

Betsy says HI!!!!

Announcements

The next LABQUEST meeting will be Wednesday, October 9, 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:

- The Trajectory Of Men's Health Is Heading In The Wrong Direction
- 100 Beaches Across The US Closed
- BioNTech mRNA-Based Lung Cancer Vaccine
- High Testosterone - can occur in either men or women
- Hip/Knee Replacements Projected to Grow 171%—189% By 2030
- Heat Pump Technology Applied To Extending EV Range
- \$2.2 Billion In Grants For Upgrading the US Power Grid

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).

- [The Trajectory Of Men's Health Is Heading In The Wrong Direction](#) - 26% of prime working age US men [report](#) that they are unable to work because of sickness. See the [FDA Commissioner's view of why](#).
- [100 Beaches Across The US Closed](#) - [cyanobacterial algal blooms](#), e coli, combined sewer or septic tank overflows, nitrogen/phosphorus agricultural run-off .. [upstream locations](#) during intense rain events are the places to look at for a fix, not the swim sites.
- [Record Measles Outbreak In Oregon](#) - is definitely due to the high rate of [non-medical vaccination exemptions](#) *officially permitted* there. Similar exemptions are also officially permitted in ID, UT, AZ and WI. Shameful! Measles is one of the most highly contagious diseases known.
- [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 \(BMR\)](#) - 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.

Vaccine and Therapeutic News -

- [BioNTech mRNA-Based Lung Cancer Vaccine](#) - The [company](#) (Mainz Germany) has launched [world-wide clinical trials](#) for its candidate vaccine BNT116, an mRNA vaccine for the *treatment* (not prevention) of non-small cell lung cancer (NSCLC). The trials will include 130 patients across 7 countries, and will be used in combination with immunotherapy to increase its potential effectiveness. Stay tuned.
- [Hearing Aid Software Authorized](#) - FDA has authorized Apple to market the first over-the-counter (OTC) hearing aid [software device, 'Hearing Aid Feature'](#). HAF is intended to be used with compatible versions of the AirPods Pro. It uses a self-fitting strategy - users can adjust it to meet their hearing needs without the assistance of a hearing professional. This will be a [free upgrade](#), and must be paired to an Apple iPhone. [Apple announcement](#). Other OTC hearing aid options, [here](#).

Other Health Science News -

- [A Substantial Majority Of Of Top Selling Dishes Served At Out-Of-Home \(OOH\) Restaurants Are Unhealthy](#) - say UK nutrition researchers in a [new study](#) (company specific info in Appendix 2) from Queen Mary University in London, after [surveying and testing](#) the most popular items in major UK OOH (fast food, coffee shop, conventional) restaurants. Issuance of Final Rule by FDA defining 'healthy' would be a beginning. [Chad C.]
- [High Blood Pressure](#) - 48% of US adults (50% men, 44% women) have high blood pressure, rising to 70% of those over 65. See the [recommendation](#) from the American Association of Retired Persons (AARP) on the 9 best foods to seek and the 8 worst foods to avoid if you have been diagnosed with high blood pressure (>130/80 mm Hg). AARP recommends the [DASH](#) diet (Dietary Approaches to Stop Hypertension) for this condition.
- [Are You Eating Too Much Salt \(Sodium\)?](#) - View a video for 10 signs of this [here](#). 90% of us eat too much salt.
- [Changes Associated With Male Puberty](#) - Medically reviewed details, [here](#) and [here](#). Male puberty starts between the ages of 9 and 15, and concludes between the ages of 13 and 21. Environmental and lifestyle factors, such as PFAS pollution, obesity, exposure to pesticides or hormone contamination of drinking water, can affect puberty. Boys and young men can benefit psychologically from being provided with the objective facts needed to form an accurate self image.
- [High Testosterone](#) - can occur in either men or women. See a doctor's description of the [signs and symptoms](#).
- [Thinning Hair](#) - [Here](#) are some over-the-counter products that dermatologists think may help, by beginning to deal with underlying causes, before moving to more interventional medical measures. Tune-up: Check your blood work for sufficient Iron and Vitamin D3, and consider trying out 'Nizoral' shampoo for 3 or 4 months to reduce scalp inflammation. Its active ingredient, ketoconazole, has antifungal properties.
- [Hip/Knee Replacements Projected to Grow 171%—189% By 2030](#) - More patients in their 30s and 40s are having the procedures, with surgical materials/procedures having improved substantially in the last 15 years. Younger patients should try alternative methods first - strengthening exercises, physical therapy, brace, **decreasing inflammation through weight control and healthy nutrition**. The state of the art has improved. According to a recently [published](#) study, only 1% of patients with a total hip replacement needed revision surgery within eight years. See other [details and recommendations from an orthopedic surgeon](#) at Ohio State University, [here](#). [Trish M., Nan A., Andi B., Rick R.]

