



The Vitamin & Herb Stores

**Human Technology Research Synopsis**

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**Public release date: 23-Jul-2009**

**The 'see food' diet**

Bethesda, MD — Current research suggests that a diet high in omega-3 fatty acids may

help prevent one of the leading causes of legal blindness among the elderly. The related report by Tuo et al, "A high omega-3 fatty acid diet reduces retinal lesions in a murine model of macular degeneration," appears in the August 2009 issue of the American Journal of Pathology.

Age-related macular degeneration (AMD), loss of vision in the center of the visual field (macula) due to retinal damage, is one of the leading causes of legal blindness among the elderly. Approximately 10% of people from 66 to 74 years of age will develop some level of macular degeneration, making it difficult for them to read or even recognize faces.

A diet high in omega-3 fatty acids has been found to protect against a variety of diseases including atherosclerosis and Alzheimer's disease. Retrospective studies have suggested that diets high in fish oil or omega-3 fatty acids may also contribute to protection against AMD. A group led by Dr. Chi-Chao Chan at the National Eye Institute in Bethesda, MD examined the direct effect of omega-3 fatty acids on a mouse model of AMD. A diet with high levels of omega-3 fatty acids resulted in slower lesion progression, with improvement in some lesions. These mice had lower levels of inflammatory molecules and higher levels of anti-inflammatory molecules, which may explain this protective effect.

Tuo et al suggest that "a diet enriched in EPA and DHA can ameliorate the progression of retinal lesions in their mouse model of AMD" and that "the results in these mice are in line with the epidemiological studies of AMD risk reduction by long chain n-3 fatty acids." The results "further provide the scientific basis for the application of omega-3 fatty acids and their biologically active derivatives in the prevention and treatment of AMD." In future studies, Dr. Chan and colleagues plan to use this murine model "to evaluate [other] therapies that might delay the development of AMD." Their ongoing projects include the "testing of systematic delivered pharmacochaperones and antioxidative molecules, as well as intraocularly delivered gene therapies."

**Public release date: 23-Jul-2009**

## **Almost 1/4 of Spanish women take antidepressants**

Psychopharmaceutical use has risen over recent years. This is fact, but what is not clear is the reason why. Researchers from four Madrid-based health centres have shown that family conflict is not a significant factor. However, the results published in the journal *Atención Primaria* are striking: in Spain, 24% of women take antidepressants and more than 30% take tranquillisers.

"The use of psychopharmaceuticals is often related to family or work-related problems. We wanted to see if there was actually a positive link between the consumption of antidepressants and benzodiazepines and any kind of family dysfunction", Sonsoles Pérez, lead author of the study published in the renowned journal *Atención Primaria*, and a doctor at the Las Águilas Health Centre in Madrid, tells SINC.

The authors studied 121 women aged between 25 and 65, using family dysfunction surveys (the Apgar test), and the additive scale used to evaluate social readjustment (SLE). The psychopharmaceuticals analysed were antidepressants and benzodiazepines (anxiolytics such as lorazepam and bromazepam).

"Although one might think that family conflicts lead to greater consumption of psychopharmaceuticals among women, we did not find any such relationship", the researcher says, adding that the use of such drugs depends a lot on the population segment taking them. "Some people with family, work-related or financial problems do not feel able to tackle their problems and fall back on the use of drugs", Pérez points out.

The results show that 24% of women in Spain use antidepressants and 30.6%, benzodiazepines, which are sometimes also used to help people sleep. In 78.6% of cases, these drugs are prescribed in primary health centres. The diagnosis is recorded in the patient's medical records in 64.5% of cases, with the primary causes being depression (11.6%), anxiety (9.9%) and insomnia (3.3%).

The scientists also found that benzodiazepine use increases with age. However, they did not find the same with antidepressant use. "We think that greater training is needed in identifying SLE and family dysfunction, and recording these in patients' records in order to help psychologists, psychiatrists and primary healthcare specialists", Pérez concludes.

How is family conflict measured?

The relationship between the use of psychopharmaceuticals and family dysfunction has not been well studied. In order to gain a better understanding of family impacts on healthcare, and the effects of this illness on the family, the experts use numerical family functioning scales, such as the Apgar family test and the Stressful Life Events scale (SLE).

The first of these, developed in 1978 by Gabriel Smilkstein, allows measurements to be made of the functional health of a family using parameters such as adaptability (family resources for problem solving), participation (cooperation of family members), growth gradient (physical, emotional and social maturity on the basis of mutual support), affection (caring and loving relationships between members of the family group), and resolution (time-sharing and provision of resources to support all members of the family).

