

Betsy says HI!!!!

Announcements

The next LABQUEST meeting will be Wednesday, May 14 at 12:30. Location is TBD.

Science Report Highlights

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

- NIH Director Confirmed
- CDC Measles Update, including increasing illness due to excessive doses of Vitamin A.
- First Pig Liver Transplanted Into A Human
- Controlling Cholesterol
- Diet Drink Artificial Sweetener Linked to Increased Appetite
- Loggerhead And Green Sea Turtles – ahead of scientists
- Endangered US Farmers
- Upgrades At Maryland's Calvert Cliffs Nuclear Facility
- Washington DC Ranked Among Top 10 Healthiest US Cities

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](#).

- [NIH Director Confirmed](#) - Dr. Jayanta “Jay” Bhattacharya (MD, PhD in Economics) has been confirmed by the US Senate as the 18th Director of the National Institutes of Health (NIH). See the official NIH announcement [here](#). Dr. Bhattacharya's MD, and his PhD in Economics, are both from Stanford University. More details [here](#).
- [CDC Measles Update](#) - CDC will update information on cases and outbreaks at [this link](#) every Friday. Links to health authorities in Texas, New Mexico, Ohio and Kansas are also included. CDC advice on prevention, [here](#). April 4 Texas Update Since Late January: 481 confirmed cases (mostly unvaccinated children), 56 hospitalizations, 2 dead children, increasing illness due to excessive doses of Vitamin A.
- [Ready-To-Eat Beef Sticks Recall](#) - See the recall announcement from the US Department of Agriculture, [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 Pig Liver Transplanted Into A Human - A recently [published](#) study describes successfully transplanting the liver of a gene-edited pig into a brain-dead human. Details, and a photo of the pig, [here](#). The implanted liver stayed active, and began producing bile and liver proteins. Just a first step, but encouraging.
- Controlling Cholesterol - Statins reduce low density cholesterol (LDL-C, low density lipoprotein cholesterol) by reducing cholesterol production in the liver. Ezetimibe limits cholesterol absorption in the gut. The standard of care places patients on statins first, on a wait and see basis. A recently [published study](#) of the use of statins and Ezetimibe together, from the beginning, showed a 19% reduction in risk of death, a 16% reduction in cardiovascular-related deaths, and 20% fewer major cardiovascular events (heart attacks and strokes). Both drugs are available in the US with a doctor's prescription.
- Lipoprotein(a) - Lp(a) is a type of cholesterol not routinely measured in cholesterol blood tests because there has not been an effective treatment for it, but it *is* a bad actor. It sticks to LDL-C, making it more likely to clog arteries; it's particularly good at causing inflammation; and it tends to lead to blood clots. Since it's genetic in origin, running in the family for those born predisposed, diet and exercise are not effective. Promising Phase 2 human trial data for a treatment (Ilepodisiran) have recently been [announced](#) by Eli Lilly. About 64 million in the US have elevated Lp(a) levels - most common in those of African and South Asian descent. How it works, [here](#). Ask to be tested for Lp(a) during your next physical exam, and stay tuned. [Sam J., Ali G.]
- FDA Adopts New Methods For Testing Monoclonal Antibody Treatments - The Agency has announced that it proposes to replace animal testing of monoclonal antibody therapies and certain other drugs with "... AI-based computational models of toxicity and cell lines, and [organoid](#) toxicity testing in a laboratory setting." The new methods are intended to accelerate the evaluation process, reduce the use of animals, and cut costs. [Details](#)

Other Health Science News -

- 10 Habits That Are Harming Your Longevity - and that are in your hands to control, [here](#). Take command.
- 12 Things To Know About Cholesterol - [Here](#). Dietary cholesterol (back of food packages) doesn't have much to do with blood serum cholesterol (the one that counts, and the one your doctor measures). The key is to limit intake of saturated fats. [Greg K.]
- Stroke - CDC advice on factors that increase the risk of stroke, [here](#).
- Chronic Wasting Disease (CWD) From Venison - CWD is an always-fatal, communicable, neurodegenerative disorder that infects the *cervid* family: deer, elk, moose and reindeer - no vaccine or treatment. CWD is closely related to Bovine Spongiform Encephalitis (BSE, Mad Cow

Disease). The disease agent for both is a [prion](#). Cooking may *not* inactivate prions, so it's best to avoid eating wild-caught venison. **In the DMV**, see map [here](#).

