

Betsy says HI!!!!

Announcements

The next LABQUEST meeting will be Wednesday, February 11 at the WeAchieve building at 10501 New Hampshire Avenue in the purple conference room.

We will have a presentation about the proposed development on the Federal Research Center adjacent to Viva White Oak.

Highlights:

Betsy and Dan appreciated all the items in the following Science Report from Charles, but especially the following:

- Blood Test For Early Detection Of Pancreatic Cancer
- Obstetricians Have Been Leaving Idaho
- Vitamin D And Heart Disease
- Vitamin D And Respiratory Disease
- Parkinson's Disease (PD) – 6 articles
- Washing Sheets
- The New England Shrimp Fishery
- Offshore Wind Farms *improve* marine ecosystems and diversify aquatic food chains

Science Report:

Self-Protective Measures -

You should get vaccination advice from your doctor or your pharmacist ... not from this Report or the internet. Everyone should consider maintaining current vaccinations for the three respiratory viruses: Covid, flu and RSV (for RSV, adults [over 60](#) and children <8 months), unless your doctor/pediatrician advises against. Adults over 50 should have had the [Shingrix vaccine for shingles](#) (two doses 2 to 6 months apart, good indefinitely), and also the [Pneumococcal Vaccine](#). Many states are making access to these vaccines less complex - [map](#).

Vaccine and Therapeutic News -

- Menkes Disease - FDA has [approved](#) Zycubo (copper histidinate), from [Sentynl Therapeutics](#) (Solana Beach CA), for pediatric patients with this indication ... caused by a genetic inability to absorb copper. Menkes is a fatal disease characterized by seizures, failure to gain weight and grow, developmental delays, and intellectual disability. It leads to abnormalities of the vascular system, bladder, bowel, bones, muscles, and nervous system. Without treatment, children rarely live beyond age 3. With treatment, risk of death was reduced by 78%, and half lived beyond age 6. Genomics approach needed.
- Blood Test For Early Detection Of Pancreatic Cancer - [Mainz BioMed](#) (Mainz Germany) has [announced](#) positive top line results for its **screening** blood test for the early detection of pancreatic cancer ... and precancerous lesions with the potential to develop into pancreatic cancer - **100% sensitivity** (true positive), **95% specificity** (true

negative). The company now plans a larger clinical study to optimize its AI -assisted biomarker selection in preparation for regulatory review. [Mike and Greg K.]

- Obstetricians Have Been Leaving Idaho - According to a [study](#) commissioned by the Idaho Medical Association, and the Idaho Coalition for Safe Healthcare Foundation, 94 have left the state since 2022, with both medical care and economic impacts, details [here](#).
- Gabapentin - is a medication often used to control lower back pain. A recently [published](#) study has now *associated* its *extended* use to increased risk of developing dementia and mild cognitive impairment (MCI) ... 29% and 85%, respectively. These [risks were more than twice as high for those in the 18-64 year old range](#). Non-elderly adults are not normally at risk for MCI. Further study of *causes* for this association is needed. [Background](#). List of potential drug interactions from the Mayo Clinic [here](#).
- Vitamin D And Heart Disease - A recently presented study showed that patients with heart disease had a 52% reduction in heart attacks when maintaining a blood concentration of 40-80 ng/mL of vitamin D. No change in risk of stroke or heart failure was observed. [Details](#). Certainly, *deficiencies* in Vitamin D should be avoided.
- Vitamin D And Respiratory Disease - Researchers at the UK's University of Surrey have recently [published](#) a study showing that severe Vitamin D deficiency raises the risk of hospitalization due to respiratory tract infections (RTIs) such as bronchitis and pneumonia. This fits with the fact that Vitamin D, interacting with the immune system, is known to have both antiviral and antibacterial effects. RTIs are among the top 20 leading causes of mortality globally for ages 50–74, and in the top 10 for ages ≥75. Vitamin D levels are easily measured from the routine blood samples taken during annual physical exams. Note: Since the skin makes Vitamin D from the UV present in sunlight, samples taken in the Summer *might miss deficiencies present in Winter* ([lower UV content in Winter sun](#)).
- Effect Of Reducing Saturated Fat (Replaced With Polyunsaturated Fat) On Cardiovascular Risk - A recently [published](#) review study concluded that for those with high cardiovascular risk there were important reductions in mortality and major cardiovascular events ... particularly myocardial infarctions (MI).
- AI-Assisted Medical Applications - [Tempus AI](#) (Chicago IL) has developed algorithms and diagnostic software that run on (have been trained on) its data for oncology, digital pathology, radiology, cardiology and neuropsych. It has now begun a collaboration with Northwestern University to use the company's AI platform [Lens](#) [futuristic video], with the University's extensive library of genomic data, to facilitate research on Alzheimer's Disease. Powerful synergies! Stay tuned. [Cool Videos](#)

