



The Vitamin & Herb Stores

**Human Technology Research Synopsis**

**36th Issue Date 5 AUG 08**

**Compiled By Ralph Turchiano**

**[www.vit.bz](http://www.vit.bz)**

**Editors Top Five:**

1. Toxic drugs, toxic system: Sociologist predicts drug disasters
2. Study Suggests 86 Percent of Americans Could be Overweight or Obese by 2030
3. Flu vaccine may not protect seniors well
4. Chronic exposure to estrogen impairs some cognitive functions
5. Vitamin C injections slow tumor growth in mice

**In this issue:**

1. Is sun exposure a major cause of melanoma?
2. Soy foods are associated with lower sperm concentrations
3. Toxic chemicals found in common scented laundry products, air fresheners
4. Exercise could be the heart's fountain of youth
5. Gummy bears that fight plaque
6. Japanese diet rich in fish may hold secret to healthy heart
7. At-Home Deaths from Combining Rx Drugs, Street Drugs and/or Alcohol Skyrocket By More Than 3,000 Percent
8. Dietary factors appear to be associated with diabetes risk
9. Foods high in conjugated linoleic acids can enrich breast milk
10. OSU STUDY SHOWS EXPOSURE TO BAD AIR RAISES BLOOD PRESSURE
11. Compound that helps rice grow reduces nerve, vascular damage from diabetes
12. Study Suggests 86 Percent of Americans Could be Overweight or Obese by 2030
13. Hey fever! The surprise benefit of allergies
14. Frankincense provides relief to arthritis sufferers
15. Cholesterol-lowering drug boosts bone repair
16. Experts continue to cite Bifantis as promising probiotic treatment for Irritable Bowel Syndrome
17. Exercise in a pill
18. Flu vaccine may not protect seniors well
19. New Study Shows Compounds From Soy Affect Brain and Reproductive Development
20. Physicians ask EPA, 'Antibiotics to cure sick apples, or sick children?'

21. **Schizophrenia researchers welcome new blood**
22. **Outdoor Activity and Nearsightedness in Children**
23. **Chronic exposure to estrogen impairs some cognitive functions**
24. **Toxic drugs, toxic system: Sociologist predicts drug disasters**
25. **Task Force Finds No Prostate Screening Benefit for Men Over 75**
26. **Eating fish may prevent memory loss and stroke in old age**
27. **Canadian study of colds and kids: Positive safety results for ginseng extract**
28. **Vitamin C injections slow tumor growth in mice**
29. **Adults who eat eggs for breakfast lose 65 percent more weight**
30. **Sesame seed extract and konjac gum may help ward off Salmonella and E. coli**
31. **In era of pills, fewer shrinks doing talk therapy**

**Public release date: 22-Jul-2008**

## **Is sun exposure a major cause of melanoma?**

We are continuously bombarded with messages about the dangers of too much sun and the increased risk of melanoma (the less common and deadliest form of skin cancer), but are these dangers real, or is staying out of the sun causing us more harm than good?

Two experts debate the issue on BMJ.com today.

Sam Shuster, a consultant dermatologist at Norfolk and Norwich University Hospital, says that sun exposure is the major cause of the common forms of skin cancer, which are all virtually benign, but not the rarer, truly malignant melanoma.

**Shuster says that the common skin cancers develop in pale, sun exposed skin and are less frequent in people who avoid the sun and use protection. In contrast, melanoma is related to ethnicity rather than pigmentation and in 75% of cases occurs on relatively unexposed sites, especially on the feet of Africans. Melanoma occurrence decreases with greater sun exposure and can be increased by sunscreens, while sun bed exposure has a small inconsistent effect. Therefore, he concludes, any causative effect of ultraviolet light on melanoma can only be minimal.**

There is good evidence that the reported increase in melanoma incidence is an artefact caused by the incorrect classification of benign naevi as malignant melanomas, this, he argues, explains why melanoma mortality has changed little despite the great increase in alleged incidence.

He recognises that ultraviolet light causes the common, mainly benign skin cancers and, like smoking, wrinkles the skin. But he says, this is not a good enough reason for a blanket ban and we have to strike a balance with the sun's many other effects on health—from psychological and immunological, to the synthesis of vitamin D essential for bones and apparent protection against many major organ cancers.

But Professor Scott Menzies, from the University of Sydney at the Sydney Melanoma Diagnostic Centre, argues that melanoma is far more common on body sites receiving more sun exposure and in people of races who tend to burn rather than tan.

According to Menzies, there is considerable evidence that intermittent sun exposure and sunburn are strong independent indicators of the risk of developing melanoma in white populations.

He argues that there is a clear association between increasing cases of melanoma and increasing environmental ultraviolet light. Genetic evidence is also supportive, he claims, with the major genes causing melanoma showing ultraviolet light "signature" mutations, while people deficient in repairing ultraviolet light genetic damage have a 1000 times greater risk of developing the disease.

He points to data from Australia which shows that cases of melanoma among young adults fell between 1983 and 1996 and this coincided with strong public health messages to use sun protection.

When you examine the geographical, sun exposure and genetic evidence together, sun exposure is clearly a major cause of melanoma, he concludes.

**Public release date: 23-Jul-2008**

## **Soy foods are associated with lower sperm concentrations**

Men who eat an average of half a serving of soy food a day have lower concentrations of sperm than men who do not eat soy foods, according to research published online in Europe's leading reproductive medicine journal, Human Reproduction, today (Thursday 24 July). The association was particularly marked in men who were overweight or obese, the study found.

In the largest study in humans to examine the relationship between semen quality and phytoestrogens (plant compounds that can behave like the hormone, oestrogen), Dr Jorge Chavarro, a research fellow in the department of nutrition at Harvard School of Public Health, Boston, USA, and his colleagues found that men who ate the most soy food had 41 million sperm per millilitre less than men who did not consume soy products. (The "normal" sperm concentration for men ranges between 80-120 million/ml).

Isoflavones (daidzein, genistein and glycitein) are plant-derived compounds with oestrogenic effects that are found mainly in soy beans and soy-derived products. Animal studies have linked the high consumption of isoflavones with infertility in animals, but so far there has been little evidence of their effect in humans.

Dr Chavarro and his colleagues analysed the intake of 15 soy-based foods in 99 men who had attended a fertility clinic with their partners to be evaluated for sub-fertility between 2000 and 2006. They asked them how often and how much they had eaten in the previous three months; the foods included tofu, tempeh, tofu or soy sausages, bacon, burgers and mince, soy milk, cheese, yoghurt and ice cream, and other soy products such as roasted nuts, drinks, powders and energy bars.

Different foods have different levels of isoflavones in them, and so the researchers related the size of the serving to the particular food. For instance, a standard serving of tofu was 115g and for soy milk it was one cup (240 millilitres).

The men were divided into four groups according to their intake of soy foods and isoflavones. After adjusting for factors such as age, abstinence time, body mass index (BMI), alcohol and caffeine intake and smoking, Dr Chavarro found that men in the highest intake category had, on average, 41 million sperm/ml less than men who did not eat soy foods. "Men in the highest intake group had a mean soy food intake of half a serving per day: in terms of their isoflavone content that is comparable to having one cup of soy milk or one serving of tofu, tempeh or soy burgers every other day," he said.

"It is important to highlight that the figure of half a serving a day is the average intake for men in the highest intake group. Some men in this group had intakes of soy foods as high as nearly four servings per day."

The researchers found evidence that the association between soy food intake and sperm concentrations were stronger in men who were overweight or obese (and 72% of them were). They also found the relationship between soy foods and sperm concentration was strongest in men with the higher sperm concentrations. "The implication is that men who have normal or high sperm counts may be more susceptible to soy foods than men with low sperm counts, but this remains to be evaluated," explained Dr Chavarro.

The study does not reveal why soy foods have this effect on sperm, but Dr Chavarro speculates that increased oestrogenic activity may have an adverse effect on the production of sperm by interfering with other hormonal signals. This effect could be strengthened further in overweight and obese men because men with high levels of body fat produce more oestrogen than slimmer men, leading to high overall levels of oestrogen in the body and reproductive organs.

Soy foods are the most important source of phytoestrogens in people in the Western world, and the researchers say they were able to comprehensively assess the men's soy intake. They did not assess intake of isoflavones from other sources, such as bakery products made with soy flour. "However, the most likely effect of not assessing intake of these foods is that the associations reported in this study are attenuated," said Dr Chavarro.

The researchers say that the clinical significance of their research remains to be determined, and further randomised trials are needed.

**Public release date: 23-Jul-2008**

## **Toxic chemicals found in common scented laundry products, air fresheners**

University of Washington study of top-selling laundry products and air fresheners found the products emitted dozens of different chemicals. All six products tested gave off at least one chemical regulated as toxic or hazardous under federal laws, but none of those chemicals was listed on the product labels.

"I first got interested in this topic because people were telling me that the air fresheners in public restrooms and the scent from laundry products vented outdoors were making them sick," said Anne Steinemann, a UW professor of civil and environmental engineering and of public affairs. "And I wanted to know, 'What's in these products that is causing these effects?'"

She analyzed the products to discover the chemicals' identity.

"I was surprised by both the number and the potential toxicity of the chemicals that were found," Steinemann said. Chemicals included acetone, the active ingredient in paint thinner and nail-polish remover; limonene, a molecule with a citrus scent; and acetaldehyde, chloromethane and 1,4-dioxane.

"Nearly 100 volatile organic compounds were emitted from these six products, and none were listed on any product label. Plus, five of the six products emitted one or more carcinogenic 'hazardous air pollutants,' which are considered by the Environmental Protection Agency to have no safe exposure level," Steinemann said.

Her study was published online today by the journal *Environmental Impact Assessment Review*. Steinemann chose not to disclose the brand names of the six products she tested. In a larger study of 25 cleaners, personal care products, air fresheners and laundry products, now submitted for publication, she found that many other brands contained similar chemicals.

Because manufacturers of consumer products are not required to disclose the ingredients, Steinemann analyzed the products to discover their contents. She studied three common air fresheners (a solid deodorizer disk, a liquid spray and a plug-in oil) and three laundry products (a dryer sheet, fabric softener and a detergent), selecting a top seller in each category. She bought household items at a grocery store and asked companies for samples of industrial products.

In the laboratory, each product was placed in an isolated space at room temperature and the surrounding air was analyzed for volatile organic compounds, small molecules that evaporate from the product's surface into the air.

**Results showed 58 different volatile organic compounds above a concentration of 300 micrograms per cubic meter, many of which were present in more than one of the six products.** For instance, a plug-in air freshener contained more than 20 different volatile organic compounds. Of these, seven are regulated as toxic or hazardous under federal laws. The product label lists no ingredients, and information on the Material Safety Data Sheet, required for workplace handling of chemicals, lists the contents as "mixture of perfume oils."

This study does not address links between exposure to chemicals and health effects. However, two national surveys published by Steinemann and a colleague in 2004 and 2005 found that about 20 percent of the population reported adverse health effects from air fresheners, and about 10 percent complained of adverse effects from laundry products vented to the outdoors. Among asthmatics such complaints were roughly twice as common.

