



The Vitamin & Herb Stores

#77

Human Technology Research Synopsis

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Foodborne illness costs US \$152 billion annually, landmark report estimates

New analysis, interactive online map highlight the need to modernize the nation's food-safety system
WASHINGTON, D.C. – A new study by a former U.S. Food and Drug Administration (FDA) economist estimates the total economic impact of foodborne illness across the nation to be a combined \$152 billion annually.

The Produce Safety Project, an initiative of The Pew Charitable Trusts at Georgetown University, published the report, Health-Related Costs from Foodborne Illness in the United States. In addition, an interactive online map that graphically represents this cost information for every state in the nation is available at www.MakeOurFoodSafe.org/cost_map.

The report ranks states according to their total costs related to foodborne illness and cost per case for an individual, which is \$1,850 on average nationwide. The ten states with the highest costs per case are: Hawaii, Florida, Connecticut, Pennsylvania, South Carolina, the District of Columbia, Mississippi, New York, Massachusetts and New Jersey.

The Centers for Disease Control and Prevention (CDC) estimates that approximately 76 million new cases of food-related illness - resulting in 5,000 deaths and 325,000 hospitalizations - occur in the United States each year. Continuing outbreaks every year show that this is not a problem that is going away.

"The costs associated with foodborne illness are substantial," says report author Robert L. Scharff, a former FDA economist who is now an assistant professor in the Department of Consumer Sciences at The Ohio State University. "This study puts the problem of foodborne illness in its proper perspective and should help facilitate reasonable action designed to mitigate this problem."

The release of the report comes as the U.S. Senate may soon vote on comprehensive food-safety legislation. The U.S. House of Representatives passed its food-safety bill (H.R. 2749) last July, and just before Thanksgiving, the U.S. Senate Committee on Health, Education, Labor & Pensions unanimously approved the FDA Food Safety Modernization Act (S. 510).

"This report makes it clear that the gaps in our food-safety system are causing significant health and economic impacts," says Erik Olson, director of food and consumer product safety with the Pew Health Group. "Especially in challenging economic times we cannot afford to waste billions of dollars fighting preventable diseases after it is too late. The Senate needs to act on this now and pass legislation that will improve protections for public health."

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Study shows pine bark reduces blood pressure, counteracts kidney damage caused by hypertension

Research reveals Pycnogenol lowers elevated urinary protein levels and improves blood flow to the kidneys (March 3, 2010) – HOBOKEN, NJ – An estimated one in ten adults suffers from kidney disease, according to the National Institute of Diabetes and Digestive and Kidney Diseases. A leading cause of kidney disease is hypertension, which effects one out of every four U.S. adults. Chronically high blood pressure damages capillaries of the kidneys which in turn affects the organ's ability to filter waste and remove excess fluids from the body. A study published in the March 2010 issue of the Journal of Cardiovascular Pharmacology and Therapeutics reveals Pycnogenol® (pic-noj-en-all), an antioxidant plant extract from the bark of the French maritime pine tree, counteracts kidney damage caused by hypertension, lowering urinary proteins and improving blood flow to the kidneys.

"Kidney disease is a common problem for people with hypertension and is an equally 'silent' threat to the body. There are no warning signals and inefficient fluid removal may further increase the blood pressure, causing a vicious circle to set in," said Dr. Gianni Belcaro, a lead researcher of the study. "The results of this study demonstrated Pycnogenol®'s ability not only to reduce blood pressure, but also to relieve the kidney damage caused by chronic hypertension."

The randomized, controlled study conducted by the G D'Annunzio University in Italy investigated 55 hypertensive patients who showed early signs of impaired kidney function, as judged by elevated amounts of proteins found in their urine. The patients were divided into two groups. Both groups were treated with anti-hypertensive medication Ramipril and one group of 29 patients took Pycnogenol in addition to the Ramipril. Urine was collected during a 24 hour period for quantification of protein (albumin) at baseline and again after six months of treatment.