SLEs, events that the patient has suffered over the past year, act as triggers causing suffering and stress, and cause emotional problems in the individual and the family, such as the death of a partner, separation, imprisonment, being fired and unemployment. Each event is assigned a score based on its severity of between 100 (the most serious event), and 11 (the least serious). Patients are classified as high risk (with a score of 4,300), mid-risk (300-199), and low risk (less than 199).

**Public Release: 27-Jul-2009**

## **New research finds that bingeing increases opioids in brain area that controls food intake**

7/28/09, Portland, OR. Overconsumption of fatty, sugary foods leads to changes in brain receptors, according to new animal research at Johns Hopkins University School of Medicine. The new research results are being presented at the 2009 annual meeting of the Society for the Study of Ingestive Behavior (SSIB), the foremost society for research into all aspects of eating and drinking behavior. The results have implications for understanding bulimia and other binge eating disorders.

Dr. Bello and colleagues report that either continuous eating or binge eating a high fat, high sugar diet alters opioid receptor levels in an area of the brain that controls food intake. Opioids are a family of chemicals with actions similar to those of morphine; however, opioids exist naturally in the brain and have been linked to feelings of pleasure and euphoria. “These results are interesting because we saw changes in opioid receptor gene expression in a brain area that controls how much we eat during a meal”, said Bello. The new findings suggest that overconsumption of highly palatable foods maintains bingeing by enhancing opioids in the brain, and that increased opioids could be a factor involved in binge eating disorders. These findings may help to understand the biological basis of eating disorders.

**Public release date: 27-Jul-2009**

## **Common food dye may hold promise in treating spinal cord injury**

A common food additive that gives M&Ms and Gatorade their blue tint may offer promise for preventing the additional – and serious – secondary damage that immediately follows a traumatic injury to the spinal cord. In an article published online today in the Proceedings of the National Academy of Sciences, **researchers report that the compound Brilliant Blue G (BBG) stops the cascade of molecular events that cause secondary damage to the spinal cord in the hours following a spinal cord injury**, an injury known to expand the injured area in the spinal cord and permanently worsen the paralysis for patients.

This research builds on landmark laboratory findings first reported five years ago by researchers at the University of Rochester Medical Center. In the August 2004 cover story of Nature Medicine, scientists detailed how ATP, the vital energy source that keeps our body's cells alive, quickly pours into the area surrounding a spinal cord injury shortly after it occurs, and paradoxically kills off what are otherwise healthy and uninjured cells.

This surprising discovery marked a milestone in establishing how secondary injury occurs in spinal cord patients. It also laid out a potential way to stop secondary spinal injury, by using oxidized ATP, a compound known to block ATP's effects. Rats with damaged spinal cords who received an injection of oxidized ATP were shown to recover much of their limb function, to the point of being able to walk again, ambulating

effectively if not gracefully.

Now, scientists detail the clearing of yet another hurdle in moving this research closer from bench to bedside by successfully identifying a compound that could be administered systemically to achieve the same benefit. Previously, the team needed to inject a compound directly into the injured spinal cord area to achieve its results.

"While we achieved great results when oxidized ATP was injected directly into the spinal cord, this method would not be practical for use with spinal cord-injured patients," said lead researcher Maiken Nedergaard, M.D., D.M.Sc., professor of Neurosurgery and director of the Center for Translational Neuromedicine at the University of Rochester Medical Center. "First, no one wants to put a needle into a spinal cord that has just been severely injured, so we knew we needed to find another way to quickly deliver an agent that would stop ATP from killing healthy motor neurons. Second, the compound we initially used, oxidized ATP, cannot be injected into the bloodstream because of its dangerous side effects."

Nedergaard cautions that while this body of work offers a promising new way of treating spinal cord injury, it is still years away from possible application in patients. In addition, any potential treatments would only be helpful to people who have just suffered a spinal cord injury, not for patients whose injury is more than a day old. Just as clot-busting agents can help patients who have had a stroke or heart attack who get to an emergency room within a few hours, so a compound that could stem the damage from ATP might help patients who have had a spinal cord injury and are treated immediately.

### Too Much of a Good Thing

While ATP is usually considered to be helpful to our bodies – after all, it's the main source of energy for all of our body's cells – Nedergaard was the first to uncover its darker side in the spinal cord. Immediately after a spinal cord injury occurs, ATP surges to the damaged area, at levels hundreds of times higher than normal. It is this glut of ATP that over-stimulates neurons and causes them to die from metabolic stress.

Neurons in the spinal cord are so susceptible to ATP because of a molecule known as "the death receptor." Scientists know that the receptor – called P2X7 – plays a role in regulating the deaths of immune cells such as macrophages, but in 2004, Nedergaard's team discovered that P2X7 also is carried in abundance by neurons in the spinal cord. P2X7 allows ATP to latch onto motor neurons and send them the flood of signals that cause their deaths, worsening the spinal cord injury and resulting paralysis.