**Manufacturers are not required to list the ingredients used in laundry products and air fresheners. Personal-care products and cleaners often contain similar fragrance chemicals,** Steinemann said. And although cosmetics are required by the Food and Drug Administration to list ingredients, no law requires products of any kind to list chemicals used in fragrances.

"Fragrance chemicals are of particular interest because of the potential for involuntary exposure, or second-hand scents," Steinemann said.

"Be careful if you buy products with fragrance, because you really don't know what's in them," she added. "I'd like to see better labeling. In the meantime, I'd recommend that instead of air fresheners people use ventilation, and with laundry products, choose fragrance-free versions."

The European Union recently enacted legislation requiring products to list 26 fragrance chemicals when they are present above a certain concentration in cosmetic products and detergents. No similar laws exist in the United States.

"I hope this study will raise public awareness, and reduce exposures to potentially hazardous chemicals," said Steinemann.

**Public release date: 23-Jul-2008**

## **Exercise could be the heart's fountain of youth**

Absence may make the heart grow fonder, but endurance exercise seems to make it younger. According to a study conducted at Washington University School of Medicine in St. Louis, older people who did endurance exercise training for about a year ended up with metabolically much younger hearts. The researchers also showed that by one metabolic measure, women benefited more than men from the training.

"We know that the heart deteriorates as people get older, and that's largely because they don't stay as active as they used to," says first author Pablo F. Soto, M.D., instructor in medicine in the Cardiovascular Division. "Past research has suggested that exercise can reverse some effects of aging, and we wanted to see what effect it would have specifically on the heart."

The researchers measured heart metabolism in sedentary older people both at rest and during administration of dobutamine, a drug that makes the heart race as if a person were exercising vigorously. At the start of the study, they found that in response to the increased energy demands produced by dobutamine, the hearts of the study subjects didn't increase their uptake of energy in the form of glucose (blood sugar).

**But after endurance exercise training — which involved walking, running or cycling exercises three to five days a week for about an hour per session — the participants' hearts doubled their glucose uptake during high-energy demand, just as younger hearts do.**

Soto explains that if heart muscle doesn't take in glucose in response to increased energy needs, it goes into an energy-deprived state, which may raise the risk of heart attack. But if it can increase glucose uptake, the heart is better protected against ischemia (low oxygen) and heart attack.

Based on heart glucose metabolism, both the men and women in the study had the same rejuvenating benefit from their exercise programs. But the heart uses both glucose and fatty acids for energy. And when the researchers looked at fatty acid metabolism, they found a striking difference in the results of exercise training between women and men. In the men, the heart's fatty acid metabolism dropped in response to increased energy demand, but it went up in women.

"By that gauge, the women had a better response to exercise training than the men," Soto says. "At this point, the significance of that isn't clear. We know that in animal studies low fatty acid oxidation leads to heart muscle thickening and that when men train their heart muscle often gets thicker than women's. It could be that the increase in fatty acid oxidation in women's hearts with training is a reason why their hearts don't thicken as much."

The study is described in an article that appeared in advance online publication on June 20, 2008 in the American Journal of Physiology. The participants were six men and six women, ages 60 to 75, who were not obese but who had been living an inactive lifestyle. They were put on an eleven-month program of endurance exercise under the careful guidance of a trainer.

For the first three months, they were required to exercise to about 65 percent of their maximum capacity. After that, the program was stepped up so participants reached about 75 percent of maximum. Soto says the volunteers enjoyed the experience and told him they felt in the best shape they had been in years.

The researchers tested the volunteers' heart metabolism before and at the end of their exercise programs by using PET scanning techniques. "Here at the School of Medicine, we are uniquely able to look at the metabolism of the heart because we have the right combination of technology and expertise in cardiology, radiology and radiochemistry," Soto says. "We are one of the few places that can do this kind of study."

Next, the research team will investigate exercise training in individuals with heart failure. "In the past heart failure patients were told to limit their activity," Soto says. "Now more and more we're seeing there is potentially a benefit to getting them as active as possible. We want to know if heart failure patients will experience the same benefit in heart metabolism with exercise that we saw for older people."

**Public release date: 24-Jul-2008**

## **Gummy bears that fight plaque**

The tooth-protecting sugar substitute xylitol has been incorporated into gummy bears to produce a sweet snack that may prevent dental problems. Research published today in the open access journal BMC Oral Health describes how giving children four of the xylitol bears three times a day during school hours results in a decrease in the plaque bacteria that cause tooth decay.

Xylitol is a naturally occurring sugar alcohol that is frequently used as a sweetener. It has been shown to reduce levels of the harmful mutans streptococci (MS) bacteria that are known to cause tooth decay. While xylitol chewing gums are available, they are not considered to be suitable for younger children. This research was led by Kiet A. Ly from the University of Washington. He says, "For xylitol to be successfully used in oral health

promotion programmes amongst primary-school children, an effective means of delivering xylitol must be identified. Gummy bears would seem to be more ideal than chewing gum."

The children in the study were given four bears three times a day, containing different concentrations of xylitol. The results show that after six weeks of gummy bear snacking, the levels of harmful MS bacteria in the children's plaque was significantly reduced. According to Ly "Based on our findings, it is feasible to develop a clinical trial of a gummy-based caries prevention programme. Such a study is now being carried out in the East Cleveland primary school district (Ohio, USA)."

Tooth decay is one of the most common diseases in the world. The distribution of Xylitol gummy bears in the school setting may help to reduce the burden of this foremost chronic childhood disease in Europe and the US.

**Public release date: 28-Jul-2008**

**Japanese diet rich in fish may hold secret to healthy heart**

Omega-3 fatty acids from fish appear to prevent clogged arteries -- even in middle-aged men with risk factors

If you're fishing for ways to reduce the risk of heart disease, you might start with the seafood-rich diet typically served up in Japan. According to new research, a lifetime of eating tuna, sardines, salmon and other fish appears to protect Japanese men against clogged arteries, despite other cardiovascular risk factors.

The research, published in the August 5, 2008, issue of *Journal of the American College of Cardiology (JACC)*, suggests that the protection comes from omega-3 fatty acids found in abundance in oily fish. In the first international study of its kind, researchers found that compared to middle-aged white men or Japanese-American men living in the United States, Japanese men living in Japan had twice the blood levels of omega-3 fatty acids—a finding that was independently linked to low levels of atherosclerosis.

"The death rate from coronary heart disease in Japan has always been puzzlingly low," said Akira Sekikawa, M.D., Ph.D, an assistant professor of epidemiology at the University of Pittsburgh, PA, and an adjunct associate professor at Shiga University of Medical Science, Otsu, Japan. "Our study suggests that the very low rates of coronary heart disease among Japanese living in Japan may be due to their lifelong high consumption of fish."

Japanese people eat about 3 ounces of fish daily, on average, while typical Americans eat fish perhaps twice a week. Nutritional studies show that the intake of omega-3 fatty acids from fish averages 1.3 grams per day in Japan, as compared to 0.2 grams per day in the United States.

Earlier studies by Dr. Sekikawa's team showed that Japanese men had significantly less cholesterol build-up in their arteries when compared to white men living in the United States—despite similar blood cholesterol and blood pressure readings, similar rates of diabetes and much higher rates of cigarette smoking. It was unclear, however, whether Japanese men were protected by strong genes, a high-fish diet or some other factor.

To answer that question, the ERA JUMP (Electron-Beam Tomography, Risk Factor Assessment Among Japanese and U.S. Men in the Post-World War II Birth Cohort) Study enrolled 868 randomly selected men aged 40 to 49. Of these, 281 were Japanese men from Kusatsu, Shiga, Japan; 306 were white men from Allegheny County, Pennsylvania; and 281 were third- or fourth-generation Japanese-American men from Honolulu, Hawaii.

All study participants had a physical examination, completed a lifestyle questionnaire, and had standard blood tests to evaluate cardiovascular health. Laboratory tests also measured total blood levels of fatty acids and the omega-3 fatty acids that come from fish (specifically, eicosapentaenoic, docosahexaenoic and docosapentaenoic acids).

In addition, researchers used two techniques to measure the level of cholesterol build-up

in the arteries. In the first test, ultrasound waves gauged the thickness of the walls of the carotid arteries in the neck, a test known as intimal-medial thickness (IMT). In the second test, an electron-beam CT scanner measured calcium deposits, or "hardened" cholesterol, in the arteries of the heart, a test known as coronary artery calcification (CAC). Both have been shown to identify people at high risk for heart disease.

Dr. Sekikawa and his colleagues found that the total level of fatty acids was similar in the three groups, but the percentage represented by fish-based omega-3 fatty acids was two-fold higher in Japanese men living in Japan (9.2 percent) when compared to white men (3.9 percent) and Japanese-American men (4.8 percent) living in the United States.

The researchers also found that levels of atherosclerosis were similar in Japanese-American and white men, but markedly lower in Japanese men living in Japan. The average IMT was 37  $\mu\text{m}$  less in Japanese than white men after age and cardiovascular risk factors were taken into account, while the average risk-adjusted difference in the proportion of Japanese and white men with positive CAC tests was 11 percent. Both gaps were highly significant, but became statistically insignificant when differences in omega-3 fatty acid levels were taken into account.

In Japanese men living in Japan the investigators also observed that IMT values went down as omega-3 fatty acid levels went up, an inverse relationship that was found to be statistically significant. This relationship between omega-3 fatty acid levels and IMT remained significant even after adjusting for traditional cardiovascular risk factors. (In Japanese men, CAC also went down as omega-3 fatty acid levels went up, but the relationship was not statistically significant.)

No significant inverse association between omega-3 fatty acid levels and atherosclerosis was observed in whites or Japanese-Americans once cardiovascular risk factors were accounted for.

"Our study clearly demonstrated that whites and Japanese-Americans have similar levels of atherosclerosis, which are much higher than in the Japanese in Japan," Dr. Sekikawa said. "This indicates that much lower death rates from coronary heart disease in the Japanese in Japan is very unlikely due to genetic factors."

The importance of the fish-derived omega-3 fatty acids in reducing risk for heart disease is powerfully underscored by this cross-cultural study, said William S. Harris, Ph.D., senior scientist and director of the Metabolism and Nutrition Research Center, Sanford Research/University of South Dakota, Sioux Falls. "Japanese men in Japan have equally bad or worse cardiovascular risk profiles as Americans, but less heart disease? How can this be?" said Dr. Harris, who was not involved in the ERA JUMP study. "What really distinguishes the Japanese men from the Americans is the fact that blood levels of the omega-3 fatty acids are twice as high in Japan as they are in the West.

"The take home message from this important study is this: Traditional risk factors lead to traditional amounts of artery-clogging plaque but only when the background diet, perhaps

the lifetime diet, is chronically deficient in omega-3 fatty acids. Increase the omega-3 intake and heart disease rates in the West should begin to move closer to those in Japan. While it may take a high omega-3 diet from birth (as opposed to popping a few fish oil pills) to reach this goal, Dr. Sekikawa and his colleagues tell a compelling story that we would do well to heed."

A follow-up study has recently been funded and will test the association of omega-3 fatty acids with the progression of atherosclerosis in white men, Japanese-American men, and Japanese men living in Japan.

