

# CROSSROADS

THE OFFICIAL NEWSLETTER OF THE PREMED SCENE



## RISING STARS IN MEDICINE:

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Dear medical newsletter readers,

Happy November! Today, we bring you the most updated news in the field of medical research! Rameesha Mustafa is this month's Rising Stars in Medicine writer, talking more about Dr. Crystal C. Watkins Johansson and her work in understanding the role of nitric oxide synthase in diabetic gastrointestinal dysfunction! Then, Siri Nikku focuses on the overlap between asthma and COPD. Mahima Bhat talks about the benefits of matcha. Finally, Ashby Glover ends by sharing more about preventing postdural puncture headaches.

Please enjoy reading The Premed Scene's November 2023 Medical Newsletter!

*Alana Saidov*

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## Rising Stars in Medicine: Crystal C. Watkins Johansson

By: Rameesha Mustafa

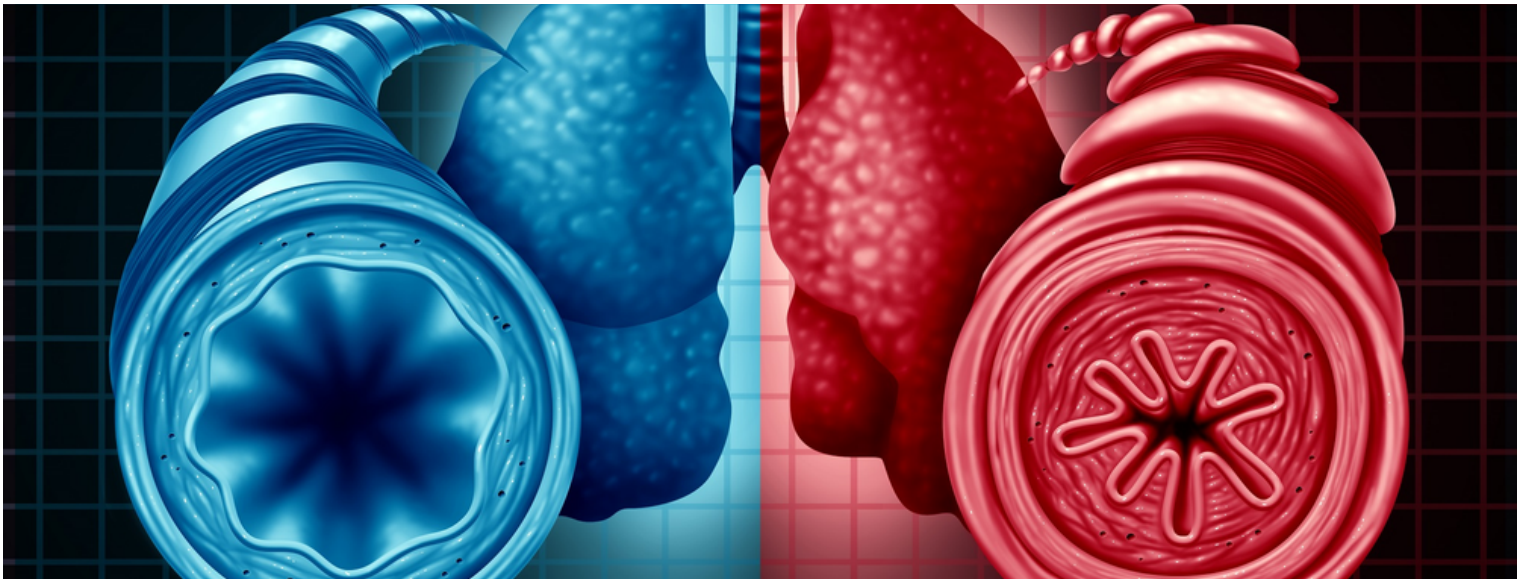
Dr. Crystal C. Watkins Johansson is a neuroscientist, psychiatrist, and associate professor of neuroscience at Johns Hopkins University School of Medicine. She is the director of the Sheppard Pratt Memory Clinic in Neuropsychiatry in Baltimore, Maryland. She is actively involved in advocacy, mentorship, and education. She completed her undergraduate studies at the University of Maryland, Baltimore County, where she participated in the Meyerhoff Scholars Program. After completing her undergraduate degree, she pursued her MD/PhD training at Johns Hopkins University School of Medicine.



