UPSC CURRENT AFFAIRS NOTES

18-08-2023

Matti banana

The Matti banana variety, native to Kanyakumari district was recently granted the Geographical Indication (GI) tag.

There are six known types of the Matti banana and they are indigenous to Kanyakumari, where it thrives in the unique climate and soil.

They are known as 'Baby Banana' which flourishes mainly in Kalkulam and Vilavancode taluks.

Even if it takes root and yields in other areas, the fruit will be without the sweet fragrance and honey-like taste unique to the Matti bananas grown in Kanniyakumari.

Unlike typical banana bunches that grow straight, the Matti's fingers exhibit a distinct wind-blown appearance.

Its low total soluble solids content (TSSC) recommends it as a baby food.

Types of Matti Banana

Nal Matti boasts a yellowish-orange colour and fine aroma, while The Matti's pulp tastes like honey.

Kal Matti gets its name from the calcium oxalate crystals forming in its pulp and black dots on the skin.

Nei Matti exudes the aroma of ghee, and Sundari Matti, a Matti clone, with its elongated fingers, thick peel, and creamy white rind, is facing extinction.

VINDHYAGIRI

The President of India, Smt Droupadi Murmu graced the launch ceremony of Vindhyagiri – the sixth ship of project 17A of Indian Navy at Garden Reach Shipbuilders Engineers Limited, Kolkata, West Bengal today (August 17, 2023).

Speaking on the occasion, the President said that the launch of Vindhyagiri marks a move forward in enhancing India's maritime capabilities. It is also a step towards achieving the goal of Atmanirbhar Bharat through indigenous shipbuilding.

Project 17A of which Vindhyagiri is a part reflects our commitment to self-reliance and technological advancement. This project demonstrates indigenous innovation for developing state-of-the-art technology.

The President said that today, India is the fifth largest economy in the world and we are striving to become the third largest economy in the near future. She added that growing economy means higher volumes of trade and huge part of our trade-goods transit through the seas which highlights the importance of oceans to our growth and well-being.

The President said that the security in the Indian Ocean Region and the larger Indo-Pacific has many aspects and the Navy has to always remain proactive in tackling security threats.

Two reforms introduced for Mobile User Protection to promote a cleaner and safer digital ecosystem

- Fresh KYC for SIM Swap/Replacement
- Facial based biometric authentication permitted in addition to thumb and iris based biometric authentication
- Complete KYC of end-users for business connections
- Registration of Point-of-Sale (POS) by Licensee
- Blacklisting of fraudulent POS for 3 years
- Indisputable verification of each POS, i.e. Franchisee, Agents, and Distributors
- 52 lakh suspected Mobile Connections disconnected with Sanchar Saathi
- Over 3 lakh mobile handsets traced with Sanchar Saathi

It is important to promote safe utilization of Telecom resources in order to facilitate protection of mobile users.

KYC Reforms

Point of Sale (POS) registration Reform

These two reforms are in direction of earlier reforms introduced with a launch of Sanchar Saathi, a citizen centric portal that has empowered India's fight against the menace of cybercrimes and financial frauds.

Point-of-Sale (POS) Registration Reforms- This reform introduces the process for mandatory registration of Franchisee, Agents and Distributors (PoS) by Licensees. This will help in eliminating the rogue PoS who by fraudulent practices issue SIMs to anti-social/anti-national elements.

The PoS registration process includes indisputable verification of PoS by Licensee. The process mandates written agreement between the PoS and the Licensees. If a PoS indulges in any illegal activities, it will be terminated and blacklisted for a period of 03 years. All the existing PoS will be registered as per this process by Licensees within 12 months.

This will help in identifying, blacklisting and eliminating rogue PoS, from the licensees' system and provide an encouragement to the upright PoS.

KYC Reforms-KYC is a process to uniquely identity a customer and enable his traceability before providing him telecom services. Strengthening of the existing KYC process is one of the tools in protecting the subscribers of telecom services from any probable frauds and thereby enhancing the confidence of general public in the digital ecosystem.

To prevent misuse of printed Aadhaar, the demographic details will mandatorily be captured by scanning QR code of printed Aadhaar. In case of disconnection of a mobile number, it will not be allocated to any other new customer till expiry of 90 days. A subscriber has to undertake complete KYC for replacement of his SIM and there will be bar of 24 hours on outgoing & incoming SMS facilities.

