

HORIZON

VOLUME 1, ISSUE 12, DECEMBER 2023

LIFESTYLE, PRODUCTIVITY, CULTURE & SO MUCH MORE......

- Small Wonder, Big Impact: Nanotechnology's Journey in Diagnostics and Drug Delivery
- Tips to manage Eczema flare-ups during Winter
- Overcomers
- Unraveling the Mystery of FODMAPs: A Fun and Digestible Guide to the FODMAP Diet

DEAN'S DESK



Dear students, we at Grodno State Medical University strive to provide students with top-quality education, but that's not it. GRSMU is also a hub for Scientific, Cultural, and Sports related activities. We wholeheartedly acknowledge that International students are an integral part of our university, and we take immense pride in that. Grodno State Medical University is glad to work with students from different countries and provide them with a stage to represent their nation and culture.



DEAN OF FACULTY OF INTERNATIONAL STUDENTS
DR. ALEKSANDER ALEKSANDEROVICH STENKO

GRSMU celebrates its uniqueness in diversity, for in its true essence our university is a junction where students from various backgrounds and cultures come together as one big family. GRSMU has always encouraged students to explore further and beyond in every field they try their hands at. I hope that you like the novel concept of 'The Horizon' - a magazine that serves as a platform for the students to voice their opinions, share their takes and present their points of view.

"The Horizon' is a medium of extended communication where we can learn a lot from one another. I highly appreciate this initiative and personally support it. I look forward to reading the interesting blogs written by you.

WELCOME TO THE HORIZON



"We all have fascinating stories to share!" For the longest time, I have had this idea of starting a magazine. But not just any conventional magazine, one that shall serve as a platform for the students and alumni of International faculty at Grodno State Medical University to share their stories. A platform that enables students to share their takes on various curricular and extracurricular aspects of medicine. Thus, the idea of 'The Horizon', came to life.



DR. MEHUL H. SADADIWALA, FOUNDER, CLASS OF 2023

'The Horizon' will be a creative intersection where students can freely give commentaries about Lifestyle, Culture, Productivity tips, and more. Throughout the years, many individuals at GrSMU have inculcated valuable skills and gained experience with a fair share of success in various disciplines. Maybe you run a successful YouTube channel or an educational website, or maybe you are a successful student-researcher or an educator, and so much more. 'The Horizon' enables students to share their personal experiences. The insights that you share will encourage other students to take further strides and explore future possibilities.

'The Horizon' is supported directly by the Dean of the International Faculty, and it will operate under the supervision of the International Students' Scientific Committee. Students from 1st to 6th year, and even graduates, can submit their blogs to this magazine. The articles should directly or indirectly revolve around student life to share knowledge and the collective growth of students.

EDITOR'S DESK



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Reading scientific articles is an integral part of the scientific process, contributing to the advancement of knowledge, informed decision-making, and the development of critical thinking skills. It is a fundamental practice for researchers, educators, medical students and anyone interested in the progress of science and technology.

I deeply value the contributions of our journal's authors and readers, and I am eager to facilitate the dissemination of the work to a wider audience. Your expertise and dedication are at the heart of our journal's success, and I am eager to support and promote your work. I am committed to fostering an inclusive environment where all articles, regardless of background, have the opportunity to be contributed and be heard.



DR. FATHIMATH NAUFA
EDITOR-IN-CHIEF (OCT-DEC, 2023)

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CHAMATHI DE SILVA, EDITOR-IN-CHIEF (OCT-DEC, 2023)

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Reading lets us embark on journeys we can never reach in real life. It allows us to gain knowledge of incalculable valve. Knowledge is the ultimate wealth which allows you to reach indestructible heights. Learning new things everyday will allow us to shape our life as we see is best.

I am honoured to introduce myself as the Editor-in-Chief of Horizon for Oct-Dec 2023. It is a great privilege to read all the blogs that will be published in Horizon and is a great pleasure to see the works of the fellow students and graduates.

