

AROGYA

School of Health Sciences

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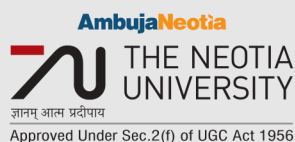
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School of Health Sciences, The Neotia University

Message from Vice Chancellor's Desk



It is a great privilege for me to write an introductory note in the Volume 3 of the E-magazine 'AROGYA' of the School of Health Science. The issue is publishing at the juncture of implementation of National Council for Allied Healthcare Professional Guidelines 2025 (NCAHP-2025) which proposes the integral approach to build up students with learning of multi-disciplinary subjects in conjunction with the core programme of studies. The School of Health Science of our University currently running the programmes like i. Applied Psychology, ii. Physiotherapy, iii. Optometry, iv. Hospital Management, v. Medical Laboratory Technology, vi. Medical Radiology & Imaging Technology, vii. Operation Theatre & Anaesthesia Technology, viii. Critical Care Technology, ix. Nutrition & Dietetics. etc. to develop human resources on the above areas to serve the nation. The perception on health has evolved over the time. It is the normal condition of the living body that could be disrupted from time to time by the disease as well due to the development of internal pressure like stress. According to the World Health Organization (WHO) health is the integral part of physical,

mental, and social well-being and to keep these in good conditions there need trained personalities who can help the common people in overcoming the unwell situation. Systematic activities to prevent or cure health problems and to promote good health are undertaken by health care practitioners / providers. In the first decade of the 21st century, the conceptualization of health as an ability opened the door for self-assessments to become the main indicators to judge the performance of efforts aimed at improving human health. It also created the opportunity for every person to feel healthy, even in the presence of multiple chronic diseases or a terminal condition, and for the re-examination of determinants of health. The word 'AROGYA' has the special significance from the ancient time as the opportunity for healing from the health disruption. As a result, health centres and hospitals are termed as 'AROGYA NIKETAN', the homes for healing. The Arogya Niketan need health experts who can help the people to get relief from their diseases and overcome from the disruptions. In ancient India many people dedicated their life in understanding the cause for diseases and their possible medicine through AYURVED. The Ayurvedic practitioners regard physical existence, mental existence, and personality as three separate elements of a whole person with each element being able to influence the others. This holistic approach used during diagnosis and healing is a fundamental aspect of Ayurveda. The extracts from the medicinal plants used to treat the diseases. Another part of Ayurvedic treatment says that there are channels in the living organs those are transporting fluids and maintaining health balance. The blocking of these channels causes health disruptions. The channels can be opened up by massage treatment using oils and steam. This was the emergence of physical medicine. The School of Health Science of our University developed the academic programs to develop those are very much useful in developing 'ARAGYA NIKETAN'. The present volume of the e-magazine will contain the articles on the subject matters mentioned above. The entire community of the university will put their perceptions and thoughts on the magazine of health sciences. I believe the articles in 'AROGYA' will open up avenues of healing.

Dr. Biswajit Ghosh

Vice Chancellor

The Neotia University

Message from Dean's Desk



Congratulations to every student, Faculty members and corporates who submitted their articles for the magazine 'AROGYA' 2025 edition published by the School of Health Sciences, The Neotia University. It was the inspiration received from our Honorable Pro-Chancellor and Honorable Vice Chancellor for publishing this type of magazine where the future Paramedics and Allied Health Professionals can get the opportunity to showcase their writing skill. AROGYA is the result of that inspiration. It is true that due to the paucity of the space all submitted works could not be published. With this issue, School of Health Sciences achieved the first milestone of AROGYA publication. The entire work has been crystallized after the rigorous peer review process, with the tedious efforts by my fellow colleagues from this School.

This magazine tried to give scope to the students and Faculties to showcase their writing talent through different topics covering artificial intelligence & their applications in radiological procedures, avenues of maintaining good eye health, molecular diagnostics, mental health, scenario of OT technology, Ayurveda, various common yet dangerous health issues & their remedial measures, to name a few. I am assuring that this magazine proves that the future paramedics not only serve the society but may also be the good writers. The knowledge and skills gained through the participation in AROGYA will be useful, not only for future practice, but also if the students plan to embark on Post-Graduate studies or consider for pursuing an academic career.

From the Faculty's side, they are encouraged to teach and assist the students to improve their writing skills in every day - every assignment and even test or exam which is the part of the regular process. Ultimately, all Allied Health Science students will have to write a dissertation in the final year, after the completion of their internship. This is the opportunity; do your best, at least aim at to develop the writing habit for the submission to AROGYA.

I am giving my heartfelt thanks to all the Faculty members of the School of Health Sciences for their continuous support for successful publication of this magazine "AROGYA -25"

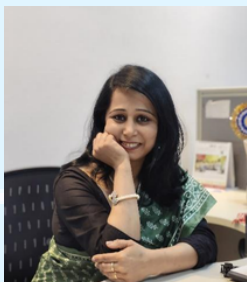
All the best!

Message from Editor

I, along with the Associate Editors, am happy to publish the Volume 3 of the Magazine, 'AROGYA' from School of Health Sciences (SHS). It is dream initiative of our Honorable Dean, School of Health Sciences. This platform provides our students & Faculties the opportunity to showcase their writing talents. Also it sums up the various events conducted throughout the year in SHS. We sincerely thank Mr. PJ Agrawal Sir for his continuous support. We also sincerely thank our Honorable Vice Chancellor, Prof. Dr. Biswajit Ghosh Sir for his continuous guidance & also for introducing the name of the Magazine. We are forever indebted to our Honorable Dean, School of Health Sciences,

Dr. Soumen Mukherjee Sir, from initiative to guidance, to support, to encouragement - for everything. We also thank the Design Team for their efforts. Our utmost thanks goes to the Esteemed Faculties, who despite their busy schedule, made the effort to contribute in this venture. Lastly, a big shout out to our beloved students, who made significant contributions through their write ups & also various events conducted by SHS. We sincerely hope that, this venture will be informative & enlighten the readers in the field of Healthcare sector.

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Section 1

Faculties

Decode before you bite – because smart eating is smart living!



Debasmita Ray

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Why This Matters?

We live in a time when supermarkets are overflowing with “healthy” packaged foods — *low-fat chips, sugar-free biscuits, probiotic drinks, high-protein cereals*. Sounds impressive, right? But here’s the truth: **a lot of what we think is healthy may not actually be so.**

Food labels are meant to guide us, but often they confuse us. Add to that the endless nutrition myths we hear every day — “carbs are bad,” “fat makes you fat,” “detox juices clean your body” — and no wonder we are lost!

So, let’s decode the mystery.

Decoding Food Labels

Food labels are like the “report cards” of packaged food. But you need to know how to read between the lines.

Ingredients list matters more than the front claim.

- “Multigrain biscuits” may still have refined flour (maida) as the first ingredient.
- “Fruit juice” can sometimes be just flavored sugar water with 5% fruit.

Check serving size.

- A packet of chips may say “120 kcal per serving.” But if the packet has 3 servings and you eat it all (which most of us do!!), that’s 360 kcal.

Sugar has many names.

Glucose, sucrose, corn syrup, maltose, dextrose, honey, jaggery powder — all are sugars. Don’t be fooled by fancy names.

Watch sodium (salt).

Instant noodles, sauces, soups often have 2–3 times your daily salt requirement in just one serving. High sodium = higher blood pressure risk.

The “low-fat” trap.

Many “low-fat” foods add extra sugar to compensate for taste. So, fat ↓ but sugar ↑ — not really healthy.

Quick Hack for Students:

Always read the first 3 ingredients. If they are maida, sugar, or hydrogenated oil, keep it back on the shelf!

Busting Nutrition Myths

Let’s break a few myths that rule our food choices:

Myth: Carbohydrates make you fat.

Truth: Refined carbs (white bread, sugary snacks) can lead to weight gain. But complex carbs (brown rice, oats, fruits) are essential for energy and brain function.

Myth: All fats are bad.

Truth: Healthy fats (nuts, seeds, olive oil, fish) protect your heart and brain. Only trans fats and excess fried junk are harmful.

Myth: Skipping meals helps in weight loss.

Truth: Skipping meals slows metabolism, makes you overeat later, and can even lead to nutrient deficiencies.

Myth: Detox juices remove toxins.

Truth: Your liver and kidneys are the best detox machines. Juices may give vitamins, but they don’t “flush” toxins magically.

Myth: Packaged health drinks are always nutritious.

Truth: Many are loaded with sugar. Check the label before trusting the ad.

How to Stay Smarter with Food

Prefer home-cooked meals over processed food.

Balance your plate: $\frac{1}{2}$ vegetables + $\frac{1}{4}$ proteins + $\frac{1}{4}$ carbs + a little healthy fat.

Stay hydrated — don't confuse thirst with hunger.

Don't follow every diet trend on Instagram. Listen to your body, not just influencers.

Why This Matters for Young India

Today's students are tomorrow's leaders. The food choices you make now will shape your energy, concentration, immunity, and even emotional health. By learning to read food labels and ignoring myths, you are already one step ahead in creating a healthier future.

Food for Thought

Next time you pick up a packet of biscuits, don't just believe the bold words in front. Flip it. Read it. Decode it.

And whenever someone says, "Carbs are evil" or "Only juices can detox you" — smile, because you know better now.

Because true nutrition isn't about shortcuts. It's about informed choices, balance, and consistency.

“The Unsung Guardians of Accuracy: Quality Control in Biochemistry Laboratory”



Sagar Debnath

Assistant Professor, Department of BMLT
School of Health Sciences, The Neotia University.

In the realm of medical diagnostics, the biochemistry laboratory stands as the silent guardian of health. Every drop of blood, every tiny vial of serum, carries within it vital information that could determine the course of treatment, recovery, and even survival. Yet, behind every report handed to a patient lies a hidden shield that ensures accuracy and reliability — Quality Control (QC). Often overlooked, QC forms the backbone of laboratory medicine, quietly protecting patients from the dangers of errors and ensuring that trust between doctor, patient, and laboratory remains unbroken.

Quality Control in biochemistry laboratories is not merely a protocol; it is a philosophy of accuracy. It is the invisible heartbeat that keeps the rhythm of diagnostic science intact. Without QC, the most advanced analyzers would be like orchestras without conductors — chaotic and unreliable. A single inaccurate test result could mislead a physician, potentially altering the treatment plan for a patient. In a field where precision is non-negotiable, QC acts as the ultimate safety net.

Internal Quality Control (IQC) is the first line of defense. Every morning, before the first patient sample is processed, laboratories run control sera to check if instruments and reagents are performing as expected. Much like a rehearsal before a grand performance, these controls confirm that analyzers are tuned to perfection. Levey-Jennings charts, plotted meticulously, reveal whether results stay within acceptable ranges or stray outside, signaling potential errors. The patterns on these charts are more than just dots and lines — they are the pulse of accuracy, showing whether the laboratory is in control or in crisis.

External Quality Control (EQC), on the other hand, connects one laboratory to the larger world of diagnostics. By participating in inter-laboratory comparisons, biochemistry labs benchmark themselves against national and international standards. This process ensures that a glucose value reported in one corner of the country matches the accuracy of the same test result from another. EQC builds a web of trust across healthcare systems, proving that the laboratory is not isolated but part of a global commitment to accuracy and patient safety.

With the rise of technology, Quality Control is evolving beyond traditional charts and manual logs. Artificial intelligence and smart dashboards are now capable of monitoring QC in real time, alerting scientists instantly if Westgard rules are violated. This shift represents a future where errors are identified and corrected before they ever reach a patient's report. Imagine a dashboard that acts like a digital guardian angel, scanning every result and waving a red flag the moment something seems off. That is the future our laboratories are moving toward — a future where compromise is impossible, and patient safety is guaranteed.

At The Neotia University's BMLT Department, Quality Control is embraced not just as a technical step, but as an oath of responsibility. It is the promise our students, faculty, and laboratories make to the community: that every report we generate is not just a number, but a truth protected by science. QC, in essence, is the silent hero of biochemistry — unseen, uncelebrated, yet indispensable. It transforms laboratories from mere testing centers into trusted guardians of life itself.

Hyaluronic Acid: An Important Substance for Nanobiotechnology Applications



Chitra Bag

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Hyaluronic acid, or HA for short, is a kind of glycosaminoglycan that doesn't have any sulfates in it. A lot of connective, epithelial, and neural tissues have it. It doesn't have sulfates, it forms in the plasma membrane instead of the Golgi apparatus, and it can be very big: human synovial HA has an average of 7 million molecules per molecule. People used to call hyaluronic acid a "goo" molecule until the late 1970s. It is a common carbohydrate polymer that makes up the matrix outside of cells. Hyaluronic acid is a big part of synovial fluid, and studies show that it makes the fluid thicker. It is one of the main things that makes the fluid slippery, along with lubricin.

Part:

Articular cartilage is made up of a lot of hyaluronic acid. It wraps around each cell (chondrocyte) like a coat. Hyaluronic acid and proteoglycan link protein 1 (HAPLN1) help aggrecan monomers stick to hyaluronan. This makes big, very negatively charged aggregates. These aggregates absorb water and make cartilage strong, which means they can resist compression. The amount of hyaluronan molecules in cartilage gets bigger as you get older, but the size of the molecules gets smaller.

Type:

1. Gasquet, an internal medicine doctor, says that hydrolyzed hyaluronic acid is hyaluronic acid that has been broken down into small pieces that can pass through the skin. It adds moisture, but not as much as some other options. It's best for people with oily or combination skin who don't want to add too much moisture.
2. Gasquet says that sodium hyaluronate goes deeper into the skin and works better, but the effects don't last very long. "Sodium hyaluronate is best for people with normal skin because it lets moisture in but doesn't need to work for a long time." This is the most common ingredient in serums.
3. Sodium acetylated hyaluronate works like sodium hyaluronate, but it lasts longer. This is a good product for people who need moisture, like those with dry skin, those who live in dry areas, or those who want something to use in the winter when it's dry.

APPLICATIONS:

1. APPLICATIONS IN MUSCLE TISSUES:

Hyaluronan is thought to help lubricate muscular connective tissues by making it easier for tissue layers to slide past each other. It has been proposed that a specific type of fibroblast, located in dense fascial tissues, is proficient in synthesizing the hyaluronan-rich matrix. Their related activity may help control how easily nearby muscular connective tissues can slide past each other.

2. SKIN EFFECT

Hyaluronic acid is also a big part of skin, where it helps heal wounds. When skin gets too many UVB rays, which have shorter wavelengths, it gets sunburned. This stops the cells in the dermis from making as much hyaluronan and speeds up the breakdown of the hyaluronan. The skin collects hyaluronan breakdown products after being in the sun.