So the team set its sights on finding a compound that not only would prevent ATP from attaching to P2X7, but could be delivered intravenously. In a fluke, Nedergaard discovered that BBG, a known P2X7R antagonist, is both structurally and functionally equivalent to the commonly used FD&C blue dye No. 1. Approved by the Food and Drug Administration as a food additive in 1982, more than 1 million pounds of this dye are consumed yearly in the U.S.; each day, the average American ingests 16 mgs. of FD&C

blue dye No. 1.

"Because BBG is so similar to this commonly used blue food dye, we felt that if it had the same potency in stopping the secondary injury as oxidized ATP, but with none of its side effects, then it might be great potential treatment for cord injury," Nedergaard said.

The team was not disappointed. An intravenous injection of BBG proved to significantly reduce secondary injury in spinal cord-injured rats, who improved to the point of being able to walk, though with a limp. Rats that had not received the BBG solution never regained the ability to walk. There was one side effect: Rats who were injected with BBG temporarily had a blue tinge to their skin.

Nedergaard's long-time collaborator on this and other projects, chair of the University of Rochester Department of Neurology Steven Goldman, M.D., Ph.D., adds, "We have no effective treatment now for patients who have an acute spinal cord injury. Our hope is that this work will lead to a practical, safe agent that can be given to patients shortly after injury, for the purpose of decreasing the secondary damage that we have to otherwise expect."

Nedergaard and Goldman believe that further laboratory testing will be needed to test the safety of BBG and related agents before human clinical trials could begin. Nonetheless, the investigators are optimistic that with sufficient study, strategies like this could yield new treatments for acute spinal cord injuries within the next several years.

**Public release date: 28-Jul-2009**

## **Common household pesticides linked to childhood cancer cases in Washington area**

Researchers caution that the study doesn't prove cause and effect  
Washington, DC – **A new study by researchers at the Georgetown's Lombardi Comprehensive Cancer Center finds a higher level of common household pesticides in the urine of children with acute lymphoblastic leukemia (ALL),** a cancer that develops most commonly between three and seven years of age. The findings are published in the August issue of the journal Therapeutic Drug Monitoring.

Researchers caution that these findings should not be seen as cause-and-effect, only that the study suggests an association between pesticide exposure and development of childhood ALL.

"In our study, we compared urine samples from children with ALL and their mothers with healthy children and their moms. We found elevated levels of common household pesticides more often in the mother-child pairs affected by cancer," says the study's lead investigator, Offie Soldin, PhD, an epidemiologist at Lombardi. Soldin cautions, "We

shouldn't assume that pesticides caused these cancers, but our findings certainly support the need for more robust research in this area."

The study was conducted between January 2005 and January 2008 with volunteer participants from Lombardi and Children's National Medical Center who live in the Washington metropolitan area. It included 41 pairs of children with ALL and their mothers (cases), and 41 pairs of healthy children and their mothers (controls). For comparison purposes, the case pairs were matched with control pairs by age, sex and county of residence. Previous studies in agricultural areas of the country have suggested a relationship between pesticides and childhood cancers, but researchers say this is the first study conducted in a large, metropolitan area.

Urine samples were collected from all child-mother pairs and analyzed by the Centers for Disease Control and Prevention to look for evidence of organophosphates (OP), the chemical name of some household pesticides. The body breaks down OP into metabolites which can be tracked in urine samples. The researchers say pesticides were detected in the urine of more than half of the participants, but levels of two common OP metabolites, diethylthiophosphate (DETP) and diethyldithiophosphate (DEDTP), were higher in the children with ALL compared to the control children ( $p < 0.03$  and  $p < 0.05$ ).

Also for the study, the mothers completed a questionnaire to collect information about the family's exposure to pesticides, their medical history, home and neighborhood characteristics, diet, and history of smoke exposure. More case mothers (33 percent) than controls (14 percent) reported using insecticides in the home ( $p < 0.02$ ), however there was no correlation found between high levels of the OP metabolites in urine and reported use of pesticides.

"We know pesticides – sprays, strips, or 'bombs,' are found in at least 85 percent of households, but obviously not all the children in these homes develop cancer. What this study suggests is an association between pesticide exposure and the development of childhood ALL, but this isn't a cause-and-effect finding," Soldin explains. "Future research would help us understand the exact role of pesticides in the development of cancer. We hypothesize that pre-natal exposure coupled with genetic susceptibility or an additional environmental insult after birth could be to blame."

