

Betsy says HI!!!!

Announcements

The next LABQUEST meeting will be Wednesday, August 14 at 12:30 in the GSA trailer.

Science Report Highlights

Betsy and Dan thought all the items in following science report from Charles were interesting but most liked the following:

- Lead, Arsenic and Cadmium Found in Tampons
- New FDA Rare Disease Hub
- Vitamin B12 and Vitamin D
- Walking to Relieve Lower Back Pain
- Rare Earth Elements From Abandoned Appalachian Coal Mines

Science Report

Self-Protective Measures -

You should get your medical advice from official sources, your doctor, or your pharmacist ... not from this Report or the internet. Per recommendations by FDA and CDC, everyone should maintain current vaccinations for the three respiratory viruses: Covid, flu and RSV (for RSV, adults [over 60](#) and children [younger than 8 months](#)) - unless your doctor advises against it based on your medical record. Adults over 50 should have had the [Shingrix vaccine for shingles](#) (two doses 2 to 6 months apart, good indefinitely).

- [Visitor Brings Measles Public Exposure to Three Locations in Arlington VA and Washington DC](#) - The Harris Teeter at 624B N Glebe Road in Arlington VA between 12 pm and 4 pm on July 1, the CVS Pharmacy at 2226 Wisconsin Avenue NW in DC between 10 am and 2 pm on July 2, and LabCorp at 2233 Wisconsin Avenue NW in Washington DC between 11 am and 1 pm on Tuesday, July 2. [Details](#). If you've been [vaccinated](#), no worries.
- [Lead, Arsenic and Cadmium Found in Tampons](#) - by researchers at the University of California at Berkeley in a new study. The study did not investigate whether [these and other toxic materials](#) are being transferred into the body in amounts that would be concerning, but there is no safe exposure to lead. [FDA regulates tampons as a medical device](#). Background FDA advice on tampon use [here](#). Stay tuned.
- [CDC Report on Bird Flu Outbreak](#) - among farm workers tasked with euthanizing infected chickens, [here](#).
- [New FDA Rare Disease Hub](#) - will coordinate the inter-Center activities of the FDA Center for Drug Evaluation and Research (CDER) and the Center for Biologics Evaluation and Research (CBER) on [rare disease issues](#). Hub coordination will be led by the Director of Strategic Coalitions for the Hub (see the CDER vacancy announcement [here](#)), who will also be the CDER Associate Director for Rare Disease Strategy (actual title), within the Immediate Office of the Director CDER [Jonathan G.]

- Vitamin B12 and Vitamin D - Check with your doctor to test whether your blood concentration of these two vitamins is low enough to require a supplement. By age 65, 40% may have digestive issues that result in poor absorption of dietary B12. 25% of US adults have insufficient blood concentrations of Vitamin D. AARP [details](#).
- NIH BMI Calculator - Use the [NIH](#) National Heart, Lung and Blood Institute [calculator](#) to find your Body Mass Index (BMI). Above 25 - overweight. Above 30, check with your doctor, consider better nutrition, and exercise.

Vaccine and Therapeutic News -

- Bacteriophage Approach to Antibiotic Resistant Bacteria - A new approach to storing and transporting bacteriophages may make them much easier to use where antibiotics fail. A recently [published](#) study from researchers at McMaster University promises to make them more practical to use, [here](#). [Steve H.]
- Preventing and Controlling Candida Auris in Health Care Settings - FDA has authorized marketing of DiaSorin Molecular LLC's 'Simplexa C. auris Direct', a molecular-based assay intended to detect Candida auris (C. auris) DNA from a skin swab of the armpit or groin from patients suspected of C. auris colonization - frequently resistant to multiple antifungal drugs.

Other Health Science News -

- Dartmouth College Researchers Find PFAS in Pregnant New Hampshire Women's Plasma and Breast Milk - in higher levels if they had been eating eggs, coffee, rice and seafood - 3,000 pregnant women from 18 to 45. Study of potential PFAS effects on breastfeeding [here](#).
- Pancreatic Cancer - is a deadly form of cancer that claims 50,000 US lives annually, and there are no decisively effective therapies because the cause wasn't understood. Now the [cause of about 50% of pancreatic cancers](#) may have been discovered, in a [study](#) done by researchers at the University of California at San Francisco. A gene therapy treatment derived from that discovery has proven to be effective in mice - the same approach may also be effective in lung and breast cancer. It's a lab experiment for now - human trials next. [Publication](#).
- Walking to Relieve Lower Back Pain - Details. An Australian study [published](#) this month, indicated that a modest walking program can help reduce recurrence of pain and improve mood. [Barbara R.]
- Neonicotinoids - are a class of neurotoxins used as pesticides, and have recently been detected in about half the US population. See a video posted by the Natural Resources Defense Council [here](#). Buy organic.
- Rigorous 1-Week, No-Sugar, High-Fiber, Anti-Inflammatory Plan - created by a dietician to deal with medical metabolic syndrome issues, [here](#). See a more extended how-to video [here](#).
- Home Kitchen Sources of Microplastics - details [here](#) Summary: plastic cutting boards, paper cups (inside coated with plastic, all bamboo ok), water bottles, conventional tea bags. plastic ice cube trays.
- Are Your Stools Healthy? - Check the Bristol Stool Chart [here](#). Ideally you should be a Type 3 or 4. This simple check, that you can routinely do yourself in a few seconds, may help catch a problem early, and could provide important information for your doctor. [Details](#).