**Public release date: 28-Jul-2008**

### **At-Home Deaths from Combining Rx Drugs, Street Drugs and/or Alcohol Skyrocket By More Than 3,000 Percent**

Asking patients to monitor their own medications can be fatal, as exemplified by the recent death of actor Heath Ledger. In the first large-scale study of home medication consumption, sociologists at the University of California, San Diego have found a 3,196 percent increase in fatal domestic medication errors involving alcohol and/or street drugs.

Their study examines nearly 50 million U.S. death certificates from 1983 to 2004, and focuses on a subset of 200,000 deaths from medication errors. The study appears in the July 28 issue of the Archives of Internal Medicine, an official journal of the American Medical Association.

"The decades-long shift in the location of medication consumption from clinical to domestic settings," the authors say, "is linked to a dramatic increase in fatal medication errors."

"Increasingly," says principal author David P. Phillips, professor of sociology at UC San Diego, "people take their medications at home, away from hospitals and clinics. But most studies of fatal medication errors have focused on those clinical settings. We wanted to know three things: how many of these fatal errors happen at home; how many involve alcohol and/or street drugs; and are these numbers going up?"

Phillips and his co-authors Gwendolyn E.C. Barker and Megan M. Eguchi, all at UC San Diego, examined trends in four types of fatal medication errors. They note that the increase in fatal errors varies by astonishing amounts based on where the errors occur and the particular combinations of drugs.

Type 1 errors – deaths at home from combining medications with alcohol and/or street drugs – skyrocketed by 3,196 percent.

In sharp contrast, type 4 errors – non-domestic fatal errors not involving alcohol or street drugs – show the smallest increase, just 5 percent.

The intermediate types of errors increased by intermediate amounts. Type 2 errors – domestic medication fatalities not involving alcohol or street drugs – increased by 564 percent. Type 3 errors – non-domestic medication fatalities involving alcohol and/or street drugs – increased by 555 percent.

“Thus,” the sociologists say, “domestic fatal medication errors, combined with alcohol and/or street drugs, have become an increasingly important health problem.”

In addition to possible changes in policy and clinical practice, Phillips says, “it also seems advisable to expand research on medication errors. Much of this research has focused on elderly patients and clinical settings. The present findings suggest that more research should be devoted to middle-aged patients and domestic settings.”

The study was supported in part by a grant from the Marian E. Smith Foundation.

Ledger, the actor, was cast as the Joker in the current hit movie “The Dark Knight,” shortly before dying, on January 22, 2008, from an accidental prescription-drug overdose at age 28.

**Public release date: 28-Jul-2008**

## **Dietary factors appear to be associated with diabetes risk**

Drinking more sugar-sweetened beverages or eating fewer fruits and vegetables both may be associated with an increased risk of type 2 diabetes, whereas eating a low-fat diet does not appear to be associated with any change in diabetes risk, according to three reports in the July 28 issue of Archives of Internal Medicine, one of the JAMA/Archives journals.

Diabetes rates continue to increase, particularly in developed countries, according to background information in the articles. By the year 2030, 11.2 percent of U.S. adults are expected to have the condition. Obesity is the strongest modifiable risk factor for the development of type 2 diabetes.

In one study, Julie R. Palmer, Sc.D., of the Slone Epidemiology Center, Boston University, and colleagues examined the association between type 2 diabetes, weight gain and the consumption of sugar-sweetened soft drinks and fruit drinks in 43,960 African American women. In 1995 and again in 2001, the women completed a questionnaire about the types of foods and beverages they typically consumed. A total of 17 percent reported drinking one sugar-sweetened soft drink each day, 32 percent drank one sweetened fruit drink each day and 22 percent had at least one glass of orange juice or grapefruit juice.

Over 10 years of follow-up, 2,713 of the women developed type 2 diabetes. Those who drank more regular soft drinks and fruit drinks—including regular soda, other fruit juices, fortified fruit drinks and Kool-Aid but not diet soda, orange juice or grapefruit juice—were more likely to develop diabetes than those who drank less of those beverages.

Women who drank two or more soft drinks per day had a 24 percent increase in diabetes risk compared with women who drank less than one soft drink per month, and those who drank two or more fruit drinks per day had a 31 percent increased risk compared with women who drank less than one per month. Diet soft drinks, grapefruit juice and orange juice were not associated with diabetes risk.

When the researchers adjusted for body mass index (BMI), the association between soft drinks and diabetes risk decreased. However, the association between fruit drinks and diabetes risk did not appear dependent on BMI. "Our study suggests that the mechanism for the increase in diabetes risk associated with soft drink consumption is primarily through increased weight. Reducing consumption of soft drinks or switching from sugar-sweetened soft drinks to diet soft drinks is a concrete step that women may find easier to achieve than other approaches to weight loss," the authors write.

"Finally, it should be noted that consumption of fruit drinks conveyed as high an increase in risk as did consumption of soft drinks. Fruit drinks typically contain as many or more calories compared with soft drinks and, like soft drinks, may not decrease satiety to the same extent as solid food," they conclude. "The public should be made aware that these drinks are not a healthy alternative to soft drinks with regard to risk of type 2 diabetes."

In another study, Anne-Helen Harding, Ph.D., of Addenbrooke's Hospital, Cambridge, England, and colleagues analyzed blood vitamin C levels and fruit and vegetable intake in 21,831 individuals (average age 58) who did not have diabetes at the beginning of the study (1993 to 1997). Vitamin C level is a good indicator of fruit and vegetable consumption, the authors note, because these foods are the main source of vitamin C in the Western diet. Participants provided blood samples and reported how often they ate fruits and vegetables on a food frequency questionnaire.

Over 12 years of follow-up, 735 participants developed diabetes. **Those with higher blood levels of vitamin C were substantially less likely to develop diabetes.** "Compared with men and women in the bottom quintile [one-fifth] of plasma vitamin C, the odds of developing diabetes was 62 percent lower for those in the top quintile of plasma vitamin C," the authors write. "A weaker inverse association between fruit and vegetable consumption and diabetes risk was observed."

Fruits and vegetables may reduce diabetes risk by preventing obesity or by providing nutrients that protect against diabetes, including antioxidants, the authors note. "Because fruits and vegetables are the main sources of vitamin C, the findings suggest that eating even a small quantity of fruits and vegetables may be beneficial and that the protection against diabetes increases progressively with the quantity of fruit and vegetables consumed," they conclude.

In a third article, Lesley F. Tinker, Ph.D., of the Women's Health Initiative, Fred Hutchinson Cancer Research Center, Seattle, and colleagues studied the effects of eating a low-fat diet on diabetes risk in 48,835 post-menopausal women. From 1993 to 2005,

29,294 of the women were randomly assigned to continue eating their usual diet while 19,541 were given a low-fat (20 percent of calories from fat) diet with increased levels of fruits, vegetables and whole grains. The diet was not intended to help participants lose weight.

A total of 1,303 of the women eating the low-fat diet (7.1 percent) and 2,039 women eating their usual diet (7.4 percent) developed diabetes over the 8.1 years of the study. There was no significant reduction in the risk of developing diabetes among women on the low-fat diet. However, "trends toward reduced incidence were greater with greater decreases in total fat intake and weight loss," the authors write.

Women in the low-fat diet group lost about 1.9 kilograms or 4.2 pounds more weight over the course of the study than women in the regular diet group. "Weight loss, rather than macronutrient composition, may be the dominant predictor of reduced risk of diabetes," the authors conclude.

(Arch Intern Med. 2008;168[14]:1487-1492, 1493-1499, 1500-1511. Available pre-embargo to the media at [www.jamamedia.org](http://www.jamamedia.org).)

***Ralph's Note - It is nice to start seeing the scientific validation of something that has been pretty much observed by everyone.***

**Public release date: 28-Jul-2008**

## **Foods high in conjugated linoleic acids can enrich breast milk**

Eating CLA-enriched cookies increases levels of beneficial fatty acids in breast milk  
Philadelphia, PA, July 28, 2008 – Have a cookie before breast-feeding, mom? Eating special cookies enriched with conjugated linoleic acid (CLA) can increase the level of these potentially healthful fatty acids in breast milk, reports a recent study in the journal Nutrition Research.

Led by Athena A. Moutsioulis of University of New Hampshire, the researchers designed a study to find out how long it takes for CLA that mothers eat in foods to appear in breast milk. Conjugated linoleic acid is a group of fatty acids with possible health benefits, including anticancer and antioxidant effects.

In the study, seven nursing mothers ate cookies made with CLA-enriched butter or with regular butter. The women then pumped samples of their breast milk every four to six hours for two days. The enriched cookies contained about eight times more CLA than the regular cookies.

Breast milk from women who ate the CLA-enriched cookies had significantly higher levels of CLA. Across the 48-hour study period, CLA levels were 46 percent higher in milk from women who ate CLA-enriched cookies, compared to those who ate regular cookies. Levels of CLA in breast milk were highest between 8 and 28 hours after the

mothers ate the CLA-enriched cookies. Nutrition researchers are interested in the health benefits of CLA, including possible reductions in heart disease risk. High levels of CLA are found naturally in foods such as butter, milk, cheese, and certain meats. Most CLA studies in humans have used commercially available supplements, which may not be the same as the CLA found in natural food products.

Previous studies have shown long-term increases in breast milk CLA levels in women who ate cheese and alpine butter for up to eight weeks. The new results suggest that higher levels of CLA in breast milk can be achieved in the short term as well—within a few hours after eating CLA-enriched foods.

Despite its small size and other limitations, this pilot study suggests that CLA appearance in human breast milk can be increased by an acute ingestion of a CLA-rich food in the maternal diet," the researchers write. Given the possible benefits of CLA on infant health and development, further studies are needed to see how CLA intake from natural foods affects CLA levels in breast milk, and whether higher CLA levels translate into additional health benefits for breast-fed babies.

**Public release date: 28-Jul-2008**

## **OSU STUDY SHOWS EXPOSURE TO BAD AIR RAISES BLOOD PRESSURE**

COLUMBUS, Ohio – The air people breathe while walking in the park, working in the garden or shopping downtown may be unhealthy enough to seriously spike their blood pressure, a new study suggests.

Cardiovascular researchers at The Ohio State University Medical Center are the first to report a direct link between air pollution and its impact on high blood pressure, or hypertension. If the results from these animal studies hold up, this could be important for human health.

Sanjay Rajagopalan

“We now have even more compelling evidence of the strong relationship between air pollution and cardiovascular disease,” said Sanjay Rajagopalan, section director of vascular medicine at Ohio State’s Medical Center and co-author of the study. This builds upon previous research from Rajagopalan’s team published in the journals JAMA, Circulation and Inhalation Toxicology.

Researchers exposed rats to levels of airborne pollutants that humans breathe everyday, noting the levels were still considerably below levels found in developing countries such as China and India, and in some parts of the U.S.

Researchers found that short-term exposure to air pollution, over a 10-week period,

elevates blood pressure in those already predisposed to the condition. The results appear online and are scheduled for publication in an upcoming issue of *Arteriosclerosis, Thrombosis, and Vascular Biology*, a journal published by the American Heart Association.

“Recent observational studies in humans suggest that within hours to days following exposure, blood pressure increases,” Rajagopalan says.

