

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:

- Does a Base Tan Protect Your Skin From Damage
- New FDA Web Page With Info on Microplastics and Nano-plastics in Food
- New Nasal Spray Treatment Candidate for Alzheimer's Disease (AD)
- EPA Grants \$4.3 Billion for Climate Related Projects in 30 States
- Fish Safe Hydropower Turbines
- Dirty Rain in Florida
- Melting Ice From Polar and Glacial Ice is Slowing the Earth's Spin
- Step Forward for Wind Energy in Maryland
- Privately Owned Space Station to Replace the International Space Station

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).

- [Longevity and Retirement Planning](#) - You need to know the one to do the other, but how ([details](#)). The American Academy of Actuaries has a calculator for that [here](#). It assumes that you are not yet retired.
- [Does a Base Tan Protect Your Skin From Damage](#) - [A Harvard doctor says no](#). Experts estimate a base tan provides a sun protection factor (SPF) of 3 or 4, while the safety recommendation is to use mineral sun block (ZnO or TiO₂) with an SPF of at least 30 - *or better yet*, simply avoid direct sun between 9 am and 3 pm Standard Time, 10-4 DST (at the latitude of DC) [when the UVA content of sunlight is greatest](#). Also use wrap-around sunglasses, long-sleeved shirts, wide brimmed hats and long pants. Wear your own shade. [Bernie A.]
- [Hair Loss Prevention](#) - Aside from one FDA approved treatment for the condition called alopecia, there are few scientifically established medications. A [mouse study, however, has confirmed the efficacy of topical ketoconazole \(KTZ\) as a hair growth stimulant](#), suggesting that topical applications of the substance may be useful for treating seborrheic dermatitis, accompanied by hair regression. This needs more systematic testing in *human* trials. In the meantime, there are over the counter [anti-dandruff shampoos containing KTZ](#) that *might* be helpful. Survey of

scientific publications, including possible side effects, [here](#). New research leads on a potential topical treatment from the University of Sheffield (UK), based on mouse experiments, [here](#).

- [New FDA Web Page With Info on Microplastics and Nano-plastics in Food](#) - [here](#).
- [FDA Advises Discarding 9 Additional Cinnamon Products for Lead Contamination](#) - Read a description, and see photos of the packaging [here](#).
- [AARP Update on Covid](#) - [here](#). In the US in 2023 more than 916,300 people were hospitalized with Covid, and more than 75,500 died. New research found that the vaccine lowers the risk of [long Covid](#) by 72%.
- [Longevity](#) - Background [here](#). Life expectancy in your zip code, [here](#). Examples. In the US generally - 77.5; In Maryland: Montgomery County - 84; Baltimore - 71.8. In Washington DC generally - 77. In Cape May County NJ - 76.9; In Fairfax County VA - 85.2; In Tennessee: Franklin County TN - 75.2; Shelby County TN - 74.2.
- [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 -

- [FDA Approved Treatment for Peanut Allergy](#) - for children 4-17 is now extended to children 1-4, [here](#). [Palforzia](#).
- [New Way to Prevent HIV Infections](#) - Both of the *existing* pills for this purpose must be taken daily, and are 99% effective ... *when* they are taken. For men under 30, daily dosage [compliance is as low as 26% in certain populations](#). The medication, lenacapavir from [Gilead Sciences](#) (Foster City CA), is injected twice a year. The [preliminary results](#) of the Phase 3 human trial were so impressive that the double blinded trial was halted, and the treatment was offered to all the participants. FDA approval for this indication is likely, as the drug is already approved for drug resistant HIV. [Publication](#) There will be cost issues.
- [FDA Alert on Lead in 9 Additional Ground Cinnamon Products](#) - [here](#). These products should be discarded.