- Brucellosis (*Brucella suis*) - is an *extremely* infectious bacteria found in feral pigs. In humans, it causes an insidious, hard-to-detect infection called brucellosis. It's best to avoid eating wild-caught pork. CDC diagnostic and treatment advice [here](#). Further details [here](#).
- Adenomyosis - is sometimes called the silent disease, since it can go undiagnosed for decades and is often misdiagnosed as endometriosis or fibroids. It's a condition that occurs when the *lining* of the uterus (endometrium) grows into the muscular *wall* of the uterus. See a description of the symptoms, and one approach to resolving the condition, [here](#). Standard ultrasounds may miss the condition.
- How To Keep Your Mind Sharp - A board-certified psychiatrist lays out five regular habits that can help keep you mentally agile, [here](#). A book that lays out the path to mental fitness, [here](#). [Well done Ari S.]
- Exercise, Mental Fitness And ADHD - A recently [published study](#) reached the surprising conclusion that those with mental issues (depression, anxiety and [attention deficit hyperactivity disorder](#)) were helped more by *gentle* exercise than hard exercise ... showed the greatest gains in executive function to more easily deal with everyday tasks such as making plans, solving problems, adapting to new situations. So even light intensity exercise benefits general cognition, memory and executive function To ease your mind, go for walks in natural settings, slow down and smell the roses. Old fashioned advice backed by modern scientific proof.
- #1 Habit To Break To Reduce Visceral Fat - is being [too sedentary](#), according to registered dietitians who give their ideas on how to succeed with that. Visceral fat is the kind that surrounds your liver and intestines, not the subcutaneous fat just under your skin.
- Shingles Vaccine Reduces Risk Of Dementia - A recently [published](#) study of 280,000 older adults done by researchers in the UK reinforces the conclusion by showing that those with the vaccination were 20% less likely to develop dementia. Details [here](#).
- West Virginia Bans 7 Artificial Dyes in Food And Drug Products - See their reasoning, and a list of the 7, [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 -

- Coffee Or Matcha (Green Tea Powder)? - Good news: both are helpful, depending on your goals and needs, so use the [details of this guide](#) and take your pick.
- Natural Sweeteners - Stevia and Monk-fruit are healthy natural sweeteners, available in the US for those who want to reduce their intake of cane sugar, but still want sweeteners (pure materials only, no erythritol) One more alternative is [Lucuma](#), a fruit native to Peru. It has a low [glycemic index](#) (generates *slow* rise in blood sugar), has good antioxidants (polyphenols, flavonoids, and carotenoids), good fiber, Vitamin C, and a mild taste between butterscotch and maple syrup. Available as an organic powder in groceries and on Amazon. [Sarah F., Sam J., Kamal S.]
- Diet Drink Artificial Sweetener [Linked](#) to Increased Appetite - A [new study](#) indicates that consumption of too much of the artificial sweetener sucralose may increase appetite and be counterproductive for weight control.
- 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 -

- [Rare, New, And Endangered Species Alive!](#) -
 - [American Oystercatchers](#) - are [back from the brink](#). These shore birds with black and white plumage and long, bright orange bills live and nest on US Atlantic and Gulf beaches and in coastal marshes. Their US numbers have now recovered by 45% from 2008 to 2023 to a count of 14,735. Success!
 - [Wright's Gardenia](#) - [grows naturally in only one place in the world](#), the granite island of Aride in the [Republic of Seychelles](#), Indian Ocean - wiped out elsewhere because the tree's firm trunk unfortunately makes excellent firewood. Now protected on its 178 acre island refuge, its numbers have increased by about 1,000 from 2017 to a total of 2,913. [Conservationists](#) brought in [Aldabra Giant Tortoises](#) (*Aldabrachelys gigantea*) - these herbivores keep down competing, non-native plants, and spread seeds. See the beautiful, fragrant flower [here](#).
 - [Cougars](#) - are native to Michigan, but were [hunted to extinction](#) there in the early 1900's. Now, for the first time in over 100 years, two [cougar cubs](#) have been spotted on the Western side of Michigan's Upper Peninsula. Welcome back little ones!
 - [Loggerhead And Green Sea Turtles](#) - are native to the waters off Cyprus, but with climate change warming the waters there now earlier in the season (into the nesting season), scientists knew that their eggs would eventually begin to do poorly in the warmer water. Solution: the scientists said the turtles needed to begin nesting *earlier* in the season - by at least **0.7 days/year**. But wait! They then discovered that the turtles had *already* been advancing their nesting season by **0.78 days/year** since 1993! So ... the **turtles were way ahead of the scientists**. Not to worry, the turtles have got this! ;)
 - [Endangered Ice Climbers](#) - At an altitude of 7,800 feet up in the Rockies, the internationally famous [Ouray artificial ice climbing park](#) was in trouble ... due to climate change, not enough water to make the ice their climbers needed. But then a neighbor stepped in, the new owner of Ouray Silver Mines, with an offer of more than the needed water annually for \$1. The water gets returned to the environment in the Spring, and the [miners got some local help dealing with the state of Colorado](#). A win win! [Phil J.]
 - [Endangered US Farmers](#) - A substantial and growing percentage of US farming is uneconomic, and would be bankrupt without increasingly costly direct and indirect federal payments. The problem has been magnified (\$\$\$) by more frequent extreme weather events due to climate change. [Details](#).
- [Spain's Wild Horses Help Prevent Forest Fires](#) - by having a particular taste for the types of brush that most feed the fires. See the horses [here](#). Conservationists are now working to help them thrive.

