



The Vitamin & Herb Stores

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**Public release date: 14-Jul-2010**

## **Tea contains more fluoride than once thought**

AUGUSTA, Ga. – Black tea, a Southern staple and the world's most consumed beverage, may contain higher concentrations of fluoride than previously thought, which could pose problems for the heaviest tea drinkers, Medical College of Georgia researchers say.

"The additional fluoride from drinking two to four cups of tea a day won't harm anyone; it's the very heavy tea drinkers who could get in trouble," said Dr. Gary Whitford, Regents Professor of oral biology in the School of Dentistry. He presented his findings today at the 2010 International Association of Dental Research Conference in Barcelona, Spain.

Most published reports show 1 to 5 milligrams of fluoride per liter of black tea, but a new study shows that number could be as high as 9 milligrams.

Fluoride is known to help prevent dental cavities, but long-term ingestion of excessive amounts could cause bone problems. The average person ingests a very safe amount, 2 to 3 milligrams, daily through fluoridated drinking water, toothpaste and food. It would take ingesting about 20 milligrams a day over 10 or more years before posing a significant risk to bone health.

Whitford discovered that the fluoride concentration in black tea had long been underestimated when he began analyzing data from four patients with advanced skeletal fluorosis, a disease caused by excessive fluoride consumption and characterized by joint and bone pain and damage. While it is extremely rare in the United States, the common link between these four patients was their tea consumption – each person drank 1 to 2 gallons of tea daily for the past 10 to 30 years.

"When we tested the patients' tea brands using a traditional method, we found the fluoride concentrations to be very low, so we wondered if that method was detecting all of the fluoride," Whitford said, noting that the tea plant, *Camellia sinensis*, creates a quandary when measuring fluoride. Unique among other plants, it accumulates huge concentrations of fluoride and aluminum in its leaves – each mineral ranges from 600 to more than 1,000 milligrams per kilogram of leaves. When the leaves are brewed for tea, some of the minerals leach into the beverage.

**Most published studies about black tea traditionally have used a method of measuring fluoride that doesn't account for the amount that combines with aluminum to form insoluble aluminum fluoride, which is not detected by the fluoride electrode.** Whitford compared that method with a diffusion method, which breaks the aluminum-fluoride bond so that all fluoride in the tea samples can be extracted and measured.

He tested seven brands of store-bought black tea, steeping each for five minutes in deionized water, which contains no fluoride. The amount of fluoride in each sample was 1.4 to 3.3 times higher using the diffusion

method than the traditional method.

The new information shouldn't deter tea drinkers, as the beverage is safe and some teas even have health benefits, Whitford said. "The bottom line is to enjoy your favorite tea, but like everything else, drink it in moderation."

Including Whitford's presentation, School of Dentistry faculty and students will make 24 oral and poster presentations at the International Association for Dental Research conference July 14-17.

### **Public release date: 14-Jul-2010**

## **Cashew seed extract an effective anti-diabetic**

New study published in Molecular Nutrition and Food Research journal

Montreal, July 14, 2010 – Cashew seed extract shows promise as an effective anti-diabetic, according to a new study from the University of Montreal (Canada) and the Université de Yaoundé (Cameroun). Published in the journal Molecular Nutrition & Food Research, the investigation analyzed the reputed health benefits of cashew tree products on diabetes, notably whether cashew extracts could improve the body's response to its own insulin.

Diabetes is caused when a person has high blood sugar because their body does not respond well to insulin and/or does not produce enough of the hormone. The illness, which affects nearly 220 million people worldwide, can provoke heart or kidney disease. The goal of the study was to examine the impact of leaves, bark, seeds and apples from cashew trees, native to northeastern Brazil and other countries of the southern hemisphere, on cells that respond to insulin.

**"Of all the extracts tested, only cashew seed extract significantly stimulated blood sugar absorption by muscle cells,"** says senior author Pierre S. Haddad, a pharmacology professor at the University of Montreal's Faculty of Medicine. "Extracts of other plant parts had no such effect, indicating that cashew seed extract likely contains active compounds, which can have potential anti-diabetic properties."

**Cashew tree products have long been alleged to be effective anti-inflammatory agents, counter high blood sugar and prevent insulin resistance among diabetics.** "Our study validates the traditional use of cashew tree products in diabetes and points to some of its natural components that can serve to create new oral therapies," adds Dr. Haddad, who is also director of the Canadian Institutes of Health Research Team in Aboriginal Anti-Diabetic Medicines at the University of Montreal.