Other Health Science News -

- [Human Pancreatic Beta Cells Have Been Regenerated for the *First Time* in Mice](#) - Researchers at Mount Sinai Health System in New York, and City of Hope in Los Angeles, have [reported](#) a combination therapy that regenerates (insulin producing) pancreatic human beta cells in mice genetically engineered to have diabetes. The new treatment boosts insulin-making cells by 700%, and reverses both Type 1 and 2 diabetes *in mice*. This is presently a lab experiment. The next step is human trials. Exciting! [Kamal S.]
- [A Glioblastoma Cancer Survivor's Story](#) - with a little help from surgery, chemotherapy, [clinical trials](#), the Dana Farber Institute in Boston, and the Moffitt Cancer Center in Tampa Florida. [Glioblastoma Awareness Day](#).
- [Reading Nutrition Labels Made Simple](#) - If you're a cut-to-the-chase type, you can use the '[5/20 Rule](#)' to interpret the % DV numbers (percent daily value) for a buying decision. Aim for less than 5% of DV per serving for something bad like saturated fat or sodium. Aim for 20% or more for something good, like fiber or vitamins. More information on the science and politics of "Nutrition Facts" labels, [here](#).
- [Rapamycin Being Tested for Age-Related Conditions Like Gum Disease](#) - FDA has already approved [Rapamycin](#) for transplant patients, where at high dosages it suppresses the immune

system. It's now being tested in a human trial at George Washington University (DCC) for reducing inflammation-related diseases like gum disease. If successful there, it may have many other medical applications for age-related conditions. Since FDA has already approved it for one indication, doctors already have the right to prescribe it for other indications on their own responsibility.

- New Nasal Spray Treatment Candidate for Alzheimer's Disease (AD) - The antibody treatment eliminates *intracellular* tau 'seeds', and dissolves *extracellular* tau tangles. Memory in mice genetically altered to be susceptible to AD was substantially improved. See a good diagram showing how the antibody nasal spray bypasses the blood-brain barrier, [here](#). Hopeful research lead. Testing in humans next. [Publication](#).
- Erectile Dysfunction - See a description of the types, causes and treatments reviewed by medical professionals, [here](#). The condition is more common than realized, and can occur in any age group: 20% of 18-24 year olds, 60% of 70 year olds. [Chronic stress](#), smoking, lack of exercise, tiredness, and excessive alcohol or weight should be avoided. Otherwise, set aside the taboos and seek medical advice.
- One Vitamin to Age Well by Getting Less of - Iron, according to a medical longevity expert, details [here](#). Enough Iron: adult women ages 18 to 50 - 18 milligrams of iron a day (pre-menopause). After age 50 - 8 milligrams a day (post-menopause) because iron is no longer lost during menstruation. For adult men of any age - 8 milligrams. Men, and post-menopause women can *probably* get all the iron they need from a well balanced nutritional plan. Get a personalized recommendation from a doctor, nutritionist or registered dietician. See NIH recommendations with respect to age and gender [here](#). Note the NIH table showing **upper limits**.
- 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 -

- Xylitol - a recently [published study](#) done by researchers at the Cleveland Clinic found that consumption of Xylitol (commonly used sugar substitute) increased the risk of heart attack and stroke. [Details](#). The same team made a similar finding for [Erythritol](#) (also a commonly used sugar substitute) last year. Stay away from both.
- One Food Swap Can Decrease Risk of Heart Disease and Diabetes - according to a registered dietician. [Replace much of your intake of saturated fats with unsaturated fats](#). Examples - Exchange [butter for olive oil or avocado oil](#). Exchange hamburgers and hot dogs for seafood. In one human study, those who made the swap had an estimated 32% lower risk of heart disease and 26% lower risk of type 2 diabetes.
- The One Food That Dieticians Most Want Older People to Eat - and why, [here](#). Summary: oily fish such as salmon, tuna, mackerel or sardines. Good sources of omega-3 fatty acids, vitamin B-12, vitamin D and fiber.
- 12 Foods for Living Longer - because they are rich in antioxidants, vitamins, minerals, healthy fats, and fiber, they can help to combat oxidative stress, inflammation, and cellular damage. [Details](#). Summary: leafy greens, nuts, fatty fish, olive oil (and avocado oil), berries, legumes, whole grains, cruciferous vegetables (broccoli, brussels sprouts), avocados, green tea, purple grapes, turmeric.
- 23 High Fiber Breakfast Recipes for Lowering Cholesterol - recommended by a registered dietician, [here](#).

