



The Vitamin & Herb Stores

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## **Women who drink beer more likely to develop psoriasis**

Regular beer—but not light beer or other types of alcohol—appears to be associated with an increased risk of developing psoriasis, according to a report posted online today that will be published in the December print issue of Archives of Dermatology, one of the JAMA/Archives journals.

"Psoriasis is a common immune-mediated skin disease," the authors write as background information in the article. "The association between alcohol consumption and increased risk of psoriasis onset and psoriasis worsening has long been suspected. For example, individuals with psoriasis drink more alcohol than individuals without psoriasis, and alcohol intake may exacerbate psoriasis severity."

For other diseases, type of alcoholic beverage has been shown to influence risk—for instance, beer confers a larger risk for gout than wine or spirits. To evaluate the association between different types of alcohol and psoriasis risk, Abrar A. Qureshi, M.D., M.P.H., of Brigham and Women's Hospital and Harvard Medical School, Boston, assessed data from 82,869 women who were age 27 to 44 years in 1991. The women, participants in the Nurses' Health Study II, reported the amount and type of alcohol they consumed on biennial questionnaires. They also reported whether they had received a diagnosis of psoriasis.

Through 2005, 1,150 cases of psoriasis developed, 1,069 of which were used for analysis. Compared with women who did not drink alcohol, **the risk of psoriasis was 72 percent greater among women who had an average of 2.3 drinks per week or more.** When beverages were assessed by type, there was an association between non-light beer drinking and psoriasis, such that women who drank five or more beers per week had a risk for the condition that was 1.8 times higher. **Light beer, red wine, white wine and liquor were not associated with psoriasis risk.**

When only confirmed psoriasis cases—those in which women provided more details about their condition on a seven-item self-assessment—were considered, the risk for psoriasis was 2.3 times higher for women who drank five or more beers per week than

women who did not drink beer.

"Non-light beer was the only alcoholic beverage that increased the risk for psoriasis, suggesting that certain non-alcoholic components of beer, which are not found in wine or liquor, may play an important role in new-onset psoriasis," the authors write. "One of these components may be the starch source used in making beer. Beer is one of the few non-distilled alcoholic beverages that use a starch source for fermentation, which is commonly barley." Barley and other starches contain gluten, to which some individuals with psoriasis show a sensitivity. Lower amounts of grain are used to make light beer as compared with non-light beer, potentially explaining why light beer was not associated with psoriasis risk, they note.

"Women with a high risk of psoriasis may consider avoiding higher intake of non-light beer," the authors conclude. "We suggest conducting further investigations into the potential mechanisms of non-light beer inducing new-onset psoriasis."

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## **Amphetamine use increases risk of aortic tears in young adults, UT Southwestern researchers report**

DALLAS – Aug. 17, 2010 – Young adults who abuse amphetamines may be at greater risk of suffering a tear in the main artery leading from the heart, UT Southwestern Medical Center researchers have found.

In the study, published in the August issue of American Heart Journal, researchers examined medical records from nearly 31 million people between 18 and 49 years old hospitalized from 1995 to 2007 **and found that amphetamine abuse was associated with a threefold increase in the odds of aortic dissection.**

"Aortic dissection in young people is rare, but it frequently can lead to death," said Dr. Arthur Westover, assistant professor of psychiatry at UT Southwestern and the study's lead author. "Doctors should screen young adults with aortic dissection for amphetamine abuse in searching for a potential cause."

Individual case reports have suggested a link between aortic dissection and amphetamine abuse, but this is believed to be the first epidemiological study of a large group of people on the issue, Dr. Westover said.

The aorta stems from the heart and is the largest artery in the body. Dissection occurs when a tear develops in the inner layer of the aorta, allowing blood to separate, or dissect. The blood can eventually cause a rupture in the aortic wall, often resulting in death.

Amphetamines are stimulants that can be used to treat medical conditions such as attention-deficit disorder. They also are abused illegally as recreational drugs or performance enhancers. Researchers note that the abuse of amphetamines – including

methamphetamines, or "meth" – significantly increased among hospitalized young adults from 1995 to 2007.

Amphetamines act on the body in similar ways as cocaine, which also is associated with adverse effects on the heart. Medically, amphetamines are known to increase blood pressure, and hypertension is a known trigger of aortic dissection.

Researchers also analyzed medical data for more than 49 million people 50 years or older from the same time period.

"We found that the frequency of aortic dissection is increasing in young adults but not older adults," Dr. Westover said. "It is not yet clear why."

Researchers noted that in California, Hawaii, Oregon and Washington state, the percentage of aortic dissection cases linked to amphetamine abuse among young adults during the study period was three times greater than the national figure.

"This illustrates that in areas where amphetamine abuse is more common, there are greater public health consequences," Dr. Westover said.

Dr. Westover's research previously has linked amphetamine abuse to stroke and heart attack.

"This adds to our growing understanding of the cardiovascular risks associated with abuse of amphetamines," said Dr. Paul Nakonezny, associate professor of clinical sciences and psychiatry at UT Southwestern and an author on the paper.

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## **Pharmaceuticals: A market for producing 'lemons' and serious harm**

Incentives and protections for industry encourage development of many drugs with few new benefits over existing pharmaceuticals, but with risk of serious harm to users  
ATLANTA — The pharmaceutical industry is a "market for lemons," a market in which the seller knows much more than the buyer about the product and can profit from selling products less effective and less safe than consumers are led to believe, according to an analysis that will be presented at the 105th Annual Meeting of the American Sociological Association.

"Sometimes drug companies hide or downplay information about serious side effects of new drugs and overstate the drugs' benefits," said Donald Light, the sociologist who authored the study and who is a professor of comparative health policy at the University of Medicine and Dentistry of New Jersey. **"Then, they spend two to three times more on marketing than on research to persuade doctors to prescribe these new drugs. Doctors may get misleading information and then misinform patients about the**

risks of a new drug. It's really a two-tier market for lemons."

**Three reasons why the pharmaceutical market produces "lemons" are: Having companies in charge of testing new drugs, providing firewalls of legal protection behind which information about harms or effectiveness can be hidden, and the relatively low bar set for drug efficacy in order for a new drug to be approved, Light said.**

According to his study, independent reviewers found that about 85 percent of new drugs offer few if any new benefits. **Yet, toxic side effects or misuse of prescription drugs now make prescription drugs a significant cause of death in the United States.**

Light's paper, "Pharmaceuticals: A Two-Tier Market for Producing 'Lemons' and Serious Harm," is an institutional analysis of the pharmaceutical industry and how it works based on a range of independent sources and studies, including the Canadian Patented Medicine Prices Review Board, the Food and Drug Administration, and Prescrire International.

The foundation for the paper is the work Light did for a forthcoming book he edited, titled *The Risk of Prescription Drugs*, which is scheduled for publication this fall by Columbia University Press.

In both his paper and his book, Light describes the "Risk Proliferation Syndrome" that is maximizing the number of patients exposed to new drugs that have relatively low efficacy and effectiveness but have greater risk of adverse side effects. Building on clinical trials designed to minimize evidence of harm and published literature that emphasizes a drug's advantages, companies launch massive campaigns to sell it, when a controlled, limited launch would allow evidence to be gathered about the drug's effects. Companies recruit leading clinicians to try using the drug for conditions other than those for which it is approved and to promote such off-label or unapproved uses. Physicians inadvertently become "double agents" — promoters of the new drug, yet trusted stewards of patients' well-being, said Light. When patients complain of adverse reactions, studies show their doctors are likely to discount or dismiss them, according to Light.