### **Public release date: 15-Jul-2010**

## **Several studies support the role of choline in fetal development and throughout the lifespan**

Essential nutrient in eggs may reduce risk of infant heart defects

A study published in the American Journal of Clinical Nutrition found that a choline-deficient diet is associated with increased risk for heart defects during prenatal development.<sup>1</sup> Choline is an essential nutrient required for normal cell activity, healthy brain and nerve function, liver metabolism and transportation of nutrients throughout the body. **Research shows that only 10 percent or less of older children, men, women and pregnant women in America are meeting the Adequate Intake (AI) levels for choline; despite a growing body of science which supports the importance of choline especially in healthy fetal development.**<sup>2</sup>

## Vital Role of Choline During Pregnancy

A growing body of science, conducted in both animals and humans, supports the need for more dietary choline. Researchers from McGill University and Cornell University examined the offspring of mice that consumed a choline-deficient diet during pregnancy compared to the offspring of mice that consumed a diet containing the recommended amount of choline. The researchers observed that heart defects were more prevalent among the offspring of mice consuming a choline-deficient diet. The study also found that low choline intake was associated with increased levels of homocysteine, an amino acid in the blood that, when elevated, is associated with an increased risk of cardiovascular disease and declined cognitive function.

"Choline is a complex nutrient that is intricately involved in fetal development, and this research reveals another piece of the puzzle," according to Cornell University Associate Professor, Marie Caudill, Ph.D., R.D. "Women with diets low in choline have two times greater risk of having babies with neural tube defects so it's essential that nutrition education during pregnancy and breastfeeding highlight the importance of dietary sources of choline."

Another study, published in the June issue of *Behavioral Neuroscience*, reported that choline intake during pregnancy and lactation is associated with improved attention function.<sup>3</sup> The researchers observed that offspring of female mice consuming a diet supplemented with choline during pregnancy and lactation performed significantly better on attention tasks compared to offspring from mothers consuming a diet not supplemented with choline.

## The Importance of Choline Throughout the Lifespan

Another study published in the *American Journal of Clinical Nutrition* examined adult dietary intake of choline and betaine (a nutrient related to choline) and found that higher intakes of choline and betaine were associated with lower blood homocysteine concentrations, especially in subjects with low blood levels of folate and vitamin B12.<sup>4</sup> Choline, like folate, is involved in breaking down homocysteine in the blood. Elevated homocysteine concentrations have been associated with increased risk of stroke, coronary heart disease and cognitive decline.

In May, a study published online in the *Journal of Nutrition* reported on the role of choline in the complex system that regulates DNA production and stability. Researchers studied the impact of choline intake on DNA damage in 60 Mexican-American men. They found that individuals with greater intakes of choline, even exceeding current dietary recommendations, exhibited the least amount of DNA damage.<sup>5</sup>

## Focusing on a Choline-Rich Diet

"Choline is important for people of all ages, particularly moms and moms-to-be," says Neva Cochran, M.S., R.D., nutrition communications consultant and nutrition writer and researcher for *Woman's World* magazine. "It is easy to meet the recommended choline intake with delicious foods like an egg, which is an excellent source of choline and provides roughly one-quarter of a pregnant or breastfeeding woman's choline needs."

Cochran recommends the following choline-rich meal ideas as part of a balanced diet:

- Basic Hard-Cooked Eggs – Prepare a batch of hard-cooked eggs on Sunday to have, high-quality protein meals and snacks on hand throughout the week which is especially important for moms-to-be.
- Cereal Bowl Egg & Cheese Breakfast Burrito – Try this microwavable burrito bowl topped with cheese and salsa - a quick, easy breakfast that can be enjoyed in seconds.
- Basic Frittata – Make fillings from your favorite foods or from leftovers. Use a combination of meat, seafood or poultry, cheese, vegetables and cooked pasta or grains.

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#### Choline Resources

- To learn more about choline and to download free educational materials, visit [www.cholineinfo.org](http://www.cholineinfo.org).
- To learn more about prenatal nutrition and download a free copy of the Pregnancy Food Guide, visit <http://www.pregnancyfoodguide.org/>.
- For more information on the nutritional benefits of eggs, visit the Egg Nutrition Center at [www.enc-online.org](http://www.enc-online.org).
- For additional choline-rich egg recipes and preparation tips, visit the American Egg Board at [www.incredibleegg.org](http://www.incredibleegg.org).

