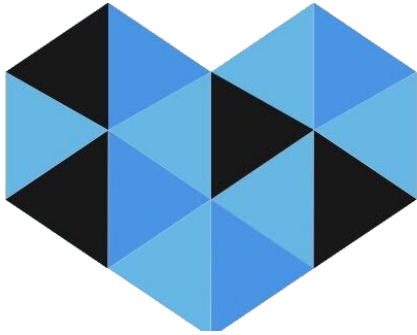


THE PREMED
SCENE, AUGUST
2021



AUGUST 2021 MEDICAL NEWSLETTER

See what's
inside!

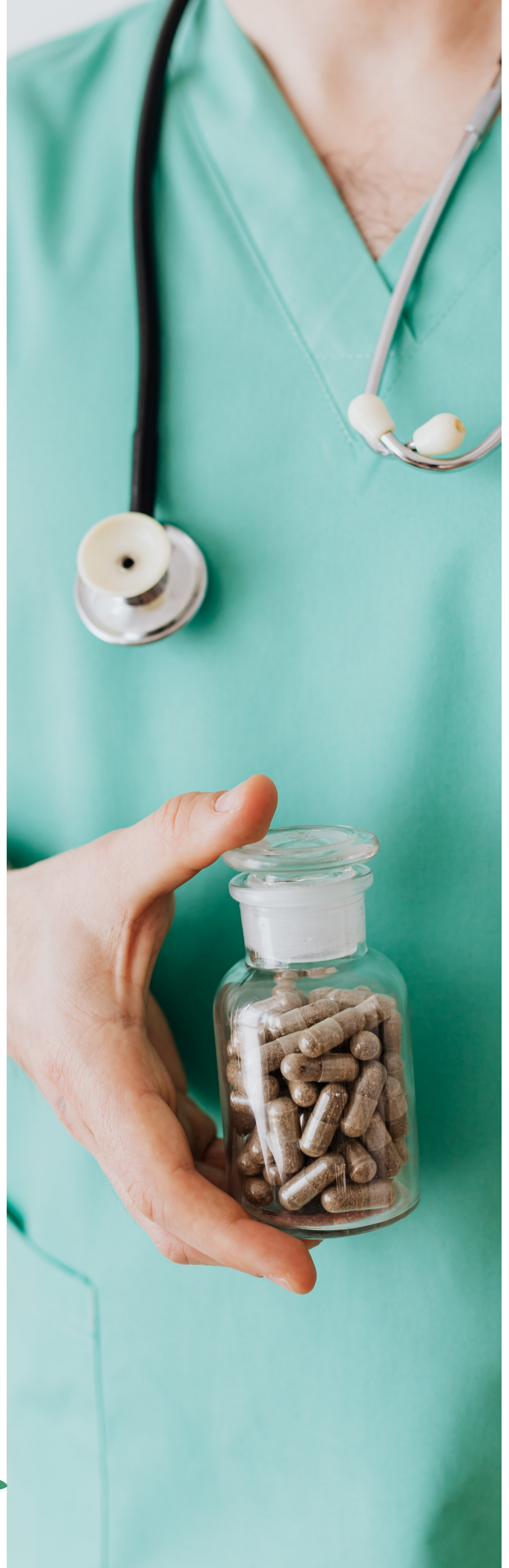
**Page 3 - Specialty Spotlight:
Obstetrics/Gynecology**

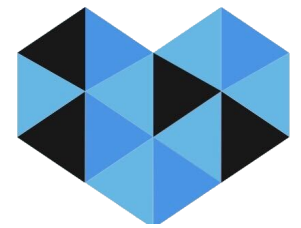
Page 4 - The Benefits of Aerobic Exercise
on Hypertension

Page 5 - To Sleep or Not to Sleep: How
Late Nights Can Contribute to AF

Page 6 - Telemedicine and Genitourinary
Malignancies: Measurement of Patient
Satisfaction

Page 7 - FGM: The Detriments of a
Cultural Practice





A NOTE FROM OUR CO-FOUNDERS:

As a premed myself, I have absolutely loved the content the writers publish for medical newsletters, and I hope all of you would too!

Sai Akarsh Rayaprolu



The content writers have published some astonishing works under the medical newsletter, I'm proud to be working with them!