Despite the extensive requirements for testing the efficacy and safety of each new drug, companies "swamp the regulator" with large numbers of incomplete, partial, substandard clinical trials, Light said. For example, in one study of 111 final applications for approval, 42% lacked adequately randomized trials, 40% had flawed testing of dosages, 39% lacked evidence of clinical efficacy, and 49% raised concerns about serious adverse side effects, said Light.

"Just recently, major reports have come out about biased, poor trials for Avandia and Avastin," Light said, who noted that orphan drugs are tested even less well.

"The result is that drugs get approved without anyone being able to know how effective they really are or how much serious harm they will cause," Light said. The companies control the making of scientific knowledge and then control which findings will go to the

FDA or be published.

"A few basic changes could improve the quality of trials and evidence about the real risks and benefits of new drugs," Light said. "We could also increase the percentage of new drugs that are really better for patients.

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## **Nearly 1 million children potentially misdiagnosed with ADHD**

EAST LANSING, Mich. — Nearly 1 million children in the United States are potentially misdiagnosed with attention deficit hyperactivity disorder simply because they are the youngest – and most immature – in their kindergarten class, according to new research by a Michigan State University economist.

These children are significantly more likely than their older classmates to be prescribed behavior-modifying stimulants such as Ritalin, said Todd Elder, whose study will appear in a forthcoming issue of the *Journal of Health Economics*.

Such inappropriate treatment is particularly worrisome because of the unknown impacts of long-term stimulant use on children's health, Elder said. It also wastes an estimated \$320 million-\$500 million a year on unnecessary medication – some \$80 million-\$90 million of it paid by Medicaid, he said.

Elder said the "smoking gun" of the study is that ADHD diagnoses depend on a child's age relative to classmates and the teacher's perceptions of whether the child has symptoms.

"If a child is behaving poorly, if he's inattentive, if he can't sit still, it may simply be because he's 5 and the other kids are 6," said Elder, assistant professor of economics. "There's a big difference between a 5-year-old and a 6-year-old, and teachers and medical practitioners need to take that into account when evaluating whether children have ADHD."

ADHD is the most commonly diagnosed behavioral disorder for kids in the United States, with at least 4.5 million diagnoses among children under age 18, according to the Centers for Disease Control and Prevention.

However, there are no neurological markers for ADHD (such as a blood test), and experts disagree on its prevalence, fueling intense public debate about whether ADHD is under-diagnosed or over-diagnosed, Elder said.

Using a sample of nearly 12,000 children, Elder examined the difference in ADHD diagnosis and medication rates between the youngest and oldest children in a grade. The data is from the Early Childhood Longitudinal Study Kindergarten Cohort, which is funded by the National Center for Education Statistics.

According to Elder's study, the youngest kindergartners were 60 percent more likely to be diagnosed with ADHD than the oldest children in the same grade. Similarly, when that group of classmates reached the fifth and eighth grades, the youngest were more than twice as likely to be prescribed stimulants.

Overall, the study found that about 20 percent – or 900,000 – of the 4.5 million children currently identified as having ADHD likely have been misdiagnosed.

Elder used the students' birth dates and the states' kindergarten eligibility cutoff dates to determine the youngest and oldest students in a grade. The most popular cutoff date in the nation is Sept. 1, with 15 states mandating that children must turn 5 on or before that date to attend kindergarten.

The results – both from individual states and when compared across states – were definitive. For instance,

in Michigan – where the kindergarten cutoff date is Dec. 1 – students born Dec. 1 had much higher rates of ADHD than children born Dec. 2. (The students born Dec. 1 were the youngest in their grade; the students born Dec. 2 enrolled a year later and were the oldest in their grade.)

Thus, even though the students were a single day apart in age, they were assessed differently simply because they were compared against classmates of a different age set, Elder said.

In another example, August-born kindergartners in Illinois were much more likely to be diagnosed with ADHD than Michigan kindergartners born in August of the same year as their Illinois counterparts. That's because Illinois' kindergarten cutoff date is Sept. 1, meaning those August-born children were the youngest in their grade, whereas the Michigan students were not.

According to the study, a diagnosis of ADHD requires evidence of multiple symptoms of inattention or hyperactivity, with these symptoms persisting for six or more months – and in at least two settings – before the age of seven. The settings include home and school.

Although teachers cannot diagnose ADHD, their opinions are instrumental in decisions to send a child to be evaluated by a mental health professional, Elder said.

“Many ADHD diagnoses may be driven by teachers' perceptions of poor behavior among the youngest children in a kindergarten classroom,” he said. “But these ‘symptoms’ may merely reflect emotional or intellectual immaturity among the youngest students.”

The paper will be published in the Journal of Health Economics in conjunction with a related paper by researchers at North Carolina State University, Notre Dame and the University of Minnesota that arrives at similar conclusions as the result of a separate study.

**Public release date: 17-Aug-2010**

## **B vitamins and the aging brain examined**

B vitamins–B-6, B-12 and folate–all nourish the brain. But much remains to be discovered about the relation between these essential nutrients and our brainpower.

U.S. Department of Agriculture (USDA) nutritionist Lindsay H. Allen has collaborated in ongoing research that has taken a closer look at the role these nutrients may play in preventing decline in brain function. The investigations, led by Mary N. Haan of the University of California-San Francisco, are part of the multiyear Sacramento (Calif.) Area Latino Study on Aging, or "SALSA." Begun in 1996, the study attracted nearly 1,800 Hispanic seniors, ages 60 to 101, as volunteers.

According to Allen, the research is needed because many studies of B vitamins and brain function have given inconsistent or conflicting results. Allen is director of the Agricultural Research Service (ARS) Western Human Nutrition Research Center in Davis, Calif. ARS is the chief intramural scientific research agency of USDA. Scientists from the University of California-Davis (UCD) and the UCD Medical Center also are collaborating in the research.

An analysis of volunteers' blood samples showed **that lower levels of one B vitamin, folate, were associated with symptoms of dementia and poor brain function, also called "cognitive decline," as determined by standard tests of memory and other factors. The impairments were detectable even though less than 1 percent of the volunteers were actually deficient in folate.**

**In women, but not men, low levels of folate were associated with symptoms of depression. In fact, female volunteers whose plasma folate levels were in the lowest**

**third were more than twice as likely to have symptoms of depression as volunteers in the highest third. That finding provided new evidence of an association between lower blood folate and depression. Depression is already known to affect brain function.**

In research with vitamin B-12, the SALSA team determined that a protein known as holoTC, short for holotranscobalamin, might be key to a new approach for detecting cognitive decline earlier and more accurately.

**Public release date: 19-Aug-2010**

## **Prenatal exposure to pesticides linked to attention problems**

Berkeley — Children who were exposed to organophosphate pesticides while still in their mother's womb were more likely to develop attention disorders years later, according to a new study by researchers at the University of California, Berkeley.

The new findings, to be published Aug. 19 in the journal *Environmental Health Perspectives* (EHP), are the first to examine the influence of prenatal organophosphate exposure on the later development of attention problems. The researchers found that prenatal levels of organophosphate metabolites were significantly linked to attention problems at age 5, with the effects apparently stronger among boys.

Earlier this year, a different study by researchers at Harvard University associated greater exposure to organophosphate pesticides in school-aged children with higher rates of attention deficit hyperactivity disorder (ADHD) symptoms.