- 6 Foods to Help With Diabetes - per advice from the AARP, [here](#). Summary: [legumes/beans](#), [dark leafy greens](#), nuts, [fatty fish](#), berries, [oats](#). It's not an accident that this list looks a lot like the one just above. [Sam J.]
- Is Tart Cherry Juice Healthy - yes! Details reviewed by a doctor [here](#). It has high levels of polyphenols ... antioxidants that include anthocyanin (red color), hydroxycinnamic acid, and flavonols - all anti-inflammatories. It also is rich in Vitamins A and C, Magnesium, Calcium, Phosphorus, Iron and Zink. Try it on fresh-cut segments of blood oranges (rind scrubbed and most *left on*). It has a low [glycemic index](#), important to diabetics.
- Is Watermelon Healthy - yes. See 8 points made by registered dieticians [here](#). Watermelon has Vitamin C, and is rich in the potent natural antioxidant [lycopene](#), also found in tomatoes.
- Blood Oranges Get Healthier With Appropriate Refrigeration Post-Harvest - Blood oranges are already rich in the anthocyanin class of antioxidants. Scientists at the University of Florida have recently published a study showing that their antioxidant content can be further increased ([up to 3,000%!!](#)), and their color intensified [photo], simply by [refrigerating them at 6-8° C \(43-46° F\) for 60 days after harvesting them](#). You can accomplish some of this at home by refrigerating them as soon as possible. Healthier and prettier ... what's not to like.
- Nonfat or Full-Fat Yogurt - Greek yogurt is regular yogurt that's been strained to remove the whey protein, the liquid left after fermentation. That eliminates the lactose (sugar), and leaves the thicker, creamer, more protein concentrated Greek yogurt. See the nutritional table [here](#) for the breakdown between nonfat and low-fat Greek yogurt. Bottom line: If you are following a low fat diet, then go nonfat Greek. If the additional calories/fat still let you meet your nutritional goals, then go full-fat Greek (will feel more satiated).
- Brined Grilled Chicken Breasts - high in protein, low in saturated fat compared to other meats, [easy to prepare](#) (recipe and good video) starting with boneless skinless chicken breasts. Tuneup: the [brine](#) water needs to be cold, give the chicken at least 2 hours to soak, use either olive oil or avocado oil, and get a proper meat mallet.
- CDC Advice on the Role of Carbohydrates in a Healthy Nutritional Plan - details [here](#). Summary: carbs in moderation, with 'complex' carbs preferred so as to avoid blood sugar spikes.
- If You Really Must Have a Late Night Snack - [here](#) are 14 items recommended by a registered dietician. Summary: tart cherries, banana with almond butter, kiwi, protein smoothie, goji berries, whole grain crackers and cheese, hot cereal, trail mix, yogurt, whole grain wrap, pumpkin seeds, edamame, eggs, strawberries, brie.
- 6 Healthiest Beans and Legumes - according to a registered dietician, and why, [here](#). Summary: chickpeas, lentils, black beans, pinto beans, edamame, kidney beans. [Publication 1](#). [Publication 2](#).
- Should Nuts Be Stored in the Fridge? - The short answer from registered dietician is yes. [Details](#).
- 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.