I would like to invite all to read the blogs of your colleagues and share your own to help enrich the knowledge of each other.

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And a message to our dearest readers, we would like to invite you all, students and alumni, to share with us the blogs that directly or indirectly revolve around student life, to share knowledge and experiences that has had an impact on your growth within and outside the bounds of our university.

Concluding, let us alter the limitations of our individual efforts and collectively explore limitless Horizons.

Cover Credits

SMALL WONDER, BIG IMPACT: NANOTECHNOLOGY'S JOURNEY IN DIAGNOSTICS AND DRUG DELIVERY

This blog is regarding the development in nanotechnology leading to new methods of drug delivery and diagnostics.

WRITTEN BY KRUSHI PATEL

CLASS OF 2024

INTRODUCTION

In the landscape of modern medicine, nanotechnology has emerged as a potent force, reshaping the paradigms of drug administration and diagnostics. This revolutionary science empowers researchers to manipulate matter at the nanoscale, paving the way for transformative breakthroughs in medical treatments. By harnessing the potential of nanoparticles, scientists have unlocked new frontiers, achieving remarkable precision in delivering therapeutic agents detecting diseases unprecedented sensitivity.

NANOPARTICLES: PRECISION ENGINEERING AT THE NANOSCALE

At the heart of nanotechnology's transformative role in medicine lies nanoparticles, infinitesimal structures with dimensions measured in nanometers. These versatile particles serve as the foundational building blocks for innovations in drug delivery and diagnostics. Through meticulous engineering, nanoparticles can be customized to perform a diverse array of functions, making them an ideal choice for revolutionizing medical practices.



ELEVATING DRUG DELIVERY TO NEW HEIGHTS

- 1. Targeted Therapy: One of nanotechnology's paramount achievements in drug administration is the ability to achieve precision in targeting specific tissues or cells. By designing nanoparticles to ferry therapeutic agents directly to the affected site, systemic side effects can be minimized. In oncology, for instance, nanoparticles can zero in on tumor cells, preserving the well-being of healthy cells.
- 2. Enhanced Bioavailability: Many pharmaceuticals suffer from issues related to limited solubility or stability within the human body. Nanoparticles come to the rescue by encapsulating -

these drugs, ensuring their arrival at the intended destination intact and in the appropriate concentration.

3. Prolonged Release: Controlled-release systems, facilitated by nanotechnology, enable sustained drug release over an extended period. This groundbreaking approach reduces the need for frequent dosing, leading to enhanced patient compliance and convenience.



NANOTECHNOLOGY: REFINING DIAGNOSTICS FOR GREATER PRECISION

- 1. <u>Sensitivity and Specificity:</u> Precision matters greatly in diagnostics, and nanotechnology delivers it in abundance. Customized nanoparticles can interact with specific biomarkers, vastly enhancing the sensitivity and specificity of diagnostic tests. This heightened accuracy is a game-changer for early disease detection.
- 2. Advancements in Imaging Techniques: Medical imaging has been significantly refined through the use of nanoparticles as contrast agents. This enhancement enables a more precise visualization of anatomical structures and disease markers. Notable examples include quantum dots. which improve fluorescence imaging, and iron oxide nanoparticles utilized in MRI.
- 3. Point-of-Care Testing: Miniaturized diagnostic devices that incorporate nanotechnology are increasingly deployed at the point of care. These portable tools provide swift results for diseases such as diabetes, infectious diseases, and cancer, revolutionizing the landscape of diagnostics.

NAVIGATING CHALLENGES AND SAFETY CONCERNS

While the potential of nanotechnology in medicine is substantial, it is not without its challenges. Safety concerns related to potential nanoparticle toxicity and their long-term impact on human health must be addressed diligently. Moreover, regulatory frameworks need to evolve in tandem with the rapid developments in the field, ensuring the safe and effective integration of nanotechnology into mainstream medical practice.