Sneha Manoharan

It has been a pleasure serving as co-founder, hope y'all enjoy this month's edition of the medical newsletter!

Suhas Babu



Specialty Spotlight: Obstetrics/Gynecology

Aprile Bertomo

What is an Obstetrician/Gynecologist?

An obstetrician/gynecologist (OB/GYN) is a physician who is primarily responsible for attending to pregnancy needs ranging from prenatally to postnatally and evaluating overall female reproductive health. From safely delivering newborns to interpreting menstrual cycle regularity, an OB/GYN serves in multiple but interrelated aspects of human health. The multifaceted nature of an OB/GYN's job is what makes such physicians integral in many respects.

Education and Training:

The road to becoming an OB/GYN is relatively extensive but highly enriching. It often takes approximately twelve years to become such a physician with the following steps:

1. **Four years of undergraduate education** to eventually earn a bachelor's degree
2. **Four years of medical school** in order to become a medical doctor
3. **Four years of a residency program**

Then, in order to obtain a license to practice, the **USMLE** must be taken by those who have completed M.D. programs. Those who have completed D.O. programs may take the USMLE as well or opt to take the **COMLEX** examination.



Boarded Subspecialties:

1. **Maternal/Fetal Medicine**– Physicians become knowledgeable of how to do ultrasonography and other procedures associated with the fetus.
2. **Hospice and Palliative Medicine**– Physicians must understand how to treat patients with illnesses that are particularly life-threatening by adjusting according to a patient's level of comfort.
3. **Reproductive Endocrinology and Infertility**– Such physicians ensure that they are skilled in addressing issues pertaining to hormones or infertility through processes such as in vitro fertilization.

Salary:

OB/GYN salaries often range between approximately \$254,701 and \$353,301.

The Benefits of Aerobic Exercise on Hypertension

Ilana Saidov



Hypertension occurs when an individual's blood pressure measures over 140/90 due to the increased force of blood against the arterial walls. This condition causes certain pathological changes in arteries as well as the impairment of target organs such as the heart and kidneys. Impairment in the heart, specifically in the left ventricular hypertrophy (LVH), is linked to a risk of cardiovascular diseases for hypertensive patients. This is the reason why additional target organs such as kidneys, which regulate extracellular fluid and blood pressure, should be protected. Arteries, which are responsible for regulating blood flow, also become damaged and stiffen in hypertensive patients. These impairments accumulate risk factors for patients which is why it is critical to make sure we find an effective solution to maintain them.

This month, a study on hypertensive rats was conducted to determine whether aerobic exercise can reverse the impairment of the target organs and arteries caused by hypertension. It is important to remember that although the study was conducted on rats, the results can be useful to humans since both species have similar organs and are susceptible to similar diseases.

In order to determine whether aerobic exercise reverses the impairment of organs and arteries caused by hypertension, researchers trained hypertensive rats to swim without weight, a form of aerobic exercise, for different intervals of time six times a week for 15 weeks. This specific type of exercise was used to increase the rat's heart rate as well as oxygen use. The goal of the study was to use this exercise to reduce blood pressure and inhibit the PKCa/Ca²⁺ channel pathway, which is hyperactive during hypertension.

This study concluded that aerobic exercises effectively improve some pathological forms of hypertension. Specifically, there was an improvement in the morphology and structure of the heart, kidneys, and arteries. Thus, aerobic exercise can be used to reduce blood pressure as well as reverse the damage of target organs on a cellular level. These results provide hope for human organ and artery repair which would additionally decrease the likelihood of risk factors associated with hypertension.

Source

Xiong, Yingzhe, et al. "Morphological Study of the Effect of Aerobic Exercise on Organs and Arteries in Spontaneously Hypertensive Rats." *Healthcare*. Vol. 9. No. 8. Multidisciplinary Digital Publishing Institute, 2021.

To Sleep or Not to Sleep: How Late Nights Can Contribute to AF

Aprile Bertomo

As schools begin to reopen for the new semester, students are beginning to experience an influx of assignments to do and exams to take. This sometimes means one thing for many students- staying up late at night. However, a new study published at the beginning of August discourages these late nights, claiming that such, when combined with a relatively poor diet and an absence of physical activity, could contribute to greater risks of atrial fibrillation and coronary heart disease. (2)



"...a new study published at the beginning of August discourages these late nights, claiming that such, when combined with a relatively poor diet and an absence of physical activity, could contribute to greater risks of atrial fibrillation and coronary heart disease."

