

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

### **Announcements:**

- **The next LABQUEST meeting will be this Wednesday, March 13 at 12:30 in the trailer.**

### **Science Report Highlights**

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

- Isolation Period After Covid
- Lead/Chromium Contamination of Applesauce Pouches
- National Recognition for Quality Maternal Care – at WOMC
- Routine Screening for Prostate Cancer
- Screening Test for Alzheimer's Disease (AD)
- Microplastics Found in Human Placenta
- Diet Soda -> Afib -> Stroke

### **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).

- Measles - See FDA advice on measles and the measles vaccine, [here](#). This is a disease you don't want to get. See CDC vaccination information, [here](#).
- Isolation Period After Covid - The CDC recommendation for isolation has been revised. Items #3 and #4, [here](#).
- Lead/Chromium Contamination of Applesauce Pouches - February 29 update from FDA [here](#). FDA: "Historically, lead chromate has been illegally added to certain spices (to) increase their weight and enhance their color, which increases the monetary value of the adulterated spices. FDA's leading hypothesis remains that this was likely an act of economically motivated adulteration."
- National Recognition for Quality Maternal Care - The Adventist Health Care White Oak Medical Center (WOMC) has been designated a Blue Distinction Center by the Blue Cross Blue Shield [Blue Distinction Specialty Care](#) program for its quality maternal care. WOMC has also been designated '[Birthing-Friendly](#)' by the US Centers for Medicare and Medicaid Services. Well done! [Details](#).

- Routine Screening for Prostate Cancer - By age 50 men should be screened annually ([black men starting at 40](#)). Read a urologist's explanation of the [process](#) here.
- Recalls of Ground Cinnamon - FDA lists the particular products under volunteer recall [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.

#### Vaccine and Therapeutic News -

- Yogurt and Claims of Type 2 Diabetes Reduction - FDA has announced that it plans to exercise 'regulatory discretion' *not* to object to [two particular forms of such claims](#) from yogurt manufacturers, provided that the claims are properly qualified with respect to the modest supporting scientific evidence, and provided that the products they reference do not contain Sodium, sugar or saturated fats beyond referenced limits. See the evidence considered, the qualified claims referenced, and many other details, [here](#). Related Note: pay attention to the Sodium, sugar and saturated fat content of everything you eat. Additional background [here](#). FDA will allow companies to say: "Eating yogurt regularly may reduce the risk of type 2 diabetes according to limited scientific evidence."
- Screening Test for Alzheimer's Disease (AD) - Researchers at Washington University (St Louis MO) have developed two [blood tests which can be used to diagnose AD as accurately as the much more invasive and expensive](#) cerebrospinal fluid tests and MRI brain scans. Should be useful for [screening and early diagnosis](#) - marketed by the Washington University startup [C2N Diagnostics](#) (St Louis MO), as [PrecivityAD2](#).
- First Over-The-Counter Glucose Monitor - FDA has [cleared](#) The [Dexcom](#) Stelo Glucose Biosensor System for use *without* a prescription by those who are *not* taking insulin, and do *not* have diabetes, but want to understand the relationship between their nutritional practices and blood sugar levels. Medical decisions should *not* be made on this data without consulting a doctor. The device consists of a wearable sensor paired with a smartphone application. Each sensor lasts about 15 days before replacement is needed.
- RSV Vaccine for Infants - [CDC reports](#) that the vaccine is 90% effective in preventing infants from being hospitalized. CDC: "RSV is the leading cause of hospitalization among infants in the United States, and this finding supports CDC's recommendation to protect infants in their first RSV season by giving the infant nirsevimab if the mother did not receive the maternal RSV vaccine during pregnancy."

#### Other Health Science News -

- Artificial Testes Produce Sperm and Testosterone - [Researchers](#) at Bar Ilan University's Institute of Nanotechnology and Advanced Materials (Ramat Gan Israel) have developed organoids of the testes that produce sperm and testosterone - testes in a dish. Their plan is to extend the present research in *mice* to humans. About 12% of men around the world suffer from male infertility that is difficult to study because there

is presently no lab model. Infertility could be from environmental pollution such as PFAFs and microplastic, contaminants or pesticides in food, childhood cancer chemotherapy, or other causes. This technique has the potential to allow artificial sperm to be grown from the patient's own stem cells, therefore carrying the patient's own genetic heritage. Additional background, [here](#).