Other Health Science News -

- Parkinson's Disease (PD) -
 - Parkinson's Disease - [Ventyx Biosciences](#) (San Diego CA) has recently completed a small Phase 2a human trial of its CNS-penetrant (passes the blood/brain barrier), oral candidate medication [VTX3232](#) (excellent diagram) for this indication, and for obesity-associated cardiometabolic diseases. Details [here](#). Excellent video [here](#). The medication was well tolerated (safe), and the effect on biomarkers characteristic of PD was encouraging. A larger Phase 2b or Phase 3 study will be needed to assess clinical efficacy. Note: Ventyx is [being acquired](#) by [Eli Lilly](#) (Indianapolis IN). NIH maintains a searchable database for clinical trials, and their acceptance criteria, [here](#). See a *compressed* summary of clinical trials for neurological conditions [here](#).

- The Gut-Brain Axis Is Pivotal In Early Parkinson's Disease - and there is [evidence](#) to suggest that PD originates in the gut years before behavioural changes indicate a diagnosis. Early constipation and gastrointestinal complaints are seen in 80% of PD patients. This suggests gut-based antibiotic, prebiotic, and probiotic therapeutic approaches, and fecal microbiota transplants. [Publication](#). Tune-up: a low intervention, low risk start would be dietary changes that prioritize [probiotic](#) and [prebiotic](#) natural foods. [Probiotic foods](#). [Prebiotic foods](#). The Mayo Clinic explains the difference, [here](#). Additional background from the Parkinson's Foundation, [here](#).
- Parkinson's Disease (PD) Linked To Widely Used Pesticide - Many US farms use the pesticide chlorpyrifos, which a [study](#) recently published by researchers at the University of California at Los Angeles has linked to a 2.5-fold increase in risk of PD. The good news is that this discovery suggests therapeutic possibilities. There are also genetic links, [here](#). Progress, but not yet a therapy.
- Weakened Mitochondria And Parkinson's Disease Linked - Researchers at Case Western Reserve University have identified the damaging effect of certain proteins on mitochondria in the brain as one of the causes of PD, based on cell culture and mouse studies. [Details](#) and a [publication](#). They believe this discovery provides a significant clue for possible treatments.
- CO2 Pulses Help Clear Parkinson's Disease Related Brain Waste Products - Researchers at the University of New Mexico used intermittent hypercapnia (exposure to low levels of CO2 in ON-OFF cycles) to induce the flow of cerebrospinal-fluid-carrying waste products characteristic of PD. Elevated levels of these same waste products were then later detected in blood. Data were acquired in real time using functional MRI ([fMRI](#)) imaging. Details and a [publication](#). Elegant. Stay tuned.
- Living With Parkinson's Disease - See the advice of the American Parkinson Disease Association, [here](#). Note particularly the advice on diet and exercise. With [90,000 new diagnoses annually](#), an estimated 1.2 million people in the US will be living with PD by 2030. [Map](#)
- Obsessive Compulsive Disorder (OCD) - usually begins in teen or young adult years, and can become lifelong without treatment ... symptoms can get amplified at times of stress. See a list of typical obsessions and compulsions from the Mayo Clinic, [here](#). The NIH view [here](#). Both obsessions and compulsions are a normal part of life, but become a clinical concern when they repeatedly interfere with activities and cause stress. [Cognitive Behavioural Therapy](#) is a possible remedy. CBT is generally short-term therapy - 5 to 20 sessions. [Video 1](#) - patient. [Video 2](#) - therapist. NIH clinical trials, [here](#).
- Washing Sheets - The average person will shed hundreds of thousands of skin cells, excrete oils from sebaceous glands, and sweat a half pint of fluid ... **nightly**. Hair and skin also collect pollutants, dust, pollen and allergens during the day. These can trigger allergies, eczema and affect breathing. A [microbiologist advises](#) showering before bed, and washing sheets and pillowcases weekly ... more often if sharing with pets ... in HOT water to kill dust mites.
- 9 Causes Of Nighttime Itchy Skin - and some remedies, [here](#).
- Innovative Cancer Screening Approach - [Ginkgo Bioworks](#) (Boston MA) is partnering with [Carnegie-Mellon University](#) (Pittsburg PA) to develop an orally administered [pill containing engineered, tumor-targeting sensors](#) ... for home-based screening tests. The sensors will detect tumor-specific biomarkers for cancer ... low oxygen, acidity, lactate ... and then release *reporters* to be excreted into urine for collection at home. The work has been awarded a [POSEIDON grant by the Advanced Research Projects Agency for](#)