"These studies provide a growing body of evidence that organophosphate pesticide exposure can impact human neurodevelopment, particularly among children," said the study's principal investigator, Brenda Eskenazi, UC Berkeley professor of epidemiology and of maternal and child health. "We were especially interested in prenatal exposure because that is the period when a baby's nervous system is developing the most."

The study follows more than 300 children participating in the Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS), a longitudinal study led by Eskenazi that examines environmental exposures and reproductive health. Because the mothers and children in the study are Mexican-Americans living in an agricultural community, their exposure to pesticides is likely higher and more chronic, on average, than that of the general U.S. population.

Yet, the researchers pointed out that the pesticides they examined are widely used, and that the results from this study are a red flag that warrants precautionary measures.

**"It's known that food is a significant source of pesticide exposure among the general population," said Eskenazi. "I would recommend thoroughly washing fruits and vegetables before eating them, especially if you're pregnant."**

Organophosphate pesticides act by disrupting neurotransmitters, particularly acetylcholine, which plays an important role in sustaining attention and short-term memory.

"Given that these compounds are designed to attack the nervous system of organisms, there is reason to be cautious, especially in situations where exposure may coincide with critical periods of fetal and child development," said study lead author Amy Marks, who was an analyst at UC Berkeley's School of Public Health at the time of the study.

Many of these same UC Berkeley researchers are also finding that children with certain genetic traits may

be at greater risk, a finding that is being published the same day in a separate EHP paper. That study found that 2-year-olds with lower levels of paraoxonase 1 (PON1), an enzyme that breaks down the toxic metabolites of organophosphate pesticides, had more neurodevelopmental delays than those with higher levels of the enzyme. The authors suggest that people with certain PON1 genotypes could be particularly vulnerable to pesticide exposure.

In the study on attention problems, researchers tested for six metabolites of organophosphate pesticides in mothers twice during pregnancy and in the children several times after birth. Together, the metabolites represent the breakdown products of about 80 percent of all the organophosphate pesticides used in the Salinas Valley.

The researchers then evaluated the children at age 3.5 and 5 years for symptoms of attention disorders and ADHD using maternal reports of child behavior, performance on standardized computer tests, and behavior ratings from examiners. They controlled for potentially confounding factors such as birthweight, lead exposure and breastfeeding.

Each tenfold increase in prenatal pesticide metabolites was linked to having five times the odds of scoring high on the computerized tests at age 5, suggesting a greater likelihood of a child having clinical ADHD. The effect appeared to be stronger for boys than for girls.

While a positive link between prenatal pesticide exposure and attention problems was seen for 3.5-year-olds, it was not statistically significant, a finding that did not surprise the researchers.

"Symptoms of attention disorders are harder to recognize in toddlers, since kids at that age are not expected to sit down for significant lengths of time," said Marks. "Diagnoses of ADHD often occur after a child enters school."

The UC Berkeley researchers are continuing to follow the children in the CHAMACOS study as they get older, and expect to present more results in the years to come.

The findings add to the list of chemical assaults that have been linked to ADHD in recent years. In addition to pesticides, studies have found associations with exposure to lead and to phthalates, which are commonly used in toys and plastics.

"High levels of the symptoms of ADHD by age 5 are a major contributor to learning and achievement problems in school, accidental injuries at home and in the neighborhood, and a host of problems in peer relationships and other essential competencies," said UC Berkeley psychology professor Stephen Hinshaw, one of the country's leading experts on ADHD, who was not part of this study. "Finding preventable risk factors is therefore a major public health concern."

**Public release date: 22-Aug-2010**

## **Bottled tea beverages may contain fewer polyphenols than brewed tea**

BOSTON, Aug. 22, 2010 — The first measurements of healthful antioxidant levels in commercial bottled tea beverages has concluded that health-conscious consumers may not be getting what they pay for: healthful doses of those antioxidants, or "polyphenols," that may ward off a range of diseases.

Scientists reported here today at the 240th National Meeting of the American Chemical Society (ACS) that many of the increasingly popular beverages included in their study, beverages that account for \$1 billion in annual sales in the United States alone, **contain fewer polyphenols than a single cup of home-brewed green or black tea. Some contain such small amounts that consumers would have to drink 20 bottles to get the polyphenols present in one cup of tea.**

"Consumers understand very well the concept of the health benefits from drinking tea or consuming other tea products," said Shiming Li, Ph.D., who reported on the new study with Professor Chi-Tang Ho and his colleagues. "However, there is a huge gap between the perception that tea consumption is healthy and the actual amount of the healthful nutrients — polyphenols — found in bottled tea beverages. Our analysis of tea beverages found that the polyphenol content is extremely low."

Li pointed out that in addition to the low polyphenol content, bottled commercial tea contains other substances, including large amounts of sugar and the accompanying calories that health-conscious consumers may be trying to avoid. He is an analytical and natural product chemist at WellGen, Inc., a biotechnology company in North Brunswick, N.J., that discovers and develops medical foods for patients with diseases, including a proprietary black tea product that will be marketed for its anti-inflammatory benefits, which are due in part to a high polyphenol content.

Li and colleagues measured the level of polyphenols — a group of natural antioxidants linked to anti-cancer, anti-inflammatory, and anti-diabetic properties — of six brands of tea purchased from supermarkets. Half of them contained what Li characterized as "virtually no" antioxidants. The rest had small amounts of polyphenols that Li said probably would carry little health benefit, especially when considering the high sugar intake from tea beverages.

"Someone would have to drink bottle after bottle of these teas in some cases to receive health benefits," he said. "I was surprised at the low polyphenol content. I didn't expect it to be at such a low level."

**The six teas Li analyzed contained 81, 43, 40, 13, 4, and 3 milligrams (mg.) of polyphenols per 16-ounce bottle. One average cup of home-brewed green or black tea, which costs only a few cents, contains 50-150 mg. of polyphenols.**

After water, tea is the world's most widely consumed beverage. Tea sales in the United States have quadrupled since 1990 and now total about \$7 billion annually. The major reason: Scientific evidence that the polyphenols and other antioxidants in tea may reduce the risk of cancer, heart disease, and other afflictions.

Li said that some manufacturers do list polyphenol content on the bottle label. But the amounts may be incorrect because there are no industry or government standards or guidelines for measuring and listing the polyphenolic compounds in a given product. A regular tea bag, for example, weighs about 2.2 grams and could contain as much as 175 mg. of polyphenols, Li said. But polyphenols degrade and disappear as the tea bag is steeped in hot water. The polyphenol content also may vary as manufacturers change their processes, including the quantity and quality of tea used to prepare a batch and the tea brewing time.

"Polyphenols are bitter and astringent, but to target as many consumers as they can, manufacturers want to keep the bitterness and astringency at a minimum," Li explained. "The simplest way is to add less tea, which makes the tea polyphenol content low but tastes smoother and sweeter."

Li used a standard laboratory technique, termed high-performance liquid chromatography (HPLC), to make what he described as the first measurements of polyphenols in bottled tea beverages. He hopes the research will encourage similar use of HPLC by manufacturers and others to provide consumers with better nutritional information.