- [Better Genetic Engineering Tools](#) - on the way, [here](#). *Homo Sapiens* makes the tools, and gets remade by the tools.
- [Microplastics Found in Human Placenta](#) - A study found microplastics in *all* 62 placenta samples tested - effects presently unknown. More than [half of the plastic found was polyethylene](#) - used for single-use bags and bottles. A second study found microplastics in *all* 17 human arteries tested, suggesting that the particles may be linked to clogging of blood vessels. This needs more detailed study, but it can't be good.
- [Tart Cherry Juice](#) - has been [shown](#) to reduce several of the biomarkers for chronic inflammation - C-Reactive Protein (CRP), Interleukin-6 (IL-6), Interleukin-10 (IL-10), and Tumor Necrosis Factor-alpha (TNF- $\alpha$ ) - and may help relieve the pain and disability of inflammatory osteoarthritis. Tune-up: tart Montmorency cherry juice concentrate is available in the refrigerated case at grocers, and makes a good dip for fresh fruit. [Publication](#).
- [Gut Bacteria Can Affect Mood/Stress/Depression](#) - The importance of the gut microbiome to human health is widely accepted, and has led to dietary recommendations for pro and prebiotic natural foods for support. Researchers doing work with mice have now discovered that [mood is also affected](#), and they are investigating which species of bacteria are most effective for this as candidates for treatment. Stay tuned. [Publication](#)
- [Diet Soda -> Afib -> Stroke](#) - A [recent study](#) has shown that drinking two liters or more of diet (artificially sweetened) soda per week raised the risk of [Afib](#) (atrial fibrillation, irregular heart beat) by 20%, over and above other risk factors, compared to those who drank none. Drinking a similar amount with added sugar raised the risk by 10%. Drinking 4 ounces daily of a pure, unsweetened juice *lowered* the risk by 8%. Afib is the leading cause of stroke in the US. It can lead to blood clots, heart failure, and an increased risk of dementia and kidney disease. [Details](#). 40 million worldwide have Afib, 6 million in the US. [CDC](#): Afib causes 1 in 7 strokes.
- [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 -

- [Yogurts: Healthiest and Least Healthy Pairs](#) - See what several dieticians and nutritionists say about these [best and worst choices](#) at the grocery, and why. Tune-up: choose organic. Natural fruit is the healthiest sweetener, but if you need more intense sweetness, stir in a few drops of extract of zero sugar [Monk Fruit](#) (Amazon - bottled not powdered, 11% alcohol extract, organic, generally recognized as safe [GRAS](#) by FDA).

- 6 Healthiest Nuts - and the reasons why, as given by a registered dietician, [here](#). Summary: almonds, walnuts, brazil nuts, pistachios, pecans, cashews.
- 6 Reasons Cashews are Healthy - as reviewed by a registered dietician, [here](#). Summary: high in protein, high in healthy *unsaturated* fats, good for heart health, good for brain/mental health, gut healthy, reduce appetite for better weight control. Other nuts above are good for similar reasons.
- 20 Twenty Minute Mediterranean Diet Dinners - reviewed by registered dieticians, with detailed prep instructions, and a full nutritional breakdown - [here](#). Live to be 100. Cause more *good* trouble.
- Natural Foods Vs Vitamin C Supplements - A well designed informal [study](#) concluded that Vitamin C from natural food is more effective than the equivalent amount from a tablet-based supplement.
- Need More Iron? - If, *and only if*, you've been advised by your doctor to get more Iron, there are 9 natural foods that can help - [here](#). Don't overdo it, especially men over 60. [use arrow at right of image]
- Health Benefit of Lemons - explained by a registered dietician, [here](#). Summary: great antioxidants and Vitamin C, most nutritious when uncooked (rind also nutritious). Meyer lemons are a cross between a lemon and a mandarin orange - the whole scrubbed Meyer lemon, rind and all, can be eaten and is nutritious; goes down better with a coating of [tart cherry juice concentrate](#) (grocery refrigerated case). Storing lemons, [here](#). Tune-up - choose organic If a lemon is a bit greenish (unripe), leave it on the counter for a day or so, not in the sun, before refrigerating. Avoid storing lemons near ethylene gas producing fruits - bananas, apples and pears.
- 5 Good Reasons to Eat Whole Grain Bread - explained [here](#) by a registered dietician, who also lays out the nutritional details for whole grain side-by-side with refined flour white bread. Summary: reduced risk of heart disease, reduced risk of type 2 diabetes, improved blood sugar control, improved digestion and gut microbiome, better [weight management](#).
- Inflammation and Antioxidants - See an explanation of the difference between *acute* and *systemic* inflammation, [here](#). See a list of 10 antiinflammatory fruits rich in antioxidants and fiber, [here](#). All antioxidants function as antiinflammatories. There are other antiinflammatories besides antioxidants, such as fiber. Freezing an antioxidant is ok. Blending is ok. Cooking, however, will reduce the effectiveness of antioxidants. See an excellent video on antioxidants, [here](#), and inflammation, [here](#). If a fruit turns brown when cut open, like apples and bananas, it may have other good nutrients (both do), but it doesn't have antioxidants. [Thanks Chad C.]
- Tune-Up Your Tea - The plant equivalent of the human microbiome is the [microbiome around its root system](#). Researchers at the University of California Riverside have been investigating the naturally occurring microbiome around the roots of the world's best tea plants, and have recently [published](#) their findings - pointing to how both the nutritional value and the *umami* portion of a tea's taste can be improved. Stay tuned.
- Misleading Words For Sugar - High-fructose corn syrup, sucrose, barley malt, dextrose, maltose and rice syrup are all [forms of sugar](#).