[Health \(ARPA-H\)](#), an agency of the US Department of Health and Human Services. Cheap, easy, non-invasive, early detection cancer screening tool.

- [AI-Assisted Cancer Research](#) - See [abstracts of 8 research presentations](#) from [Tempus AI](#) (Chicago IL) at the January Gastrointestinal Cancers Symposium of the American Society of Clinical Oncology. Precision medicine.
- [Fertilizer Without The Fertilizer](#) - [Ginkgo Bioworks](#) (BostonMA) and [Agricen](#) (Plano TX) have successfully collaborated to develop an [optimized fermentation process](#) for the bacteria used in one of Agricen's soil amendment
- [Statins](#) - Reducing cardiac risk is probably best started by consulting a doctor about useful lifestyle changes, especially nutritional changes. Statins can play an important role if more risk reduction action is needed. [Details](#)
- [Oats](#) - A cardiologist at University College London (UK) recommends eating more oats to lower cardiac risk by lowering LDL (low density) cholesterol. Statins *may* not be needed. [Details](#).
- [Understanding Migraine Headaches](#) - Researchers have made [progress](#) in understanding what is happening at the molecular level. Migraines are more common in women between 20 and 50, but causes have been unclear. Recent studies have suggested that stress caused by [extreme heat or storm conditions](#) may be a factor.
- [Health, Longevity And Positive Social Relationships](#) - have long been thought to be connected. See the 6 personal practices that can connect you to this source of good physical health, according to a researcher at the University of Minnesota, [here](#). A recently published [study](#) has made a beginning on laying out the molecular basis. Positive social interaction releases oxytocin, dopamine, and endorphins, the neurotransmitters that reduce cortisol, improve prefrontal connections, and improve emotional resilience. The net result is a decrease in the low-grade inflammation and telomere shortening that characterizes accelerated aging and risk of chronic illness 'Don't worry, be happy'.
- [Getting Enough Protein?](#) - Many aren't ... particularly seniors. A recent [study](#) concluded that 46% of seniors are coming up short. See 9 symptoms of protein shortage, [here](#).