Hyaluronic acid is a very important part of the extracellular matrix. It is important for tissue regeneration, the body's response to inflammation, and angiogenesis, which are all important for healing wounds. There is some evidence that hyaluronic acid may help ulcers heal and may help with pain control a little bit. When you mix hyaluronic acid with water, it gets bigger and turns into a gel. As a result of this process, it can be used to fill in wrinkles on the face. The treatment is safe and works, and the effects last for six to twelve months.

3. TISSUE FOR GRANULATION

Granulation tissue is the fibrous connective tissue that fills in a fibrin clot in a wound that is healing. It usually grows from the bottom of a wound and can fill in wounds of almost any size as it heals. Hyaluronic acid (HA) is a major component of the matrix that forms granulation tissue. This HA-rich network may have a lot of different cellular functions that are important for healing tissues. These functions include helping cells move into the provisional wound matrix, helping cells divide, and organizing the granulation tissue matrix. It is very important for granulation tissue to start to inflame. This means that HA's role in making inflammation worse, which we talked about before, also helps with this stage of healing a wound.

4. CELL MOVEMENT

Cell migration is necessary for the development of granulation tissue. In the beginning, the main part of granulation tissue is a HA-rich extracellular matrix. People think that cells can move into this temporary wound matrix. HA makes a wet, open matrix that makes it easier for cells to move around. In the second instance, directed migration and regulation of associated cellular mechanisms transpire through the specific interaction between HA and cell surface HA receptors. It connects to several protein kinases that help cells move, such as extracellular signal-regulated kinase, focal adhesion kinase, and other non-receptor tyrosine kinases. HA is all over the path that neural crest cells take as they move during fetal development. HA is closely connected to how cells move through the granulation tissue matrix. Research shows that breaking down hyaluronic acid (HA) or stopping HA receptors from being occupied can make it harder for cells to move. HA synthesis is also related to how cells move because it gives them a force that changes over time. HA is made at the plasma membrane and sent right outside the cell. The compound might help create a hydrated microenvironment where it is made, which is important for cells to move around because it helps them separate from each other.

5. Skin repairing

HA is important for the skin to work properly. HA is also important for re-epithelization because of some of its properties. These include being an important part of the extracellular matrix of basal keratinocytes, which are the main cells that make up the epidermis; its ability to get rid of free radicals; and its role in the growth and movement of keratinocytes. In the basal layer of the epidermis, CD44 (Glycoprotein) is located next to HA. It has also been shown to be more common on the plasma membrane that faces the HA-rich matrix pouches. HA's main jobs in the epidermis are to keep the space between cells open and wet, which makes it easier for nutrients to get through. A study found that retinoic acid (vitamin A) raises levels of HA. The proposed effects of retinoic acid on skin photodamage and photoaging may be partially associated with an increase in skin hyaluronic acid (HA) levels, leading to improved tissue hydration. Some people think that HA's ability to get rid of free radicals helps protect against UV radiation. This supports the idea that CD44 is a HA receptor in the skin.

6. Problems with health

Hyaluronic acid can now be used to treat knee osteoarthritis by injecting it into the joint, thanks to the FDA. A review found that most of the studies that supported this use weren't very good. They didn't show much real benefit and suggested that injecting HA into the joint could have bad side effects. A meta-analysis demonstrated that intra-articular injection of high molecular weight hyaluronic acid enhanced both analgesic effects and functional outcomes in patients with knee osteoarthritis.

Hyaluronic acid is a common ingredient in skin care products. People have used it in different ways to make fake tears that help with dry eyes. In cosmetic surgery, hyaluronic acid is used to fill in wrinkles. Usually, a sharp hypodermic needle or a micro-cannula is used to put it in. Some studies have shown that using microcannulas can greatly lower the risk of vessel embolisms during injections. Hyaluronic acid is a popular soft tissue filler right now because it works with the body and can be undone with Hyaluronidase. Cutting nerves and small blood vessels, pain, and bruises are some of the problems that can happen. Redness, itching, and blocked blood vessels are some of the side effects. The most concerning side effect is vascular occlusion, which could lead to skin necrosis or even blindness in a patient. Some individuals may exhibit a granulomatous foreign body reaction to hyaluronic acid fillers. Hyaluronic acid-based nanomaterials can be employed to prevent and treat bacterial infections.

How it works:

The size of hyaluronic acid is also important because it affects how well it gets through the skin. A recent study looked at how well a topical, low molecular nano-hyaluronic acid works. It found that smaller particles under 500 kDa made wrinkles less deep, added moisture and elasticity around the eye, and absorbed into the skin more easily. Larger molecules over 500 kDa had a harder time getting through the skin barrier. Adding HA to other bacterial molecules might make the antibacterial effects stronger against bacteria that are resistant to drugs.

Women Empowerment in the field of Optometry



Triporna Paul

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“Through the lens of optometry, we bring the world into focus, turning blurred visions into vivid dreams and illuminating the beauty of every detail”

Over the years, women have made major contributions to the discipline of optometry, a vital area of healthcare centered on eye health and vision care. In addition to succeeding as optometrists, women are breaking down barriers, questioning gender conventions, and making the profession more inventive and inclusive as a result of shifting societal dynamics. In addition to highlighting their accomplishments, this article discusses the significance of empowering women in optometry and provides strategies for enhancing their position within the field.

The Growing Presence of Women in Optometry

Like many other healthcare occupations, optometry has historically been dominated by men. But there has been a notable change in recent decades. Today, women represent a significant proportion of optometry students and practitioners globally. For example, the proportion of female students in optometry programs is higher than that of male students in several nations, suggesting a shift in the demographic trend.

This change reflects both the expanding opportunities for women and the increased acknowledgement of their contributions to the field, including their capacity for empathy, meticulousness, and a patient-centered approach. These attributes have made women indispensable in the field of eye care, from clinical practice to leadership positions and scholarly research.

Empowering women in optometry is not just about gender equality; it is also about enhancing the overall quality and reach of eye care services. Women bring unique perspectives and strengths that can benefit patients, institutions, and the profession as a whole. According to research, female healthcare professionals tend to be more patient-centered and empathic, which in optometry results in more thorough consultations, higher patient satisfaction, and better communication with patients.

Multiple points of view have been guaranteed in decision-making processes when there are more women in senior positions in optometry. This diversity can stimulate creativity, enhance workplace regulations, and provide a welcoming atmosphere for all professions. With the increasing prevalence of vision problems worldwide, especially in underserved communities, empowering women to enter and excel in optometry can help bridge the gap in access to quality eye care.

Women have advanced significantly in the field of optometry, and many have found great success in a variety of fields:

Clinical Practice: Women optometrists have built prosperous practices, offering a wide range of patients outstanding treatment.

Research and Innovation: Women are leading the way in vision science research, which is advancing the technology and therapies used in eye care.

Leadership: The future of the profession is being shaped by the large number of women who currently occupy important leadership roles in optometric associations, academic institutions, and business groups.

Community Outreach: Demonstrating their dedication to social responsibility, female optometrists frequently spearhead programs to offer eye care services to impoverished communities.

Techniques to Encourage Women in Optometry People, organizations, and legislators must work together to better empower women in optometry.

Women empowerment in optometry is about more than just increasing the number of female professionals—it is about creating an environment where women can thrive, lead, and innovate. By addressing the challenges, they face and implementing strategies for empowerment, the optometry field can unlock the full potential of its female practitioners. This not only benefits the profession but also enhances the quality and accessibility of eye care for patients worldwide.

As we continue to advocate for gender equality and inclusivity, the future of optometry looks brighter, with empowered women leading the way to a healthier, more equitable world.

To Be or Not to Be: It's All a Matter of Choice



Debasmita Basu

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“Though no one can go back and make a brand-new start, anyone can start now and make a brand-new ending.” – Carl Bard

Every other day we wake up to some unfortunate news of death by suicide among youths, the student population receiving formal or professional training at various institutions across the nation. Death by suicide is the second most cause of death among 15- 19 years of age, according to WHO, 2016. It has been spreading massively across the subpopulation of young college students (Organisation for Economic Co-operation & Development, 2012). Suicidal behaviours in India among college students have seen abrupt rise and it has become a public major health concern. Global rates of depression, anxiety, and stress among students are rising (Dalky and Gharaibeh, 2019). Some of the students may have pre-conditions before entering any college (Auerbach et al., 2016) could also add to the factors leading to despair thoughts as they are in their transition phase from school to higher educational institute may contribute to enough stress (Karyotaki et al., 2019). Psychological problems like academic stress, adjustment issues with the new life can tremendously impact attendance rate, learning outcome, sometimes attrition rate also escalates.



Although suicide is not just a private and personal act (Radhakrishnan and Andrade¹, 2012), it is estimated that more than 700,000 suicides occur every year in across the globe affecting other people in a chain wise manner (WHO, 2023). According to the National Crime Records Bureau (NCRB), a total of 1,64,033 cases were reported in India 2021 marking a rise of 7.2 percent of suicide cases from previous year 2020.

Source: Google Images

Suicide among young students aren't restricted to a single factor rather a complex interaction of multiple aspects like psychological, emotional, environmental, social, academic influence, financial these factors arrests an individual's ability to cope with any stressful situation.

Lack of social support catalyzes the risk of suicide. Hence, social support plays a crucial role as a protective shield against suicide. Social support comprises personal connection that includes emotional, facilitating helpful information, and evaluation support. Emotional support is denoted by empathy, care and companionship provide an important protection against the psychological pain that comes before suicidal thoughts.

Suicidal ideation and behaviours also emphasizes on the subtle influence of friendships or romantic relationships on moulding individual's mental health. Strong friendships acts as a preventive factors against suicide, supportive friends can provide emotional place, a sense of belongingness, a space for open communication which reduces the feelings of isolation and sorrow. In contrast, conflicts within friendships can intensify the risk of suicide.

Source: Interpersonal issues of victims, source-Kerala Youth Commission Report
There is an unfortunate rise of suicide cases among students due to academic pressure which is characterised by cutthroat competition and high hopes can add to high up the stress level among students. Peer pressure and ragging within the educational surroundings may aggravate mental health difficulties leaving a student with a feeling of despair and discomfort.

You're Not Alone: Practical Ways to Support Yourself and Others

Suicide is preventable, everyone has role to play in supporting mental health. The following strategies are awareness, connection, professional help, and self-care.

- Identify triggers- To prevent suicide try understanding what thoughts or experiences negatively impact your mental health. Journaling or tracking your mood can help one to observe the patterns of thought.
- Feelings are temporary- In the moments of psychological pain, it feels like the end of the world. However, even the strongest feelings fade away. To prevent impulsive decisions one needs to learn to sit with discomfort and wait for the storm to get over.

Remind yourself: **"This feeling is real, but it will pass."**

- Get active- Physical activity aids to reduce the symptoms of depression and anxiety. Just a 20-30 minutes of brisk walking, stretching or any movement can improve mood.
- Relax-"Have a break" deliberate breaks reset our excited nervous system. Practicing deep breathing, mindfulness meditation or yoga, indulging oneself into nature may initiate calmness to the nervous system.
- Build a community of support- Having at least one supportive friend or mentor can reduce the feeling of loneliness.
- Opt for psychotherapies- Counselling offers a safe space to process suppressed emotions, learning coping skills, able to gain alternative perspectives. Therapy isn't just for crises, it also enables growth, healing and prevention.

Worried About a Friend? Here's How to Help

Ask: "Are you thinking about suicide?" Although this question is difficult to ask, it can help to initiate a conversation. Asking such question does not increase suicidal thought or behaviour.

Be There and Listen Without Judgement: Just being present is the most powerful thing that one can do. Let that person talk freely, avoid sharing quick solutions or dismissing their concerns or to begin bargaining their pain with your own.

Help Them Keep Safe: If the person shares that they are thinking about suicide, ask if they have a plan and help them remove access to lethal means (e.g., firearms, medications). Keeping the environment safe during a crisis can reduce the risk of impulsive actions.

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Measurement of Full field Peripheral Refraction with multifocal contact lenses for Myopia Control



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Peripheral Refraction and Myopia Control

Peripheral refraction in myopia refers to how the eye focuses light at off-axis angles, or the periphery of the retina, and is increasingly recognized as a key factor in the onset and progression of myopia. Typically, eyes with myopia show relative peripheral hypermetropia (RPH), meaning light focuses in front of the peripheral retina, which is thought to trigger eye elongation and worsen myopia. This phenomenon is a focus of myopia control strategies, where interventions aim to create peripheral myopic defocus, a condition where peripheral light focuses behind the retina, to slow down eye growth.

In our study we have built a model to determine the peripheral optical profile in 360 degree meridian to determine peripheral refraction using present day multifocal contact lenses in emmetropes and myopes.

Measurement of Peripheral Refraction

Peripheral refraction measurement assesses refractive error at locations other than the fovea (centre of the retina) using techniques like modified auto refractors and advanced ray tracing or wavefront sensor-based methods.

Our study was conducted in Grand Seiko WAM 5500 auto refractometer. We built in a MATLAB program to measure peripheral refraction at each point of the target and a consecutive MATLAB program was also developed to extract the data after measurement.

CONSTRUCTION OF TARGET:

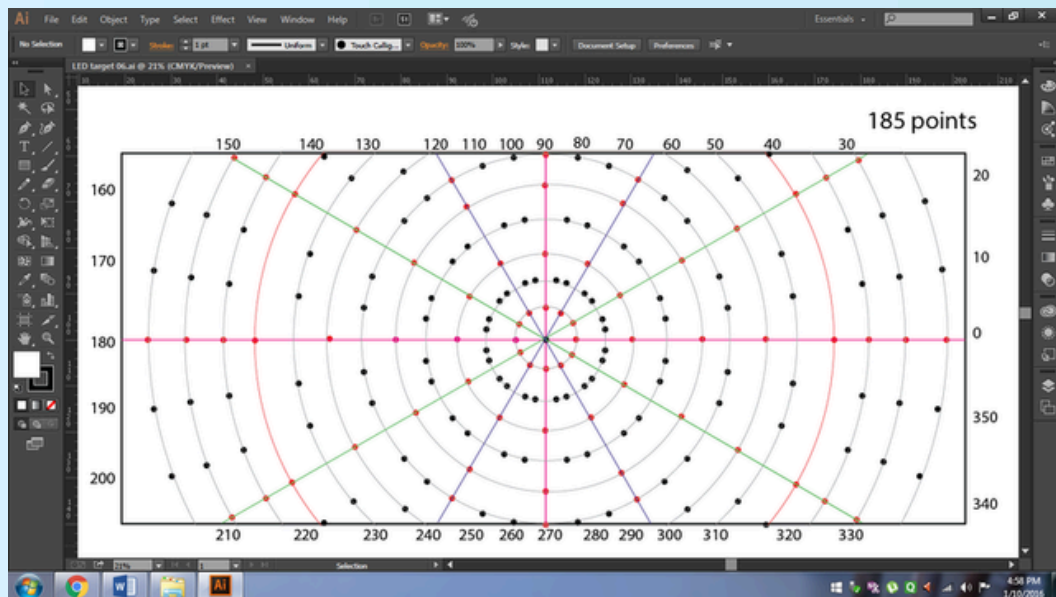
As a complete 360° peripheral refraction was the aim a graphical representation of the target with all the fixation point was constructed before the target was made. All 360° were considered and the smallest step for each eccentricity was decided to be 2.5°. The fixation points were distributed in a symmetrical pattern in both the nasal and temporal half of fixation so as to facilitate comparison during data analysis. The points were spread such that they would cover most of the periphery with no large spaces without a data point.

