



# CROSSROADS

*The official newsletter of The Premed Scene*

**The Hope Corner:**  
"The Multifaceted  
Impact of  
Humor"



## A Word from our Newsletter Director

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Dear newsletter readers,

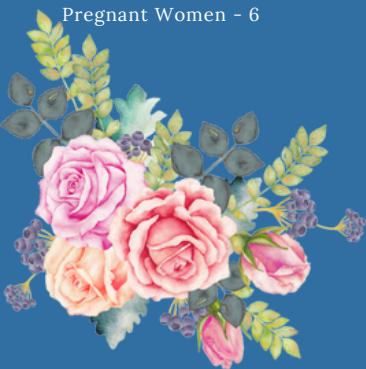
Summer is almost around the corner and scientists around the globe have been working like busy bees - researching and sharing their results with the rest of the scientific community. And to make your life as a budding scientist easier, the Premed Scene's content writers, have also gotten busy. Aprile Bertomo, Oriana Tolentino, Ilana Saidov, and Ashlyn Southerland have gathered some juicy content in the science world.

Food...our first article, written by Oriana, features a study conducted by researchers at Yale University, as they have looked into the pathway and effects of augmentor-alpha protein. As it turns out, it affects metabolism and eating disorders. The next article, written by Ashlyn, is on a study on mental health, which has dramatically risen in recent years. In addition to writing this month's The Hope Corner article, Aprile's has highlighted a study on the gap in medical research for children. Both are very worthwhile reads. Lastly, we have Ilana Saidov, whose highlight article is titled "The Secret to Anemia Prevention in Pregnant Women." Check it out!

Hope you enjoy this month's research article selection!

Yours truly,

*Ryzen Belle Harran*  
Ryzen Belle Harran



# The Multifaceted Impact of Humor

Aprile Bertomo

Have you ever heard of the saying, "A laugh a day keeps the doctor away?" Alright, maybe you're thinking that saying is not as you remember it, but research has found that engaging in humor can be beneficial to your wellbeing. Here are some ways that humor and laughter can help you.

## SHORT-TERM BENEFITS:

### **RELIEVING OF OVERALL STRESS RESPONSE**

Utilizing humor can assist you with decreasing heart rate and overall blood pressure!

### **STIMULATION OF ORGANS**

A good laugh can help with overall organ stimulation! Laughing actually assists with increasing the amount of oxygen we input into our bodies, stimulating the muscles and heart, and increasing endorphin production by the brain!

### **SOOTHING OF TENSION**

Humor can help with soothing tension by circulation stimulation and relaxation of muscles. These can help with overall reduction in stress.

“

*...engaging in humor can be beneficial to your wellbeing.*

## LONG-TERM BENEFITS:

### **RELIEVING OF PAIN**

Laughter may allow for production of natural painkillers in the body.

### **IMPROVING MOOD**

Laughing has the potential to relieve stress and, ultimately, increase self-esteem, allowing for better mood overall.