Practical Nutrition -

- [Avocados And Avocado Oil](#) - are good for heart health (reduce cholesterol and triglycerides), brain health (vision, cognition, memory), decreased inflammation, and an improved gut microbiome ... according to a registered dietitian, [here](#). Note the detailed nutritional rundown.
- [Yams And Sweet Potatoes](#) - are different plants, with *actual* yams rarely found in the US outside specialty stores. See the difference, as described by a registered dietitian, [here](#).
- [Sourdough Bread](#) - has a [lower glycemic index than white bread](#), and is more digestible, because it is [fermented](#). The optimum bread choice would be [sourdough bread based on whole grains](#).
- [Oatmeal](#) - Steady energy, healthy blood sugar, improved digestion, good fiber, lower cholesterol, stronger gut health. Just don't mess it up by adding sugar. Details, and a nutritional run-down from a registered dietitian, [here](#).
- [Bell Pepper Nutrition](#) - Bell peppers are [non-climacteric](#) fruits; they don't ripen after they've been picked. As they ripen ... green to yellow to red ... they develop progressively more antioxidants and vitamin C, making them the best choice for overall nutritional value according to a registered dietitian, [here](#).
- [Cabbage](#) - is the foundation of many global cuisines, and it's [nutritious](#). According to the U S Department of Agriculture, one cup of shredded cabbage has 2 grams of fiber, a

gram of protein, and plenty of Vitamins C and K. Bok Choy (Chinese cabbage) is a member of the cabbage family Details and some tasty recipes, [here](#).

- Compound In Chocolate And Coffee Linked To Slower Cellular Aging - Researchers at King's College London have [published](#) a study focused on blood levels of **theobromine**, an alkaloid concentrated in cocoa products, and its relationship to biological aging markers (smaller amounts in coffee/tea). It slows the clock on cellular aging. [Details](#)
- Improve Your Morning Coffee? - Try adding a couple of shakes of [ground cinnamon](#) to the ground coffee before brewing. Also works with the cold brew method. Maybe then you wouldn't need quite so much cream and [sugar](#)?? Cinnamon is healthy ... lowers insulin resistance (diabetics), source of [Manganese](#), [Calcium](#), Iron, and [Vitamin K](#).
- 6 Food Types Not To Store In The Fridge Door - because of fluctuations in [temperature](#) and humidity when the doors are opened and closed, [here](#). Especially [milk](#).
- PepsiCo Goes AI - [PepsiCo](#) (Purchase NY) has [announced](#) plans to begin using [Siemens Digital Twin Composer](#), built on [NVIDIA Omniverse libraries](#), to simulate upgrades to its facilities, first in the US ... and then the world.
- Protein Powder And 5 Inflammatory Foods - Neurologists advise avoiding protein powders because most have additives like artificial sweeteners that are hard on the gastrointestinal microbiome. There's also a list of 5 inflammatory foods to avoid, and why, [here](#).

Environmental Science News -

- Smoked Out! - In 2023 the US Department of Justice [announced](#) that the Cummins engine company agreed to pay a \$1.6 **billion** fine, the [second-largest environmental penalty in US history](#), to settle US and California charges that it rigged RAM truck engines with software that defeated pollution controls. *Rolling coal?*
- Urine Converted Into Nitrogen Plant Fertilizer - The [VunaNexus](#) (Zurich Switzerland) process was inspired by the recycling of urine for space habitat applications. Details, a flow chart and a video, [here](#). The company has support from the European Space Agency (ESA).
- The New England Shrimp Fishery - has been shut down since 2014 because rising ocean temperatures have cratered the shrimp population. Now the Atlantic States Marine Fisheries Commission has [extended the moratorium](#) for three more years. [Thanks Barbara R.]
- Bison (Not Buffalo) Reintroduced To Illinois - After an absence of more than 200 years, [bison will be returned](#) to the tallgrass prairie at Burlington Prairie Forest Preserve in [Kane County Illinois](#). Announcement, [here](#).
- Miraculous Birth In Zealandia - A chick is born to a rare takahē pair (flightless New Zealand ground birds) thought to be infertile. The population has slowly been recovering, recently reaching 500. Welcome back from the edge!
- Agrivoltaics In New Jersey - A new state program, the [Dual-Use Solar Energy Pilot Program](#), has begun accepting applications from farmers interested in developing a new revenue stream. [Details](#).
- Wind Is Rising -
 - Offshore Wind Farms - A controlled study recently [published](#) by researchers from Australia and China have discovered that offshore wind farms can *improve* marine ecosystems and diversify aquatic food chains. More fish, more bivalves, more food, more money ... more wind farms.
 - Arkansas Has Wind - Renewable energy company [Cordelio Power](#) (Toronto Canada) has powered up [Crossover Wind](#), its 135 MW wind farm located in

