J'Adore Medical Clinic makes its debut in Dubai

Health Assurance Hospitals Company (DHAMAN) and GlobeMed Kuwait, the leading healthcare benefits management company in Kuwait, have announced signing a collaboration agreement to offer insured members of the clients contracted with GlobeMed access to the wide network of DHAMAN'S primary Healthcare centers (PHC)

As part of the collaboration agreement, DHAMAN will provide integrated healthcare in family medicine, dentistry, pediatrics, radiology and laboratory services to insured members of the clients contracted with GlobeMed, through qualified medical staff with extensive experience and state-of-the-art technology in the medical field. The agreement is part of GlobeMed Kuwait's and DHAMAN's common mission and vision as patient centric organizations offering quality health care and health insurance services for insured members of the clients contracted with GlobeMed who are citizens and residents in Kuwait.

On this occasion, DHAMAN CEO Mr. Thamer Arab said, "This agreement with GlobeMed Kuwait is part of DHAMAN's overall efforts to deliver holistic prime and integrated healthcare services to all patients visiting our PHCs, which is part of offering them an excellent person-centered medical journey that includes consultation, diagnosis, prevention, treatment and follow-up in a number of specialties and supporting services." Mr. Arab added "Both insurance cardholders, as well as patients who do not have private health insurance can still benefit from services at DHAMAN as the PHCs welcome patients of all age groups to receive comprehensive healthcare."

Mr. Salem Haidar, GlobeMed Kuwait General Manager, said "DHAMAN'S scale and range of healthcare services expands our medical network to deliver unmatched care to insured members of the clients contracted with GlobeMed. This partnership promises to accelerate our efforts to expand member's access to care through DHAMAN's state-of-the-art medical clinics and hospitals. We are proud of this partnership and committed to deliver exceptional patient experience to insured members of the clients contracted with GlobeMed through a wide network of healthcare providers."

DHAMAN PHCs in Hawalli, Farawaniya and Dhajeej are receiving patients to benefit from its integrated medical services with two additional PHCs scheduled to open in Fahaheel and Jahra during 2022.



GE recently announced the brand names of the future companies it will create through its planned separation into three industry-leading, global, investment-grade public companies focused on the growth sectors of healthcare, energy and aviation.

GE HealthCare will be the name of GE's healthcare business. GE's existing energy portfolio of businesses, including Renewable Energy, Power, Digital, and Energy Financial Services, will sit together under the brand name GE Vernova. GE Aerospace will be the name of GE's aviation business. All three planned companies will continue to benefit from GE's heritage and global brand valued at nearly \$20 billion*.

Additionally, GE announced that following the completion of the planned spin-off, shares of GE HealthCare will be listed on The Nasdaq Global Select Market under the ticker symbol 'GEHC'. By listing on Nasdaq, GE HealthCare will benefit from the exchange's profile and track record as a market for innovative, technology-led public companies, particularly in the healthcare sector.

H. Lawrence Culp, Jr., Chairman and CEO, GE, and CEO, GE Aerospace said, "Today marks a key milestone in GE's plan to become three independent, laser-focused companies. Leveraging GE's multi-billion-dollar global brand gives us a competitive advantage in our end markets, allowing these businesses to win in the future. Built on a foundation of lean and innovation, these brands will continue our mission of building a world that works and provide our customers with an important reminder of the strengths they value in GE."

GE unveils brand names for 3 planned future public companies

GE intends to execute the tax-free spin-off of GE HealthCare in early 2023, creating an independent company driving innovation in precision health to improve patient outcomes and address critical patient and clinical challenges. Building on a more than 100-year history, the GE HealthCare name and Monogram will serve as an enduring badge of safety, quality, trust, and innovation. The new brand color for GE HealthCare is called "compassion purple" to reflect more humanity and warmth and achieve greater distinction. The company will continue to be at the forefront of provider and patient care with more than four million product installations and over two billion patient exams a year.

