



The Vitamin & Herb Stores

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Public release date: 29-Apr-2008

Hyperviscous fluids: Better treatment for severe blood loss

Intravenous administration of isotonic fluids is the standard emergency treatment in the U.S. for patients with severe blood loss, but UC San Diego bioengineering researchers have reported improved resuscitation with a radically different approach. Building on earlier studies in humans that have shown benefits of intravenous fluids that are eight times saltier than normal saline, the researchers combined hypertonic saline with viscosity enhancers that thicken blood.

Reporting in the journal *Resuscitation* in an article that is available online, the researchers describe dramatic increases in beneficial blood flows in the small blood vessels of hamsters with the combined hypertonic saline and viscosity enhancement approach. **The fluid was given to animals after as much as half of their blood was removed to simulate human blood losses on the battlefield, in traffic accidents and in operating rooms.**

The team led by Marcos Intaglietta, a professor of bioengineering at the Jacobs School of Engineering, reported that the new approach sharply improved the animals' functional capillary density, a key measure of healthy blood flow through tissues and organs.

“Of course, trauma physicians want to get the blood flowing as soon as possible, and increasing the viscosity of blood may not make any sense to them,” said Intaglietta. “However, our results are highly suggestive that increasing viscosity rather and partially restoring blood volume is a better way to increase blood flow through tissues. These findings also are consistent with recent discoveries showing that higher shear forces of more viscous blood leads to dilation of small blood vessels.”

Treating blood loss is a critical medical issue because trauma is the leading cause of death among North Americans 1 to 44 years old. Whether injured on the freeway or wounded in battlefield, loss of 40 percent or more of a patient's blood is immediately life-threatening. Physicians and emergency workers must act quickly.

The majority of trauma deaths are due to severe brain injury or a dangerous condition

resulting from blood loss called hypovolemic shock. When too little blood flows through the body's organs, the heart begins beating rapidly, the skin becomes cold and pale, blood pressure plummets, and patients exhibit mental confusion. Hypovolemic shock can progress within a matter of one or two hours to organ failure and death.

The bible of trauma physicians and emergency workers, the Advanced Trauma Life Support (ATLS) guidelines, emphasize that physicians first control bleeding and then provide limited fluid resuscitation, a strategy known as "permissive hypotension" until control of hemorrhage is obtained. The ATLS guidelines, developed by the American College of Surgeons and adopted in more than 30 countries, were modified to lower the volume of isotonic fluids given after several studies demonstrated that sudden increases in blood pressure (without immediate bleeding control) would "pop" clots that the body forms to control bleeding.

Over several decades, studies involving humans and animals have evaluated hypertonic saline (up to 7.5 percent sodium chloride) versus isotonic saline (0.9 percent sodium chloride). Given intravenously, hypertonic solutions act like magnets, drawing fluid from tissues into the bloodstream, thereby increasing blood volume. Such hypertonic saline has not received the approval of the Food and Drug Administration for clinical use in the United States. Therefore, it is not part of ATLS guidelines.

Public release date: 29-Apr-2008

Absinthe uncorked: The 'Green Fairy' was boozy -- but not psychedelic

A new study may end the century-old controversy over what ingredient in absinthe caused the exotic green aperitif's supposed mind-altering effects and toxic side-effects when consumed to excess. In the most comprehensive analysis of old bottles of original absinthe — once quaffed by the likes of van Gogh, Degas, Toulouse-Lautrec and Picasso to enhance their creativity — a team of scientists from Europe and the United States have concluded the culprit was plain and simple:

A high alcohol content, rather than thujone, the compound widely believed responsible for absinthe's effects. Although consumed diluted with water, absinthe contained about 70 percent alcohol, giving it a 140-proof wallop. Most gin, vodka, and whiskey are 80 – 100-proof and contain 40-50 percent alcohol or ethanol.

The study is scheduled for the May 14, 2008 issue of the American Chemical Society's bi-weekly Journal of Agricultural and Food Chemistry, where the full text of the article can be downloaded now without charge.

Absinthe took on legendary status in late 19th-Century Paris among bohemian artists and writers. They believed it expanded consciousness with psychedelic effects and called it "the Green Fairy" and "the Green Muse." The drink's popularity spread through Europe and to the United States. However, illness and violent episodes among drinkers gave absinthe the reputation as a dangerous drug, and it was banned in Europe and elsewhere.

In the new study, Dirk W. Lachenmeier and colleagues point out that scientists know very little about the composition of the original absinthe produced in France before that country banned the drink in 1915. Only a single study had analyzed one sample of preban absinthe. The researchers analyzed 13 samples of preban absinthe from sealed bottles — “the first time that such a wide ranging analysis of absinthe from the preban era has been attempted,” they say.

The analysis included thujone, widely regarded as the “active” ingredient in absinthe. “It is certainly at the root of absinthe’s reputation as being more drug than drink,” according to Lachenmeier. Thujone was blamed for “absinthe madness” and “absinthism,” a collection of symptoms including hallucinations, facial contractions, numbness, and dementia.

However, the study found relatively small concentrations of thujone, amounts less than previously estimated and not sufficient to explain absinthism. Thujone levels in preban absinthe actually were about the same as those in modern absinthe, produced since 1988, when the European Union (EU) lifted its ban on absinthe production. Laboratory tests found no other compound that could explain absinthe’s effects. “All things considered, nothing besides ethanol was found in the absinthes that was able to explain the syndrome of absinthism,” according to Lachenmeier.

He says that scientific data cannot explain preban absinthe’s reputation as a psychedelic substance. Recent historical research on absinthism concluded that the condition probably was alcoholism, Lachenmeier indicates.

“Today it seems a substantial minority of consumers want these myths to be true, even if there is no empirical evidence that they are,” says Lachenmeier. “It is hoped that this paper will go some way to refute at least the first of these myths, conclusively demonstrating that the thujone content of a representative selection of preban absinthe... fell within the modern EU limit.”

Ralph’s Note- Wow, one bad study denied the world of a powerful ant-parasitical. It would similar to banning quinine from Rum and Tonic.

Public release date: 29-Apr-2008

Butter-flavored popcorn ingredient suspected cause of lung disease

Research published in a special issue of Toxicologic Pathology

Los Angeles, London, New Delhi, and Singapore —(April 29, 2008) An unusually high incidence of lung disease has been diagnosed in workers at popcorn factories. Researchers are focusing on diacetyl, the ingredient which is largely responsible for the odor and flavor of the butter in popcorn, according to an article published by SAGE in the current issue of Toxicologic Pathology.

“Workers making microwave popcorn and flavoring chemicals are at increased risk for developing lung disease,” said lead researcher, Ann Hubbs of the Pathology and Physiology Research Branch, Health Effects Laboratory Division, National Institute for Occupational Safety and Health, (NIOSH), Centers for Disease Control and Prevention in Morgantown, WV.. “This research, in conjunction with other recent studies, supports the conclusion that diacetyl is an inhalation hazard and further studies are needed to also investigate other agents in butter flavoring so we have the information needed to protect workers.”