In a highly-controlled experiment, hypertensive rats were placed in chambers and exposed to either particulate matter or filtered air for six hours a day, five days a week, over a period of 10 weeks. At week nine, researchers infused angiotensin II, another pollutant, into mini-pumps within the chambers and monitored responses in blood pressure over one week.

The air pollution level inside the chamber containing particulate matter was comparable to levels a commuter may be exposed to in urban areas with heavy traffic such as downtown Manhattan. “Pre-exposure to air pollution markedly increased blood pressure responses following infusion of angiotensin II,” added Rajagopalan.

According to the U.S. Environmental Protection Agency (EPA), the four most common pollutants emitted into the air are particulate matter, ozone, nitrogen dioxide and sulfur dioxide. Air pollution is commonly the result of industrial emissions, coal burning, power plants and automobile exhaust.

“This study provides guidance for the EPA to change pre-existing stringent standards in the effort to reduce air pollution,” says Rajagopalan. “Our study also confirmed a need for a broader based approach, from the entire world, to influence policy development.”

Qinghua Sun, first author of the study, will analyze vascular function in humans before and after the upcoming summer Olympics in Beijing, China. With stringent laws to ensure good quality during the games, it is anticipated that the air quality will improve significantly in and around Beijing. “We expect to find a tangible impact on vascular function and blood pressure because ultimately the only thing that will have changed is levels of air pollution,” says Sun.

Researchers at the University of Michigan, the U.S. Environmental Protection Agency, the Institute of Statistical Science and the New York University School of Medicine participated in the study.

Along with Rajagopalan and Sun, other Ohio State researchers involved in the study were Peibin Yue, Zhekang Ying and Arturo J. Cardounel. Funding from the National Institutes of Health supported this research.

**Public release date: 28-Jul-2008**

## **Compound that helps rice grow reduces nerve, vascular damage from diabetes**

You may want to soak your brown rice.

Researchers have found that a compound that helps rice seed grow, springs back into action when brown rice is placed in water overnight before cooking, significantly reducing the nerve and vascular damage that often result from diabetes.

"You have to let it grow, germinate a little bit," says Dr. Robert K. Yu, director of the Institute of Molecular Medicine and Genetics and Institute of Neuroscience at the Medical College of Georgia. "Some of the active ingredients generated as a result of the germination process are beneficial to you."

Germinated brown rice's ability to help diabetics lower their blood sugar has been shown but how it works remained unknown. New research, published online in the Journal of Lipid Research, shows the growth factor acylated steryl glucosides or ASG, helps normalize blood sugar and enzymes that are out-of-whack in diabetes.

"The advantage of knowing this key ingredient and its structure is we can now make a ton of it; you don't have to rely on rice to produce it or eating rice to get this beneficial effect," says Dr. Yu, the paper's corresponding author.

Studies were done in animal models of type 1 diabetes with two different blood sugar levels that reflect patients' varying blood sugars. They were fed diets of white, brown or pre-germinated brown rice. Unlike white rice, less-processed brown rice still has some of the germ or growth structure that, after about 24 hours in water, resumes activity. Scientists watched as the resurrected ASG, a growth factor and lipid, helped normalize metabolism.

"When blood sugar levels increase, the metabolic balance changes," says Dr. Seigo Usuki, neurobiologist in the MCG School of Medicine and the paper's first author. "Part of the way we know this growth factor works is by increasing levels of good enzymes that are decreased in diabetes."

Dr. Usuki is talking about enzymes such as ATPase, which help maintain nerve membranes so they can conduct electricity and communicate. Decrease of ATPase is a hallmark of the nerve damage that accompanies diabetes. Also reduced in diabetes is homocysteine-thiolactonase, or HTase, an enzyme that decreases levels of homocysteine, a known risk factor for vascular disease. The liver produces a low level of homocysteine

but that level is elevated in diabetes while the enzyme that controls it decreases. Unchecked, homocysteine makes oxidative stress compounds that injure and kill cells. HTase is one way HDL, the so-called "good cholesterol," helps protect blood vessels from disease. A regular diet of pre-germinated brown rice diet helps get both back to a healthier level.

Fancl Hatsuga Genmai Co., Ltd., in Yokohama, Japan, which funded the studies and supplied the pre-germinated rice, already is working with Dr. Usuki on a supplement that can provide consumers who prefer not to soak – or eat – rice with the benefits of ASG.

The MCG research team reported in December 2007 in *Nutrition & Metabolism* that pre-germinated brown rice was better at protecting nerves from diabetes than un-soaked brown or white rice. They showed a then-unidentified lipid helped protect the nerve membrane and increase activity of HTase and the good cholesterol. Germination also is known to increase levels of the neurotransmitter GABA, which is believed to have many beneficial health effects such as lowering blood pressure, improving cognition and lowering blood glucose levels. However the MCG scientists have shown the lipid has a more powerful impact on HTase activity.

The germ layer activated by soaking brown rice contains many vitamins and minerals in addition to the bioactive ingredient that would be beneficial to everyone, Dr. Yu says. The roughage of the rice grain also is helpful.

**Public release date: 28-Jul-2008**

## **Study Suggests 86 Percent of Americans Could be Overweight or Obese by 2030**

Most adults in the U.S. will be overweight or obese by 2030, with related health care spending projected to be as much as \$956.9 billion, according to researchers at the Johns Hopkins Bloomberg School of Public Health, the Agency for Healthcare Research and Quality and the University of Pennsylvania School of Medicine. Their results are published in the July 2008 online issue of *Obesity*.

“National survey data show that the prevalence of overweight and obese adults in the U.S. has increased steadily over the past three decades,” said Youfa Wang, MD, PhD, lead author of the study and associate professor with the Bloomberg School’s Center for Human Nutrition. “If these trends continue, more than 86 percent of adults will be overweight or obese by 2030 with approximately 96 percent of non-Hispanic black women and 91 percent of Mexican-American men affected. This would result in 1 of every 6 health care dollars spent in total direct health care costs paying for overweight and obesity-related costs.”

The researchers conducted projection analyses based on data collected over the past three decades from nationally representative surveys. Their projections illustrate the potential burden of the U.S. obesity epidemic if current trends continue.

“Our analysis also shows that over time heavy Americans become heavier,” says May A. Beydoun, a former postdoctoral research fellow at the Johns Hopkins Bloomberg School of Public Health.

“The health care costs attributable to obesity and overweight are expected to more than double every decade. This would account for 15 to 17 percent of total health care costs spent,” Wang says. “Due to the assumptions we made and the limitations of the available data, these figures are likely an underestimation of the true financial impact.”

Current standards define adults with a body mass index (BMI) between 25 and 29.9 as overweight and adults with a BMI of 30 or higher as obese. Both the overweight and obese are at an increased risk for developing a number of health conditions, including hypertension, type 2 diabetes, heart disease and stroke. Researchers estimate that children and young adults may have a shorter life expectancy than their parents if the obesity epidemic is left unaddressed.

The authors warned that obesity has become a public health crisis in the U.S. Timely, dramatic and effective development and implementation of corrective programs and policies are needed to avoid the otherwise inevitable health and societal consequences implied by their projections. If current trends continue, the researchers say that the U.S. Department of Health and Human Services will not meet its Healthy People 2010 initiative to increase the proportion of adults who are at a healthy weight and to reduce the proportion of adults who are obese.

**Public release date: 28-Jul-2008**

## **Hey fever! The surprise benefit of allergies**

Long-suffering victims of allergies such as asthma and hay fever might enjoy a surprise benefit, according to research led by the University of New South Wales (UNSW).

In a paper presented at an international symposium in Sydney, the researchers show that people **with one of these atopic diseases are up to 25 percent less likely to get the most common type of Non-Hodgkin Lymphoma (NHL).**

The InterLymph Symposium is co-hosted by the Leukaemia Foundation, the Cancer Institute NSW, UNSW and the National Centre in HIV Epidemiology and Clinical Research.

**The more atopic diseases the individual has, the less likely they are to succumb to NHL. If an individual has three of these conditions, they are**

## **40 percent less likely to get NHL.**

Having had asthma and hay fever for a long time, also appears to be of greater benefit.

The result is significant given that the incidence of NHL in developed countries has escalated dramatically in the past 50 years. It is three times more prevalent now than it was in 1950, making it the sixth most common cause of cancer death in Australia, yet the cause of most cases remains unknown.

"This was a surprise result," said the lead author, Dr Claire Vajdic. "The only known strong risk factors for NHL are immune deficiency and certain infections. This occurs in people with uncontrolled HIV infection, and those who have had a solid organ transplant.

"So we thought other forms of immune dysregulation such as atopic diseases – including hayfever, asthma and food allergies – might relate to the development of lymphoma. It was therefore intuitive to think that these conditions would increase the risk, but in fact, they do the reverse," she said.

The research found that risk was reduced in B-cell NHL only. This is the most common type of NHL.

"While the relevant biological mechanisms are not yet known, the pooled data indicate that chronic and multiple atopic conditions impart the greatest reduction in risk," said Dr Vajdic. "Investigation of the genetic and environmental factors underlying atopy and the apparent inverse effect of atopy on NHL risk will inform our understanding of the complex biological pathways that may be involved."

**Public release date: 29-Jul-2008**

## **Frankincense provides relief to arthritis sufferers**

An enriched extract of the 'Indian Frankincense' herb *Boswellia serrata* has been proven to reduce the symptoms of osteoarthritis. Research published today in BioMed Central's open access journal *Arthritis Research & Therapy* has shown that patients taking the herbal remedy showed significant improvement in as little as seven days.

Osteoarthritis is the most common form of arthritis; it commonly affects weight-bearing joints such as the knees and hips, along with the hands, wrists, feet and spine. The symptoms include pain, stiffness and limited movement. This randomised, double-blinded, placebo-controlled trial of 70 patients will be of great interest to sufferers, especially those who don't get adequate relief from existing treatments.

The study was led by Siba Raychaudhuri, a faculty member of the University of California, Davis, in the United States. According to Raychaudhuri, "The high incidence

of adverse affects associated with currently available medications has created great interest in the search for an effective and safe alternative treatment". The extract the authors used was enriched with 30% AKBA (3-O-acetyl-11-keto-beta-boswellic acid), which is thought to be the most active ingredient in the plant. Raychaudhuri said, "AKBA has anti-inflammatory properties, and we have shown that *B. serrata* enriched with AKBA can be an effective treatment for osteoarthritis of the knee". This is a proprietary product developed by Laila Nutraceuticals.

*B. serrata* has been used for thousands of years in the Indian system of traditional medicine known as 'Ayurveda'. This study is the first to prove that an enriched extract of the plant can be used as a successful treatment.

The same authors have previously tested the safety of their remedy in animal experiments. They say that, "In this study, the compound was shown to have no major adverse effects in our osteoarthritis patients. It is safe for human consumption and even for long-term use".

**Public release date: 30-Jul-2008**

## **Cholesterol-lowering drug boosts bone repair**

Lovastatin, a drug used to lower cholesterol and help prevent cardiovascular disease, has been shown to improve bone healing in an animal model of neurofibromatosis type 1 (NF1). The research, reported today in the open access journal BMC Medicine, will be of great interest to NF1 patients and their physicians.