All patients included in the study had an average urinary protein level of 89 mg per 24-hour period, significantly exceeding the 30 mg measure, up to which kidney function is considered sufficient. After

six months of treatment with Ramipril, average protein levels decreased to 64 mg per 24-hour period, remaining well above an acceptable level. Conversely, the group taking Pycnogenol® as an adjunct to Ramipril had an average of only 39 mg per 24-hour period, a decrease of nearly double compared with anti-hypertensive medication taken alone.

The study also found a statistically significant decrease in patients' blood pressure when taking Pycnogenol® in conjunction with Ramipril. When treated exclusively with Ramipril, systolic blood pressure values dropped by more than 30 percent and diastolic blood pressure values dropped approximately eight percent. The addition of Pycnogenol® decreased both systolic and diastolic pressures by an additional three to six percent. Pycnogenol® was also found to lower the patients' elevated levels of inflammatory marker CRP, a blood protein associated with the risk for acute cardiovascular events such as heart attack, reducing values to a healthy level.

"While Ramipril represents an effective treatment for hypertension and its interrelated effects on kidney function, Pycnogenol® as an adjunct to the medication produced significantly greater results, particularly for kidney function restoration" said Dr. Belcaro. "Pycnogenol® continues to demonstrate its abilities as a natural solution for the complete cardiovascular system."

Previous studies have revealed Pycnogenol® to favorably affect the normalization of blood pressure by releasing arterial constriction.

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VITAMIN D LIFTS MOOD DURING COLD WEATHER MONTHS

Loyola Researchers to Study Nutrient in Depression and Diabetes Patients

MAYWOOD, Ill. -- A daily dose of vitamin D may just be what Chicagoans need to get through the long winter, according to researchers at Loyola University Chicago Marcella Niehoff School of Nursing (MNSON). This nutrient lifts mood during cold weather months when days are short and more time is spent indoors.

"Vitamin D deficiency continues to be a problem despite the nutrient's widely reported health benefits," said Sue Penckofer, PhD, RN, professor, MNSON. "Chicago winters compound this issue when more people spend time away from sunlight, which is a natural source of vitamin D."

Diet alone may not be sufficient to manage vitamin D levels. A combination of adequate dietary intake of vitamin D, exposure to sunlight, and treatment with vitamin D2 or D3 supplements can decrease the risk of certain health concerns. The preferred range in the body is 30 - 60 ng/mL of 25(OH) vitamin D.

Loyola faculty members plan to take vitamin D research a step further by evaluating whether weekly vitamin D supplements improve blood sugar control and mood in women with diabetes. Depression is associated with increased insulin resistance, so people with diabetes have a greater risk for the disease than those without depression. Women also tend to have greater rates of depression and poorer blood sugar control than men with diabetes.

"There is evidence to suggest that vitamin D supplementation may decrease insulin resistance," said Dr. Penckofer. "If we can stabilize insulin levels, we may be able to simply and cost effectively improve blood sugar control and reduce symptoms of depression for these women."

Loyola is currently enrolling women in this clinical trial. In order to enter the study, they must be 18 to 70 years of age, have stable type 2 diabetes, signs of depression and no other major medical illness. Eighty women with type 2 diabetes and signs of depression will be given a weekly dose of vitamin D (50,000 IU) for a period of six months. Study participants will be evaluated at three points during this time.

"Vitamin D has widespread benefits for our health and certain chronic diseases in particular," Dr. Penckofer said. "Our research may shed greater light on the role this nutrient plays in managing two conditions that impact millions of Americans. If proven to be successful, vitamin D may be an important addition to care for diabetes and depression."

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Hormone replacement therapy linked to increased lung cancer risk

New study finds prolonged use of HRT increases incidence of lung cancer by about 50 percent

PORTLAND, Ore. — Women aged 50 to 76 who take estrogen plus progestin may have an increased risk of lung cancer, according to a new study published in the pre-print online edition of the Journal of Clinical Oncology.

Although the risk is "duration-dependent," with women taking HRT for 10-plus years at greatest risk of developing lung cancer, an acceptable length of HRT has yet to be determined, the researchers report.