#### About the American Egg Board (AEB)

AEB is the U.S. egg producer's link to the consumer in communicating the value of The incredible edible egg™ and is funded from a national legislative checkoff on all egg production from companies with greater than 75,000 layers, in the continental United States. The board consists of 18 members and 18 alternates from all regions of the country who are appointed by the Secretary of Agriculture. The AEB staff carries out the programs under the board direction. AEB is located in Park Ridge, Ill. Visit [www.IncredibleEgg.org](http://www.IncredibleEgg.org) for more information.

### **Public release date: 15-Jul-2010**

## **More than half the world's population gets insufficient vitamin D, says UCR biochemist**

Vitamin D expert Anthony Norman recommends a daily intake of 2000 international units for most adults

RIVERSIDE, Calif. – Vitamin D surfaces as a news topic every few months. How much daily vitamin D should a person get? Is it possible to have too much of it? Is exposure to the sun, which is the body's natural way of producing vitamin D, the best option? Or do supplements suffice?

In the July 2010 issue of *Endocrine Today*, a monthly newspaper published by SLACK, Inc., to disseminate information about diabetes and endocrine disorders, Anthony Norman, a distinguished professor emeritus of biochemistry and biomedical sciences and an international expert on vitamin D, notes that half the people in North America and Western Europe get insufficient amounts of vitamin D.

"Elsewhere, it is worse," he says, "given that two-thirds of the people are vitamin D-insufficient or deficient. It is clear that merely eating vitamin D-rich foods is not adequate to solve the problem for most adults."

Currently, the recommended daily intake of vitamin D is 200 international units (IU) for people up to 50 years old; 400 IU for people 51 to 70 years old; and 600 IU for people over 70 years old.

"There is a wide consensus among scientists that the relative daily intake of vitamin D should be increased to 2,000 to 4,000 IU for most adults," Norman says. "A 2000 IU daily intake can be achieved by a combination of sunshine, food, supplements, and possibly even limited tanning exposure."

While there is now abundant data on vitamin D and its benefits, Norman believes there is room for more study.

"The benefits of more research on the topic justifies why this field of research deserves additional governmental funding," he says. "Already, several studies have reported substantial reductions in incidence of breast cancer, colon cancer and type 1 diabetes in association with adequate intake of vitamin D, the positive effect generally occurring within five years of initiation of adequate vitamin D intake."

Because vitamin D is found in very few foods naturally (e.g. fish, eggs and cod liver oil) other foods such as milk, orange juice, some yogurts and some breakfast foods are fortified with it. The fortification levels aim at about 400 IU per day.

Norman, who holds the title of Presidential Chair in Biochemistry-Emeritus, has been researching vitamin D for nearly 50 years. In 1967, his laboratory discovered that the vitamin is converted into a steroid hormone by the body. Two years later, his laboratory discovered the vitamin D receptor (or VDR), an essential receptor for the steroid hormone form of vitamin D that is present in more than 37 target organs of the body that respond biologically to the vitamin.

"There is now irrevocable evidence that receptors in the immune, pancreas, heart-cardiovascular, muscle and brain systems in the body generate biological responses to the steroid hormone form of vitamin D," he says.

**Public release date: 15-Jul-2010**

## **American Academy of Family Physicians – Coca-Cola Alliance, Conflict of Interest or Ethical Relationship?**

In an essay addressing the recent controversy over the American Academy of Family Physicians accepting a large corporate donation from **The Coca-Cola Company to fund patient education materials on obesity prevention, family** physician and AAFP member Howard Brody, M.D., Ph.D., argues that accepting funds from commercial sources that seek to influence physician organization behavior in a direction that could run counter to the public health constitutes a conflict of interest. He asserts that many of the defenses offered by AAFP leadership are rationalizations rather than sound ethical counterarguments. He concludes that medical organizations, as the public face of medicine and as formulators of codes of ethics for their physician members, have special obligations to adhere to high ethical standards, and he raises concern about the development of a corporate culture within a medical professional society. Family physicians, he concludes, have demonstrated a commitment to putting the health needs of their patients ahead of personal financial gain. As such, they deserve to be represented nationally by an organization that fully reflects those high ethical commitments and standards.

