

## **Betsy says HI!!!!**

### **Announcements**

**The next LABQUEST meeting will be Wednesday, June 11 at 12:30. We will once again be meeting 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:

- Only 25% Of Sunscreen Products Are Safe and Effective
- Saharan Dust Arriving In Florida
- First Blood Test For Alzheimer's Disease (AD)
- Next Round Of Updated Covid Vaccine
- Shingles Vaccine and reduced risk of strokes, heart attacks and other cardiovascular problems!
- Gene Therapy As A Treatment For Hereditary Diseases
- FDA Plans To Facilitate State And Tribal Importation Of Prescription Drugs From Canada

### **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). Adults over 50 should have the [Pneumococcal Vaccine](#).

- [CDC Measles Update](#) - [here](#), including a map showing cases and a map showing vaccination rates.
- [CDC Bird Flu Update](#) - [here](#).
- [Only 25% Of Sunscreen Products Are Safe and Effective](#) - according to the [2025 Sunscreen Guide](#) issued by the Environmental Protection Group, and just [63 are allowed to use the ENG certification symbol](#) on their packaging - 2,200 products were analyzed. Many sunscreens contain chemicals that penetrate the skin, and enter the bloodstream: avobenzone, **oxybenzone**, octocrylene, ecamsule, homosalate, octisalate, and octinoxate. Skin *should* be protected from UV rays in the sun. Sun *avoidance is best*: wide brimmed hats, finding shade, clothing to cover arms/legs/feet. To the extent that you must be exposed to the sun, next-best is to use mineral based sunscreens that don't penetrate the skin: zinc oxide and titanium dioxide. [Details](#) [Bernie A.]
- [Saharan Dust Arriving In Florida](#) - and should produce some [spectacular sunsets](#). [Allergies](#) may act up, and the onset of [hurricane season](#) is typically delayed a bit. [Marlene T., Betty Anne S.]
- [18 State Outbreak Of Salmonella In Florida Cucumbers](#) - details [here](#). FDA announcement [here](#).

- 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.
- Basal Metabolic Rate (BMR) - Your BMR is how many calories you burn just sitting in your chair. Use the [calculator](#) to get your BMR. Then consult the exercise table to see how many calories you can consume daily with your current exercise plan and still maintain your current weight.
- Body Roundness Index (BRI) - is a new medical screening tool for estimating *visceral* fat, [details](#). Use a calculator to get your BRI [here](#). Additional background from Harvard, [here](#). Results to your doc.

## Vaccine and Therapeutic News -

- First Blood Test For Alzheimer's Disease (AD) - 10% of the US population over 65 has AD, and by 2050 the actual number is expected to double (due to population aging), according to the FDA Commissioner. In May FDA [authorized](#) marketing of the first *in vitro* diagnostic test for AD, the '[Lumipulse G pTau217/β-Amyloid 1-42 Plasma Ratio](#)', opening up the possibility of early detection by screening - 91.7% sensitivity (true positive), 97.3% specificity (true negative). AD is presently confirmed either by a cerebral spinal fluid taps (painful, invasive risk), or by positron emission tomography (PET) scans (costly and time consuming). [Fujirebio Diagnostics](#) (Tokyo Japan). Yes!
- Oral Pill COVID-19 Vaccine - [Vaxart](#) (South San Francisco CA) has [announced](#) that the Biomedical Advanced Research and Development Authority (BARDA), an agency within the US Department of Health and Human Services (HHS), has granted permission for the company to initiate dosing on the 10,000 participant, double blinded, Phase 2 human trial of its COVID-19 **oral** pill vaccine candidate - under a \$460.7 million HHS grant. The company has also begun Phase 1 testing of its norovirus **oral** pill vaccine candidate. Stay tuned.
- Next Round Of Updated Covid Vaccine - FDA has released its official [advice to industry](#) on which strains of COVID should be targeted for the updated vaccine - "... monovalent JN.1-lineage-based COVID-19 vaccines (2025-2026 Formula), preferentially using the LP.8.1 strain". This strain currently accounts for 70% of COVID infections. [Background](#). Stay tuned for availability. [Policy](#).
- Shingles Vaccine - A recently published [study](#) showed a strong association between having this vaccination and reduced risk of strokes, heart attacks and other cardiovascular problems! [Details](#).
- Novavax COVID-19 Vaccine Approved - FDA has granted *permanent* [approval](#) (replaces *emergency* approval) for the company's vaccine for those 65 and older, and to those 12 and older with at least one underlying disease that puts them at risk if infected. The Novavax vaccine uses the more traditional protein-based vaccine technology, not mRNA technology.
- Fatty Liver Disease - can escalate to Metabolic-dysfunction Associated SteatoHepatitis (MASH), and that can escalate to cancer and the need for a liver transplant ... all with *minimal* symptoms. Those who are overweight or have Type-2 diabetes are at risk, and should be *routinely* tested for the two telltale [liver enzymes](#). Caught early, the process can likely be reversed. Read the personal story of a patient [here](#). Further background [here](#). [Sam J.]
- Gene Therapy As A Treatment For Hereditary Diseases - is the ultimate example of personalized medicine. If the body isn't working as is, *redesign* it. The [Children's Hospital of Philadelphia](#), teaming with [Penn Medicine](#), has done just that for a child with a [rare genetic disorder](#) (50% mortality) using CRISPR gene editing technology ... and now the world's first genetically re-engineered child is doing well. Timely permission for the experimental procedure was granted