Many NF1 patients suffer from bowing, spontaneous fractures and pseudarthrosis (incomplete healing) of the tibiae (shinbones). Mateusz Kolanczyk from Stefan Mundlos' laboratory in the Max Planck Institute for Molecular Genetics, Berlin, led a team that investigated lovastatin's ability to prevent pseudarthrosis in a new animal model of human NF1 disease.

Current therapies are often futile when applied to pseudarthrosis of the tibia; in some cases, amputation is the only option. To better understand this problem, Kolanczyk and his colleagues developed this mouse model. He said, "In our model, the mice showed tibial bowing similar to that observed in NF1 patients, however since mouse legs are not subjected to the same excessive mechanical forces as humans, we also applied a bone injury model". The authors drilled a 0.5mm hole in the tibia of anaesthetised mice. As they describe, "This enables analysis of the complex process of bone repair while at the same time causing the least possible distress to the animals".

The process of bone repair was examined 7, 14 and 28 days post-injury. The authors found that the mice given the statin treatment had marked improvements in bone healing compared to the control animals. As they report, "**Lovastatin appears to accelerate cortical bone repair primarily by enhancing new bone formation within the bone marrow cavity and by replacing fibro-cartilaginous tissue in the injury site with**

**mineralised bone matrix".**

Kolanczyk concludes, "Our results suggest the usefulness of lovastatin, a drug approved in 1987 for the treatment of high cholesterol, in the treatment of neurofibromatosis-related fracture healing abnormalities". The experimental model presented here constitutes a valuable tool for the preclinical testing of other candidate drugs that target similar bone problems.

Ralph's Note- Red yeast rice contains naturally occurring lovastatin.....

**Public release date: 30-Jul-2008**

**Experts continue to cite Bifantis as promising probiotic treatment for Irritable Bowel Syndrome**

Cincinnati, OH – July 30, 2007 – Two new review articles that cover therapeutic approaches to irritable bowel syndrome (IBS) in the July issue of Nutrition in Clinical Practice, **cite growing evidence that probiotics, and specifically Bifidobacterium infantis 35624 (Bifantis®), are effective in helping manage IBS.** Both articles point to data that suggest Bifantis (available in the U.S. only in supplement form, marketed as Align) – has anti-inflammatory properties that help normalize gut function at a cellular level.

In the first article, "Behavioral and Complementary Approaches for the Treatment of IBS," authors note that probiotic and IBS studies are "fraught with inconsistencies" but also note that there is "increasing evidence of efficacy" for probiotics . Two studies on Bifantis are cited. The first study evaluated patients randomly receiving Lactobacillus salivarius, Bifantis or placebo, **and after eight weeks found that the patients receiving Bifantis had the greatest reduction in IBS symptoms. The study also found that these patients experienced a reduction of inflammatory cytokines compared with those taking placebo .**

The second study cited in the review article established the therapeutic dose for Bifantis in capsule form at  $1 \times 10^8$  colony forming units as significantly superior to placebo and all other doses for improvement in abdominal pain, bloating, bowel dysfunction, straining, and gas at the end of the four week study .

"We think that imbalances in gut microflora lead to a chronic, low-level inflammation in the intestines and the presence of these inflammatory biomarkers in the bloodstream.

The overall impact of these circulating biomarkers is unclear, but it's been suggested that they could negatively impact healthy tissues," said Liam O'Mahony, the lead investigator of the inflammation study cited in the review article. "The Bifantis results not only have great implications for the treatment of digestive conditions, but offer researchers a potentially new path of exploration around inflammation-based diseases like arthritis."

The second review article, "Update on Irritable Bowel Syndrome and Gender Differences", which cites the same study by O'Mahony et al., notes that the "strain and type of probiotic used may be responsible for the degree and type of improvement."<sup>ii</sup> The article highlighted efficacy data from the O'Mahony study, **noting that the patients receiving Bifantis experienced a reduction of IBS symptoms ranging from constipation, diarrhea and bloating for up to four weeks.**

**Public release date: 31-Jul-2008**

## **Exercise in a pill**

LA JOLLA, CA — Trying to reap the health benefits of exercise? Forget treadmills and spin classes, researchers at the Salk Institute for Biological Studies may have found a way around the sweat and pain. They identified two signaling pathways that are activated

in response to exercise and converge to dramatically increase endurance.

The team of scientists, led by Howard Hughes Medical Investigator Ronald M. Evans, Ph.D., a professor in the Salk Institute's Gene Expression Laboratory report in the July 31 advance online edition of the journal *Cell* that simultaneously triggering both pathways with oral drugs turned laboratory mice into long-distance runners and conferred many of exercise's other benefits.

In addition to their allure for endurance athletes, drugs that mimic the effects of exercise have therapeutic potential in treating certain muscle diseases, such as wasting and frailty, hospital patients unable to exercise, veterans and others with disabilities as well as obesity and a slew of associated metabolic disorders where exercise is known to be beneficial.

Previous work with genetically engineered mice in the Evans lab had revealed that permanently activating a genetic switch known as PPAR delta turned mice into indefatigable marathon runners. In addition to their super-endurance, the altered mice were resistant to weight gain, even when fed a high-fat diet that caused obesity in ordinary mice. On top of their lean and mean physique, their response to insulin improved, lowering levels of circulating glucose.

"We wanted to know whether a drug specific for PPAR delta would have the same beneficial effects," says Evans. "Genetic engineering in humans, commonly known as gene doping when mentioned in connection with athletic performance, is certainly feasible but very impractical."

An investigational drug, identified only as GW1516 (and not commercially available), fit the bill. When postdoctoral researcher and lead author Vihang A. Narkar, Ph.D., fed the substance to laboratory mice over a period of four weeks, the researchers were in for a surprise.

"We got the expected benefits in lowering fatty acids and blood glucose levels but no effect, absolutely none, on exercise performance," says Narkar. Undeterred, he put mice treated with GW1516 on a regular exercise regimen and every day had them run up to 50 minutes on a treadmill.

Now the exact same drug that had shown no effect in sedentary animals improved endurance by 77 percent over exercise alone and increased the portion of "non-fatiguing" or "slow twitch" muscle fibers by 38 percent. The result, while very dramatic, gave rise to a vexing question: Why is exercise so important?

First and foremost, exercise depletes muscles' energy store, a chemical known as ATP. In times of high demand, ATP releases all its energy and forms AMP. Rising AMP levels alert AMPK, a metabolic master regulator, which acts like a gas gauge that the cell is running on empty and revs up the production of ATP. "That led us to consider whether AMPK activation was the critical trigger that allowed PPAR delta to work," recalls

Narkar.

Usually, AMPK can be found in the cytoplasm, the compartment that surrounds the nucleus, but the Salk researchers' experiment revealed that some exercise-activated AMPK molecules slip into the nucleus. There they physically interact with PPAR delta and increase its ability to turn on the genetic network that increases endurance.

"It essentially puts a turbo charge on PPAR delta, which explains why exercise is so important," says Evans.

Then came the ultimate couch potato experiment. The researchers fed untrained mice AICAR, a synthetic AMP analog that directly activates AMPK. After only four weeks and without any prior training, these mice got up and ran 44 percent longer than untreated, untrained mice. "That's as much improvement as we get with regular exercise," says Narkar.

"Exercise in a pill" might sound tempting to couch potatoes and Olympic contenders alike, but the dreams of the latter might be cut short. Evans developed a test that can readily detect GW1516 and its metabolites as well as AICAR in blood and urine and is already working with officials at the World Anti-Doping Association, who are racing to have a test in place in time for this year's Summer Olympics.

Ralph's Note - Keep in mind we are talking sedentary animals levels of improvement. It will be interesting to see what the difference in trained athletes. In addition how does it compare to things like cocaine, caffeine, other elements that already exist etc....

**Public release date: 31-Jul-2008**

## **Flu vaccine may not protect seniors well**

SEATTLE—A Group Health study in the August 2 issue of *The Lancet* adds fuel to the growing controversy over how well the flu vaccine protects the elderly.

The study of more than 3,500 Group Health patients age 65 and older found no link between flu vaccination and risk of pneumonia during three flu seasons. "This suggests that the flu vaccine doesn't protect seniors as much as has been thought," said Michael L. Jackson, PhD, MPH, a postdoctoral fellow at the Group Health Center for Health Studies.

"Ours is by far the largest case-control study of flu vaccine in the elderly," Jackson added. This kind of study compares "cases" with "controls." The cases were patients with "community-acquired" pneumonia treated in a hospital or elsewhere. The controls were people matched to cases by sex and age, but with no pneumonia. Both groups were found to have similar rates of flu vaccination. All had intact immune systems and none lived in a nursing home.

Jackson and his colleagues carefully reviewed medical records to reveal details of seniors'

health and ability to do daily activities. "We tried to overcome the limits of previous studies done by others," he explained. "Those studies may have overestimated the benefits of the flu vaccine in the elderly for various reasons." For instance, those studies looked only at pneumonia cases treated in a hospital. They also included seniors who had immune problems, which limit potential benefit from vaccination. And they didn't review medical records to get information on chronic diseases, such as heart or lung disease, which raise the risk of pneumonia.

Most importantly, those previous studies also failed to account for differences between healthier seniors and those who were "frail," Jackson said. Frail seniors are older and have chronic diseases and difficulty walking. "They are less likely than younger, healthier seniors to go out and get vaccinated—and more apt to develop pneumonia," he said.

Pneumonia is a common and potentially life-threatening complication of the flu, Jackson said. But pneumonia can happen without the flu. "That's why our study used a control time period, after flu vaccine became available but before each flu season actually started," he said. **During those pre-flu-season periods, people who had been vaccinated were much less likely to get pneumonia. Why? "Because those who got the vaccine happened to be healthier—not because the flu vaccine was protecting them from pneumonia caused by the flu, since it wasn't present yet," he explained.**

"Despite our findings, and even though immune responses are known to decline with age, I still want my grandmother to keep getting the flu vaccine," said Jackson. "The flu vaccine is safe. So it seems worth getting, even if it might lower the risk of pneumonia and death only slightly."

His co-author Lisa A. Jackson, MD, MPH (no relation), a senior investigator at the Group Health Center for Health Studies, agreed. "People age 65 and older should still get yearly flu vaccines as usual," she advised. But she said that researchers should work to understand better how well the current flu vaccines work in seniors—and to explore other options for controlling flu in the "old old." Examples include bigger doses or stronger types of vaccines, and conducting randomized controlled trials comparing them.

**Ralph's note - I applaud the research that was done here. What is concerning here is the researchers or so fearful of damaging the careers. That after they said there was NO, NADA, NILL, benefit, yet being fully aware of potential vaccine reactions, or side effects. They said they would still recommend them. Think about it. *Risk with No Benefit.***

**Public release date: 31-Jul-2008**

**New Study Shows Compounds From Soy Affect Brain and Reproductive**

## Development

Two hormone-like compounds linked to the consumption of soy-based foods can cause irreversible changes in the structure of the brain, resulting in early-onset puberty and symptoms of advanced menopause in research animals, according to a new study by researchers at North Carolina State University. The study is a breakthrough in determining how these compounds can cause reproductive health problems, as well as in providing a key building block for how to treat these problems.