Practical Nutrition -

- [The One Class of Food Those Over 60 Should *Not* Be Eating](#) - according to a registered dietician, [here](#). Summary: high fat, high Sodium [processed meats](#) such as deli meat, bacon, sausage, hot dogs, cured and smoked meats.
- [Number One Food a Dietician *Recommends* for Older Adults](#) - Salmon, a fatty fish rich in polyunsaturated fat ... long-chain omega-3 polyunsaturated fatty acids. The [recommendation](#) is to eat salmon at least twice per week to support brain health and reduce inflammation.
- [9 Healthiest \(Least Unhealthy\) Cheeses](#) - according to a registered dietician, [here](#). Stick to the **1 oz portions** listed for most, so as not to blow your daily saturated fat, Sodium and calorie budget all in one go. The sheep/goat cheeses are naturally free of Beta Casein Protein 1, unlike cheeses based on cow's milk, and are therefore naturally more digestible. Small portions of Parmesan, low fat ricotta and Manchego provide good flavor for cooking without too much downside, and have good nutrients.
- [3 Best Nuts for Regularity and Low Colon Cancer](#) - according to a gastroenterologist, and why, [here](#). Summary: almonds, walnuts (antioxidants), and pistachios for best fiber and protein with lowest carbs and calories.
- [Breakfast Oats](#) - See 6 reasons why dieticians recommend oats, [here](#).
- [15 Fruits for Reducing Chronic Inflammation](#) - Details from a registered dietician [here](#). The components of these fruits that are antiinflammatory are primarily [antioxidants](#) and [fiber](#), and they are rich in both. *Frozen* fruits as components of smoothies are just as good, and maybe better, than fresh.
- [Misleading Words For Sugar](#) - High-fructose corn syrup, sucrose, barley malt, dextrose, maltose and rice syrup are all [forms of sugar](#). Certain blood alcohols sometimes used as sweeteners, such as Erythritol and Xylitol, are made by the body and occur naturally in certain foods - but in very small amounts. They have recently been [linked to heart disease and stroke by Cleveland Clinic researchers](#), and should be avoided.
- [Is Your Favorite Food Ultra-Processed?](#) - and if so, what's a good substitute. View the Northeastern University [TrueFood Dashboard](#).
- [Most Nutritious Vegetables and Fruits Rank-Ordered by CDC](#) - See the list [here](#). Chinese cabbage = bok choy.

Environmental Science News -

- [Intel Funding Its First Community College Manufacturing Technician Internship Program](#) - in collaboration with Maricopa Community Colleges (MCC) in Phoenix AZ. Interns will be full-time Intel employees, and will earn a certificate and college credit at MCC when completing the one-year program.
- [The US Department of Energy Will Provide \\$1.7 billion for EV Construction](#) - and the manufacture of EV and hybrid components, at closed-down or at risk sites covering 8 states where conventional auto manufacturing was previously done. Funding is from the US 2022 Inflation Reduction Act.
- [Reverse Archimedes Screw Concept Used to Generate Tidal Power](#) - Most tidal power ideas use propellers, so this is a new concept in this application. Spiralis Energy (London UK) has already tested a prototype offshore of Alderney, an island in the English Channel. Photo/details, [here](#). Parts can be 3-D printed from recycled plastic.
- [Germany Importing Green Hydrogen by Pipeline](#) - up to [100 TWhr worth annually by 2035](#) from neighboring countries, with the expectation of using it in highly polluting industrial sectors that cannot be electrified, such as steel and chemicals - reducing the need for petrochemicals. Excellent! [Sonja B.]

