

Betsy says HI!!!!

Announcements

The next LABQUEST meeting will be Wednesday, February 12 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:

- mRNA Vaccine for H5N1 Bird Flu
- \$176 Million Grant To Develop mRNA Bird Flu Vaccine
- FDA Proposes Front-Of-Package Nutritional Label For Packaged Foods
- FDA Issues Final Guidance On Action Levels For Lead In Baby Food
- FDA has revoked authorization to Red Dye No. 3 (erythrosine)
- Polyphenols May Slow Aging and Reduce Risk Of Chronic Diseases
- Meaning Of Egg Yolk Color
- November Initiative To Repeal Washington State Climate Law Decisively Rejected (61.7% to 38.3%)
- 3,000 Year Old Mega-Fortress In South Caucasus Mountains

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](#).

- [Healthy Weight For Older Adults](#) - [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 -

- [mRNA Vaccine for H5N1 Bird Flu](#) - has been developed by [scientists at the University of Pennsylvania](#) School of Medicine ... [tested well in animals](#), no word yet on human trials.
- [\\$176 Million Grant To Develop mRNA Bird Flu Vaccine](#) - [has been awarded](#) to Moderna (Boston MA) through the Rapid Response Partnership Vehicle (RRPV) consortium funded by the Biomedical Advanced Research and Development Authority (BARDA), US Department of Health and Human Services (HHS).

Other Health Science News -

- [FDA Proposes Reducing Nicotine Content Of Tobacco Products To Non-Addictive Level](#) - See the Proposed Rule [here](#). "... nicotine [addiction](#) leads to users being repeatedly exposed to a toxic mix of chemicals in the smoke that cause disease and death."
- [FDA Proposes Front-Of-Package Nutritional Label For Packaged Foods](#) - [Details](#). See the Proposed Rule, a video, and an example of the label, [here](#). The proposed label would provide consumers with "... simplified, at-a-glance, nutrition information that details and interprets the saturated fat, sodium, and added sugar content of a food as "Low," "Med," or "High" on the *front* of food packages ...".
- [FDA Issues Final Guidance On Action Levels For Lead In Baby Food](#) - The Agency estimates that lead exposure from processed baby foods could be reduced by 20-30% Summary:
 - 10 parts per billion (ppb) for fruits, vegetables (excluding single-ingredient root vegetables), mixtures (including grain- and meat-based mixtures), yogurts, custards/puddings, and single-ingredient meats.
 - 20 ppb for single-ingredient root vegetables.
 - 20 ppb for dry infant cereals.
- [Red Dye No. 3 \(erythrosine\)](#) - FDA has revoked authorization for its use in food or ingested drugs. See the Agency's announcement [here](#). See a background article [here](#). The synthetic dye was primarily used in foods such as candy, cakes/cupcakes, cookies, frozen desserts, frostings, icings.
- [Bird Flu Found In Maryland Poultry Facility](#) - The Maryland Department of Agriculture has [reported](#) the incidence of H5N1 (bird) flu at a poultry facility in Caroline County MD, after it was recently discovered at two poultry facilities in Kent County DE. State officials have quarantined the facilities, and the more than 500,000 chickens will be euthanized to prevent spread of the virus to other facilities, or into the food supply. [Details](#).
- [Polyphenols May Slow Aging and Reduce Risk Of Chronic Diseases](#) - [Details](#). Summary: diets, rich in plant foods providing [phytonutrients](#), [have the potential to positively influence the aging trajectory](#). They are found in high concentrations in fruits and vegetables with deep or vivid colours such as beetroot, blackberries, black olives, very red tomatoes, dark leafy greens, tea, coffee, dark chocolate, currants, berries, nuts, red onions.
- [Advice On Four Skin Care Issues](#) - from a Dermatologist at Massachusetts General Hospital.
- [Health Advantage To Morning Coffee Drinkers Only](#) - A [US National Health and Nutrition Examination Survey](#) study showed that "... morning coffee drinkers were [16% less likely to die of any cause and 31% less likely to die from cardiovascular disease](#)." Required for benefit: two to three cups, before lunch. [Publication](#).
- [Link Between Head Trauma, Herpes And Alzheimer's Disease](#) - [shown by researchers](#) at Tufts University (Medford MA) using lab-grown human minibrains. Wait until you see how they simulated head trauma in the minibrain lab.
- [The 'Clean Label Project' Reports Heavy Metal Contamination In Protein Powders](#) - [Details](#).