Atrial fibrillation (AF) is defined as an abnormal, usually increased heart rate that could result in a greater likelihood of developing heart failure or strokes. Almost 38 million people were diagnosed with AF in 2017, and approximately 287,000 individuals passed away due to AF the same year. Health professionals have recommended adhering to suggested lifestyle modifications and being aware of risk factors associated with AF in order to prevent the development of the most common arrhythmia. Despite how beneficial changes to lifestyle may be, however, the development of AF is also reliant, in part, on genetic factors as well. (1, 2)

During this modern age, many have transitioned to working in specific shifts, with taking on night shifts becoming increasingly popular over time. Unfortunately, as studied by Wang et al., 2021, such night shifts can contribute to the exacerbation of heart conditions, such as AF. Through the utilization of a cohort study of more than 280,000 individuals involving a survey regarding work shifts and a follow-up after ten years, it was concluded that, when contrasted against individuals who worked shifts during the day, individuals being exposed to night shift work for an extended period of time developed AF more frequently. Spending approximately three to eight days per week of night shifts was found to be correlated with a greater frequency of AF development, and such a conclusion was made regardless of the influence of environmental factors. Risk of CHD also increased among individuals working night shifts. (2)

With regard to secondary analysis, working nights shifts was also found to be associated with increased risk of developing coronary heart disease (CHD). An absence of engaging in physical activity was observed to exacerbate AF risk as well. Finally, results were grouped by sex, and it was discovered that women had stronger correlations between duration of work shift and CHD risk, when compared to men. (2)

Overall, it is evident that the association between the frequency and duration of time of working night shifts and the development of CHD can be analyzed in varying ways. With such in mind, students should likely think carefully before pulling consistent all-nighters! (2)

Sources:

- "Atrial Fibrillation." Mayo Clinic, Mayo Foundation for Medical Education and Research, 20 June 2019, www.mayoclinic.org/diseases-conditions/atrial-fibrillation/symptoms-causes/syc-20350624.
- Ningjian Wang, Ying Sun, Haojie Zhang, Bin Wang, Chi Chen, Yuying Wang, Jie Chen, Xiao Tan, Jihui Zhang, Fangzhen Xia, Lu Qi, Yingli Lu, Long-term night shift work is associated with the risk of atrial fibrillation and coronary heart disease, *European Heart Journal*, 2021; ehab505, <https://doi-org.proxy.library.cornell.edu/10.1093/eurheartj/ehab505>

Telemedicine and Genitourinary Malignancies: Measurement of Patient Satisfaction

Ashlyn Southerland



With the presence of the ongoing COVID-19 pandemic, telemedicine has emerged as an inclusive and accessible medical practice to further facilitate bonds between physicians and patients. However, it is also a technological medium that has much to be explored. For many specialties and conditions, data proving the efficiency of this arrangement is either scarce or indefinite. Further research is evidently desired in order to entice more patients into accepting and engaging with this particular model.

This month, a new study has provided a hopeful introduction for researchers to begin measurements on telemedicine practice and satisfaction rates. Urology, medical oncology, and radiologic oncology, three specialties with notable challenges in telemedicine implementation, exude particular difficulty with discussing sensitive genitourinary cancer topics. These were tackled and addressed through simple utilization of a Likert scale-based questionnaire. In particular, the questionnaire

followed the Press Ganey Patient Satisfaction Survey, which provided questions that best evaluate time, communication, and overall convenience of each visit.

The study encompassed a total of 142 questionnaire responses, 96 of which were submitted by patients and 46 submitted by corresponding physicians. Spearman correlation coefficient, ordinal logistic regression, and multivariate statistical analyses, approved and reviewed by Columbia University's Institutional Review Board, were applicable strategies used to decipher variations of quantitative data. Upon this review, 77% of patients and 70% of physicians had high scores of satisfaction for nearly every encounter component, including shared decision-making and counseling. In addition, positive discussions of sensitive topics were prevalent in interactions for 78% of patients and 85% of physicians. Nearly 10% of all interactions encountered a moderate or severe technological disturbance or difficulty.