**Public release date: 30-Jul-2009**

## **Got zinc? New zinc research suggests novel therapeutic targets**

New report in the Journal of Leukocyte Biology suggests that zinc activates a key protein on T cells needed to fight infections

Everyone knows that vitamins "from A to zinc" are important for good health. Now, a new research study in the August 2009 print issue of the Journal of Leukocyte Biology (<http://www.jleukbio.org>) suggests that zinc may be pointing the way to new therapeutic

targets for fighting infections. Specifically, scientists from Florida found that zinc not only supports healthy immune function, but increases activation of the cells (T cells) responsible for destroying viruses and bacteria.

**"It has been shown that zinc supplementation significantly reduces the duration and severity of childhood diarrhea, lower respiratory infections, and incidence of malaria in zinc-deficient children,"** said report co-author, Robert Cousins, Ph.D., who also is the director of the Center for Nutritional Sciences within the Food Science and Human Nutrition Department at the University of Florida. "Age-related declines in immune function have also been related to zinc deficiency in the elderly."

Scientists administered either a zinc supplement or a placebo to healthy volunteers to assess the effects of zinc on T cell activation. After isolating the T cells from the blood, scientists then simulated infection in laboratory conditions. **Results showed that T cells taken from the zinc-supplemented group had higher activation than those from the placebo group. Specifically, cell activation stimulated the zinc transporter in T cells called "ZIP8," which transports stored zinc into the cell cytoplasm where it then alters the expression of a T cell protein in a way needed to fight infections.**

"As the debate over zinc supplementation in healthy individuals continues," said John Wherry, Ph.D., Deputy Editor of the Journal of Leukocyte Biology, "studies like this help shed light on how zinc may enhance the ability of our immune systems to fight off foreign invaders. Equally important, this work points toward new possible targets for entirely new drugs to help augment immune function and prevent or stop infections that might be resistant to traditional antibiotics."

**Public release date: 30-Jul-2009**

## **Scientists uncork a potential secret of red wine's health benefits**

New research in the FASEB Journal shows how resveratrol works as an effective therapy for life-threatening inflammation

Scientists from Scotland and Singapore have unraveled a mystery that has perplexed scientists since red wine was first discovered to have health benefits: how does resveratrol control inflammation? New research published in the August 2009 print issue of The FASEB Journal (<http://www.fasebj.org>), not only explains resveratrol's one-two punch on inflammation, but also show how it—or a derivative—can be used to treat potentially deadly inflammatory disease, such as appendicitis, peritonitis, and systemic sepsis.

"Strong acute inflammatory diseases such as sepsis are very difficult to treat and many die every day due to lack of treatment," said Alirio Melendez, senior lecturer on the faculty of medicine at Glasgow Biomedical Research Centre in Scotland and one of the

researchers involved in the work. "Moreover, many survivors of sepsis develop a very low quality of life due to the damage that inflammation causes to several internal organs. **The ultimate goal of our study was to identify a potential novel therapy to help in the treatment of strong acute inflammatory diseases.**"

In this study, researchers administered an inflammatory agent to two groups of mice. One group was pretreated with resveratrol and the other group was not. The mice that were not pretreated with resveratrol experienced a strong inflammatory response, simulating disease in humans, **while the group pretreated with resveratrol was protected from the inflammation.** The scientists then examined the tissues of the mice to determine exactly how resveratrol was able to protect the mice from inflammation. They found that resveratrol used a one-two punch to stop inflammation in the mice by preventing the body from creating two different molecules known to trigger inflammation, sphingosine kinase and phospholipase D. **This finding suggests that resveratrol may be harnessable as a treatment for inflammatory diseases and may also lead to entirely new resveratrol-based drugs that are even more effective.**

"The therapeutic potential of red wine has been bottled up for thousands of years," said Gerald Weissmann, M.D., Editor-in-Chief of The FASEB Journal, "and now that scientists have uncorked its secrets, they find that studies of how resveratrol works can lead to new treatments for life-threatening inflammation."

**Public release date: 30-Jul-2009**

## **SAMe is Effective in Preventing Formation of Primary Liver Cancer in Rats**

A new study investigated the effectiveness of S-adenosylmethionine (SAMe) in the prevention and treatment of hepatocellular carcinoma (HCC) or primary liver cancer. SAMe, a widely available nutritional supplement, with little known side effects, was found to be effective in preventing the formation of HCC in rats. However, high enough levels of SAMe were not attainable to successfully treat established HCC. The findings are available in the August issue of *Hepatology*, a journal published by John Wiley & Sons on behalf of the American Association for the Study of Liver Diseases.

HCC is the fifth most common cancer and the third most frequent cause of cancer death worldwide. Risk factors for HCC include chronic infection with hepatitis B virus, hepatitis C virus (HCV), dietary aflatoxin, excessive alcohol use, cigarette smoking, diabetes and obesity. The overall 5-year survival for HCC patients is less than 10% and the disease rate is expected to rise due to the high prevalence of HCV in many areas of the world.