- What Has Four Stomachs, Cloven Hooves And A Taste For Mischief? - Arlington Texas has [hired 400 goats as landscapers](#) to clear out invasive plants like [privet shrubs](#) (Ligustrum Sinense) in park areas that are difficult to reach by machine. [Harvey B.]
- Are China's Oil Imports Peaking? - China is the world's largest importer of oil, with a 60%-plus share of global oil demand growth from 2013-2023, but their [imports fell](#) to <20% in 2024. This is in part because of the effect that the dramatic increase in EV adoption has had on gasoline demand - EVs, plug-in hybrids and traditional hybrids totaled more than 50% of China's auto sales. [Details](#) The EU is also making good progress on EV Adoption.
- Upgrades At Maryland's Calvert Cliffs Nuclear Facility - [Constellation Energy](#) (Baltimore MD) is investing \$100 million in a [full facility upgrade of its Calvert Cliffs Clean Energy Center](#) (Lusby MD), and expects to achieve at least a 10% increase in output. The facility presently generates 40% of Maryland's total power, and 80% of its clean energy. The company is also investing \$68 million in a state-of-the-art upgrade to its substation, which will help enable future customer service on the grid. Work will begin shortly. New reactors are *not* being added.
- Small Modular Reactors (SMR) Coming To Michigan - [Holtec International](#) (Mount Laurel NJ) is planning to build 2 SMRs at the site of the existing Palisades nuclear plant on Lake Michigan in Covert Township Michigan, 36 miles North of the Indiana border. The main Palisades reactors had been scheduled for retirement, but will now be restarted pursuant to a recently *released* \$57 million grant to Holtec for this purpose from the US Department of Energy. Details and a map, [here](#). Future Holtec nuclear projects in the works partnering with Hyundai, [here](#). Light that (nuclear) fire!
- Wind Turbines To Texas - [RWE](#) (Essen Germany) is presently *repowering*/renovating/upgrading its *existing* 127 MW Forest Creek wind farm near Big Spring TX, and will also kick off construction of its *new* 181 MW Honey Mesquite project later this year. When complete, the two projects will generate 308 MW of clean energy using 109 new GE Vernova 2.82 MW wind turbines. [GE Vernova](#) (Cambridge MA) received orders in 2024 to *repower* over 1 gigawatt (GW) of on-shore wind turbines in the US.
- UK And Ireland Agree On Developing Irish and Celtic Sea Power Infrastructure - Joint Statement [here](#). Off-shore [wind farms and onshore energy networks](#) will be supported by new data sharing, and by clearing the way for offshore infrastructure.
- Enormous Deposits Of [White \(Naturally Occuring\) Hydrogen](#) Discovered in France - at a depth of 4,100 feet while looking for methane (natural gas) in the Moselle region. White Hydrogen doesn't require industrial production, Green Hydrogen is made using renewable energy, and Gray Hydrogen is made from petrochemicals. The new reserve is valued at \$92 billion!
- Paris Votes To Close Hundreds Of Streets - Paris is one of the least green cities in Europe as measured by green space and is one of the most polluted. In a recent referendum [66% voted to close many streets](#), and convert them to pedestrian ways planted with greenery to help make the city more livable and more breathable. There is also a new fee on SUVs and other larger and more polluting vehicles parking in the city.
- Washington DC Ranked Among Top 10 Healthiest US Cities - See the other 9, and the criteria used, [here](#).