- [Hungarian/Polish Consensus on Developing Geothermal Energy in EU](#) - Hungary plans to work closely with Poland to reach an EU consensus on the subject by the end of 2024. [Details](#).
- [New Benchmark for Tesla Powerwall Battery-Based Energy Storage Systems - 500,000 System 1 and 2 units have now been installed!](#) And the new System 3 has just been released in Europe. Powerwalls are designed to be integrated with the solar panel system of your choice for a comprehensive power backup solution - integrates well with EVs. Federal and state tax credits may be available. Also take a look at [Enphase Energy](#) storage and power management solutions. Attention Houstonites [Mike and Jaqui K.]
- [Full Federal Approval for New England Wind 1 and 2 Offshore Wind Farms](#) - has now been [granted](#), with all local, state and federal approvals in hand for NE Wind 1. The two together (129 turbines) are rated at 2,600 MW, power for 900,000 homes, and are located about 20 miles South of Martha's Vineyard - South of the existing operational [Vineyard Wind 1](#) wind farm. Construction start for NE Wind 1 is 2025, with power by 2029.
- [Specialized Ships Required to Service Offshore Wind Sites](#) - A consortium of companies has gotten together to design a service ship optimized for maintenance and repair of offshore wind farm equipment. The 180-foot [Midi Service Operation Vessel](#) has 56 crew cabins, a gym, an auditorium, meeting rooms, and can operate in adverse weather conditions. Now all we have to do is build them, and pay for them.
- [Rhode Island Energy Storage Systems Act](#) - was signed last month, with the aim of increasing the capacity of the grid to add variable renewable energy sources. [Planning ahead to improve the grid](#) is smart. [Harvey B]
- [CO₂+Sunlight+Water=Methanol \(Green Fuel\)](#) - with a little nanochemistry magic involving copper anchored on a catalytic structure of nanocrystalline carbon nitride. [Details](#). The promise of this newly [published research](#) (from the Universities of Nottingham, Birmingham, Queensland and Ulm) is the production of sustainable fuel from atmospheric CO₂ and water. So .. *can* it be scaled up from the lab to a commercial process? Stay tuned.
- [13 Federally Funded EV Charging Stations for Alabama](#) - The state of Alabama will administer a \$13.7 million grant funded by the US 2021 Bipartisan Infrastructure Act to cover 80% of the cost of construction for the 13 stations (locations), and an additional \$2.4 million for Beville State Community College (Jasper AL) to expand its current HVAC Training Center to teach students how to install and maintain EV chargers. Each charging station ([details and list](#)) must have at least four ports, with connectors capable of simultaneously charging four EVs at 150 kilowatts (kW) each, with a total station power capacity of at least 600 kW. Each charging station must also have 24-hour public accessibility, and provide amenities like restrooms, food and beverage, and shelter.
Alabama will receive \$79 million in US grants (2022-2027) to help businesses build, own, and operate DC fast charging stations. Progress!
- [The 'AA', UK Version of US 'AAA' Adds All-Electric Roadside Assistance Trucks](#) - The three new truck types to be added are the Volvo FE Slidebed ([photo](#)), the Iveco eDaily Powerload, and the Iveco eDaily crew van.

Other Science News -

- [523 Mile Flight Powered by Liquid Hydrogen](#) - San Francisco to San Diego, Boston to Baltimore, or Nashville to New Orleans with no airport needed, and no emissions except water. [Joby Aviation](#) (Santa Cruz CA) has successfully flown its [Hydrogen powered air taxi demonstrator](#) for the first time over Marina California. The development program is supported by a partnership with the US Air Force Research Lab ['Agility Prime'](#) program. [\[Video](#) - click 'watch the full film']

- [NASA and Howe Industries Plan Could Reduce Transit Time to Mars](#) - from a two year round-trip to two months ... important because of the health effects of extended low gravity, and also because of the effect of solar and Cosmic radiation - [6 month exposure equivalent to 1,000 chest X-rays](#). Pulsed Plasma rocket technology [see artist's concept [here](#)] would be used to build up speed as high as 100,000 mph.
- [Rare Earth Elements From Abandoned Appalachian Coal Mines](#) - Researchers at West Virginia University's Water Research Institute have refined yttrium, neodymium and gadolinium (catalysts and magnets) from the drainage of an abandoned coal mine near Mount Storm WV. A similar approach, working with the tailings of a lignite mine in North Dakota, has produced germanium and gallium (semiconductors, LEDs, electrical transmission components, solar panels and electric vehicle motors). Research was supported by the US 2021 Infrastructure Act.
- [Set Phasers on BOOM!](#) - South Korea's Defense Acquisition Program Administration has announced the [beginning of mass production for a low cost laser weapon](#) [photo] that can shoot down small uncrewed aerial vehicles and quad copter drones at close range - for about \$1.50 per shot, part of South Korea's '[Star Wars Initiative](#)'. Live fire testing resulted in a 100% shoot-down score. The base unit is about the size of a shipping container, requires no ammunition except electricity, is silent, and delivers its 'shot' at the speed of light (about Mach 874,000). Deliveries of the Block 1 version from [Hanwha Aerospace](#) (Changwon South Korea) [will begin this year](#), with operational deployment imminent. A Block 2 version with a longer range and more power for larger targets will now be developed. A musical theme for our times, [here](#).

Nice Thing

The Italian Concerto in F - J. S. Bach, [here](#).

Switched On Bach - [here](#).