by FDA's Center for Biologics Evaluation and Research (CBER). See the details of the story [here](#), and the team's case study publication [here](#). May this be the first of many such success stories. CRISPR => Clustered Regularly Interspaced Short Palindromic Repeats.

- Immunotherapy As A Treatment For Cancer - A recent [study](#) from Peking University has shown modest preliminary Phase 2 human trial results in treating **gastro-oesophageal junction cancer** using [CAR T-cell therapy](#) based on the patient's own T-cells. [CAR: Chimeric Antigen Receptor ... T-cell: a type of white blood cell] Publication [here](#). This is the first real test of this approach for treating *solid* tumors (90% of all cancers), and is still a lab experiment - not yet FDA reviewed. Researchers at the University of Pennsylvania are also studying the CAR T-cell approach, as applied to the treatment of **glioblastoma** (brain cancer). Results are not yet available. Stay tuned.
- New Development In Cancer Treatment - [BioNTech](#) (Mainz Germany) [announced](#) this month that it has teamed-up with [Bristol Myers Squibb](#) (Lawrenceville NJ) to pursue human trials for its investigative immunotherapy cancer treatment candidate BNT-327 aimed at solid cancer tumors ... starting with trials in progress for lung cancer and breast cancer. This is a clever *new* approach. Science is international. Well founded scientific advances will always find a place. [Sonja B.]

#### Other Health Science News -

- FDA Plans To Facilitate State And Tribal Importation Of Prescription Drugs From Canada - as a way to reduce US medical costs. FDA announcement [here](#). No comment yet from Canada.
- Illegal E-Cigarettes Seized - FDA announced in May that 2 million units of illegal cigarettes worth \$34 million had been seized (last February). The seizure was a joint operation between FDA and US Customs and Border Protection. Most of the seized products were from China. Details [here](#).
- False Or Invalid Medical Device Testing Data - In December 2024 FDA informed two third party testing companies in China of this issue regarding their data, with further details in February 2025 letters: [letter 1](#), [letter 2](#). In May, FDA [announced](#) that future animal safety and biocompatibility test data from these companies in support of premarket medical device submissions will be rejected until concerns raised by the Agency have been addressed. [Details](#)
- Arsenic, Cadmium, Lead And Mercury In Rice - 'Healthy Babies Bright Futures' (HBBF) has announced the results of an HBBF-commissioned study, showing one or more of these heavy metal contaminants in 100% of 145 rice samples drawn from stores across the US. See their very detailed analysis of the study results [here](#), along with some do-it-yourself cooking suggestions that can reduce the contamination. The lowest levels were found in jasmine rice sourced in Thailand, basmati rice sourced in India, and California grown rice. FDA and/or USDA action?
- Ice Cream Recall - Over 17,800 3-gallon tubs of ice cream, distributed to 103 centers across the US, have been recalled due to the possibility of plastic pieces in the product. Details [here](#). Announcement on the FDA website, [here](#).
- Salmonella Related Recall Of Tomatoes - distributed to Georgia, North Carolina, and South Carolina. FDA has [announced](#) escalation of this recall to Class 1 - "... serious adverse health consequences or death." The product should no longer be available in stores, but refrigerated or frozen supplies should be discarded. [Details](#)
- Lead Found In Cassava-Based Products - A Consumer Reports [study](#) found concerning levels of lead in over two-thirds of the cassava-based products tested, and identified 7 to

be avoided entirely. Many who necessarily follow gluten-free diets use these products for health reasons. Details [here](#). FDA action?