[Cross County](#), West of Memphis Tennessee [[map](#)]. Crossover Wind has 32 [Vestas](#) (Aarhus Denmark) 4.5 MW turbines, and a 20-year power purchase agreement with Microsoft for 100% of the project's power, [details](#). [Pattern Energy](#) (San Francisco and Houston TX) has [announced](#) that it is acquiring Cordelio Power. [Mack W., Harvey B.]

- [Revolution Wind](#) - Work on this 90% complete, \$100 million, [704 MW wind farm](#) offshore from Rhode Island and Connecticut is expected to resume soon. First power is expected a few weeks thereafter. [Details](#). [Harvey B.]
- [Sunrise Wind](#) - Work on this 45% complete, 924 MW (power for 600,000 homes) wind farm 30 miles off shore from Long Island NY is expected to resume soon. [Details](#).
- [Vineyard Wind](#) - Work on this 95% complete, already partially operational wind farm located 15 miles south of Martha's Vineyard and Nantucket, Massachusetts is expected to resume soon ... 62 turbines, 800 MW, power for 400,000 homes. The project had been on track for completion by the end of March. [Details](#)
- [Empire Wind](#) and [Coastal Virginia Offshore Wind](#) - are both back on track.
- [Nuclear Power Is Big In Illinois](#) - [50-80%](#) of the state's electrical power on any given day is produced by nuclear power, power for over 2 million homes. That makes Illinois the [largest producer of nuclear power in the US](#).
- [Largest Nuclear Power Plant In US](#) - Plant Vogtle in [Waynesboro](#), Georgia ... [four reactors, 48 GW, \\$30 billion](#).
- [Huge Ford Truck Plant In West Tennessee](#) - [Construction is essentially complete](#), and truck manufacturing is expected to begin with conventional trucks this year, prototype electric trucks in 2027, EV truck production in 2028.
- [Pumped Storage Hydropower](#) - on Navajo Nation land in Northwest New Mexico ... requires power lines, reservoirs, a water-supply pipeline, and access roads ... The US Department of Energy has awarded a \$7.1 million grant for a feasibility study of the proposed \$5 billion [Carrizo Four Corners Pumped Storage Hydro Center](#) ... designed by [Kinetic Power](#) (Santa Fe NM) and its 6 university partners to be one of the largest long-duration energy storage projects in the US. [Details](#). Massive!
- [Unexpected Environmental Benefits From China's Largest Solar Farm](#) - [details](#) and a [publication](#).
- [Illinois Catches Up On Grid-Scale Battery Storage](#) - [Details](#). The state intends to add 3 GW of battery energy storage systems by 2030 ... includes home batteries. That's more than 37 times the current capacity!
- [The Fading Embers Of Coal](#) - Retirements of coal-fired electrical generation capacity surged in 2025, with coal's share of capacity dropping to 13%. That's down from 51% two decades ago! Coal simply can't compete on cost, even without considering environmental clean-up costs for water/soil/air pollution.
- [The Rhine River Used For Heating And Cooling](#) - [MVV Environment](#) (Plymouth UK), branch of the German energy company [MVV Energie](#) (Mannheim Germany), will use what may be the largest heat pumps in the world to heat and cool 40,000 German homes in a 'district network' at the site of a former coal power plant in Mannheim ... using the waters of the Rhine as a heat sink. [Details](#). A similar system is already in the works in the town of [Aalborg Denmark](#).
- [Heat From Waldkraiburg For Waldkraiburg!](#) - The Bavarian town of Waldkraiburg Germany will be starting construction of its *second* geothermal district heating project in mid-2026, with completion targeted for 2027. The [town expects big savings](#) from its initial investment of \$23.3 million. Well planned!