The study is the first to show that the actual physical organization of a region of the brain that is important for female reproduction can be significantly altered by exposure to phytoestrogens – or plant-produced chemicals that mimic hormones – during development. Specifically, the study finds that the compounds alter the sex-specific organization of the hypothalamus – a brain region that is essential to the regulation of puberty and ovulation. The study also shows that the phytoestrogens could cause long-term effects on the female reproductive system.

While the study examined the impact of these compounds on laboratory rats, neurotoxicologist Dr. Heather Patisaul – who co-authored the study – says the affected "circuitry" of the brain is similar in both rats and humans. Patisaul is an assistant professor in NC State's Department of Zoology. Her co-author is Heather Bateman, a doctoral student in the department.

Patisaul says this finding is extremely important because, while the changes in brain structure cannot be reversed, "if you understand what is broken, you may be able to treat it." Patisaul says she is in the process of evaluating the effects of these compounds on the ovaries themselves.

Patisaul says that this study is also "a step towards ascertaining the effects of phytoestrogens on developing fetuses and newborns." Patisaul adds that these phytoestrogenic compounds cross the placental barrier in humans and that, while many people are concerned about the effects of man-made compounds on human health, it is important to note that some naturally occurring substances can have similar effects.

In the study, which will be published in an upcoming issue of *Neurotoxicology*, the researchers exposed newborn rats to physiologically relevant doses of the phytoestrogens genistein and equol, and then looked at reproductive health markers in the rats throughout their adulthood. The neonatal stage of development in rats is comparable to the latter stages of pregnancy for humans, Patisaul says. Genistein is a phytoestrogen that is found in various plants, including soybeans and soy-based foods. Equol is a hormone-like compound that is formed when bacteria found in the digestive system metabolize another phytoestrogen. However, only approximately a third of humans have the necessary bacteria to produce equol.

The study shows that both genistein and equol result in the early disruption of the rats' estrus cycle – which would be corollary to early onset of menopause in a human. The

study also showed that genistein caused the early onset of puberty. The disruption of the estrus cycle could stem from problems with the brain or the ovaries, so the researchers decided to determine if the compounds had any effect on brain development or function.

Patisaul explains that the brains of both female rats and female humans have a region that regulates ovulation. "That part of the brain," Patisaul says, "is organized by hormones during development – which is the neonatal stage for rats and during gestation for humans." Patisaul says the new study shows that the female brain is "critically sensitive" to genistein and equol during this crucial stage of development – and that this may indicate that the brain is also especially sensitive during this period to all phytoestrogens and possibly other man-made chemicals, such as bisphenol-A.

**Public release date: 31-Jul-2008**

### **Physicians ask EPA, 'Antibiotics to cure sick apples, or sick children?'**

Arlington, VA—A federal decision to permit the State of Michigan to spray the state's apple orchards with gentamicin risks undermining the value of this important antibiotic to treat blood infections in newborns and other serious human infections, according to the Infectious Diseases Society of America (IDSA).

**The Environmental Protection Agency (EPA) on Wednesday granted the state of Michigan "emergency" permission to use gentamicin to fight a tree disease called fire blight.**

"At a time when bacteria are becoming increasingly resistant to many of our best antibiotics, it is an extremely bad idea to risk undermining gentamicin's effectiveness for treating human disease by using it to treat a disease in apples," said IDSA President Donald Poretz, MD.

Gentamicin is a crucial antibiotic used to treat dangerous gastrointestinal and urinary tract infections, and is particularly valuable for treating blood infections in newborn children. As rates of antibiotic-resistant infections rise across the country, effective drugs like gentamicin become increasingly valuable. The Food and Drug Administration classifies gentamicin as, "highly important." The Environmental Protection Agency (EPA) currently bans its use on imported fruits and vegetables and EPA officials have previously stated that using gentamicin in agriculture could reduce its value in treating human infections.

But in an ill-advised reversal, EPA granted Michigan special permission to use the antibiotic. The reason, ironically, is that fire blight has become resistant to the antibiotic apple growers had been using, streptomycin.

Microbes evolve resistance quickly, whether they cause human disease or apple disease. What worries infectious diseases physicians is that microbes pass those resistance traits on to other microbes. **So when some species of microbe inevitably evolves resistance**

**to gentamicin, IDSA is very concerned that that trait will show up in bacteria that cause human infections.**

**IDSA is urging EPA to rescind its decision. "The threat of antibiotic resistance is growing, and the number of effective antibiotics is dwindling," Dr. Poretz said. "Our priority must be to save these effective antibiotics for whom they are needed most: for humans, not for agriculture."**

Congress is currently considering new legislation, the Strategies To Address Antimicrobial Resistance (STAAR) Act, intended to improve the U.S. response to antimicrobial resistance. IDSA and more than twelve other major medical, health care, and public health organizations have endorsed the STAAR Act. For more information, see [www.idsociety.org/staaract.htm](http://www.idsociety.org/staaract.htm).

Ralph's Note - **Antibiotics in Apple's. I guess cheap food is worth it. Even if it kills us.**

**Public release date: 31-Jul-2008**

## **Schizophrenia researchers welcome new blood**

Researchers from UQ's Queensland Brain Institute are set to conduct a world-first trial into the link between prenatal vitamin D levels and schizophrenia prevalence.

Funded by the NHMRC and led by QBI's Dr Darryl Eyles, a team of four researchers will study blood spots taken from newborn babies who have gone on to develop schizophrenia in early adulthood.

"Undeniably, low maternal vitamin D affects the way the brain develops," Dr Eyles said.

"Over the past four years we've been able to show that low vitamin D intake in animals during pregnancy results in offspring with brain abnormalities similar to those seen in patients with schizophrenia."

The next step of the research process involves testing the hypothesis on human samples.

By analysing the blood spots of newborns the team will have a good indication of the baby's vitamin D status at the time of birth.

This type of study is possible thanks to a biobank located at the Statens Serum Institute in Copenhagen where the Danish authorities have not only stored newborn blood spots since 1981, but kept ongoing medical records which accompany each sample.

"This is a true test of the hypothesis," Dr Eyles said.

"The Danes are only able to give us 1.6 microlitres of plasma so we've had to come up

with a method of determining the vitamin D levels in that tiny amount of blood.

"In collaboration with Alun Jones at the Institute of Molecular Bioscience, we've developed a way to easily measure low levels of vitamin D using mass spectrometry."

It is expected that the team will begin analyzing 2000 Danish blood spots (1000 cases and 1000 matched controls) in September.

"If we establish the link in this huge patient cohort, we will be able to show that having low maternal vitamin D does not necessarily mean a child is going to develop schizophrenia but, if a child has a particularly vulnerable genome, the low maternal vitamin D may be the environmental trigger," Dr Eyles said.

"It's the combination of gene and environment which triggers the disease."

Schizophrenia affects approximately one percent of the world's population and is characterised by disruptions in language, thought, perception, social activity, and volition.

UQ has conducted research in this area since 2001 when Professor John McGrath, also of the QBI, suggested a lack of sunlight exposure on pregnant women could account for the higher incidence of schizophrenia during winter months and in colder climates.

**Public release date: 31-Jul-2008**

## **Outdoor Activity and Nearsightedness in Children**

A growing number of the world's children are mildly to severely nearsighted (myopic), with rates especially high among urbanized East Asians. In addition to coping with poor distance vision, children with severe myopia are more prone to visual impairment and blindness later in life. Although genetic inheritance plays a role, the rapid rise of myopia suggests that environmental factors are driving the trend. Myopia usually begins and progresses during children's school years, but research on the role of intensive reading or other "near work" has determined that this is a minor factor. A new study led by Kathryn A. Rose, MD, used data from the Sydney Myopia Study of more than 4,000 Australian school children to assess whether outdoor activity might be significant in controlling myopia.

Parents and their children, at age 6 or 12, reported on the children's daily activities, which were classified as indoor or outdoor, and as near, medium or distance. Myopic refractive error, if any, was diagnosed for parents and children, and the children's ethnicity was recorded. A key finding was that the lowest myopia rates in 12-year-olds were associated with high outdoor activity, independent of the level of near work activity. In 12-year-old students myopia was most strongly associated with high levels of near work and low levels of outdoor activity. The findings suggest that it is the time spent outdoors rather than engagement in sports that is critical; the association between increased outdoor

hours and lower myopia was found even if an outdoor sport was not included, while time spent on indoor sports, such as playing basketball in a gym, had no effect.

The researchers think the intensity of outdoor light may be an important factor. Myopic eyes are longer, measured front-to-back, than normal eyes; in response to intense light, the retina releases dopamine, a neurotransmitter that inhibits eye growth and may thus influence the development of myopia. Also, the pupils of the eyes constrict in intense outdoor light, which increases the visual depth of field, the distance at which objects can be clearly seen. The researchers recommend further study to prove conclusively whether certain levels of time spent outdoors can control myopia and to define the mechanisms involved. The higher exposure to intense outdoor light may explain the lower prevalence of myopia in children in Australia, compared with ethnically matched peers in other countries, Dr. Rose says. She adds that "this protective effect suggests that a public health measure aimed at preventing development of myopia could be based on increasing the engagement of children in outdoor activity," including family and school activities and sports.

**Public release date: 1-Aug-2008**

### **Chronic exposure to estrogen impairs some cognitive functions**

University of Illinois researchers report this week that chronic exposure to estradiol, the main estrogen in the body, diminishes some cognitive functions. Rats exposed to a steady dose of estradiol were impaired on tasks involving working memory and response inhibition, the researchers found.

Their report appears this week in the journal *Behavioral Neuroscience*.

The researchers made the discovery when studying the effects of estradiol on activities mediated by the prefrontal cortex, a brain region that is vital to working memory and to the ability to plan, respond to changing conditions and moderate or control one's behavior.

Working memory is the ability to briefly remember information needed for a particular task, said Susan Schantz, a U. of I. professor of veterinary biosciences and principal investigator on the study. An example in humans is a phone number that is forgotten soon after the number is dialed.

"With working memory you're just keeping it active until you use it," she said.

In the new study, rats were trained to press one of two levers to obtain a food reward. Those that alternated between the levers (which were withdrawn from the rat enclosure for a few seconds between trials) received a reward. Those that hit the same lever twice in a row got no reward. Rats exposed to estradiol performed worse than their counterparts on this task, earning significantly fewer rewards.

A second set of tests measured the rats' ability to wait before responding to a stimulus. The rats had to wait 15 seconds before pushing a lever to get a reward. Those exposed to estradiol performed worse on this task than those that were not exposed.

"That's the test where we really saw the most striking effects with estradiol," Schantz said. The estradiol-treated rats "were not as good at waiting," she said.

"Rats treated with estradiol are definitely a lot more active and make a lot more lever presses," said neuroscience graduate student Victor Wang, the lead author on the study. "That's not conducive toward being rewarded."

The researchers had not expected to see such pronounced results. In fact, the study had been designed to give them baseline information for a separate inquiry into the effects of soybean estrogens on cognitive function. They planned to compare the effects of chronic estradiol exposure to the effects of chronic exposure to genistein, a phytoestrogen found in soybeans. Genistein is believed to have similar effects in the body as natural or synthetic estrogens, although no study has definitively proven that it does.

