

Betsy says HI!!!!

Announcements

The next LABQUEST meeting will be this 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:

- Avian Flu Spreading Among Poultry Workers
- Shingles Vaccination Delays Onset of Dementia
- FDA Approves Blood Test for Colorectal Cancer
- 10 Signs of Back Pain Due to Kidney Stones
- Can Dogs Eat Grapes
- Eating High Amounts of Ultra-Processed Foods is Deadly
- A 100% Biodegradable Bioplastic That Decomposes in Two Months

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).

- [Avian Flu Spreading Among Poultry Workers](#) - [CDC advises](#) avoiding [contact with birds](#), wild or domesticated, and their feces. Tune-up: Cook all poultry and eggs *thoroughly*. Eggs: no sunny side up, no *soft* boiled eggs.
- [FDA/USDA Test Commercial Milk Pasteurization Process](#) - After an [exhaustive sampling and testing process](#), FDA [concluded](#) that the pasteurization is very highly effective at inactivating the avian flu virus Details [here](#).
- [America's Fittest Cities](#) - Arlington VA and Washington DC, according to a [2024 ranking from the American College of Sports Medicine](#), and the Elevance Health Foundation - followed by Seattle WA, San Francisco CA, and Madison WI. Arlington led in environmental indicators, and in infrastructure promoting a healthy lifestyle. Washington led with an extensive transport network - a large percentage of the population uses public transit, and bikes or walks to work. Good parks are also important in the rating.
- [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 -

- Shingles Vaccination Delays Onset of Dementia - A study [published](#) last month by researchers at the University of Oxford shows that those who had been vaccinated with the recombinant version of the shingles vaccine, Shingrix, experienced a [delay of 164 days in the onset of dementia](#). The effect was greater for women than for men. This is a clue for further research on the exact mechanism, and a great incentive for those who haven't already followed the CDC recommendation to get vaxxed.
- FDA Approves Blood Test for Colorectal Cancer - 'Shield' is a [Guardant Health](#) (Palo Alto CA) test to screen for colorectal cancer ([CRC](#)) based on a [blood sample](#) from those 45 and older at average risk for CRC. It has a limited detection sensitivity (55-65%) for stage 1 CRC, and does not detect 87% of precancerous lesions, but is useful for screening during wellness exams - doesn't replace colonoscopies or [in vitro stool tests](#). [Publication](#).
- Metastatic Synovial Sarcoma - FDA has [approved](#) Tecelra (afamitresgene autoleucel) from [Adaptimmune](#) (Philadelphia PA) for treatment of this type of cancer. Synovial sarcoma impacts about 1,000 people in the US annually, usually men in their 30s or younger. Tecelra is the [first engineered T-cell therapy](#) for solid tumors.
- First Long-Term Artificial Heart - As a part of FDA's Early Feasibility Study program, the [Texas Heart Institute](#) (Houston TX) has [implanted](#) a totally artificial, Titanium, valveless heart from [BiVACOR](#) (Huntington Beach CA). The new artificial heart is a rotary pump with only one moving part, a magnetically levitated rotor. Plans call for enrolling four additional patients in the current human trial, followed by a pause for evaluation. May the force be with them.
- FDA Has Approved Zurnai - the first [nalmeфene hydrochloride auto-injector](#) for the emergency treatment of opioid overdoses. The agency approved the first [nasal spray](#) form of nalmeфene in May 2023. [Background](#).

Other Health Science News -

- New Hospital at Howard University - A [new hospital](#) will be built, in addition to and linked to the existing hospital along its Georgia Avenue alignment. Funding will be from a \$100 million federal appropriation ... and from the [DC government](#) a \$225 million (20 year) tax abatement, a \$25 million infrastructure investment, and a \$26.6 (6 year) programmatic support commitment. Howard University Hospital is presently administered by Adventist Healthcare. The new added capacity, 600,000 ft², will establish a 225 bed teaching hospital. There will also be a new Medical Office Building, which will house a new Howard University Cancer Center facility.
- Weight Loss Drug Also Found To Reduce Heart Failure Risk - The *preliminary* findings of a late stage human trial of the Eli Lilly drug Zepbound indicate that "[Patients who took Zepbound were 38% less likely to be hospitalized, need to increase their heart failure medication or die](#) because of heart complications compared with those who received a placebo." The company is expected to submit the study's findings to FDA in support of an application to expand the indications of use for Zepbound.
- Anti-Inflammatory Drug Extends Lifespan in Mice by 20% - by [inhibiting their immune systems from generating the inflammatory molecule interleukin-11 \(IL-11\)](#). It also made them [less likely to develop cancer](#) - less than 16% of those treated had tumours, compared to >60% for the control group. Cholesterol levels, frailty and body weight were improved, as were muscle strength and metabolism. [Publication](#). Let's go with clinical trials.
- Parkinson's Disease (PD) - A [brain cell graft procedure](#) has been successful in non-human primates, and FDA has now given permission for the first Phase 1 human trials. The patient's

own cells are cultured *in vitro*, and injected into just the right areas of the brain. Publication covering the non-human primate work, [here](#).