Shelly Lu, M.D., of the Keck School of Medicine at the University of Southern

California, and colleagues studied the effects of SAME on chemoprevention and treatment of HCC. In the U.S. the incidence of HCC doubled from 1979 to 1995 and the number of HCC cases for the following 20 to 30 years is projected to increase. "Given these projections, there is a tremendous interest in developing effective chemoprevention strategies," said Dr. Lu. "And an important property of SAME that makes it an attractive agent for chemoprevention and treatment of HCC is its ability to selectively kill liver cancer cells," she added.

During the study researchers injected H4IIE cells into rats and found a 1cm tumor developed in the liver two weeks after injection. A regimen of IV SAME was started one day after injecting the cells and continued for ten days. The researchers monitored the animals using MRI, ultrasound, and visual inspection to assess the liver tumors. "Treatment with IV SAME by continuous infusion significantly reduced the tumor size and significantly prevented tumor development after 11 days," researchers discovered.

Researchers found that if SAME infusion was started after sizable tumors had already formed it failed to reduce the rate of tumor growth after 24 days of treatment. This is because of a compensatory response of the liver to metabolize SAME and prevent its accumulation. "The observation that SAME failed to exert any therapeutic effect in already established HCC is disappointing," said Dr. Lu. "But whether SAME can be effective in treating HCC in man remains unclear because this compensatory mechanism may not work properly in human HCC. Nevertheless, effectiveness of SAME in chemoprevention of human HCC deserves study now."

**Public release date: 30-Jul-2009**

## **Study Links Virus To Some Cases Of Common Skin Cancer**

COLUMBUS, Ohio – A virus discovered last year in a rare form of skin cancer has also been found in people with the second most common form of skin cancer among Americans, according to researchers at the Ohio State University Comprehensive Cancer Center - James Cancer Hospital and Solove Research Institute.

The researchers examined tissue samples from 58 people with squamous cell carcinoma (SCC), a highly curable form of skin cancer that is expected to affect more than 200,000 Americans this year.

They identified the Merkel cell polyomavirus in more than a third of the patients and in 15 percent of the tumors tested. In addition, all of the virus found in tumor cells had a mutation that could enable the viral DNA to integrate into the DNA of the host cell.

“This is indirect evidence that the virus might play a role in causing some cases of squamous cell carcinoma,” says principal investigator Amanda E. Toland, assistant professor of molecular virology, immunology and medical genetics and a researcher with the Ohio State University Comprehensive Cancer Center - James Cancer Hospital and Solove Research Institute.

The findings are published in a recent issue of the *Journal of Investigative Dermatology*.

The virus was first discovered in patients with Merkel cell carcinoma, a rare, aggressive skin cancer that occurs mainly in the elderly and people with a suppressed immune system. The people in the new study all had a healthy immune system.

“Originally it was thought that this virus caused only this rare skin cancer, but our findings indicate that it is a lot more prevalent than we initially thought.”

To learn if people with SCC harbored the virus, Toland, working closely with first author and graduate research associate Amy Dworkin and Ohio State pathologists O. Hans Iwenofu and Sara B. Peters, examined DNA samples from SCC tumors, from normal-appearing skin adjacent to the tumor, when available; from white blood cells, and from cells washed from the mouth.

The investigators detected the virus in 26 of 177 SCC samples, 11 of 63 adjacent-skin samples, and one sample from a mouthwash. They found no viral DNA in any of the blood samples from 57 patients. In all, 21 of 58 SCC patients, or 36 percent, tested positive for the virus.

By sequencing the viral DNA from 31 normal and tumor samples, the researchers showed that the same mutation was present in all the viruses tested from tumors, and in 60 percent of the viruses tested from adjacent healthy-looking tissue.

“That suggests that the virus may develop a mutation that causes it to integrate into host-cell DNA, and, therefore, may play a role in causing the cancer,” Toland says.

Next, Toland wants to test normal skin in healthy individuals to learn how common this virus is in people generally and to learn whether the virus actually integrates with the host DNA.

“If it proves to be a cancer-causing virus, and if it proves to be common in the general population, it might be something we should begin screening people for,” she says.

Funding from the American Cancer Society supported this research.

Ohio State researchers Stephanie Y. Tseng and Dawn C. Allain were also involved in this study.

The Ohio State University Comprehensive Cancer Center-James Cancer Hospital and

Solove Research Institute ([www.jamesline.com](http://www.jamesline.com)) is one of only 40 Comprehensive Cancer Centers in the United States designated by the National Cancer Institute. Ranked by U.S. News & World Report among the top 20 cancer hospitals in the nation, The James is the 180-bed adult patient-care component of the cancer program at The Ohio State University. The OSUCCC-James is one of only five centers in the country approved by the NCI to conduct both Phase I and Phase II clinical trials.