In addition to thumb impression and iris-based authentication in Aadhaar E-KYC process, facial based biometric authentication is also permitted.

Introduction of business connections for issuing of mobile connections to entities (for ex. company, organizations, trust, society, etc). Entities can take any number of mobile connections subject to complete KYC of all of its end-users. SIM will be activated only after successful KYC of end users and physical verification of premise/address of the entity.

Department of Telecommunications, through the transformative reforms introduced stand as a resolute commitment to safeguarding the interests of citizens of the country. Through rigorous and comprehensive measures, department aims to fortify customer security and bolster protection against the growing threat of telecom frauds. By combining cutting-edge technology with vigilant oversight, Department is steadfast in the mission to promote the highest level of safety and trust within the telecommunications landscape to provide a secure and reliable communication environment for all.

IMPACT OF SANCHAR SAATHI- A CITIZEN CENTRIC PORTAL OF MOBILE USER PROTECTION

- ‘Sanchar Saathi’ portal was launched on World Telecommunication Day (17 May 2023) for protection of mobile users.
- ‘Sanchar Saathi’ portal empowers mobile subscribers to:
- Find out mobile connections registered in their name,
- Report connections registered fraudulently in their name, if any, and
- Report stolen/ lost mobile handsets & block them.
- With the help of ‘Sanchar Saathi’ portal and ASTR tool, around 114 Crore active mobile connections have been analyzed. The outcome is:
- More than 66 lakh suspected mobile connections were detected
- Failing re-verification more than 52 lakh mobile connections have been disconnected
- Out of about 18 lakh subscribers complaints about fraudulently registered mobile connections in their name, 9.26 lakh complaints have been resolved

- Out of 7.5 lakhs complaints about stolen/ lost mobile handsets, 3 lakhs mobile handsets have been traced
- Since January 2022, 114 illegal Telecom setups unearthed and action taken by LEA.

Central Water Commission Launches Mobile App 'Floodwatch' To Provide Real-Time Flood Forecasts to Public Using Interactive Maps

The mobile application, "FloodWatch" with the aim of using mobile phones to disseminate information related to the flood situation and forecasts up to 7 days on a real-time basis to the public.

- The in-house developed user-friendly app has readable and audio broadcast and all the information is available in 2 languages, viz. English and Hindi.
- The Key feature of the app includes real-time flood monitoring where users can check up-to-date flood situation throughout the country.
- The app utilizes near real-time river flow data from various sources.
- The app also provides flood forecast at nearest location where users can check the flood advisory at the station nearest to them on the Home Page itself.

Union Health Minister Dr. Mansukh Mandaviya delivers keynote address at the inauguration of One Earth One Health Advantage Healthcare India

Dr. Mansukh Mandaviya launches The Advantage Health Care India Portal One Stop Digital Portal for Patient and Workforce Mobility portals

The launch of these two portals is not just a milestone for India, but a significant step towards fulfilling our global responsibilities.

Through these portals, we are offering a tangible solution to some of the most pressing challenges in healthcare today: Dr. Mansukh Mandaviya

Our collective efforts will be towards creating a healthcare ecosystem that embraces the voice of every nation, every citizen and every being: Dr. Mansukh Mandaviya

India being a soft power in the traditional system of medicine can play a pivotal role in mitigation of these alarming changes in health care scenarios: Shri Sarbananda Sonowal

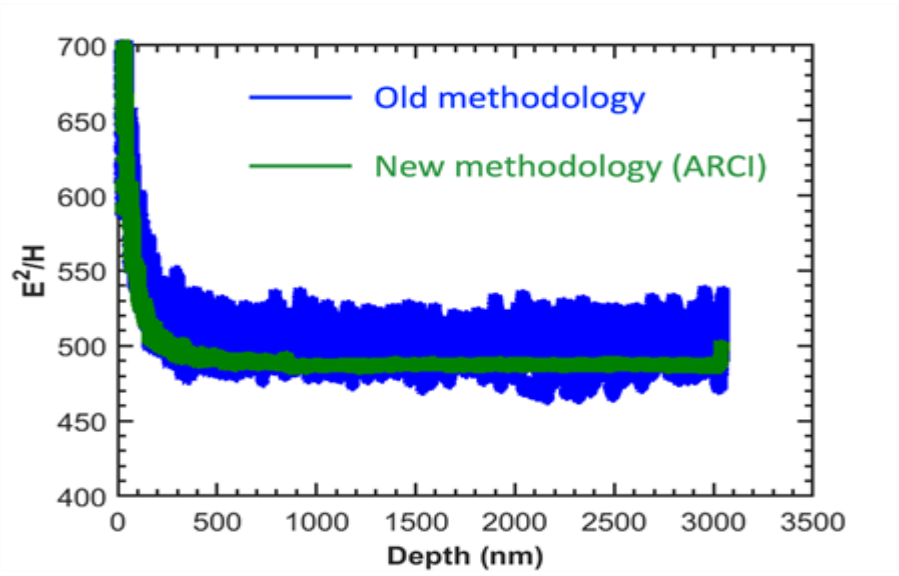
Leveraging Medical Value Travel, countries can offer specialized resources and services that may not be available, affordable or accessible in other parts of the world: Dr. Tedros Adhanom Ghebreyesus