Dr. Watkins is well-known for her work in understanding the role of nitric oxide synthase in diabetic gastrointestinal dysfunction. This led to the development of a drug to treat neuropathic pain in patients with diabetes. Furthermore, Dr. Watkins is on the ABRCMS steering committee, which hosts the largest research conference for underrepresented students. She co-founded a literacy program for youth to teach adolescents about preventing teen pregnancy and volunteers with the Adolescent Depression Awareness Program. She has been recognized by many media outlets, including the Wall Street Journal. She was named the Top 100 Women in Maryland in 2012, along with many other awards. Her contributions to the healthcare world have been unparalleled as she continues to commit her time to educating communities and patients about HIV/AIDS prevention as well as conducting research on the psychological and neurological complications of the various stages of infection. Dr. Watkins's work is poised to catalyze numerous advancements in the future, serving as a beacon of inspiration, encouraging young scientists to embark on their journeys of exploration and discovery, ultimately shaping a brighter and more progressive future for science.

Source:

<https://www.usmf.org/directory/crystal-watkins-m-d-ph-d-df-apa/>



## Asthma and COPD Overlap in Medicine

By: Siri Nikku

While asthma and chronic obstructive pulmonary disease are characterized differently, they often overlap each other, making it hard for medical professionals to differentiate between the two. The term asthma-COPD overlap (ACO) was created to describe this situation that happened prevalently in several clinical settings. ACO was defined usually by the patient being over 40, having restricted airflow, and having asthma. The pathogenic processes for both conditions could be different or interact with each other, but these are not confirmed. One hypothesis is that two entities cause asthma and COPD, while another theory states that the two conditions have different origins and causes. Smoking tobacco has caused airflow limitation, leading to COPD in patients with asthma. Alternatively, a patient without asthma who is sensitive to allergens can also develop COPD, getting inflamed airways. The risk factors of ACO include smoking, age, and airway inflammation, which are similar in both asthma and COPD. Differences between the environment and the genetics of patients have also played a part in how ACO is presented in patients. There also seems to be a pattern of the bacteria microbiomes being similar among patients with ASO, implying that treatment could involve antibiotics to reduce the symptoms of ACO.

Presently, general nonpharmacologic measures used to manage COPD and asthma have been used for ACO treatment, which includes smoking cessation, annual influenza and pneumococcus vaccinations, inhaler technique education, avoidance of provoking allergy factors for people susceptible to known allergens, and pulmonary rehabilitation. Some therapies mentioned were Anti-IgE, Anti-IL-5/IL-5 Receptor Alpha (IL-5Ra), L-4 Receptor Alpha (IL-4Ra), and IL-13. They all have a commonality of summoning eosinophils and mast cells to manage inflammation and increase airflow. More research still needs to be done on the biomarkers and other antibodies that could be utilized, but the ones mentioned have potential. They could be included in a study with more people to ensure the treatments work with people of all different backgrounds.

Source:

<https://www.mdpi.com/2075-4426/13/4/677>

## Benefits of Regular Matcha Intake

By: Mahima Bhat



Matcha, a vibrant green tea powder derived from shade-grown tea leaves, has gained widespread popularity for its exceptional health benefits and unique flavor profile. Packed with antioxidants, matcha offers a concentrated source of catechins, notably epigallocatechin gallate (EGCG), renowned for its potent cancer-fighting properties. Beyond its antioxidant prowess, matcha contains caffeine and the amino acid L-theanine, fostering a balanced energy boost and enhanced cognitive function without the jitters often associated with other caffeinated beverages. Moreover, matcha is celebrated for its potential role in boosting metabolism and aiding in weight management.

Rich in antioxidants, particularly EGCG, it demonstrates anti-inflammatory properties that may alleviate symptoms associated with conditions like arthritis. The combination of L-theanine and caffeine in matcha contributes to stress reduction and improved mental focus, potentially aiding individuals with chronic stress-related conditions. Matcha's potential to regulate blood sugar levels and support cardiovascular health makes it valuable for those managing diabetes and heart-related conditions. With its holistic blend of nutrients, matcha stands out in herbal healing, offering a natural and versatile approach to promoting overall well-being.