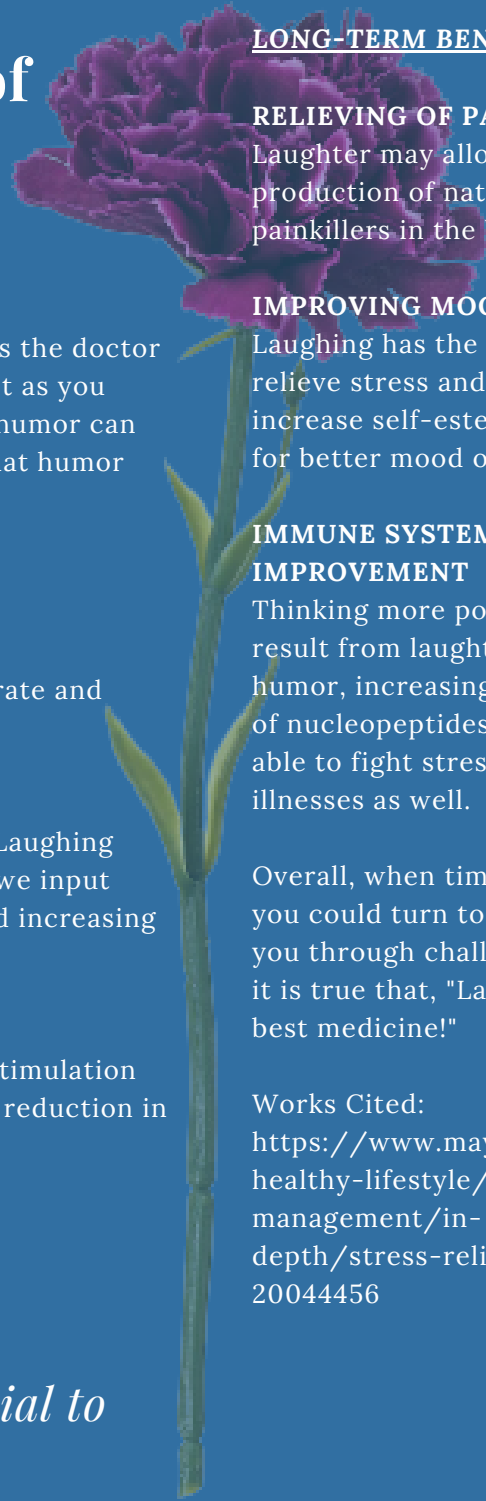
### **IMMUNE SYSTEM IMPROVEMENT**

Thinking more positively can result from laughter and humor, increasing circulation of nucleopeptides, which are able to fight stress and other illnesses as well.

Overall, when times get tough, you could turn to humor to get you through challenges. Maybe it is true that, "Laughter is the best medicine!"

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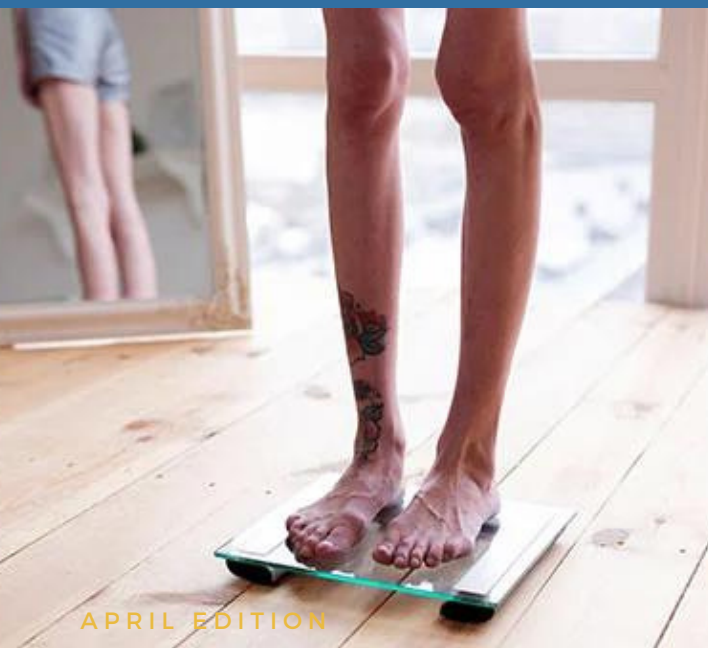


## Augmentor-alpha and its Effect on Body Weight

Oriana Tolentino

This month, scientists from Yale University discovered that augmentor-alpha is capable of managing metabolic processes and body weight in mice. From previous research, it is known that the aforementioned protein has a role in cancer progress because it attaches and activates the anaplastic lymphoma kinase receptor (ALK).

Through locating augmentor-alpha in the hypothalamus, the researchers observed that it was more expressed within the agouti-related peptide (AgRP) neurons which are responsible for allowing an individual to feel hunger. Furthermore, when the mice were deprived of food, there was an increased expression of augmentor-alpha in the AgRP neurons which indicates that fasting encourages the production of the protein. Normally, during fasting, the mouse would limit physical activity to conserve energy. However, it was discovered that mice without augmentor-alpha were still very active.



With that, there could be the development of new treatment options for metabolic disorders. For instance, a drug that inhibits the augmentor-alpha's activity would be beneficial for those suffering from excessive weight gain and the resulting illnesses. On the other hand, medications that increase the protein's effect would be useful in managing conditions involving detrimental weight loss like anorexia.



## Young Adult Dysfunctional Breathing, Attachment, and Emotion Regulation

Ashlyn Southerland

In the United States, there are many young people classified with a mental illness. Particularly, as many as 22% of young people could be categorized with a mental illness or condition, and therefore could qualify for diagnosis, services, and treatments. But why is the prevalence of mental illness continue to rise so rapidly in this population?