CURRENT APPLICATIONS OF NANOTECHNOLOGY IN MEDICINE



Numerous nanotechnology-based products have already made their way into clinical practice, attesting to its real-world impact. An exemplary case is Doxil, a liposomal formulation of doxorubicin, used in the treatment of cancer. Magnetic nanoparticles have found application in hyperthermia cancer treatment. These are but a few examples that underscore the tangible influence of nanotechnology in the domains of drug administration and diagnostics.



FUTURE PROSPECTS AND THE ROAD AHEAD



The future of nanotechnology in medicine is incredibly promising. Ongoing research is actively exploring the development of "smart" nanoparticles that can respond to physiological cues, enabling highly targeted drug release. Moreover, the horizon beckons the advent of personalized medicine, where therapies are precisely tailored to an individual's genetic makeup and the specific characteristics of their disease.

CONCLUSION



Nanotechnology's pivotal role in drug administration and diagnostics underscores the potential for innovation in the medical sphere. The capability to manipulate matter at the nanoscale has opened up new horizons for targeted drug delivery, sensitive diagnostics, and personalized healthcare. As research progresses and safety concerns are addressed, the seamless integration of nanotechnology into mainstream medical practice is poised to usher in revolutionary changes in patient care and disease management.

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THE HORIZON

DECEMBER, 2023

TIPS TO MANAGE ECZEMA FLARE-UPS DURING WINTER

This blog gives tips for managing the flares-ups of a common skin condition called eczema during winter, the time period it often gets worse.

WRITTEN BY
FATHMATH SHAJAA JIHAAD
CLASS OF 2025

INTRODUCTION

Eczema (Atopic Dermatitis type) is a result of an overactive immune system that causes the skin barrier to become dry and itchy. It isn't just itchy, it hurts. Since creases of the skin, especially the flexural areas behind the knees, elbows, lower legs and other areas of skin rub against each other it can lead to irritation and alot of the times scaly eczema patches tend to form on these areas. They are often fissured during movements and form open wounds which are very painful. It is estimated that 1 in 10 individuals will develop eczema during their lifetime. Although the prevalence of it is higher in childhood, many go through this condition during adulthood as well.

Researchers don't know the exact cause of eczema. People with eczema often have co-existing conditions like hay fever, food allergies and allergic asthma. What the researchers do know is, that people develop eczema due to an interaction between genes, stress and environmental triggers.

One of the main environmental triggers that you will come across right now if you have been diagnosed with Eczema is the current weather (AKA Winter). This happens due to factors like air in winter being dry, which takes away moisture from our skin and constant temperature changes (cold weather outdoors to central heating indoors).

As someone who goes through having eczema flare-ups during seasonal changes and learned to manage it, I thought giving you some tips about how to manage flares-ups of this condition in winter would be of some help.

It is important to remember that eczema and its symptoms aren't the same for everyone. The skin care routine that works for the affected areas on skin of one individual, may not be the same for others. Your eczema may not look the same on you, as it does on another adult or a child. Your eczema triggers also may not be the same as of others who have it.

With that being said, I hope the following tips will help you manage the eczema flare-ups you might get during this winter:

1. MOISTURIZE, MOISTURIZE, MOISTURIZE:

I cannot stress enough how important it is to keep your skin moisturized at all times. Proper, consistent skin care is very important for prevention and management of eczema. Try different moisturizers and choose what works for you. Make sure it has moisture holding components like ceramides. Ceramides prevent irritants, allergens or even bacteria from entering into your skin and prevents loss of moisture from the skin by forming a protective barrier over your skin. Avoid moisturizers that contain fragrances, since fragrances can often irritate sensitive skin. Before you get to the point of the eczema patches getting scaly and ultimately having to use topical steroid creams, it's always best to keep your skin moisturized at all times to prevent it from happening. Topical steroid withdrawal symptoms you will have after you stop using them are worse than initial symptoms of eczema: red or darker burning skin, fatigue, mood swings (Been there, it was horrible and painful). Hence, keep your skin (specially the places that often get eczema patches) moisturized well.