- [10 Signs of Back Pain Due to Kidney Stones](#) - as opposed to other causes. Described [here](#) in an article from the Keck School of Medicine at the University of Southern California, reviewed by medical experts - may help you to accurately and more completely describe persistent or sharp back pain and other symptoms to your doctor for a better informed diagnosis.
- [Cloudy Urine](#) - Always take a second to look. An occasional cloudy appearance might be the temporary effect of something you are eating ([7 food and drink causes](#), from a registered dietician), or it might be something more serious like kidney stones or a urinary tract infection. If the cloudiness persists, bring it to the attention of your doctor. Tuneup: **avoid anything with high fructose corn syrup**, or an excessive amount of *added* sugar, by reading nutrition/contents labels. Be intentional about what you eat and drink.
- [Two New Blood Tests for Cardiovascular Risk Screening](#) - [The new tests](#) for 'apolipoprotein B' [apoB] and 'lipoprotein(a)' [lp(a)] don't replace the customary [lipid panel](#) blood work, but may catch details in routine screening that might otherwise be missed. Insurance may not cover these tests yet.
- [6 Foods That Can Trigger Anxiety](#) - A nutritional psychologist recommends those experiencing chronic or excessive stress avoid these 6 foods, [details](#). Summary: processed foods, [added/refined sugars](#), industrial oils (corn, grapeseed, soybean, sunflower, palm fruit), [artificial sweeteners](#), alcohol, coffee. Publication on palmitic acid in palm fruit oil (palm oil), [here](#).
- [Pulmonary Embolism](#) - [Johns Hopkins Medicine](#) on symptoms, diagnostic procedures, treatments, and causes.
- [15 Ideas for Controlling Blood Sugar Without Medication](#) - from a registered dietician, [here](#). Boneless/skinless *grilled* chicken breast or *rotisserie roasted* chicken ok, *grilled/roasted* seafood ok.
- [The One Nutrient a Cardiologist Recommends Eating More Of](#) - Unsaturated fats (mono or poly-unsaturated fats) for heart health. [Details](#). Tuneup: [Avocados](#) are high in both mono and poly-unsaturated fats, *and* fiber.
- [Can Dogs Eat Grapes](#) - No! And no raisins either. Even a single grape can be toxic. [Details](#)
- [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 -

- [Things You Are Doing Wrong When Cooking Sweet Potatoes](#) - [here](#). [Arlene G.]
- [Electric/Induction Stovetop Differences](#) - see a run-down [here](#). Tune-up: to see if a pot is induction ready, apply a refrigerator magnet to the bottom. If the magnet sticks, the pot is induction ready. If not, it simply won't work. Note: But ... only cooking is believing ... so to get started exercising with induction cooking you can buy a single-pot *portable* induction cook unit - could be less than \$100, no installation needed. Plug it in wherever you want it, and simply put it away on a shelf when you're done. Electric cooking is imprecise, slow and clumsy - you will still need an oven, electric is best for that, but it doesn't need to be incorporated into a 'stove'. Gas is 50's passé. Go induction. There might be an [IRA tax credit](#) in it for you.
- [Eating High Amounts of Ultra-Processed Foods is Deadly](#) - A recently published study found that those who ate high amounts were [10% more likely to die](#) from all causes over the study period, compared to those who ate minimally processed foods. Foods to avoid, [here](#). Ultraprocessed red meats increase dementia risk - [here](#).