In response to the editorial by Howard Brody, M.D., Ph.D., AAFP President, Lori Heim, M.D., F.A.A.F.P., counters in a separate essay that the AAFP's new consumer alliance agreement with The Coca-Cola Company illustrated the AAFP's adherence to its ethical foundation, demonstrated the AAFP's commitment to serving physicians and the public, and maintained the trust Americans put in their family physicians and the organization that represents them. She contends that throughout the development of the program, the AAFP consistently addressed possible conflicts of interest openly and directly, sharing with its members and the public exactly what measures it was taking to ensure that no unethical conduct or breach of trust would occur. The AAFP saw a public health and education need that was both unmet and undermined by the barrage of marketing messages and confusing information and acted to fill that need by developing unbiased educational materials to help patients make good nutrition decisions. In so doing, she concludes, the AAFP hewed to its high ethical standards, its core values, and its mission in the decisions made and the actions that followed.

Ralph's Note - Yep, no problem here,,,, Next McDonalds weight loss centers..

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

## **Of bugs and brains: Caltech researchers discover that gut bacteria affect multiple sclerosis**

PASADENA, Calif. —Biologists at the California Institute of Technology (Caltech) have demonstrated a connection between multiple sclerosis (MS)—an autoimmune disorder that affects the brain and spinal cord—and gut bacteria.

The work—led by Sarkis K. Mazmanian, an assistant professor of biology at Caltech, and postdoctoral scholar Yun Kyung Lee—appears online the week of July 19 in the Proceedings of the National Academy of Sciences.

Multiple sclerosis results from the progressive deterioration of the protective fatty myelin sheath surrounding nerve cells. The loss of myelin hinders nerve cells from communicating with one another, leading to a host of neurological symptoms including loss of sensation, muscle spasms and weakness, fatigue, and pain. Multiple sclerosis is estimated to affect about half a million people in the United States alone, with rates of diagnosis rapidly increasing. There is currently no cure for MS.

**Although the cause of MS is unknown, microorganisms seem to play some sort of role. "In the literature from clinical studies, there are papers showing that microbes affect MS," Mazmanian says. "For example, the disease gets worse after viral infections, and bacterial infections cause an increase in MS symptoms."**

**On the other hand, he concedes, "it seems counterintuitive that a microbe would be involved in a disease of the central nervous system, because these are sterile tissues."**

And yet, as Mazmanian found when he began examining the multiple sclerosis literature, the suggestion of a link between bacteria and the disease is more than anecdotal. Notably, back in 1993, Caltech biochemist Leroy Hood—who was then at the University of Washington—published a paper describing a genetically engineered strain of mouse that developed a lab-induced form of multiple sclerosis known as experimental autoimmune encephalomyelitis, or EAE.

When Hood's animals were housed at Caltech, they developed the disease. But, oddly, when the mice were shipped to a cleaner biotech facility—where their resident gut bacterial populations were reduced—they didn't get sick. The question was, why? At the time, Mazmanian says, "the authors speculated that some environmental component was modulating MS in these animals." Just what that environmental component was, however, remained a mystery for almost two decades.

But Mazmanian—whose laboratory examines the relationships between gut microbes, both harmful and helpful, and the immune systems of their mammalian hosts—**had a hunch that intestinal bacteria were the key.** "As we gained an appreciation for how profoundly the gut microbiota can affect the immune system, we decided to ask if symbiotic bacteria are the missing variable in these mice with MS," he says.

**To find out, Mazmanian and his colleagues tried to induce MS in animals that were completely devoid of the microbes that normally inhabit the digestive system. "Lo and behold, these sterile animals did not get sick," he says.**

**Then the researchers decided to see what would happen if bacteria were reintroduced to the germ-free mice. But not just any bacteria. They inoculated mice with one specific organism, an unculturable bug from a group known as segmented filamentous bacteria. In prior studies, these bacteria had been shown to lead to intestinal inflammation and, more intriguingly, to induce in the gut the appearance of a particular immune-system cell known as Th17. Th17 cells are a type of T helper cell—cells that help activate and direct other immune system cells. Furthermore, Th17 cells induce the inflammatory cascade that leads to multiple sclerosis in animals.**

**"The question was, if this organism is inducing Th17 cells in the gut, will it be able to do so in the brain and central nervous system?" Mazmanian says. "Furthermore, with that one organism, can we restore to sterile animals the entire inflammatory response normally seen in animals with hundreds of species of gut bacteria?"**

**The answer? Yes on all counts.** Giving the formerly germ-free mice a dose of one species of segmented filamentous bacteria induced Th17 not only in the gut but in the central nervous system and brain—and caused the formerly healthy mice to become ill with MS-like symptoms.