Other Science News -

- [Golden Retriever Awed By Dolphins](#) - Shadow has been swimming with dolphins since he was a puppy, and the pod *does* like to show off. See him [follow their every move](#) [full screen, turn on sound] standing on the bow of a fast moving boat off Laguna Beach CA. Shadow loves dolphins. Cinematic quote from *Titanic*. [Mack and Karen W.]
- [Nancy Grace Roman Space Telescope](#) - was named after NASA's first chief astronomer, and now stands complete in a clean room at NASA's Goddard Space Flight Center in Greenbelt, Maryland. Photo and details on the amazing optics, [here](#). On track for launch in late 2026. [Wade S.]
- [NASA X-26 Fuel Efficient Airliner](#) - The scale model has just performed as expected in wind-tunnel tests. The new, thin/long wing design is projected to use up to 30% less fuel than conventional designs. Details, next steps, [here](#).
- [Volkswagen](#) - In 2025, for the first time in its history, the [company closed a plant in Germany](#) ... in Dresden. By mid-2026 it will be reincarnated as a research hub for [AI](#), robotics and chip design research ... in partnership with the government of the German state of Saxony, and the Dresden University of Technology. That's the way to recover!
- [NVIDIA Teaches AI To Drive ... Without You](#) - Stellantis, Lucid and Mercedes-Benz are collaborating with the company on [level 4-ready autonomous vehicles \(unlimited self-driving\)](#) compatible with the company's [DRIVE AGX Hyperion 10](#) system [\[video\]](#). Aurora, Volvo Autonomous Solutions and Waabi will extend level 4 autonomy to long-haul freight. Uber will begin building an autonomous fleet starting in 2027 - 100,000 vehicles supported by a joint AI data factory built on the [NVIDIA Cosmos](#) platform. Buckle up ... in the back seat. ;)
- [New Lightning Capital Of US](#) - Florida is outranked. Now it's Oklahoma that's *thunderstruck*, with 73 strikes per square mile in 2025. A weather expert at [AEM](#) (Germantown MD) is calling that a [significant shift](#) in weather patterns - "... lightning patterns are evolving, with the Great Plains emerging as an increasingly active region for high-impact storms." Buckle up!

Nice Thing - [full screen]

- [Thunderstruck](#) - [AC/DC](#) - raw, energetic, unapologetically passionate, tribal, shamen stamping on a deadening floor - [here](#). [Thanks Bill McC.]
- [Parody Of The Above](#) - Steve-n-Seagulls, 2014, hard to believe, down on the farm version, [here](#).
- [The Mozart Version, With Cellos](#) - Even harder to believe, note broken bow strings, amazing (misspent) talent, [here](#).

Useful Health And Nutrition Websites -

- [Health Biomarker Websites](#) -
 - [NIH BMI Calculator](#) - [NIH](#) National Heart, Lung and Blood Institute [calculator](#). Find your Body Mass Index (BMI).
 - [Basal Metabolic Rate \(BMR\)](#) - Your BMR is how many calories you burn just sitting in your chair, [calculator](#).
 - [Body Roundness Index \(BRI\)](#) - Estimate your *visceral* fat, [details](#) and [calculator](#). Harvard background, [here](#).
 - [Are Your Stools Healthy?](#) - Check the Bristol Stool Chart [here](#). You should be a Type 3 or 4. Not complicated. [Details](#).

- Nutrition Websites -
 - Is Your Favorite Food Ultra-Processed? - and good substitutes. Northeastern University [TrueFood Dashboard](#).
 - Most Nutritious Vegetables and Fruits Rank-Ordered by CDC - List [here](#).
Chinese cabbage = bok choy.
 - Misleading Words For Sugar - High-fructose corn syrup, sucrose, barley malt, dextrose, maltose and rice syrup are all [forms of sugar](#). Erythritol and Xylitol have 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.