It is an excellent source of vitamin C, providing a potent antioxidant boost crucial for immune function and skin health. Additionally, matcha is abundant in chlorophyll, contributing to its vibrant green hue and detoxifying properties. The tea is a notable source of vitamins A and B-complex, promoting vision health and energy metabolism, respectively. In terms of minerals, matcha provides significant amounts of potassium, iron, and calcium, supporting heart health, oxygen transport in the blood, and bone strength. This well-rounded profile makes matcha a flavorful beverage and a nutrient-dense addition to a balanced diet.

Sources:

<https://www.healthline.com/nutrition/7-benefits-of-matcha-tea#what-is-matcha>.

<https://ikedamatcha.com/blogs/tea-news/matcha-powder-health-benefits#:~:text=It%20also%20has%20minerals%20such,intake%20of%20vitamin%20A%20carotene>.



## The Search for Effective Prevention of Postdural Puncture Headache

By: Ashby Glover

Tapping into the spinal cord serves many purposes in modern medicine. Doctors commonly use a lumbar puncture to diagnose illness or administer anesthesia, often as an epidural during childbirth.



Although the procedure is safe and has excellent benefits for diagnosis and pain management, afterward, anywhere between 2% and 40% of people develop what is known as a Post-Dural Puncture Headache (PDPH) or spinal headache, depending on the gauge of needle used to perform the procedure.

(1)

Spinal headache occurs when the amount of cerebrospinal fluid (CSF) around your brain decreases. The loss of fluid causes low CSF pressure around your brain (intracranial hypotension). This causes your brain to sag downward. The surrounding nerves and tissues become stretched, resulting in a headache. (2) The pain from the intense headache is usually worse when upright and better when lying flat, and it is often accompanied by neck stiffness, photophobia, nausea, or subjective hearing symptoms. (3)

The headache usually subsides about a week after onset but can be debilitating while it persists. Given the regularity of spinal taps in various areas of medicine and the high rate of resulting headaches, there is a need to find an effective method of preventing them.

1. Ali Jabbari, et al. "Post spinal puncture headache, an old problem and new concepts: review of articles about predisposing factors." *Caspian Journal of Internal Medicine* 4, no. 1 (2013): 595–602. PMID: [PMC3762227](https://pubmed.ncbi.nlm.nih.gov/3762227/)

One study used a large-scale analysis method to review twenty-two randomized controlled trials (RCTs) with almost 5,000 pregnant women to analyze the best prophylactics among those studies. Based on the data, they tentatively suggested that three of the medicines may be more effective at preventing PDPH. Still, they emphasized that better-designed RCTs are needed to validate their conclusions. (4)

As recently as August of this year, an article in *JAMA* stressed the need to improve education and understanding of post-dural puncture headaches among clinicians and additionally put out a call to action to address gaps in research on this topic. (5) They especially stressed the importance of improving communication with patients.

"Complications happen; clinicians must ensure that when they do, patients receive high-quality, evidence-based, compassionate, and patient-centered care."(5)

2. "Spinal Headaches" May 7, 2023. <https://my.clevelandclinic.org/health/diseases/17927-spinal-headaches>

3. Brian T. Bateman, et al. "Post-Dural Puncture Headache." November 3, 2022. <https://www.uptodate.com/contents/post-dural-puncture-headache>

4. Ge Zhao, et al. "Efficacy of pharmacological therapies for preventing post-dural puncture headaches in obstetric patients: a Bayesian network meta-analysis of randomized controlled trials." *BMC Pregnancy Childbirth* 23, no. 1 (2023): 215. PMID: [PMC10053677](https://pubmed.ncbi.nlm.nih.gov/3762227/)

5. Mark C. Bicket, et al. "Improving the Management of Postdural Puncture Headache—An International Clinical Guideline and Call for Better Evidence." *JAMA Netw Open* 6 no. 8 (2023):e2325348. doi: [10.1001/jamanetworkopen.2023.25348](https://doi.org/10.1001/jamanetworkopen.2023.25348)