2. DO NOT SCRATCH YOUR SKIN WHEN IT GETS ITCHY:

Yes, when you have scaly, itchy patches on your skin, it's very tempting to scratch and pick on them. However, this will lead to consequences like worsening the itching, oozing of clear fluid from the patch and it being more painful as well. This forms open wounds on skin and can even lead to the area being infected. Repeated scratching or rubbing the skin will worsen and thicken the layer of the patch on skin.

This is known as lichen simplex chronicus. If it gets very itchy, try taking an antihistamine like cetirizine at night before you go to sleep. This will prevent you from scratching your skin during sleep as well.

We now see alot of soothing creams specifically targeted for eczema relief. Such creams can also help soothe the pain and itchiness.

3. AVOID HOT SHOWERS:

As nice a hot shower feels during a cold winter's day, unfortunately, it's not good when trying to manage eczema. The heat from the bath can cause your skin to dry out. Alternatively, take a shower using luke-warm water (don't stay in too long), or try to take quick hot showers instead, if you really want one. Dry your skin immediately after coming out of the shower and avoid sitting in or wearing wet clothes. Damp environment can contribute to eczema. Moisturize your body very well immediately after it.

4. AVOID CLOTH FABRICS THAT CAUSE SKIN IRRITATION:

Fabrics like wool and nylon can actually irritate the skin and make eczema worse. They may cause overheating, which also causes excess moisture and bacteria ultimately leading to flare-ups. Choose breathable soft fabrics, such as cotton, and avoid wearing too many layers. However, If you want to layer up with fabrics like wool, make 100% cotton as your base layer. Wrap up your body well when you go outdoors, in comfortable clothes and protect the sensitive areas of your skin from rapid temperatures changes.



6. MANAGE STRESS AND TAKE CARE OF YOUR MENTAL HEALTH:

Eczema symptoms and flare-ups can get worse when you're feeling stressed. Obviously not something we can avoid easily if semester exams are going to start soon. However, try to plan ahead of time for the exams and prepare yourself for it mentally. You may get stressed during winter just knowing the fact that you have eczema. Anxiety or stress are very common triggers that cause eczema to flare up. This then creates more anxiety and stress, which then leads to worsening of eczema flare-ups. It's a vicious cycle. Calm yourself down and live in the moment. Know that you have taken all the preventative measures you could take and keep in mind that even if a flare-up occurs, you'll moisturize and tackle that as well. Being optimistic in these situations helps a lot.

CONCLUSION

It is important to keep in mind that it is not a contagious skin condition that you'd "catch" through physical contact with them. People with eczema already have a risk of having mental illnesses like anxiety or depression along with having body dysmorphia due to the appearance of eczema patches on their skin.

The findings from a survey done by the National Eczema Association showed that more than 30% of people with atopic dermatitis type eczema were diagnosed with depression and/or anxiety which may occur due to the way the bodies of people with eczema, communicate with their brains during an inflammatory response.

So, treat them no differently from others and be kind to one another.

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THE HORIZON

DECEMBER, 2023

OVERCOMERS

This blog is about facing challenges and how to overcome adversities.

WRITTEN BY
HENRY KEZIAH EVANGELIN
CLASS OF 2025

Every single day we come across many people in our lives who face different kinds of adversities. Most of the time, the troubles they face are not seen by us. But somehow, over time, we are gradually able to observe the effects they cause on them. It leaves them mentally drained, emotionally scarred and in some cases, even physically exhausted. Whatever the outcome is, the undeniable fact is that they need help.

'A stitch in time saves nine', goes an old saying. If the kinds of difficulties faced by these individuals are not addressed at the right time, there is a danger that a whole part of the society will have people, who, although look and appear perfectly alright, are in fact, broken and scarred beyond repair.