Some data points near the centre were eliminated to avoid crowding of data points and to reduce the experiment time. The spacing from the centre point shown in was calculated as follows.

$\tan(\theta) \times 150 \text{ cms} = z \text{ (cms)}$, where θ = eccentricity(°) and z = distance from centre (cms).

Eccentricity	Distance from centre in cm
0	0
2.5	6.55
5	13.13
7.5	19.76
10	26.46
12.5	33.27

15	40.21
17.5	47.32
20	54.62
22.5	62.16
25	69.98
27.5	78.12
30	86.64



The target was constructed on a Hard Board measuring 6ft by 4ft. Then all the points were marked on the hard board as per the measured eccentricities in all the 360°.

The measurements were rechecked for error and then a 0.5cm holes were drilled at each point. Next, black cloth was stuck on the boards with glue to maintain a uniform black background on the target.

Then a sequence of light emitting diodes (LED) connected in series was pushed in from behind the 0.5cm holes. There were 4 such sequence of LEDs. The sequences were arranged such that least amount of wiring would be required. All four sequences are mentioned in appendix. After this the board was mounted with hooks and rope on the wall and an electricity source was arranged. The target appeared as shown in Figure 2 when all the sequences are lit up at the same time. Then all the LEDs were covered with black tape.

Each LED was given a unique 6 digit code to be able to identify it. The code was formed as such – the first 3 digits of the six digits was the amount of eccentricity and the next three digits were the axis on which the point lies. For example, if the point was numbered '150060' then 150 would mean 15.0 degree eccentric and 060 would mean the 60° axis. After all the points were labelled with their unique numbers the target construction was completed.

Working of Matlab programme

Two types of readings 1) HI Speed Mode (spherical equivalent readings for 5secs for each point) and 2) Single click mode (sphere, cylinder and axis values a minimum of 3 readings for each point). All the data would get saved as matlab files (.mat).

Then in a prefixed order that is entered into the laptop program the subject fixates on one LED at a time.

The two types of readings are taken and saved on the laptop.

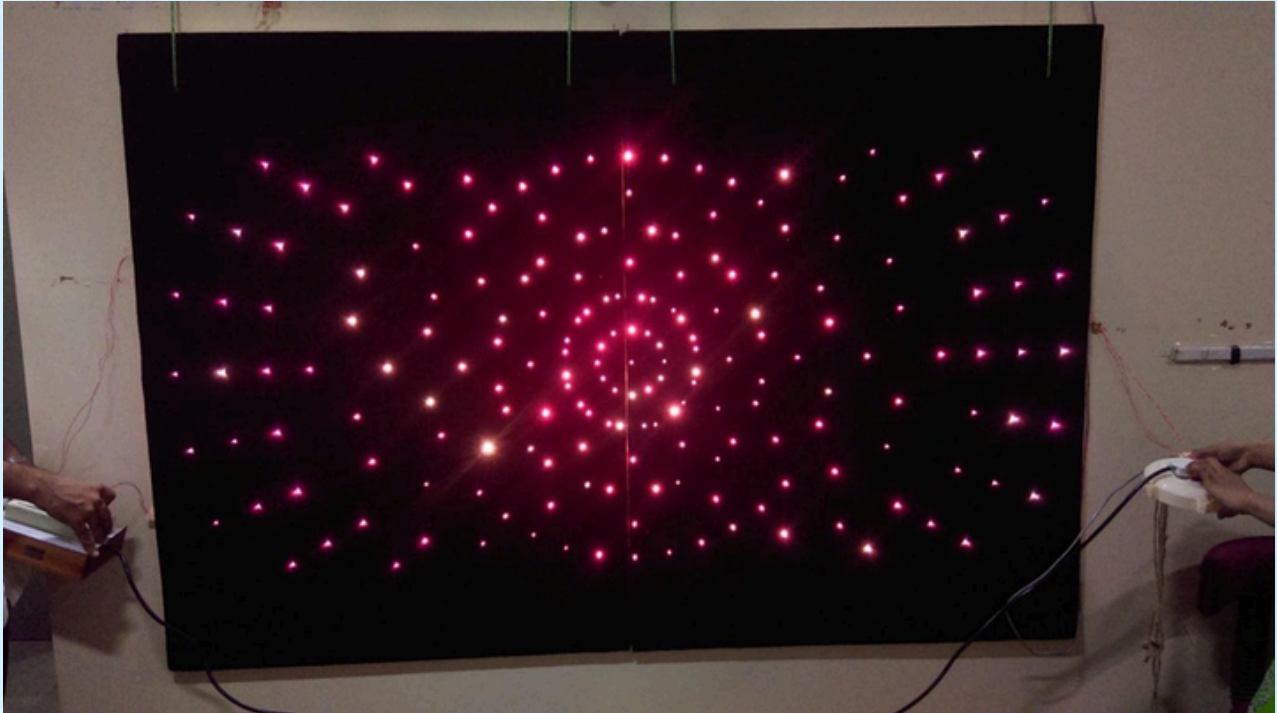
The subject is allowed to take one break when half of the fixation LED's are done.

Post which the alignment procedure is repeated to make sure the centration remains the same.

If, the subject requires more than one break before the end of the procedure the alignment procedure is repeated each time the subject gets back.

At the end of the procedure, when all the 185 points data is collected, all the data is checked and the experiment is concluded.

The information collected is later used to plot 360° peripheral refraction profile of the patient. The target was constructed with precise measurements so as to cause the eye to move with a particular amount of eccentricity when fixating on each point. At each point of fixation is a small 5mm red light emitting diode (LED) which would glow when the subject is asked to fixate. The distance between the subject's eye and the point of fixation was 1.50 meters. As all LED's are covered with black tape except for the one that the subject is asked to fixate on it causes no distraction for the subject while fixating.



Ethical Dimensions of Artificial Intelligence in Radiology: Transformation or Replacement ?



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Where Technology Meets Healing” → “Where Innovation Heals Humanity.”

Artificial Intelligence (AI) has become one of the most transformative forces in healthcare, and radiology is at the center of this revolution. With algorithms now capable of detecting tumors, fractures, and subtle abnormalities faster than ever, the question arises: ***Will AI eventually replace radiologists? Or will it become a powerful partner in patient care?***



The Promise of AI in Radiology

AI tools can:

- Detect abnormalities early – For example, lung nodules or breast lesions that may be missed by the human eye.
- Increase efficiency – Automated workflows help reduce reporting time and radiologists' workload.
- Support in underserved areas – AI-enabled teleradiology can provide quality diagnostics in rural and resource-limited regions.
- Personalized treatment – AI can integrate imaging with genomics (radiogenomics) to design patient-specific therapies.



Clearly, AI is augmenting radiology by improving accuracy and speed, while also addressing the global shortage of radiologists.

Ethical Challenges

Despite its benefits, AI in radiology raises several ethical concerns:

1. Job Replacement Anxiety

Many fear that AI could render radiologists obsolete. However, radiology is not just about image reading—it involves clinical judgment, patient communication, and multidisciplinary decision-making that machines cannot replicate.

2. Bias in Algorithms

AI is only as good as the data it is trained on. If datasets lack diversity, AI may underperform for certain populations, leading to healthcare inequalities.

3. Accountability and Responsibility

If an AI system misdiagnoses a condition, who is responsible—the developer, the hospital, or the radiologist? Defining legal accountability remains a grey area.

4. Data Privacy

Radiology depends on massive imaging datasets. Ensuring patient confidentiality and protecting against misuse of sensitive health data is an ethical priority.

5. Transparency (“Black Box” Problem)

Many AI systems cannot explain how they reach conclusions. Radiologists may struggle to trust AI results without interpretability, making it ethically risky in critical cases.



Human + AI: A Collaborative Future

Instead of replacing radiologists, AI is more likely to transform their role:

Radiologists will shift from image readers to information integrators, combining AI insights with clinical, pathological, and genetic data.

AI will handle repetitive tasks (like screening scans), while radiologists focus on complex cases, research, and patient interaction.

Ethical practice will require radiologists to remain the final decision-makers, ensuring that AI tools enhance rather than dictate patient care.

Justification – Why Radiologists Are Irreplaceable

- 1. Patient Communication** – Machines cannot empathize, explain results, or counsel patients.
- 2. Complex Decision Making** – Many diagnoses require integrating imaging findings with clinical history and lab reports—tasks AI cannot fully perform.
- 3. Ethical Oversight** – Human judgment is essential for balancing risks, especially in life-threatening conditions.
- 4. Continuous Evolution** – Medicine evolves constantly; radiologists adapt faster than fixed AI models.

Conclusion

AI in radiology is not a replacement, but a revolution. It will reduce errors, speed up reporting, and expand access to healthcare. However, ethical challenges such as bias, accountability, and transparency must be addressed. The radiologists of tomorrow will not be replaced by AI—they will be those who embrace AI as a partner to provide smarter, safer, and more personalized patient care.

Creativity



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“Creativity is intelligence having fun.” – Albert Einstein

The example of creativity is selecting the topic ‘Creativity’- is not it? Have you ever thought about the physiology of creativity- I am sure, you don’t. Well, today you will get some idea about it. Creativity can be defined as the production of something that is new and significant (Malach 2024). Creativity is the confluence of ‘novelty or originality’ and ‘usefulness or appropriateness’ (Park et al. 2016). This confluence had made human beings distinctive from other animal species. From the invention of the spacecrafts to the mesmerising creations of Rabindranath Tagore’s writings- all are the examples of unique yet meaningful creation of Homo sapiens.

Key characteristics of Creativity:

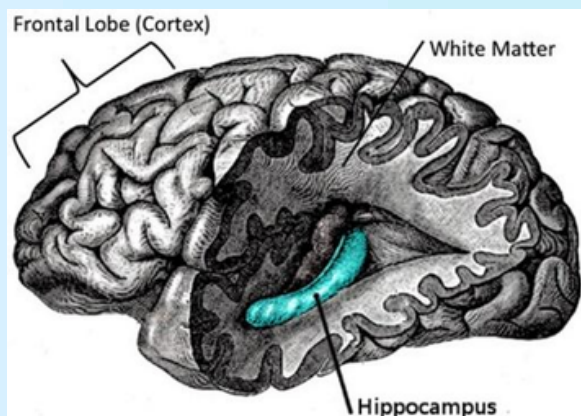
- Novelty
- Diversity
- Spontaneity

Neuroscience of Creativity:

It was discovered from different brain imaging techniques like fMRI, PET, in association with EEG that creativity develops from simultaneous involvement of divergent thinking (reinforcing ‘originality’) and convergent thinking (reinforcing ‘utility’). Both types of thinking are important for creativity as originality or novelty is key factor for it whereas utility ensures the applicability and adaptability of the novel ideas (Park et al. 2016) but as the proxy measurement of creativity the emphasis has been given to divergent thinking (Runco et al. 2010).

Brain regions associated with creativity:

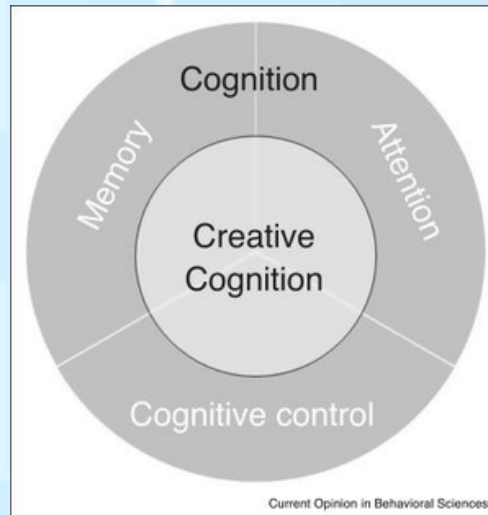
In simple words, creativity is the ability to imagine the future, ability to foresee the experiences that have never occurred earlier (Beaty 2020). Interestingly, the brain area involved in creativity or planning the future is related to our past experiences. Imagination of the future is inseparable from our past experiences. Surprisingly, in both the cases the brain area involved is hippocampus, a seahorse-shaped region present in the temporal lobe of the brain. Default network, a large set of cortical regions of brain, is also involved in the process of recalling the past along with the imagination of future. The large cortical regions involved in this process are medial prefrontal cortex, posterior cingulate cortex, bilateral inferior parietal lobes, and medial temporal lobes. As creativity is connected with the past experience, it has also been found that the brain area involved in episodic memory is also activated during imagination and that region is bilateral hippocampus and left anterior hippocampus.



Role of Cognition in Creativity:

Not surprisingly, like other higher brain functions creativity is also a part of cognition. In addition to default network, our brain has control network and salience network. All these networks work in a complementary fashion i.e. when one network acts the other remains deactivated. Therefore, creativity is a complex cognitive process. The role of dorsolateral prefrontal cortex, associated with cognitive control, was also found to be involved during creativity (Beaty 2020).

Therefore, for being creative we don't need magic. Like other physiological processes, creativity also a creation of human brain. Magic in terms of creativity can be achieved through our thinking, past experiences, memory and ability of our brain to solve any situation in a novel manner. So, be creative and show your magic to the world.



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Home Health Care - A Revolutionary Emerging Trend in Health Care



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“Home Home Sweet Home “

It is the best place in the world as we all consider especially when we are compelled to stay beyond our home boundary for long days leaving our known and comfortable environments.

Home Health Care (HHC) is basically a wide range health and supportive services provided at a patient's home. HHC is for the patients who require medical aids and personal support but they wish to stay in the comfort and warmth of their homes instead of hospital facilities. The chief concept of HHC is to sum up medical-care with the facility of a familiar environment. It ensures that patients get safe and secured care with full level of comparability.