The study examined diacetyl and its health consequences. Diacetyl is easily vaporized at temperatures used in microwave popcorn production, **which results in high concentrations in the workplace.**

The NIOSH research examined the acute toxicity of inhaled diacetyl in rats, and compared different exposure patterns. It was one of the very first studies to evaluate the respiratory toxicity of the chemical flavoring agent at levels relevant to human health. **The researchers found that diacetyl – including just its vapors – can injure lungs.**

Ralph’s note - These Researchers after discovering the problem. Have issued warning after warning of it’s dangers. No one seems to really care. Which is a crime.

Public release date: 30-Apr-2008

Report raises C. diff concerns; yeast-based probiotic shown to help significantly reduce recurrence

Active ingredient in Florastor probiotic clinically proven to boost efficacy of treatment for Clostridium difficile-associated disease

SAN BRUNO, CA, April 30 – C. diff-associated disease (CDAD), otherwise known as severe intestinal disease brought on by the Clostridium difficile (C. diff) pathogen, has been the subject of heightened concern in the medical community. A new report released this month by the federal Agency for Healthcare Research and Quality revealed a 200 percent increase in potentially fatal diarrheal infections in U.S. hospitals between 2000 and 2005. Additionally, the Association for Professionals in Infection Control and Epidemiology (APIC) is launching the first national prevalence study for C. diff beginning May 1.

According to Patricia Raymond, MD, FACP, FACG, a Chesapeake, Virginia-based gastroenterologist, associate professor of clinical medicine at Eastern Virginia Medical School and host of the soon-to-be-launched “Your Health Choice” radio program, traditional treatment for C. diff-associated disease is the use of powerful antibiotics such as metronidazole or vancomycin, but one of the most troublesome aspects of the disease is it’s high rate of recurrence. But studies show that adding the yeast-based probiotic **Saccharomyces boulardii** (sold under the brand name Florastor®), **can cut the rate**

of recurrence by about half.

“Almost one in four CDAD patients will experience a recurrence of symptoms after a round of antibiotic therapy alone,” says Dr. Raymond. “C. difficile colitis has been in the news recently as more virulent strains are emerging. These more toxic bugs lead to higher rates of surgery for colon removal and death from the infection. Doctors are using everything in their toolboxes to combat C. difficile, and one of our proven tools is Saccharomyces boulardii. When a relapse occurs, use of Florastor during the antibiotic course can help protect against future relapses.”

A recent meta-analysis of 31 studies compiled and published in the American Journal of Gastroenterology concluded that S. boulardii is the only probiotic that is effective in fighting recurrent C. diff-associated disease¹ Additionally, an article in the March 2006 issue of Gastroenterology and Hepatology showed that use of S. boulardii provided an almost 50 percent decrease in subsequent recurrence among patients who suffered recurrent CDAD symptoms.² “Because Florastor (S. boulardii) is a yeast and not a bacteria, it is not killed by the strong antibiotics that are being used to kill the C. diff bacteria, so it survives in the digestive tract,” says Dr. Raymond. “When the ‘baby’ C. diff emerge from their spores, they are greeted by a well-colonized gut, rather than an empty playground.”

CDAD is usually indicated by severe abdominal pain, diarrhea with mucous and blood passage, and fever. Dr. Raymond advises those exhibiting these symptoms to see a physician immediately to be tested for the presence of the C. diff toxins and to be prescribed proper antibiotics, since over-the-counter anti-diarrheal agents should be avoided.

“Traditional OTC anti-diarrheal products actually slow down the speed of fluids moving through your bowels, and, in the case of C. diff, keeping the bacteria in the bowels is actually a bad thing,” she adds.

Healthcare practitioners are advised to adhere to strict hand-washing policies in offices and hospitals to help prevent the spread of this and other types of bacteria.

Florastor has shown in more than 50 years of extensive international use to be safe and effective, with an estimated 1.7 billion daily doses sold to date. It is mentioned by the World Health Organization (WHO) for use in the management of C.diff-associated disease.³

Public release date: 30-Apr-2008

Synergistic growth inhibitory effect of herbal extracts against HCC and lung cancer cells

Several herbs with diversified pharmacological properties are known to be rich sources of chemical constituents that may have potential for the treatment of several human cancers. Data from the Department of Preclinical Science, Faculty of Medicine, Thammasat University, demonstrates that the growth inhibitory activity of doxorubicin or cisplatin, as single agents, may be modified in combination with emblic myrobalan or belleric myrobalan extracts and may be synergistically enhanced in some cases.

An article to be published on March 14, 2008, in the World Journal of Gastroenterology demonstrates the combination of effective phytochemicals with chemotherapeutic agents. A study was conducted by Khosit Pinmai of Thammasat University, in which he evaluated the interaction of myrobalan extracts with chemotherapeutic drugs on cancer cell growth by isobologram and the combination index (CI) method of Chou-Talalay.

Several studies have shown that doxorubicin and cisplatin have harmful effects on health and can lead to the development of primary and secondary drug resistance in tumor cells, thereby limiting the clinical success of cancer chemotherapy. Recent reports show that combination chemotherapy is a superior modality and that naturally occurring dietary supplements with known anti-cancer properties could be used in combination chemotherapy to reduce the systemic toxicity of chemotherapeutic agents.

The study provides corroborative evidence, as it shows that emblic myrobalan and belleric myrobalan extracts were selectively toxic against two cancer cell lines and that in combination with doxorubicin and cisplatin produced an increased growth inhibitory effect in both hepatocellular carcinoma (HEpG2) and lung cancer (A549) cells. When using synergistic drug combinations at corresponding dose levels, the calculation of the dose reduction index (DRI) at the IC50 demonstrated possible reductions in doxorubicin concentrations for the drug combinations, ranging from 1.64-fold (myrobalan + doxorubicin in A549) to 4.69-fold (myrobalan + doxorubicin in HEpG2). The dose reduction level was different and specific to each combination and cell line. These findings support the hypothesis that combinations of plant extracts and chemotherapeutic agents allow a reduction in the dosage of the latter (e.g., doxorubicin and cisplatin), while retaining the benefits but minimizing the cytotoxic effects, thus enhancing therapeutic efficacy.

In the view of the authors, the mechanism of interaction between myrobalan extracts and chemotherapeutic drugs is unclear, and it is possible that multiple compounds in the myrobalan extracts are involved. **Previously, phytochemical studies have shown that myrobalan contains a variety of chemical components, including hydrolysable tannins (e.g., emblicanin, gallic acid and ellagic acid).**

Further studies are needed to assess the underlying mechanism(s) and signal transduction pathways leading to growth inhibition induced by single agents and combinations both in vitro and in vivo.