- 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 -

- Procedural Barriers to Wind/Solar Projects - Some projects get held-up for lack of access to a grid substation, others by environmental impact issues. Resistance from rural County boards in some states has also been an issue, even with the profits going to local property owners there, or the tax benefits going to the County governments themselves. Even good change can feel threatening. Now states needing to meet their clean energy goals are beginning to expedite by centralizing sustainable energy permitting at the state level. Illinois and Michigan have already done so. See the story as played out in Piatt County Illinois, [here](#). Specs for the [Prosperity Wind Project](#) by [Apex](#) Clean Energy (Charlottesville VA): 50 wind turbines on 20,000 acres (remains actively farmed), 300 MW (power for 99,000 homes), each turbine takes up less than 1/2 acre. [Harvey B.]
- Oregon Offshore Wind - The US Bureau of Ocean Energy Management (BOEM) has [identified two areas](#) [map] off the Oregon coast for wind energy, and has begun the process of preparing an environmental assessment.
- World's Longest Onshore Wind Turbine Blade - is The SY1310A at 430 feet long - yielding a total blade diameter of 860 feet (about three football fields). It just came off the assembly line in January at the [SANY Renewable Energy](#) zero carbon plant in Bayannur, Inner Mongolia, China, and will be attached to the company's 15 MW turbine. [Details](#) According to the China Energy Council, about 40% of China's installed electrical energy generating base will be wind or solar by the end of 2024. [Harvey B.]
- Snow on Solar - Heavy, persistent snow cover eliminates between 1% and 12% of power produced from snow laden solar panels. The Department of Energy ([DOE](#)) is offering several hundred thousand dollars in funding for ideas on how to deal with this. One promising proposal, from researchers at the University of Toledo, involves applying a durable strip coating to the lower edge of solar panels to help shed snow. [Details](#)
- Singapore's Changi Airport Goes Solar - 43 MW will be generated from [solar panels now being installed](#) on the terminal buildings, auxiliary structures, cargo buildings, and segments of the airfield outside of aircraft operational areas - enough power for 10,000 homes, about 10% of the airport's power consumption. The airport serves more than 100 airlines operating more than 6,400 flights weekly, and has more than 600 food, beverage and retail outlets. Completion is scheduled for early 2025. [Greg K.]
- Huge Solar Farm in West Texas - The [Texas Solar Nova](#) solar farm on a 5,000 acre site in Kent County Texas has just gone online - 452 MW (power for 190,000 homes), 1.1 million solar panels, offtake agreement and pre-sold renewable energy certificates (RECs) to Verizon, Toyota, SKF (bearings/seals). [Clearway Energy Group](#) (San Francisco CA).