**Public release date: 30-Jul-2009**

## **Food additive may one day help control blood lipids and reduce disease risk**

July 30, 2009 -- Scientists at Washington University School of Medicine in St. Louis have identified a substance in the liver that helps process fat and glucose. That substance is a component of the **common food additive lecithin, and researchers speculate it may one day be possible to use lecithin products to control blood lipids and reduce risk for diabetes, hypertension or cardiovascular disease using treatments delivered in food rather than medication.**

"Currently, doctors use drugs called fibrates to treat problems with cholesterol and triglycerides," says the study's co-first author Irfan J. Lodhi, Ph.D., a postdoctoral fellow in endocrinology and metabolism. "By identifying this substance that occurs naturally in the body — and also happens to be used as a food additive — **it may be possible to improve the treatment of lipid disorders and minimize drug side effects by adding particular varieties of lecithin to food.**"

Lecithin is found at high concentrations in egg whites. It also is in soybeans, grains, fish, legumes, yeast and peanuts. Most commercially used lecithin comes from soybeans. Lecithin can alter food taste and texture and also can be mixed with water to disperse fats, making it a common additive in margarine, mayonnaise, chocolate and baked goods. Lecithin is a mixture of fatty compounds called phosphatidylcholines. Various types of phosphatidylcholines house different kinds of fatty molecules linked to a common core.

This new study demonstrates that in the liver, a specific type of lecithin binds with a protein called PPAR-alpha, allowing PPAR-alpha to regulate fat metabolism. Scientists long have known that PPAR-alpha is involved in lipid and glucose metabolism. When doctors prescribe fibrate drugs to lower triglycerides and elevate good cholesterol in the blood, those drugs work by activating PPAR-alpha.

Although fibrates activate the protein, no one previously had identified any naturally occurring substance that could perform that task. Reporting in the Aug. 7 issue of the journal *Cell*, the Washington University research team describes how it found the link between lecithin and PPAR-alpha.

They first created a strain of mice that could not make fatty acid synthase in the liver. When humans or animals eat, we take in sugars. Fatty acid synthase converts those sugars

to fatty acids in the liver, where they play important roles in energy metabolism.

"To our surprise, animals missing fatty acid synthase in the liver were just like animals that couldn't make PPAR-alpha. They had lower fasting insulin levels, and they were prone to develop fatty liver disease," says senior investigator Clay F. Semenkovich, M.D., the Herbert S. Gasser Professor and chief of the Division of Endocrinology, Metabolism and Lipid Research. "When we gave the animals fibrate drugs that activated PPAR-alpha, the mice returned to normal, leading us to suspect that fatty acid synthase also was involved in the activation of PPAR-alpha. Although we knew that fibrate drugs would regulate PPAR-alpha, we also knew that our ability to regulate the metabolism of fats and sugars was in place long before humans started making drugs. But until now, no one had identified how it worked."

Semenkovich, Lodhi, John Turk, M.D., Ph.D., professor of medicine and of pathology, and the rest of the team used mass spectrometry and gene expression studies to isolate the phosphatidylcholine, or lecithin compound, that activated PPAR-alpha in the liver.

One reason fatty acid synthase had never been connected to PPAR-alpha function was the distance of the two proteins from each other, according to Semenkovich. PPAR-alpha is a nuclear receptor. That is, it's housed in the nucleus of the cell. Fatty acid synthase, on the other hand, lives out in the cell body, or cytoplasm.

"The neighborhoods where PPAR-alpha and fatty acid synthase live aren't very close together," says Semenkovich. "The synthase is way out in the cytoplasm — that's like being in the suburbs — whereas the PPAR-alpha lives right in the middle of the 'city.' These are all microscopic distances, but to the cell, they're worlds apart, so it's amazing that the two are linked."

It's also fortunate, he says, that an extremely common compound like lecithin binds to a key drug target like PPAR-alpha.

"That information could be used to make better drugs or even to develop what people sometimes refer to as nutraceuticals — nutrients that have pharmaceutical-like properties," Semenkovich says.

**Public release date: 3-Aug-2009**

## **Millions of US children low in vitamin D- (70%)**

Study shows increased risk of bone and heart disease

August 3, 2009 — (BRONX, NY) — Seven out of ten U.S. children have low levels of vitamin D, raising their risk of bone and heart disease, according to a study of over 6,000 children by researchers at Albert Einstein College of Medicine of Yeshiva University. The striking findings suggest that vitamin D deficiency could place millions of children at risk for high blood pressure and other risk factors for heart disease. The study is

published today in the online version of Pediatrics.