In early 2024, GE plans to execute the tax-free spin-off of GE Vernova, GE's portfolio of energy businesses, which together with its customers provides one-third of the world's electricity and is focused on accelerating the path to reliable, affordable, and sustainable energy. The new name is a combination of "ver," derived from "verde" and "verdant" to signal the greens and blues of the Earth, and "nova," from the Latin "novus," or "new," reflecting a new and innovative era of lower carbon energy that GE Vernova will help deliver. These attributes also are reflected in GE Vernova's new "evergreen" brand color.

With an installed base of more than 7,000 gas turbines and 400 GW of renewable energy equipment, GE Vernova's Monogram will serve as a reminder of the company's lasting commitments to deliver quality, partnership, and ingenuity to its customers.

Following these planned spin-offs, GE will be an aviation-focused company called GE Aerospace. With an installed base of 39,400 commercial and 26,200 military aircraft engines, the company will continue to play a vital role in supporting the industry through a historic recovery while shaping the future of flight. The GE Monogram, new name, and new 'atmosphere blue' brand color—representing the upper limits of the atmosphere—maintain the brand's strong standing in the aviation sector, while setting forth a confident vision to compete and advance in the field of aerospace and defense for future generations. Following the planned separations, GE Aerospace would own the GE trademark and would provide long-term licenses to the other companies.

GE Chief Marketing Officer Linda Boff said, "Over the course of the last six months, we engaged in a thorough, customer-led process to understand the intrinsic value of the GE brand for our planned future companies. Based on data and analysis drawn from thousands of conversations, it became clear that the GE name and our century-plus old Monogram represent a legacy of innovation, symbol of trust by global customers, pride for our team, and a talent magnet for future leaders. We're proud these future businesses will be able to build on GE's DNA of innovation."

By creating three separate companies, each will benefit from greater focus, tailored capital allocation, and strategic flexibility to drive long-term growth and value.

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Epworth HealthCare, BUPA to offer eligible patients rehab at home

Epworth HealthCare and Bupa will offer eligible patients increased access to rehabilitation in the home as part of an extension of their contract.

The partnership will support innovative models of care by expanding rehabilitation in the home beyond traditional areas such as orthopaedics to neurological and reconditioning patients.

Epworth Group Chief Executive Dr. Lachlan Henderson said the partnership allowed for greater choice while maintaining access to high quality care.

"Innovative programs such as rehab in the home are already providing great clinical and personal outcomes for patients, with these services now available to more Bupa patients," Dr. Henderson said.

"Our rehab in the home service doubled as people became accustomed to working and schooling from home during the pandemic, and we're seeing demand continue. We know our patients love the flexibility of receiving therapy at home as it fits in with their lifestyles."

Bupa Health Insurance Managing Director Chris Carroll said the partnership reflected the new era in patient care, with a major hospital group and private health insurer working together to ensure improved patient outcomes, experience and affordability.

Chris Carroll, Bupa Health Insurance Managing Director, "Hospitals are, and always will be, the backbone for acute and complex care, but the reality is for many patients healthcare can be delivered in community settings and, increasingly, in the home.

"Getting the same clinical care at home will give patients the peace of mind they are receiving the high standard of care that Epworth is renowned for, just in the comfort of their own home."

Mr. Carroll said a focus on innovation was part of the expanded partnership including growing home care, virtual care and supporting funding arrangements to help reduce out of pocket costs.

Bupa's partnership with Epworth is the third partnership with large private hospital groups announced in recent months, following agreements with Cabrini Health and Mater Health.

"These partnerships are about striking the right balance so we can keep healthcare affordable for our members and help drive greater innovations so customers can have greater choice of where they want to receive their care," Mr Carroll said.





Dr. Rohit Gulati
A Specialist ENT Surgeon

A Specialist ENT Surgeon with over 18 years of experience in the field of EAR, NOSE AND THROAT. He is trained in Advanced Endoscopic Sinus Surgery & in Micro-surgery of the ear. He is trained in Comprehensive Endoscopic Endonasal Surgery of the Skull Base and works in Collaboration with the Neurosurgeon for transnasal approaches to the same. He has done fellowship in Coblation assisted management of snoring and sleep related breathing disorders. He uses Advanced Coblation technology in Tonsil Surgeries and does Endoscopic Coblation Assisted Adenoidectomies.