- [FDA Will Study Metals In Tampons](#) - both in a commissioned independent literature review, and an internal laboratory science study. The results will be made public.
- [Want To Be a Centenarian?](#) - See a [list of 8 foods](#) that a registered dietician says may help you get there. Tune-up: put avocado oil and walnut oil with the olive oil item on the list - no additives.
- [Eating Pattern That Could Put Type 2 Diabetes In Remission](#) - In a recently [published](#) study of intermittent fasting, 47.2% (17/36) of participants achieved diabetes remission after 3 months, 44.4% (16/36) after a year.
- [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 -

- [Nifty New Raman Scattering Technique For Detecting Pesticides In Foods](#) - described [here](#). Summary: pesticides penetrate through the skin of fruit like apples into the pulp, and peeling loses most of the nutrients. Buy organic, and duck the pesticides. Do continue to wash fruit and other produce. For leafy greens raised in one of the [new, high tech vertical farms](#), you can skip that step. Several brands are available in DMV stores.
- [Mediterranean Meal Plan To Reduce High Blood Pressure](#) - See a 7-day plan from a registered dietician, [here](#).
- [Is Corn Good For You](#) - Fresh corn on the cob has good Vitamin C, Potassium, fiber, folate, and antioxidants - so [yes](#). But ... no butter! Make an herb water that simmers with herbs for at least half an hour, then boil each ear of corn, starting at a rolling boil, for <2 minutes. To replace the butter, make up a dipping sauce with avocado oil and powdered herbs of your choice ... with a bit of low-sodium iodized salt. Tasty and healthy.
- [1 Food Dieticians Think We Should Eat More Of As We Age](#) - [here](#). Summary: fatty fish like salmon.
- [Risky Sugar Substitutes](#) - A [study](#) from the Cleveland Clinic has shown that the blood alcohol sugar substitute [erythritol](#) is associated with blood clots, increased risk of stroke, and increased risk of heart attack. A [previous study](#) showed similar results. [Other evidence](#) suggests that the blood alcohol sugar substitute [Xylitol has similar effects](#) - [publication](#). Bottom line: avoid food or drink that contains any of the following sugar substitutes - Erythritol, Xylitol, Aspartame, Acesulfame (Ace K), Sucralose. If a sweetener must be used, choose from one of the sweet natural foods: Monk fruit (11% alcohol extract like vanilla extract, available on Amazon), Stevia Leaf (also available as [Stevia Extract](#) at grocers or on Amazon), or small amounts of cane sugar **No additives**.
- [6 Low Sugar Dairy Items](#) - recommended by a registered dietician, with her reasons, [here](#). Look for versions based on [A2A2 milk](#). Several brands are available in the DMV area. Summary: 1) plain low fat Greek yogurt, 2) low fat kefir, 3) low fat cottage cheese, 4) 1% to 2% A2A2 milk, 5) Ricotta cheese, 6) hard cheeses, try Jarlsberg Lite or 1-year aged Manchego (sheep milk). See below for other cheeses.
- [Are There Healthy Cheeses?](#) - Certain cheeses *when eaten in moderation*, yes, according to two registered dieticians, [here](#). Summary: parmesan, mozzarella, cottage cheese (2%), ricotta cheese, Swiss* cheese, goat cheese (goat milk is A2A2). * Emmentaler, Gruyere, Fontina or Jarlsberg Lite are approximations.
- [Labneh \(Lebanese Yogurt\)](#) - A middle eastern fermented dairy condiment/dip (traditionally based on goat milk), with a consistency between yogurt and cream cheese. You can [make it yourself](#), or buy it at the right store. Healthy and tasty. Good as a dip for vegetables. Drizzle a bit of olive oil

on top, and sprinkle with za'atar. Nutritional facts [here](#). Probiotic due to active culture fermentation, with good protein and micronutrients.