HHC as an Emerging Trend:

Over the years, changing lifestyles, increased life expectancy, and the rise in chronic diseases have turned the HHC an important trend in healthcare delivery System. Earlier, medical treatment was solely confined to hospital boundary. But with the advancements in technology, availability of trained caregivers, and shifting of patient preferences, more care can now be provided at home at ease. Tel-medicine, portable diagnostic devices like X-ray, Pulse oximeter, Holter monitoring and improved nursing standards have further propelled this evolution, particularly after the COVID-19 pandemic. After that HHC has gained Global acceptance as a safe, cost-effective, and patient-friendly alternative

Types of Home Health Care

HHC services are diverse and tailored to patient needs. They include:

Skilled Nursing Care – wound dressing, injections, IV therapy, and monitoring of chronic illnesses.

Rehabilitation Services – physical, occupational, and speech therapy at home.

Personal Care Assistance – help with daily activities like bathing, eating, or mobility.

Palliative and Hospice Care – emotional and medical support for terminally ill patients.

Companionship Services – non-medical support to reduce loneliness and enhance quality of life.

Popularity and the Brighter Side:

HHC has become increasingly popular because it aligns with the desire of patients to recover in a familiar environment. Families find it less stressful, while patients feel more comfortable and secure. The major benefits include:

Cost efficiency as compared to prolonged hospital stays.

Personalized care tailored to the individual's needs.

Emotional comfort from being with family and loved ones.

Reduced risk of hospital-acquired infections.

The Darker Side:

Despite its advantages, HHC also has certain limitations. The quality of care may vary depending on the skill of caregivers. In emergencies, the absence of immediate medical infrastructure can pose risks. Families may also bear caregiver stress, as continuous supervision requires time and emotional strength. Moreover, some advanced medical procedures still demand hospital facilities, making HHC an incomplete substitute for Hospital care.

Home health care has emerged as a vital component of modern healthcare delivery. It reflects a shift towards patient-centered care, emphasizing comfort, dignity, and affordability. Though it cannot entirely replace hospitals' facility, but its role in managing chronic illnesses, elderly care, and post-hospital recovery is invaluable. With proper regulation, training, and technology integration, the brighter side of HHC can outweigh its limitations, making it a most promising aspect for the future of healthcare.

Health Insurance: Creating a Bridge to Quality Medical and Patient Service



Vivek Kumar

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In today's fast-paced world, access to quality healthcare is not merely a necessity—it is a fundamental right. However, the rising costs of medical treatment often create a barrier between patients and the care they deserve. Health insurance plays a vital role in bridging this gap by ensuring financial security, promoting timely medical intervention, and fostering overall health equity. It serves as a powerful link between individuals, healthcare providers, and the essential services needed for a healthier life.

Financial Protection and Accessibility

One of the most significant advantages of health insurance is its ability to shield individuals and families from the financial burden of unexpected medical expenses. In the absence of insurance, even a single hospital admission can strain household savings or push families into debt. By covering a substantial portion of medical costs—including hospitalisation, diagnostic tests, surgeries, and prescribed medications—health insurance reduces out-of-pocket expenditure. This financial safety net encourages people to seek medical help promptly rather than delaying treatment due to cost concerns.

Encouraging Preventive and Timely Care

Health insurance not only supports treatment for existing conditions but also encourages preventive care. Many policies cover routine check-ups, vaccinations, and screenings at little or no additional cost. Such preventive services help detect health issues early, allowing for timely management before they escalate into severe or chronic conditions. This approach not only improves patient outcomes but also reduces the long-term burden on healthcare systems.

Enhancing Quality of Care

With the assurance of health insurance coverage, patients can access a wider network of hospitals, clinics, and specialist services. Insurance companies often partner with accredited healthcare facilities that meet certain quality standards, ensuring patients receive safe and effective treatment. Additionally, insured patients tend to opt for higher-quality facilities and advanced treatment options without the fear of financial strain, thereby raising the overall standard of care they receive.

Promoting Equity in Healthcare

Health insurance also plays a pivotal role in reducing disparities in healthcare access. In countries where government-subsidised insurance or social health schemes are available, low-income groups can obtain essential medical services at minimal or no cost. This inclusive approach ensures that quality healthcare is not reserved only for the wealthy but is accessible to all segments of society, thus promoting fairness and social welfare.

Supporting Patient-Centric Services

In the modern healthcare ecosystem, the patient experience is as important as clinical outcomes. Health insurance facilitates smooth administrative processes such as cashless hospitalisation, direct billing, and coordinated care management. This reduces stress for patients and their families, allowing them to focus on recovery rather than paperwork or payment concerns. Furthermore, insurance-backed telemedicine services, wellness programs, and chronic disease management plans empower patients to actively participate in their health journey.

Relieving Knee Pain with Genicular Artery Embolization (GAE)



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What is GAE?

Knee osteoarthritis is a common and debilitating condition that affects millions worldwide, causing chronic pain, stiffness, and limited mobility. Traditional treatments often focus on managing symptoms, but a minimally invasive procedure called Genicular Artery Embolization (GAE) offers new hope for those seeking lasting relief. With a success rate of 70-90% and high reliability in modern treatment, GAE is gaining recognition as an effective solution for knee osteoarthritis pain.

GAE is a cutting-edge procedure performed by an interventional radiologist using image guidance. In this procedure that blocks abnormal blood flow to the knee joint, reducing inflammation and pain. It's performed by an interventional radiologist using image guidance and involves inserting a catheter into the femoral artery in the groin area. Recent studies have shown promising results, with patients experiencing significant pain relief and improved mobility.

Benefits of GAE:

- **Significant Pain Relief:** Studies show 70-90% success rate in reducing pain and improving mobility.
- **Quick Recovery:** Patients can resume normal activities within days, with some experiencing relief within three days.
- **Long-term Benefits:** Benefits can last up to 1-3 years, with some patients experiencing over 50% reduction in pain scores.
- **Minimally Invasive:** No surgery or extended downtime is required.

Potential Drawbacks:

- **Minor Complications:** Temporary side effects like erythema (11% of patients) and puncture-site hematoma (10-17% of patients) can occur.
- **Variable Results:** Individual responses may vary, and some patients may not experience significant benefits.
- **Limited Long-term Data:** More research is needed to determine GAE's long-term efficacy

Is GAE Right for You?

GAE is suitable for individuals aged 40-80 years with moderate to severe knee pain from osteoarthritis who have not found relief through conservative treatments. Ideal candidates experience knee pain with a Visual Analog Scale (VAS) score greater than 3.

Conclusion:

A study published in the Journal of Vascular and Interventional Radiology found a success rate of 90% at 3 months, 83% at 6 months, and 80% at 12 months.

GAE offers a promising solution for knee osteoarthritis patients seeking relief from chronic pain. While it's not without potential drawbacks, the benefits of significant pain relief, quick recovery, and long-term benefits make it an attractive option. Consult with a healthcare professional to determine if GAE is right for you.

Silent Crisis of Young India: Sudden Cardiac Arrest on the Rise

Sensational Truth: Cardiac Arrest Isn't Limited to the Aged



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School of Health Sciences, The Neotia University

Why this is important

Incidents of youngsters—usually seemingly healthy—young people suddenly collapsing due to sudden cardiac arrest (SCA) have shaken families, colleges, and workplaces in India. It takes separating signal from noise to examine India-specific data gathered after the pandemic.

What Indian studies now say (2023–2025)

- No literature is available to support that COVID-19 vaccination contributes to sudden deaths in young adults. India's largest multicentric, case–control study (ICMR, 47 hospitals; 729 cases vs 2,916 matched controls, 18–45 years) reported no positive correlation between vaccination and "unexplained sudden death"; two doses of vaccine were associated with reduced odds of unexplained sudden death in adjusted models (aOR ≈ 0.51). Risk increased with COVID-19 hospitalization, family history of sudden death, binge drinking in the last 48 hours, use of recreational drugs, current smoking, and vigorous-intensity activity in the last 48 hours. Lippincott Journals
- Government/agency affirmations (2025). The Union Health Ministry relayed extensive ICMR/AIIMS reports: vaccines are not associated with sudden fatalities among youths; focus should be on modifiable risk factors and post-infection complications. Press Information Bureau, The Times of India, The Indian Express, Hindustan Times
- Burden and survival context- India's out-of-hospital cardiac arrest (OHCA) survival is still $<10\%$ on average—similar to most low- and middle-income settings—largely because of low bystander CPR/AED and disintegrated emergency systems. India does not have a single national OHCA registry, but multi-centre registries and reviews estimate very low bystander CPR and survival-to-discharge usually less than $\sim 10\text{--}14\%$. PMCJAPI Science Direct

How common is sudden cardiac arrest in the young?

Global epidemiology puts SCA/SCD in young people at about <1–10 per 100,000 per year (lower than in older people), caused by arrhythmias, cardiomyopathies, myocarditis, and concealed coronary disease. India-specific population-level incidence data for 18–40 are lacking as yet, highlighting the necessity of registries. PMC Lippincott Journals

Why are young Indians at risk?

Aside from uncommon genetic heart conditions, India has a rapidly increasing cardio-metabolic risk profile among individuals below 45yrs of age.

- Hypertension & metabolic disease: Recent national data and reviews indicate ~20–25% adult prevalence of hypertension, with significant burden in 15–49 years; urban youth populations have high rates of obesity, increased waist circumference, and early-onset hypertension. SSPH+BioMed Central, The Times of India
- Diabetes/prediabetes: ICMR-INDIAB study (The Lancet, 2023) estimated higher-than-anticipated prevalence of diabetes and other metabolic NCDs among states—diseases that promote early atherosclerosis. The Lancet+1
- Tobacco & drugs: Tobacco (smoked and smokeless) was still prevalent, and binge alcohol and recreational drugs were separate risk factors in the ICMR sudden-death study. PMC Lippincott Journals
- Post-COVID disease: Prior history of COVID-19 hospitalization (a surrogate for severe illness) had ~4× greater odds of unexplained sudden death among the young. Lippincott Journals

Patterns observed in collapses

- On or shortly following exertion: The ICMR investigation discovered strenuous exercise within 48 hours associated with increased risk of unexplained sudden death. Severe, unfamiliar exercise—particularly combined with dehydration or alcohol bingeing—is common to many accounts. Lippincott Journals
- Male predominance: Both global athlete/youth SCA registries (the majority) and Indian hospital/registry snapshots reflect a predominance of males. tctmd.com, PMC

Now, what should India do?

1) Reduce the immediate risk in populations

- Make CPR a life skill. Make hands-only CPR compulsory in schools/colleges and for driver's licences; guarantee dispatch-assisted CPR through 112/108. Bystander CPR is the one fastest lever to enhance survival.
- Place AEDs where individuals congregate. Install and locate automated external defibrillators (AEDs) in campuses, gyms, shopping malls, metros, and large offices; train staff for use. Early defibrillation is determinant.
- Develop an Indian OHCA registry. A de-duplicated national registry (prehospital + hospital) is necessary to monitor youth SCA incidence, bystander response, response time, and outcome, and to inform investment targeting. Science Direct

2) Address modifiable causes in the 18–40 age group

- Yearly screening from college age onwards: BP, BMI/waist, fasting glucose or HbA1c, fasting lipid profile; move to ECG/echo only if prompted by symptoms, abnormal examination, or red flags (below). The Lancet
- No binge + no "hero workouts." Avoid binge drinking and severe, unfamiliar exertion—particularly within 24–48 hours of alcohol or illness. Lippincott Journals
- Quit tobacco in all its forms; touch base with recreational drugs; work on sleep, stress, and quality of diet.

3) Identify individuals who require more extensive cardiac assessment

Refer for medical assessment (and cardiology referral consideration) if any of these are present:

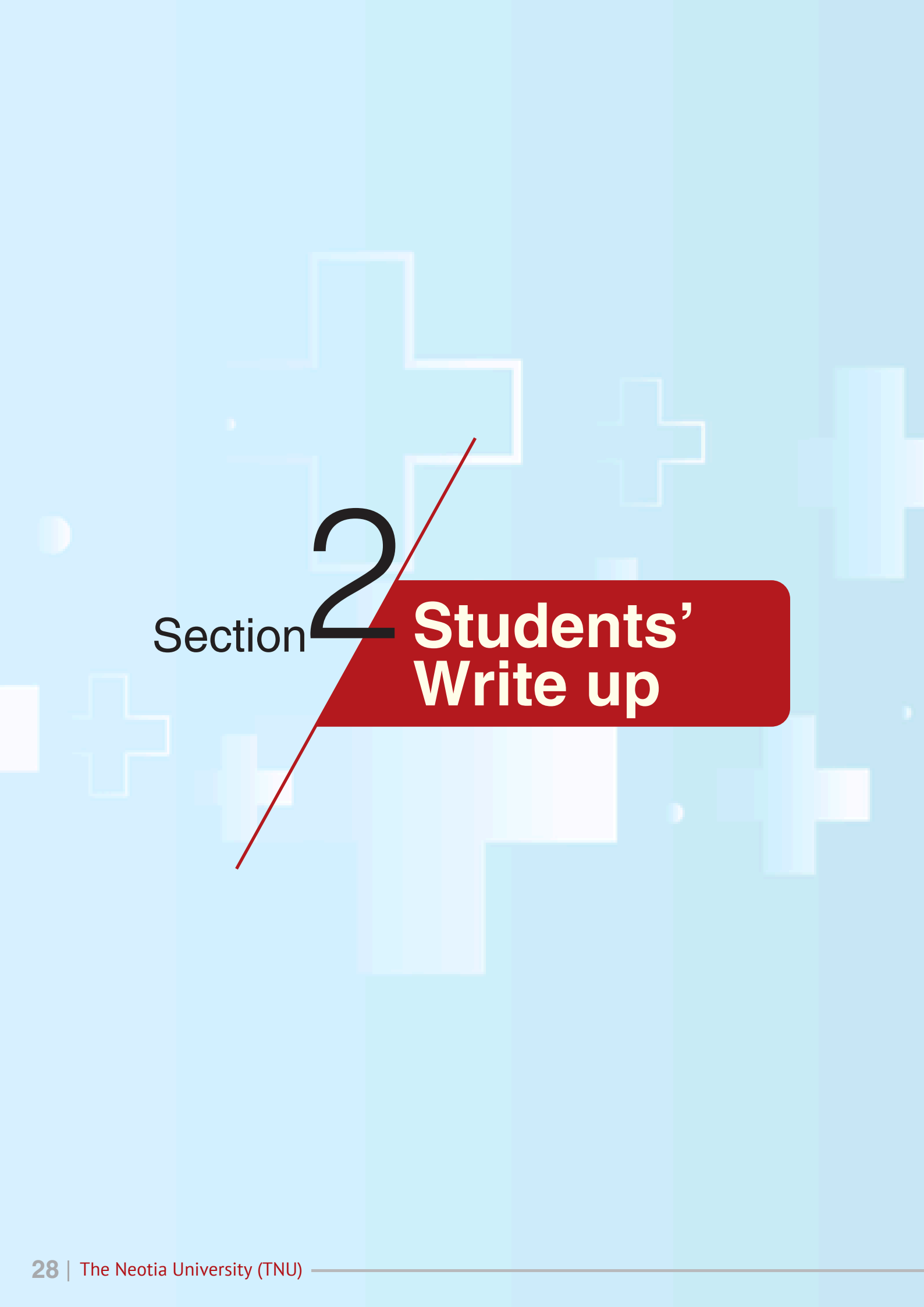
- Exertional syncope, chest pain, or unexplained palpitations
- Family history of sudden death or cardiomyopathy/arrhythmia
- Residual cardiopulmonary post-COVID symptoms (particularly following hospitalization)
- Established hypertension, diabetes, elevated LDL, or obesity at a young age

These are exactly the profiles enriched in India's 2023–2025 analyses. Lippincott Journals

Bottom line

In 2025, the optimal Indian evidence shows that cases of cardiac arrest among young individuals are true but rare, fueled most by modifiable risk factors (tobacco, binge drinking, vigorous unaccustomed activity), severe previous COVID-19, family history, and increasing cardio-metabolic risk—not by vaccination. The most effective measures currently are universal CPR + AED preparedness, regular youth screening, and focused assessment of red-flag symptoms.