- [EPA Grants \\$4.3 Billion for Climate Related Projects in 30 States - Details](#). Summary: greenhouse gas emissions from cement, asphalt and other material, electric charging equipment for zero-emission freight vehicles and cargo handling equipment at ports, climate-smart agriculture and reduction of agricultural waste from livestock, electrification of wells for irrigation, energy efficiency and electrification of homes, EV infrastructure along I-95 from Maryland to Connecticut, accelerated siting/zoning/permitting for renewable energy projects, accelerated adoption of cold-climate heat pumps and water heaters. Timeline of the EPA grant process [here](#). [Barbara R.]
- [Blue Bird Goes Electric](#) - The [Blue Bird Corporation](#) (Macon GA) has received an \$80 million grant from the US Department of Energy's Domestic Automotive Manufacturing Conversion Program to cover half of the \$160 million cost to convert a prior manufacturing site for diesel-powered motorhomes in Fort Valley GA into a 600,000 square foot, state-of-the-art electric vehicle manufacturing facility for [Type-D Electric School Buses](#).
- [Fish Safe Hydropower Turbines](#) - Rainbow trout passing downstream through one of Natel Energy's '[Fish Safe Restoration Hydro Turbines](#)' had a 100% immediate, and 48 hour, survival rate. The 3D printed turbine blades are curved to avoid or minimize the impacts that occur. [3D printing reduces the production time for turbine blades](#) from as long as 2 years (including supply chain delays) to 2 weeks, with a corresponding cost reduction.
- [First Solar-Covered Canal in the US](#) - the first 1.3 MW phase of the [Casa-Blanca Solar Canal Project](#), is nearly complete, and is due to go online this Summer in Arizona - crosses I-10 South of Phoenix. Future phases envision covering the entire 16 mile canal. Cuts down on evaporative water loss, generates power - win win!
- [The Salmon Are Back!](#) - [Coho salmon](#) are back in Washington state's Olympic National Park [[map](#)] since the last of the [two dams blocking 90 miles of the Elwha River](#) were removed beginning in 2014. As of 2022, 36% of the cohos spawned on their own, not born in hatcheries. Similar work is now being done on the Klamath River (Southern Oregon and Northern California), with the fourth and final dam being removed this past January. Details, and video of the explosion, [here](#). Wait for the traditional 'fire in the hole' warning.
- [See a Colorado Rattlesnake Den in Real Time](#) - at rattlesnake cam, [here](#). [skip ad]
- [Dirty Rain in Florida](#) - This is the time of year when dust clouds roll westward right across the Atlantic from the Western Sahara, Africa. During thunderstorm events over southern and central Florida the dust washes out of the air as [dirty rain](#). Details, map and video [here](#). On the plus side, the dust tends to suppress hurricanes.
- [Relief for Flood Damaged Cars in Vermont](#) - Eligible Vermonters can turn in the [wreck damaged by Hurricane Beryl](#) flooding for a \$5,000 payment, buy an EV or a PHEV (plug-in hybrid EV), and get \$6,000 from the state toward the purchase - a total of up to \$11,000. [Details](#). [Grady J.]
- [The Salmon Are Also Back in Maine](#) - after removal of the Edes Falls Dam on the Crooked River near Naples Maine, [details](#) and photo here. This will restore the native range of the salmon and brook trout upstream from Sebago Lake. A new park will be built nearby. [Harvey B.]
- [This Fish Vanished a Century Ago](#) - due to pollution and overfishing, but remained a cultural legend. Now [Atlantic Sturgeon are swimming again in the Göta älv River in Sweden](#) [good photo] with a little help from the Swedish Anglers Association, the Museum of Natural History in Gothenburg, and several [universities](#) [impressive photo]. The plan is to do an annual restocking for the next 10 years, or until the population is self-sustaining. Sturgeon, like salmon, are migratory fish, spawning and spending their early years in freshwater before swimming to the sea. Sturgeon are big! [Mack W]
- [Penn State Researchers Found Radium Contamination in Pennsylvania's Allegheny River Mussels](#) - downstream of a fracking wastewater treatment facility that has been closed since

2019. Mussels also filter contaminants like metals and microplastics, creating a [living record](#) of how conditions have been over time.

