



THE CADUCEUS

The Official Newsletter of the
Texas A&M Pre-Medical Society

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TONIGHT'S MEETING

- Tonight our speaker is Dr. Jason Tippett who is an anesthesiologist in Temple, Texas. He went to medical school and attended residencies all in Texas. Be sure to give him a warm welcome!

ANNOUNCEMENTS

- Attend our profit share at Urban Brick Pizza this Wednesday (Feb 6) 5-9pm! When you go, mention that you're with the Pre-Medical Society. Be sure to send a copy of your receipt to Jessica for 3 points!
- Sign up for Big Event with our group by February 15th online!
- Our new shirts are in! They're \$15 each (or free with semester membership).
- We have our Philanthropy Committee Bake Sale on Feb 14th and our Valentine's Social on February 15th from 7-10pm. We'll have more info soon.
- In order to officially become a member (and earn points), you **MUST** fill out a membership form and pay dues! Dues are \$45 for the semester or \$65 for the full year.
- **VOLUNTEERING: You must be a member to volunteer and are required to wear your Pre-Medical Society shirt, long pants, and closed toed shoes. For Phoebe's Home, you must attend an orientation before volunteering. For St. Joseph's Manor, you will need a TB Test and a current flu shot.**

POINT OPPORTUNITIES

Pre-Med meeting attendance	3 Points
ECHO meeting attendance	2 Points
Wearing Pre-Med shirt at any meeting	1 Point
Social/intramural attendance	2 Points
One hour of volunteering	1 Point

MEMBERSHIP LEVELS

Exemplary	100 Points
Distinguished	75 Points
Honored	50 Points
Member	<50 Points

The points system is used to determine our members' participation within the society. The various echelons of awarded membership allow one to truly benefit from all the society has to offer and to capitalize on this involvement during the medical school application process.



Our Member of the Week is Priya Bandy! Priya is a BIMS major who has been a part of the Pre-Med Society for a long time! Thanks for the hard work over the years!

Joke of the Week



Practice MCAT Question

Blood flow is expected to be the fastest through which of the following:

- A. aorta.
- B. capillaries.
- C. venules.
- D. arterioles.

UPCOMING EVENTS

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		5 Pre-Med Meeting 7:00-8:00	6 Profit Share! Phoebe's Home 5:00-7:00	7 TCM Resale Shop 9:00-6:00	8 St. Joseph's 2:30-4:30	9
10	11	12 ECHO Meeting 7:00-8:00	13 Phoebe's Home 5:00-7:00 PH Orientation 4:00	14 Bake Sale! TCM Resale Shop 9:00-6:00	15 Valentine's Social! St. Joseph's 2:30-4:30	16
17	18 PH Orientation 4:00	19 Pre-Med Meeting 7:00-8:00	20 Phoebe's Home 5:00-7:00	21 TCM Resale Shop 9:00-6:00	22 St. Joseph's 2:30-4:30 PH Orientation 11:00	23
24	25	26 ECHO Meeting 7:00-8:00	27 Phoebe's Home 5:00-7:00	28 TCM Resale Shop 9:00-6:00	1 St. Joseph's 2:30-4:30	2

Daily Volunteering:

MHMR on Wed, Thurs, Fri from 10-2pm. You can volunteer for as long as you'd like (credit up to 2 hours)!

NOTE: Volunteering opportunities are meant for members to attend as they please. We will offer rides to Phoebe's Home and St. Joe's, but not MHMR or the TCM Resale Shop.

ALSO check your volunteering requirements! (orientation/application/vaccines)

DUES AND T-SHIRTS

\$45 for one semester*

\$65 for the full year*

*includes T-shirt

New shirts are \$15

Old shirts are \$5

Athletic shirts are \$12

UPCOMING OPSA WORKSHOPS/ EVENTS

Medical/Dental Portal Workshops*

- February 13, 5:00pm—6:00pm

ECHO Symposium

- February 26, 10:00am—2:00pm

Freshman Informational

- February 28, 5:30pm—6:30pm

*required if you plan to attend medical school in Fall 2020! You'll need to attend THIS Spring 2019! (typically applies to Juniors)

Fasting Boosts metabolism and fights aging

By: Tim Newman

Studies have shown that intermittent fasting can help certain people lose weight.

