



HORIZON

The

VOLUME 1, ISSUE 9, SEPTEMBER 2023

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

Polycystic Ovary Syndrome and it's impact on health

Antioxidants in female infertility

Who is standing between you and your desired life?

Reading Boost: How books make you feel great

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 ALEKSANDROVICH 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.

For inquiries and submissions.

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EDITOR'S DESK



“ Reading consistently and voraciously helps build knowledge, improve one's language, vocabulary and is a crucial driver of success. Accordingly, books, journals magazines etc plays a major role in moulding who we are. Whilst magazines are a mirror of our society “the Horizon” is tailored to give the reader a glimpse of artistry, wisdom and eloquence of the GrSMU students and alumni.

As a person who enjoys the world of words, I am indeed enthused to be the Editor-in-Chief of this magazine for Jul-Sep, 2023 and to read and fine-tune blogs authored by my fellow university students and alumni and publish an engaging series of informative and entertaining content, further raising the profile of the magazine. ”



**ZAAKIYA GANEM ZAMZAM,
EDITOR-IN-CHIEF (JUL-SEP, 2023)**



**DR. HARDIK B. MEVAWALA,
EDITOR-IN-CHIEF (JUL-SEP, 2023)**

“ Dear readers, it is with great pleasure that I introduce myself as the new Editor-in-Chief of our magazine. As a medical graduate, I have always been passionate about reading, and I am thrilled to have the opportunity to share my insights with all of you. The Horizon aims to provide content not only for medical professionals but to individuals from all backgrounds, including those who do not have formal medical education and it makes me glad to be a part of it.

I am excited to take on this role and work with our talented writers and editors to bring you engaging and informative content. I am committed to delivering high-quality blogs that will inform, entertain, and inspire our readers. I encourage you to share your thoughts with us and our readers through our magazine. Thank you for your support, and I can't wait to see what we will accomplish together! ”

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

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For enquiries and submissions.

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POLYCYSTIC OVARY SYNDROME AND IT'S IMPACTS ON HEALTH

PCOS is the enigmatic labyrinth in the garden of womanhood, but through its twists and turns, I discover the strength to bloom beautifully.

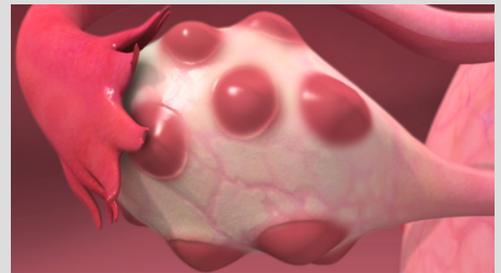
WRITTEN BY
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INTRODUCTION

PCOS, which is one of the most common endocrine disorders, characterized by irregular menstrual cycles, hyperandrogenism, and polycystic ovaries. It is one of the most common causes of ovulatory infertility in women of reproductive age. The worldwide prevalence of PCOS ranges from 4 to 21%, while in adolescents this number ranges between 9.1 and 36% (depending upon the diagnostic criteria used). Treatment for PCOS is often done with medication. This cannot cure PCOS, but it helps reduce symptoms and prevent some health problems.

WHAT IS POLYCYSTIC OVARIAN SYNDROME?

Polycystic ovarian syndrome (PCOS) is a hormonal imbalance that occurs when your ovaries create excess hormones. Women with PCOS have a hormonal imbalance and metabolism problems that may affect their overall health. If you have PCOS, your ovaries produce unusually high levels of male sex hormones called androgens. This results in the reproductive hormones to become imbalanced. As a result, people with PCOS often have irregular menstrual cycles, missed periods and unpredictable ovulation.



The name polycystic ovary syndrome describes the multiple small cysts which may be visible on your ovaries on ultrasound due to lack of ovulation (anovulation). However, despite the name "polycystic," you don't need to have cysts on your ovaries to have PCOS. The ovarian cysts aren't dangerous or painful.