- [14 Best Anti-Inflammatory Teas](#) - according to a registered dietician, [here](#).
- [20 High Fiber Fruits](#) - recommended by a registered dietician, and their dietary benefits, [here](#).
- [Best No-Added-Sugar Drinks](#) - according to a registered dietician, and her reasons, [here](#). Summary: coconut water, orange juice, **pomegranate juice**, agua fresca, lemon water, broth (chicken vegetable, seafood), **kefir**.
- [Best Tea for Gut Health](#) - according to a registered dietician, [here](#).
- [Benefits of Cottage Cheese](#) - according to a registered dietician, [here](#).
- [Benefits of Spinach](#) - Spinach is rich in vitamins, minerals, antioxidants. It also has some good fiber, and few calories. See a detailed run-down from a registered dietitian/nutritionist, [here](#). There's no nutritional difference between baby spinach (sweeter) and mature leaf spinach, and no nutritional difference between frozen and fresh. Raw is a bit more nutritious by weight than cooked, especially the delicate antioxidant components, but it's easier to eat *more* cooked spinach. Tuneup: Choose organic baby spinach, greenhouse farmed. Alternate weekly with other fresh leafy greens, like lettuce or romaine, to avoid excessive [uric acid or calcium oxalate](#).
- [Two Types of Potatoes Have the Best Nutrients](#) - the [sweet potato](#) and the [purple potato](#) (Okinawan imo, available in Asian markets), according to a registered dietician, [here](#). Tune-up: do not peel, or fry, or load up with butter or sour cream or bacon strips or most types of cheese, or any other fatty overindulgences. Herbs, avocado oil or olive oil, and a bit of low-Sodium salt should do it.
- [Are Cherry Tomatoes and Grape Tomatoes Different](#) - Nutritionally no. There are obvious differences in size, taste, juiciness, skin thickness and texture. [Details](#).
- [8 Summer Foods](#) - recommended by registered dieticians, with details [here](#). Summary: cherries, sweet corn, tomatoes, mint, mushrooms, Greek yogurt, pistachios and blueberries.
- [The 'Brown Stem Rule' For Choosing Ripe Peaches](#) - [here](#). If there is a green ring around the cleft near the stem, it's not yet ripe. You can take it home from the store and ripen it in your fruit-ripening bowl, or course.
- [Choosing the Right Protein to Fit Your Nutritional Goals](#) - based on [advice](#) from a registered dietician.
- [Vitamin B12](#) - See a registered dietician's advice on 7 benefits of getting sufficient Vitamin B12, [here](#). Tune-up: even if you test as deficient in B12, don't try to fix it by eating liver. Also, vegetarians need to take extra care to get enough, and may need to take supplements (ask doctor's advice).
- [4 Ways Scallops Are Good For You](#) - details from a registered dietician, [here](#). Summary: heart health, brain function, immune system, weight management. Tune-up: watch the Sodium, be alert for allergies.
- [10 Natural Foods to Suppress Sugar Addiction](#) - recommended by a Ph.D. neuroscientist, [here](#). Summary: [berries](#), [avocados](#), [pistachios](#), [chia seeds](#), [chickpeas](#), [oats](#), olives, sweet potatoes, Greek yogurt, [spirulina](#).
- [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. As constituents in highly processed foods, 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 -