This is a question that has left decades of researchers curious, yet uncertain. After all, mental health is vastly complex, and it could be nearly impossible to deduce mental health conditions to one particular action or consequence. However, a new finding has been discovered this month that may aid in the trajectory of understanding both the incidence and prevalence of multiple mental health conditions.

A research study containing a total of 254 participants discovered that there were statistically significant correlates between dysfunctional breathing (a respiratory condition consisting of irregular or abnormal breathing patterns), attachment (deep and emotional bond between two people), and emotion regulation (ability to gain control over one's emotions). This is the first study of its kind to report and identify these relationships.

Understanding this correlate could make a notable impact in both medicine and mental health. For example, the researchers suggest that a mental health intervention be created with focuses on breathing and attachment to measure changes in one's mental health condition. Initiatives with these components, if explored further, could then lead to discoveries in the young adult population.

# Pediatric Medical Testing Gap

Aprile Bertomo

Being able to accurately diagnose ill patients is critical to eventually achieving good health. However, consider thinking about the effects of false or incorrect diagnoses as a result of inaccurate reference intervals for determining disease. A new study was published this month regarding the importance of proper, accurate diagnosis of disease among pediatric patients through more in-depth analysis and, ultimately, modification of reference intervals.

For clarity, reference intervals are defined as the parameters of regular test values for assessment of degree of regularity of healthy pediatric development in terms of contexts such as age, gender, and ethnicity. Yet, in a study recently conducted by Ryle et al., 2022, it was found that these particular reference intervals are inaccurate, raising concerns regarding how accurate health professionals' diagnoses of healthy pediatric development truly are.



Consequently, these researchers performed more rigorous analyses of these reference intervals, paying specific attention to bioavailability of tryptophan, thyroxine, hemoglobin, ferritin, cystatin C for prediction of pediatric kidney disease, testosterone, estradiol, and IGF-1. Relative bioavailability of these are strong markers of child development. These researchers' study found that tryptophan, thyroxine, cystatin C, ferritin, testosterone, and estradiol bioavailability ranges were inaccurate, in particular. One specific example of the dangers of inaccurate diagnoses noted was in terms of bioavailable tryptophan and thyroxine. It was determined that the established reference interval ranges were incapable of taking the increase in tryptophan and thyroxine that normally occurs in children earlier in development.

As a result of their research regarding these reference intervals, Ryle et al., 2022 suggested greater implications of their findings and next steps. They noted the need for identification of such inconsistent scales of determining the biochemistry surrounding regular pediatric development, emphasizing that consistent facilitation of communication and overall collaboration among health professionals is key to more holistic and accurate childhood development analyses.

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# The Secret to Anemia Prevention in Pregnant Women

Ilana Saidov



The secret to preventing anemia in pregnant women, specifically in the third trimester, may not be what you expect. A recent study by the Clinic of Dina Karya Medan found that beetroot, a fruit commonly used for its sweetness for health medicine, can be used for additional health benefits for pregnant women. Beets contain 34% of folic acid that is beneficial in replacing damaged cells, preventing defects in the fetus, and supporting fetal brain development. Additionally, beets contain 14.8% of potassium which is necessary for balancing the fluid conditions in the body and 13.6% of dietary fibers that nourish digestive organs. Along with these benefits, beets are used to maintain and support the immune system, muscle function, nervous system, children's growth, and metabolism.

Pregnant women commonly lack the necessary intake of nutritious foods that are high in folic acid and a necessary amount of rest. These conditions lead to an abnormal hemoglobin level. The study conducted led to the conclusion that beetroot juice can increase hemoglobin levels which can prevent anemia since the fruit contains the necessary amount of folic acid and iron. The benefits of beetroots are also found in cancer prevention since they can destroy tumors and cancer cells due to the betacyanin content.

I find it fascinating that this single fruit has the necessary nutrients and vitamins to lower the risk of intrauterine death, low birth weight, and congenital defects commonly associated with anemia.

## Source:

Sembiring, J., D. Kadir, and N. Mouliza. "The Effect of Giving Beet Juice With Prevention of Anemia In Pregnant Women In Trimester III At The Clinic Of Dina Karya Medan In 2021". *Science Midwifery*, Vol. 10, no. 2, Apr. 2022, pp. 945-51, <https://www.midwifery.iocspublisher.org/index.php/midwifery/article/view/341>.

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