- [Lead, Cadmium And Dark Chocolate](#) - California has a standard for this, but there is no US federal standard ... yet. See the four brands of chocolate that passed the CA test, [here](#). None of the [brands in the study](#) came in high enough to be a health risk when eaten in moderation, but the problem does need to be addressed. FDA?
- [Health Benefits Of Macadamia Nuts](#) - from a registered dietician, [here](#). Summary: good for controlling cholesterol, triglycerides and weight.
- [Health Benefits Of Blackberries](#) - They are rich in fiber and antioxidants. See a run-down of other benefits [here](#).
- [8 Health Benefits Of Eating Oatmeal Every Day](#) - and a nutritional rundown, [here](#). Summary: provides antioxidants, reduces blood sugar, vitamins and minerals, lowers cholesterol, helps manage weight, boosts gut microbiome, reduces asthma risk, relieves constipation. [Chad C.]
- [Banana Bread Baked Oats](#) - Healthy, tasty, easy - [here](#). Tune-up: for cooking spray use olive or avocado oil.
- [High Fiber Meals For Better Blood Sugar](#) - [here](#). Tuneup: no sausage.
- [Health Benefits of Mackerel](#) - Atlantic mackerel or Chub mackerel, not King mackerel (Mercury) - [9 benefits](#).
- [19 High Protein Vegetables](#) - and how to eat them, as reviewed by a registered dietician, [here](#).
- [20 Tasty Anti-Inflammatory Recipes](#) - recommended by a registered dietician, [here](#).
- [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 additives 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 -

- [Chinese Heavy Truck Manufacturer To Build Factory In US](#) - Windrose Technology (Hong Kong) is planning to build Class 8 semi trucks in the US, and has already displayed one of its pre-production trucks at the [ACT Expo in Las Vegas](#). It has central seating, cameras rather than side mirrors to reduce drag (achieves a [drag coefficient of 0.2755](#)), and a 729 kWh battery that can add 248 miles of range in 30 min using [Borg Warner's newest 960 kW fast charger](#).
- [Heat Pump Technology Applied To Extending EV Range](#) - [Hanon Systems](#) (Seoul South Korea) heat pumps extract energy from an EV's motors and battery to generate additional power for extending the EV's range. The first implemented is in the Kia EV3 in South Korea. Interesting idea for merging technologies. Stay tuned.
- [Want To Make Donuts With Your New EV Muscle Car?](#) - The new [Dodge Charger Daytona Scat Pack EV](#) has a donut mode in its software, not to mention 670 HP to make it happen and leave a tire smoke-ring behind. Need to hear a big V8 engine howl? The [Fratzonic Chambered Exhaust System](#) vibration chambers, 600-watt amplifier and boss speakers take it to a new level, mimicking the rumble of a traditional V8, with faux V8 tones that change according to throttle input and drive mode. And of course there's a drift mode, so you can power through corners

sideways at speed. All wheel drive, charges 20% to 80% in less than 30 minutes. Every 60 year old teenager will want one - in showrooms late 2024.