Vitamin D deficiency was thought to be relatively rare in the U.S. However, recent studies have documented this growing problem in adults. With cases of rickets (a bone disease in infants caused by low vitamin D levels) on the rise, it became clear that many children were also not getting enough of this essential vitamin, which is needed for healthy bone growth, among other biological processes.

"Several small studies had found a high prevalence of vitamin D deficiency in specific populations of children, but no one had examined this issue nationwide," says study leader Michal L. Melamed, M.D., assistant professor of medicine and of epidemiology & population health at Einstein. Dr. Melamed has published extensively on the importance of vitamin D.

To learn more about the prevalence of vitamin D deficiency (defined as less than 15 ng/mL of blood) and vitamin D insufficiency (15 to 29 ng/mL), the researchers analyzed data on more than 6,000 children, ages one to 21, collected by the National Health and Nutrition Examination Survey (NHANES) 2001-2004.

The researchers found that 9 percent of the study sample, equivalent to 7.6 million children across the U.S., was vitamin D deficient, while another 61 percent, or 50.8 million, was vitamin D insufficient. Low vitamin D levels were especially common in children who were older, female, African-American, Mexican-American, obese, drank milk less than once a week, or spent more than four hours a day watching TV, playing videogames, or using computers.

The researchers also found that low levels of vitamin D deficiency were associated with higher parathyroid hormone levels, a marker of bone health, higher systolic blood pressure, and lower serum calcium and HDL (good) cholesterol levels, which are key risk factors for heart disease.

"We expected the prevalence of vitamin D deficiency would be high, but the magnitude of the problem nationwide was shocking," says lead author Juhi Kumar, M.D., M.P.H., a fellow in pediatrics at Children's Hospital at Montefiore Medical Center, The University Hospital and Academic Medical Center for Albert Einstein College of Medicine. Dr. Kumar will become an assistant professor of pediatrics at Weill Cornell Medical College in August, 2009.

"We know from earlier NHANES data that vitamin D levels have declined over the last 20 years," says Dr. Melamed. "Kids have more sedentary lifestyles today and are not spending as much time outdoors. The widespread use of sunscreens, which block UV-B rays, has only compounded the problem." The body uses UV-B sunlight to convert a form of cholesterol in the skin into vitamin D.

Dr. Melamed recommends that children should consume more foods rich in vitamin D, such as milk and fish. "But it's very hard to get enough vitamin D from dietary sources

alone," she says.

Vitamin D supplementation can help. In the study, children who took vitamin D supplements (400 IU/day) were less likely to be deficient in the vitamin. However, only four percent of the study population actually used supplements. The American Academy of Pediatrics, which recently updated its vitamin D guidelines, now recommends that infants, children, and teens should take 400 IU per day in supplement form.

Supplements are especially important for those living in the country's northern regions where the sun may be too weak to maintain healthy vitamin D levels. Supplements are also critical for infants who are breast-fed, say the researchers. Breast milk contains relatively little vitamin D, while formula is fortified with the vitamin.

The authors recommend that pediatricians should routinely screen high-risk children for vitamin D deficiency, and that parents should ensure that their kids get adequate amounts of the vitamin through a combination of diet, supplements, and exposure to sunlight.

"The message for pediatricians is that vitamin D deficiency is a real problem with consequences not only for bone health but also potentially for long-term cardiovascular health. Pediatricians should be screening children for vitamin D levels, especially in the high-risk populations," says Dr. Kumar. A study co-led by Dr. Melamed and published in the Archives of Internal Medicine in August 2008 reported that individuals with low levels of vitamin D may have an increased risk of death from all causes.

As for parents, says Dr. Melamed, "It would good for them to turn off the TV and send their kids outside. Just 15 to 20 minutes a day should be enough. And unless they burn easily, don't put sunscreen on them until they've been out in the sun for 10 minutes, so they get the good stuff but not sun damage."

**Public release date: 3-Aug-2009**

## **US Marshals seize (anti-bacterial) sanitizer for bacteria problems**

WASHINGTON – Officers with the U.S. Marshals Service have seized all skin sanitizers and skin protectants, including ingredients and components, at Clarcon Biological Chemistry Laboratory's facility in Roy, Utah, the Food and Drug Administration said.

The FDA also warned the public Saturday not to use any Clarcon products because they contain harmful bacteria and are promoted as antimicrobial agents that claim to treat open wounds, damaged skin, and protect against various infectious diseases. No cases have been reported to the FDA.

Clarcon voluntarily recalled the affected products, marketed under several different brand names, in June 2009, following an FDA inspection that revealed high levels of potentially disease-causing bacteria in the products.

The inspection also uncovered serious deviations from the FDA's regulations, including poor practices that permitted the contamination. The FDA's seizure of these products, along with their ingredients, occurred after Clarcon did not agree to promptly destroy them. The FDA said it is protecting the public by preventing these products from entering the marketplace.