Schantz and her colleagues had focused on the prefrontal cortex because it is rich in estrogen receptor beta (ER-beta), a protein that spurs gene expression and other activities in the cell when it binds to estradiol. Genistein also activates ER-beta.

Some women take genistein supplements or eat soy-based foods to reduce hot flashes or other symptoms of menopause, Schantz said.

"Women take them thinking they'll be a safe alternative to hormone-replacement therapy and they might help hot flashes," she said.

Those who have heard that hormone replacement can improve cardiac or brain function also hope that eating soy or taking genistein supplements will have the same effects, she said.

The effects of hormone replacement therapy (HRT) are more complex – and problematic – than once thought. A recent large-scale study of HRT in post-menopausal women was stopped because of an increased risk of stroke and blood clots in women taking estrogen alone, and a higher than average incidence of breast cancer, cardiovascular disease, blood clots and stroke in women taking estrogen and progesterone.

Studies of estrogen's effects on cognition have also had mixed results. In earlier studies, for example, psychology professor Donna Korol, a collaborator on the current project, found that estradiol enhances some abilities, such as place or spatial learning, while hindering others, such as learning that relies on stimulus-response associations, considered by some to be akin to "habit" and not fluid thought.

Performance in these tasks involves brain structures outside the prefrontal cortex.

The research indicates that multiple factors influence the effects of estradiol on the brain, Schantz said. The timing of the exposure, the types of brain functions or structures studied and the age of the test subjects can all generate different results, she said.

**Public release date: 3-Aug-2008**

## **Toxic drugs, toxic system: Sociologist predicts drug disasters**

### **Study says harm from prescription drugs growing, cites fatal flaws in drug testing, approval and marketing**

BOSTON — Americans are likely to be exposed to unacceptable side effects of FDA-approved drugs such as Vioxx in the future because of fatal flaws in the way new drugs are tested and marketed, according to research to be presented today at the annual meeting of the American Sociological Association (ASA).

**"Drug disasters are literally built into the current system of drug testing and approvals in the United States,"** said Donald Light, the sociologist who authored the study and a professor of comparative health policy at the University of Medicine and Dentistry of New Jersey. "Recent changes in the system have only increased the proportion of new drugs with serious risks."

**According to a 1999 report for the Institute of Medicine, adverse drug reactions (ADRs) are the fourth leading cause of death in the United States and more than two million serious reactions occur every year.** ADRs can occur for a number of reasons, including improper prescribed dosage, drug abuse and drug interactions.

Light's analysis identifies the organizational foundations of patient risk from prescription drugs and suggests institutional reforms to help avoid or reduce future drug disasters.

According to Light, rather than using current approved drugs as benchmarks of efficacy, the existing testing system evaluates the effectiveness of new drugs based on their effects compared to placebos. Systematic reviews indicate that one in seven new drugs is superior to existing drugs, but two in every seven new drugs result in side effects serious enough for action by the U.S. Food and Drug Administration (FDA), including black box warnings, adverse reaction warnings, or even withdrawal of the drug.

**Based on this system, Light asserts that new drugs are twice as likely to harm patients as to provide them with benefits superior to existing drugs.**

Light's analysis suggests another flaw lies within the design of clinical trials. He contends

that pharmaceutical companies frequently design their trails to minimize evidence of toxic side effects. To do so, they sample from a healthier population atypical of patients who will actually take the drug, excluding people who are older, poorer or who have multiple health problems. **Trials are run long enough to pick up main effects but not to detect some long term side effects. Approvals are based on these data; so drugs with harmful effects sometimes get through.**

"Based on our current system, the designation of 'safe and effective' on today's new drugs could be replaced with, 'apparently safe based on incomplete information, and more effective than a placebo,'" Light said.

With regard to government oversight, Light cites serious under-funding of the FDA, which creates a dependency on the pharmaceutical industry—the industry FDA regulates—to pay its staff. In return for drug company funding, Light says, the industry expects faster reviews, but faster reviews potentially fail to identify serious long-term side effects.

"Speed-up reviews for safety have more than tripled the number of 'black box warnings' of side effects or withdrawals after drugs are on the market," Light said. "Despite recent reforms to strengthen the FDA's role in protecting the public from harmful drugs, the harm-benefit ratio is worsening due to these reviews and relaxed rules that allow companies to promote drugs for unapproved uses."

**Ralph's Note - This sums up mostly everything that is going wrong now. To say something is FDA approved, lulls people into a false sense of confidence. It would be better to say, Take at your own risk.**

Public release date: 4-Aug-2008

## **U.S. Preventive Services Task Force Updates Prostate Cancer Screening Recommendations: Task Force Finds No Screening Benefit for Men Over 75**

PHILADELPHIA, August 5, 2008 – The U.S. Preventive Services Task Force (USPSTF), updating its 2002 report, now recommends against routine prostate cancer screening for men over the age of 75. More evidence is needed to determine if men under 75 could benefit from screening.

**Previously, the Task Force concluded that there was insufficient scientific evidence to recommend screening for all men, and found inconclusive evidence that early detection improves health outcomes. The updated recommendations appear in the August 5, 2008 issue of Annals of Internal Medicine, the American College of**

**Physicians' flagship journal, and are available online at [www.annals.org](http://www.annals.org).**

Prostate cancer is the most common non-skin cancer and the second leading cause of cancer death in men in the United States, affecting one in six men. Measurement of prostate-specific antigen (PSA) in the blood can detect prostate cancer before symptoms develop. Some abnormal PSA levels may require prostate biopsy to see if cancer is actually present.

While the PSA tests are effective for detecting disease, the Task Force found that there is insufficient evidence that they improve long-term health outcomes.

"We carefully reviewed the available evidence to measure the benefits and harms of screening for prostate cancer and could not find adequate proof that early detection leads to fewer men dying of the disease," said Task Force Chair Ned Calonge, M.D., M.P.H., who is also Chief Medical Officer for the Colorado Department of Public Health and Environment, Denver. "At this point, we recommend that men concerned about prostate cancer talk with their health care providers to make a decision based on their individual risk factors and personal preference."

**Public release date: 4-Aug-2008**

**Eating fish may prevent memory loss and stroke in old age**

ST. PAUL, Minn. – Eating tuna and other types of fish may help lower the risk of cognitive decline and stroke in healthy older adults, according to a study published in the August 5, 2008, issue of *Neurology*®, the medical journal of the American Academy of Neurology.

For the study, 3,660 people age 65 and older underwent brain scans to detect silent brain infarcts, or small lesions in the brain that can cause loss of thinking skills, stroke or dementia. Scans were performed again five years later on 2,313 of the participants. The people involved in the study were also given questionnaires about fish in their diets.

**The study found that people who ate broiled or baked tuna and other fish high in omega-3 fatty acids (called DHA and EPA) three times or more per week had a nearly 26 percent lower risk of having the silent brain lesions that can cause dementia and stroke compared to people who did not eat fish regularly. Eating just one serving of this type of fish per week led to a 13 percent lower risk. The study also found people who regularly ate these types of fish had fewer changes in the white matter in their brains.**

"While eating tuna and other types of fish seems to help protect against memory loss and stroke, these results were not found in people who regularly ate fried fish," said Jyrki Virtanen, PhD, RD, with the University of Kuopio in Finland. "More research is needed as to why these types of fish may have protective effects, but the omega-3 fatty acids EPA and DHA would seem to have a major role."

Types of fish that contain high levels of DHA and EPA nutrients include salmon, mackerel, herring, sardines, and anchovies.

"Previous findings have shown that fish and fish oil can help prevent stroke, but this is one of the only studies that looks at fish's effect on silent brain infarcts in healthy, older people," said Virtanen. Research shows that silent brain infarcts, which are only detected by brain scans, are found in about 20 percent of otherwise healthy elderly people.

**Public release date: 4-Aug-2008**

### **Canadian study of colds and kids: Positive safety results for ginseng extract**

Positive findings of a safety study involving children and a highly touted botanical extract (COLD-fX) show promise for its future development for kids as a Canadian cold and flu remedy. The results appear in the August, 2008 issue of *Pediatrics* – the official journal of the American Academy of Pediatrics.

The randomized, double-blind, placebo controlled Canadian trial which was conducted in collaboration with the University of Alberta in Canada was designed to measure the safety and tolerability of COLD-fX for treatment of cold and flu in children. Acute three-day doses of COLD-fX were well tolerated with no serious adverse events, or differences in adverse events versus the placebo group. The research was also successful in determining effect size, which enables appropriate statistical planning of a potential efficacy study.

"We hope this trial will be viewed as timely and beneficial research in an area where there is clearly a demonstrated need for safe and effective products to treat cold and flu in children, who suffer from these ailments much more than adults," said Jacqueline Shan PhD, DSc, Chief Scientific Officer and CEO of CV Technologies. She added, "These results are promising and support the development of a children's formulation." The Company anticipates launching large scale clinical studies in the next fiscal year testing for efficacy to further support the use of COLD-fX for treating colds and flu in children.

Seventy-five children between the ages of three and 12 were recruited in Edmonton, Canada for the study, which was conducted in the winter of 2005-2006. Of those children, 46 developed an upper respiratory tract infection (URTI). Within 48 hours of onset, they were randomly assigned to receive acute three-day treatments with either a placebo or COLD-fX (two weight-based dosage levels).

This is the first time COLD-fX has been studied for pediatric use. The researchers report that they could find only seven other studies of natural health products (NHPs) for children as of 2007. They indicated that the lack of studies of this nature is "especially concerning" given that "current estimates suggest that 41% to 45% of children in Canada and the United States use NHPs".

COLD-fX, a patented extract of North American ginseng, discovered by a team of 25 University of Alberta scientists, is Canada's top selling cold and flu remedy for adults. It has been approved by Health Canada for use by adults. And the FDA has cleared its sale as a new dietary ingredient (NDI) for adults in the U. S.

The results of the trial come at a time when the FDA and Health Canada are reviewing the safety and efficacy of hundreds of children's cough and cold remedies sold in both countries. A study by the Centers for Disease Control and Prevention (CDC) says over 7,000 children under 12 are treated each year in U.S. hospital emergency rooms for adverse drug reactions from cough and cold medications.

**Public release date: 4-Aug-2008**

## **Vitamin C injections slow tumor growth in mice**

High-dose injections of vitamin C, also known as ascorbate or ascorbic acid, reduced tumor weight and growth rate by about 50 percent in mouse models of brain, ovarian, and pancreatic cancers, researchers from the National Institutes of Health (NIH) report in the August 5, 2008, issue of the Proceedings of the National Academy of Sciences. The researchers traced ascorbate's anti-cancer effect to the formation of hydrogen peroxide in the extracellular fluid surrounding the tumors. Normal cells were unaffected.

Natural physiologic controls precisely regulate the amount of ascorbate absorbed by the body when it is taken orally. "When you eat foods containing more than 200 milligrams of vitamin C a day--for example, 2 oranges and a serving of broccoli--your body prevents blood levels of ascorbate from exceeding a narrow range," says Mark Levine, M.D., the study's lead author and chief of the Molecular and Clinical Nutrition Section of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), part of the NIH. To bypass these normal controls, NIH scientists injected ascorbate into the veins or abdominal cavities of rodents with aggressive brain, ovarian, and pancreatic tumors. By doing so, they were able to deliver high doses of ascorbate, up to 4 grams per kilogram of body weight daily. "At these high injected doses, we hoped to see drug-like activity that might be useful in cancer treatment," said Levine.