**Public release date: 23-Aug-2010**

## **Eating berries may activate the brain's natural housekeeper for healthy aging**

BOSTON, Aug. 23, 2010 — Scientists today reported the first evidence that eating blueberries,

strawberries, and acai berries may help the aging brain stay healthy in a crucial but previously unrecognized way. Their study, presented at the 240th National Meeting of the American Chemical Society (ACS), concluded that berries, and possibly walnuts, activate the brain's natural "housekeeper" mechanism, which cleans up and recycles toxic proteins linked to age-related memory loss and other mental decline.

Shibu Poulose, Ph.D., who presented the report, said previous research suggested that one factor involved in aging is a steady decline in the body's ability to protect itself against inflammation and oxidative damage. This leaves people vulnerable to degenerative brain diseases, heart disease, cancer, and other age-related disorders.

"The good news is that natural compounds called polyphenolics found in fruits, vegetables and nuts have an antioxidant and anti-inflammatory effect that may protect against age-associated decline," said Poulose, who is with the U. S. Department of Agriculture-Agricultural Research Service (USDA-ARS) Human Nutrition Research Center on Aging in Boston. Poulose did the research with James Joseph, Ph.D., who died June 1. Joseph, who headed the laboratory, pioneered research on the role of antioxidants in fruits and nuts in preventing age-related cognitive decline.

Their past studies, for instance, showed that old laboratory rats fed for two months on diets containing 2 percent high-antioxidant strawberry, blueberry, or blackberry extract showed a reversal of age-related deficits in nerve function and behavior that involves learning and remembering.

In the new research, Poulose and Joseph focused on another reason why nerve function declines with aging. It involves a reduction in the brain's natural house-cleaning process. Cells called microglia are the housekeepers. In a process called autophagy, they remove and recycle biochemical debris that otherwise would interfere with brain function.

**"But in aging, microglia fail to do their work, and debris builds up," Poulose explained. "In addition, the microglia become over-activated and actually begin to damage healthy cells in the brain. Our research suggests that the polyphenolics in berries have a rescuing effect. They seem to restore the normal housekeeping function. These findings are the first to show these effects of berries."**

The findings emerged from research in which Joseph and Poulose have tried to detail factors involved in the aging brain's loss of normal housekeeping activity. Using cultures of mouse brain cells, they found that extracts of berries inhibited the action of a protein that shuts down the autophagy process.

Poulose said the study provides further evidence to eat foods rich in polyphenolics. Although berries and walnuts are rich sources, many other fruits and vegetables contain these chemicals — especially those with deep red, orange, or blue colors. Those colors come from pigments termed anthocyanins that are good antioxidants. He emphasized the importance of consuming the whole fruit, which contains the full range of hundreds of healthful chemicals. Frozen berries, which are available year round, also are excellent sources of polyphenolics, he added.

**Public release date: 23-Aug-2010**

## **Vitamin D found to influence over 200 genes, highlighting links to disease**

The extent to which vitamin D deficiency may increase susceptibility to a wide range of diseases is dramatically highlighted in research published today. Scientists have mapped the points at which vitamin D interacts with our DNA – and identified over two hundred genes that it directly influences. The results are published today in the journal *Genome Research*.

It is estimated that one billion people worldwide do not have sufficient vitamin D. This deficiency is thought to be largely due to insufficient exposure to the sun and in some cases to poor diet. As well as

being a well-known risk factor for rickets, there is a growing body of evidence that vitamin D deficiency also increases an individual's susceptibility to autoimmune conditions such as multiple sclerosis (MS), rheumatoid arthritis and type 1 diabetes, as well as certain cancers and even dementia.

Now, in a study whose funders include the Medical Research Council (MRC), the MS Society, the Wellcome Trust and the MS Society of Canada, researchers at the University of Oxford have shown the extent to which vitamin D interacts with our DNA. They used new DNA sequencing technology to create a map of vitamin D receptor binding across the genome. The vitamin D receptor is a protein activated by vitamin D, which attaches itself to DNA and thus influences what proteins are made from our genetic code.

The researchers found 2,776 binding sites for the vitamin D receptor along the length of the genome. These were unusually concentrated near a number of genes associated with susceptibility to autoimmune conditions such as MS, Crohn's disease, systemic lupus erythematosus (or 'lupus') and rheumatoid arthritis, and to cancers such as chronic lymphocytic leukaemia and colorectal cancer.

They also showed that vitamin D had a significant effect on the activity of 229 genes including IRF8, previously associated with MS, and PTPN2, associated with Crohn's disease and type 1 diabetes.

"Our study shows quite dramatically the wide-ranging influence that vitamin D exerts over our health," says Dr Andreas Heger from the MRC Functional Genomics Unit at Oxford, one of the lead authors of the study.

The first author of the paper, Dr Sreeram Ramagopalan from the Wellcome Trust Centre for Human Genetics, adds: "There is now evidence supporting a role for vitamin D in susceptibility to a host of diseases. Vitamin D supplements during pregnancy and the early years could have a beneficial effect on a child's health in later life. Some countries such as France have instituted this as a routine public health measure."

The main source of vitamin D in the body comes from exposing the skin to sunlight, although a diet of oily fish can provide some of the vitamin. Research has previously suggested that lighter skin colour and hair colour evolved in populations moving to parts of the globe with less sun to optimise production of vitamin D in the body. A lack of vitamin D can affect bone development, leading to rickets; in pregnant mothers, poor bone health can be fatal to both mother and child at birth, hence there are selective pressures in favour of people who are able to produce adequate vitamin D.

This new study supports this hypothesis, having found a significant number of vitamin D receptor binding sites in regions of the genome with genetic changes more commonly found in people of European and Asian descent. It is probable that skin lightening as we migrated out of Africa resulted from the necessity to be able to make more vitamin D and prevent rickets: vitamin D deficiency led to pelvic contraction resulting in increased risk of fatality of both mother and unborn child, effectively ending maternal lineages unable to find ways of increasing availability of the vitamin.

"Vitamin D status is potentially one of the most powerful selective pressures on the genome in relatively recent times," says Professor George Ebers, Action Medical Research Professor of Clinical Neurology and one of the senior authors of the paper. "Our study appears to support this interpretation and it may be we have not had enough time to make all the adaptations we have needed to cope with our northern circumstances."

**Public release date: 23-Aug-2010**

## **Diabetes can cause a sugar coating that smothers body's immune defences**

Research led by the Warwick Medical School at the University of Warwick has found that unhealthy

glucose levels in patients with diabetes can cause significantly more problems for the body than just the well-known symptoms of the disease such as kidney damage and circulation problems. **The raised glucose can also form what can be described as a sugar coating that can effectively smother and block the mechanisms our bodies use to detect and fight bacterial and fungal infections.**

In diabetes, patients suffer a higher risk of chronic bacterial and fungal infections but until now little has been known about the mechanisms involved. Now new research led by Dr Daniel Mitchell at the University of Warwick's Warwick Medical School has found a novel relationship between high glucose and the immune system in humans. The researchers have found that specialized receptors that recognize molecules associated with bacteria and fungi become "blind" when glucose levels rise above healthy levels. The new research may also help explain why diabetic complications can also include increased risk of viral infections such as influenza, and also inflammatory conditions such as cardiovascular disease.

The researchers looked at the similarities in chemical structure between glucose in blood and body fluids, and two other sugar called mannose and fucose. These sugars are found on the surfaces of bacteria and fungi and act as targets for receptors in our body that have evolved to detect and bind to microbial sugars to then combat the infection.