SIGNS OF POLYCYSTIC OVARY SYNDROME (PCOS)

The most common signs and symptoms of PCOS include:

- Irregular menstrual cycles: Unusual menstruation involves missing menstrual periods or not having a menstrual period at all. It may also include heavy bleeding during the periods.
- Abnormal hair growth: You may grow excess facial hair or experience heavy hair growth on your arms, chest and abdomen (hirsutism). This affects up to 70% of people with PCOS.

- **Acne:** PCOS can cause acne, especially on your back, chest and face. This acne may continue past your teenage years and may be difficult to treat.

- **Obesity:** Between 40% and 80% of people with PCOS have obesity and have trouble maintaining a weight that's healthy for them.

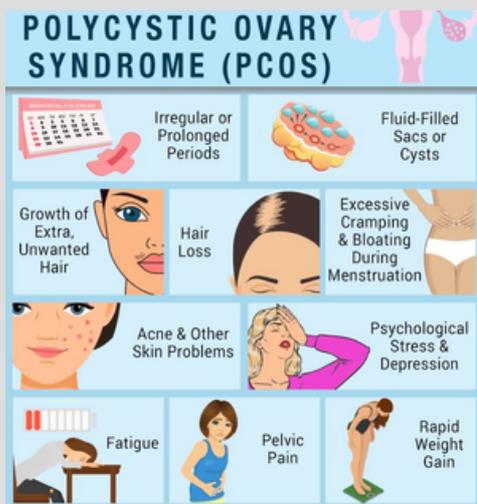
- **Darkening of the skin:** You may get patches of dark skin, especially in the folds of your neck and armpits.

- **Cysts:** Many people with PCOS have ovaries that appear larger or with many follicles (egg sac cysts) on ultrasound.

- **Skin tags:** Skin tags are little flaps of extra skin. They're often found in your armpits or on your neck.

- **Thinning hair:** People with PCOS may have hair loss from the scalp.

- **Infertility:** PCOS is the most common cause of infertility in people. The inability to ovulate frequently can result in not being able to conceive.



WHAT CAUSES POLYCYSTIC OVARY SYNDROME (PCOS)?

The exact reason of PCOS is unknown, but it often runs in families. It is related to abnormal hormone levels in the body, including high levels of insulin.

Many women with PCOS are resistant to the action of insulin in their body and, as a result produce higher levels of insulin to overcome this.

This adds to the increased production and activity of hormones like testosterone. Women with PCOS are likely to develop serious health problems, especially if they are overweight:

- **Diabetes**—more than half of women with PCOS develop type 2 diabetes by age 40. • **Gestational diabetes** (diabetes when pregnant)—which puts the pregnancy and baby at risk and can lead to type 2 diabetes later in life for both mother and child.

- **Heart disease**—women with PCOS are at higher risk, and risk increases with age.

- **High blood pressure**—which can damage the heart, brain, and kidneys.

- **Stroke**—plaque (cholesterol and white blood cells) clogging blood vessels can lead to blood clots that in turn can cause a stroke.

- PCOS is also linked to depression and anxiety, although the connection is not fully understood.

It's common for women to find out they have PCOS when they have trouble in conceiving, but it often begins soon after the first menstrual period, as young as age of 11 or 12. It can also develop in the 20s or 30s.

HOW IS PCOS DIAGNOSED?



Ultrasound :

- This test is used to look at the size of the ovaries and see if they have cysts. The test can also look at the thickness of the lining of the uterus (endometrium).

- Blood tests look for high levels of androgens and other hormones.

TREATMENT FOR PCOS

The treatment in PCOS mainly involves lifestyle changes and medications such as Metformin, Oral contraceptives and Antiandrogens. However, the management of PCOS is challenging. Making healthy changes such as losing weight if you're overweight and increasing physical activity can lower your risk for type 2 diabetes, help you better manage diabetes, and prevent or delay other health problems. There are also medicines that can help you ovulate, as well as reduce acne and hair growth. Patients should make sure to talk with their doctor about all their treatment options.