Public release date: 1-May-2008

Trends in heart mortality reversing in younger women

Coronary heart disease mortality in younger women could be on the rise, according to findings in the open access journal, BMC Public Health, published by BioMed Central. High levels of smoking, increasing obesity and a lack of exercise could all be contributing to this disturbing trend, seen in women under the age of 50.

Coronary heart disease (CHD) is the most common cause of death in the UK, the US, Canada and Australia. It occurs when the arteries supplying blood to the heart narrow, and includes disorders such as heart attacks and angina.

Steven Allender from the University of Oxford and colleagues from the University of Liverpool, UK studied information on all deaths in England and Wales between 1931 and 2005. They examined how CHD mortality rates had changed over time, for different sexes and age groups.

They found that CHD mortality rates in England and Wales rose steadily throughout the 20th century and peaked in the 1970s. In most groups, the rate of CHD mortality has been falling steadily since then. Recent generations have experienced much lower CHD mortality rates than those born in the late 19th or early 20th centuries.

Despite this, researchers have detected a levelling off – and perhaps even a reversal – of the rate of decline in CHD mortality in women under 50. Given that CHD causes over 100,000 deaths in the UK each year, such a trend would have serious implications for health-care provision in the future.

The authors also found evidence that significant advances made in terms of CHD mortality among older populations are not being made in the under-60s – something they warn could increase the burden of CHD if left unchecked.

“We observed that CHD mortality among younger age groups has increased in those born in the early twentieth century compared to those born in the late 19th century” notes Allender. “This requires further study as the public health implications of a decline in survival from CHD in younger age groups may be stark.”

Public release date: 1-May-2008

Flower power may bring ray of sunshine to cancer sufferers

A mini-protein found in sunflower seeds could be the key to stopping tumors spreading in prostate cancer patients, according to QUT researchers
The grants came from Queensland Cancer Research, the Prostate Cancer Foundation, and

the National Health and Medical Research Council.

“We are interested in this miniprotein as a potential treatment of prostate cancer, in particular for those patients who relapse,” said Dr Harris.

“The best thing to do in those cases is block the disease spreading to other organs, particularly the spine, which is very debilitating; it is not the prostate tumour that kills you, it is when the cancer cells escape from the prostate so we want to prevent that.”

Another QUT researcher, Professor Judith Clements, had previously shown that the action of enzymes called proteases was a key event in tumour spread, and Dr Harris said that the sunflower mini-protein, known as the protease inhibitor, was able to block these enzymes in test tube-based assays.

“However, it also inhibits a whole range of proteases, some of which control important processes in the body, so we have re-engineered the molecule so it should just block the proteases produced in prostate cancer and hence stop tumour spreading, whilst leaving other processes intact,” he said.

The National Health and Medical Research Council grant will allow Dr Harris and his team to perform tests on the re-engineered inhibitor in animals over the next months.

“It feels like we have been covered in a shower of gold at the moment, it is very exciting for us because we are a small team but we have been working very hard on this for a long time,” he said.

“We are extremely happy because now we can carry out trials in mouse-models of prostate cancer and if we have positive results, we could get a pharmaceutical industry partner interested in the work.

“Currently bluebox, QUT’s commercialisation company, is helping us towards that goal.”

“The dream end-product is having a drug which could be produced in sunflower seeds and given as a simple dietary supplement for people with prostate cancer.”

Public release date: 1-May-2008

Americans Not Following MyPyramid Advice, Prefer Foods High in Fats and Added Sugars

Americans are not eating the most nutrient-dense forms of the basic food groups recommended in the U.S. Department of Agriculture’s MyPyramid guidelines. Researchers at the National Cancer Institute found consumers prefer foods that are high

in solid fats and added sugars.

The researchers used data from the 2001-2002 National Health and Nutritional Examination Survey (NHANES) and found the country's population is not following dietary advice. In particular, the findings showed Americans need to eat more fruits, vegetables and fat-free milk and much less solid fats and added sugars.

The research also found consumers need to change the types of vegetables and grains they eat and include more dark-green and orange vegetables, beans and whole grains. **Most of the vegetables (83 percent) Americans eat come from the starchy and other vegetables subgroup, notably potatoes and tomatoes. Consumption of whole grains, at just 10 percent of total grains, is far below the recommendation that half or more of all servings** come from whole grains.

Sweetened carbonated and non-carbonated beverages, grain-based desserts such as cakes, cookies, donuts and pies, non-skim dairy products and fatty meats were identified as contributing the most to high-energy-dense foods.

The researchers conclude: "Food and nutrition professionals would do well to educate consumers about appropriate choices within food groups rather than focusing on achieving a certain number of servings from each food group."
Increased Whole Grain and Fiber Levels for Popcorn Eaters

People who eat popcorn have an approximately 250 percent higher daily intake of whole grains and a 22 percent higher daily intake of fiber than non-popcorn eaters, according to researchers at the Center for Human Nutrition, Nutrition Impact LLC and ConAgra Foods.

Researchers used data from the 1999-2002 National Health and Nutrition Examination Survey (NHANES) to determine average popcorn consumption among Americans. Popcorn consumers were identified as anyone eating any amount of popcorn within the past 24 hours before taking the survey.

Total grain consumption was found to be significantly higher (20.8 percent) with significantly lower total meat consumption (14.9 percent) in popcorn eaters. A high intake of whole-grain foods has been linked with reduced risk for coronary disease, stroke and various types of cancer and may protect against type 2 diabetes. Yet fewer than 10 percent of Americans consume the recommended three servings per day. The researchers conclude: "Popcorn may offer a healthful alternative to energy-dense, low-nutrient-dense snacks, and may have the potential to improve nutrient status in Americans of all ages and help them meet dietary guideline recommendations to consume three whole-grain servings per day."

The American Dietetic Association's Complete Food and Nutrition Guide 3rd Edition (Wiley & Sons 2006) recommends using a hot-air popper which requires no oil, so popcorn can be a quick, low-fat, low-calorie snack.

Funding for this study was provided by ConAgra Foods, Inc.

Ralph's Note - It seems like the ADA's answer to the nutritional decline of the U.S. population is Popcorn.

Public release date: 2-May-2008

Apples, apple juice shown to prevent early atherosclerosis

Vienna, VA (May 2, 2008) - A new study shows that apples and apple juice are playing the same health league as the often-touted purple grapes and grape juice. The study was published in the April 2008 issue of *Molecular Nutrition and Food Research*.

Researcher Kelly Decorde from the Universite Montpellier in France was part of the European research team that found apples have similar cardiovascular protective properties to grapes. The researchers also observed that processing the fruit into juice has the potential to increase the bioavailability of the naturally-occurring compounds and antioxidants found in the whole fruit.

Using a variety of established analytical techniques, aortic plaque was evaluated to determine the effectiveness in decreasing plaque that is associated with atherosclerosis.

According to the research, "This study demonstrates that processing apples and purple grapes into juice modifies the protective effect of their phenolics against diet induced oxidative stress and early atherosclerosis in hypercholesterolemic hamsters."