While the risk of developing lung cancer for women using estrogen plus progestin HRT 10 years or longer was approximately 50 percent more than women not using HRT, this risk is actually quite small compared to the risk from smoking.

"Although HRT use has declined and is not recommended except for short-term treatment of menopausal symptoms, our results indicate millions of women may remain at risk of developing lung cancer," said Chris Slatore, M.D., principal investigator and an assistant professor of medicine (pulmonary and critical care medicine) in the Oregon Health & Science University School of Medicine, Portland Veterans Affairs Medical Center; and a member of the OHSU Knight Cancer Institute.

To conduct this research, Slatore and colleagues reviewed data collected from 2000 to 2002 in the Vitamins and Lifestyle Study in Washington state. They identified 36,588 peri- and postmenopausal participants aged 50 to 76 who met their study criteria and followed them for six years using the Seattle-Puget Sound Surveillance, Epidemiology and End Results cancer registry.

At the end of the observation period, December 31, 2007, 344 of the participants had developed lung cancer. **After adjusting for smoking, age and other factors that affect the risk of lung cancer, the researchers determined the use of estrogen and progestin for 10 or more years was associated with increased risk for lung cancer compared with no use of HRT. They also found duration of use was associated with an advanced stage of cancer at diagnosis.**

Although the mechanisms underlying the association between HRT and lung cancer are still unknown, the researchers report that genetic and environment interactions likely play a role. **They also suggest that estrogen plus progestin may lead to more aggressive disease or mask early symptoms,** or HRT users may be less likely to see or receive medical care in a timely fashion.

"These findings may be useful in counseling women about their risk of developing lung cancer and prompt further research into the mechanisms underlying HRT and increased lung cancer risk," said Slatore.

Public release date: 5-Mar-2010

Virus infections may be contributing factor in onset of gluten intolerance

Recent research findings indicate a possible connection between virus infections, the immune system and the onset of gluten intolerance, also known as coeliac disease. A research project in the Academy of Finland's Research Programme on Nutrition, Food and Health (ELVIRA) has brought new knowledge on the hereditary nature of gluten intolerance and identified genes that carry a higher risk of developing the condition. Research has shown that the genes in question are closely linked with the human immune system and the occurrence of inflammations, rather than being connected with the actual breakdown of gluten in the digestive tract.

"Some of the genes we have identified are linked with human immune defence against viruses. This may indicate that virus infections may be connected in some way with the onset of gluten intolerance," says Academy Research Fellow Päivi Saavalainen, who has conducted research into the hereditary risk factors for gluten intolerance.

Saavalainen explains that the genes that predispose people to gluten intolerance are very widespread in the population and, as a result, they are only a minor part of the explanation for the way in which gluten intolerance is inherited. However, the knowledge of the genes behind gluten intolerance is valuable in itself, as it helps researchers explore the reasons behind gluten intolerance, which in turn builds potential for developing new treatments and preventive methods. This is essential, because the condition is often relatively symptom-free, yet it can have serious complications unless treated.

Researchers have localised the risk genes by using data on patients and on entire families. The material in the Finnish study is part of a very extensive study of thousands of people with gluten intolerance and control groups in nine different populations. The research will be published in a coming issue of Nature Genetics.

Research into hereditary conditions has made great progress over the past few years. Gene researchers now face their next challenge, as a closer analysis is now needed of the risk factors in the genes that predispose people to gluten intolerance. It is important to discover how they impact on gene function and what part they play in the onset of gluten intolerance.

Gluten intolerance is an autoimmune reaction in the small intestine. Roughly one in a hundred Finns suffer from this condition. The gluten that occurs naturally in grains such as wheat, barley and rye causes damage to the intestinal villi, problems with nutrient absorption and potentially other problems too. Gluten intolerance is an inherited predisposition, and nearly all sufferers carry the genes that play a key part in the onset of the condition. The only known effective treatment is a lifelong gluten-free diet.

Public release date: 5-Mar-2010

Low levels of Vitamin D linked to muscle fat, decreased strength in young people

First-of-a-kind study by investigator at The Research Institute of the MUHC finds "epidemic" of Vitamin D insufficiency...