"It definitely shows that gut microbes have a strong role in MS, because the genetics of the animals were the same. In fact, everything was the same except for the presence of those otherwise benign bacteria, which are clearly playing a role in shaping the immune system," Mazmanian says. "This study shows for the first time that specific intestinal bacteria have a significant role in affecting the nervous system during MS—and they do so from the gut, an anatomical location very, very far from the brain."

Mazmanian and his colleagues don't, however, suggest that gut bacteria are the direct cause of multiple sclerosis, which is known to be genetically linked. Rather, the bacteria may be helping to shape the immune system's inflammatory response, thus creating conditions that could allow the disease to develop. Indeed, multiple sclerosis also has a strong environmental component; identical twins, who possess the same genome and share all of their genes, only have a 25 percent chance of sharing the disease. "We would like to suggest that gut bacteria may be the missing environmental component," he says.

For their part, Th17 cells are needed for the immune system to properly combat infection. Problems only arise when the cells are activated in the absence of infection—just as disease can arise, Mazmanian and others suspect, when the species composition of gut bacteria become imbalanced, say, by changes in diet, because of improved hygiene (which kills off the beneficial bacteria as well as the dangerous ones), or because of stress or antibiotic use. One impact of the dysregulation of normal gut bacterial populations—a phenomenon dubbed "dysbiosis"—may be the rising rate of multiple sclerosis seen in recent years in more hygienic societies.

"As we live cleaner, we're not just changing our exposure to infectious agents, but we're changing our relationship with the entire microbial world, both around and inside us, and we may be altering the balance between pro- and anti-inflammatory bacteria," leading to diseases like MS, Mazmanian says. **"Perhaps treatments for diseases such as multiple sclerosis may someday include probiotic bacteria that can restore normal immune function in the gut... and the brain."**

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

## **Do cleaning products cause breast cancer?**

Women who report greater use of cleaning products may be at higher breast cancer risk than those who say they use them sparingly. Researchers writing in BioMed Central's open access journal Environmental Health asked more than 1500 women about their cleaning product usage and found that women who reported using more air fresheners and products for mold and mildew control had a higher incidence of breast cancer.

Julia Brody, from the Silent Spring Institute, USA, worked with a team of researchers to carry out telephone interviews with 787 women diagnosed with breast cancer and 721 comparison women. **She said, "Women who reported the highest combined cleaning product use had a doubled risk of breast cancer compared to those with the lowest reported use.** Use of air fresheners and products for mold and mildew control were associated with increased risk. To our knowledge, this is the first published report on cleaning product use and risk of breast cancer."

The researchers questioned women on product use, beliefs about breast cancer causes, and established and

suspected risk factors. They found that cleaning products, air fresheners, and insect repellents were associated with breast cancer, but little association was observed with overall pesticide use. Women with breast cancer who believed that chemicals and pollutants contribute 'a lot' to the risk of developing the condition were more likely to report high product usage. Speaking about this potential bias to the study, Brody said, "When women are diagnosed with breast cancer, they often think about what happened in the past that might have contributed to the disease. As a result, it may be that women with breast cancer more accurately recall their past product use or even over-estimate it. Or, it could also be that experience with breast cancer influences beliefs about its causes. For example, women diagnosed with breast cancer are less likely to believe heredity contributes 'a lot', because most are the first in their family to get the disease."

In order to avoid possible recall bias, the researchers recommend further study of cleaning products and breast cancer using prospective self-reports and measurements in environmental and biological media.

### **Public release date: 19-Jul-2010**

## **Painters at significantly increased risk of bladder cancer**

Bladder cancer risk in painters: a meta-analysis

Painters are at significantly increased risk of developing bladder cancer, concludes a comprehensive analysis of published evidence in Occupational and Environmental Medicine.

And the risk increases the longer a person works as a professional painter, the analysis shows.

The authors base their findings on almost 3000 cases of bladder cancer arising in professional painters, reported in 41 separate studies.

Other related occupations, such as plasterers, glaziers, wallpaper hangers, artists and decorators were classified as "painters" in some studies.

The International Agency for Research on Cancer (IARC) estimates that bladder cancer is the 9th most common cancer worldwide, with more than 330,000 new cases diagnosed every year and an annual death toll of 130,000.