THE CHALLENGES THAT
DEFEAT THESE PARTICULAR
SET OF PEOPLE ARE OFTEN
IN THE FORM OF MENTAL &
EMOTIONAL ADVERSITY,
PHYSICAL ADVERSITY AND
ALSO IN THE SOCIAL FRONT
TOO.

We need to understand this first: Difficulties and setbacks are inevitable in our lives. There is no growth without adversity. For example, the most fatal accidents occur on highways that are without much traffic, where the journey is dull and there is less navigation. Fatigue sets in only where the travel is absolutely boring.

Likewise, even in life, trials, difficulties and adversities only help to mature gracefully and give the much needed confidence to face any situation head-on.

Human beings are social animals. Invariably human beings grow to settle in a society where people from diverse backgrounds cope up and live together. It is this unique fact that attracts people to each other. These minute differences are what intrigues the other. This is the reason even the most introverted person too takes their short but much needed time to mingle for a brief period amongst a larger group. These short breaks make their existence meaningful for them.

And so, the most effective ways for people to overcome whatever they go through is by reaching out to people. Rather than having all the emotions pent up within, such people who open up to someone close, reliable, understanding and supportive, experience a quicker recovery rate. Being willing to learn and being open to suggestions can also help in overcoming whatever they may be going through. A focused, optimistic and positive attitude too goes a long way in strengthening their now-weakened areas of emotional and mental life.

Every emotion a person experiences is the outcome of whatever they face in life. They make or break the person, and it doesn't happen overnight. It starts with the mind first, and the effects are almost immediately visible in the person's emotions. The beginning of the emotional instability, is the first sign of the trauma that has been going on in the mind. Since no outward physical signs like in an injury are visible, the effects are not felt until much later, by which time it is late. Coming to terms with whatever happening around is a fact, is the best way to overcome emotional adversities.

Changes made in the daily routine of the lifestyle helps in overcoming the physical adversities. Avoiding harmful diets, avoiding binge eating of trash foods, maintaining a regular sleep cycle and following simple daily exercises can combat the health issues that crop up as a result of the physical difficulties caused by mental and emotional stress. Most people develop life-threatening serious health issues by neglecting to take care of their health as a result of the mental suffering.

Both of the above cause lasting social anxiety debilitations. They weaken their confidence. All of these cause irreparable damage to self and family (if and when they have one). As mentioned earlier, a stitch in time saves nine.

The best overcomers are the ones who

face the facts, accept them and move on. These are the ones who are aware

that emotional and mental health are

most essential for a rewarding social and

family life. They are the true overcomers.

Any difficulty or adversity can be overcome with the least effort when nipped in the bud. We forget to remember that there is nothing permanent except change. Nothing lasts forever. Nothing is permanent. And that goes even for every kind of adversity that we may face. Remaining patient rather than reacting to every situation is the way the wise handle tricky situations. Responding to adverse circumstances and difficulties in the right manner in the right spirit at the right time changes the world's perspective of you. Reacting to every adversity only portrays you as a weak person. Reactions affect everyone and everything and results in hurt.

TO SUM UP, THIS IS WHAT YOU CAN DO:

- Ø Accept the facts and move on
- Ø Being optimistic with a positive attitude
- Ø Having a close confidante to share your emotions
- Ø Simple regular exercises
- Ø Following a proper diet and sleep cycle
- Ø Responding to circumstances rather than reacting to them

Deferences

- 1. 1.5 Types of Adversity and Ways to Overcome Them (verywellmind.com)
- 2.10 proven ways on how to overcome adversity in life (tonyrobbins.com)

DECEMBER, 2023

UNRAVELING THE MYSTERY OF FODMAPS: A FUN AND DIGESTIBLE GUIDE TO THE FODMAP DIET

This blog is about FODMAPs, their effects on health and usage in diet.

WRITTEN BY AROOSHA IBRAHIM

CLASS OF 2024

INTRODUCTION

Welcome to the flavorful world of FODMAPs!

In this article, we'll embark on a delightful journey through the fascinating realm of fermentable oligosaccharides, disaccharides, monosaccharides, and polyols - better known as FODMAPs.