- Human Hibernation - Researchers in Germany [may have had a breakthrough](#) in this area. Stay tuned. [Publication](#).
- Norovirus - (24-hour flu, and stomach bug). Those with [Type O blood are at greater risk](#).
- 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 -

- 13 Benefits Of Eating Lemons - listed [here](#), each with a brief explanation and a scientific journal article for reference. Tune-up: The rinds are rich in nutrients, but are very tart (acidic). [Myers Lemons](#) are a genetic blend of lemons with mandarin oranges, and are less intense. You can train yourself to eat small amounts of their rind directly, or minced/zested into an already cooked dish. Heating reduces the potency of nutrients like antioxidants.
- Meaning Of Egg Yolk Color - The color range is from a pale yellow to bright orange, but [experts say](#) there's not much difference in nutritional value. The main color variable is what the chickens have been eating. The best bet for getting the *tastiest* egg is to buy brands labeled *pasture raised*.
- The 5 Healthiest Beans - are powerhouses of fiber and protein, [here](#). According to the Scientific Report of the 2025 Dietary Guidelines Advisory Committee, [83% of people get less than the recommended 1 to 4 cups of cooked beans](#), peas and lentils daily. Summary: Lentils, Black Beans, Cannellini Beans, Chickpeas (Garbanzo Beans), Edamame (Young Soybeans).
- 21 High Protein High Fiber Dinners - recommended by a registered dietician, [here](#). Healthy
- 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 -

- PFAS From Common Pharmaceuticals Found In Wastewater - Researchers at the New York University School of Engineering have [published](#) a study finding that [common prescription drugs](#) make up about 75% of the organic fluorine (including PFAS) in wastewater entering treatment plants, and 62% in *treated* water released to the environment .. some ends up in drinking water.
- Colorado Is #1 In New EV Market - [One in four new cars](#) sold in Colorado in 3Q24 were EVs.
- GM Moving Installation Of EV Charging Stations - General Motors (GM) is teaming with EVgo and Pilot Travel Centers, and using [AI](#), to identify ideal charge station locations across the US. [Details](#).
 - [GM and EVgo](#) - are working together to install 2,850 DC fast charging *stalls* at 400 fast-charging *locations* in major metro areas, with 350 kW chargers for ultra-fast charging.