Researchers also noted, "These results show for the first time that long-term consumption of antioxidants supplied by apples and purple grapes, especially phenolic compounds, prevents the development of atherosclerosis in hamsters, and that the processing can have a major impact on the potential health effects of a product."

In summary, the researchers stated that their work would help provide encouragement that fruit and fruit juices may have significant clinical and public health relevance.

Public release date: 3-May-2008

1 in 10 children using cough, cold medications

Boston, MA—Researchers from Boston University's Slone Epidemiology Center have found that approximately one in ten U.S. children uses one or more cough and cold medications during a given week. These findings will be presented today at the 2008 Pediatric Academic Societies' & Asian Society for Pediatric Research Joint Meeting in Honolulu, Hawaii.

Pediatric cough and cold medications are widely marketed in the U.S. but surprisingly little is known about just how often they are used in children. This information is especially important in light of recent revelations that cough and cold medications are responsible for serious adverse events and even deaths among children.

To define the frequency and patterns of use, the researchers analyzed data between 1999 and 2006 from the Slone Survey, a national telephone survey of medication use in a representative sample of the U.S. population. The authors considered all oral medicines that are approved by the FDA to treat children's coughs and colds.

The researchers found that in a given week, at least one cough and cold medication was used by 10.1 percent of U.S. children. In terms of active ingredients contained in these medications, exposure was highest to decongestants and antihistamines (6.3 percent each), followed by anti-cough ingredients (4.1 percent) and expectorants (1.5 percent).

Exposures to cough and cold medications was highest among 2 to 5 year olds, but was also high among children under 2 years of age.

Among all the products used, 64.2 percent contained more than one active ingredient. The most commonly used product types were single-ingredient antihistamines, antihistamine/decongestant combinations and antihistamine/decongestant/anti-cough combinations. The researchers also found the use of cough and cold medications declined from 12.3 percent in 1999-2000 to 8.4 percent in 2005-2006.

According to the researchers the especially common use of cough and cold medications among young children is noteworthy. **“Given concerns about potential harmful effects and lack of evidence proving that these medications are effective in young children, the fact that one in ten U.S. children is using one of these medications is striking,”** said lead author Louis Vernacchio, MD, MSc, an assistant professor of epidemiology and pediatrics at Boston University School of Medicine.

Public release date: 3-May-2008

Commonly used medications associated with impaired physical function in older adults

WINSTON-SALEM, N.C. – Older adults who take drugs designed to block the neurotransmitter acetylcholine – including common medications for incontinence, high blood pressure and allergies – are more likely to be dependent in one or more activities of daily living and to walk slower, according to new findings from researchers at Wake Forest University School of Medicine and colleagues.

The findings, which involve a class of drugs known as anticholinergic medications, are from the Ginkgo Evaluation of Memory Study (GEMS) and will be presented at the American Geriatrics Society Meeting in Washington, D.C., on May 3.

“These results were true even in older adults who have normal memory and thinking abilities,” said Kaycee M. Sink, M.D., M.A.S., lead author. “For older adults taking a moderately anticholinergic medication, or two or more mildly anticholinergic medications, their function was similar to that of someone three to four years older.”

In a separate study reported this month in the Journal of the American Geriatrics Society, Sink found that older nursing home residents who took medications for dementia and anticholinergic medications for incontinence at the same time had a 50 percent faster decline in function than those who were being treated only for dementia.

Over a year’s time, the decline would represent a resident going from requiring only limited assistance in an activity to being completely dependent, or from requiring only supervision to requiring extensive assistance in an activity.

Sink said that the two studies together suggest that physicians should carefully consider the implications when prescribing anticholinergic medications to older adults.

“Because these medications are so commonly prescribed, older adults who take multiple medications are at increased risk of taking one or more anticholinergic-containing medications,” said Sink. “The potential effects on physical function represent a significant public health problem.”

Many medications have anticholinergic properties including some for high blood pressure, some antidepressants, most allergy medicines and incontinence medicines. Some of the most common anticholinergics in the GEMS participants include the blood pressure medication nifedipine (Adalat® or Procardia®), which has mild anticholinergic properties, **the stomach antacid ranitidine (Zantac®)**, which has moderate anticholinergic properties, and the incontinence medication tolterodine (Detrol®), which is highly anticholinergic.

In the GEMS study, the researchers sought to determine the effects of taking multiple anticholinergic drugs on walking speed and the ability to independently perform activities of daily living such as dressing, personal hygiene, toileting, transferring, bed mobility and eating as well as higher order activities including shopping, cooking, managing money, doing light housework and using a telephone.

The findings are from more than 3,000 people with an average age of 78 years. **Almost half (40 percent) of participants were taking more than one anticholinergic drug. The researchers found that higher anticholinergic burden is associated with worse physical function, both self-reported and performance-based.**

Public release date: 5-May-2008

New insights on link between early consumption of cows' milk and Type-1 diabetes

Journal of Proteome Research

Researchers in Maine report a new explanation for the mysterious link between consumption of cows' milk protein in infant formula early in life and an increased risk of later developing Type-1 diabetes. A protein in cow's milk that triggers an unusual immune response appears to be the main culprit, they say. The study is scheduled for the June 6 issue of ACS' monthly Journal of Proteome Research.

In the new study, Marcia F. Goldfarb points out that several studies have reported a possible link between the early introduction of cow's milk protein into an infant's diet and subsequent development of the disease. In Type-1 diabetes, the immune system erroneously appears to attack and destroy insulin-producing cells in the pancreas. It usually begins in childhood, requires insulin injections, **and afflicts about 800,000 people in the U.S. alone. Scientists do not understand the link between cow's milk and diabetes.** They know, however, that beta-lactoglobulin, a protein present in cow's milk but not found in human breast-milk, is structurally similar to the human protein glycodelin, which controls the production of T-cells. T-cells help guard the body against infection.

Goldfarb describes research on patients with Type-1 diabetes, which suggests that an infant's immature immune system may inadvertently destroy glycodelin in an effort to destroy the similar cow's milk protein, which the system recognizes as foreign. This could result in the overproduction of T-cells, which can attack the insulin-producing cells of the pancreas and trigger diabetes, she says. — MTS

Public release date: 5-May-2008

FSU researcher: As gas prices climb, employee productivity plummets

TALLAHASSEE, Fla. -- Rising gas prices are affecting more than the family budget. More pain at the pump results in more employee stress on the job, says Wayne Hochwarter, the Jim Moran Professor of Management at Florida State University's College of Business.

"People concerned with the effects of gas prices were significantly less attentive on the job, less excited about going to work, less passionate and conscientious and more tense," Hochwarter said. "These people also reported more 'blues' on the job. Employees were

simply unable to detach themselves from the stress caused by escalating gas prices as they walked through the doors at work.”

Hochwarter gleaned the information by surveying more than 800 full-time employees this spring when gas prices hovered at about \$3.50 per gallon. All of the people surveyed work in a wide range of occupations, primarily in the southeastern United States. All drove personal transportation to work and had an average commute of 15 miles each way.