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ANTIOXIDANTS IN FEMALE INFERTILITY.

Antioxidants are like tiny superheroes, swooping in to rescue faltering fertility, when in reality, they are merely diligent assistants in the complex symphony of reproductive well-being, offering support but not miracles.

WRITTEN BY
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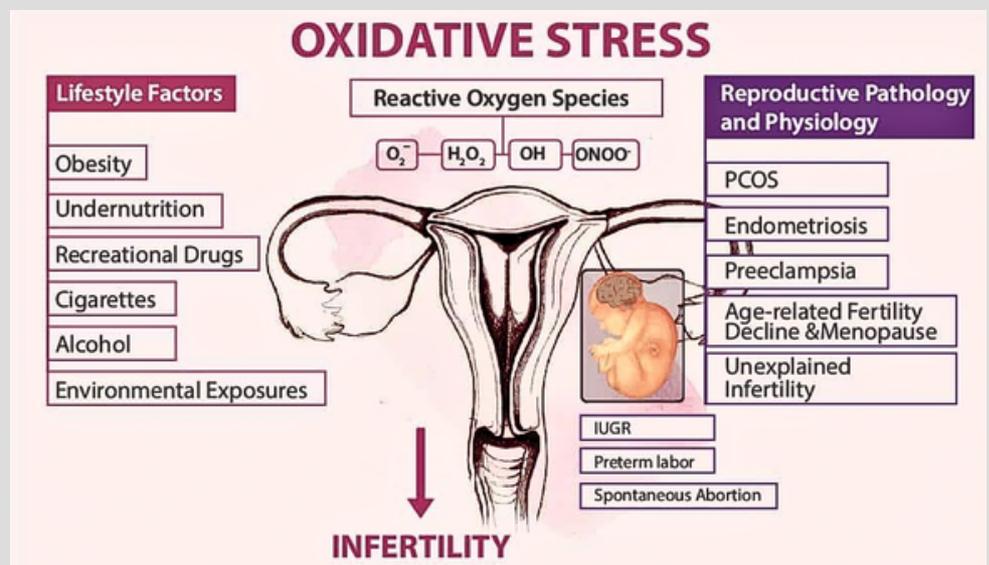
Antioxidants are chemical substance that inhibits oxidation or slow down the damage that caused by oxygen to organisms. Vitamin C or E are antioxidants that potentially remove damaging oxidising agents in a living organism.

Female infertility is a condition woman who is in reproductive stage failure to achieve pregnancy after 12 months or more after unprotected sexual intercourse, affecting 48 million couples worldwide nowadays.

In female reproduction oxidative stress plays a major role in ovulation, endometrium decidualization,

menstruation, oocyte fertilization, and development and implantation of an embryo in the uterus. The physiological concentration of reactive forms of oxygen and nitrogen as redox signal molecules regulate the menstrual cycle, trigger and regulate the length of individual phases of the menstrual cycle.

Low level of reactive oxygens have a significant signaling role in ovulation and in the endometrium of the uterus (decidualization, healing after the menstrual phase without scarring), and thus in fertility. It stimulates energy production, angiogenesis, and regulates the inflammatory response in the female menstrual cycle.



Recent research has found that the decline in female fertility is modulated by pathological oxidation stress. It may trigger many disorders of female reproduction which could lead to gynecological diseases and to infertility. Therefore, antioxidants are crucial for proper female reproductive function. It acts in the metabolism of oocytes, in endometrium maturation via the activation of antioxidant signaling pathways and in the hormonal regulation of vascular action.

Disruption in redox signaling pathways in females can lead to the development and progression of gynecological, immunological, and hormonal disorders that lead to subfertility and infertility.

One of the main tools for improving the female fertility rate is to decrease/normalize OS conditions to the physiologically desirable level and create a reproductive-friendly microenvironment via the right lifestyle and supplementation of antioxidants.