- Sources (key, India-specific & up-to-date)
- ICMR multicentric case–control study on unexplained sudden deaths, 18–45 years (2023): design, results and risk factors. Lippincott Journals
- Government of India / PIB summary of ICMR–AIIMS findings (2025). Press Information Bureau
- Press and explainer coverage of the same conclusion (2025). The Times of India, The Indian Express, Hindustan Times
- OHCA survival and systems context in India (2023–2025). PMCJAPI Science Direct
- Global SCD/SCA incidence in youth, causal spectrum. PMC
- Increasing cardio-metabolic risk in young Indians (hypertension, obesity, diabetes). SSPH+The Times of India, The Lancet



Section 2 Students' Write up

UNNECESSARY C-SECTION, A MEDICAL DISASTER

-by Arunava Das, BOTAT, 1st semester

A caesarean section, commonly known as a C-section, is a surgical procedure used to deliver a baby through incisions made in the mother's abdomen and uterus. While it is a life-saving surgery in high-risk pregnancies or delivery complications, many doctors advise mothers to have C-sections without a valid reason, sometimes for extra commission. Many patients also choose C-sections out of fear of labour pain or due to pressure from healthcare providers.

Mainly, C-sections are scheduled in situations like obstructed labour, fetal distress, and placenta previa. In these cases, a C-section can prevent severe complications or even death. However, in recent years, many C-sections have been performed without these medical justifications. In some countries, especially in private hospitals, C-section rates have increased to over 50%, far exceeding the WHO's recommended rates of 10% to 15%. This overuse is often linked to hospital policies, scheduling convenience, financial incentives, and maternal requests based on fear or misinformation.

Unnecessary C-sections carry several risks for both the mother and baby. For the mother, they increase the chances of infection, surgical complications, blood clots, and longer recovery times compared to vaginal birth. For babies, they may cause breathing problems, delayed initiation of breastfeeding, reduced immunity, and a higher risk of chronic conditions such as asthma and obesity later in life. Overuse of C-section becomes a burden on the healthcare system. Many operating rooms, surgical teams, and hospital beds are unnecessarily occupied for these unnecessary surgeries, diverting care from patients who genuinely need surgical intervention. It also leads to higher healthcare costs, which can strain both public health budgets and families. To reduce unnecessary C-sections, first, pregnant women should be made aware of the risks and benefits of C-sections and natural vaginal birth. Healthcare providers should follow evidence-based guidelines and promote vaginal birth when safe. The government should monitor C-section rates and set policies that discourage unnecessary surgeries. Providing labour support, access to midwives, and pain management options can also help reduce fear and support natural births. In conclusion, I request health providers and mothers to avoid unnecessary C-sections to help create a healthy generation and provide proper healthcare at the proper time to those in need.

“BE FIELDY BE HEALTHY”

-by Jivesh Kumar, MHM, 3 Semester

Physical activity refers to all movement, including sports, cycling, wheeling, walking, active recreation and play. It can be done at any level of skill and for enjoyment by everybody. As we know “exercise is medicine”, Regular physical activity improves health and prevent diseases.

physical activity Can Help With Weight Loss, Good for Your Bones and Muscles, Improve Your Memory and Brain Health, Helps With Relaxation and Improved Sleep Quality
Regular physical activity helps prevent and treat non-communicable diseases (NCDs) such as heart disease, stroke, diabetes and breast and colon cancer. It also helps prevent hypertension, overweight and obesity and can improve mental health, quality of life and well-being. Do with passion which have no side effects.

Positive effects from physical activity are achieved primarily through physical activity, but secondary effects bring health benefits such as psychosocial and personal development and less alcohol consumption.

Without regular activity, your body slowly loses its strength, stamina and ability to function properly. It's like the old saying: You don't stop moving from growing old; you grow old from stopping moving.

Aim to do at least 30 minutes of physical activity every day. See everyday activities as a good opportunity to be active.

The goal of WHO is to target globally to reduce levels of physical inactivity in adults and adolescents is a 10% relative reduction by 2025 and 15% by 2030, from the 2010 baseline.

Regular physical activity promotes growth and development and has multiple benefits for physical, mental, and psychosocial health that undoubtedly contribute to learning.

In order to live life healthily, it is essential to exercise for mental and physical development. Thus, exercise is important for the overall growth of a person. It is essential to maintain a balance between work, rest and activities. So, make sure to exercise daily.

BELLS PALSY: THE SILENT FACIAL PARALYSIS

-by Kartick Kumar Mondal, BOTAT, 5th Semester

Bell's palsy is an unforeseen, temporary weakness or paralysis of facial muscle, generally affecting one side of the face. The complaint is named after the Scottish anatomist Sir Charles Bell, who first described its connection with facial nerve cell damage. This complaint occurs due to the inflammation or compression of seventh (vii) cranial nerve, known as facial nerve.

Causes

Cause of Bell's Palsy is not fully understood but it happens due to inflammation or swelling of the facial nerve. Possible cause and risk factor of Bell's Palsy are –

- Viral Infections: Varicella-zoster virus, Herpes simplex virus
 - Immune Reaction: due to infection the body's own immune system attack the nerve
 - Reduced Blood Supply: nerve muscle swelling can cause reduction in blood supply.
- Some of the risk factor may include Diabetes, Hypertension, High BP, stroke etc.

Sign and Symptoms

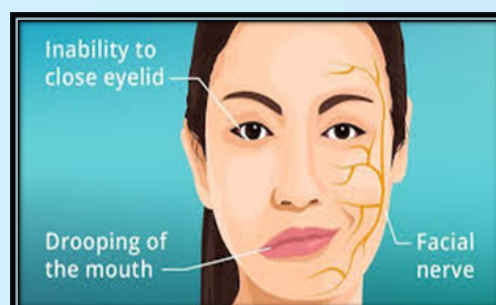
This disease is developed suddenly often within 24-48 hours. The main symptoms are muscle weakness or paralysis on one side of face. The common sign and symptoms are-

- Facial drooping
- Inability to close eye
- Drooping mouth
- Ear pain and discomfort
- Headache

Treatment and Management

The main goal of the treatment is reducing inflammation or compression of the facial nerve. Most patient recover within 3-6 month especially within early care. There is various method to treat and manage the disease such as –

1. Use medication: -
 - Use Antiviral drug – Acyclovir, Valacyclovir
 - Pain relievers – Paracetamol, Ibuprofen
 - Anti-inflammatory medication - Prednisolone, Dexamethasone
2. Eye care: -
 - Protect the eye from dryness, irritation etc.
3. Physiotherapy and Exercise: -
 - manage therapy may improve blood circulation.
 - Facial muscle exercise help maintain muscle tone.



THE IMPORTANCE OF OPTOMETRY IN LIFE

-by ¹Anushka kanthal,²Jenifa khatun,³Sneha de, BOPTOM, 3rd Semester

Optometry is more than just a profession focused on vision; it plays a crucial role in enhancing the quality of life for individuals of all ages. As primary health care providers for the eyes, optometrists not only diagnose and treat various eye conditions but also promote overall health and well-being through vision care.

Vision and Daily Life

Vision is integral to nearly every aspect of our lives. It affects how we interact with the world, from simple tasks like reading and driving to complex activities such as sports and art. Clear vision contributes significantly to our quality of life, impacting our ability to work, socialize, and engage in hobbies. When our eyesight falters, it can lead to frustration, decreased productivity, and even safety concerns.

Optometrists are trained to identify issues before they escalate. Regular eye exams can detect early signs of conditions like glaucoma, cataracts, and macular degeneration, often before symptoms manifest. Early intervention is critical, as many eye diseases can lead to irreversible vision loss if left untreated.

Holistic Health Approach

Optometry is intrinsically linked to overall health. Eye exams often reveal symptoms of systemic health issues such as diabetes, hypertension, and autoimmune disorders. By examining the eyes, optometrists can provide vital information to patients and their primary care physicians, facilitating early diagnosis and treatment of these serious conditions.

Moreover, maintaining good vision is essential for mental health. Vision problems can lead to feelings of isolation and depression, particularly in older adults. Ensuring that individuals can see well enhances their ability to connect with others, participate in activities, and enjoy life, which is vital for emotional well-being.

Pediatric Vision Care

Children's vision plays a fundamental role in their development. Poor eyesight can hinder academic performance and social interaction. Optometrists emphasize the importance of regular eye examinations for children, especially as they begin school. Many learning difficulties can be traced back to undiagnosed vision issues. By addressing these problems early, optometrists help ensure that children have the best possible foundation for success in their educational journeys.

The Role of Technology

Advancements in technology have revolutionized optometry, enhancing diagnostic accuracy and treatment options. Instruments such as digital retinal cameras and optical coherence tomography allow for detailed imaging of the eye, enabling optometrists to identify problems with remarkable precision. Furthermore, innovations in corrective lenses and contact lenses have significantly improved the quality of vision correction.

Tele-optometry has also emerged as a valuable resource, especially in underserved areas. Virtual consultations enable patients to receive eye care remotely, broadening access to essential services.

Conclusion

Optometry is a vital component of health care that transcends mere vision correction. By focusing on prevention, education, and holistic health, optometrists empower individuals to live fuller, healthier lives. Regular eye examinations are crucial not only for maintaining vision but also for safeguarding overall health. As we continue to recognize the importance of eye care, it becomes clear that optometry is not just about seeing well—it's about living well. Prioritizing eye health can lead to a lifetime of better vision and a higher quality of life for all.

THE IMPORTANCE OF VISION IN LIFE

-by ¹JARJIS ALAM, ²TUSAR HOSSAIN, ³WAHEDUL ISLAM, ⁴MINHAJUL, ⁵MURSEDUL AMIN
BOPTOM, 3rd Semester

Vision is often seen as the ability to see with our eyes, but it encompasses much more than that. In the broader sense, vision refers to the capacity to foresee and plan for the future. It acts as a guiding light, shaping our goals, aspirations, and actions. Understanding the importance of vision in life can lead to a more fulfilling and purpose-driven existence.

The Foundation of Goals

At the heart of any successful endeavor lies a clear vision. Whether in personal life, career, or relationships, having a well-defined vision helps individuals set meaningful goals. These goals provide direction and motivation, turning abstract dreams into tangible objectives. For instance, a student with a vision of becoming a doctor will be more likely to dedicate time to studying, volunteering, and gaining relevant experience. Without this vision, one might drift aimlessly, lacking the motivation to pursue excellence.

Fostering Resilience

Life is filled with challenges, and a strong vision can help us navigate these obstacles. When faced with adversity, having a clear sense of purpose allows us to maintain focus and resilience. For example, an entrepreneur might encounter setbacks in their business, but a strong vision of what their company can become will drive them to adapt and persevere. This resilience not only fosters personal growth but also inspires those around us.

Inspiring Others

A compelling vision can also have a profound impact on others. Leaders, in particular, must possess a vision that resonates with their team. When people understand and believe in a shared vision, they are more likely to work collaboratively towards achieving it. This sense of unity creates a positive environment, boosting morale and enhancing productivity. Think of visionary leaders like Martin Luther King Jr. or Nelson Mandela; their ability to articulate a clear and inspiring vision rallied countless individuals to work towards significant social change.

Personal Fulfillment

Moreover, having a vision contributes significantly to personal fulfillment. When we align our daily actions with our long-term goals, we experience a sense of satisfaction and purpose. This alignment fosters well-being and happiness, as we feel we are making progress toward something meaningful. Engaging in activities that resonate with our vision enhances our quality of life, making each day feel valuable.

Cultivating a Growth Mindset

A clear vision also encourages a growth mindset. When we visualize our future, we recognize the potential for growth and development. This mindset fosters curiosity, encouraging us to learn, explore, and adapt. For instance, someone who envisions a life of continuous learning will seek opportunities for education and self-improvement, embracing challenges as stepping stones rather than obstacles.

Conclusion

In conclusion, vision is a critical component of a meaningful and successful life. It provides the foundation for setting goals, fosters resilience in the face of challenges, inspires others, enhances personal fulfillment, and cultivates a growth mindset. Whether in our personal or professional lives, nurturing a clear vision can transform our experiences, guiding us toward a brighter future.

EPIGENETICS: THE DESTINY BEYOND DNA

-by Dipsikha Dey, BOTAT, 3rd Semester

It's true that all the female honeybees have the same DNA but why only one honeybee becomes the queen, while other bees become workers? This is because only the larva fed with royal jelly has its genes 'switch ON' in the way that makes her a queen. This phenomenon is called 'Epigenetics' – the study of how genes are turned ON/OFF without changing DNA sequence. Epigenetics matters because lifestyle affects our risk of diseases.



What is Epigenetics?

Epigenetics comes from two Greek words 'Epi', which means 'Outside of' and "Genetics", which means 'genes'. Epigenetics is the study of how our environment affects our genes by changing the chemicals attaching to them. Our food, exercise, and lifestyle can switch genes ON or OFF affecting our health. This occurrence helps scientists find new diseases as well as their treatments. We can understand it as if DNA is a whole cookbook, then epigenetics decides which recipes will be cooked.

How Does It Work?