- [GM, Pilot Flying J and EVgo](#) - will also install up to 2,000 DC fast chargers at 500 Pilot and Flying J travel centers. More than 130 locations are *already* operational.
- [Solar Collectors Can Share Land With Crop Production](#) - A recent study [published](#) by researchers at the University of Cordoba in Spain showed how [crop production can actually increase](#) when sharing land with appropriately mounted solar collectors. [Background](#). [Harvey B.]
- [Sheep Like Solar](#) - A new study commissioned by an Australian company indicated that the [quality of sheep wool improved](#) when sheep had access to shade under solar panels, and that crop yields also improved. Encouraging, but the study should be repeated by disinterested parties.
- [Advance In Floating Photovoltaic System Design \(FPV\)](#) - Researchers at Jiangsu University of Science and Technology in China, using a combination of computer modeling and physical testing in the university's wave basin test facility, have devised a system of floating pontoons and truss-frame structural supports for solar panels that can withstand waves up to 13 feet in height. Details and a photo of the prototype [here](#). Their modeling and testing showed that the new system was stressed the most under *beam sea* conditions (waves approaching at 90° to the multi-module axis), rather than under *heading sea* or *quartering sea* conditions.
- [November Initiative To Repeal Washington State Climate Law Decisively Rejected \(61.7% to 38.3%\)](#) - The [Climate Commitment Act](#) sets annual emission limits for major emitters, such as oil refiners and utilities, and requires them to buy allowances at state auctions for each metric ton of air pollution. Several billion dollars have already been brought in by the Act's cap and investment provisions, and applied to environmental projects throughout the state since the Act became effective 1/1/2023. Details [here](#).
- [First Commercial Liquefied Carbon Dioxide \(CO2\) Transport Ships - Northern Lights](#), the joint venture that commissioned the first small fleet of these ships, has now received the first two for commissioning. The ships will soon begin to deliver massive quantities of CO2 to a receiving facility in Norway, for eventual permanent sequestration 8,000 under the seabed there. [Details and photo](#). [Phil J.]
- [Copper Without The Dirty High-Temperature Smelting - from low assay US copper ore](#), is now possible due to new technology from the mining start-up [Still Bright](#) (Newark NJ) using Vanadium as a catalyst. The tech [here](#).
- [New Tech Replaces Very Dirty Traditional Iron Smelting](#) - Melting Iron ore in searing-hot blast furnaces driven by burning fossil fuels is the most polluting phase of steel making (generates 7% of the world's Carbon emissions). [Electra](#) (Boulder CO) has now developed a method for using electricity ([electrowinning](#)) to draw pure Iron out of a solution made from low-grade Iron ore. The pure Iron is plated onto an electrode, and the impurities drop to the bottom of the tank. [Financing for next steps](#) is being arranged. "Extraordinary claims require extraordinary evidence." Carl Sagan
- [Grant For Developing Template For A Circular Supply Chain For EV Batteries](#)- The Toyota Research Institute of North America (Ann Arbor MI) has **received a \$4.5 million grant** from the US Department of Energy's (DOE's) Advanced Research Projects Agency-Energy (ARPA-E) for this purpose, and will work in collaboration with the DOE Oak Ridge National Laboratory's National Renewable Energy Laboratory (Oak Ridge TN). [Details](#)
- [Videos From 14,000 Feet Down Off Shore From Chile](#) - [here](#), particularly the 'Sea Pig' and Nautilus. [Peter P]

Other Science News -

- [UK Road Construction Uncovers 1500 Year Old Roman Coffin](#) - part of a small Roman cemetery in Cambridgeshire. Much of the UK was once the Roman province of Britannia, invaded by Julius Caesar in 55 BCE, and later incorporated into the Roman Empire under the Emperor Claudius in 43 CE. [Details](#) and photo.
- [3,000 Year Old Mega-Fortress In South Caucasus Mountains](#) - Drones were used to take 11,000 scans of the Dmanisi Gora site (in Georgia), which were then pieced together to create digital elevation models and orthophotos. Declassified cold-war era spy satellite photos were also used to deconvolve modern agricultural encroachments. The resulting model showed the fortress to be [40 times the size anthropologists had thought](#). Details and a diagram of the ancient fortifications, [here](#).
- [Dramatic New Images Of Mercury's Surface](#) - were returned in January by the exploratory spacecraft [BepiColombo](#), operated jointly by the European Space Agency (ESA) and the Japan Aerospace Exploration Agency (JAXA), [here](#). Images are from as close as 183 miles!! BepiColombo was launched in 2018, with this January being the last of its multiple fly-bys before entering permanent orbit around Mercury by the end of 2026. Hi neighbor.
- [Gallium, Germanium And Antimony](#) - have primarily been sourced from China, which has now [banned the export to the US](#) of all three. The US has already diversified the supply chains for the first two, but Antimony is still a work in progress (see earlier Science Report). Antimony is a critical material for munitions, certain other defense applications, and EV technology. Solution: \$\$\$.

Nice Thing -

- [Für Elise](#) - Ludwig Van Beethoven, Bagatelle No. 25 in A Minor for solo piano - not published until after his death, [here](#). Sad that he could not have heard it performed because of his deafness.
- [Für Elise](#) - World premiere of the first known version arranged for piano and orchestra, 2013, Georgii Cherkov pianist, [here](#). Note the slower pace. [Sonja B.]