Other Science News -

- Ukraine Mid To Long-Range Drone Progress - Including [Palanytsia](#) and [Peklo](#) models. See a survey of the impressive progress [here](#).
- Ukraine Has Announced Successful Testing Of Long Range Drone - with a range of 1,864 miles! [Here](#).

- New US-Made Drone - [Ascent AeroSystems](#) (Wilmington MA) has released a new competitor in the 250 gram drone category. [Helius](#) specs: 30 cm coaxial rotor, cylindrical airframe, field-switchable battery, VTOL, AI-enabled obstacle avoidance and tracking, 30 minute flight time, ultra-low-light camera, 45 mph speed, 4G/LTE connectivity, all US supply chain. Looks like China's DJI drone has finally been outdone, except for the price.
- US Upgrades Ground Launched Small Diameter Bombs (GLSDB) - now headed to Ukraine, range 94 miles. The earlier version was ineffective because it was subject to jamming. Details, photos and videos [here](#). The GLSDB can also be launched from the Ukrainian fleet of F-16s.
- New Ukraine Shotgun Toting Drone - The new fixed-wing [Zig Zag](#) drone mounts a *four barrel shotgun*, [here](#).
- Ukraine Unveils Torpedo Armed Drone Boat - called the [Katran](#) (Shark), which can also mount a variety of other weapons ... [600 mile range, 80 mph top speed](#) powered by two water jets, secure satellite link and autonomous operation mode. Nicola Tesla came up with the concept of a [radio controlled boat](#) as a small-power-large-power equalizer back in 1898. Now his dream has come true.
- Artillery Still King In Ukraine - [Background](#). Ukraine has ramped up its capacity to manufacture its domestically produced [2S22 Bohdana](#) self-propelled howitzer, and can now produce 40 per month - the same capacity as Russia, with its much larger industrial base. Impressive! The US capacity is 4, France 8, Germany 6. [Details](#).
- China Successfully Tests New Plasma Thruster - The new high thrust magnetic plasma rocket engine was able to achieve stable operation at a power level of 100 kW. 3D-printed materials and high-temperature superconducting magnet technology were used. *Per ardua ad astra*.
- New Competitors For Orbital Launches - The US Space Force's Space Systems Command has announced that [Rocket Lab](#) (Long Beach CA) and [Stoke Space](#) (Kent WA) have been invited to join Blue Origin, SpaceX, and United Launch Alliance (ULA) in competing for launch service orders through 2029. 30 mission awards are expected, amounting to an estimated \$5.6 billion in task orders. The Rocket Lab reusable, medium lift rocket '[Neutron](#)' may have its first test flight this year. Stoke Space is developing the medium lift rocket 'Nova'.
- Local Lunar Topography Found Critical To Retaining Water Ice - particularly at high latitudes, like the South polar regions targeted for a Moon base. One side of a ridge exposed to sunlight may have lost all its ancient water to evaporation from solar heating, while a few yards away the side of the ridge in perpetual shadow retains plenty of water at readily accessible depths. [Generating water and Oxygen from materials found on the Moon itself](#) will be critical to maintaining a permanent presence there. Expect to see more [lunar probes doing drilling and temperature measurement tasks](#). Mars colonization may work the same way. Solar and cosmic radiation exposure will also be a *health* hazard concern for both the Moon and Mars
- Certain Pale Martian Rocks - could only have been formed under [warm, wet conditions](#). So where did all the water go? Finding water, or water bearing strata, on Mars is critical to establishing a presence there, just as it is on the Moon. The Mars rover Perseverance has given us some clues using its [Laser Induced Breakdown Spectroscopy](#) instrument. Now it's time to actually recover some of the rock samples it has collected, so that reliable plans can be made for crewed follow-up missions ... and a permanent presence. Mars, here we come!
- Progress Toward Commercial Space Station - [Starlab Space LLC](#) has successfully completed NASA's Preliminary Design Review process, moving toward full scale production. See the next steps [here](#).
- Radically New Space Telescope - The European Space Agency (ESA) has begun receiving the first images from its new Euclid Space Telescope, and astronomers are delighted with the [much more detailed information being returned](#) .. not just images, but images acquired in different parts of

the spectrum (including infrared), which superposed create a much more complete dataset for analysis. See a few images, [here](#). See a video lecture, pitched to a lay audience, [here](#) (55 minutes).

Nice Thing - [full screen]

Monty Python and the Holy Grail - 1975 film

- Bring Out Your Dead - disposing of inefficient government regulations, [here](#).