- Those Taking Blood Thinners Or Antidepressants - should be aware of a recently [published study](#) showing that *highly concentrated* forms of cinnamon (oils or supplements) can interfere with the absorption of these medications. The small amounts usually used in food seasonings shouldn't be a problem, but check with your doctor. [Details](#)
- Dementia/Stroke/Depression - A recently published [study](#) identified 3 lifestyle practices that can lower risk for these conditions. [Details](#). There is also a link to calculate your [Brain Care Score](#)
- Nutrition For The Aging Brain - The key is [Omega-3 fatty acids](#): Alpha-linolenic acid (ALA), eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Seafood like salmon/sardines/herring (at least twice a week) gives EPA and DHA. Plant sources like walnuts, flaxseeds and chia seeds (daily) give ALA. All three are essential for maintaining cognitive health - sourced from natural foods best, [supplements](#) *verified by an independent certifier* next best.
- Avoiding Skin Cancer - *Of course* avoid unprotected exposure to the sun in the 6 months centered on July 15, particularly during the 6 hours centered on noon. But ... great skin really starts on the inside. A [dermatologist recommends](#) eating more natural foods rich in [antioxidants](#) (selenium, zinc, copper, carotenoids, polyphenols, vitamins A/C/E, and **especially anthocyanins from deeply colored fruits and vegetables like berries/tomatoes**). See the numbers for a list of foods [here](#)
- 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 -

- Is Monk Fruit A Healthy Alternative To Sugar? - Short answer, yes, if it's just *pure* natural monk fruit without additives ... especially **no added Erythritol** (see below). It's available in both powdered and alcohol-extract (think vanilla extract) form, and has no calories or carbohydrates. It also has some good nutrients, including antioxidants. Available on-line. Details [here](#). Stevia is also good.
- Grapes - have good antioxidants and fiber, especially red and purple grapes rather than green. They also have vitamins A and C. On a hot day, frozen grapes make good popsicles. [Details](#)
- Mangos - according to registered dietitians they are a good source of antioxidants, fiber, potassium, vitamin A and vitamin C. [Details](#)
- Avocados Are Very Healthy - [details](#), including a nutritional analysis, and tips on choosing, ripening, storing and preparing them.
  - Plenty Of Fiber - 14 grams in one avocado out of a [daily requirement of 28-34 grams](#).
  - Lowers Fecal Bile Acid Concentration - promotes digestive health, and may decrease unexplained diarrhea. [Publication](#).
  - Neutral To Weight Management - despite the calorie count, a [study](#) showed that eating one avocado per day did not increase weight. A [second study](#) showed a reduction in visceral fat.
  - Reduces Heart Disease - by lowering oxidized LDL cholesterol. [Publication](#)
  - Other Nutrients - potassium, magnesium, B vitamins (such as folate), vitamin E.
  - Improves Brain Function - by providing Lutein, a carotenoid (antioxidant/anti-inflammatory) that helps protect the brain. [Publication](#)

- Number One Fruit For Heart Health Generally - according to a cardiologist, [here](#). It's the Potassium, antioxidants, and both monounsaturated and polyunsaturated fats.
- Tofu And Black Pepper Asparagus - Healthy and tasty, [here](#). Tune-up: Substitute avocado oil for olive oil. As a variation, consider using shredded zucchini for the asparagus, or deli-cooked tofu.
- Keeping Coffee Fresh - Oxidation is the enemy, so keeping coffee out of contact with air is one of the goals. See various ideas on how to go about that [here](#), including special vacuum [canisters](#)
- Health Advantages Of Cold-Brew Coffee - See a detailed comparison [here](#). Summary: reduced acidity (67% less), more antioxidants, brewed coffee retains taste for two weeks in the fridge, more caffeine, enhanced delicate flavor not overwritten by bitterness. [C.C.]
- Give Her This Day Her Daily Kefir - Actually you don't need to, since [she makes it herself](#). You can just buy it at the store, of course. Read on to see what Stanford U. says about reducing systemic inflammation due to the [benefits of achieving microbiome diversity](#). Take several swigs daily.
- More Anthocyanins Than Blueberries - [Here](#) are 5 that registered dietitians say come out ahead.
- Antioxidant Rich Drinks - Antioxidants are essential to help the body resist the systemic inflammation that is at the root of many chronic diseases. [Here's](#) a list of 6 tasty, natural antioxidant drinks recommended by registered dietitians. **Pomegranate juice** - antioxidant powerhouse.
- No Bananas In/Near Your Smoothies - Bananas have good fiber and nutrients, but a [new study](#) has shown ([publication](#)) that if you put them in your berry/fruit smoothies, *or eat them at the same time at you drink your smoothie*, they will prevent the antioxidants in the berries/fruit from being fully absorbed. Enjoy bananas at least a few hours before or after your antioxidant-rich smoothies, or other antioxidant-rich food. Antioxidants [reduce the risk of frailty and poor mental health](#). [C.C.]
- 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 as food additives. Chemical sugar substitutes to be avoided: acesulfame potassium, advantame, allulose, aspartame, brazzein, lactitol, maltitol, mannitol, neotame, rebaudioside A (reb-A), saccharin, sorbitol, thaumatin and trehalose.
- 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 -