The research found that high levels of glucose outcompetes the binding of mannose and fucose to the specialized immune receptors, potentially blocking these receptors from detecting infectious bacteria and fungi. Glucose also binds in such a way that it inhibits the chemical processes that would normally then follow to combat infections. If this happens it can inhibit a range of key processes including:

- It can inhibit the function of immune system receptors called C-type lectins such as MBL (Mannose-binding lectin) which are known to bind to a sugar known as mannose that is present in the structure of infectious fungal bacterial cell walls. Unlike glucose, mannose does not exist in mammals as a free sugar in the blood.

- The loss of MBL function may also predispose the body to chronic inflammatory diseases, since MBL is involved in the processing and clearance of apoptotic cells (dying cells).

- A number of C-type lectins that can be affected by raised glucose levels, including MBL, but also including immune cell surface receptors DC-SIGN and DC-SIGNR, are found in key parts of our circulation and vascular system such as plasma, monocytes, platelets and endothelial cells that line blood vessels. Inhibiting the function of these key molecules in those settings could contribute to diabetic cardiovascular and renal complications.

**Public release date: 23-Aug-2010**

## **Polyphenol antioxidants inhibit iron absorption**

University Park, Pa. — Health benefits from polyphenol antioxidants — substances found in many fruits and vegetables — may come at a cost to some people. Penn State nutritional scientists found that eating certain polyphenols decreased the amount of iron the body absorbs, which can increase the risk of developing an iron deficiency.

"Polyphenols have been known to have many beneficial effects for human health, such as preventing or delaying certain types of cancer, enhancing bone metabolism and improving bone mineral density, and decreasing risk of heart disease," said Okhee Han, assistant professor of nutritional sciences. "But so far, not many people have thought about whether or not polyphenols affect nutrient absorption."

The researchers, led by Han, studied the effects of eating grape seed extract and epigallocatechin-3-gallate (EGCG) found in green tea. They used cells from the intestine — where iron absorption takes place — to assess the polyphenols' effect and found that polyphenols bind to iron in the intestinal cells, forming a non-transportable complex. This iron-polyphenol complex cannot enter the blood stream. Instead, it is excreted

in the feces when cells are sloughed off and replaced.

Iron is necessary to carry oxygen from the lungs throughout the body and for other cellular functions. People already at risk for iron deficiency increase that risk if they consume high amounts of grape seed extract or EGCG.

"Iron deficiency is the most prevalent nutrient deficiency in the world, especially in developing countries where meats are not plentiful," said Han. "People at high risk of developing iron deficiency — such as pregnant women and young children — should be aware of what polyphenols they are consuming."

Han and her colleagues looked at the heme form of iron found in meats, poultry, and fish. Last year, they performed similar research with non-heme iron found in plants. They published the results of their study on grape seed extract and EGCG in the *Journal of Nutrition*, showing that eating polyphenols decreased iron absorption.

Both grape seed extract and EGCG are sold in extract form. The results of these studies suggest that consumers should be cautious if using these products.

**Ralph's Note - Is should be recommended that they should not take Iron supplements at the same time.**

**Public release date: 24-Aug-2010**

## **A case for exercising**

There is now another good reason to exercise. Besides burning calories, exercise restores the sensitivity of neurons involved in the control of satiety (feeling full), which in turn contributes to reduced food intake and consequently weight loss. This is the conclusion of a study led by Brazilian researchers at the University of Campinas, and the findings will be published next week in the online, open access journal *PLoS Biology*. This disclosure may bring hope to over 40% of the population that suffers from weight problems and obesity around the world.

The increase in obesity has become one of the most important clinical-epidemiological phenomena. Factors such as changing eating habits and a sedentary lifestyle both have a role in the pathogenesis of this disease. It is postulated that excessive consumption of fat creates failures in the signal transmitted by neurons controlling satiety in a region of the brain called the hypothalamus. These failures can lead to uncontrollable food intake and, consequently, obesity.

**The group led by José Barreto C. Carvalheira demonstrated that exercising obese rodents showed signals of restored satiety in hypothalamic neurons and decreased food intake.** "In obese animals, exercise increased IL-6 and IL-10 protein levels in the hypothalamus, and these molecules were crucial for increasing the sensitivity of the most important hormones, insulin and leptin, which control appetite," Carvalheira explained. Physical activity contributes to the prevention and treatment of obesity, not only by increasing energy expenditure but also by modulating the signals of satiety and reducing food intake.

Physical activity has always been considered a cornerstone in the treatment of obesity, however, only now have the effects of exercise on the control of body weight been understood. Thus, these findings, besides reinforcing the necessity for regular exercise also change the current paradigm established between physical activity and weight loss.

**Ralph's Note - So more exercise, less hunger.**

**Public release date: 24-Aug-2010**

## Researchers study cinnamon extracts

A study led by U.S. Department of Agriculture (USDA) chemist Richard Anderson suggests that a water soluble extract of cinnamon, which contains antioxidative compounds, could help reduce risk factors associated with diabetes and heart disease.

The work is part of cooperative agreements between the Beltsville Human Nutrition Research Center (BHNRC) operated by USDA's Agricultural Research Service (ARS) at Beltsville, Md.; Integrity Nutraceuticals International of Spring Hill, Tenn., and the Joseph Fourier University in Grenoble, France. Anderson works in the Diet, Genomics and Immunology Laboratory of BHNRC. ARS is USDA's principal intramural scientific research agency.

For the study, conducted in Ohio, coauthor Tim N. Ziegenfuss, now with the Center for Applied Health Sciences based in Fairlawn, Ohio, enrolled volunteers and collected samples.

Twenty-two obese participants with impaired blood glucose values--a condition classified as "prediabetes"--volunteered for the 12-week experimental research study. Prediabetes occurs when cells are resistant to the higher-than-normal levels of insulin produced by the pancreas (in an attempt to help remove elevated glucose levels from blood).

The volunteers were divided randomly into two groups and given either a placebo or 250 milligrams (mgs) of a dried water-soluble cinnamon extract twice daily along with their usual diets. Blood was collected after an overnight fast at the beginning of the study, after six weeks, and after 12 weeks to measure the changes in blood glucose and antioxidants.

**The study demonstrated that the water-soluble cinnamon extract improved a number of antioxidant variables by as much as 13 to 23 percent, and improvement in antioxidant status was correlated with decreases in fasting glucose, according to Anderson.**

Only more research will tell whether the investigational study supports the idea that people who are overweight or obese could reduce oxidative stress and blood glucose by consuming cinnamon extracts that have been proven safe and effective. In the meantime, weight loss remains the primary factor in improving these numbers, according to ARS scientists.

**Public release date: 24-Aug-2010**

## Atrazine causes prostate inflammation in male rats and delays puberty

**A new study shows that male rats prenatally exposed to low doses of atrazine, a widely used herbicide, are more likely to develop prostate inflammation and to go through puberty later than non-exposed animals. The research adds to a growing body of literature on atrazine, an herbicide predominantly used to control weeds and grasses in crops such as corn and sugar cane. Atrazine and its byproducts are known to be relatively persistent in the environment, potentially finding their way into water supplies.**

The research, which is available online and will be featured on the cover of Reproductive Toxicology (Volume 30, Issue 4), found that the incidence **of prostate inflammation went from 48 percent in the control group to 81 percent in the male offspring who were exposed to a mixture of atrazine and its breakdown products prenatally.** The severity of the inflammation increased with the strength of the doses. Puberty was also delayed in the animals who received atrazine.