Survey respondents said gas prices were foremost on their mind, including a disgruntled factory worker who wrote, “I spend more time at work trying to figure out what I need to give up to keep gas in my tank than thinking about how to do my job.”

Hochwarter’s research will be submitted for publication later this summer. Among his findings:

52 percent have reconsidered taking vacations or other recreational activities;

45 percent have had to cut back on debt-reduction payments, such as credit card payments;

Nearly 30 percent considered the consequences of going without basics including food, clothing and medicine;

45 percent report that the escalating gas prices have “caused them to fall behind financially”;

39 percent agreed with the statement “Gas prices have decreased my standard of living”; and

About 33 percent -- or one in three -- said they would quit their job for a comparable one nearer to home.

Hochwarter’s discussions with employees confirm the study’s results. Many employees report that gas prices rank as the No. 1 water-cooler discussion topic, ahead of family, sports or work, he said. He found little difference in responses among different ages, gender, work tenure and occupations.

“Several employees said they simply could not escape the media onslaught of bad news regarding the future of gas prices, and many reported their financial futures were looking bleaker and bleaker,” Hochwarter said.

As gas prices rise, so does the stress. Consider the words of Sandy, a medical records clerk: “The more it goes up, the more behind I get. If gas goes up to \$5 or \$6 a gallon, I just don’t know what I’ll do.”

Ralph's Note- This is a major health issue. We live in an economy which has inadequate public transportation facilities. In an age of record oil company profits. The government should reconsider the lack of competitive forces currently. With the objective of busting up monopolistic forces, which are anything but capitalistic.

Public release date: 6-May-2008

Common herbicide disrupts human hormone activity in cell studies

A common weedkiller in the U.S., already suspected of causing sexual abnormalities in frogs and fish, has now been found to alter hormonal signaling in human cells, scientists from the University of California San Francisco (UCSF) report.

The herbicide atrazine is the second most widely used weedkiller in the U.S., applied to corn and sorghum fields throughout the Midwest and also spread on suburban lawns and gardens. It was banned in Europe after studies linked the chemical to endocrine disruptions in fish and amphibians.

The UCSF study is the first to identify its full effect on human cells. It is being reported in the May 7 issue of the journal "PLoS ONE."

In studies with human placental cells in culture, the UCSF scientists found that atrazine increased the activity of a gene associated with abnormal human birth weight when over-expressed in the placenta. Atrazine also targeted a second gene that has been found to be amplified in the uterus of women with unexplained infertility.

In parallel studies of zebrafish, a widely used animal in development studies, the research team showed that atrazine "feminized" the fish population – increasing the proportion of fish that developed into females. In water with atrazine concentrations comparable to those found in runoff from agricultural fields, the proportion of female fish increased two-fold. Environmental factors are known to influence the sex of zebrafish and many other fish and amphibians as they develop.

"These fish are very sensitive to endocrine disrupting chemicals, so one might think of them as 'sentinels' to potential developmental dangers in humans," said Holly Ingraham, PhD, senior author on the study and a UCSF Professor of Cellular and Molecular Pharmacology. "These atrazine-sensitive genes are central to normal reproduction and are found in steroid producing tissues. You have to wonder about the long-term effects of exposing the rapidly developing fetus to atrazine or other endocrine disruptors."

Ingraham intends to determine precisely how atrazine affects human and other mammalian endocrine cells and why these cells are particularly sensitive to it. She notes that bisphenol A, a compound in many hard plastic consumer products, is also an endocrine disrupter and is now under increased study for its safety. In April, Canada announced a decision to ban sale of consumer products with bisphenol A.

The lead author of the study is Miyuki Suzawa, a postdoctoral fellow in Ingraham's lab.

UCSF researchers exposed sexually immature zebrafish to atrazine and other chemicals for different periods of time. They found that exposure to atrazine for 48 hours at concentrations that might be found in water containing agricultural runoff, produced twice as many female fish.

Through genetic analysis, they found that atrazine preferentially activates a class of receptors in the cell nucleus, including two known as SF-1 and LRH-1. SF-1 regulates production of enzymes involved in the synthesis of steroids in the body and development of many endocrine tissues. **One of these enzymes, known as Aromatase, plays a role in determining whether lower vertebrates, such as fish will become male or female. Aromatase is known as a feminizing enzyme.**

In the human placental cell culture studies, the scientists found that a 24-hour exposure to atrazine activates a cluster of genes involved in hormone signaling and steroid synthesis.

They report, "Endocrine-related cell types with a capacity for steroid generation appear to be especially sensitive (to Atrazine), as demonstrated by the "exquisite" cellular specificity of the atrazine response."

The finding that a pervasive and persistent environmental chemical appears to significantly change hormone networks means that scientists must take a broader look at this herbicide's potential effect on human health, Ingraham said. **Up to now, much of the focus has been on breast cancer, but since proper development of the endocrine system is important for normal reproduction, stress responses and metabolism, early exposure to this chemical in a fetus or infant might alter normal physiology later in life, she said.**

Ralph's Note - The genetic damage being done currently, I feel has the potential to erase many of our genetic advantages as a species permanently.

Public release date: 6-May-2008

Don't ask, don't tell: Financial disclosure lacking in literature on stents

DURHAM, NC – Most published research about coronary stents does not reveal information about authors' financial relationships that might bias their interpretation of scientific data, according to researchers at Duke University Medical Center. Coronary stents are the basis of a multi-billion dollar industry, yet the scientific community remains divided over if, when and how they should be used.

Dr. Kevin Weinfurt, a member of the Duke Clinical Research Institute, tracked every article written about stents in biomedical literature in 2006. He found 746 articles written by 2985 authors in 135 journals. **Eighty-three percent of those articles did not**

contain any disclosure statements at all.

Weinfurt says he was astonished by the extent of the problem.

“We actually did our own, informal Internet search on authors who expressly stated they had no interests to disclose and found that some of them held membership on stent manufacturers’ advisory boards, or were consultants for stent makers and companies that made drugs related to stent use. One person had even founded a company that made stents, and yet had not disclosed that information,” says Weinfurt. The study appears in the online journal PLoS ONE.

Weinfurt says the study results are troubling because disclosure and transparency in research reports may be more important than ever. While two respected professional organizations representing medical editors’ interests – the International Committee of Medical Journal Editors and the World Association of Medical Editors – encourage disclosure of authors’ financial interests, **Weinfurt notes that some journals don’t ask for the information and some authors don’t volunteer it.**

When potential conflicts aren’t reported, policy makers and the public lose their trust in medical research, says Weinfurt. This may be especially critical for those seeking trustworthy information about potentially life-saving devices, like coronary stents. Stents are flexible metal tubes inserted into coronary arteries that help maintain healthy blood flow, often used in the wake of a heart attack. There are basically two types of stents: bare metal stents and drug-eluting stents, and the medical and scientific communities have been debating for years over which may be superior.