Union Health Minister Dr Mansukh Mandaviya conducts bilateral meetings with member countries European Union, Saudi Arabia and Germany.

The new method enables faster testing of mechanical strength of extremely small volumes of materials for a wide range of fields from medicine to space

A novel method to test nanomechanical properties of materials at very minute scales with high precision and accuracy has been developed by an Indian scientist in collaboration with two international institutions.

The new methodology not only significantly improves the precision and accuracy of what is known as nanoindentation technique or testing of mechanical strength, but enables testing at much higher rates, thus facilitating high throughput.



With Conventional testing methods not always feasible at nano scales, which are usually of the order of 1/100th of the diameter of a human hair, the nanoindentation technique was invented by Dr. Warren Oliver (KLA Corp.) and Dr. John Pethica (Oxford University) in the 80s and the analysis procedure was proposed by Dr. Warren Oliver and Dr. George Pharr (Texas A&M University) in their seminal work which had a huge impact on a broad spectrum of scientific research.

The technique has been widely used to measure the strength of semiconductor devices and structural materials that have ubiquitously penetrated every aspect of our daily life through electronic gadgets. The technique has been used for a wide range of applications from identifying cancerous cells to establishing how meteorites are formed in deep space.

In developing the new methodology, Dr. Sudharshan Phani of the Advanced Nanomechanical Characterization (ANC) Centre at Centre for Engineered Coatings, International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), Hyderabad, collaborated with Dr Warren Oliver at KLA and Prof. George Pharr of Texas A & M University.

The novel approach involved a combination of extensive modeling and simulation to understand the material response during an indentation test and subsequent tailoring of the methodology to improve the precision and accuracy. The modeling results have also been validated by experiments under extreme conditions.

Setting the tone for high precision and high accuracy nanoindentation measurements at much higher rates than what is traditionally possible, the new methodology is expected to impact a broad spectrum of scientific research on

measuring the strength of materials at small scales. The details of methodology have been recently published in the prestigious journal in the field of materials science, 'Materials & Design'.