The doses of atrazine mixture given to the rats during the last five days of their pregnancy are close to the regulated levels in drinking water sources. The current maximum contamination level of atrazine allowed in drinking water is 3 parts per billion. The doses given to the animals were 0.09 (or 2.5 parts per million),

0.87, or 8.73 milligrams per kilogram body weight.

The research was led by Suzanne Fenton, Ph.D., and Jason Stanko, Ph.D., of the National Institute of Environmental Health Sciences (NIEHS), part of the National Institutes of Health. Fenton began the work as a researcher at the United States Environmental Protection Agency (EPA), but completed the research at NIEHS, working closely with NIEHS pathologists. Both NIEHS and EPA provided financial support for the study.

"We didn't expect to see these kinds of effects at such low levels," Fenton said. She adds that this is the second paper to show low dose effects of atrazine metabolite mixtures. Fenton was the senior author on a 2007 paper which demonstrated low doses of the atrazine mix delayed mammary development in female siblings from the same litters used in this current study.

"It was noteworthy that the prostate inflammation decreased over time, suggesting the effects may not be permanent," said David Malarkey, D.V.M., Ph.D., an NIEHS pathologist and co-author on the paper.

Fenton points out that these findings may extend beyond atrazine alone, and may be relevant to other herbicides found in the same chlorotriazine family, including propazine and simazine. All three of the herbicides create the same set of breakdown products.

Fenton says more research is needed to understand the mechanism of action of the chlorotriazines and their metabolites on mammary and prostate tissue. "These tissues seem to be particularly sensitive to the effects of atrazine and its breakdown products," Fenton added. "The effects may be due to the stage of fetal development at the time the animals were exposed."

"We hope that this information will be useful to the EPA, as it completes its risk assessment of atrazine," said Linda Birnbaum, Ph.D., director of NIEHS and the National Toxicology Program.

Fenton will be presenting her research findings in September to the EPA, as part of its reassessment of atrazine. EPA announced in 2009 that it had begun a comprehensive new evaluation of atrazine to determine its effects on humans. At the end of this process, the agency will decide whether to revise its current risk assessment of atrazine and whether new restrictions are necessary to better protect public health. For more information about the EPA risk assessment, please visit [http://www.epa.gov/pesticides/reregistration/atrazine/atrazine\\_update.htm](http://www.epa.gov/pesticides/reregistration/atrazine/atrazine_update.htm).

**Public release date: 24-Aug-2010**

## **Salmon baby food? Babies need omega-3s and a taste for fish, scientist says**

URBANA – Has your toddler eaten fish today? A University of Illinois food science professor has two important reasons for including seafood in your young child's diet, reasons that have motivated her work in helping to develop a tasty, nutritious salmon baby food for toddlers.

"First, babies need a lot of the omega-3 fatty acids found in fish for brain, nerve, and eye development, and when they switch from breast milk or formula to solid food, most of them don't get nearly enough," said Susan Brewer, also a registered dietitian.

"Second, children's food preferences are largely developed by the time they're five, so I urge parents to help their kids develop a taste for seafood early," she said.

Fish that are high in omega-3 fatty acids, such as salmon, have huge health benefits and help to prevent coronary artery disease, but most adults don't eat fish twice weekly as experts recommend. In predisposing children toward liking fish, parents are doing their kids a big favor, she said.

Brewer knows her recommendations might meet with some resistance. "When we started working on salmon baby food, I thought, Ewwwh! But the American Heart Association and the American Academy of Pediatrics is solidly behind the idea, and fish-based baby foods, common in Asian markets, have been marketed successfully in the United Kingdom and Italy."

Brewer collaborated with former U of I professor Peter Bechtel, now of Alaska's Agricultural Research Service, in the effort to create a viable product, using wild-caught salmon from Alaskan waters.

"When salmon swim upstream to spawn, their flesh begins to get very soft. At that point, the meat is not firm enough for fillets, but it's perfect for baby food," she noted.

She has experimented with both pink and red salmon, finding that red salmon survives the baby food production process better.

And, to boost nutrition, in separate experiments she has added bone meal and pureed salmon roe (eggs) to her entrees. The first ingredient (made by grinding the bones in the salmon into a powder) provides calcium in a form that is readily available for bone building in children. The second provides high-quality protein and contains significant quantities of vitamin D and omega-3 fatty acids, particularly docosahexaenoic acid (DHA).

**"A newborn infant's brain is 50 percent DHA,"** she noted. "However, babies and toddlers have immature livers and can't synthesize enough DHA to ensure an adequate supply to their developing nerve tissues. If small children are going to get DHA, they must ingest it in their food."

According to Brewer, the results of her experiments have been encouraging. "Salmon is very mild, and the toddler dinners, which are 27 percent meat or fish, don't taste or smell fishy at all. They remind me of that salmon and cream cheese dip you have during the holidays."

Besides, could 107 parents of preschoolers be wrong? In a recent sensory panel conducted in the scientist's lab, parents found little difference in taste between formulations that contained roe or bone meal and those that didn't. Eighty-one percent of the parent panelists—even those who don't eat salmon themselves—said they would offer it to their children after taste testing the product.

"It's not enough for mothers to know that toddlers need fish in their diets. They won't buy a product unless it also appeals to the eye and the taste buds," she said.

"Our goal is to deliver maximum nutrition in an entrée that's aesthetically pleasing, and these studies show that we can do just that," she added.

**Public release date: 25-Aug-2010**

## **Grapefruit's bitter taste holds a sweet promise for diabetes therapy**

Naringenin, an antioxidant derived from the bitter flavor of grapefruits and other citrus fruits, may cause the liver to break down fat while increasing insulin sensitivity, a process that naturally occurs during long periods of fasting.

**A team of researchers from the Hebrew University of Jerusalem and Massachusetts General Hospital (MGH) report that naringenin activates a family of small proteins, called nuclear receptors, causing the liver to break down fatty acids. In fact, the compound seems to mimic the actions of other drugs, such as the lipid-lowering Fenofibrate and the anti-diabetic Rosiglitazone, offering the advantages of both. If the results of this study extend to human patients, this dietary supplement could become a staple in the treatment of hyperlipidemia, type-2 diabetes, and perhaps metabolic syndrome. The report appears in this week issue of the online journal PLoS ONE.**

"It is a fascinating find," says Yaakov Nahmias, PhD, of the Hebrew University of Jerusalem the paper's senior author. "We show the mechanism by which naringenin increases two important pharmaceutical targets, PPAR $\alpha$  and PPAR $\gamma$ , while blocking a third, LXR $\alpha$ . The results are similar to those induced by long periods of fasting".

The liver is the main organ responsible for the regulation of carbohydrate and lipid levels in the blood. Following a meal, the blood is flushed with sugars, which activate LXR $\alpha$ , causing the liver to create fatty acids for long-term storage. During fasting, the process is reversed; fatty acids are released by fat cells, activate PPAR $\alpha$  in the liver, and are broken down to ketones. A similar process, involving PPAR $\gamma$ , increases sensitivity to insulin.

**"It is a process which is similar to the Atkins diet, without many of the side effects,"** says Martin L. Yarmush, MD, PhD, director of the MGH Center for Engineering in Medicine and one of the paper's authors.

**"The liver behaves as if fasting, breaking down fatty acids instead of carbohydrates."** Yarmush is the Helen Andrus Benedict Professor of Surgery and Bioengineering at Harvard Medical School.

