



The Vitamin & Herb Stores

Human Technology Research Synopsis

31st Issue Date 31 May 08

Compiled By Ralph Turchiano

www.vit.bz

Editors Top Five:

1. Traditional herbal medicine kills pancreatic cancer cells, Jefferson researchers report
2. Study identifies trends of vitamin B6 status in US population sample
3. Oregano oil works as well as synthetic insecticides to tackle common beetle pest
4. Current vitamin D recommendations fraction of safe, perhaps essential levels for children
5. Organic milk is cream of the crop

In This Issue:

1. Green tea compounds beat OSA-related brain deficits
2. AUA 2008: Maternal exposure to persistent organic pollutants linked to urologic conditions in boys
3. AUA 2008: EXTERNAL-BEAM RADIATION THERAPY FOR LOCALIZED PROSTATE CANCER LINKED TO BLADDER, LUNG AND COLORECTAL CANCER
4. Study finds parents use cough medicines on under-2s despite the warnings
5. UCSD researchers show link between vitamin D status, breast cancer
6. Study shows that administering calcium and magnesium effectively reduces neurological sensitivity
7. New study links fate of personal care products to environmental pollution and human health concerns
8. Traditional herbal medicine kills pancreatic cancer cells, Jefferson researchers report
9. Plant flavonoid found to reduce inflammatory response in the brain
10. Farm moms may help children beat allergies
11. Data re-analysis shows drug finasteride reduces risk for most prostate cancers
12. What else may probiotics do in adults?
13. Possible biological explanation for C-section-linked allergies and asthma found
14. Incense is psychoactive: Scientists identify the biology behind the ceremony
15. Probiotics After Gastric Bypass Surgery Improve Weight Loss and GI Quality of Life (Abstract #343)
16. Study identifies trends of vitamin B6 status in US population sample
17. New pharmacological effect of Jianpi Huoxue Decoction

If you had Information that Could Change the World. What would you Do?

18. Oregano oil works as well as synthetic insecticides to tackle common beetle pest
19. Current vitamin D recommendations fraction of safe, perhaps essential levels for children
20. Male painters exposed to fertility damaging chemicals
21. PCB cocktails for two
22. Licorice extract provides new treatment option for canker sores
23. A trial of removing food additives should be considered for hyperactive children
24. Cocoa could be a healthy treat for diabetic patients
25. Current vitamin D recommendations fraction of safe, perhaps essential levels for children
26. Organic milk is cream of the crop

Public release date: 15-May-2008

Green tea compounds beat OSA-related brain deficits

Chemicals found in green tea may be able to stave off the cognitive deficits that occur with obstructive sleep apnea (OSA), according to a new study published in the second issue for May of the American Thoracic Society's American Journal of Respiratory and Critical Care Medicine.

Researchers examined the effects green tea polyphenols (GTP), administered through drinking water, on rats who were intermittently deprived of oxygen during 12-hour "night" cycles, mimicking the intermittent hypoxia (IH) that humans with OSA experience.

People with OSA have been reported to have increased markers of oxidative stress and exhibit architectural changes in their brain tissue in areas involved in learning and memory. Chronic IH in rats produce similar neurological deficit patterns.

"OSA has been increasingly recognized as a serious and frequent health condition with potential long-term morbidities that include learning and psychological disabilities [...]," wrote David Gozal, M.D., professor and director of Kosair Children's Hospital Research Institute at the University of Louisville, lead author of the article. "A growing body of evidence suggests that the adverse neurobehavioral consequences imposed by IH stem, at least in part, from oxidative stress and inflammatory signaling cascades."

GTPs are known to possess anti-oxidant properties, acting as a free radical scavengers, and research has shown that the compounds may reduce the risk of a variety of different diseases.

"Recent studies have demonstrated the neuroprotective activity of GTP in animal models of neurodegenerative conditions such as Parkinson's and Alzheimer's disease," wrote Dr. Gozal.

If you had Information that Could Change the World. What would you Do?

In this study, the researchers divided 106 male rats into two groups that underwent intermittent oxygen depletion during the 12-hour “night” cycle for 14 days. One group received drinking water treated with GTP; the other received plain drinking water.

They were then tested for markers of inflammation and oxidative stress, as well as for performance in spatial learning and memory tasks—namely a water “maze” in which the rat had to memorize the location of a hidden platform.

The IH-rats that received the green tea-treated water performed significantly better in a water maze than the rats that drank plain water. “GTP-treated rats exposed to IH displayed significantly greater spatial bias for the previous hidden platform position, indicating that GTPs are capable of attenuating IH-induced spatial learning deficits,” wrote Dr. Gozal, adding that GTPs “may represent a potential interventional strategy for patients” with sleep-disordered breathing.

Public release date: 15-May-2008

AUA 2008: Maternal exposure to persistent organic pollutants linked to urologic conditions in boys

ORLANDO, FL, MAY 18, 2008—**Higher incidences of congenital anomalies, including cryptorchidism (undescended testicles) and hypospadias, were found in boys whose mothers had higher serum levels of certain organochlorine compounds, researchers say. Two separate studies presented today during the Annual Scientific Meeting of the American Urological Association (AUA) in Orlando confirmed existing hypotheses that maternal exposure to endocrine-disrupting chemicals – including total polychlorinated biphenyls (PCBs, such as Arochlor) and organochlorinated pesticides (such as dichlorodiphenyl-trichloroethane, or DDT) may contribute to an increased incidence of these conditions.**

The data was presented to the media on Sunday, May 18, 2008, during press conferences starting at 8:00 a.m.

Mothers with high levels of organochlorine compounds in their bodies are at a greater risk of bearing sons with undescended testicles (cryptorchidism). In a study (abstract #276) of 40 boys undergoing surgical treatment for the condition, researchers from New York and Michigan analyzed PCB serum levels from both the patient and the mother and compared the readings to residual PCB levels in the patients’ fatty tissue samples (taken at surgery). Patients ranged from eight to 18 months of age at the time of treatment.

Researchers’ analysis of the amount of OCC residue in the samples revealed that serum PCB levels reflect the fatty burden of OCC residues in the boys, and OCC concentration in maternal serum samples correlated with the son’s serum levels. Aggregate PCB levels

If you had Information that Could Change the World. What would you Do?

and maternal levels of individual PCB congeners were significantly higher in boys with undescended testicles than in mothers of boys without the anomaly.

Researchers from Michigan and Atlanta presented similar findings (abstract #277) on congenital anomalies and chemical exposure. Using data from the Michigan Long-Term PBB Cohort, researchers examined individuals exposed to polybrominated biphenyl (PBB) during 1974-1974, including sons of mothers with known serum PBB levels, to determine whether in-utero exposure to PBB put male neonates at a greater risk for genitourinary (GU) or reproductive conditions. Self-reported data on varicocele, cryptorchidism, hypospadias and other GU and reproductive conditions was compared to estimated maternal PBB levels at the time of conception.

Of the sons whose mothers had measurable PBB levels at the time of conception, 35 reported GU conditions, including hernias (13), hydroceles (10), undescended testicles (9), hypospadias (5), phimosis (2) and varicocele (1). Sons whose mothers had PBB levels greater than 5 parts per billion were more likely to report these conditions than those whose mothers had lower levels. Maternal PBB levels were not found to have an impact on birth weight or estimated gestational age. 12.2 percent of boys with maternal serum levels greater than 5 were more likely to report GU conditions, compared to 5.5 percent of boys with lower maternal PBB levels.

“Mothers with known exposure to these enduring compounds should tell not only their own doctors but also their sons’ pediatricians,” said Anthony Y. Smith, M.D., a spokesman for the AUA. “These data underscore the importance of regular ‘well-baby checkups’ so that these easily treatable conditions are diagnosed promptly.”

About Organochlorine Compounds: Initially lauded for their chemical stability, PCBs (such as Araclor and its congeners) and organochlorinated pesticides such as DDT are lipid-soluble compounds actively produced around the world in the first half of the 20th century. After widespread use in agricultural and manufacturing applications (as plastizers, heat-stabilizing additives for PVC electric insulation, adhesives and paints), they were discontinued in both open and closed uses in the 1970s when health risks became apparent. **Lipid soluble, the compounds are absorbed and dispersed to living tissue and, as a result, can have a cumulative effect and cause toxin damage across generations.** The United States banned their domestic production in 1977.

Public release date: 15-May-2008

AUA 2008: EXTERNAL-BEAM RADIATION THERAPY FOR LOCALIZED PROSTATE CANCER LINKED TO BLADDER, LUNG AND COLORECTAL CANCER

ORLANDO, FL, May 18, 2008—Patients undergoing external-beam radiation therapy

If you had Information that Could Change the World. What would you Do?

(EBRT) for localized prostate cancer may be at an increased risk for secondary malignancy, according to a study from researchers in Canada, Italy and the United States presented today during the Annual Scientific Meeting of the American Urological Association (AUA) in Orlando. Researchers presented data to reporters during a special press conference on May 19, 2008 at 1:30 p.m.

These findings have significant implications for men evaluating treatment options for localized prostate cancer.

Using records from 10,333 men treated for localized prostate cancer (6,196 with radical prostatectomy and 4,137 with EBRT) between 1983 and 2004, researchers examined subsequent diagnoses of bladder, lung and colorectal cancer to determine whether the incidence rate of these secondary malignancies was greater in patients who underwent EBRT as opposed to radical prostatectomy.