Although researchers are still debating exactly how effective fasting can be for weight loss, new research hints at other benefits. In rats, for instance, studies show that fasting can increase lifespan. Although exciting, evidence of this in humans has yet to be seen. The most recent study — which the authors have now published in the journal *Scientific Reports* — takes a fresh look at fasting in humans and provides new insight.

"Recent aging studies have shown that caloric restriction and fasting have a prolonging effect on lifespan in model animals," says first study author Dr. Takayuki Teruya, "but the detailed mechanism has remained a mystery."

In particular, scientists at the Okinawa Institute of Science and Technology Graduate University in Japan examined its impact on metabolism. By understanding the metabolic processes involved, the team hopes to find ways of harnessing the benefits of fasting without the need to go without food for prolonged periods.

To investigate, they fasted four volunteers for 58 hours. Using metabolomics, or the measurement of metabolites, the researchers analyzed whole blood samples at intervals during the fasting period.

What happens during fasting?

As the human body is starved of food, there are a number of distinct metabolic changes that occur.

Normally, when carbohydrates are readily available, the body will use them as fuel. But once they are gone, it looks elsewhere for energy. In a process called gluconeogenesis, the body derives glucose from noncarbohydrate sources, such as amino acids. Scientists can find evidence of gluconeogenesis by assessing the levels of certain metabolites in the blood, including carnitines, and butyrate.

As expected, after fasting, the levels of these metabolites were present in the participants' blood. However, the scientists also identified many more metabolic changes, some of which surprised them. For instance, they saw a marked increase in products of the citric acid cycle. The citric acid cycle happens in mitochondria, and its function is to release stored energy. The hike seen in the metabolites associated with this process means that the mitochondria, the fabled powerhouses of the cell, are thrust into overdrive.

Another surprise finding was an increase in levels of purine and pyrimidine, which scientists had not yet linked to fasting. These chemicals are a sign of increased protein synthesis and gene expression. This suggests that fasting causes cells to switch up the type and quantity of proteins that they need to function.

Fasting promotes anti-aging compounds

Higher levels of purine and pyrimidine are clues that the body might be increasing levels of certain antioxidants. Indeed, the researchers noted substantial increases in certain antioxidants, including ergothioneine and carnosine. In an earlier study, the same team of researchers showed that, as we age, a number of metabolites decline. These metabolites include leucine, isoleucine, and ophthalmic acid.

In their latest study, they showed that fasting boosted these three metabolites. They explain that this might help explain how fasting extends lifespan in rats.

In all four subjects, the researchers identified 44 metabolites that increased during fasting, some of which increased 60-fold.

Of these 44, scientists had linked just 14 to fasting before. The authors conclude that "[c]ollectively, fasting appears to provoke a much more metabolically active state than previously realized."

"These are very important metabolites for maintenance of muscle and antioxidant activity [...]. This result suggests the possibility of a rejuvenating effect by fasting, which was not known until now." -Dr. Takayuki Teruya

The scientists believe that a hike in antioxidants might be a survival response; during starvation, our bodies can experience high levels of oxidative stress. By producing antioxidants, it might help avoid some of the potential damage caused by free radicals.

Next, they want to replicate the results in a larger sample. They also want to identify possible ways of harnessing the beneficial effects of fasting and find out whether they can trigger the effects of caloric restriction without having to restrict caloric intake.

Although it will be some time before we can reap the benefits of fasting without the effort, the current findings provide further evidence of the health benefits of fasting. *(article from medicalnewstoday.com)*

Answer to MCAT Question: A