- [\\$2.2 Billion In Grants For Upgrading the US Power Grid](#) - from the US Department of Energy (DOE) to 8 projects in 18 states. [Details](#). A more resilient power grid facilitates adding renewable power projects, many of which have been delayed waiting for grid connection clearance even though they are ready to go otherwise.
- [New Grid-Scale Battery Manufacturing Plant in Turtle Creek PA](#) - [Eos Energy Enterprises](#) (Edison NJ) has repurposed and put back to work two huge old buildings formerly used by Westinghouse Electric to make components for nuclear power plants. The buildings/workers/robots are now all-in to make these eventually 100% US-sourced, zinc-bromine batteries (EOS Z-3) to support the new sustainable energy economy - 8 GWhr of capacity manufactured annually, power for 300,000 homes, a \$398.6 million DOE loan guarantee, additional tax credits under the US 2022 Inflation Reduction Act. [Thanks DOE Secretary Granholm](#).
- [New Grid-Scale Battery Storage On-Line In Vermont](#) - Details and photo, [here](#). Green Mountain Power and Vermont Electric Cooperative partnered on placing their new storage facility at a unique spot in the grid - the 'Sheffield-Highgate Export Interface'. Currently the local [Kingdom Community Wind](#) plant must power down when their power output (64.5MW peak) exceeds grid requirements, wasting renewable energy. Now power can be generated whenever the wind blows, and stored until it's needed. Smart! The battery is from [EVLO Energy Storage](#) (Québec Canada), and is based on [LFP technology](#) - operating temperatures: -40°F to 131°F.
- [Large Solar Farm \(Park\) Proposed For Nottinghamshire UK](#) - [Elements Green](#) (London UK) has proposed to build the 7,000 acre, 800 MW, 1.5 million panel [Great North Road Solar Park](#) in a 6.2 mile ring around the villages of Cauntton and Norwell, northwest of Newark-on-Trent. If approved, the [Solar Park](#) would provide power for 400,000 homes - construction start projected for 2027.
- [World's Largest Rooftop Vertical Bifacial Solar](#) - This type of solar panel mounting has the potential to be significantly more efficient than conventional horizontal mounting, when placed on a high albedo surface that reflects sunlight back up onto both sides of the vertical panels. Suitable for snow-intensive regions like the [Norway stadium roof in this example](#), or buildings in US states like Vermont. 1,242 Over Easy Solar's XM-2 Quattro-200S vertical panels - silicon heterojunction cells, producing 219,000 kWh annually, module architecture offering a bifaciality of 95.7%. The panels will be oriented 20° East of South for a higher winter yield.
- [Grow Peaches, Harvest Solar Energy, Support Pollinators](#) - It can all be done on the same piece of agricultural land at the same time - [details](#). Example ... The US Department of Agriculture's [Rural Energy for America](#) program (funded through the US 2022 Inflation Reduction Act) provided a grant of \$713,000 to [Talbot Farms](#) (Palisade CO), a peach farm in Colorado, to build a [one-acre, 420-kilowatt agrivoltaic array in a peach orchard](#). The array will produce enough power to supply the farm's entire peach packing and processing operation, and also help protect the trees from hail and frost. [Harvey B.]
- [The French Grocer Carrefour Goes Solar](#) - and will install [solar sheds over 350 parking](#) lots at its supermarkets throughout France. The company expects to be 100% renewable energy by 2030, with big savings.
- [China Plans To Build An 8 GW Solar Farm](#) - power for 6 million homes, in Inner Mongolia (Northern China) as part of an \$11 billion renewable energy project that will also include wind and solar-thermal power - 8 GW of solar, [4 GW of wind, 5 GWh of energy storage capacity, 200 MW of solar thermal, and 4 GW of coal-fired power](#). Groundbreaking this September, with operations expected to start in mid-2027. China Three Gorges Renewable Energy Group will

send the power by ultra-high-voltage transmission line to the urban cluster of Beijing, Tianjin, and Hebei - population 110 million. Do no small thing.

- [Fight Climate Change From Your Balcony](#) - [See how it's done in Germany](#). Every little bit helps. [Sonja B.]
- [Deep Geothermal Drilling In Colorado](#) - existing geothermal technologies involve drilling geothermal wells hundreds of feet into the ground, and using heat pumps to heat and cool homes. The deep geothermal industry drills thousands of feet down into much hotter rock strata, and extracts heat to generate grid-scale amounts of power - or heat for industrial processes. In 2023 Colorado recognized the growing renewable energy industry by rebranding and updating its existing oil and gas regulatory body, the Colorado Oil and Gas Conservation Commission. The state added authority to encompass emerging new renewable energy technologies, and gave it a new name - the Energy and Carbon Management Commission (ECMC). See a photo of a deep geothermal installation, and a map of geothermal strata in CO, [here](#). Last month the ECMC adopted rules governing 'Deep Geothermal Operations', giving itself the power to approve or deny deep geothermal drilling permits. See the Governor's '[Heat Beneath Our Feet](#)' initiative. State/university action in the DMV? [Rob R.]
- [Hazel Has Emerged From The Waters Of The Potomac](#) - after she completed 16 months of drilling a 2.2 mile tunnel to accommodate the up-to-25 million gallons of raw sewage the city of Alexandria dumps into the river during intense [rain](#) events - [details](#) and a good photo. Outfalls that have been occurring between 37 and 70 times per year should be reduced to 1 or 2 when the \$615 project completes its connection to the city's sewage treatment plant in 2026. Now Alexandrians can begin talking about taking a river swim. DC too, and earlier.
- [New Lake Okeechobee Water Management Plan](#) - Now that the US Army Corps of Engineers has completed the \$1.8 billion restoration of the critical 143 mile dike, there will be more water for the Everglades, and less toxic algae discharged down rivers leading to coastal Florida towns like West Palm Beach (Lake Worth Lagoon, 81% reduction in harmful discharges) and Ft. Myers (Caloosahatchee River, 60% reduction). Details and map, [here](#). Long overdue smarter management, with more work ahead. [Bette Anne S.]
- [Moldova Seeks Energy Security With Renewables](#) - The government has [issued a tender](#) for wind power plants (capacity up to 105 megawatts) and solar plants (capacity of 60 MW). They are also asking for proposals to connect to the EU energy grid - European Network of Transmission System Operators (ENTSO-E).