There's an epidemic in progress, and it has nothing to do with the flu. A ground-breaking study published in the **March 2010 Journal of Clinical Endocrinology and Metabolism found an astonishing 59 per cent of study subjects had too little Vitamin D in their blood. Nearly a quarter of the group had serious deficiencies (less than 20 ng/ml) of this important vitamin. Since Vitamin D insufficiency is linked to increased body fat, decreased muscle strength and a range of disorders, this is a serious health issue.**

"Vitamin D insufficiency is a risk factor for other diseases," explains principal investigator, Dr. Richard Kremer, co-director of the Musculoskeletal Axis of the Research Institute of the MUHC. "Because it is linked to increased body fat, it may affect many different parts of the body. Abnormal levels of Vitamin D are associated with a whole spectrum of diseases, including cancer, osteoporosis and diabetes, as well as cardiovascular and autoimmune disorders."

The study by Dr. Kremer and co-investigator Dr. Vincente Gilsanz, head of musculoskeletal imaging at the Children's Hospital Los Angeles of the University of Southern California, is the first to show a clear link between Vitamin D levels and the accumulation of fat in muscle tissue – a factor in muscle strength and overall health. Scientists have known for years that Vitamin D is essential for muscle strength. Studies in the elderly have showed bedridden patients quickly gain strength when given Vitamin D.

The study results are especially surprising, because study subjects – all healthy young women living in California – could logically be expected to benefit from good diet, outdoor activities and ample exposure to sunshine – the trigger that causes the body to produce Vitamin D.

"We are not yet sure what is causing Vitamin D insufficiency in this group," says Dr. Kremer who is also Professor of Medicine at McGill University. High levels of Vitamin D could help reduce body fat. Or, fat tissues might absorb or retain Vitamin D, so that people with more fat are likely to also be Vitamin D deficient."

The results extend those of an earlier study by Dr. Kremer and Dr. Gilsanz, which linked low levels of Vitamin D to increased visceral fat in a young population. "In the present study, we found an inverse relationship between Vitamin D and muscle fat," Dr. Kremer says. "The lower the levels of Vitamin D the more fat in subjects' muscles."

While study results may inspire some people to start taking Vitamin D supplements, Dr. Kremer recommends caution. "Obviously this subject requires more study," he says. "We don't yet know whether Vitamin D supplementation would actually result in less accumulation of fat in the muscles or increase muscle strength. We need more research before we can recommend interventions. We need to take things one step at a time."

Public release date: 7-Mar-2010

Repeated anesthesia can affect childrens ability to learn

There is a link between repeated anaesthesia in children and memory impairment, though physical activity can help to form new cells that improve memory, reveals new research from the Sahlgrenska Academy at the University of Gothenburg, Sweden.

The study has been published in the Journal of Cerebral Blood Flow & Metabolism.

"Paediatric anaesthetists have long suspected that children who are anaesthetised repeatedly over the course of just a few years may suffer from impaired memory and learning," says Klas Blomgren, professor at the Queen Silvia Children's Hospital and researcher at the Sahlgrenska Academy. "This is a theory that is also supported by foreign research."

His research team discovered, by chance, a link between stem cell loss and repeated anaesthesia when working on another study. **They wanted to find out what happens to the brain's stem cells when exposed to strong magnetic fields, for example during an MRI scan. The study was carried out using rats and mice, and showed that while the magnetic fields did not have any tangible effects on the animals, the repeated anaesthesia did.**

"We found that repeated anaesthesia wiped out a large portion of the stem cells in the hippocampus, an area of the brain that is important for memory," says Blomgren. "The stem cells in the hippocampus can form new nerve and glial cells, and the formation of nerve cells is considered important for our memory function."

Their results could also be linked to impaired memory in animals as they got older. The effect was evident only in young rats or mice that had been anaesthetised, not when adult animals were anaesthetised. This may be because stem cells are more sensitive in an immature brain, even though there are fewer of them as we get older.