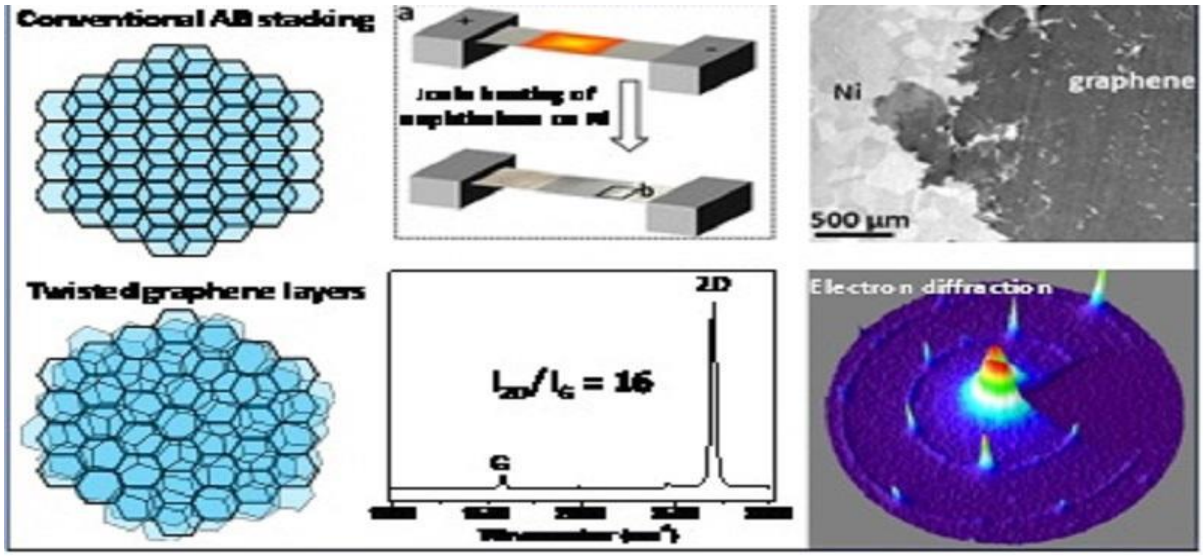
GRAPHENE-AURORA PROGRAM

The Ministry of Electronics & Information Technology (MeitY) launched the 'Graphene-Aurora Program' at a ceremony held in Maker Village Kochi, Kerala.

This initiative aims to harness the potential of graphene, a remarkable material with diverse applications, by fostering innovation, research, and commercialization.

About Graphene

Graphene, a single layer of carbon atoms arranged in a hexagonal lattice, has emerged as one of the most extraordinary materials in modern science.



With remarkable properties that transcend traditional materials, graphene has the potential to revolutionize diverse fields ranging from electronics to materials science.

Structure and Properties

Atomic Structure: Graphene consists of a single layer of carbon atoms bonded together in a honeycomb lattice, forming a two-dimensional structure.

Exceptional Strength: Despite being just one atom thick, graphene is incredibly strong and resilient, with a tensile strength over 100 times that of steel.

Superior Conductivity: Graphene exhibits exceptional electrical conductivity, allowing electrons to move at extremely high speeds.

Transparency: Graphene is optically transparent, allowing over 97% of visible light to pass through it.

Discovery and Nobel Prize

Isolation: Graphene was first isolated in 2004 by Andre Geim and Konstantin Novoselov using a simple method involving sticky tape and pencil graphite.

Nobel Recognition: In 2010, Geim and Novoselov were awarded the Nobel Prize in Physics for their groundbreaking work on graphene.

Applications and Impact

Electronics: Graphene's high electrical conductivity and remarkable electron mobility make it a promising candidate for ultrafast transistors and electronic devices.

Flexible Electronics: Graphene's flexibility and transparency have led to the development of flexible, foldable, and wearable electronic devices.

Energy Storage: Graphene-based materials show potential for high-capacity batteries, supercapacitors, and energy-efficient solar cells.

Materials Science: Graphene's strength, lightness, and impermeability have implications for creating strong yet lightweight materials for industries such as aerospace.

Biomedical Applications: Graphene-based materials have shown promise in drug delivery, bioimaging, and biosensors.

Challenges and Limitations

Mass Production: Current methods of producing high-quality graphene are expensive and limited in scale.

Band Gap: Graphene's lack of a band gap limits its application in semiconductor devices.

Toxicity Concerns: The potential toxicity of graphene nanoparticles in certain biological environments is still being studied.

Research and Innovations

Graphene Derivatives: Researchers are exploring graphene oxide and other derivatives to overcome some of the limitations of pure graphene.

Functionalization: Functionalizing graphene with different atoms and molecules can modify its properties for specific applications.

Future Prospects

Electronics Evolution: Graphene-based transistors and components could drive the next generation of high-speed, energy-efficient electronics.

Energy Revolution: Graphene's applications in energy storage and conversion could reshape the landscape of renewable energy technologies.

Conclusion

The launch of the Graphene-Aurora Program marks a significant step toward harnessing the potential of graphene in various industries. By bridging the gap between research and commercialization and nurturing a robust ecosystem for graphene innovation, India aims to position itself at the forefront of global advancements in materials science and technology.

GOA TO GIVE FREE IVF TREATMENT IN GOVT HOSPITAL

Goa has achieved a significant milestone by becoming the first Indian state to offer free in vitro fertilization (IVF) treatment, in addition to assisted reproductive technology (ART) and intrauterine insemination (IUI).

This move not only marks a vital stride in healthcare accessibility but also sheds light on the expanding fertility industry in India.

Chief Minister inaugurated the IVF service, ART, and IUI at Goa Medical College (GMC) in Bambolim.