- [The US Department of Energy Water Power Technologies Office](#) - launched its [Hydropower Testing Network](#) this June - note funding. It assists developers in moving their innovative ideas to commercial use. Hydropower produces 28.7% of US renewable electricity generation, and 6.2% of overall US electricity generation.
- [Melting Ice From Polar and Glacial Ice is Slowing the Earth's Spin](#) - as the [melt water gets redistributed toward the equator](#). It's the same principle for a spinning figure skater. When she extends her arms, the spin slows. When she brings her arms in, the spin speeds up.
- [Connecting Downtown Los Angeles with the Bay Area by 200 MPH Train](#) - The route has just received environmental approval in California [[details and photo](#)]. The first segment connecting Mead with Bakersfield is already under construction, and could be in operation by 2030 [[map and details](#)].
- [A Key Component of Lithium Ion Batteries to be Built in Terre Haute Indiana](#) - ENTEK (Terre Haute IN) has received a \$1.2 billion loan from the US Department of Energy to [build battery separators](#), the membranes that prevent electrical conduction (shorts) between the anode and cathode in the electrolyte of lithium ion batteries.
- [QuantumScape Solid State Battery Technology](#) - [gains momentum from being licensed](#) [video, white arrow in red box] by Volkswagen Group's battery arm [PowerCo](#) (Salzgitter Germany), the expectation being higher energy density for greater EV range, and more/faster recharge cycles. Preliminary performance and endurance tests have been encouraging.
- [There Are Now 8 Countries Producing 99%+ of Electrical Power Sustainably](#) - With the addition of a solar farm outside Rome, [Vatican City](#) joins the list. See the other countries [here](#). Thanks Francis.
- [Step Forward for Wind Energy in Maryland](#) - The US Bureau of Ocean Energy Management has released [US Wind's Final Environmental Impact Statement](#), a major step toward securing all federal permits for the 2.2 GW wind farm - 10 miles off the MD/DE coast, 114 turbines, power for 770,000 homes, three phases (US Wind, MarWin and Momentum Wind), manufacturing hub at Sparrows Point Steel in Baltimore. Win win! [Details](#).
- [Retirement Home for EV Batteries](#) - Adding variable output, renewable energy power sources to the grid is going to require a massive amount of grid-scale power storage (batteries or equivalent). See an arrangement for reusing EV batteries for this purpose, [here](#). No reprocessing is needed for this type of repurposing. In 2024, 81% of all new capacity added to the US grid will be solar and wind.

Other Science News -

- [Privately Owned Space Station to Replace the International Space Station](#) - when it is deorbited in 2030, but which corporate consortium will build and own the new one? Starlab seems to have the lead, backed by Northrop Grumman, Hilton Hotels, Airbus, Mitsubishi, Canada's MDA Space, and recently America's Palantir Technologies. Other contenders are Axiom Space, Vast Space and Orbital Reef. [Details](#).
- ["... a Royal Attendant Who Feeds Me Grapes and Fans Me With Palm Leaves"](#) - The recently dropped developers' beta of a cell phone company's AI-enhanced operating system update was described this way by a smitten beta tester. Details, and the company name, [here](#). The company promises more and better this Fall.
- [Ukraine and the Czech Republic Will Coproduce Assault Rifles and Ammunition in Ukraine](#) - [Details](#).

- Denmark and the Netherlands Give [Leopard 2 Tanks to Ukraine](#) - 14 tanks, purchased by the two countries from a third party, and updated/tested by their German manufacturer Rheinmetall, will soon be delivered to Ukraine.
- [Clever Ukrainian Solution to the Russian Okhota \(Hunting\) Antipersonnel Mine](#) - Okhota listens for the pattern of human footsteps, and fires the nearest of its network of antipersonnel mines. To neutralize them, Ukraine drops a metal cylinder called ARTEMEDA, with a spike attached. It emits pulses simulating human footsteps, triggering all of the Okhota mines harmlessly. Very neat. Thorough video [here](#).
- [Seaglidors With the Grace and Speed of Waterbugs](#) - See the Alaska Airlines concept, and a cool video, [here](#).

Nice Thing [full screen]

Nabucco - An opera by Giuseppe Verdi

- [Chorus of the Hebrew Slaves \(Va Pensiero\)](#) - [here](#)
- [Plot Context and Lyrics in Italian and English](#) - [here](#).