For successful implantation requires elevated ovarian hormones in secretory phase of the menstrual cycle. This process occurs under specific physiological levels of reactive nitrogen and oxygen species related to the signals for interaction in the decidualized uterine endometrium, which is later exposed to extensive changes in oxygen tension during fertilization and pregnancy.

Ovulation, oocyte maturation, ovarian steroidogenesis, luteolysis, luteal maintenance in pregnancy, the development of follicles and blastocysts, and blastocyst implantation as well as embryo development are regulated via reactive oxygen and nitrogen species which fulfill the role of signaling.

In Vitro experiments have clearly emphasized, that deficiency of ovarian glutathione accelerates antral follicles atresia, which leads to high sensitivity of antral follicles to oxidative Stress. It is the same for the process of fertilization and embryonic development.

Recent studies have been found that higher ROS (Reactive Oxygen Species) values in women with unexplained infertility, when compared with their fertile counterpart. The natural accumulation of Free radicals with age can very well explain the poorer quality of oocytes encountered in females of advanced age.

Recent research relives that oxidative stress could be the key factor for the pathogenesis and progression of the endometriosis in female which lead to infertility. Due to the linkage of endometriosis with retrograde menstruation, the peritoneal iron overload impairs the functionality of protective immune cells, rather than simply implantation of shed endometrium. In metabolism of hemoglobin, iron is released which considered as a toxic substance, that will trigger a series of reactions that ultimately generate free radicals which are toxic to the sperm and impair its motility, in addition can arrest embryo development, which explains the infertility in patients with early-stage endometriosis. If more free radicals are generated in endometriosis, toxically it may be effect on oocyte.



In polycystic ovarian syndrome, insulin resistance is encountered in approximately 50% - 70% in patients with PCOS. Deficiency of antioxidants is the responsible for reducing the sensitivity of insulin receptors. As a result, compensatory hyperinsulinemia which augments luteinizing hormone, subsequently androgen production is increased either via its own receptors or via insulin growth factor.

Administration of vitamin C to women with a luteal phase defect increased the level of progesterone in serum and the pregnancy rate. Due to increased oxidation stress during the fertilization process and oocyte maturation, antioxidants are crucial for the proper functioning of female reproduction.

So, imbalance between excess of reactive oxygen species and lack of antioxidants could negatively affect female fertility. Normally, the selected naturally occurring antioxidants show improvement in the endometrial thickness of the uterine lining which is very important for the successful implantation of the embryo. Supplementing with antioxidants during the treatment of infertility might get a good prognosis of assisted reproduction techniques. Some antioxidants are promising in preventing pre-eclampsia and preterm birth.

The administration of antioxidants to patients with reproductive disorders such as PCOS, endometriosis, or functional hypothalamic amenorrhea improved the course of the diseases. However, not all antioxidants are recommended for pregnant women.

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WHO IS STANDING BETWEEN YOU AND YOUR DESIRED LIFE

This blog is to address few main ideas about how to create the life you desire.

Hope to discuss about the determinants of success in your desired life.

WRITTEN BY

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CLASS OF 2024

The center of attention of the topic 'Who is standing between you and your desired life? Who?'

The answer is simply YOU, in other words if I say it's basically yourself. What? My self, No way.

It can not be happen so, how is it that I stand by my desires?. I only want to achieve my desired life.

Yes that is true in a way, you want to achieve your desires but you are not going according to the correct pathway as you should follow. Each and everyone can dream about their desired life but the percentage who are really successful at the end are very low. Reason is they are not being consistent in what they want.



Lets go through the pathway you should follow in this journey. To be more precious I would like to simplify the entire pathway into three simple steps. First step is to clearly understand and identify what you really want in your life. This step varies from person to person because we are not the same although we are from the same species. The life I want is not the same as what another person wants. You can take plenty of time to first understand yourself and then your desires. You can do research by yourself as long as you want, you can ask from you parents, friends and family etc. But the final answer you should take on your own. If you select something according to any other person's opinion but you really don't want to, you will feel it as the correct decision at the very beginning of this journey. But as the time flies eventually you will understand that's not your cup of tea.