Researchers used diagnosis codes defining cystectomy, lobectomy or pneumectomy (for lung cancer) and colectomy (with or without rectal resection) for colorectal cancer to identify the incidence of secondary malignancy in this study population. 92 cystectomies, 82 lung cancer surgeries and 228 colorectal cancer surgeries were performed. Univariable analyses showed an increase in the rate of secondary malignancy treatment in men treated with EBRT. Multivariate analysis was performed, with adjustments made for age, baseline comorbidities and year of treatment – **and indicated that EBRT predisposed patients to a 3.0-fold increase for cystectomy for bladder cancer, 1.8-fold rate of lung-cancer resections and 1.7-fold higher rate of rectal cancer.**

Public release date: 15-May-2008

Study finds parents use cough medicines on under-2s despite the warnings

More than 40 per cent of parents have used cough medicine for children younger than two – even though it is not recommended, nor proven effective for children in this age group, an Australia-first study has found.

The joint University of Melbourne and Royal Children's Hospital study, surveyed 325 parents at hospital outpatient clinics, maternal child health centres and child care centres about their use of over-the-counter medication for children aged 0-24 months.

It is the first study in Australia examining the use of over-the-counter medications among parents of children in this age group.

University of Melbourne Nursing PhD researcher Misel (pronounced Michelle) Trajanovska will present data from her study at the National Medicines Symposium 2008 in Canberra tomorrow (Friday 16 May).

If you had Information that Could Change the World. What would you Do?

She found:

98 per cent had purchased an over-the-counter medication in the past year;

Paracetamol was the most commonly used drug (95.9 per cent);

47.3 per cent had given their children topical teething gels;

Almost half (42.8 per cent) had given their children cough and cold medicines containing anti-histamines;

Nearly all parents had used over the counter medications to combat pain and fever;

About seven per cent of parents had given their child over-the-counter medication to induce sleep or settle their child;

Two parents had given their children paracetamol because they were “cranky”.

Ms Trajanovska said the use of cough and cold medicines on children under two was of particular concern.

“Internationally there have been a number of reports of serious side effects among infants and children given over-the-counter cough medicines,” she said.

“There is also a lack of evidence that these medicines are even effective for treating coughs.

“The Therapeutic Goods Administration recommends that these medicines should not be used on children under two, and from September they will only be available to children under two on prescription.”

Ms Trajanovska said the survey results reinforced the need for continued education of parents about the safe use of over-the-counter medicines.

“Despite the widespread use of over-the-counter medicines for young children, they are not without risks such as side effects or poisoning,” she said.

Ms Trajanovska said that in Victoria 0-4 year olds had the highest poisoning admission rates. **In emergency departments 16 per cent of these poisonings were due to paracetamol and 11 per cent were caused by cough and cold medicines.**

The next stage of Ms Trajanovska’s PhD will investigate where parents get their advice on over-the-counter medications.

Public release date: 15-May-2008

UCSD researchers show link between vitamin D status, breast cancer

Using newly available data on worldwide cancer incidence, researchers at the Moores Cancer Center at University of California, San Diego (UCSD) and the Department of Family and Preventive Medicine have shown a clear association between deficiency in exposure to sunlight, specifically ultraviolet B (UVB), and breast cancer.

UVB exposure triggers photosynthesis of vitamin D3 in the body. This form of vitamin D also is available through diet and supplements.

Approximately 1,150,000 cases and 410,000 deaths from breast cancer occur annually worldwide, including 215,000 new cases and 41,000 deaths in the United States.

The study is published in the May-June 2008 issue of The Breast Journal.

“This is the first study, to our knowledge, to show that higher serum levels of vitamin D are associated with reduced incidence rates of breast cancer worldwide,” said Cedric F. Garland, Dr. P.H., professor of Family and Preventive Medicine in the UCSD School of Medicine, and member of the Moores UCSD Cancer Center.

This paper used worldwide data only recently available through a new tool called GLOBOCAN, developed by the World Health Organization’s International Agency for Research on Cancer. GLOBOCAN is a database of cancer incidence, mortality and prevalence for 175 countries.

The researchers created a graph with a vertical axis for breast cancer incidence rates, and a horizontal axis for latitude. The latitudes range from -50 for the southern hemisphere, to zero for the equator, to +70 for the northern hemisphere. They then plotted age-standardized incidence rates for 175 countries according to latitude. The resulting chart was a parabolic curve that looks like a smile.

“In general, breast cancer incidence was highest at the highest latitudes in both hemispheres,” said Garland. “Even after controlling for known variables such as meat, vegetable and alcohol intake, cigarette consumption, weight, fertility and others, the inverse association of modeled vitamin D status with breast cancer incidence remained strong.”

In the paper, the authors caution that this was a study of aggregates, or countries, rather than individuals; findings that apply to aggregates may not apply to individuals. They recommend further research to study individuals for the effect of vitamin D from sunlight, diet and supplements on the risk of breast cancer.

If you had Information that Could Change the World. What would you Do?

Public release date: 15-May-2008

Study shows that administering calcium and magnesium effectively reduces neurological sensitivity

Study to be presented at the American Society of Clinical Oncology
ROCHESTER, Minn. -- Researchers in the North Central Cancer Treatment Group (NCCTG) have shown that patients who receive intravenous calcium and magnesium before and after the chemotherapy drug oxaliplatin for the treatment of advanced colon cancer experience a significantly reduced incidence and severity of neurological side effects (neurotoxicity). This reduction increases the likelihood that patients are able to complete a full course of treatment. The findings were released May 15 as part of the 44th annual meeting of the American Society of Clinical Oncology.

“There have been limited studies and anecdotal stories about the effectiveness of calcium plus magnesium in reducing neurotoxicity caused by oxaliplatin,” says Daniel Nikceovich, M.D., Ph.D., an oncologist at St. Mary’s Duluth Clinic in Duluth, Minn., a member of NCCTG and study co-chair.

“We designed a double-blind, placebo-controlled study that confirmed the effectiveness of calcium plus magnesium in reducing debilitating neurological sensitivity associated with oxaliplatin, such as pain in the hands, fingers, feet and toes. In the past, these side effects have caused patients to stop treatment and, therefore, not receive critical therapy.”

Each year in the United States, 150,000 patients are diagnosed with colon cancer, and approximately 50 percent of those develop advanced colon cancer. Oxaliplatin, in combination with other chemotherapy drugs such as 5-fluorouracil (5-FU), has emerged as a standard-of-care of first-line therapy for advanced colon cancer. However, oxaliplatin can cause both acute and chronic cumulative sensory neurological problems including pain, numbness and tingling that can prevent patients from completing treatment.

In the study, 50 of the 102 patients enrolled received intravenous calcium and magnesium along with oxaliplatin-based chemotherapy, while 52 patients received oxaliplatin-based adjuvant chemotherapy for colon cancer and an intravenous placebo. Study results showed that the use of calcium and magnesium infusions before and after oxaliplatin was associated with a significant decrease in the incidence and severity of neurotoxicity, and it also delayed the time to the onset of neurotoxicity on oxaliplatin therapy.

Calcium and magnesium are an easily administered, safe treatment option for oxaliplatin-induced neurotoxicity. “Some initial reports from other studies claimed that the use of calcium and magnesium reduced the activity of oxaliplatin-based chemotherapy,” says Axel Grothey, M.D., an oncologist at Mayo Clinic and study co-chair. “However, we

If you had Information that Could Change the World. What would you Do?

have definitive results from an independent, blinded radiologic review which demonstrates no negative influence of calcium and magnesium on the outcome for oxaliplatin-based chemotherapy.”

“Now that we have shown the effectiveness of calcium and magnesium in reducing oxaliplatin-induced neurotoxicity, a further step may be to evaluate the benefit of calcium and magnesium in reducing neurotoxicity caused by other medications,” says Dr. Nikcevic. “Many other commonly used chemotherapy agents cause neurological sensitivity. By applying our study design, we can test the effectiveness of calcium and magnesium when used with other treatments.”

This study was done as part of a program coordinated by Charles Loprinzi, M.D., a medical oncologist at Mayo Clinic Rochester. The program he leads has conducted more than 50 clinical trials designed to find ways to prevent or treat untoward symptoms related to cancer and cancer therapy. This includes three trials to evaluate ways to treat established neuropathy caused by chemotherapy and three additional studies to try to prevent such toxicity. Additional trials are in development to find other ways to alleviate this toxicity.

Public release date: 16-May-2008

New study links fate of personal care products to environmental pollution and human health concerns

Parental concerns in maintaining germ-free homes for their children have led to an ever-increasing demand and the rapid adoption of anti-bacterial soaps and cleaning agents. But the active ingredients of those antiseptic soaps now have come under scrutiny by the EPA and FDA, due to both environmental and human health concerns.

Two closely related antimicrobials, triclosan and triclocarban, are at the center of the debacle. Whereas triclosan (TCS) has long captured the attention of toxicologists due to its structural resemblance to dioxin (the Times Beach and Love Canal poison), triclocarban (TCC) has ski-rocketed in 2004 from an unknown and presumably harmless consumer product additive to one of today’s top ten pharmaceuticals and personal care products most frequently found in the environment and in U.S. drinking water resources.