- IVF treatment in India typically costs between Rs 70,000 to Rs 3 lakh per cycle, varying based on the hospital and the type of treatment.
- The newly introduced IVF service at GMC has already garnered a strong response, with approximately 100 parents registering to access the facility located within the hospital's super-speciality block.
- The fertility business in India has expanded at a rate of 15-20% annually over the last five years, according to Ernst & Young's Call to Action report.
- Underlying Surge in Infertility

Accessibility and Affordability Challenges

High Costs: Fertility treatments are often perceived as financially burdensome, restricting access for many, especially those from middle and lower income groups.

Loan Burden: Many couples resort to personal loans with high interest rates to cover the expenses of fertility treatments.

Lack of ART Insurance: Despite the growing demand for fertility services, ART insurance coverage remains limited in India.

Pricing Transparency Issues: A lack of pricing transparency makes it difficult for patients to estimate the total cost of treatment, leading to financial uncertainties.

Consequences and Barriers

Stuck in the Middle: Some individuals find themselves at a crossroads where they cannot proceed due to financial constraints, nor can they turn back.

Significance of Goa's Initiative

Addressing Financial Barriers: Goa's move to provide free IVF treatment addresses the financial barriers that hinder many from accessing fertility services.

Impact on Healthcare Equity: This initiative contributes to a more equitable healthcare system by extending infertility treatment to a wider demographic.

About IVF

In-Vitro Fertilization (IVF) stands as one of the most transformative achievements in modern medicine, offering hope and solutions to couples struggling with infertility.

This groundbreaking assisted reproductive technology has revolutionized the way we perceive conception, pregnancy, and parenthood.

Future Prospects

Advancements in Reproductive Medicine: Innovations in embryo selection, genetic editing, and artificial wombs could shape the future of IVF and assisted reproduction.

Global Accessibility: Strides in affordability and accessibility could make IVF more accessible to a wider range of individuals and couples.

About Assisted Reproductive Technologies (ART)

Assisted Reproductive Technologies (ART) encompass a range of medical procedures designed to help individuals and couples achieve pregnancy when natural conception becomes challenging or impossible.

These innovative techniques have revolutionized the field of reproductive medicine, offering hope to those facing infertility and redefining the boundaries of parenthood.

Understanding Assisted Reproductive Technologies

ART refers to medical interventions that assist in achieving pregnancy by manipulating eggs, sperm, embryos, or the uterus.

ART includes procedures like In-Vitro Fertilization (IVF), Intracytoplasmic Sperm Injection (ICSI), gamete and embryo cryopreservation, surrogacy, and pre-implantation genetic testing.

Applications and Techniques

IVF and ICSI: IVF involves fertilizing eggs with sperm in a laboratory dish before implanting the embryo into the uterus. ICSI is used when male infertility is a concern, as a single sperm is directly injected into an egg.

Gamete and Embryo Cryopreservation: Eggs, sperm, or embryos can be frozen and stored for future use, allowing fertility preservation before medical treatments or for family planning.

Surrogacy: A surrogate mother carries a pregnancy for intended parents who may be unable to carry a pregnancy themselves.

Pre-Implantation Genetic Testing (PGT): Embryos can be screened for genetic disorders before implantation, reducing the risk of passing on hereditary conditions.

Benefits and Impact

Overcoming Infertility: ART provides hope to couples dealing with various fertility challenges, including ovulatory disorders, tubal damage, and male infertility.

Fertility Preservation: ART enables individuals to preserve their fertility before medical treatments that could impact reproductive health.

Same-Sex Couples and Single Individuals: ART allows non-traditional families, such as same-sex couples and single parents, to have biological children.

Ethical and Legal Considerations

Multiple Pregnancies: Some ART procedures increase the likelihood of multiple pregnancies, which can have health risks for both the mother and babies.

Egg and Sperm Donation: The use of donor gametes raises questions about donor anonymity, genetic inheritance, and disclosure to children.

Surrogacy: Ethical dilemmas arise concerning the compensation of surrogates, the potential exploitation of vulnerable individuals, and the legal rights of the child and surrogate.

Three-Parent Babies: Exploring Mitochondrial Replacement Therapy

The concept of "three-parent babies" refers to a groundbreaking medical technique known as mitochondrial replacement therapy (MRT).

This innovative procedure involves combining genetic material from three individuals to prevent the transmission of certain genetic diseases caused by faulty mitochondria.