**Don't hesitate to take most the important decisions in your life on your own.
BE BRAVE TO FLY ON YOUR OWN WINGS.**

Then moving on to the second step you should make a plan to achieve your goals. The goals can be uncomfortably big but you should make a plan to achieve them considering your potentials. You must schedule results not the actions. When going through this journey you can make different plans and change them if you are not getting the final result. But when something is wrong or not going according to the order you should not change your goal. In the present day context, it's very easy to change the goal or to point finger towards someone or something when you are not getting the final outcome. So eventually you become the obstacle for your own life. First you should be the change if you want to change your life. Change your way of thinking, maximize your potentials and most importantly STOP COMPLAINING. Don't give excuses for your own sake. As an example if your parents are poor, you should not die as a poor person. If you are dying as a poor person, it's your fault not someone else's. You can not give excuses as you like , I don't have money If I had money I probably will succeed. No those are not reasons. Be grateful to what you have in own life and do unlimited attempts to achieve your desired life. No one is stopping you. Your life lies in your own hands.

Third and the most important step is being consistent. That means you should take actions over and over again in same way, with the same vigor every time. The excitement you are getting initially when you started going according to the plan, you should keep that excitement along the entire journey. You will feel low, you will feel to the need to give up but you should finish the journey you started. Stop after you achieved your own desired life. Try over and over again. You must reach the final destination by yourself. This step might take some time, but there's no problem in how much you are spending if you are in the correct position about yourself. Let the world do their commentary because no one can beat your own potentials. People will talk ill about you, they will try to pull you back ,they will judge you but that's totally a normal behavior. But what is abnormal is when you try to change yourself according to other's point of views. Stop explaining about yourself to others. That's your life no body else's. Speak less and put on more actions if you want your desired life. Finally what I really want to emphasize is that you are responsible for your own happiness or sorrow what ever emotional state you are in. And eventually you are the care taker of your life. You can not put on blame to others as you are not getting the life you are dreaming of. There can be lot of struggle but finally you will reach the destination. Don't lose hope until you reach the final destination.



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2. <https://medium.com/@churuiheng/plan-your-life-let-your-desires-come-true-9ed59f8af356>
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What will you feel after reading?

> The Joy of Getting Lost in a Book:

You know that feeling when you watch a really cool movie or play an exciting game? Reading is like that, but even better! When you open a book, you're not just reading words. You're entering a whole new world where anything is possible. It's like taking a vacation for your mind, exploring new places and meeting interesting characters.

> Seeing the World Through Others' Eyes:

Reading is like having a magical glasses that shows you how amazing the world and its people can be. Get ready to wear those special glasses of understanding and see the world through different eyes. It's like making new friends and growing your heart with every story you read! When you read, you start to understand how people feel and why they do what they do. It's like having a superpower that helps you be kind and caring to everyone around you. You'll learn that people can be different, but we all have things in common too.

> Friendship with knowledge:

Your brain soaks up information like a sponge. It's like building your own special collection of facts and ideas that make you smarter with every page. So, whether you're exploring the mysteries of the universe or learning about animals and history. Books hold the answers to your questions. They're like puzzle pieces that fit together to create a bigger picture of the world around you.

> Improvement in communication:

Reading books can make you a better communicator in many ways. It helps you learn new words, understand different ways people talk, and become a better listener. Reading also shows you how to tell stories and understand how others feel. It teaches you about different cultures and ways of talking, and it makes you think and imagine more. As you read, you become more confident in using words and expressing yourself, which helps you talk to others in a clear and interesting way.



Conclusion:

As a medical student, I know how busy life can be with all the big words and important lessons. Reading books isn't just about fun – it's like a secret tool that helps my brain stay sharp and ready. Just like how a superhero trains to be strong, reading helps me train my brain to be super-smart.

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Our Editors

- 1 Mehul Hitesh Sadadiwala (Jan-Mar, 2023)
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