Now, Biodesign Institute at Arizona State University researcher Rolf Halden and co-workers, in a feat of environmental detective work, have traced back the active ingredients of soaps – used as long ago as the 1960s – to their current location, the shallow sediments of New York City’s Jamaica Bay and the Chesapeake Bay, the nation’s largest estuary.

“Our group has shown that antimicrobial ingredients used a half a century ago, by our

If you had Information that Could Change the World. What would you Do?

parents and grandparents, are still present today at parts-per-million concentrations in estuarine sediments underlying the brackish waters into which New York City and Baltimore discharge their treated domestic wastewater,” said Halden, a new member of the institute's Center for Environmental Biotechnology. “This extreme environmental persistence by itself is a concern, and it is only amplified by recent studies that show both triclosan and triclocarban to function as endocrine disruptors in mammalian cell cultures and in animal models.”

Aiding in his team’s research was another type of contamination: the radioactive fallout from nuclear testing conducted in the second half of the last century. Using the known deposition history and half-lives of two radioactive isotopes, cesium-137 and beryllium-7, Halden and his collaborators Steven Chillrud, Jerry Ritchie and Richard Bopp were able to assign the approximate time at which sediments observed to contain antimicrobial residues had been deposited in the two East Coast locations.

By analyzing vertical cores of sediment deposited over time in the two sampling locations on the East Coast, they showed that TCC, and to a lesser extent, TCS, can persist in estuary sediments. TCC was shown to be present at parts per million levels, which could represent unhealthy levels for aquatic life, especially the bottom feeders that are important to commercial fishing industries like shellfish and crabs.

In the Chesapeake Bay samples, the group noticed a significant drop in TCC levels that corresponded to a technology upgrade in the nearby wastewater treatment plant back in 1978. However, earlier work by the team had shown that enhanced removal of TCC and TCS in wastewater treatment plants leads to accumulation of the problematic antimicrobial substances in municipal sludge that often is applied on agricultural land for disposal. Lead author Todd Miller concludes that “little is actually degraded during wastewater treatment and more information is needed regarding the long term consequences these chemicals may have on environmentally beneficial microorganisms.”

Along the way of studying the deposition history of antimicrobials in sediments, the team also discovered a new pathway for the breakdown of antimicrobial additives of consumer products. Deep in the muddy sediments of the Chesapeake Bay, they found evidence for the activity of anaerobic microorganisms that assist in the decontamination of their habitat by pulling chlorine atoms one by one off the carbon backbone of triclocarban, presumably while obtaining energy for their metabolism in the process. “This is good news,” said Halden, “but unfortunately the process does not occur in all locations and furthermore it is quite slow. If we continue to use persistent antimicrobial compounds at the current rate, we are outpacing nature’s ability to decompose these problematic compounds.”

While combining bioenergy production and pollutant destruction has its own appeal, Halden sees a simpler solution to combating the pollution his team discovered: limit the use of antimicrobial personal care products to situations where they improve public health and save lives.

If you had Information that Could Change the World. What would you Do?

“The irony is that these compounds have no measurable benefit over the use of regular soap and water for hand washing; the contact time simply is too short.” Unfortunately this cannot be said for the bottom-dwelling organisms in the sampling locations on the East Coast. “Here,” Halden concludes, “the affected organisms are experiencing multi-generational, life-time exposures to our chemical follies.”

Halden is planning to continue his research on persistent antimicrobials by studying their body burden and associated health effects in susceptible populations including mothers and their babies.

Public release date: 18-May-2008

Traditional herbal medicine kills pancreatic cancer cells, Jefferson researchers report

PHILADELPHIA) An herb used in traditional medicine by many Middle Eastern countries may help in the fight against pancreatic cancer, one of the most difficult cancers to treat. **Researchers at the Kimmel Cancer at Jefferson in Philadelphia have found that thymoquinone, an extract of nigella sativa seed oil, blocked pancreatic cancer cell growth and killed the cells by enhancing the process of programmed cell death.**

While the studies are in the early stages, the findings suggest that thymoquinone could eventually have some use as a preventative strategy in patients who have gone through surgery and chemotherapy or in individuals who are at a high risk of developing cancer.

According to Hwyla Arafat, M.D., Ph.D., associate professor of Surgery at Jefferson Medical College of Thomas Jefferson University, nigella sativa helps treat a broad array of diseases, including some immune and inflammatory disorders. Previous studies also have shown anticancer activity in prostate and colon cancers, as well as antioxidant and anti-inflammatory effects.

Using a human pancreatic cancer cell line, she and her team found that adding thymoquinone killed approximately 80 percent of the cancer cells. They demonstrated that thymoquinone triggered programmed cell death in the cells, and that a number of important genes, including p53, Bax, bcl-2 and p21, were affected. The researchers found that expression of p53, a tumor suppressor gene, and Bax, a gene that promotes programmed cell death, was increased, while bcl-2, which blocks such cell death, was decreased. The p21 gene, which is involved in the regulation of different phases of the cell cycle, was substantially increased. She presents her findings May 18 at the Digestive Disease Week in San Diego.

Dr. Arafat and her co-workers also found that thymoquinone caused “epigenetic” changes

If you had Information that Could Change the World. What would you Do?

in pancreatic cancer cells, modifying the cells' DNA. She explains that these changes involve adding acetyl groups to the DNA structure, specifically to blocks of proteins called histones. This "acetylation" process can be important for genes to be read and translated into proteins. In this case, it could involve the genes that are key to initiating programmed cell death.

"We looked at the status of the histones and found surprisingly that thymoquinone increased the acetylation process," Dr. Arafat says. "We never anticipated that."

At the same time, adding thymoquinone to pancreatic cancer cells reduced the production and activity of enzymes called histone deacetylases (HDACs), which remove the acetyl groups from the histone proteins, halting the gene transcription process. Dr. Arafat notes that HDAC inhibitors are a "hot" new class of drugs that interfere with the function of histone deacetylases, and is being studied as a treatment for cancer and neurodegenerative diseases. Finding that thymoquinone functions as an HDAC inhibitor, she says, "was very remarkable and really exciting."

Pancreatic cancer, the fourth-leading cause of cancer death in this country, takes some 34,000 lives a year. The disease frequently is detected after it has spread and only 4 percent of individuals with pancreatic cancer live for five years after diagnosis.

Public release date: 19-May-2008

Plant flavonoid found to reduce inflammatory response in the brain

Researchers at the University of Illinois report this week that a plant compound found in abundance in celery and green peppers can disrupt a key component of the inflammatory response in the brain. The findings have implications for research on aging and diseases such as Alzheimer's and multiple sclerosis.

The study appears this week in Proceedings of the National Academy of Sciences.

Inflammation can be a blessing or a blight. It is a critical part of the body's immune response that in normal circumstances reduces injury and promotes healing. When it goes awry, however, the inflammatory response can lead to serious physical and mental problems.

Inflammation plays a key role in many neurodegenerative diseases and also is implicated in the cognitive and behavioral impairments seen in aging.

The new study looked at luteolin (LOO-tee-OH-lin), a plant flavonoid known to impede the inflammatory response in several types of cells outside the central nervous system. The purpose of the study was to determine if luteolin could also reduce inflammation in the brain, said animal sciences professor and principal investigator Rodney Johnson.

If you had Information that Could Change the World. What would you Do?

“One of the questions we were interested in is whether something like luteolin, or other bioactive food components, can be used to mitigate age-associated inflammation and therefore improve cognitive function and avoid some of the cognitive deficits that occur in aging,” Johnson said.

The researchers first studied the effect of luteolin on microglia. These brain cells are a key component of the immune defense. When infection occurs anywhere in the body, microglia respond by producing inflammatory cytokines, chemical messengers that act in the brain to orchestrate a whole-body response that helps fight the invading microorganism.

This response is associated with many of the most obvious symptoms of illness: sleepiness, loss of appetite, fever and lethargy, and sometimes a temporary diminishment of learning and memory. Neuroinflammation can also lead some neurons to self-destruct, with potentially disastrous consequences if it goes too far.

Graduate research assistant Saebyeol Jang studied the inflammatory response in microglial cells. She spurred inflammation by exposing the cells to lipopolysaccharide (LPS), a component of the cell wall of many common bacteria.

Those cells that were also exposed to luteolin showed a significantly diminished inflammatory response. Jang showed that luteolin was shutting down production of a key cytokine in the inflammatory pathway, interleukin-6 (IL-6). The effects of luteolin exposure were dramatic, resulting in as much as a 90 percent drop in IL-6 production in the LPS-treated cells.

“This was just about as potent an inhibition as anything we had seen previously,” Johnson said.

But how was luteolin inhibiting production of IL-6?"

Jang began by looking at a class of proteins involved in intracellular signaling, called transcription factors, which bind to specific “promoter” regions on DNA and increase their transcription into RNA and translation into proteins.

Using electromobility shift assays, which measure the binding of transcription factors to DNA promoters, Jang eventually determined that luteolin inhibited IL-6 production by preventing activator protein-1 (AP-1) from binding the IL-6 promoter.

AP-1 is in turn activated by JNK, an upstream protein kinase. Jang found that luteolin inhibited JNK phosphorylation in microglial cell culture. The failure of the JNK to activate the AP-1 transcription factor prevented it from binding to the promoter region on the IL-6 gene and transcription came to a halt.

To see if luteolin might have a similar effect in vivo, the researchers gave mice luteolin-

laced drinking water for 21 days before injecting the mice with LPS.