It works like small switches that control our genes. There are a few ways discussed:

1. DNA methylation: Tiny chemical tags attached to DNA, which can switch certain genes OFF.
2. Histone Modification: DNA is wrapped around histone (protein).
If the wrapping becomes tight Genes turn OFF.
If the wrapping is loose Genes turn On.
3. Non-coding RNA: It acts like 'extra managers', helping to turn genes ON or OFF when needed.

Epigenetics in our Daily Life

Our daily habits highly affect gene activity- through Epigenetics.

- ✓ A healthy diet switches ON genes that guard against diseases.
- ✓ Exercise turns ON genes that boost energy.
- ✓ Proper sleep can help to maintain balance in gene function.

The 'identical twins' are a clear example:

Although they have the same DNA, overtime, their different lifestyles make them look and even age differently, due to epigenetic changes.

Epigenetics & Diseases

In health conditions, epigenetics plays a major role.

- In Cancer ☐ Tumor suppressor genes get switched OFF, letting abnormal cells grow.
- In Diabetes ☐ Poor diet and inactivity cause harmful changes that disturb metabolism.
- Long-term stress ☐ It alters gene activity linked to mood and brain function, affecting mental health.
- Even aging is influenced by epigenetics, as chemical marks slowly build up and change how genes work.

Future of Epigenetics

For the future, Epigenetics holds great promise with new medicines to treat diseases, personalized medicine based on a person's gene activity and research in anti-aging. This aims to slow aging and health improvement by reversing harmful changes in genes.

Conclusion

Epigenetics shows that we born with which DNA, is not our destiny. Our lifestyle and environment can affect positively or negatively the way our genes work. By following a better lifestyle today, we can shape our healthier future.

POEM: SIGNIFICANCE OF OPTOMETRIST

-by ¹Nafisa Afroz, ²Sadiya Khan, ³Rumana Reja Sultana.

Through windows clear, A world you see,
But of the view is blurred, unclear,
An optometrist will set you free, with lens
and light, The path made sheer.

In darkened room, the letters stand,
A chart that holds your vision key.
With steady hand, they understand,
and bend the light so you can see.

The frame they choose, A perfect fit,
Restores the world in vivid hue,
With science, Art and patient wit,
They give you a sight, A world new.

Through every lens, they find the way,
To clarity night and day,
For optometry is more than sight it's
seeing life with perfect light

IMPACT OF LIFESTYLE ON HEALTH

-by Shagufta Parween, BPT, 3rd Semester

Health is a state of complete physical mental and social well-being. It's not only the absence of disease. A person is said to be healthy when he/she is free of any type of disease (infectious/deficiency) when he/she is mentally happy and healthy, and when his/her social relationships are healthy in society.

According to people's health, there can be two types of lifestyles: Healthy lifestyle and Unhealthy lifestyle. Good nutrition, daily exercise and adequate sleep are the 3 basic foundations of a healthy lifestyle, which keeps a person energetic, fit and at a reduced risk of developing disease. Not only this, lifestyle has a significant influence on physical, mental and social well-being of humans. Lots of people nowadays have an unhealthy lifestyle, because of which they encounter illness, disability and sometimes even death.

There are several problems such as metabolic diseases, being overweight, joint and skeletal problems, cardio-vascular diseases, hypertension, violence, that is attributable to an unhealthy lifestyle. There are many harmful routines that need to be broken: eating junk food, skipping workouts, sleeping too little or too much, dealing with stress improperly, and engaging in toxic social activities.

Unhealthy lifestyles can be caused by a number of factors, including

Diet: Poor nutrition, like eating too much or too little, or eating too much fat, sugar, or salt.

Exercise: Not getting enough physical activity or being too sedentary.

Sleep: Not getting enough sleep or having erratic sleep patterns.

Substance use: Smoking, heavy drinking, binge drinking, or misusing substances.

Stress: Stress can lead to unhealthy lifestyle choices, like not exercising enough.

Diseases Caused by Unhealthy Lifestyle:

- Heart diseases that arise from damage to heart muscle or blood vessels also affect a good number of Indians. These problems can be linked to a lack of activity, smoking, high cholesterol and diabetes too. Reports show that 26% of deaths in the country can be attributed to this cause.
- One of the diseases that is not often thought of as a lifestyle disease is cancer. However, many cosmetics and household products may be carcinogenic and constant exposure to these can increase the risk of cancer.
- Mental health diseases have been on the rise especially during and post COVID. Lack of social interactions, being cooped up indoors for months at end, drastic changes in life, loss of near and dear ones- the list is endless when we think of why these ailments are increasing across India.

Prevention Of Lifestyle Diseases

- Track and maintain healthy weight.
- Focus on nutritious food.
- Stay active both mentally and physically.
- Avoid smoking, drinking, drugs.
- Go for regular preventive screening.

Some Tips to Maintain Healthy Lifestyle are

- Be physically active for 30 minutes most days of the week. Break this up into three 10-minute sessions when pressed for time. Healthy movement may include walking, sports, dancing, yoga or running.
- Eat a well-balanced, low-fat diet with lots of fruits, vegetables, and whole grains.
- Don't smoke, and quit if you do. Ask your health care provider for help.
- Help prevent sexually transmitted infections (STIs) and HIV/AIDS by using condoms every time you have sexual contact. Keep in mind, condoms are not 100 percent foolproof, so discuss STI screening with your provider.
- Brush your teeth after meals with a soft or medium bristled toothbrush. Also brush after drinking, before going to bed. Use dental floss daily.

A healthy lifestyle can help you thrive as you move through your life's journey. Making healthy choices isn't always easy – it can be hard to find the time and energy to exercise regularly or prepare healthy meals. However, your efforts will pay off in many ways, and for the rest of your life. It is said that it is easy to learn and maintain bad habits but it is very difficult to switch them back. The issue of a healthy lifestyle is very serious but the people take it very lightly. Often, it is seen that the people take steps to improve their lifestyle but due to lack of determination quits in the midway. For keeping your body and mind healthy you have to follow certain rules that will help you achieve your goal. Besides, there are certain measures that will help you to stay healthy. First of all, for being healthy you have to plan and follow a strict diet. This diet should contain all the essential minerals and vitamins required by the body. Also, eat only healthy food and avoid junk and heavily carbohydrate and fatty food.

In addition, wake up early in the morning because first of all, it's a healthy habit. Secondly, waking up early means you can get ready for your work early, spend some quality time with your family. Besides, this decides time for your sleep and sleep early because it de-stresses body.

Doing exercise regularly makes your body more active and it also releases the pent-up stress from the muscles.

Avoid the mobile- the biggest drawback of this generation is that they are obsessed with their mobile phones. Moreover, these phones cause many physical and mental problem for them. So, to avoid the negative effects of mobile the usage volume of them should be reduced.

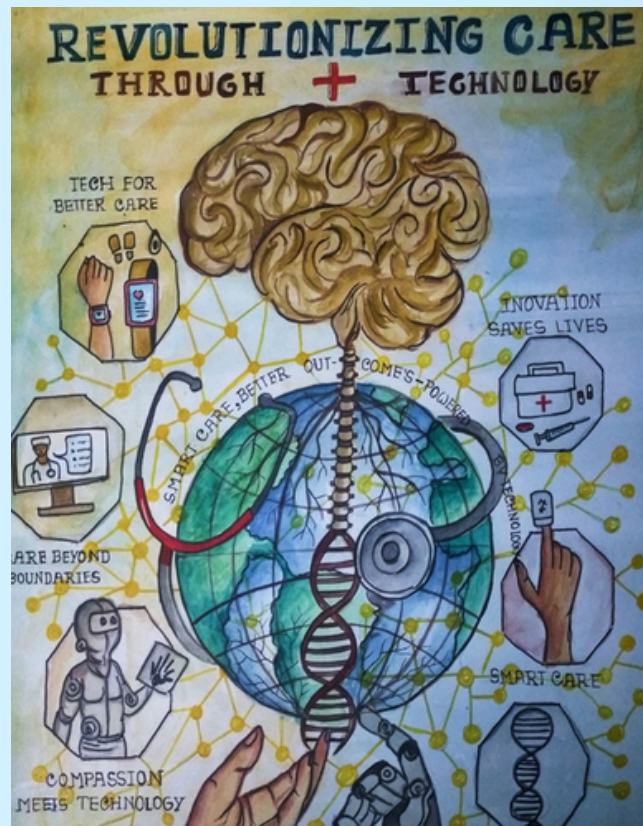
Benefits of a Healthy Lifestyle:

A healthy lifestyle has many benefits not only for the body but for the mind too. Also, if you follow a healthy lifestyle then you can reduce the risk of having cancer, heart disease, diabetes, obesity, and osteoporosis.

To sum it up, we can say that there are various benefits of living a healthy lifestyle. Also, a healthy lifestyle has many benefits to your social as well as personal life. Besides, it improves the relationships in the family. Most importantly, the person who lives a healthy lifestyle lives longer as compared to those who do not.

POSTER PRESENTATION

-by Sija Mandal, MHM, 1st Semester



-by Soumadip Chakraborty, BOTAT, 3rd Semester

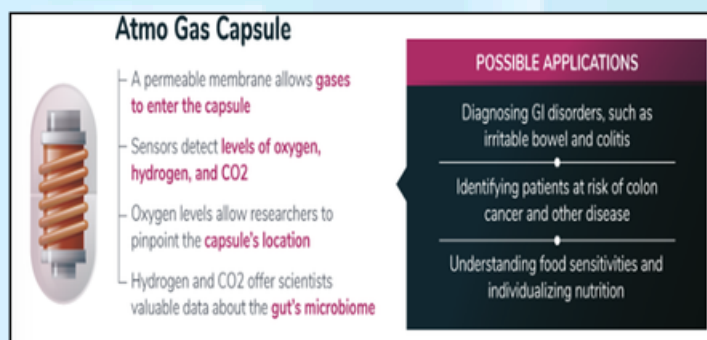
"वैद्यराज नमस्तुभ्यं यमराजसहोदर।"

"Salutations to the King of Physicians, who is the brother of Yama (the God of Death)"

Nanotechnology, the manipulation of matter on an atomic, molecular, and supramolecular scale, is driving a transformative revolution in medicine. Nanotechnology is enabling new breakthroughs in disease detection, diagnosis, treatment, and drug delivery. Scientists have touted nanotechnology, or extremely small-scale devices, as a promising method for assessing patient health, delivering medicine, or potentially even repairing damaged tissue or fighting cancerous cells.

Nanotechnology in Drug Delivery

One of the most promising applications of nanotechnology in medicine is drug delivery. Conventional drug therapies often face challenges, such as poor bioavailability, unwanted side effects, and difficulty in targeting specific tissues or cells. Nanotechnology offers a solution by engineering nanoparticles to carry drugs directly to the target cells, tissues, or organs, reducing the adverse effects.



Nanoparticles can be used to deliver drugs in a controlled manner, which can reduce toxicity and the need for frequent dosing. It also helps to deliver drugs to specific tissues and diseased areas, which can improve the effectiveness of treatment. Nanoparticles can be used to encapsulate drugs, which can help overcome barriers to drug delivery, such as the stomach's acidic environment and it can be combined with natural products to reduce toxicity. Quantum dots are fluorescent nanocrystals that can be used for drug delivery and cellular imaging.

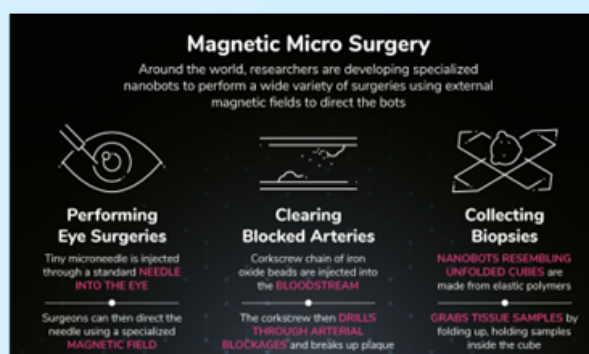
Nanomedicine for Early Disease detection

Nanotechnology is revolutionizing diagnostic methods, making it possible to detect disease at earlier stages when they are easier to treat. Nanoparticles are being used as contrast agents in imaging techniques such as MRI and CT scans, improving the resolution and sensitivity of these scans.

Nanotechnology in Regenerative Medicine

In regenerative medicine, nanotechnology is playing a pivotal role in tissue engineering and the development of biomaterials that mimic the extracellular matrix. Nanomaterials like nanofibers, nanogels, and nanocomposites provide scaffolds that support cell growth and tissue regeneration. These nano scaffolds promote cell adhesion, differentiation, and proliferation, making them ideal for applications such as wound healing, bone regeneration, and the repair of damaged organs.

Nanotechnology in Cancer Treatment



Perhaps one of the most impactful uses of nanotechnology in medicine is in the fight against cancer. In cancer diagnostics, quantum dots, a type of nanoparticle, can be tagged with antibodies that bind to cancer-specific biomarkers. These quantum dots emit fluorescence, allowing for the precise imaging of tumors at their earliest stages. Early detection of diseases like cancer, cardiovascular disorders, or neurological condition enables more timely interventions and increase success rates.

Nanotechnology is being employed in hyperthermia treatment, where nanoparticles are designed to absorb light and generate heat. These are injected into tumor sites and, when exposed to near-infrared light, heat up and destroy cancer cells while sparing the surrounding healthy tissue. This approach, called photothermal therapy, offers a targeted and minimally invasive alternate to surgery or radiation therapy. Rosette nanotubes can be modified to target therapeutic molecules for treating cancer and inflammatory diseases.

Challenges and Future Prospects

The future of nanomedicine is bright. Its role in personalized medicine is expected to grow. With its ability to deliver precision therapies to individual patients, nanomedicines could one day enable entirely new forms of treatment that are customized for each patient's genetic makeup, lifestyle, and environment.

While the potential of nanotechnology in medicine is vast, there are some challenges that need to be addressed. Biocompatibility concerns, long-term safety of nanoparticles in the body are all the crucial areas of ongoing research. Furthermore, the high cost of nanotechnology-based treatments could limit accessibility and affordability.

DIABETES AND YOUR EYES

-by Souvick Rahman, BOPTM, 3rd Semester

Diabetes occurs when your body does not properly process food as energy. When you have diabetes, your body either does not respond to or does not produce insulin, which is a hormone that delivers glucose (blood sugar) to the cells in your body. Having too much glucose in the bloodstream, outside the cells where it belongs, can lead to damage of the blood vessels and nerves that run throughout your body, including to the eyes.

Diabetic Eye Disease-

Diabetic eye disease refers to the group of eye conditions that can result from diabetes.

These include:

Diabetic retinopathy- The leading cause of blindness in American adults, diabetic retinopathy occurs when changes in the retina's blood vessels cause either leaking of the vessels or growth of abnormal new blood vessels on the retina's surface.