Area of Interest

- Rhinology
- Otology
- Surgical Management of Snoring and Sleep ApneaSpecialize in Nasal Surgeries Including:
- Septoplasty
- Turbinoplasty
- FESS (Functional Endoscopic Sinus Surgery)
- Powered endoscopic Sinus Surgery using a Microdebrider

- Balloon Sinuplasty
- Endoscopic DCR
- Endoscopic CSF Leak repairSpecialize in Ear Surgeries including
- Myringoplasty
- Tympanoplasty
- Myringotomy with insertion of Ventilation Tubes.
- Cortical and Modified Radical Mastoidectomy
- Ossiculoplasty including Middle ear implantsSpecialize in Throat Procedures Including:
- Coblation assisted Tonsillectomy
- Coblation assisted Endoscopic Adenoidectomy
- Coblation assisted UPPP
- Microlaryngoscopic excision of Vocal Cord Lesions

Qualification

- MBBS, Diplomate of National Board (ENT, OTO-RHINOLARYNGOLOGY)
- Fellowship in Cochlear Implantation and Relevant Rehabilitation Procedures for Management of Deafness at Freiburg, Germany
- Trained in Advanced Sinus Surgery Techniques at Amsterdam, Netherland
- Trained in Surgical Management of Sleep-Related Breathing Disorders at Bergen, Norway
- Fellowship in Endoscopic Endonasal Skull Base Surgery at the University of Pittsburgh School of Medicine, USA
- Fellowship in Advanced Skull Base Surgery at Universitat de Barcelona, Spain



Ladival



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**International
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Health Sciences
(ICMMH)**

27-28 August

Dubai



**International
Conference on
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and Pharmaceutical
Sciences (ICMBPS)**

28 August

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**Emirates Pediatric
Hematology &
Oncology Conference
(EPHOC)**

03-04 September

Abu Dhabi



**6th International
Dental Summit
(IDS)**

14-15 September

Dubai



**Annual MENA
International
Orthopaedics
Congress (Online)**

16-18 September

Dubai



**Int'l Conference on
Biological and
Viral Challenges in
Public Health
Sciences (BVP Dubai)**

18-19 September

Dubai



**Emirates Society of
Rehabilitation &
Sports Medicine
Conference**

23-25 September

Dubai



**International
Conference on
Medical and
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(ICMHS) (Online)**

26-27 September

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Performance

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30 YEARS⁶

Proven Performance

Mentor® MemoryGel® Breast Implants in Primary Augmentation Patients
What does The Mentor® Level 2 Core Study Say at 10 years?

97%
Satisfied
WOMEN⁴

1%
Rotation
RATE⁴

0%
Double
CAPSULES⁴

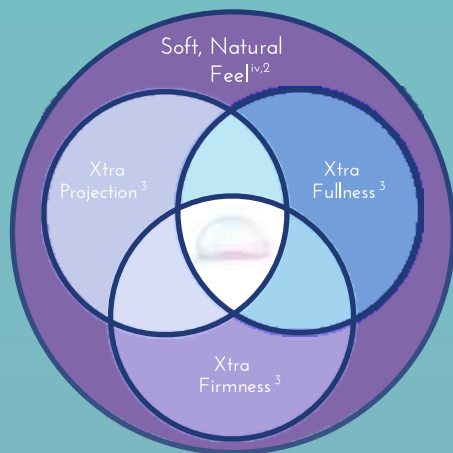
1.3%
Wrinkling
RATE⁴

LOW
Capsular
CONTRACTURE
RATE⁴

** Based on patient survey at 10 years in the Mentor® MemoryGel™ Breast Implant 10-Year Core Gel Clinical Study Final Report.

¹ Head-to-head testing according to industry standard ASTM D412 test method for rubber properties in tension (v. Q9Q1) between MemoryGel® (n=19) and Natrelle Inspira (n=19)

Why MemoryGel™ Xtra Breast Implants?¹



iv. Mentor Consumer Preference Market Research Report July 2017.

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