Vitamin C plays a critical role in health, and a prolonged deficiency leads to scurvy and eventually to death. Some proteins known as enzymes, which have vital biochemical functions, require the vitamin to work properly. Vitamin C may also act as an antioxidant, protecting cells from the damaging effects of free radicals. The NIH researchers, however, tested the idea that ascorbate, when injected at high doses, may have prooxidant instead of antioxidant activity. Prooxidants would generate free radicals and the formation of hydrogen peroxide, which, the scientists hypothesized, might kill tumor cells. In their laboratory experiments on 43 cancer and 5 normal cell lines, the researchers discovered that high concentrations of ascorbate **had anticancer effects in 75 percent of cancer cell lines tested, while sparing normal cells.** In their paper, the researchers also showed that these high ascorbate concentrations could be achieved in

people.

The team then tested ascorbate injections in immune-deficient mice with rapidly spreading ovarian, pancreatic, and glioblastoma (brain) tumors. **The ascorbate injections reduced tumor growth and weight by 41 to 53 percent. In 30 percent of glioblastoma controls, the cancer had spread to other organs, but the ascorbate-treated animals had no signs of disseminated cancer.** "These pre-clinical data provide the first firm basis for advancing pharmacologic ascorbate in cancer treatment in humans," the researchers conclude.

Interest in vitamin C as a potential cancer therapy peaked about 30 years ago when case series data showed a possible benefit. In 1979 and 1985, however, other researchers reported no benefit for cancer patients taking high oral doses of vitamin C in two double-blind, placebo-controlled clinical trials.

Several observations led the NIH researchers to revisit ascorbate as a cancer therapy. "Clinical and pharmacokinetic studies conducted in the past 12 years showed that oral ascorbate levels in plasma and tissue are tightly controlled. In the case series, ascorbate was given orally and intravenously, but in the trials ascorbate was just given orally. It was not realized at the time that only injected ascorbate might deliver the concentrations needed to see an anti-tumor effect," said Levine, who noted that new clinical trials of ascorbate as a cancer treatment are in the planning stages.

Data from Levine's earlier studies of the regulation and absorption of dietary vitamin C were used in the revision of the Institute of Medicine's Recommended Dietary Allowance for the vitamin in 2000. In the current study, Levine led a team of scientists from the NIDDK and the National Cancer Institute (NCI), both components of the NIH, as well as the University of Kansas. **"NIH's unique translational environment, where researchers can pursue intellectual high-risk, out-of-the-box thinking with high potential payoff, enabled us to pursue this work," he said**

**Ralph's Note - Where are those freaks in the media now? Who tried to imply that vitamin C somehow protected tumor cells. Thank you to the NIH.**

**Public release date: 5-Aug-2008**

## **Adults who eat eggs for breakfast lose 65 percent more weight**

### **New research confirms that eating eggs boosts a healthy weight loss plan**

Park Ridge, Ill. (August 5, 2008) – A study published online today in the International Journal of Obesity shows that eating two eggs for breakfast, as part of a reduced-calorie diet, helps overweight adults lose more weight and feel more energetic than those who eat a bagel breakfast of equal calories. [1] This study supports previous research, published in the Journal of the American College of Nutrition, which showed that people

who ate eggs for breakfast felt more satisfied and ate fewer calories at the following meal. [2]

"People have a hard time adhering to diets and our research shows that choosing eggs for breakfast can dramatically improve the success of a weight loss plan," said Nikhil V. Dhurandhar, Ph.D., lead researcher and associate professor in the laboratory of infection and obesity at Pennington Biomedical Research Center, a campus of the Louisiana State University system. "Apparently, the increased satiety and energy due to eggs helps people better comply with a reduced-calorie diet."

### Significant Weight Loss Related to Egg Breakfast

Compared to the subjects who ate a bagel breakfast, men and women who consumed two eggs for breakfast as part of a reduced-calorie diet:

- 1. lost 65 percent more weight**
- 2. exhibited a 61 percent greater reduction in BMI**
- 3. reported higher energy levels than their dieting counterparts who consumed a bagel breakfast [1]**

The egg and bagel breakfasts provided the same number of calories and had identical weights (energy density), which is an important control factor in satiety and weight loss studies.

The researchers also found that blood lipids were not impacted during the two month study. They found that blood levels of HDL and LDL cholesterol, as well as triglycerides, did not vary compared to baseline cholesterol blood levels in subjects who ate either the bagel or egg breakfasts. These findings add to more than 30 years of research that conclude that healthy adults can enjoy eggs without significantly impacting their risk of heart disease.

### New Emphasis on the Importance of High-Quality Protein

This study adds to the growing body of research which supports the importance of high-quality protein in the diet. The American Journal of Clinical Nutrition (AJCN) published a special issue in May 2008, which contains nine articles that focus on the value of high-quality protein in the American diet. A major finding was that not getting enough high-quality protein may contribute to obesity, muscle wasting (loss) and increased risk of chronic disease. [3,4]

### Jump Start the Morning with Eggs

Jackie Newgent, registered dietitian and chef, stresses the importance of obtaining adequate high-quality protein when advising consumers about weight loss. "Eggs are a good source of all-natural, high-quality protein, so they can help keep you satisfied longer, making it easier to resist tempting snacks," said Newgent. "Nearly half of an egg's

protein, and many of the other nutrients, are found in the yolk, so make sure to eat the whole egg for maximum benefits."

Newgent suggests these nutrition tips for a successful weight loss plan:

**Manic Monday:** Make a batch of hard-cooked eggs on Sunday, so you'll have all-natural, high-quality protein meals for your on-the-go schedule during the week. Plus, eggs are incredibly affordable. At an average of \$1.93 per dozen (or \$0.16 per egg), [5] eggs are one of the most affordable high-quality protein foods in the marketplace.

**In-a-Minute Morning Meal:** In less than 60 seconds, you can prepare an egg breakfast to help jump start your day. Simply beat one whole egg in a microwave-safe mug then cook in the microwave oven on high for 60 seconds. Slide the egg onto a whole grain English muffin. Add flavor with a sprinkling of fresh herbs, salsa, or cheese. Serve fresh seasonal fruit slices, like peaches in the summer, on the side for a balanced meal.

**Public release date: 5-Aug-2008**

## **Sesame seed extract and konjac gum may help ward off Salmonella and E. coli**

A new study in SCI's *Journal of the Science of Food and Agriculture* shows that konjac gum and sesame seed extract may offer protection against different strains of E. coli and Salmonella bacteria.

The study by Dr Petra Becker et al from Wageningen University and Research Centre, the Netherlands, shows that these foodstuffs act as binders for E. coli and Salmonella bacteria. The bacteria attach themselves to the fibrous foods instead of the gut cells of the host.

Dr Becker says that eating a diet full of these foodstuffs may offer protection from gastro-intestinal infections or reduce the severity of symptoms caused by E. coli or Salmonella.

Other foods that were shown to have a beneficial effect included yeast, tomato, and pumpkin.

In the lab study which also included negative controls, the scientists looked at 18 food-related products including coffee beans, carrot, mango, fermented soya, and food stabilizers such as locust bean gum and konjac gum. All were subjected to in-vitro exposure to various bacteria which were allowed to attach themselves to the test products. The levels of bound bacteria were determined in a microplate-based method specifically developed for this purpose.

The results showed that sesame seed extract and konjac gum had the greatest number of adhered bacteria, leading to the conclusion that they may have a part to play in preventing certain E. coli and Salmonella from latching onto the host.

**Dr Becker said: 'The importance of fibre, particularly from certain foodstuffs, in maintaining a healthy gut and digestion cannot be underestimated. The study shows that these foods bind certain bacteria and may be a means of stopping bacteria from entering host cells thereby preventing disease.'**

**Public release date: 5-Aug-2008**

## **In era of pills, fewer shrinks doing talk therapy**

Cartoons about the psychiatrist's couch were recently the subject of a museum exhibition. Now, the couch itself may be headed for a museum. A new study finds a significant decline in psychotherapy practiced by U.S. psychiatrists.

The expanded use of pills and insurance policies that favor short office visits are among the reasons, said lead author Dr. Ramin Mojtabai of Johns Hopkins Bloomberg School of Public Health in Baltimore.

"The 'couch,' or, more generally, long-term psychoanalytic psychotherapy, was for so long a hallmark of the practice of psychiatry. It no longer is," Mojtabai said.

**Today's psychiatrists get reimbursed by insurance companies at a lower rate for a 45-minute psychotherapy visit than for three 15-minute medication visits, he explained.**

**His study found that the percentage of patients' visits to psychiatrists for psychotherapy, or talk therapy, fell from 44 percent in 1996-97 to 29 percent in 2004-05. The percentage of psychiatrists using psychotherapy with all their patients also dropped, from about 19 percent to 11 percent.**

Psychiatrists who provided talk therapy to everyone had more patients who paid out of pocket compared to those doctors who provided talk therapy less often. And they prescribed fewer pills.

As talk therapy declined, TV ads contributed to an "aura of invincibility" around drugs for depression and anxiety, said Charles Barber, a lecturer in psychiatry at Yale University and author of "Comfortably Numb: How Psychiatry is Medicating a Nation."

"By contrast, there's almost no marketing for psychotherapy, which has comparable if not better outcomes," said Barber, who was not involved in the study.

The findings, published in Monday's Archives of General Psychiatry, are based on an annual survey of office visits to U.S. doctors. Of more than 246,000 visits sampled during the 10 years, more than 14,000 were to psychiatrists. The researchers analyzed those psychiatrist visits.

The study did not survey visits to psychologists or other mental health counselors who

are not medical doctors, but who also practice talk therapy.

Psychotherapy uses verbal methods to get patients to explore their emotional life, thoughts or behavior. The goal is to ease symptoms, sometimes through getting the patient to change behavior or mental habits.

Its benefits can be seen in brain imaging studies, said Dr. Eric Plakun, who leads an American Psychiatric Association committee working to restore interest in psychotherapy by psychiatrists.

"The couch is far from dead," Plakun said. "The couch turns out to be an effective 21st century treatment."

Talk therapy can be done by psychiatrists less expensively than split treatment, where a patient sees a doctor for pills and a counselor for talk therapy, Plakun said, citing two prior studies.

It also works better than drugs for some patients, such as those with chronic major depression and a history of childhood trauma, he said.

Accreditation requirements for psychiatric residency programs are putting more emphasis on talk therapy, Plakun said. That may slow the decline of the couch.

The new study doesn't answer an important question: whether other professionals are picking up the slack, said psychologist David Mohr of Northwestern University's Feinberg School of Medicine. Psychologists and social workers provide counseling but most cannot prescribe drugs, so it's possible that for patients who require both talk and pills, some coordination in care may be lost, Mohr said.

**Ralph's Note- After all these problems are all in your head anyone. Why not drugs, Just say yes. Maybe the middle man should be cut out all together. Just tell someone how you want to feel, and take a drug to feel that way. it's a Brave New World after all.**

---

**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.**