Those mice that were fed luteolin had significantly lower levels of IL-6 in their blood plasma four hours after injection with the LPS. Luteolin also decreased LPS-induced transcription of IL-6 in the hippocampus, a brain region that is critical to spatial learning and memory.

The findings indicate a possible role for luteolin or other bioactive compounds in treating neuroinflammation, Johnson said.

“It might be possible to use flavonoids to inhibit JNK and mitigate inflammatory reactions in the brain,” he said. “Inflammatory cytokines such as interleukin-6 are very well known to inhibit certain types of learning and memory that are under the control of the hippocampus, and the hippocampus is also very vulnerable to the insults of aging,” he said. “If you had the potential to decrease the production of inflammatory cytokines in the brain you could potentially limit the cognitive deficits that result.”

Public release date: 20-May-2008

Farm moms may help children beat allergies

ATS 2008, TORONTO—Mothers exposed to farms, particularly to barns and farm milk, while pregnant confer protection from allergies on their newborns, according to a group of German researchers, who will present their findings at the American Thoracic Society’s 2008 International Conference in Toronto on Wednesday, May 21.

In a study of the children of 18 farming mothers and 59 non-farming mothers, the researchers believe they have proved their hypothesis that a mother’s farm exposure affects her baby’s T regulatory cells. These cells, it is now believed, act to suppress immune responses and thereby maintain immune system homeostasis to contribute to healthy immune development.

“We found that the babies of mothers exposed to farms have more and better functioning regulatory T cells,” explained Bianca Schaub, M.D., who led the research team at University Children’s Hospital in Munich. **“The effect was strongest among those mothers who entered barns or drank farm milk.”**

Dr. Schaub and her researchers believe that the findings represent “a potential immunological explanation of the mechanism” that produces “the protective farm effect” on the development of childhood atopic diseases.

To conduct this study, the investigators assessed exposure through detailed questionnaires. They then recorded the number of regulatory T cells (CD4+CD25+ high, Foxp3+) and their associated genes (Foxp3/LAG3) after stimulating cord blood mononuclear cells with microbial stimuli and allergens. Expression of the regulatory T

If you had Information that Could Change the World. What would you Do?

cells and associated genes were significantly higher in the blood drawn from the umbilical cord of babies whose moms spent time on a farm.

According to Dr. Schaub, the findings support the “paradigm shift” from attributing allergic diseases solely to an impaired balance between anti-allergic Th1 cells and pro-allergic Th2 cells. “It may be possible that T regulatory cells are capable of preventing an allergic response at an early time point by suppressing Th2 cells.”

“It is a long way off,” she concluded, “but these findings may one day hopefully help researchers to develop an effective preventive strategy, perhaps even a vaccine, against allergic diseases.”

Ralph’s Note - WOW. They drank non homogenized, non pasteurized milk on a farm with germs. They not only survived but prospered over their sanitized peers.

Public release date: 20-May-2008

(Questionable Science Alert)

Data re-analysis shows drug finasteride reduces risk for most prostate cancers

Adjusting for prostate volume, findings from landmark PCPT trial refute notion that drug boosts aggressive disease

NEW YORK (May 20, 2008) -- A re-analysis of data from the landmark Prostate Cancer Prevention Trial (PCPT) finds that finasteride reduces the risk for prostate cancer without boosting the odds of aggressive tumors.

PCPT, which involved more than 18,000 men 55 years of age or over, was stopped early in June 2003 because researchers noted that while it reduced prostate cancer in men taking finasteride (Proscar) by up to 25 percent, men taking finasteride also appeared to have more aggressive prostate tumors if and when they did develop the disease.

That caused some experts to worry that finasteride was encouraging higher-grade cancers.

But a new analysis led by researchers at NewYork-Presbyterian Hospital/Weill Cornell Medical Center should lay that worry to rest.

"Finasteride has long been used by doctors to treat benign enlarged prostate -- it shrinks the prostate. So when we accounted for this shrinkage in prostate volume, the disparity in tumor aggressiveness between the finasteride and placebo groups vanished," says study lead author Dr. Steven A. Kaplan, professor of urology at Weill Cornell Medical College and a urologist at NewYork-Presbyterian Hospital/Weill Cornell Medical Center.

He and his colleagues will present their findings Tuesday, May 20, at the annual meeting

If you had Information that Could Change the World. What would you Do?

of the American Urological Association, in Orlando.

Physicians grade the aggressiveness of prostate tumors on what's called the Gleason Score -- a grading of tumor characteristics, with scores ranging from 2 to 10 (10 indicating the most highly aggressive cancers). **"After their initial analysis, the PCPT investigators discovered that men taking finasteride had fewer prostate cancers overall, but a higher incidence of grades 7, 8, 9 and 10 cancers," Dr. Kaplan explains.**

This was worrying, since it is higher-grade, potentially metastatic prostate cancers that are the real cause for clinical concern. "Lower-grade cancers are often what we call 'indolent,' meaning they grow so slowly they pose little real threat to the patient," Dr. Kaplan says. "So it was important to find out if this finding was real, or some kind of methodological artifact."

His team had one theory: "We know that finasteride shrinks the prostate. So perhaps that simply meant that doctors were better able to spot a highly aggressive tumor in patients taking the drug, because there was less tissue in which it could hide," explains senior author Dr. E. Darracott Vaughan, the James J. Colt Professor of Urology at Weill Cornell Medical College and a urologist at NewYork-Presbyterian Hospital/Weill Cornell Medical Center.

With that in mind, the researchers looked once more at PCPT data on biopsies taken from the 18,882 men in the study. They adjusted for treatment type, age, race, family history of prostate cancer, baseline prostate-specific antigen (PSA) levels, and the individual patient's prostate volume.

"What we found was a significant reduction in the incidence of prostate cancers for men taking finasteride vs. placebo -- even for the higher-grade cancers," Dr. Kaplan says. "Most importantly, finasteride was associated with significant declines in tumors with Gleason scores 5, 6 and 7, which comprise 72 percent of all prostate cancers diagnosed in the United States. **For tumors with Gleason scores of 8, 9 and 10, the incidence for men taking finasteride was no higher than for men not taking the drug, after we had adjusted for prostate volume.**"

This means that men who are prescribed finasteride should not be concerned that the drug will boost their odds for aggressive prostate cancer. **In fact, while it's too early to say that the drug prevents the disease, it may sometimes help suppress it when it occurs, the researchers say.**

"I believe that the drug is chemo-suppressive," Dr. Kaplan says. "We know that it reduces PSA levels, which are indicative of prostatic disease. Finasteride appears to be particularly adept at suppressing the more indolent cancers. So in the future, it might be useful to use the drug to determine just how aggressive -- and needful of treatment -- a particular tumor is. If the patient takes finasteride and his PSA levels quickly drop, he probably has a less-threatening tumor that may just require 'watchful waiting.' But if PSA

If you had Information that Could Change the World. What would you Do?

levels rise, that tumor may need more active treatment. All of this needs to be tested in a controlled, randomized trial."

In the meantime, researchers need to keep prostate volume in mind whenever they conduct trials assessing the anticancer properties of prostate-shrinking medications. "Right now, drug maker GlaxoSmithKline is testing out a similar drug, Avodart, as a possible agent against prostate cancer. We hope that they will incorporate prostate volume in their analysis, to help avoid the confusion that dogged PCPT," Dr. Kaplan says.

###

The PCPT trial was funded by the U.S. National Cancer Institute and Merck, the maker of finasteride.

Co-authors on this study include Dr. Claus Roehrborn, of the University of Texas Southwestern Medical School, Dallas; **Dr. Alan G. Meehan, Dr. Bruce S. Binkowitz and Norman L. Heyden, of Merck Research Laboratories, Rahway, N.J.; and Dr. Kenneth S. Liu and Dr. Alexandra D. Carides, of Merck Research Laboratories in Upper Gwynedd, Penn.**

Ralph's Note - So the drug does not prevent cancer, or not? In addition there appears to be a strong manipulation of data preference. In determining what is significant or not. If the drug has no impact on cancer. Then what is the sense? Doing a study just to determine how dangerous the medication is. Seems to be a tremendous waste of Tax payer dollars.

Public release date: 20-May-2008

What else may probiotics do in adults?

Probiotic bacteria, defined as living microorganisms that have beneficial effects on human health, have mostly been studied in the prevention and treatment of different gastrointestinal diseases and allergies. Probiotic products, however, are usually consumed by the general, healthy population but not much is known what kind of effects they have on the immune system in healthy adults. It is not clear how probiotics exert their health effects, but one of the most probable action mechanisms is the modulation of immune responses via the gut's mucosal immune system.

The study, performed by the groups of Dr Korpela, Professor Vapaatalo and Professor Julkunen, will be published on April 7, 2008, in the World Journal of Gastroenterology.

This study investigated the immunomodulatory effects of probiotics bacteria in healthy adults. **It was found that probiotics have an anti-inflammatory potential seen as a decrease in serum CRP levels and as a reduction in bacteria-induced production of**

If you had Information that Could Change the World. What would you Do?

proinflammatory cytokines in peripheral blood mononuclear cells.

Understanding of the specific immunomodulatory effects of probiotics may help in designing future probiotics for targeted purposes. As the effects in the present study were investigated in healthy adults, the real impact of probiotics on inflammatory variables warrants further evaluation during inflammatory processes and in individuals suffering from various types of inflammatory or autoimmune diseases.