This study reveals that although most physicians and patients were labeled as "extremely satisfied" with their telemedicine visits, technological barriers are a notable obstacle to complete satisfaction. These barriers include low quality internet connections, lack of access to video-compatible devices, low technological comprehension or fluency, and defects within medical-based software and programs. Acknowledging these barriers and seeking ways to improve medical apps and software would be a great first step to minimizing the barrier to telemedicine satisfaction.

Source:

Margolin, E. J., Pina Martina, L. A., Miles, C. H., Wenske, S., McKiernan, J. M., DeCastro, G. J., Hyams, E. S., Drake, C. G., Lim, E. A., Stein, M. N., Deutsch, I., & Anderson, C. B. (2021). Telemedicine in management of genitourinary malignancies: Patient and physician perspectives. *Urologic Oncology: Seminars and Original Investigations*, 39(8), 480-486. <https://doi.org/10.1016/j.urolonc.2021.04.003>

FGM: The Detriments of a Cultural Practice

Oriana Tolentino

The COVID-19 pandemic has led to an increased likelihood of female genital mutilation (FGM) due to the closing of schools and restrictions in mobility which impedes the programs that work against FGM. The risk of girls having this procedure is rising especially since they are spending more time at home.

What is FGM and why is it being practiced?

Female genital mutilation involves removing either a portion or the entire external genitalia for non-medical reasons. The procedure is often performed in unhygienic environments without the use of anesthetics or medications. In addition, the practitioners utilize the same corroded and unsterile equipment to cut various girls.



With more than 200 million living in 31 countries affected, this is regarded as a women's rights violation and a form of violence against children because girls are forced and restrained by their family members and community leaders for the circumcision. FGM has a cultural aspect to it as they believe that this would reduce the women's possibility of having intercourse before marriage which would allow her to be clean, pure, and fit for marriage.

4 Types of FGM

- Type 1 (Clitoridectomy): partial or complete removal of clitoris and/or prepuce
- Type 2 (Excision): partial or complete removal of clitoris, labia minora, and/or labia majora
- Type 3 (Infibulation): sealing the labia minora or labia majora through cutting and stitching in order to restrict the opening of the vagina
- Type 4: other procedures that damage the genitalia including but not limited to piercing and scraping

Effects of FGM to Overall Health

- Agonizing pain when excreting urine, stool, menstrual blood as well as during intercourse
- Presence of bleeding, scars, and cysts
- Increased risk of infections (HIV, AIDS, UTI, etc.)
- Heightened risk for birth complications (prolonged labor, stillbirth, low birth weight, etc.)
- Psychological distress (anxiety, depression, trauma)

A study and case analysis published early this month demonstrated one of the detrimental impacts of FGM which is sexual dysfunction and dissatisfaction. A 19 year old girl from Northern Ghana had a Type 3 FGM (infibulation) and had been searching for a remedy for her apareunia (inability to have vaginal intercourse). Upon further inspection by the researchers, it was discovered that she had no labia minora and majora, left and right frenula, glans clitoris, and prepuce. She also presented with some scarring in her genitalia. Afterwards, the girl followed the researchers' recommendations which was to have a defibulation. This is a type of reconstructive surgery that separates the connected labia and aims to decrease the pain during intercourse. The procedure was a success and the girl was able to continue sexual activity within 6 weeks. However, long-term follow-up sessions must be fulfilled to monitor her condition.

With that being said, proper courses of action must be done in order to drastically reduce the number of young girls and women who have to bear with FGM's consequences. These must protect them from any long-term health problems that may bring forth more torment which may hinder them from reaching their full potential.

Sources:

- Seidu, A. S., Osman, H. D., Bimpong, K. A., & Afriyie, K. (2021). Female genital mutilation/cutting resulting in genital tract obstruction and sexual dysfunction: A case report and literature review. *Case Reports in Obstetrics and Gynecology*, 2021, 1-4. <https://doi.org/10.1155/2021/9986542>
- Frederique, N., & Pearsall, B. (2021, July 16). Female genital mutilation/cutting: An incomplete picture of a pressing global problem. National Institute of Justice. <https://nij.ojp.gov/topics/articles/female-genital-mutilationcutting-incomplete-picture-pressing-global-problem>.

CONNECT WITH US