"Dual PPAR $\alpha$  and PPAR $\gamma$  agonists, like naringenin, were long sought after by the pharmaceutical industry," says Nahmias, "but their development was plagued by safety concerns. Remarkably, naringenin is a dietary supplement with a clear safety record. Evidence suggests it might actually protect the liver from damage."

Grapefruit's bitter taste is caused the presence of the flavonoid naringin, which is broken down in the gut into naringenin. Earlier evidence has shown the compound has cholesterol lowering properties and may ameliorate some of the symptoms associated with diabetes. The researchers demonstrated that the compound activates PPAR $\alpha$  and PPAR $\gamma$  by dramatically increasing the levels of a co-activator peptide of both, called PGC1 $\alpha$ . At the same time, naringenin bound directly to LXR $\alpha$ , blocking its activation. These effects culminated with increased fatty acid oxidation and the inhibition of vLDL ('bad cholesterol') production.

**Public release date: 25-Aug-2010**

## **Exposure to low doses of BPA alters gene expression in the fetal mouse ovary**

Significant changes in gene expression in the fetal ovary are evident in female mice whose mothers are exposed to low doses of bisphenol A

A study posted today (Wednesday, August 25) at the online site of the journal *Biology of Reproduction* reports that exposure of pregnant female mice to the endocrine-disrupting chemical bisphenol A **may produce adverse reproductive consequences on gene expression in fetal ovaries as early as 12 hours after the mother has first been exposed to the chemical.**

Bisphenol A (BPA) is a chemical used in plastics for making some baby and water bottles, linings of food and beverage cans, and other human consumer products.

**The mice in this study were given BPA at doses thought to be equivalent to levels currently being experienced by humans.**

The research, conducted in the laboratory of Dr. Patricia A. Hunt at Washington State University (WSU) in Pullman, showed that BPA exposure affects the earliest stages of egg production in the ovaries of the developing mouse fetuses, thus suggesting that the next generation (the grandchildren of the females given BPA) may suffer genetic defects in such biological processes as mitosis and DNA replication.

In addition, the WSU research team noted that their study "revealed a striking down-regulation of mitotic/cell cycle genes, raising the possibility that BPA exposure immediately before meiotic entry might act to shorten the reproductive lifespan of the female" by reducing the total pool of fetal oocytes.

Future studies in Dr. Hunt's laboratory will focus on genetic changes produced over a range of BPA exposure.

**Public release date: 25-Aug-2010**

## **Plantain and broccoli fibers may block key stage in Crohn's disease development**

Translocation of Crohn's disease Escherichia coli across M-cells: Contrasting effects of soluble plant fibers and emulsifiers

Plantain and broccoli fibres may block a key stage in the development of the inflammatory bowel disorder, Crohn's disease, suggests preliminary research published online in Gut.

The causes of Crohn's disease are thought to be a mix of genetic and environmental factors, one of which is very likely to be diet.

The disease is significantly less common in developing countries, where fibrous fruit and vegetables are dietary staples, and its incidence has recently risen rapidly in Japan, in tandem with the increasing adoption of a more Westernised diet.

One of the key stages in the development of Crohn's is invasion of the cells lining the bowel (epithelial cells) by bacteria, particularly a "sticky" type of Escherichia coli, so the researchers looked at dietary agents that might influence this process.

They cultured M (microfold) cells, bowel lining cells that are the common entry point for invading bacteria that cause diarrhoea - a process known as translocation.

The researchers tested whether preparations of plant soluble fibres prepared from leeks, apples, broccoli, and plantains, and the fat emulsifiers polysorbate 60 and 80, commonly used in processed food manufacture, could alter E coli translocation across M cells.

Plantain and broccoli fibres (5 mg/ml) reduced translocation of E. coli by between 45% and 82%, while leek and apple fibres had no noticeable impact. By contrast, the emulsifier polysorbate 80 substantially increased translocation.

These results were then confirmed in tissue samples taken from patients undergoing surgery for other gut disorders.

The findings suggest that supplementing the diet with broccoli/plantain fibres might prevent relapse of Crohn's disease, say the authors.

They go on to add that the results could have further implications for the treatment of Crohn's disease as many enteral feeds contain emulsifiers, which may account for the variable response to this type of treatment.

**Public release date: 25-Aug-2010**

## **Vitamin D may treat and prevent allergic reaction to mold in cystic fibrosis patients**

PITTSBURGH, Aug. 25 – Vitamin D may be an effective therapy to treat and even prevent allergy to a common mold that can cause severe complications for patients with cystic fibrosis and asthma, according to researchers from Children's Hospital of Pittsburgh of UPMC, the University of Pittsburgh School of Medicine and Louisiana State University School of Medicine.

Results of the study, led by Jay Kolls, M.D., Ph.D., a lung disease researcher at Children's Hospital and professor of pediatrics at the University of Pittsburgh School of Medicine, are published in the September 2010 issue of the Journal of Clinical Investigation.

*Aspergillus fumigatus*, is one of the most common airborne molds and while it does not cause illness in the vast majority of those who inhale it, it can cause life threatening allergic symptoms in patients with cystic fibrosis. As many as 15 percent of patients with cystic fibrosis will develop a severe allergic response, known as Allergic Bronchopulmonary Aspergillosis (ABPA). Some patients with asthma also can develop ABPA.

The research team led by Dr. Kolls studied cystic fibrosis patients from the Antonio J. and Janet Palumbo Cystic Fibrosis Center at Children's Hospital who had *A. fumigatus* infections. One group had developed ABPA, while the other hadn't. The researchers found that the ABPA patients had a heightened response by immune cells known as type 2 T helper (Th2) cells, and that a protein known as OX40L was critical to this heightened response. The heightened Th2 response correlated with lower levels of vitamin D as compared with the non-ABPA patients. Adding vitamin D to these cells in the laboratory substantially reduced the expression of OX40L and increased the expression of other proteins critical to the development of allergen tolerance.

**"We found that adding vitamin D substantially reduced the production of the protein driving the allergic response and also increased production of the protein that promotes tolerance," said Dr. Kolls, who also is professor and chair of genetics at LSU Health Sciences Center New Orleans. "Based on our results, we have strong rationale for a clinical trial of vitamin D to determine whether it can prevent or treat ABPA in patients with cystic fibrosis."**

Cystic fibrosis is an inherited chronic disease that affects the lungs and digestive system of about 30,000 children and adults in the United States (70,000 worldwide), according to the Cystic Fibrosis Foundation. A defective gene and its protein product cause the body to produce unusually thick, sticky mucus that clogs the lungs and leads to life-threatening lung infections and obstructs the pancreas and stops natural enzymes from helping the body break down and absorb food.

"These important findings by Dr. Kolls' team add to the growing body of evidence showing that vitamin D may play a critical role on immune responses and allergic diseases," said Juan Celedón, M.D., Dr.P.H., chief of the Division of Pulmonary Medicine, Allergy and Immunology at Children's Hospital.

**Public release date: 26-Aug-2010**

## **Black rice rivals pricey blueberries as source of healthful antioxidants**

BOSTON, Aug. 26, 2010 — Health conscious consumers who hesitate at the price of fresh blueberries and blackberries, fruits renowned for high levels of healthful antioxidants, now have an economical alternative, scientists reported here today at the 240th National Meeting of the American Chemical Society (ACS). It is black rice, one variety of which got the moniker "Forbidden Rice" in ancient China because nobles commandeered every grain for themselves and forbade the common people from eating it.