Public release date: 20-May-2008

Incense is psychoactive: Scientists identify the biology behind the ceremony

New study in the FASEB Journal shows how and why molecules released from burning incense in religious ceremonies alleviate anxiety and depression

Religious leaders have contended for millennia that burning incense is good for the soul. Now, biologists have learned that it is good for our brains too. In a new study appearing online in The FASEB Journal (<http://www.fasebj.org>), an international team of scientists, including researchers from Johns Hopkins University and the Hebrew University in Jerusalem, **describe how burning frankincense (resin from the Boswellia plant) activates poorly understood ion channels in the brain to alleviate anxiety or depression. This suggests that an entirely new class of depression and anxiety drugs might be right under our noses.**

“In spite of information stemming from ancient texts, constituents of Bosweilla had not been investigated for psychoactivity,” said Raphael Mechoulam, one of the research study’s co-authors. “We found that incensole acetate, a Boswellia resin constituent, when tested in mice lowers anxiety and causes antidepressive-like behavior. Apparently, most present day worshipers assume that incense burning has only a symbolic meaning.”

To determine incense’s psychoactive effects, the researchers administered incensole acetate to mice. They found that the compound significantly affected areas in brain areas known to be involved in emotions as well as in nerve circuits that are affected by current anxiety and depression drugs. Specifically, incensole acetate activated a protein called TRPV3, which is present in mammalian brains and also known to play a role in the perception of warmth of the skin. When mice bred without this protein were exposed to incensole acetate, the compound had no effect on their brains.

“Perhaps Marx wasn’t too wrong when he called religion the opium of the people: morphine comes from poppies, cannabinoids from marijuana, and LSD from mushrooms; each of these has been used in one or another religious ceremony.” said Gerald Weissmann, M.D., Editor-in-Chief of The FASEB Journal. “Studies of how those psychoactive drugs work have helped us understand modern neurobiology. The discovery of how incensole acetate, purified from frankincense, works on specific targets in the

If you had Information that Could Change the World. What would you Do?

brain should also help us understand diseases of the nervous system. This study also provides a biological explanation for millennia-old spiritual practices that have persisted across time, distance, culture, language, and religion—burning incense really does make you feel warm and tingly all over!”

According to the National Institutes of Health, major depressive disorder is the leading cause of disability in the United States for people ages 15–44, affecting approximately 14.8 million American adults. A less severe form of depression, dysthymic disorder, affects approximately 3.3 million American adults. **Anxiety disorders affect 40 million American adults**, and frequently co-occur with depressive disorders.

Public release date: 20-May-2008

Study identifies trends of vitamin B6 status in US population sample

BOSTON- (May 20, 2008) In an epidemiological study, Tufts University researchers identified trends of vitamin B6 status in a sample of the United States population based on measures of plasma pyridoxal 5'- phosphate (PLP) levels in the bloodstream. Plasma PLP is the indicator used by the federal government to set the current Recommended Dietary Allowance (RDA) of vitamin B6, a nutrient essential for red blood cell function and important for maintaining a healthy immune system and blood glucose levels.

"Across the study population, we noticed participants with inadequate vitamin B6 status even though they reported consuming more than the Recommended Daily Allowance of vitamin B6, which is less than 2 milligrams per day," says Martha Savaria Morris, PhD, an epidemiologist at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University. "We also identified four subgroups where this trend seemed most prominent: women of reproductive age, especially current and former users of oral contraceptives, male smokers, non-Hispanic African-American men, and men and women over age 65." Someone with inadequate vitamin B6 status is at risk of becoming Vitamin B6 deficient should their vitamin B6 levels drop too low.

Corresponding author Morris and colleagues studied 7,822 blood samples of men and women ages one-year and older collected from the 2003-2004 National Health and Nutrition Examination Survey (NHANES). Vitamin B6 inadequacy was defined as a plasma PLP concentration less than 20 nmol/L. To the authors' knowledge, the current study is the first large scale study to use plasma PLP concentrations to evaluate vitamin B6 status in free-living people of all ages. The investigators were also able to consider whether the current RDA guaranteed adequate vitamin B6 status because study participants were questioned about supplement use and two days' worth of food intake.

Eleven percent of supplement users and nearly a quarter of non-users demonstrated plasma PLP blood levels of less than 20 nmol/L. Within the four sub-groups where vitamin B6 inadequacy was most prominent, the prevalence of low plasma PLP levels significantly exceeded 10 percent—even among those who consumed 2 to 2.9 milligrams

If you had Information that Could Change the World. What would you Do?

per day of vitamin B6. The RDAs for vitamin B6 in men and women who are not pregnant or lactating are as follows: 1.3 mg per day for men and women ages 19-50, 1.7 mg per day for men over age 50 and 1.5 mg for women over age 50.

Writing in the May 2008 issue of the American Journal of Clinical Nutrition, Morris and colleagues noted a stark contrast in plasma PLP levels between women of childbearing age (ages 13 to 54) and their male peers. "When we looked specifically at the plasma PLP levels in women of childbearing age, we noticed they were significantly lower than in males in approximately the same age group." Morris continues, "Most importantly, the data suggest that oral contraceptive users have extremely low plasma PLP levels. **Three quarters of the women who reported using oral contraceptives, but not vitamin B6 supplements, were vitamin B6 deficient.**"

A pattern of low vitamin B6 status also surfaced in menstruating women who reported using oral contraceptives but who were no longer using them at the time of the NHANES survey. Among women in this sub-group who were not taking vitamin B6 supplements, 40 percent demonstrated plasma PLP blood levels below the cut-off for vitamin B6 inadequacy. Morris says, that although these results are somewhat surprising, the link between oral contraceptive use and vitamin B6 deficiency remains unclear. "The vitamin could be stored elsewhere in the bodies of the oral contraceptive users, or in a different form, since our study only examined plasma PLP."

To further support their findings, Morris and colleagues measured homocysteine levels in the blood and compared them against the plasma PLP measures. Homocysteine is an amino acid that can accumulate in the blood if vitamin B6 levels are too low. Though study participants using oral contraceptives at the time of the survey did not demonstrate elevated homocysteine levels, the homocysteine concentrations of former users were significantly higher than those of women who had never used oral contraceptives. Morris says this could mean that oral contraceptive use has an effect on vitamin B6 status that is masked during use by acute effects of the exposure.

Because the study shows association and not causation, **Morris stresses that further research is necessary to determine whether the RDA for vitamin B6 is high enough. "We have identified populations with a high prevalence of apparently inadequate vitamin B status,"** Morris says. "However, it is important to recognize that signs of deficiency are not seen at plasma PLP concentrations of 20 nmol/L and that dietary assessment is imperfect."

According to the National Institutes of Health (NIH), vitamin B6 deficiency is rare in the United States, but it can cause a form of anemia similar to iron deficiency anemia. Vitamin B6 is widely distributed in the American diet, and baked potatoes, bananas, 100 percent fortified cereals and chicken are particularly good sources. Morris says, "The question our study raises is whether, due to aging, genetics, or exposures, some population subgroups need supplements to achieve the current biochemical definition of adequate status."

If you had Information that Could Change the World. What would you Do?

Ralph's Note- After this large scale study. The national Institute of Health say's that B6 deficiency in the U.S. is rare. Maybe I just don't understand what their definition of RARE is.

Public release date: 20-May-2008

Probiotics After Gastric Bypass Surgery Improve Weight Loss and GI Quality of Life (Abstract #343)

Researchers searching for solutions to gastric motility issues following gastric bypass surgery discovered some unexpected results including enhanced weight loss, better GI quality of life and lower Hydrogen (H₂) breath test values (which measure the level of hydrogen in the breath to diagnose conditions that cause GI symptoms) with the use of probiotics.

A potential complication after gastric bypass surgery is bacterial overgrowth, which may affect gastrointestinal functioning, quality of life and weight loss. In an attempt to combat this bacterial overgrowth and its consequences, patients in this study were given probiotics to restore a good bacterial balance in the digestive system.

“Finding that probiotics can actually enhance weight loss was an unexpected result,” said John M. Morton, MD, MPH, associate professor at the Stanford School of Medicine. “There is no magic bullet for fighting obesity, but this simple dietary supplement may be one more weapon we can add to our arsenal.”

Forty-two patients who had successfully undergone gastric bypass surgery were broken into two randomized groups. One group was given probiotics in the form of 2.4 billion colonies of Lactobacillus daily and the other group served as the control group. The GastroIntestinal Related Quality of Life (GIRQoL) survey, H₂ breath test and weight were obtained pre- and post-operatively at three and six months.

At six months, patients receiving the probiotics fared better in all categories including a statistically significant improvement in their GIRQoL and lower H₂ breath test values, indicating lower levels of harmful gastrointestinal bacteria. The most surprising aspect of the study was the increased weight loss after surgery with the addition of probiotics. Past studies have shown a difference in gastrointestinal bacteria between obese and lean animals.

Public release date: 20-May-2008

New pharmacological effect of Jianpi Huoxue Decoction

Professor Yi-Yang Hu and his colleagues confirmed that Jianpi Huoxue decoction (JHD) reduced the cytokine expression induced by lipopolysaccharide (LPS) and inhibited some targets in LPS-activated Kupffer cell signal pathway. This may provide new insight on the mechanism of JHD on alcoholic liver injury.