Macular edema- The macula — the center of the retina that provides sharp, straight vision — can swell due to leaky blood vessels caused by diabetes. This can result in blurred or distorted vision.

Glaucoma-one form of glaucoma, neovascular glaucoma, is caused by diabetes. High sugar levels can damage the retina's blood vessels and result in the creation of abnormal new ones.

Cataracts- Cataracts can form earlier and progress faster in people with diabetes due to the increase of sugar in the blood. This creates a cloudy buildup in the eye's lens, resulting in a cataract.

Prevention

1. Control your blood sugar
2. Stop smoking
3. Avoid harmful rays

Diabetic Eye Exam

If you have been diagnosed with diabetes, it's important to have regular eye exams to evaluate the health of your eyes and detect any changes.

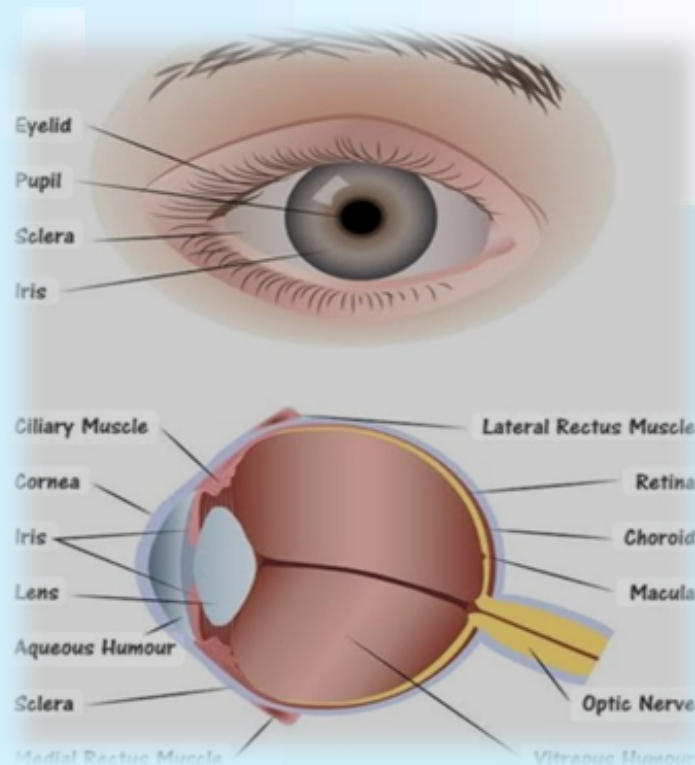
How does a diabetic eye exam work?

1. An eye doctor places eye drop to dilate the pupil and observe retina
2. A special camera is used to take pictures of the back of the eyes. The pictures are sent to a computer program, which uses artificial intelligence to find diabetic retinopathy in the pictures. In less than a minute, the program will determine whether you have diabetic retinopathy and need to follow up with an eye doctor

EYE

-by Sampriti Giri, BOPTM, 3rd Semester

Eyes are like windows to the outside world, but their intricacies and functionalities are far more extensive than those of any given glass window. They are able to capture, adjust, and transform light into a chemical code that only the brain can decipher. Each structure of the eye works in accord with the next – refracting, constricting, dilating and chemically reacting to convert patterns of light. This article uses the mammalian eye as a primary model and follows the path that light takes on its journey through the functional eye, detailing the essential components of one of the smallest, yet most complex organs in the body. Many have attempted to emulate its abilities, but even top-of-the-line digital single lens reflex cameras dare not compare with the elegant, efficient design infused in this multifaceted unit of anatomical machinery. Key Concepts Accommodation refers to the changing of the shape of the lens as a result of the constriction or relaxation of ciliary muscles, in order to adjust its optical power to see clearly in the near distance. This process is used to bring objects into focus. Eyes are part of the central neuronal system exposed to environmental stimuli. It captures and processes light signals to form discernible images. Phototransduction refers to the process that creates a change in a photoreceptor's membrane potential due to the absorption of a photon by a photopigment molecule. Retina is the outgrowth of the brain composed of multiple types of neurons and supportive cells that converts light signal into electrochemical impulses that are transmitted to the processing centers in the brain to form discernible images. Glial cells are supporting cells of the nervous system. They provide support and protection for neurons by holding them in place, supplying nutrients and oxygen, isolating them from each other and removing the debris of dead neurons. Neurons are a group of cells that can be electrically excited to process and transmit information by electrical and chemical signaling. They are the basic building blocks of the nervous system.



POSTER PRESENTATION

-by Sudip Jana, BOTAT, 1st Semester



Smart Snacking for Busy Students: Quick, Affordable & Healthy Ideas

-by Shreyashri Roy, Department of Nutrition and Dietetics, 1st Semester

College life often means long lectures, rushing between classes, and late-night study sessions. In this hustle, students often grab chips, samosas, or sugary drinks for a quick energy boost. But unhealthy snacking can leave us feeling sluggish. Smart snacking is all about choosing foods that are quick, affordable, and nourishing.

Why Smart Snacking?

Healthy snacks keep energy levels steady, improve concentration, and prevent overeating at mealtimes. They are especially important for students balancing academics, sports, and social life.

Quick & Affordable Snack Ideas for Students:

Fruits on the go – bananas, apples, oranges, or seasonal fruits are portable and nutrient-rich. Roasted chana / peanuts – high in protein, budget-friendly, and easily available in local shops. Sprout salad – packed with fibre, vitamins, and easy to prepare in advance. Yogurt with fruits or nuts – boosts digestion and provides long-lasting energy. Homemade sandwiches / wraps – whole wheat bread with veggies or egg filling. Popcorn (air popped, not butter-loaded) – a light and fun snack during study breaks. Dry fruits & seeds mix – almonds, raisins, sunflower seeds for quick brain fuel.

Smart Snacking Some Tips for Students:

1. Plan Ahead – Spend 5 minutes in the morning or night to pack quick snacks like fruits, nuts, or puffed rice.
2. Choose Portable Snacks – Apples, bananas, grapes, granola bars, or dry fruits are easy to carry and eat between classes.
3. Focus on Protein & Fiber – Boiled eggs, roasted chickpeas, yogurt, or peanut butter sandwiches keep you full for longer.
4. Go Budget-Friendly – Local options like puffed rice, roasted peanuts, boiled corn, or sprouts are cheap and healthy.
5. Limit Junk Food – Chips and soda give only short-term energy and can make you tired later. Keep them occasional.
6. Stay Hydrated – Often what feels like hunger is actually thirst. Keep a water bottle with you.
7. Make DIY Snack Packs – Mix nuts and raisins, cut fruits with yogurt, or pack nachos with homemade dip.
8. Use Leftovers Smartly – Turn last night's chapati or bread into a quick roll with eggs or veggies.

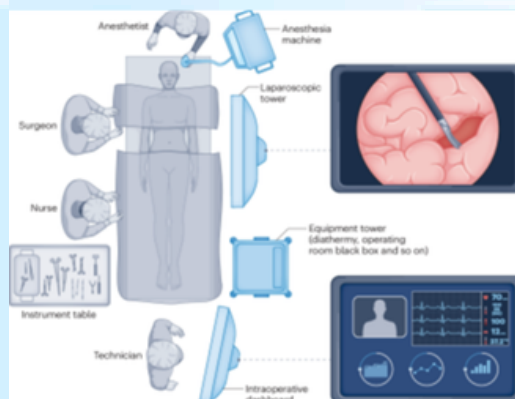
Implications of Artificial Intelligence in Operation Theatre

-by ¹Tiyasha Ghosh, ²Arindam Jha, BOTAT 3rd Semester

The rise of Artificial Intelligence (AI) in healthcare has been one of the most transformative forces in the medicine of the recent times. Several applications of its utility, especially in operating theatre (OT), are very important. Incorporating AI to surgical practice is beginning to change the way surgical treatment is planned, performed and evaluated with increased safety and better patient care.



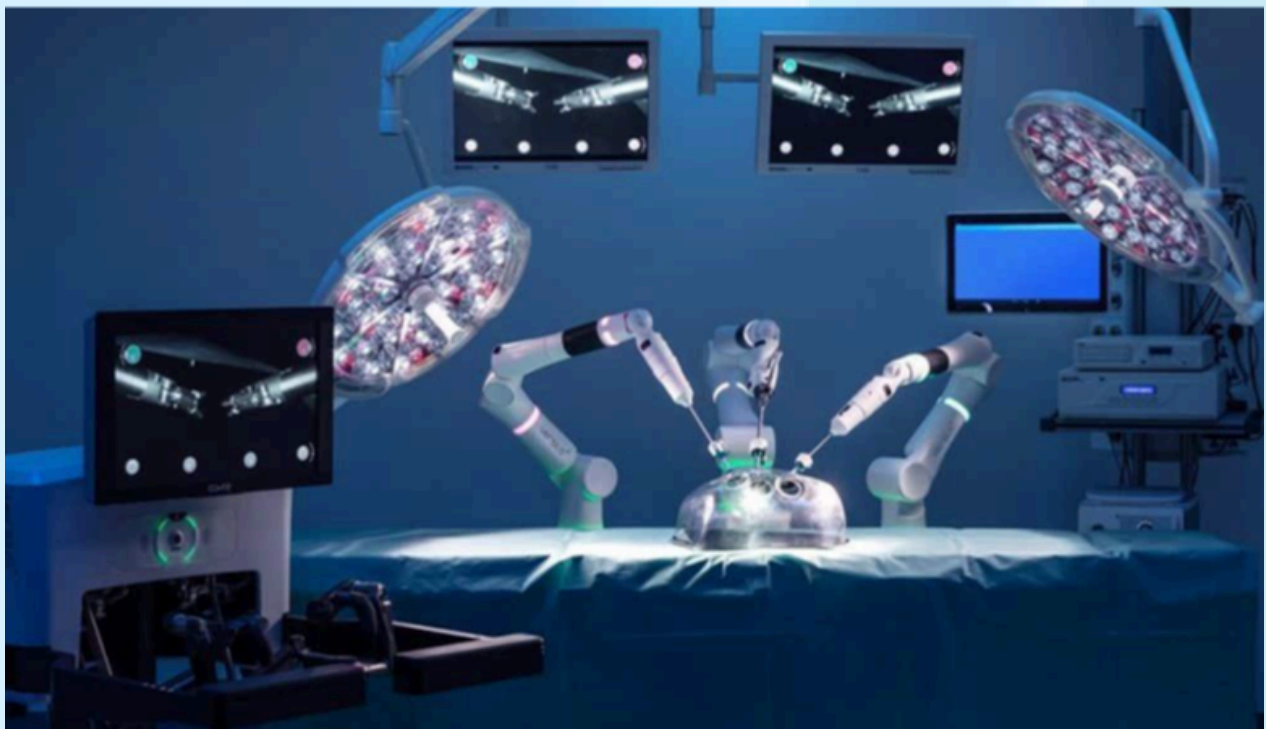
Better Surgical Precision One of the most significant things AI is bringing into the operation theatre is improvement in the precision of surgeries. Robotic systems enabled with AI, like robotic-assisted surgical systems, deliver high-definition vision, tremor elimination, and precise instrument control to surgeons. These will be interpreted by systems that will be able to provide real-time data and help surgeons perform minimally-invasive surgery with a greater deal of precision. It lessens the chance of incorrect surgical procedures, and cuts tissue damage, blood loss and recovery time for patients. Machine learning along with advanced imaging technology makes it possible to generate 3D models of surgical sites by performing analyses of CT and MRI scans and other data for individual patients. AI effortlessly creates these models because of its ability to perfect its processes and predict outcomes with surgical precision. Hence, surgeons are able to visualize problems they may encounter during an operation and formulate personalized work plans for these situations. The preparedness guarantees not only an increased likelihood of success for complicated surgeries but elevates it to surgical supremacy.



Another important use case is alerts and decision support systems during surgery. AI systems can track and analyse heart rate, blood pressure, and oxygen saturation. A predictive algorithm can identify potential problem areas, such as hypoxia or signs of bleeding. AI systems provide an extra layer of protection against human error during critical and stressful situations. AI is changing the face of surgical education.

Thanks to virtual reality and AI, young surgeons can train on sophisticated simulations before working on live patients. These systems allow learners to “understand the problem area, instantly and subsequently, correcting it to gain the requisite level of the skill needed”. Surgeons of the future may also be AI-assisted, guided during live procedures, as if the AI were a personal tutor. The cons of AI are equally staggering.

The use of AI in the OR raises significant ethical and legal issues. Who is responsible for the data privacy, the hyper-reliance on the machines which may fail, and the automation absence in booths which lack it? These issues, coupled with the exorbitant price for the lack of any form AI, stand to make such advanced technology inaccessible for those in economically disadvantaged areas.



Does smoking help in bowel movement: Addiction should be prevented

--by ¹Gourav Rajak, ²Torsha Kasyapi, BOTAT, 2nd Year

Smoking is one of the most common addictions in human being. It has been part of human addiction from several years. NOW a day's, smoking causes major health issues and most of the youngsters are being affected. According to WHO, 7 million deaths every year were caused by tobacco, many of which were affected by cancer and infections. Government and NGOs are taking several steps to make people aware. Still, a large number of people still start their morning by smoking a tobacco cigarette.

Cause of Addiction

Smoking triggers several hormones in human body. Dopamine, "the rewarding hormone" is the main

culprit to make human addiction, as it creates a feeling of satisfaction, pleasure and relaxation. It also triggers adrenaline which give a temporary kick. Smoking is so popular in today's youngsters, they start because of pressure or stress for temporary relaxation. There is one most common reason which makes people addict as they feel that smoking can cause "LAXATIVE EFFECT". Effect by which all age group personnel are being affected making them dependent on cigarettes for better bowel movement and being a part of everyday morning need.

Is that true that tobacco cause laxative effect?

There is no proved context on this theory. However, tobacco shows laxative effects due to nicotine and other alkaloids content like anabasine, nor nicotine, anatabine (structurally similar to nicotine).

Role of Nicotine

Nicotine in the cigarette is the key components which stimulates intestinal contraction, creating an urge to have better bowel movement. Nicotine mimics the part of parasympathetic nervous system, which promotes the digestion and stimulates the peristalsis causing acceleration in bowel movement.

Long term tobacco use

In initial time, people feel they are not getting addicted to smoking but they start relying on nicotine. YES, it's true that tobacco helps in bowel movement still, it's not the better choice, because of its long-term effects like -

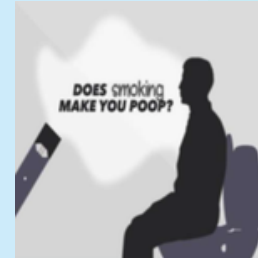
- Dependency on nicotine
- Diarrhoea or loose stools
- Reduce blood supply
- Dehydration & hard stool
- Increase risk of peptic ulcer, colon cancer.