- Empire Wind - After a brief delay, [Equinor](#) (Stavanger Norway) has resumed construction of this *major* East coast wind farm off the coast of New York. The company is well along in the construction of its Brooklyn NY on-shore facility, and expects to begin off-shore construction soon. The first power target date is 2027. Specs: 2.1 GW, power for 1,000,000 homes, 130 wind turbines, 80,000 acres, 15-30 miles off Long Island. The unique Semi Submersible Crane Vessel [SSCV Thialf](#) has arrived to assist with off-shore work. Reference to Norse mythology: [Thialfi](#)
- Energy Density Is Where It's At For EV Batteries - General Motors (GM, Detroit MI), partnering with [LG Energy Solutions](#) (Seoul S. Korea), has [announced](#) the formation of a US joint venture, Ultium Cells, to start production of prismatic cells (assembled into batteries) using Lithium Manganese Rich (LMR) cathodes ... *in* the US, in 2028. The

goal is lighter, smaller, cheaper, and of course more energy dense, EV batteries - to achieve longer EV range per pound/dollar. [Batteries are more than half of EV production costs](#). Information on specs/[locations](#) is skimpy. Stay tuned.

- [Grid! Grid! Grid!](#) - Texas has made impressive progress on adding wind and solar power production, but has done [little or nothing to modernize its grid](#), mostly isolated from the national grid, to accommodate these great new assets while maintaining grid stability. Prediction: until grid improvements are made, blackouts will be more common and longer lasting. During power shortages, consumers will be seriously price gouged by utilities. '[Cui bono?](#)' [Mike and Jacqui K.]
- [Why The Pacific Northwest Is Behind Other Regions On Renewable Power](#) - Grid! Grid! Grid!. The federal Bonneville Power Administration has [approved attachment for just one big solar/wind project since 2015](#), and owns the grid that serves most of the region. [State officials](#) continue passing laws incentivizing renewable energy, and continue ignoring grid engineering requirements. It's the grid, stupid! The other big federal grid management authority is the Tennessee Valley Authority (TVA) - they're doing a bit better. Both 'independently' managed federal agencies are self-financing, and have borrowing/bonding authority. Let's have more action!
- ["Largest Inter-Grid Transmission Line In US History"](#) - In May, [Invenergy's](#) (Chicago IL) subsidiary Grain Belt Express [announced](#) a \$1.7 billion contract award to begin construction of its 800 mile, ultra-high-voltage, direct current (HVDC) electrical transmission line spanning Kansas, Missouri, Illinois, and Indiana. The project will connect 4 regional electrical grids, improving their security and reliability, and providing interconnection options for many wind, solar and other energy projects along its route. Grid! Grid! Grid! [More details](#).
- [Closed Coal-Fired Power Plant Gets Reimagined](#) - Simec Atlantis will [redevelop](#) the closed Uskmouth power plant in Wales near Newport (UK) into one of the largest battery storage sites in the country. More storage will allow the attachment of more renewable power sources to the grid.
- [Ontario Canada Approved Small Modular Reactor \(SMR\)](#) - The first of 4 planned SMRs will be built adjacent to Ontario Power Generation's existing Darlington nuclear plant - first in a G-7 country. When all 4 are complete, they will generate [1.2 Gigawatts, power for 1.2 million homes](#).
- [New Hampshire Prepares For SMR](#) - by approving the [legal, financial and regulatory infrastructure](#) that would facilitate the construction of small modular reactors in the state. Well done. [Barbara R.]
- [World's First Floating Nuclear Power Plant](#) - The Akademik Lomonosov ([photo and details](#)) has just completed its first 5 years of duty, and now provides about 60% of the power used by the region of Chukotka Russia. The ship also processes 8.4 million cubic feet of water daily for desalination. See a video of its reactor refueling [here](#).
- [AMTRAK Virginia Sets All-Time Ridership Record In 2024](#) - [Details](#). Have a comfortable, civilized ride (Virginia-Philadelphia-New York-Boston) - 1,389,840 passengers in 2024.
- [AMTRAK Minneapolis-Milwaukee-Chicago](#) - on the AMTRAK [Borealis](#). More than [200,000 passengers](#) (map) in its first year of operation.
- [All 28 Most Populous US Metro Areas Are Sinking](#) - according to a new study released by researchers at Virginia Tech (Blacksburg VA), with areas like Houston and LaGuardia Airport high on the list. Details, and the researchers theories about the causes, [here](#).
- [Top US Cities Rated For Parks](#) - by the Trust for Public Land. Washington DC comes first, followed by Irvine California and Minneapolis Minnesota. See their criteria, and the rest of the list, [here](#).