This study, performed by a team led by Professor Hu, from the Institute of Liver Diseases, Shuguang Hospital, affiliated with the Shanghai University of Traditional Chinese Medicine, is described in a research article to be published on March 28, 2008 in the World Journal of Gastroenterology.

This study confirmed one of the possible mechanisms of JHD on alcoholic liver injury, that it inhibits some targets in LPS-activated Kupffer cell signal pathway, such as the specific molecular marker of macrophage, CD68, phosphorylated inhibit- kappaB (p-I kappaB) protein expression, the endotoxin receptor and toll-like receptor (TLR2) mRNA expression.

JHD has proven to be effective in suppressing alcoholic liver and intestinal injury induced by the Lieber-Decarli liquid diet in rats. It has also proven to be effective in suppressing the concentration of LPS in plasma. Study has demonstrated the inhibitory effect of JHD on LPS-induced cytokine secretion pathway, but the relationship between endotoxin receptors and LPS should be investigated in more detail. Such research would contribute to further observing the effect of JHD on endotoxin receptors.

The "two-hits" theory brought great advances in pathogenesis research of alcoholic liver injury (ALD). At present, most attention is focused on the mechanism of the endotoxin or LPS signal pathway involved in ALD. The function of Kupffer cells and their cytokine secretion pathway when exposed to LPS has become the hotspot of this field. This research might provide a new effective method for alcoholic liver injury prevention and treatment.

Professor Hu and his colleagues work in the Institute of Liver Diseases, Shuguang Hospital, affiliated with the Shanghai University of Traditional Chinese Medicine, which focuses on basic research on liver disease prevention and treatment with Chinese traditional medicine.

Public release date: 21-May-2008

Possible biological explanation for C-section-linked allergies and asthma found

ATS 2008, TORONTO -- Scientists believe they may have identified a biological

If you had Information that Could Change the World. What would you Do?

explanation for the link between cesarean-section delivery and risk of allergy and asthma in childhood. They will present their findings at the American Thoracic Society's 2008 International Conference in Toronto on Tuesday, May 20.

Several studies have shown immunological differences between children with and without allergy at the time of birth. For example, increased cord blood levels of IL-13, a Th2 type cytokine, have been positively associated with allergy among children with a family history of allergy

Regulatory T cells are a subgroup of T lymphocytes with immune suppressive properties on effector T cells, which in turn regulate cytokine secretion and the development and function of the immune system. Evidence suggests that CD4+CD25+ T regulatory (Treg) cells in those with asthma or allergy may be functionally impaired.

"Our research looked at the effect of cesarean-section versus vaginal delivery in newborns to determine whether cesarean-section was associated with reduced regulatory T-cell function," said lead researcher Ngoc Ly, M.D., M.P.H., who is assistant professor of pediatrics at the University of California, San Francisco.

In a previous study Dr. Ly and colleagues demonstrated an association between cesarean section and increased neonatal secretion of IL-13. In this latest study, the researchers measured the expression and function of specific regulatory T-cells in the cord blood of 50 newborns born by cesarean section, and 68 delivered vaginally, all of whose have at least one parent with allergies and/or asthma. They found that babies born by cesarean section showed a reduction in the suppressive function of their regulatory T-cells. There was a trend for lower level of TGF- β , a cytokine secreted by tregs, and higher level of IL-4 and IL-13 among children born by c-section as compared to children born by vaginal delivery.

"This finding is exciting because it suggests that the mode of delivery may be an important factor influencing immune system development in the neonate," said Dr. Ly, who postulated that the stress and process of labor itself or exposure to specific microbes through the birth canal in vaginal as compared to c-section delivery may influence neonatal immune responses.

"These findings are preliminary and further work is needed to explore potential mechanisms for the association between mode of delivery and neonatal immune responses," she/he" explained. "However, this finding provided a potential immunologic basis for previous reports of the association among cesarean section, elevated IL-13 and allergy and asthma."

Public release date: 22-May-2008

Oregano oil works as well as synthetic insecticides to tackle common

If you had Information that Could Change the World. What would you Do?

beetle pest

New research in the Society of Chemical Industry's Journal of the Science of Food and Agriculture shows that oregano oil works as well as synthetic insecticides to combat infestation by a common beetle, *Rhizopertha dominica*, found in stored cereals.

Not only does oregano oil work as well as synthetic versions but it has none of the associated side effects of synthetic insecticides on the environment.

Growing resistance to synthetic insecticides combined with potential environmental damage and new government directives on changes to the way chemicals are registered means that scientists are increasingly looking at natural alternatives that can be produced in the large scale quantities needed for agricultural industry use.

Oregano, a member of the Lamiaceae family of plants, has long been renowned as a natural insecticide. It appears to work by inhibiting egg laying and larval development but this is the first time it has been looked at as a viable alternative for synthetic insecticides.

Dr Chahrazed Boutekedjiret and her team from the National Polytechnic in Algeria identified 18 components in oregano oil that combat pests and found that the greater the concentration of the oil used, the more effective it was.

She says: "It is feasible that, in the near future, these natural insecticides will replace synthetic insecticides and add considerably to more environmentally friendly insecticides on a large scale."

Dr Alan Baylis, the honorary secretary of the Society of Chemical Industry's Bioresources Group said: "Just because something is natural does not mean it is harmless to humans – some of the most toxic compounds lethal to humans and other mammals are natural products. However, there will be markets for natural insecticides which have been rigorously tested for safety and efficacy, but as they are difficult to produce on a large scale for agricultural use, then the scope for them is rather limited."

Public release date: 22-May-2008

A trial of removing food additives should be considered for hyperactive children

diet of hyperactive children should be considered a part of the standard treatment, says an editorial in this week's BMJ.

Although a substantial body of evidence shows a link between attention deficit hyperactivity disorder (ADHD) and artificial food colourings and preservatives, removing them is still considered as an alternative rather than a standard treatment for ADHD, writes Professor Andrew Kemp from the University of Sydney.

If you had Information that Could Change the World. What would you Do?

In contrast, despite a lack of evidence for its effectiveness, the use of alternative medicine is widespread—up to 50% of children attending tertiary children's hospitals in the UK and Australia have used it in the past year.

Of the three main treatments for ADHD in children—drugs, behavioural therapy, and dietary modification—only drugs and dietary modification are supported by data from several trials. Yet, behavioural therapy, which has no scientific evidence base, is still thought of as necessary for “adequate treatment”, he says.

So why, despite evidence to the contrary, does the removal of food additives remain an alternative rather than a standard part of treatment for ADHD, asks Kemp"

Data published in 2007 showed that normal (not hyperactive) children were significantly more hyperactive after they ate a mixture of food colourings and a preservative (sodium benzoate), with obvious implications for children with ADHD.

In light of these findings, the European Food Safety Authority (EFSA) reviewed the evidence linking preservatives and colourings with hyperactive behaviours from 22 studies between 1975 and 1994 and two additional meta-analyses.

16 of the studies reported positive effects in at least some of the children. However, the EFSA pointed out that hyperactivity has a wide range of social and biological causes, and exclusively focusing on food additives may “detract from the provision of adequate treatment” for children with the disorder. But, argues Kemp, to discount the accumulating evidence of dietary factors may also do this.

Increasing numbers of children are taking drugs for hyperactivity—2.4% of children in the state of Western Australia. Removing colours and preservatives is a relatively harmless intervention, so a properly supervised and evaluated trial period of eliminating them should be considered as part of the standard treatment, he concludes.

Public release date: 22-May-2008

Licorice extract provides new treatment option for canker sores

CHICAGO (May 22, 2008) - What common oral condition appears as shallow ulcers of different sizes, affects one in five Americans, can be caused by food allergies and hormonal changes, and also can cause severe mouth pain? Commonly referred to as “canker sores,” recurrent aphthous ulcers (RAU) now can be treated by an extract in licorice root herbal extract, according to a study published in the March/April 2008 issue of *General Dentistry*, the Academy of General Dentistry's (AGD) clinical, peer-reviewed journal.

The authors examined the effects of an over-the-counter medicated adhesive patch (with

If you had Information that Could Change the World. What would you Do?

extract from the licorice root) for treatment of RAU versus no treatment. After seven days of treatment, ulcer size in the group who received the adhesive patch with licorice extract was significantly lower, while ulcer size in the no-treatment group had increased 13 percent.

Licorice root extract was used as a prescribed treatment for gastric ulcers until the 1970s, according to the study. In its original form, licorice root extract has a very strong taste. However, when combined with a self-adhering, time-release, dissolving oral patch, the taste is mild and pleasant.

Among the causes of canker sores, a genetic predisposition might be the biggest cause, says Michael Martin, DMD, PhD, lead author of the study. "When both parents have a history of canker sores, the likelihood of their children developing them can be as high as 90 percent," he says.

The most serious side effect of canker sores is sharp pain in the mouth, which can interfere with an individual's quality of life and affect their eating, drinking or speech. Dr. Martin revealed that "in addition to speeding healing of the canker sores, the adhesive patch helped to reduce pain after just three days of treatment."

Those who experience canker sores on a regular basis can visit their dentist for treatment techniques. "Dentists can give patients the proper medication and treatment options to seal the lesions, which will prevent further infection," says Eric Shapira, DDS, MAGD, AGD spokesperson and expert on alternative medicine. "Also, increasing vitamins and other herbs, such as Vitamin C and zinc, can help treat canker sores because they help to regenerate tissue cells," Dr. Shapira adds.