Weinfurt says that researchers’ statements about the efficacy and propriety of stents are closely evaluated because they directly affect not just stent makers, but also products that support stents and companies that produce alternatives to stents.

But he adds that they found little consistency in how author disclosures are made. **“We feel this is symptomatic of a systemic problem that leaves patients and health care professionals with big gaps in knowledge and the inability to properly interpret important information,” says Weinfurt.**

Researchers found that a total of 168 authors had a disclosure statement in at least one article. Five companies were cited as the most frequent source of support: Johnson & Johnson, Boston Scientific, Medtronic, Sanofi-Aventis and Bristol-Myers **Squibb, with support most often given in the form of research support (25 percent), speaker fees (17 percent) and consulting (15 percent).**

The study did contain one upbeat note, however. The researchers found that there was generally greater author disclosure in the more highly respected journals and in those that endorsed the International Committee of Medical Journal Editors’ guidelines for manuscripts submitted to medical journals.

Dr. Robert Califf, director of the Duke Translational Medicine Institute, vice chancellor for clinical research at Duke and senior author of the study, says the findings point to the need for an Internet-based national repository of information – something analogous to the Web’s clinicaltrials.gov for trials registration.

“We can’t really tell if the problem resides with the authors or the journals, but it’s likely a systems problem. A common repository of industry interactions could be a standardized source of conflict of interest information for all purposes,” he says.

Public release date: 7-May-2008

Study suggests caution on a new anti-obesity drug in children

A new class of anti-obesity drugs that suppresses appetite by blocking cannabinoid receptors in the brain could also suppress the adaptive rewiring of the brain necessary for neural development in children, studies with mice have indicated. One such drug, rimonabant (trade name Acomplia) has been developed by Sanofi-Aventis and is awaiting approval for use in the U.S., and other pharmaceutical companies are developing similar drugs.

Mark Bear and colleagues published their findings in the May 8, 2008, issue of the journal *Neuron*, published by Cell Press.

The principal aim of the researchers’ experiments was to gain insight into regulation of the process called “experience-dependent cortical plasticity” in the brain. Such plasticity is the adaptive rewiring of the brain caused by experience that is central to neural development in children and young animals.

For their experimental model, the researchers used plasticity in the visual cortex of the mouse. The visual cortex is the brain region that processes visual signals from the eye, adapting to experience. To study visual cortex plasticity, the researchers used the long-known phenomenon that closing an eye in a young animal causes that eye to lose visual responsiveness—known as a shift in “ocular dominance (OD)—as the visual cortex rapidly adapts due to its plasticity. Specifically, the researchers wanted to understand the regulation of plasticity in two layers, or lamina, of the visual cortex called 2/3 and 4. Also, they knew that activity of the cannabinoid receptor plays a role in plasticity by regulating the signaling connections among neurons.

In their experiments, the researchers closed one eye of an animal and measured the effect on plasticity using recording electrodes implanted in the layers of the visual cortex.

It had been previously believed that plasticity in layer 2/3 was required for plasticity in layer 4. However, the researchers found that when they used a drug called AM 251 to block the cannabinoid receptors in the animals’ brains, plasticity in layer 2/3 was suppressed, but plasticity in layer 4 was unaffected.

“These findings simplify the mechanistic description of plasticity in layer 4, force a revision in the interpretation of previous studies in which laminar differences in OD plasticity mechanisms were unrecognized, and have important implications for the

therapeutic use of cannabinoid receptor antagonists in humans,” concluded Bear and colleagues.

Citing the development of obesity drugs that block cannabinoid receptors, the researchers cautioned that “Our finding of a profound disruption of cortical plasticity in juvenile mice treated with AM 251 suggests caution is advised in the use of such compounds in children.”

Public release date: 7-May-2008

VITAMIN D LINKED TO REDUCED MORTALITY RATE IN CHRONIC KIDNEY DISEASE

Washington, DC (Tuesday, May 6, 2008) — For patients with moderate to severe chronic kidney disease (CKD), treatment with activated vitamin D may reduce the risk of death by approximately one-fourth, suggests a study in the August Journal of the American Society of Nephrology.

Many patients with advanced CKD take the drug calcitriol, an oral form of activated vitamin D, to treat elevated levels of parathyroid hormone. “Although activated vitamin D is known to influence many biological processes, previous clinical knowledge is limited to its effect on parathyroid hormone levels,” explains Dr. Bryan Kestenbaum of the University of Washington in Seattle, one of the study authors.

The study included 1,418 patients who had stage 3 to 4 CKD, which means moderately to severely reduced kidney function. All patients also had high parathyroid hormone levels (hyperparathyroidism), which can contribute to weakening of the bones in CKD. The researchers identified one group of patients who were being treated with calcitriol to lower their parathyroid hormone levels and another group who were not receiving calcitriol.

During a two-year follow-up period, mortality rates were compared for patients who were and were not taking calcitriol. “We then adjusted for differences in age, kidney function, parathyroid hormone levels, other illnesses, and other medications,” says Dr. Kestenbaum.

In the adjusted analysis, the overall risk of death was about 26 percent lower for patients taking calcitriol. Patients on calcitriol were also less likely to develop end-stage renal disease, requiring dialysis to replace lost kidney function.

Overall, treatment with calcitriol was associated with a 20 percent reduction in the risk of either death or dialysis. The reduction in mortality with calcitriol was unrelated to its effect on parathyroid hormone levels.

Public release date: 7-May-2008

Obesity can increase dementia risk by up to 80 percent

People who are underweight also face an elevated risk

Being obese can increase the risk of Alzheimer’s Disease by as much as 80 per cent, according to a study in the May issue of Obesity Reviews.

But it’s not just weight gain that poses a risk. People who are underweight also have an

elevated risk of dementia, unlike people who are normal weight or overweight.

US researchers carried out a detailed review of 10 international studies published since 1995, covering just over 37,000 people, including 2,534 with various forms of dementia. Subjects were aged between 40 and 80 years when the studies started, with follow-up periods ranging from three to 36 years.

The review, which included studies from the USA, France, Finland, Sweden and Japan, also included a sophisticated meta-analysis of seven of the studies, published between 2003 and 2007 with a follow-up period of at least five years.

All kinds of dementia were included, with specific reference to Alzheimer's Disease and to vascular dementia – where areas of the brain stop functioning because the blood vessels that supply them are damaged by conditions such as high blood pressure or heart disease.

“Our meta-analysis showed that obesity increased the relative risk of dementia, for both sexes, by an average of 42 per cent when compared with normal weight” says Dr Youfa Wang, Associate Professor of International Health and Epidemiology at Johns Hopkins Bloomberg School of Public Health, Baltimore.

“And being underweight increased the risk by 36 per cent.

“But when we looked specifically at Alzheimer's Disease, the increased risk posed by obesity was 80 per cent. The increased risk for people with vascular dementia was 73 per cent.