**"Just a spoonful of black rice bran contains more health promoting anthocyanin antioxidants than are found in a spoonful of blueberries, but with less sugar and more fiber and vitamin E antioxidants,"** said Zhimin Xu, Associate Professor at the Department of Food Science at Louisiana State University Agricultural Center in Baton Rouge, La., who reported on the research. "If berries are used to boost health, why not black rice and black rice bran? Especially, black rice bran would be a unique and economical material to increase consumption of health promoting antioxidants."

Like fruits, "black rice" is rich in anthocyanin antioxidants, substances that show promise for fighting heart disease, cancer, and other diseases. Food manufacturers could potentially use black rice bran or the bran extracts to boost the health value of breakfast cereals, beverages, cakes, cookies, and other foods, Xu and colleagues suggested.

Brown rice is the most widely produced rice variety worldwide. Rice millers remove only the outer husks, or "chaff," from each rice grain to produce brown rice. If they process the rice further, removing the underlying nutrient rich "bran," it becomes white rice. Xu noted that many consumers have heard that brown rice is more nutritious than white rice. **The reason is that the bran of brown rice contains higher levels of gamma-tocotrienol, one of the vitamin E compounds, and gamma-oryzanol antioxidants, which are lipid-soluble antioxidants. Numerous studies showed that these antioxidants can reduce blood levels of low-density lipoprotein cholesterol (LDL) — so called "bad" cholesterol — and may help fight heart disease.** Xu and colleagues analyzed samples of black rice bran from rice grown in the southern United States. In addition, the lipid soluble antioxidants they found in black rice bran possess higher level of anthocyanins antioxidants, which are water-soluble antioxidants. Thus, black rice bran may be even healthier than brown rice bran, suggested Dr. Xu.

The scientists also showed that pigments in black rice bran extracts can produce a variety of different colors, ranging from pink to black, and may provide a healthier alternative to artificial food colorants that manufacturers now add to some foods and beverages. Several studies have linked some artificial colorants to cancer, behavioral problems in children, and other health problems.

Black rice is used mainly in Asia for food decoration, noodles, sushi, and pudding. Dr. Xu said that farmers are interested in growing black rice in Louisiana and that he would like to see people in the country embrace its use.

**Public release date: 26-Aug-2010**

## **Supplement produces a 'striking' endurance boost**

Research from the University of Exeter has revealed taking a dietary supplement to boost nitric oxide in the body can significantly boost stamina during high-intensity exercise.

The study has important implications for athletes, as results suggest that taking the supplement can allow people to exercise up to 20% longer and could produce a 1-2% improvement in race times.

This comes on the back of previous research from Exeter which showed that the high nitrate content of beetroot juice, which also boosts nitric oxide in the body, has a similar effect on performance.

However, the latest study gets the nitric oxide into the body through a different biological process – and now the researchers are hoping to find out whether combining the two methods could bring an even greater improvement in athletic performance.

Professor Andrew Jones, from the University's School of Sport and Health Sciences, said: "The research found that when the dietary supplement was used there was a striking increase in performance by altering the use of oxygen during exercise.

"This is important for endurance athletes as we would expect the supplement to bring a 1-2% improvement in race times. While this may seem small, this is a very meaningful improvement – particularly at elite levels where small gains can be the difference between winning and losing."

For the research, nine healthy males were put through several different physical challenges on a cycling ergometer to measure their performance under different levels of exercise intensity.

Participants were randomly assigned to take either a blackcurrant cordial placebo drink or the genuine supplement, which was Ark 1 from Arkworld International Limited – which contains the L-arginine amino acid which enhances the production of nitric oxide in the body.

The report, published on-line by the Journal of Applied Physiology, found taking the supplement:

- **Improves severe-intensity exercise endurance by 20%**
- **Significantly reduces systolic blood pressure**
- **Reduces the oxygen cost of exercise**

**Public release date: 26-Aug-2010**

## **Kudzu Vine Extract May Treat Alcoholism, Cocaine Addiction**

Researchers at Gilead Sciences Inc. said on Sunday that an extract of the kudzu vine being developed to treat alcoholism may also help treat cocaine addiction.

The Gilead team reported in the journal Nature Medicine that tests on rats showed the drug could stop them from giving themselves cocaine.

Gilead inherited the experimental drug a year ago after it acquired CV Therapeutics Inc. A spokesman for the company said it was working to try to bring the drug to the market.

"There is no effective treatment for cocaine addiction despite extensive knowledge of the neurobiology of drug addiction," Lina Yao, Ivan Diamond and colleagues wrote in the journal.

Kudzu is an old remedy for alcoholism. The vine is native to Asia and has spread across much of the U.S. Southeast after being imported to control soil erosion.

CV Therapeutics made a synthetic extract known as selective aldehyde dehydrogenase-2 inhibitor or ALDH2i.

Tests on rats showed it might be able to help stop their cocaine addiction. The drug can also prevent relapse after rats are weaned off cocaine.

The researchers found that the drug works by raising the levels of a compound called tetrahydropapaveroline or THP. Cocaine cravings make levels of a brain chemical known as dopamine soar and THP interferes with this.

**"We propose that a safe, selective, reversible ALDH-2 inhibitor such as ALDH2i may have the potential to attenuate human cocaine addiction and prevent relapse," the researchers wrote.**

**Public release date: 26-Aug-2010**

## **THL Recommends Suspension of H1N1 Vaccinations**

Finland's National Institute for Health and Welfare (THL) has recommended that vaccination against the H1N1 swine flu virus with the Pandemrix vaccine be suspended. The vaccine is not to be used until it is determined if it is linked to an increase in the number of cases of narcolepsy in the country.

THL says that the recommendation is a precautionary measure. At the moment there is no swine flu epidemic in the country that would require urgent vaccination against the virus, it notes.

**"Indications of a time link between vaccinations and narcolepsy cases have been seen, but an actual link has not been established.** In light of international information, a connection would even seem unlikely," Dr Hanna Nohynek, a special researcher at THL, told YLE on Tuesday.

Exceptions can be made to the THL recommendation if needed. For instance, the vaccine can be given to people travelling to any area experiencing a swine flu epidemic.

Experts to gather

If required, a final decision on a nationwide end to the swine flu vaccination programme will be made by the Ministry of Social Affairs and Health. Such a decision will be taken if the reported cases of narcolepsy are proven to have resulted from the vaccine.

The group coordinating the investigation into the cases is scheduled to meet next Tuesday to make an overall evaluation. It is comprised of experts from THL, the Ministry of Social Affairs and Health, the National Agency for Medicines, the National Supervisory Authority for Welfare and Health Valvira, and representatives of provincial authorities.

According to the THL, the increase in the number of cases of narcolepsy may have been caused by the flu virus, by the vaccine, by the interaction of an infection with the vaccine, or some other factor. It is known that infections can cause narcolepsy.

THL has been notified of 15 cases of narcolepsy, six of which are more clearly associated with the vaccination than are the remainder. Preliminary research into the connection between the vaccine and the cases is expected to take several months. Annually up to 50 cases of narcolepsy are diagnosed in adults in Finland and fewer than 10 in children.

**Worldwide, at least 90 million people have received the Pandemrix vaccine in more than 20 countries.** However, so far a possible link between the swine flu vaccine and narcolepsy has been reported only in Finland and Sweden.

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**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.**