"The FDA is committed to taking enforcement action against firms that do not manufacture drugs in accordance with our current good manufacturing practice requirements," said Deborah M. Autor, director of the FDA's Center for Drug Evaluation and Research Office of Compliance.

Clarcon produced and distributed over 800,000 bottles of these products in multiple regions of the country since 2007. Consumers should not use any Clarcon products and should dispose of them in their household trash.

Analyses of several samples of the topical antimicrobial skin sanitizer and skin protectant products revealed high levels of various bacteria. Some of these bacteria can cause opportunistic infections of the skin and underlying tissues. Such infections may need medical or surgical attention and may result in permanent damage, the FDA said.

**Ralph's Note - Interesting Paradox....Anti-Bacterial sanitizer contaminated with high levels of Bacteria.....**

**Public release date: 3-Aug-2009**

## **Antidepressant Use in U.S. Has Almost Doubled**

MONDAY, Aug. 3 (HealthDay News) -- Antidepressant use among U.S. residents almost doubled between 1996 and 2005, along with a concurrent rise in the use of other psychotropic medications, a new report shows.

The increase seemed to span virtually all demographic groups.

**"Over 10 percent of people over the age of 6 were receiving anti-depression medication.** That strikes me as significant," said study author Dr. Mark Olfson, a professor of clinical psychiatry at Columbia University/New York State Psychiatric Institute in New York City.

According to background information in the study, antidepressants are now the most widely prescribed class of drugs in the United States. The expansion in use dates back to the 1980s, with the introduction of the antidepressant Prozac (fluoxetine).

**The study found that 5.84 percent of U.S. residents aged 6 and over were using antidepressants in 1996, compared with 10.12 percent in 2005. That's 13.3 million**

**people, up to 27 million people.**

"This is a 20-year trend and it's very powerful," remarked Dr. Eric Caine, chair of the department of psychiatry and co-director of the Center for the Study of Prevention of Suicide at the University of Rochester Medical Center.

This happened despite a "black box" warning mandated for many antidepressant medications by the U.S. Food and Drug Administration in 2004, the study authors noted.

Lower rates of increases in antidepressant use were seen in blacks (3.61 percent in 1996 versus 4.51 percent in 2005) and in Hispanics (3.72 percent versus 5.21 percent in 2005), the researchers found.

Still, about the same number of people were being treated for depression (26.25 percent in 1996 versus 26.85 percent in 2005), indicating that the drugs were being used to treat other diagnoses, such as anxiety and other mood disorders.

**At the same time, those receiving antipsychotic medications increased from 5.46 percent to 8.86 percent,** and the proportion of people using psychotherapy dropped from 31.5 percent to 19.87 percent.

"The reasons [for the growth] are unclear but they may include the introduction of new antidepressants over the last 10 to 12 years or so and a broadening in the clinical indications of antidepressant treatment. Years ago, these drugs were largely focused on depression. Today, more different conditions are treated with antidepressants," Olfson said. "There's also been an increase in direct-to-consumer advertising and a lessening of the stigma associated with seeking mental health care."

Indeed, a study released last week found that roughly five of six Americans now have a positive opinion on psychiatric medications, a marked increase from about a decade ago.

Depression may also be more common in the population, or at least more people may be acknowledging it and seeking help, the authors suggested.

"It is encouraging that there is apparently an increased awareness and increased willingness to seek assistance for emotional distress . . . and that is a big step forward," said Dr. Kathryn J. Kotrla, chairwoman and associate professor of psychiatry and behavioral science at Texas A&M Health Science Center College of Medicine.

"I think part of the increased rate is increased awareness, as well as national depression screening all over the country," added Dr. M. Beatriz Currier, an associate professor of clinical psychiatry at the University of Miami Miller School of Medicine. "Education and screening decrease stigma."

Of concern, however, was the finding that the majority of Americans taking antidepressants were not receiving care from a psychiatrist.

Also troubling was not knowing what the prescriptions were being written for exactly.

**"One wonders if the medication is being used as a possible panacea for a number of psychosocial issues which might be better served by counseling," Kotrla said.**

"Who's really taking these medications?" Caine said. "It's not clear that it makes anyone healthier. That's a fundamental issue that we don't know. We don't have any way of telling if this made people's lives better."

A second study in the same issue of the journal followed 306 preschoolers aged 3 to 6 years for 24 months and found that depression in this group tends not to just go away as the child gets older, but can linger as a chronic condition.

"This is exciting because it gives us an opportunity for early intervention," Kotrla said.

**Ralph's Note - Take away the reckless use of mind altering medications, and watch the world change for the better. Reality skewed is not reality at all.**

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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.**