“The risks were greater in studies where sufferers developed Alzheimer's Disease or vascular dementia before the age of 60 or in studies with follow-up periods of more than 10 years.

“We also found that obesity was more likely to be a risk factor for women when it came to developing Alzheimer's Disease and for men when it came to vascular dementia.”

The authors estimate that 12 per cent of the dementia risk in the study population could be attributed to obesity, with this rising to just over 21 per cent in patients with Alzheimer's Disease.

It's estimated that up to 10 per cent of people aged 65 or more suffer from some form of dementia and two-thirds of those have Alzheimer's Disease.

“There has been controversy about the links between obesity and dementia for a number of years, but previous findings have been mixed and inconclusive” says Dr Wang.

“The advantage of carrying out a meta-analysis is that it provides researchers with access to a large number of study subjects and it is possible to iron out the inconsistencies and come to overarching conclusions.

“Our detailed analysis clearly shows a U-shaped relationship between weight and dementia, with people who are obese or underweight facing a greater risk.

“We believe that our results show that reducing the prevalence of obesity is a promising strategy for preventing the progression of normal ageing into Alzheimer’s Disease.”

Public release date: 7-May-2008

New technique determines that the number of fat cells remains constant in all body types

LIVERMORE, Calif. – The radioactive carbon-14 produced by above-ground nuclear testing in the 1950s and ’60s has helped researchers determine that the number of fat cells in a human’s body, whether lean or obese, is established during the teenage years. Changes in fat mass in adulthood can be attributed mainly to changes in fat cell volume, not an increase in the actual number of fat cells.

When energy input is equal to energy output, there is no expansion of fat cells (lipocytes) to accommodate excess. It is only when more calories are taken in than used that the extra fat is stored in the lipocytes and the person begins to accumulate fat.

Courtesy: National Library of Medicine/National Institutes of Health

These results could help researchers develop new pharmaceuticals to battle obesity as well as the accompanying diseases such as high blood pressure and diabetes.

A new study by Lawrence Livermore National Laboratory scientist Bruce Buchholz – along with colleagues from the Karolinska Institute in Sweden; Humboldt University Berlin, Foundation of Research and Technology in Greece; Karolinska University Hospital; and Stockholm University – applied carbon dating to DNA to discover that the number of fat cells stays constant in adulthood in lean and obese individuals, even after marked weight loss, indicating that the number of fat cells is set during childhood and adolescence.

Carbon dating is typically used in archaeology and paleontology to date the age of artifacts. However, in this application, which appeared in the May 4 early online edition of the journal, *Nature*, the scientists used the pulse of radiocarbon to analyze fat cell turnover in humans.

Radiocarbon or carbon-14 is naturally produced by cosmic ray interactions with air and is present at low levels in the atmosphere and food. Its concentration remained relatively constant during the past 4,000 years, but atmospheric testing of nuclear weapons from 1950-1963 produced a global pulse in the amount of radiocarbon in the atmosphere, Buchholz said.

In the new study, Buchholz analyzed the uptake of carbon-14 in genomic DNA within fat cells to establish the dynamics of fat cell turnover. Approximately 10 percent of fat cells are renewed annually at all adult ages and levels of body mass index.

Neither fat cell death nor its generation rate is altered in early onset obesity, suggesting a tight regulation of the number of fat cells in obese adults.

“**Fat cells change in size but no one had ever measured fat cell turnover,**” Buchholz said. “An increase in cell size means it can hold more mass.”

Obesity is increasing in epidemic proportions in most countries and poses a public health problem by enhancing the risks for cardiovascular diseases and metabolic disorders such as type 2 diabetes.

To lose weight, you must burn more calories than you eat. Exercise is the best way to do this. When you exercise regularly, you build stronger muscles, even if you do not work out with weights. Muscles use more calories than fat throughout the day, even while you are resting. This contributes to what is commonly called a "faster metabolism."

Courtesy: National Library of Medicine/National Institutes of Health

According to the Centers for Disease Control and Prevention, the prevalence of overweight and obesity has increased sharply for both adults and children since the 1970s. Data from two National Health and Nutrition Examination surveys show that among adults aged 20-74 years the prevalence of obesity increased from 15 percent (in the 1976-80 survey) to 32.9 percent (in the 2003-04 survey).

The two surveys also show increases in overweight children and teens. For children aged 2-5 years, the prevalence increased from 5 percent to 13.9 percent; for those aged 6-11 years, prevalence increased from 6.5 percent to 18.8 percent; and for those aged 12-19 years, prevalence increased from 5 percent to 17.4 percent.

In the Nature study, the team first found that there was a direct correlation between the measures of fat mass (measured from body mass index (BMI) and fat cell volume in subcutaneous fat, which represents about 80 percent of all fat, and visceral fat.

In a study of 687 adults, the researchers found that number of fat cells increases in childhood and adolescence, but levels off and remains constant in adulthood. The group looked at whether the number of fat cells changes under extreme conditions such as drastic weight loss by radical reduction in caloric intake, such as through bariatric surgery.

The treatment resulted in a significant decrease in BMI and fat cell volume; however, it did not reduce the number of fat cells two years after the surgery. Similarly, significant weight gain (15-25 percent) over several months in non-obese adult men resulted in significant increase in body fat volume but no change in number. Subsequent weight loss back to baseline resulted in a decrease in fat cell volume but no change in the number of fat cells.

"If you are overweight and you lose weight, you still have the capacity to store lipids because you still have the same number of fat cells. That may be why it's so hard to keep the weight off," Buchholz said.

Overweight and obesity result from an energy imbalance – eating too many calories and not getting enough physical activity. Body weight is the result of genes, metabolism, behavior, environment, culture and socioeconomic status.

"This work may give us new ideas of how to deal with the diseases that go along with obesity," Buchholz said.

Founded in 1952, Lawrence Livermore National Laboratory is a national security laboratory, with a mission to ensure national security and apply science and technology to the important issues of our time. Lawrence Livermore National Laboratory is managed by Lawrence Livermore National Security, LLC for the U.S. Department of Energy's National Nuclear Security Administration.

Public release date: 12-May-2008

Why did the EPA fire a respected toxicologist?

longtime defender of scientific integrity speaks out

In March, the US House Energy and Commerce Committee launched an investigation into potential conflicts of interest in scientific panels that advise the Environmental Protection Agency on the human health effects of toxic chemicals. **The committee identified eight scientists that served as consultants or members of EPA science advisory panels while getting research support from the chemical industry to study the chemicals under review. Two scientists were actually employed by companies that made or worked with manufacturers of the chemicals under review.**

Such conflicts, Chairman John Dingell (D-Mich.) noted, stand in stark contrast to the agency's dismissal last summer of highly respected public health scientist Deborah Rice, an expert in toxicology, from a panel examining the health impacts of the flame retardant deca. **The EPA fired Rice after the chemical industry's trade group, the American Chemistry Council, complained that was could not provide an objective scientific review because she had spoken out about the health hazards posed by deca.**

This trend is neither new nor unique, argues legendary lead researcher Herbert Needleman, a pediatrician and child psychiatrist, in a new article published this week in the open-access journal PLoS Biology. With his groundbreaking research on the cognitive effects of lead on children, Needleman laid the foundation for one of the greatest environmental health successes of modern times—five-fold reduction in the prevalence of lead poisoning in American children.