"Despite extensive attempts, we have not been able to understand exactly what happens when the stem cells are wiped out," says Blomgren. "We couldn't see any signs of increased cell death, but are speculating that the stem cells lose their ability to divide."

Another treatment that wipes out the brain's stem cells is radiotherapy, which is used with cancer patients. Blomgren and his research team have previously used animal studies to show that physical activity after radiotherapy can result in a greater number of new stem cells and partly replace those that have been lost.

"What's more, the new nerve cells seem to work better in animals that exercise. Now that we know this, we can come up with treatments that prevent or reverse the loss of stem cells after repeated anaesthesia," says Blomgren, who believes that the findings will lead to greater awareness of the problems and inspire further research into the reasons for the loss of stem cells.

Public release date: 7-Mar-2010

Anti-depressants bring higher risk of developing cataracts: UBC-Vancouver Coastal Health research

Some anti-depressant drugs are associated with an increased chance of developing cataracts, according to a new statistical study by researchers at the University of British Columbia, Vancouver Coastal Health Research Institute and McGill University.

The study, based on a database of more than 200,000 Quebec residents aged 65 and older, showed statistical relationships between a diagnosis of cataracts or cataract surgery and the class of drugs called selective serotonin reuptake inhibitors (SSRIs), as well as between cataracts and specific drugs within that class.

Published online today in the journal *Ophthalmology*, the study does not prove causation but only reveals an association between the use of SSRIs and the development of cataracts. The study could not account for the possibility of smoking – which is a risk factor for cataracts – and additional population-based studies are needed to confirm these findings, the researchers say.

This study of statistical relationships is the first to establish a link between this class of

drugs and cataracts in humans. Previous studies in animal models had demonstrated that SSRIs could increase the likelihood of developing the condition.

“When you look at the trade-offs of these drugs, the benefits of treating depression – which can be life-threatening – still outweigh the risk of

developing cataracts, which are treatable and relatively benign,” says Dr. Mahyar Etminan, lead author of the article, a scientist and clinical pharmacist at the Centre for Clinical Epidemiology at Vancouver Coastal Health Research Institute and an assistant professor in the Dept. of Medicine at UBC.

Researchers found patients taking SSRIs were overall 15 per cent more likely to be diagnosed with cataracts or to have cataract surgery.

The degree of risk among specific and different types of SSRIs varied considerably. Taking fluvoxamine (Luvox) led to a 51 per cent higher chance of having cataract surgery, and venlafaxine (Effexor) carried a 34 per cent higher risk. No connection could be made between fluoxetine (Prozac), citalopram (Celexa), and sertraline (Zoloft) and having cataract surgery.

Co-author Dr. Frederick S. Mikelberg, professor and head of the Dept. of Ophthalmology and Visual Sciences at UBC and head of the Dept. of Ophthalmology at Vancouver General Hospital, notes that the average time to develop cataracts while taking SSRIs was almost two years.

“While these results are surprising, and might inform the choices of psychiatrists when prescribing SSRIs for their patients, they should not be cause for alarm among people taking these medications,” Mikelberg says.

SSRIs, the third most prescribed class of drugs in the world, block the uptake of the neurotransmitter serotonin by neurons in the brain, thereby stimulating more impulses between neurons. Cataracts, a clouding of the eye’s lens that usually occurs in older people, are routinely treated through surgery. More than 1.5 million people undergo surgery for the condition every year in North America, according to the Canadian Ophthalmological Society.

Public release date: 8-Mar-2010

Exposure to BPA may cause permanent fertility defects, Yale researchers find

Researchers at Yale School of Medicine have discovered that exposure during pregnancy to Bisphenol A (BPA), a common component of plastics, causes permanent abnormalities in the uterus of offspring, including alteration in their DNA. The findings were reported in the March issue of Journal of the Federation of American Societies for Experimental

Biology (FASEB J.).

Led by Hugh S. Taylor, M.D., professor in the Department of Obstetrics, Gynecology & Reproductive Sciences at Yale, the study is the first to show that BPA exposure permanently affects sensitivity to estrogen.