## Other Science News -

- Battery/Electric VTOL Air Taxi - [Joby Aviation](#) has one more step toward FAA certification by flying two aircraft at once. See a video of the full flight sequence [here](#). The US Air Force is now running its own tests with its own pilots. [Cicero, Rob R.]
- Antimony - is an element needed for the manufacture of small arms, munitions, and certain types of missiles, but there are no commercial-scale sources in the US - China leads. In May, at the end of an 8-year, interagency permitting process, [Perpetua Resources](#) (Boise Idaho) [announced](#) that the US Corps of Engineers has issued the *final* federal permit required to move forward on its Stibnite Gold Project in the Yellow Pine District of central Idaho. Stibnite is the ore from which Antimony is refined - 148 million *pound* Antimony reserve, 48 million *ounce* gold reserve, The project has been awarded a \$59.2 million Technology Investment Agreement under the US Defense Production Act.
- Gallium - [Rio Tinto](#) (Saguenay Canada) has [announced](#) the first production of Gallium refined from bauxite (Aluminum ore) at its partner [Indium Corporation's](#) research facility in Rome, New York. China currently dominates the world's supply of Gallium. The next step calls for producing larger quantities at pilot scale. If successful, Rio Tinto plans to build a demonstration plant in Canada with an annual capacity of 3.5 tons of refined Gallium - financially supported by the Quebec government.
- EU's Critical Raw Materials Act - The EU has selected the [first 13 projects](#) to be pursued abroad under this act, covering projects in the following countries: Canada, Greenland, Kazakhstan, Norway, Serbia, Ukraine, Zambia, New Caledonia, Brazil, Madagascar, Malawi, South Africa and the UK. Target materials include lithium, cobalt, manganese, nickel, graphite, and several rare earths. There are also 47 approved projects *within* the EU ([map](#)).
- Mach 5 Or Bust! - Actually [Stratolaunch](#) (Seattle WA) has [succeeded](#), twice now. The world's largest plane, the 'Roc' (385 foot wingspan), was used as a *carrier aircraft* to launch the company's Talon-A2 rocket plane over the Pacific ocean. On both occasions the autonomously piloted Talon successfully maneuvered at hypersonic speeds, and then made a safe landing at Vandenberg Air Force Base back in California. Autonomous piloting capability is essential, since hypersonic maneuvering can now generate g-forces beyond those a human pilot can endure. The company plans to increase its launch cadence to monthly by 4Q25, and eventually to weekly Fast!!
- Two \$50 Million [Russian Fighters](#) Brought Down By Missiles From Ukrainian Drone Boats - This is a first for the AIM-9 Sidewinder heat seeking anti-aircraft missile modified to be launched from one of Ukraine's small drone boats - over the Black Sea. Details and photos, [here](#).
- Ukraine Develops Automated, AI Controlled Anti-Aircraft Turret Gun - [Sky Sentinel](#) operates without human intervention, costs about \$150,000 each, with an estimated 10-30 required to defend a city.

Nice Thing - [full screen, wait out ad]

Brandenburg Concerto No. 5 in D Major - J.S. Bach, 1721.

- Performed by the Freiburg Baroque Orchestra - in Castle Cöthen, [here](#). [Sonja B.]
- Performed by Orchestra Mozart conducted by Claudio Abbado - in the Teatro Municipale Valli, 2007, Reggio Emilia Italy, [here](#).