Other Science News -

- [Apple iPhone](#) - You should already be [updated to Version 17.6.1](#). Expect an additional update to 17.6.2. Hold off on the big version 18 update until the first one or two minor subsequent updates fix the new bugs. Apple Intelligence (AI) features will be introduced *gradually* over the coming year, despite the hype. Other [details](#).
- [One Third Of The World Lacks Connectivity To The Internet](#) - With [improvements in technology, and better stratospheric weather prediction](#), it may now be practical to fill that gap with uncrewed solar powered airships [\[details and image\]](#) positioned in the stratosphere (4 to 30 miles up) that can stay aloft for months at a time. Japan has recently set aside \$100 million for high altitude platform stations to reach their remote mountainous and island communities - could be in place by 2030. Other approaches to the same goal, [here](#). It's all good.
- [Corn Sweat Is A Thing](#) - [Evapotranspiration](#) is a method that plants use to regulate their internal temperature by drawing water up from the soil and allowing it to evaporate through their leaves. When air temperatures in the *very very* large corn fields of Iowa and Illinois are up

around 100°F, as they have been recently, thousands of gallons of water are injected into the air near fields - 'corn sweat'. Muggy and uncomfortable. [Publication](#)

- [NASA Solar Sail Prototype Experiment Is Proceeding](#) - in Earth orbit about twice as high as the International Space Station. The microwave-oven-sized cubesat ([Advanced Composite Solar Sail System](#)) deployed its tennis-court-sized composite membrane sail, not without some [initial glitches](#), and the work of raising and lowering the satellite's orbit with no fuel but the pressure of sunlight can now begin. This could be a cheap, slow way for automated science missions to [explore the solar system](#). They may need to bring in an *origami* advisor.
- [Living In The Caves Recently Discovered On The Moon](#) - may well be safer than on the surface, because of the lack of atmosphere or magnetic fields to shield from both cosmic and solar radiation. Fortunately, [lava-tube-like structures have been found on the moon](#), and probably exist on [Mars](#). Up from the caves, back to the caves.
- [NASA Europa Clipper To Launch For Jupiter In October](#) - Photo and details, [here](#). The solid state electronics in the system needed to be 'hardened' to withstand the [intense magnetic and radiation fields in Jupiter orbit](#).
- [Polaris Dawn](#) - is a private (not NASA) SpaceX orbital mission that [will mark several firsts](#). It's the first space walk directly from an orbiter, not the International Space Station. Since the orbiter has no air lock, that means that all 4 crew members must wear space suits for one to go outside (EVA). It's entirely a SpaceX crew, with 3 of the 4 never having gone to space before. This is also the first time SpaceX's EVA space suits are being worn by astronauts, and the first test of Starlink's laser-based communication in space. They will be traveling near the Van Allen radiation belts. [Update 9/12](#): orbit achieved, first spacewalks in new suits successful!

Nice Thing -

Auntie Mame - 1958 film, starring Rosalind Russell, set in the 1920's in New York City

- Trailer, [here](#).
- Telephone Operator, [here](#).
- Reception To Introduce Her Nephew, [here](#). [Bette Anne S.]
- Are We All 'Lit' - [here](#).