Common causes of canker sores:

Local trauma and stress
Diet and food allergies
Hormonal changes
Use of certain medications

Common treatments of canker sores:

Antimicrobial mouthwashes
Local painkillers
Over-the-counter remedies (oral adhesive patches, liquids and gels)

Public release date: 23-May-2008

If you had Information that Could Change the World. What would you Do?

Miracle leaves that may help protect against liver damage

Sea buckthorn (*Hippophae rhamnoides*) berries are well known for their cholesterol busting properties, but scientists in India say that its leaves are also rich in anti-oxidants and may help ward off liver disease, according to new research due to be published in the Society of Chemical Industry's (SCI) Journal of the Science of Food and Agriculture.

Indigenous to the mountainous regions of China and Russia, sea buckthorn has been shown to be rich in vitamin C, vitamin E, flavonoids and essential fatty acids. The leaves are also used to make a tea.

In a clinically controlled study, scientists looked at whether the leaves had any protective effects by testing a group of rats, some of whom were given the leaf extract before being administered with a liver damage agent, carbon tetrachloride (CCI4).

Six groups were looked at in all – group 1 was given a daily dose of saline for 5 days; group 2 received saline for 4 days and on the 5th day was given CCI4; group 3 was given a daily dose of silymarin for 5 days followed by a single dose of CCI4; groups 4, 5 and 6 were given 50, 100 and 200mg of sea buckthorn leaf extract respectively for five days followed by a single dose of CCI4 on the 5th day.

The results showed that the leaf extract appeared to confer a protective mechanism on the liver – the rats given CCI4 minus the leaf extract had sustained significant liver damage compared to the control group that did not receive CCI4. In comparison, liver damage was severely restricted in the rats given leaf extract at 100mg and 200mg and CCI4.

Public release date: 23-May-2008

Male painters exposed to fertility damaging chemicals

Men working as painters and decorators who are exposed to glycol ethers are more likely to have poor semen quality, according to research carried out by scientists from the Universities of Sheffield and Manchester.

The findings from the research, which have been published in the BMJ journal Occupational Environmental Medicine, show that men who work with solvents such as glycol ether have a 2.5 fold increased risk of having a low motile sperm count compared to men with low exposure. Glycol ethers are widely used in many products including water-based paints – a product used by many painters and decorators.

If you had Information that Could Change the World. What would you Do?

Sperm motility is an important factor in the fertility of men and the concentration of motile sperm per ejaculate has shown to be linked with conception. However, the size and shape of sperm (morphology) and the quality of sperm DNA are also important factors that may be affected by chemical exposure.

The findings are a result of a major collaborative UK study to determine the occupational risks of male infertility through chemical exposure in the workplace. The study, undertaken in 14 fertility clinics in 11 cities across the UK, examined the working lives of 2,118 men.

The researchers however did conclude that, apart from glycol ether, there are currently few workplace chemical threats to male fertility.

In addition to chemical exposure, the study looked at other non-chemical factors in the men's lifestyle. The researchers discovered that men who had undergone previous surgery to the testicles or who undertook manual work were more likely to have low motile sperm counts, whereas men who drank alcohol regularly or wore boxer shorts were more likely to have better semen quality.

Dr. Andy Povey, senior lecturer in Molecular Epidemiology at the University of Manchester, said: "We know that certain glycol ethers can affect male fertility and the use of these has reduced over the past two decades. However our results suggest that they are still a workplace hazard and that further work is needed to reduce such exposure."

Dr Allan Pacey, senior lecturer in Andrology at the University of Sheffield, added: "Infertile men are often concerned about whether chemicals they are exposed to in the workplace are harming their fertility. Therefore it is reassuring to know that on the whole the risk seems to be quite low."

Notes for Editors: The study was funded by the UK Health and Safety Executive, the UK Department of Environment, Transport and the Regions, the UK Department of Health and the European Chemical Industry Council.

Public release date: 24-May-2008

PCB cocktails for two

Since the 1962 publication of *Silent Spring* by Rachel Carson, awareness of how environmental toxicants can impact fertility has increased. In an article on p. 1091 of this issue, Steinberg and colleagues provide evidence that adverse reproductive effects of toxicants may extend not only to the children of exposed individuals, but also to the next generation. They treated pregnant rats with a mixture of polychlorinated biphenyls (PCBs) and found that reproductive markers were disrupted not only in the female offspring of these rats, but also in the "grand offspring," which are derived from oocytes present in fetuses of the treated females. Changes in the second generation included

If you had Information that Could Change the World. What would you Do?

blunting of preovulatory LH release, reduced progesterone concentrations and reduced uterine weights. The use of low doses of PCBs in this study increases the potential relevance of these findings to reproductive health.

Public release date: 26-May-2008

Cocoa could be a healthy treat for diabetic patients

For people with diabetes, sipping a mug of steaming, flavorful cocoa may seem a guilty pleasure. But new research suggests that indulging a craving for cocoa can actually help blood vessels to function better and might soon be considered part of a healthy diet for the prevention of cardiovascular disease.

Flavanols, natural plant compounds also found in tea, red wine, and certain fruits and vegetables, are responsible for cocoa's healthful benefits. In fact, according to new research published in the June 3 issue of the Journal of the American College of Cardiology (JACC), after diabetic patients drank specially formulated high-flavanol cocoa for one month, blood vessel function went from severely impaired to normal.

The improvement was as large as has been observed with exercise and many common diabetic medications, the researchers noted. These findings suggest that it may be time to think not just outside the box, but inside the cup, for innovative ways to ward off cardiovascular disease—the number one cause of death in diabetic patients.

“Medical treatments alone often do not prevent complications of diabetes that are associated with atherosclerosis and cardiovascular disease,” said Malte Kelm, M.D., a professor and chairman of cardiology, pulmonology and vascular medicine at the University Hospital Aachen and the Technical University Aachen, in Aachen, Germany. “Physicians should be increasingly looking to lifestyle changes and new approaches to help in addressing the cardiovascular risks associated with diabetes.”

For the study, Dr. Kelm and his colleagues first tested the feasibility of using high-flavanol cocoa to improve cardiovascular health by observing, on three separate days, the effects of cocoa with varying amounts of flavanols on blood vessel function in 10 patients with stable type 2 diabetes.

The second, larger part of the study tested the effectiveness of long-term, routine consumption of high-flavanol cocoa in comparison with low-flavanol cocoa in 41 patients with stable type 2 diabetes. Patients were randomly assigned to drink cocoa with either 321 mg of flavanols per serving or only 25 mg of flavanols per serving three times daily for 30 days. The two types of cocoa tasted and looked the same, despite differences in flavanol content. In addition, neither patients nor investigators were aware of which type of cocoa each patient had been assigned to drink.

If you had Information that Could Change the World. What would you Do?

Blood vessel function was tested on the first day before the patients consumed any cocoa and again two hours after drinking the beverage. The test was repeated before and after cocoa consumption on day 8 and day 30.

To gauge the effect of high-flavanol cocoa on blood vessel function, the researchers used a test called “flow-mediated dilation” (FMD), which evaluates the ability of the arteries to expand (dilate) in response to an increase in the demand for blood, oxygen and nutrients. The FMD test involves measuring the diameter of the brachial artery in the upper arm using ultrasound, then inflating a blood pressure cuff on the forearm for several minutes. The squeezing of the blood pressure cuff temporarily starves the forearm muscles of blood and oxygen, causing the body to increase blood flow to those muscles. In healthy people, the inner lining of the arteries, or endothelium, senses the increased blood flow and sends a chemical signal telling the arteries to expand. In Dr. Kelm’s laboratory, a normal FMD response among healthy people the same age as those participating in the study is a 5.2 percent expansion in arterial diameter, on average.

The researchers found that patients with type 2 diabetes had a severely impaired FMD response at the beginning of the study. Before patients consumed any cocoa, the brachial artery expanded by only 3.3 percent, on average. Two hours after drinking high-flavanol cocoa, the FMD response was 4.8 percent.

Over time, those findings improved, however. After patients drank high-flavanol cocoa three times daily for eight days, the average FMD response improved to 4.1 percent at baseline and to 5.7 percent two hours after cocoa ingestion. By day 30, the FMD response had improved to 4.3 percent at baseline and 5.8 percent after cocoa ingestion. All of the improvements were highly statistically significant.

Among patients who consumed low-flavanol cocoa, there were no significant differences in baseline FMD response over time, or in FMD response after cocoa ingestion on days 8 and 30.

FMD measurements can provide valuable information about a person’s cardiovascular health. Previous studies have shown that people with an impaired FMD response have an increased risk of heart attack, need for bypass surgery or catheter procedure to open clogged coronary arteries, and even death from heart disease.

Dr. Kelm speculated that cocoa flavanols improve FMD response by increasing the production of nitric oxide, the chemical signal that tells arteries to relax and widen in response to increased blood flow. Relaxation of the arteries takes stress off of the heart and blood vessels.

The high-flavanol cocoa used in this study—which provided many times more flavanols than the typical U.S. dietary intake of 20 to 100 mg daily—is not sold in the supermarket. Dr. Kelm cautioned that the take-home message of the study is not that people with diabetes should guzzle cocoa, but rather, that dietary flavanols hold promise as a way to

If you had Information that Could Change the World. What would you Do?

prevent heart disease.