- [EPA Invokes Its Very Rarely Used 'Notice of Intent to Suspend' Authority](#) - for the first time in 40 years, to stop the use of the pesticide [dimethyl tetrachloroterephthalate \(DCPA or Dacthal\)](#) with immediate effect, because of the health risk to fetuses. Action is being taken under the authority of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) - see the actual Notice of Intent [here](#). The Agency expects to go to Final Rule in 90 days. The sole US manufacturer is [AMVAC Chemical](#) (Newport Beach CA).
- [World's First Industrial Grade Plant for Producing Solar Fuels](#) - Synhelion's solar fuel plant [DAWN](#) (Germany) is centered on a 20-meter-high solar tower and a mirror field. The solar tower has a solar receiver, a thermochemical reactor, and thermal energy storage for cost-effective solar fuel production on a 24 hour basis. DAWN produces several thousand liters of syncrude annually, which is sent to a conventional oil refinery for refining into diesel, gasoline and other refined products - all on a net zero Carbon basis. A scaled-up plant is planned for Spain, with construction starting in 2025. This larger plant will produce about 1,000 tons of syncrude annually. [Photo](#).
- [TerraPower, America's First Next-Gen Nuclear Plant Has Broken Ground](#) - in Kemmerer Wyoming. The [heat exchange loop, and energy storage, will be based on molten Sodium](#), designed to operate at about 350° C, safely far below the 800° C boiling point of Sodium. Gravity and thermal convection maintain circulation, not pumps. Construction has begun on the conventional, non-nuclear portion of the plant, called the 'steam island' segment. The Nuclear Regulatory Commission has accepted the project's construction permit application for the 'nuclear island' segment, with the review process expected to take about 2 years. Supported by the Gates Foundation (thanks Bill), Berkshire Hathaway (thanks Warren) and very generous financing (50/50 cost share, up to **\$2 billion**) from the US Department of Energy's [Advanced Reactor Demonstration Program](#) - thank you **very much** Secretary Granholm. Operational target for the 345 MW plant - 2030. The town is building a new, larger coffee shop to make sure all the new workers can be appropriately caffeinated, and all the workers at the local coal-fired power plant scheduled to be shut down will be offered jobs at TerraPower - uses the old plant's existing grid connections, recapturing the existing infrastructure investment. It's called '[Natrium Technology](#)'.
- [Largest Battery Energy Storage Project in Arizona - Recurrent Energy \(map\)](#) has arranged \$513 million in financing for Papago Storage for its 1,200 MWh battery storage project in Maricopa County, Arizona (Phoenix).
- [Seniors More Susceptible to Health Issues Related to Particulate Air Pollution](#) - PM2.5 is the official standard for particulate air pollution with particle sizes down to 2.5 microns. Small particles present greater risk since they penetrate more deeply into lung tissue. A recent [study done in South Korea](#) indicated that there is a substantially higher premature death rate for adults over 65 due to excessive PM2.5 levels there. The US is doing a bit better, in some locations, but an increase in premature deaths is also expected as the population ages. Children and asmatics are also disproportionately affected. You can help *yourself* by getting high efficiency air filters installed at home (MERV 13 or better, up to MERV 16), and [changing the filter elements](#) in them on schedule. For apartment dwellers, free standing room filter systems are available - best placed where you spend the most time (probably bedroom).
- [Coal Dust Pollution \(PM 2.5\) From Uncovered Coal Trains](#) - Millions of tons of coal are either consumed or exported (mostly by ship) each year in the US, and fine particulates are spreading coal dust contamination as much as a mile away from the tracks. Since coal export terminals are generally in urban areas (Oakland and Richmond in CA, Baltimore Harbor in Maryland), this is

presenting a [public health hazard](#) both in rural areas along thousands of miles of track, and in densely populated areas as well. Action is needed.

- [High Speed Rail in Unexpected Places](#) - Ground has just been broken on a new high speed (110 MPH) rail link between Raleigh NC and Wake Forest NC, with \$1.3 billion in funding from the US Department of Transportation, derived from the [US 2001 Bipartisan Infrastructure Act](#) - thank you [Secretary Buttigieg](#). The new line will eventually run from Raleigh to Richmond VA - 190 miles in 2 hours and 45 minutes. Progress on new high speed rail is also being made in Nevada and California.
- [World's Longest Road and Rail Tunnel Connecting Two Major Cities](#) - between Hamburg Germany and Copenhagen Denmark, has broken ground. The [tunnel under the Fehmarn Strait between Denmark and Germany](#), completion 2029, will be 11 miles long, reducing the two-city train time from 5 hours to 3.
- [14% of the Active Ingredients of US Pesticides are PFAS](#) - according to a study published last month by researchers at the Center for Biological Diversity. The *long lasting* toxic family of per- and polyfluoroalkyl substances ([PFAS](#)), sometimes called 'forever chemicals', are intentionally added to pesticides to stabilize them and increase their lethality. Much better regulatory oversight is needed, probably starting with EPA - they made a [beginning move on reporting](#) last year in this [final rule](#). In the meantime, **buy organic**. [Publication](#).
- [Heat Islands](#) - are areas of a city that feel at least 8° F warmer than others due to the built environment. See a map of cities with heat islands, [here](#) - DC is one, particularly Ward 1 neighborhoods like Columbia Heights and Adams Morgan. DC has a goal of 40% tree cover, presently 38.7% and is planting 80 trees per day. [Green roofs](#), [permeable pavement](#) and reflective coatings are also being used.
- [Geologic Hydrogen](#) - Hydrogen is already in use by oil refineries, chemical plants, and fertilizer manufacturers, extracted from natural gas in a very 'dirty' Carbon intensive process. It now appears that [relatively pure Hydrogen may be widely available from certain iron-rich geological formations](#), and we already have the technology to extract it without CO2 emissions. The [US Geological Survey](#) is providing \$10 million in grants to move forward with geochemical mapping, and the [US Department of Energy](#) recently offered \$20 million in grants across [16 projects in eight states](#) to accelerate research into natural green hydrogen. [Progress!](#)
- [Spain Announces \\$2.5 Billion Clean Energy Plan](#) - that includes a substantial (\$860 million) package of subsidies for large green hydrogen projects with a potential overall electrolysis capacity of 652 MW.
- [Maryland's Climate Pollution Reduction Plan](#) - See the Governor's Executive Order [here](#).
- [Madison Nebraska Goes Solar](#) - with a little help from a US Department of Agriculture loan (40% forgiven) to [Bluestem Energy Solutions](#) (Omaha NE). The project will break ground in September, be fully operational by January, and provide power for about 400 homes.
- [NE Ohio Goes Big on Solar](#) - US Environmental Protection Agency [grants totaling \\$129 million will go to establishing solar farms](#) on 6 otherwise unusable brownfield sites in Cleveland, Cuyahoga County, and the city of Painesville OH - total of 63 MW, power for 11,000 homes. Painesville expects to be able to take its coal-fired [peaker](#) power plant offline. [Progress](#)
- [New US Solar Cell Manufacturing Plant Near Minneapolis MN](#) - *Cells* are incorporated into solar modules, which are incorporated into solar panels. India's solar cell maker Premier Energies, and Canada's solar panel maker Heliene, are joining forces to help fill the shortage of US solar *cell* manufacturing capacity by building a [new US solar cell plant](#). US produced cells in US produced modules in US produced solar panels will qualify for tax credits under the US 2022 Inflation Reduction Act, and US solar farm developers using these products will also then qualify