While offering hope for families affected by mitochondrial disorders, three-parent babies also raise ethical, scientific, and societal considerations.

Mitochondrial Disorders and MRT

Mitochondria and Genetic Diseases: Mitochondria are organelles responsible for energy production within cells. Mutations in mitochondrial DNA can lead to various disorders affecting energy production and cellular functions.

Inherited Disorders: Mitochondrial disorders are often inherited from the mother due to the maternal transmission of mitochondria. These disorders can result in serious health issues, including muscular dystrophy and organ dysfunction.

MRT to Prevent Transmission: Mitochondrial replacement therapy involves replacing defective mitochondria in a mother's egg with healthy mitochondria from a donor egg, thereby preventing the transmission of mitochondrial disorders to the offspring.

Types of MRT

Pronuclear Transfer: This technique involves transferring the nucleus of the mother's fertilized egg (zygote) into a donor egg with healthy mitochondria, after removing the nucleus.

Maternal Spindle Transfer: In this approach, the nucleus is removed from the mother's egg before fertilization and transferred into a donor egg that has had its nucleus removed.

Ethical and Regulatory Considerations

Genetic Modification: MRT involves genetic modification, as it alters the genetic material of embryos. This raises ethical concerns about the potential long-term effects on future generations.

Designer Babies: Critics argue that the ability to manipulate genetic material for preventing diseases could open the door to "designer babies," where genetic enhancements are made for non-medical reasons.

Regulatory Landscape

Global Variations: Different countries have varying regulations regarding MRT. Some countries permit it only for research purposes, while others have approved it for clinical use under strict conditions.

UK's Regulatory Pathway: The UK became the first country to approve MRT for clinical use in specific cases where mitochondrial diseases pose a significant risk.

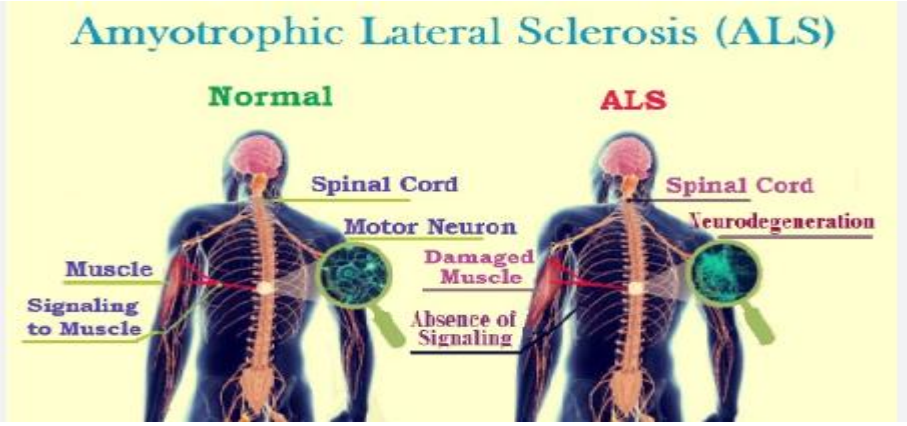
Social and Cultural Perspectives

Religious and Cultural Beliefs: Three-parent babies can pose ethical dilemmas in communities with strong religious or cultural beliefs about human conception and genetic manipulation.

Parental Identity: Questions about parental identity may arise due to the involvement of genetic material from three individuals.

Amylotropic Lateral Sclerosis (ALS)

Support groups for patients with Amylotrophic Lateral Sclerosis urge that the condition be counted as a rare disease.



- It is a neurodegenerative disease in which special nerve cells called motor neurons in the brain and spine which control an individual's voluntary functions like walking, chewing, talking, moving their arms- are affected.
- It's also known as Lou Gehrig's disease.
- As these nerve cells progressively die, the muscles dependent on them are unable to function or move, due to which they begin to atrophy or waste away.

- As the motor neurons (nerve cells) continue to decline, they can't send signals to your muscles. The two types of motor neurons are:
- Upper motor neurons, the motor nerve cells in your brain and spinal cord. Their job is to send signals to lower motor neurons.
- Lower motor neurons, the motor nerve cells in your brain stem (lower part of your brain) and spinal cord. They receive instructions from the upper motor neurons. They then send messages to your muscles telling them to move.
- From the onset of symptoms, it takes around 8 to 15 months for diagnosis.
- Currently, there is no effective cure for this disease.