In “**The Case of Deborah Rice: Who is the Environmental Protection Agency Protecting?**” Needleman points out that **the EPA summarily fired Rice even though it had honored her just a few years before with one of its most prestigious scientific awards for “exceptionally high-quality research into lead’s toxicity.” Why? Because the American Chemistry Council asked the agency to fire her.**

“EPA, without examining or contesting the charge of bias, complied,” Needleman write. **“Rice was fired. The next formal act of the EPA was to remove all of her comments from the written report completely erase her name from the text of the review. There is now no evidence that she ever participated in the EPA proceedings, or was even in the room.”** Needleman is confident that Rice, who is “widely admired by her colleagues for her intelligence, integrity and moral compass,” will “withstand this insult and continue to contribute to the public welfare.”

Ralph's Note - Hmmm. Isn't this the same flame retardant used in children's pajamas, and now found in breast milk. Those in the EPA who committed this action, should in no uncertain terms be tried for treason. Not for misplaced loyalty to a foreign country, but to corporations who are not in the best interest of American Children.

Public release date: 12-May-2008

Air pollution may be associated with blood clots in deep leg veins

Long-term exposure to air pollution appears to be associated with an increased risk of deep vein thrombosis, blood clots in the thigh or legs, according to a report in the May 12 issue of Archives of Internal Medicine, one of the JAMA/Archives journals.

Exposure to particulate air pollution—very small particles of solid and liquid chemicals that come from burning fossil fuels and other sources—has been linked to the increased risk of developing or dying from heart disease and stroke, according to background information in the article. Recent studies have suggested this relationship may result at least in part from the effects of particulate air pollution on blood clotting.

Andrea Baccarelli, M.D., Ph.D., of the Harvard School of Public Health, Boston, and colleagues assessed exposure to particulate matter smaller than 10 micrometers in diameter among 870 patients who had been diagnosed with deep vein thrombosis in Lombardy, Italy, between 1995 and 2005. These patients, along with 1,210 controls who did not have deep vein thrombosis, were assigned to one of nine geographic regions based on where they lived at the time of the study. The researchers then used the average concentration of particulate matter for each area, obtained by monitors located at 53 different sites throughout the region, to estimate the level of exposure over the year before diagnosis (for cases) or examination (for controls).

Individuals with deep vein thrombosis tended to have a higher exposure to particulate air pollution than controls. After adjusting for other environmental and health factors, for every increase in particulate matter of 10 micrograms per square meter the previous year, the risk of deep vein thrombosis increased 70 percent. In addition, the blood of patients in both the case and control groups with higher levels of exposure to particulate matter took less time to clot, as measured by a test given in the clinic.

The association between particle exposure and blood clots was stronger in men than in women, and disappeared among women taking oral contraceptives or hormone therapy. “Such hormone therapies are independent risk factors for deep vein thrombosis, which is also confirmed in this study by the higher prevalence of oral contraceptive and hormone use in the cases compared with the controls,” the authors write.

“Given the magnitude of the observed effects and the widespread diffusion of particulate pollutants, our findings introduce a novel and common risk factor into the pathogenesis of deep vein thrombosis and, at the same time, give further substance to the call for tighter standards and continued efforts aimed at reducing the impact of urban air pollutants on human health,” they conclude.

Public release date: 12-May-2008

Women who breastfeed for more than a year halve their risk of rheumatoid arthritis

Women who breast feed for longer have a smaller chance of getting rheumatoid arthritis, suggests a study published online ahead of print in the Annals of the Rheumatic Diseases.

The study also found that taking oral contraceptives, which are suspected to protect against the disease because they contain hormones that are raised in pregnancy, did not have the same effect. Also, simply having children and not breast feeding also did not seem to be protective.

The researchers compared 136 women with rheumatoid arthritis with 544 women of a similar age without the disease. They found that those who had breast fed for longer were much less likely to get rheumatoid arthritis.

Women who had breastfed for 13 months or more were half as likely to get rheumatoid arthritis as those who had never breast fed. Those who had breast fed for one to 12 months were 25 per cent less likely to get the disease.

The proportion of women breast feeding for more than six months has increased dramatically over the past 30 years. The authors concluded that it was difficult to say whether there was a connection between higher rates of breast feeding and a corresponding fall in the number of women affected by rheumatoid arthritis, but that the results of the study provided yet another reason why women should continue breast feeding.

Public release date: 13-May-2008

Vitamin D protects cells from stress that can lead to cancer

By inducing a specific gene to increase expression of a key enzyme, vitamin D protects healthy prostate cells from the damage and injuries that can lead to cancer, University of Rochester Medical Center researchers report.

“Many epidemiological studies have suggested the beneficial properties of vitamin D,” said Yi-Fen Lee, associate professor of urology at the Medical Center who led the research. **“Our findings reflect what we see in those studies and demonstrate that vitamin D not only can be used as a therapy for prostate cancer, it can prevent prostate cancer from happening.”**

The International Journal of Cancer published the findings in its June 15 issue.

Lee and her research team discovered one mechanism involving vitamin D that protects cells from oxidative stress. The vitamin D used in the study is 1,25-hydroxylvitamin D3, the most potent and active form of vitamin D in the human body. Nonmalignant human prostate epithelial cells also were used.

Normal metabolism in cells generates reactive oxygen species (ROS), molecules of

peroxide, for example, or so-called free radicals. These substances can play a role in cell signaling and even kill bacteria. Exposure to some chemicals or forms of radiation can produce high levels of ROS that can damage DNA and play a significant role in speeding aging or causing cancer.

Lee found that vitamin D links with a gene known as G6PD, increasing its activity and the production of an enzyme called glucose-6-phosphate dehydrogenase. Increased activity of the enzyme clears cells of ROS, the molecules that can damage and injure cells.

“If you reduce DNA damage, you reduce the risk of cancer or aging,” Lee said. “Our study adds one more beneficial effect of taking a vitamin D supplement. Taking a supplement is especially important for senior citizens and others who might have less circulation of vitamin D, and for people who live and work areas where there is less sunshine.”

Large amounts of vitamin D should not be taken without medical supervision, she said.

The G6PD pathway is one of the mechanisms vitamin D uses, Lee said. The researchers did not find any similar activity in prostate cancer cells.

“Vitamin D does not protect cancer cells from injury or damage, which is good,” Lee said.

Ralph’s Note - So all those years of government sponsored sunscreen use, was an interesting trade off. When you consider it’s impact on breast, cancer and prostate cancer.