Brace yourself for an adventure that combines science, humor, and the key to managing digestive bliss.

WHAT ARE FODMAPS?

Let's start with the basics - FODMAPs are a group of short-chain carbohydrates that can trigger digestive discomfort in some individuals. But don't worry, understanding FODMAPs doesn't have to be a brain-busting experience.

Think of them as the quirky characters in the novel of your digestive system.

MEET THE CHARACTERS

1. Fermentable Oligosaccharides - The Friendly Fiber

Say hello to fructans and galactooligosaccharides! They're like the social butterflies of the FODMAP world, found in foods like garlic, onions, and legumes. While they may be the life of the party, some digestive systems prefer a quieter gathering.

2. Disaccharides - Lactose Lovers Lactose, the sugar in milk, is a leading character in this FODMAP drama. If your digestive system isn't a fan of lactose, it might be time to explore lactose-free alternatives or embrace your inner lactose tolerance superhero.



- 3. Monosaccharides Fructose Fiesta Fructose, the natural sugar found in fruits, can be a cause for celebration or concern, depending on your digestive prowess. We'll navigate the fructose-filled landscape together, finding the right balance for your belly.
- 4. Polyols The Sugar Alcohol Crew Don't let the term "sugar alcohol" fool you polyols aren't here for a sweet escape. Found in certain fruits and artificial sweeteners, they're like the undercover agents of FODMAPs, sneaking into unsuspecting foods.

THE FODMAP DIET - A PLAYFUL APPROACH

Elimination Phase – The Detective Work Embark on a Sherlock Holmes-style investigation as you temporarily bid farewell to high-FODMAP foods. This phase helps identify which characters are causing trouble in your digestive plot.

Reintroduction Phase - The Reunion It's time for a grand reunion with individual FODMAP groups. Introduce them back into your diet one by one to determine which ones your digestive system tolerates and which ones are best left off the guest list.

Maintenance Phase - The Happy Ending With newfound wisdom, create a customized, sustainable eating plan that keeps your digestive story on the path to happily ever after. Remember, it's not about avoiding FODMAPs entirely but understanding your body's unique narrative.

NAVIGATING THE FODMAP LANDSCAPE

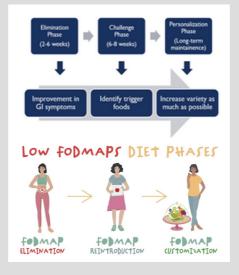
Grocery Shopping - The Quest for Low-FODMAP Treasures

Arm yourself with a shopping list that's both tasty and FODMAP-friendly. Discover the hidden gems in the grocery store aisles that won't set off digestive fireworks.

LOW FODMAP GROCERY LIST



Dining Out – A Culinary Adventure Eating out can be a pleasure, not a pain! Learn how to navigate restaurant menus like a seasoned explorer, finding dishes that cater to your FODMAP preferences without compromising flavor.



FODMAPS AND BEYOND - A HOLISTIC APPROACH

Gut Health - The Epicenter of Well-Being Beyond FODMAPs, delve into the world of gut health. Explore probiotics, prebiotics, and other gut-friendly practices that complement the FODMAP diet, creating a holistic strategy for digestive harmony.

THE ROLE OF FODMAP DIET FOR IBS

Before we conclude this enchanting journey, it's crucial to highlight that the FODMAP diet is a tailored approach designed to assist individuals dealing with Irritable Bowel Syndrome (IBS). For those wrestling with the unpredictable symptoms of IBS, the FODMAP diet becomes a personalized guide, offering relief and understanding to their unique digestive tale.

CONCLUSION:

Congratulations, intrepid reader! You've journeyed through the whimsical world of FODMAPs, armed with knowledge and a newfound appreciation for the intricacies of your digestive tale.

Embrace the FODMAP diet as your personalized guide to optimal well-being – a story where you and your belly live happily ever after.

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