Taylor and his team used two groups of mice, one exposed to BPA as a fetus during pregnancy and another exposed to a placebo. They examined gene expression and the amount of DNA modification in the uterus. They found that the mice exposed to BPA as a fetus had an exaggerated response to estrogens as adults, long after the exposure to BPA. The genes were permanently programmed to respond excessively to estrogen.

"The DNA in the uterus was modified by loss of methyl groups so that it responded abnormally in adulthood," said Taylor. "The gene expression was permanently epigenetically altered and the uterus became hyper-responsive to estrogens."

Taylor said that exposure to BPA as a fetus is carried throughout adulthood. "What our mothers were exposed to in pregnancy may influence the rest of our lives. We need to better identify the effect of environmental contaminants on not just crude measures such as birth defects, but also their effect in causing more subtle developmental errors."

Public release date: 9-Mar-2010

Papaya extract thwarts growth of cancer cells in lab tests

The humble papaya is gaining credibility in Western medicine for anticancer powers that folk cultures have recognized for generations.

University of Florida researcher Nam Dang, M.D., Ph.D., and colleagues in Japan have documented papaya's dramatic anticancer effect against a broad range of lab-grown tumors, including cancers of the cervix, breast, liver, lung and pancreas. The researchers used an extract made from dried papaya leaves, and the anticancer effects were stronger when cells received larger doses of the tea.

In a paper published in the Feb. 17 issue of the Journal of Ethnopharmacology, Dang and his colleagues also documented for the first time that papaya leaf extract boosts the production of key signaling molecules called Th1-type cytokines. This regulation of the immune system, in addition to papaya's direct antitumor effect on various cancers, suggests possible therapeutic strategies that use the immune system to fight cancers.

The papaya extract did not have any toxic effects on normal cells, avoiding a common and devastating consequence of many cancer therapy regimens. The success of the papaya extract in acting on cancer without toxicity is consistent with reports from indigenous populations in Australia and his native Vietnam, said Dang, a professor of medicine and medical director of the UF Shands Cancer Center Clinical Trials Office.

"Based on what I have seen and heard in a clinical setting, nobody who takes this extract experiences demonstrable toxicity; it seems like you could take it for a long time — as long as it is effective," he said.

Researchers exposed 10 different types of cancer cell cultures to four strengths of papaya leaf extract and measured the effect after 24 hours. Papaya slowed the growth of tumors in all the cultures.

To identify the mechanism by which papaya checked the growth of the cultures, the team focused on a cell line for T lymphoma. Their results suggested that at least one of the mechanisms employed by the papaya extract is inducing cell death.

In a similar analysis, the team also looked at the effect of papaya extract on the production of antitumor molecules known as cytokines. Papaya was shown to promote the production of Th1-type cytokines, important in the regulation of the immune system. For that reason, the study findings raise the possibility of future use of papaya extract components in immune-related conditions such as inflammation, autoimmune disease and some cancers.

Bharat B. Aggarwal, Ph.D., a researcher at the University of Texas M.D. Anderson Cancer Center in Houston, already is so convinced of papaya's restorative powers that he has a serving of the fruit every day.

"We have always known that papaya has a lot of interesting things in there," said Aggarwal, a professor in the center's department of experimental therapeutics who was not involved in the UF research. Foremost among papaya's health-promoting agents is papain, papaya's signature enzyme, which is found in both the fruit and the leaves.

"This paper has not gone too much into identifying the components responsible for the activity, which is just fine. I think that is a good beginning," Aggarwal said.

Aggarwal also noted that papaya extract's success in reducing cancer in laboratory cell cultures must next be replicated in animal and human studies.

"I hope Dr. Dang takes it further, because I think we need enthusiastic people like him to move it forward," Aggarwal said.

**These reports are done with the appreciation of all the Doctors, Scientist, and other Medical Researchers who sacrificed their time and effort. In order to give people the ability to empower themselves. Without the base aspirations for fame, or fortune.
Just honorable people, doing honorable things.**