“Patients with type 2 diabetes can certainly find ways to fit chocolate into a healthy lifestyle, but this study is not about chocolate, and it’s not about urging those with diabetes to eat more chocolate. This research focuses on what’s at the true heart of the discussion on “healthy chocolate”—it’s about cocoa flavanols, the naturally occurring compounds in cocoa,” he said. “While more research is needed, our results demonstrate that dietary flavanols might have an important impact as part of a healthy diet in the prevention of cardiovascular complications in diabetic patients.”

Umberto Campia, M.D., who co-wrote an editorial about the new study in the same issue of JACC, noted that diabetics are an ideal population in which to study the effects of flavanols on arterial function, because high blood sugar damages the endothelium and because these patients have a high risk of cardiovascular disease.

Any therapy that helps the lining of the arteries to function better is potentially important, said Dr. Campia, a research associate with MedStar Research Institute in Washington, D.C.. “The endothelium is one of the largest organs in the body,” he said. “It maintains the health of the arteries and prevents blockages that can cause heart attacks, strokes and limb loss.”

“This study is important and thought-provoking,” he noted. “We now have sizeable evidence that cocoa flavanols have a positive effect on the health of the arteries. This is the foundation we need for doing a much larger prospective study that looks at the effect of cocoa flavanols not just on endothelial function, but also on the risk of heart attack, stroke, and other serious forms of cardiovascular disease.”

Public release date: 27-May-2008

Current vitamin D recommendations fraction of safe, perhaps essential levels for children

The current recommended daily allowance (RDA) of vitamin D for children is 200 International Units (IUs), but new research reveals that children may need and can safely take ten-times that amount. According to a recently accepted report in The Endocrine Society’s Journal of Clinical Endocrinology & Metabolism (JCEM), this order-of-magnitude increase could improve the bone health of children worldwide and may have other long-term health benefits.

“Our research reveals that vitamin D, at doses equivalent to 2,000 IUs a day, is not only safe for adolescents, but it is actually necessary for achieving desirable vitamin D levels,” said Ghada El-Haff Fuleihan, M.D., of the American University of Beirut-Medical Center, Lebanon, and lead author of the study.

Vitamin D is an essential hormone for bone growth and development in children and

If you had Information that Could Change the World. What would you Do?

promotes skeletal health in adults. Currently, the National Academy of Sciences' Institute of Medicine recommends an adequate daily intake of 200 IUs of vitamin D for children. This is also the recommendation from the American Academy of Pediatrics. These levels, however, may not be adequate for bone growth and musculoskeletal health in children and adolescents.

“Data on appropriate vitamin D levels in the pediatric age group are lacking,” said Dr. Fuleihan. “This is a major obstacle to finding the right daily allowance to enhance musculoskeletal health.”

To help clarify these important guidelines, Fuleihan and his colleagues conducted both short- and long-term trials to gauge the safety of relatively high doses of vitamin D3 in children ages 10-17 years.

Vitamin D3 is one of the most common forms of vitamin D, and is easily converted to 25-OHD (25-hydroxyvitamin), which is the active form of vitamin D found in the blood.

For this placebo-controlled study, researchers gave children various doses of vitamin D at various intervals and measured the impact this had on serum levels of 25-OHD.

For the short-term study, 25 students (15 boys and 10 girls) received one-weekly, 14,000 IU doses of vitamin D for eight weeks. Serum levels of 25-OHD were then measured for an additional eight weeks. This portion of the test was conducted during the summer and early fall, when the highest natural levels of vitamin D are reached.

For the long-term, one-year study, 340 students (172 boys and 168 girls) received either a low dose of vitamin D (1,400 IUs each week) or a high dose (14,000 IUs each week).

Only children given the equivalent of 2,000 IUs a day of vitamin D increased 25-OHD levels from the mid-teens to the mid-thirties (ng/ml)—the level considered optimal for adults. None of the children in either trial showed any evidence for vitamin D intoxication.

Although many experts agree that a 25-OHD level of 30 ng/ml is desirable in adults, what constitutes an optimal D level for children and adolescents is more debatable. According to the researchers, due to rapid skeletal growth, children and adolescents are more likely to be vitamin D deficient, and are far less likely to reach vitamin D levels that doctors would consider toxic.

“Supplementation of children and adolescents with 2,000 IUs a day of vitamin D3 is well tolerated and safe,” said Dr. Fuleihan. “This is particularly relevant in light of the increasingly recognized health benefits of vitamin D for adults and children.”

Public release date: 27-May-2008

If you had Information that Could Change the World. What would you Do?

Organic milk is cream of the crop

A new study by Newcastle University proves that organic farmers who let their cows graze as nature intended are producing better quality milk.

The Nafferton Ecological Farming Group study found that grazing cows on organic farms in the UK produce milk which contains significantly higher beneficial fatty acids, antioxidants and vitamins than their conventional 'high input' counterparts.

During the summer months, one of the beneficial fats in particular – conjugated linoleic acid, or CLA9 – was found to be 60% higher.

The results of this study into UK dairy production are published online in the Journal of Science of Food and Agriculture.

'We have known for some time that what cows are fed has a big influence on milk quality,' explained Gillian Butler, livestock project manager for the Nafferton Ecological Farming Group at Newcastle University, who led the study. 'What is different about this research is it clearly shows that on organic farms, letting cows graze naturally, using forage-based diet, is the most important reason for the differences in the composition between organic and conventional milk.'

'We've shown that significant seasonal differences exist, with nutritionally desirable fatty acids and antioxidants being highest during the summer, when the cows are eating fresh grass and clover.'

'As a result, our future research is focusing on how to improve the nutritional composition of milk during the winter, when cows are kept indoors and fed mainly on conserved forage.'

The study, which involved Newcastle scientists working with the Danish Institute for Agricultural Science, is part of the ongoing cross-European Quality Low Input Food project into animal health and welfare, milk quality and working towards minimising the use of antibiotics in dairy production.

'This paper is a major milestone in the project and clearly shows that if you manage livestock naturally then it's a win-win situation for both us and them,' said Professor Carlo Leifert, project co-ordinator.

The scientists also discovered interesting results from a group of low-input farms in Wales, which are not certified organic but use very similar production methods to organic farms (the main difference was the use of some mineral fertiliser and shorter withdrawal periods after antibiotic use).

If you had Information that Could Change the World. What would you Do?

To reduce costs, these farmers calved all their cows in spring and grazed them throughout lactation, from March until November, resulting in milk being produced on an almost 100% fresh grass diet.

Milk from these non-organic farms also had significantly higher levels of nutritionally desirable fatty acids and antioxidants, which was a direct result of the extensive outdoor rearing and fresh forage intake.

‘These New-Zealand type dairy systems are not common in the UK, as weather conditions in many areas of the country make it unworkable,’ explained Mrs Butler. ‘Therefore, milk from these farms is not available to the public as it’s mixed in with milk from conventional systems during processing.’

‘However, including these extremely extensive systems allowed us to clearly link the difference in milk quality to the dairy cows’ diets.’

Gordon Tweddle, of Acorn Dairy in County Durham, is a local supplier of organic milk. ‘We have believed for some time that organic milk is better for us and our customers tell us it tastes better,’ he said. ‘It is satisfying to have the scientific explanation as to why it is also nutritionally better.’

This current research confirms previous studies in the UK, which reported higher concentrations of omega 3 fatty acids in milk from organic production systems than conventional ones.

CLA, omega-3 fatty acids, vitamin E and carotenoids have all been linked to a reduced risk of cardiovascular disease and cancer. CLA is hugely popular in the US, where it is marketed as a nutritional supplement. However, synthetic supplements often contain compounds with a different chemical composition (isomer balance) than those occurring naturally in milk, resulting in an equal dose of both ‘good’ (i.e. CLA9, omega-3 fatty acid, vitamin E and carotenoids) and ‘less desirable’ fatty acids (i.e. omega-6 fatty acids and CLA10).

‘Switching to organic milk provides an alternative, natural way to increase our intake of nutritionally desirable fatty acids, vitamins and antioxidants without increasing our intake of less desirable fatty acids and synthetic forms of vitamin E,’ said Mrs Butler. ‘In organic milk, the omega-3 levels increase but the omega-6 does not, which helps to improve the crucial ratio between the two.’

The study involved 25 farms across the UK in two contrasting areas of the UK – South Wales and the North East. The scientists looked at three different farming systems: conventional high input, organically certified, and non-organic sustainable (low-input).

The Nafferton Ecological Farming Group at Newcastle University collected 109 milk samples from 25 commercial farms categorised into the three different production

systems: conventional high input; organically certified low input; and non-organic, low input. These samples were taken in August and October in 2004 and January, March and May the following year.

The group investigated the effects of seasonal and indoor/outdoor feeding differences on the milk's fatty acid profile, and also compared individual carotenoids, stereo-isomers of alpha-tocopherol (vitamin E) or isomers of CLA. The higher levels of nutritionally desirable fatty acids found in the organic milk were CLA9, omega-3 and linolenic acid and the antioxidants/vitamins were vitamin E and carotenoids. The lower levels of undesirable fatty acids were omega-6 and CLA10.



The Vitamin & Herb Stores

If you had Information that Could Change the World. What would you Do?