for the US Treasury Department's 10% [Domestic Content Bonus Investment Tax Credit](#). Reshoring!

- [Chinese Battery Company CATL Powers 4-Ton Aircraft With Battery](#) - and aims to power an 8 ton aircraft with a 1,200 mile range for its next step.
- [The World Needs a Better Anode](#) - for its Lithium batteries. The current go-to material is Graphite ... difficult to process, with a supply chain dominated by China. The Finnish company [Stora Enso](#) (Kotka Finland) proposes to replace Graphite with [Lignin](#) (branded [Lignode](#)), a naturally occurring polymer that makes up about 30% of a tree, and is widely available as a byproduct of the production of wood pulp. Stand by.
- [A 100% Biodegradable Bioplastic That Decomposes in Two Months](#) - a durable, flexible material for shopping bags and the packaging of goods has been developed by researchers at the [University of Copenhagen](#) in Denmark - composed of barley starch and sugar beet waste (mostly [amylose](#) and cellulose). Standard plastics take from 50 to 200 years to decompose. Recycling isn't a sustainable long-term answer to plastic pollution.
- [Maryland Wants YOU To Eat Invasive Species](#) - Technicians removed by hand more than 18,000 pounds of Northern Snakeheads, Flat Head Catfish and [Blue Catfish](#) from the fish elevator at Conowingo Dam on the Susquehanna River between March and June of this year. They were processed for consumption by a seafood wholesaler, with some given to local food banks. All three species are said to be tasty. [Details](#).

Other Science News -

- [The First Structure Erected by Settlers in Maryland Was a Wooden Rectangular Fort Built in 1634](#) - that went on to become the seed for [St Mary's City](#), Maryland's capital until 1695. Despite decades of searching, archaeologists couldn't find the fort's remains until they brought in ground penetrating radar in 2019. [Details](#).
- [Ukrainian Sea Babies Grow Up](#) - The uncrewed surface vessels (USVs) can now carry up to a ton of explosives, and have a range of more than 630 miles - any target in the Black Sea can now be reached by them. Details and video with appropriately menacing music, [here](#). Note the [StarLink](#) antenna on the deck. Thanks, Elon.
- [Recycling Rare Earths From Used Magnets](#) - China controls 80% of the world market in 17 important rare earth elements by subsidizing the mining and environmentally problematic refining process, suppressing competition. The US Department of Defense (DoD), recognizing that there are defense implications, has decided to encourage the commercialization of technologies to extract rare earths from old EV batteries, medical imaging machines, wind turbines, magnets and the like. [DoD has now provided initial funding to Tusaar](#) to build a recycling plant in Denver in 2025 to extract rare earths from used products. Good forward planning.
- [Vehicles Donated From London's Ultra Low Emissions Zone \(Ulez\) Go to Ukraine](#) - A convoy of 50, including a red London bus, is on its way (4 day drive) to Kharkiv Ukraine. Their former owners each get a \$2,500 bonus for the donation. [Details](#).

Nice Thing [full screen]

Young Talent in Choirs -

- ['Only Boys Aloud'](#) - Welsh Boys Choir singing in 'Britain's Got Talent' 2023 - [here](#).