- Other Environmental Benefits of Solar Farms - A [recent study](#) by scientists at the US Department of Energy's Argonne National Laboratory in Minnesota has shown that solar farms, in addition to providing renewable energy, can be good breeding grounds for pollinators and [native plants](#) - providing benefits to surrounding farmland. [Background](#). Pollinators: If you build it, they will come.
- Wind and Solar in Ukraine - Ukraine [sent surplus \(solar\) power to Poland](#) for the first time this February, and is targeting a 50% share for renewables in its power sector by 2035 - up from 15% in 2021. Ukraine's most powerful turbine manufacturer, Fuhrländer Windtechnology, has opened a new factory making slim profile turbines (more resistant to bombing). The more widely distributed generating sources typical of wind (turbine masts scattered in fields) and roof-top solar (roofs of barns, schools and hospitals) are producing a more robust grid in difficult circumstances.
- Wyoming's First Agrivoltaic Project - Converse County Wyoming has issued a solar farm permit to [BrightNight](#) (West Palm Beach FL) for the construction of the '[Dutchman Project](#)' [map] - 1 million sun-tracking solar panels, a battery storage facility, several miles of above-ground transmission lines on 4,738 acres of private land run by the Tillard ranching family near Glenrock WYO. The panels are several feet above ground to permit grazing sheep. Tests in Oregon show sheep actually *prefer* grazing under solar panels. [Harvey B., Bette Anne S.]
- Maryland Energy Administration -
  - Dog Daycare Goes Solar - Dog's Day Farm in Gaithersburg Maryland is taking advantage of two of the state's sustainable energy programs: the Commercial Clean Energy Rebate Program, and the Energy Storage Tax Credit Program. See additional details on the Maryland Energy Administration website [here](#), and the other success stories referenced there.
  - Community Solar - See how the state is supporting Community Solar projects, [here](#).
- Iron/Air Utility-Grade Batteries - [Form Energy](#) is constructing [Form Factory 1](#) on the 55 acre site of the decommissioned Weirton Steel works to manufacture Iron/Air batteries intended to [stabilize the grid](#) by providing backup for variable sustainable energy sources such as wind and solar. Direct investment \$760 million, West Virginia financial incentive package \$290 million, annual production 500 MW, operational 4Q24. Lithium Ion batteries presently cost \$200 to \$300 per kWh of storage capacity, Iron/Air batteries cost about \$20 per kWh.
- Solar Sails for Deep Space Exploration - explained [here](#) [video, skip ad]
- Fission Reactors on the Moon - In 2022 NASA issued three contracts for the development of Phase 1 preliminary designs, and is now preparing the solicitation of bids (RFP) to be issued in 2025 for the further development of those designs in Phase 2 of the project. The basic design requirements are: weight less than 6 tons, power at least 35 kW (power for 33 homes), 10 year unattended operation. [The target is a reactor on the moon in the early 2030s](#), with a later redesign for Mars. [Fission Surface Power Project](#).
- Hempcrete Bricks and Timber - also known as [Hemp-lime](#), since it contains no concrete. See the two guest cottages built in upstate New York, [here](#). The hempcrete blocks are

primarily used for interior walls and thermal insulation, not load bearing areas. Low Carbon (actual Carbon sequestering), good thermal insulator, mould resistant, non-toxic, fire resistant, infestation resistant, sustainable sources, no petrochemicals, allows monolithic structure (walls have no cavities).

- Bald Eagle Nest - [live eagle-cam broadcast](#) from Big Bear Valley CA. 3 eggs, not yet hatched. [Details](#)

#### Other Science News -

- Reshoring Chip Fabrication in the US - The US Department of Commerce, with funding from the 2022 CHIPS and Science Act, has [awarded](#) \$1.5 billion in incentives to [GlobalFoundries](#) (Malta NY) to triple and modernize the capacity of the 1.2 million SF2 existing computer chip fabrication facility (fab) on its campus near Malta NY, and to expand/modernize its fab in Essex Junction Vermont. The company said it plans to invest about \$12 billion in these fabs over the next 10 years, The state of NY will provide \$575 million in performance-based tax credits, and the New York State Power Authority will provide \$30 million for infrastructure upgrades. [Grady J.]
- Japan's H3 Rocket Achieved Orbit - The [new H3 will be the workhorse for a variety of missions](#). Once fully operational, the [H3](#) [photo] will launch Japanese scientific satellites, solar system exploration missions, navigation satellites, spy satellites, and resupply freighters to the International Space Station. Japan's finally in!
- Orbital Automated Pharmaceutical Manufacturing - [Varda](#) (El Segundo CA) placed a capsule in orbit to test the zero gravity process of producing ultrapure crystals of ritonavir, a drug used to treat HIV. The capsule with the result has now been recovered at a Utah landing site, and the crystals will be tested. Photo of the recovery, and other details, [here](#).
- Teaching Robot Dog to Open Doors - with one leg, while balancing on the other three, was the training task successfully carried out by robodogs for the engineers at Switzerland's ETH Zurich University. Cool video [here](#). On the Moon or Mars? In space? In eastern Ukraine? [JD W.]
- Drone Piloting with Augmented Reality - See a [video](#) of a DJI Mavic 3 Pro drone being controlled with virtual tools provided by the new Apple [Vision Pro](#) augmented reality goggles. The human interface provided by Vision Pro meshes seamlessly with, and extends, instinctive human reflexes and pattern recognition. Impressive!
- Ukraine Sinks One More Russian Warship - Ukrainian [Magura V5](#) maritime drones (USVs - uncrewed surface vessels) have sunk [photo](#) the Russian patrol ship Sergei Kotov - 300-foot-long, 1,300 tons, range 6,000 nautical miles, crew of 80, helicopter, 57mm gun, modern air defense system, \$65 million.
- M2 Bradley Fighting Vehicles - have become a highly successful tool in the Ukrainian armamentarium, now being used to disrupt new Russian tactics in eastern Ukraine. [Details](#).

Nice Thing - [skip ads, full screen]

- Seven Singing Auditions - [here](#).
- Yakety Sax - [here](#).
- How It's Done in Europe (apologies to Nashville) - [here](#).