Safe alternatives or solution -:

There are safer alternatives available for better bowel movement rather than nicotine. It not only makes you safe but also keeps your other organs healthy. Keep away you from any health issues. Alternatives are -:

- Drink 2-3 Liters of water daily
- Diet full of Fiber (25-35g/day)
- Gut stimulating drinks like ajwain or jeera water
- Regular exercise & healthy body rhythm



Conclusion

Nicotine can give you laxative effect but with long term side effects. So, instead of finding any harmful solution unknowingly and getting addicted to smoking or other toxic substances which is injurious for health. It can give temporary solution but at the cost of other health issues or damaging the healthy body. It's better to always prefer the healthier options, rely on proper diet, regular exercise can also increase the bowel movement rather than getting addicted to nicotine or smoking.



SURROGACY: A WOMB OF HOPE

--by Ankush Das BOTAT, 3rd Year

Introduction

For many of the couple, becoming parents is the happiest dream of life. But sometimes biological, social, medical challenges make it difficult. In such cases, Surrogacy becomes a new hope to complete their family. Surrogacy is the process in where a woman carries and gives birth to a child for another couple or individualities. It offers open doors for those facing infertility, health issues.

Type of Surrogacy: -

- Traditional surrogacy – The own egg of the surrogate mother is used, making her biologically link to the child.
- Gestational surrogacy – Most common process where the surrogate only carries the baby in her womb, but the sperm and egg belong to the intended parents or benefactors.



Advantages of Surrogacy: -

- It helps to fulfil the parenthood dreams of many couple or individuals who is infertile.
- Provide a great opportunity for same-sex couple to have biological children.
- A new hope for women who can't carry pregnancy due to health issues.
- Allow biological link-up with the child in case of gestational surrogacy.

Disadvantages or challenges of Surrogacy: -

- The method is very expensive that can't afford by many individuals.
- Emotional complexities for both parents and surrogate.
- Ethical debates about "renting a womb".
- Fear about social criticism in some communities.

Medical and emotional Aspects: -

Surrogacy involves the various advanced medical techniques like IVF (In- Vitro Fertilization). It demands emotional strength of parents and brings happiness to the couples who become fulfil their parenthood dreams. The surrogate goes through some physical challenges, hormonal treatment and nine months of care to keep the baby safe in her womb. But beyond science, there is a very emotional side. For the surrogate, it's carrying a someone else dreams. She feels the heartbeat, kicks of the baby. Also, she knows that baby will not call her "mother". But for the intended parents, the journey filled with hope, excitement and fear. At the time of baby born, For the parents, it is the moment of dreams coming true but for the surrogate, it is also a moment of huge sacrifice by giving the gift of life to another family.

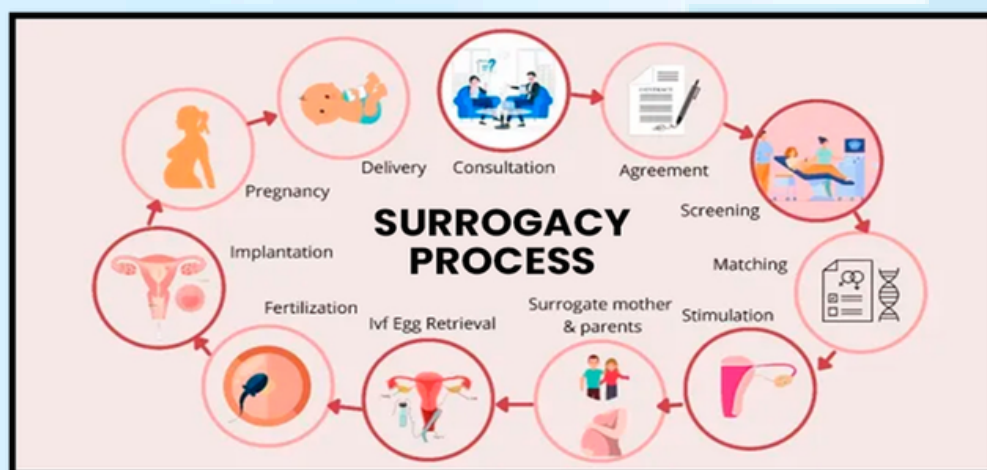
Law About Surrogacy in India: -

The Surrogacy (Regulation) Act, 2021 governs surrogacy in India. The key rules include:

- The surrogate woman must be married (25-35 years old) with at least one child of her own.
- Only Indian married couple with infertility are eligible.
- Single parents and foreigners are not permitted under the law.
- Commercial surrogacy is banned under the law.

Conclusion: -

Surrogacy is not just about science. It is about humanity, the journey of hope, sacrifice and responsibility. Within legal framework, it become a beautiful way to connect the dream of parenthood with the gift of life.





Section 3

Events

***Rural Outreach Programme (RAWE) (Jointly by Physiotherapy & Optometry Departments)
[in association with School of Agricultural & Allied Sciences (SAAS)]***

The Physiotherapy & Optometry Department(s) conducted a 'Rural Outreach Programme' for 6 days (01.08.2025 - 06.08.2025) in the surrounding villages of South 24 Parganas, near the University campus, to assess Health status of the village people; suggested therapeutic managements and eye check-ups. The event was conducted in association with the School of Agricultural & Allied Sciences (SAAS), as a part of RAWE programme.



Health Camp (Collectively by Physiotherapy, Optometry, Medical Laboratory Technology & Operation Theatre & Anaesthesia Technology Departments)

Physiotherapy, Optometry, Medical Laboratory Technology & Operation Theatre & Anesthesia Technology Departments conducted a 4 days' Health Camp in association with Health Club on 05.08.2025 – 08.08.2025 for the Health check-up of the fresher students.



World Health Day (Collectively by ALL Departments of SHS)

World Health Day was celebrated by ALL Departments of School of Health Sciences on 29.04.2025. Mr Subhajit Mukherjee, Head HR, Agilus Diagnostic & Mr Sudip Dey, Head Quality & Assurance, Institute of Neuro Sciences, Kolkata were there to grace the occasion as the Chief Guests.



1. Seminar by Cyber Psychology

1day Seminar Cyber Psychology was conducted for UG and PG students of Applied Psychology by Indian Institute of Cyber Security, Kolkata on 29.11.2024.



2. Outreach Programme on Career Counselling

An outreach Program on career counselling was conducted by the Applied Psychology Department at a leading English medium school of Thakurpukur on 11.02.2025.



3. Suicide Prevention Workshop

A workshop On Suicide Prevention, named 'Together for Life' was conducted by the Applied Psychology Department in association with Health Club of The Neotia University (TNU) for 1st Semester students of The Neotia University on Suicide Prevention on 03.09.2025.



4. Mental Health Check Up

A psychometric evaluation of the Marine Cadets of The Neotia University (TNU) was conducted to assess their mental health on 17.09.2025.



5. MOU Sign with Mentaidd

A Memorandum of Understanding (MoU) were signed between the Applied Psychology Department and Mentaidd for the learning purpose of the departmental students on 05.05.2025.



6. MOU Sign with Twinkle Star Welfare Trust (TSWT)

A Memorandum of Understanding (MoU) were signed between the Applied Psychology Department and Twinkle Star Welfare Trust (TSWT) for facilitating experiential learning for the departmental students on 28.04.2025.



1. World Physiotherapy Day

World Physiotherapy Day was celebrated on 08.09.2025 by the Physiotherapy Department.

Dr. Md. Belal Quraishi (PT), Owner, Level Up Physio & Sports Rehab; formerly associated with Indian Super League Mohammedan Sporting Club, Bengaluru FC, Roundglass Punjab FC, was the Chief Guest.



2. Oath Taking Ceremony 2024

Physiotherapy Final Year students took Oath to mark their entry into the profession and to commit to the principles and responsibilities of Physical Therapy, on 10.05.2025. Dr. Suparna Gangopadhyay, Director, Department of Neuro-Rehabilitation, Institute of Neurosciences, Kolkata & Honorable Vice Chancellor, Prof. Dr. Biswajit Ghosh, Sir were present among the Dignitaries.



3. Smart India Hackathon (SIH) 2025

6 Students from Physiotherapy Department participated in the Smart India Hackathon (SIH) conducted by the Department of Computer Science & Engineering under the School of Science & Technology (SST) in The Neotia University on 19.09.2025.

MINISTRY OF EDUCATION
SMART INDIA HACKATHON 2022
INSTITUTION'S INNOVATION COUNCIL
THE NEOTIA UNIVERSITY
MoE's INNOVATION CELL (GOVERNMENT OF INDIA)

Internal Hackathon 2025

Organized by: Department of Computer Science & Engineering (SST)
Date: 19th September, 2025 Time: 10:00 AM onwards
Venue: SB3 (106-107), AIML Lab, The Neotia University

Why Participate?
Cash prizes | Govt. Certificate | Internships & Jobs | Networking | Real Impact

Team Formation:
Team Size: 6 students (At least one female member mandatory)
Two Tracks Available:
• Software Edition – Apps, Websites, AI/ML Solutions, etc.
• Hardware Edition – Physical Prototypes & Innovative Hardware Solutions

Convenor and SPOC:
Dr. Madhu Sudan Das,
Associate Professor, CSE (AIML), The Neotia University
Co-Covenor:
Dr. Usha Rani Gogoi,
Assistant Professor, CSE (AIML), The Neotia University

For Details Contact:
Purnanjay Saha – 8167611766
Shivam Gayen – 9063207547
Soham Datta – 9433524811

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Optometry Department

1. World Optometry Day

A comprehensive Vision Screening programme was conducted at the University campus for the Students as a part of World Optometry Day celebration on 22.03.2025.



2. Vision Quest 2025 Susrut Eye Conference

Optometry Department participated at Vision Quest 2025 Susrut Eye Conference at Susrut Eye Hospital date 31.08.2025.



3. Eye Camp

Department of Optometry organized an eye check-up and screening camp at the Diamond Harbour Womens University on 11.02.2025 to provide essential eye care services to the Faculties and Students.



Hospital Management Department

1. Workshop of Research Methodology & Research Design

Workshop on 'How to Design your research' was conducted by the Hospital Management Department on 19.06.2025. Prof. Dr. Debarshi Mukherjee from Jamia Milia Islamia University, New Delhi, graced the occasion.



2. Industry Visit to Saroj Gupta Cancer Center & Research Institute

Students from Hospital Management Department visited the Saroj Gupta Cancer Center & Research Institute as a part of Industry Exposure to an Urban Private Hospital programme on 10.09.2025.



Hospital Management Department

1. Seminar on 'Microbiology in Modern Healthcare: Insights & Celebration'

1day event on "Microbiology in Modern Healthcare: Insights and Celebration" was organized by the Medical Laboratory Technology (MLT) Department on 25.02.2025. Mr. Vincent Souvik Gomes, State Aided College Teacher Department of Microbiology Asutosh College graced the occasion.



2.Awareness Programme on 'From Waste to Wellness:

Bridging Safe Practice and Risk Reduction to Promote Sustainable Biomedical Waste Management'

An awareness programme was organized by the Medical Laboratory Technology (MLT) Department on 14.02.2025, to make students familiar with all the necessary details related to Biomedical Waste Management. Mr. Ritagni Giri, Senior Executive & Mr. Saswato Roy, Sr. Assistant Manager –both from the Business Development post in Medicare Private Limited, graced the occasion.



3. Medical Laboratory Technician Day

The Medical Laboratory Technology (MLT) Department celebrated Medical Laboratory Technician Day on 02.05.2025.

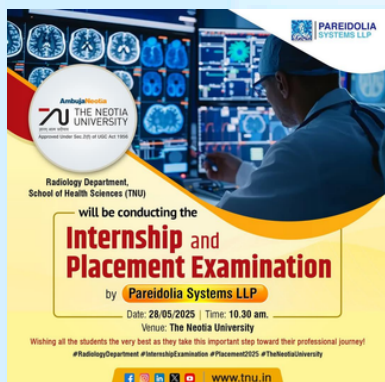
Dr. Mallika Biswas, HoD, Department of Biochemistry, Diamond Harbour Government Medical College & Hospital & Mr. Subhasis Bhowmik, Zonal HR- East, Apollo Diagnostics were the Chief Guest of the event.



Medical Radiology & Imaging Technology Department

1. Placement Drive 2025

Radiology Department conducted a placement drive for the job recruitment of their newly pass out students on 28.05.2025.



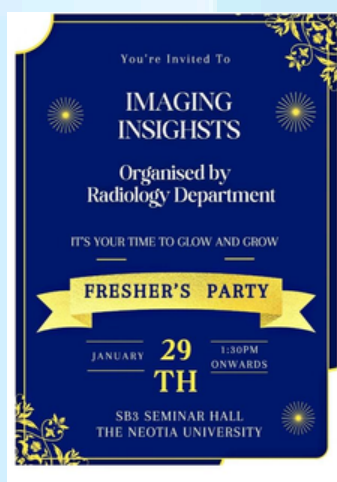
2. Radiology Day

Radiology Day was celebrated by the Radiology & Medical Imaging Technology Department on 08.11.2025.



3. Skill Enhancement Programme

Radiology & Medical Imaging Technology Department conducted Skill Enhancement Programme for Departmental Fresher' Coordinators programme on 29.01.2025.



Operation Theatre & Anesthesia Technology Department

1. Healing Power of Colours

An event named 'Healing Power of Colours' was organized by Operation Theatre & Anesthesia Technology Department on 13.03.2025. Ms. Swapna Dey, RJ, Akashvani, delivered her speech on Healing Power of Poetry.



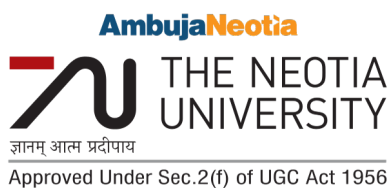
2. Celebration of National Operation Theatre & Anesthesia Technologist Day & Inauguration of Operation Theatre Laboratory of the Department of Operation Theatre & Anesthesia Technology.

Operation Theatre & Anesthesia Technology Department celebrated 'National Operation Theatre & Anesthesia Technologist Day' on 23.07.2025. Dr. Madhumita Mukhopadhyay, Department of General Surgery, Diamond Harbour Government Medical College & Dr. Nilanjan Paty, Additional Medical Superintendent, Diamond Harbour Government Medical College & Hospital graced the occasion. Also, on that day, Operation Theatre Laboratory was inaugurated.





AROGYA



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