A key risk factor for the disease is smoking, but higher numbers than expected of bladder cancer have also been reported for certain types of employment, including painting.

Painters are exposed to some of the same chemicals that are found in cigarette smoke, including aromatic amines.

The authors included studies which assessed whether participants were smokers, in a bid to unpick the impact of painters' occupational exposures on bladder cancer risk.

### **They found that after taking account of smoking, painters were still 30% more likely to develop bladder cancer than the general population.**

This heightened risk persisted when other risk factors were accounted for as well, suggesting that painting is an independent risk factor for the disease.

There was some evidence that female painters were more likely than their male counterparts to develop bladder cancer, but only four studies presented results separately for women.

The researchers say their results are strengthened by the finding that length of employment as a painter had a significant impact on bladder cancer risk.

Those who had worked in this capacity for more than 10 years were more likely to develop bladder cancer than those who had been in this kind of employment for under 10 years.

It is not known which agents are implicated in this heightened risk, say the authors. And the picture is complicated by the variability of the work involved, differing levels of exposure, and the fact that paint composition has changed over time.

But there is now sufficient evidence that painters run an occupational risk of bladder cancer, they conclude. "Because several million people are employed as painters worldwide, even a modest increase in the relative risk is remarkable," they warn.

## **Public release date: 19-Jul-2010**

### **UT researchers: English ivy may give sunblock a makeover**

Nanoparticles in ivy may hold the key to making sunscreen safer and more effective.

When Mingjun Zhang was watching his son play in the yard, he was hit with a burning question: "What makes the ivy in his backyard cling to the fence so tightly?"

That simple question has led to a pioneering discovery that the tiny particles secreted from ivy rootlets can be used in many breakthrough applications in items such as military technologies, medical adhesives and drug delivery, and, most recently, sun-block.

Zhang, an associate professor of biomedical engineering at the University of Tennessee, Knoxville, along with his research team and collaborators, **has found that ivy nanoparticles may protect skin from UV radiation at least four times better than the metal-based sunblocks found on store shelves today.**

"The discovery of ivy nanoparticles' application to sunscreen was triggered by a real need. While hearing a talk at a conference about toxicity concerns in the use of metal-based nanoparticles in sunscreen, I was wondering, 'Why not try naturally occurring organic nanoparticles?'" Zhang said.

Zhang speculated the greenery's hidden power lay within a yellowish material secreted by the ivy for surface climbing. He placed this material onto a silicon wafer and examined it under an atomic force microscope and was surprised by what they found -- lots of nanoparticles, tiny particles 1,000 times thinner than the diameter of a human hair. **The properties of these tiny bits create the ability for the vine leaves to hold almost 2 million more times than its weight.** It also has the ability to soak up and disperse light which is integral to sunscreens.

"Nanoparticles exhibit unique physical and chemical properties due to large surface-to-volume ratio which allows them to absorb and scatter light," Zhang said. "Titanium dioxide and zinc oxide are currently used for sunscreen for the same reason, but the ivy nanoparticles are more uniform than the metal-based nanoparticles, and have unique material properties, which may help to enhance the absorption and scattering of light, and serve better as a sun-blocker."

The team's study indicates that ivy nanoparticles can improve the extinction of ultraviolet light at least four times better than its metal counterparts. Furthermore, the metal-based sunscreens used today can pose health hazards. Zhang notes some studies have shown that the small-scale metal oxides in sunscreen can wind up in organs such as the liver or brain.

Ivy nanoparticles, on the other hand, exhibit better biocompatibility with humans and the environment. The team's studies indicate that the ivy nanoparticles were less toxic to mammalian cells, have a limited potential to penetrate through human skin, and are easily biodegradable.

"In general, it is not a good idea to have more metal-based nanoparticles for cosmetic applications. They are a significant concern for the environment. Naturally occurring nanoparticles originated from plants seem to be a better choice, especially since they have been demonstrated to be less toxic and easily biodegradable," Zhang said.

**Sunscreens made with ivy nanoparticles may not need to be reapplied after swimming. That's because the plant's nanoparticles are a bit more adhesive so sunscreens made with them may not wash off as easily as traditional sunscreens.** And while sunscreens made with metal-based nanoparticles give the skin a white tinge, sunscreens made with ivy nanoparticles are virtually invisible when applied to the skin.

**Public release date: 20-Jul-2010**

## **Natural substance NT-020 aids aging brains in rats, USF study finds**

Researchers suggest aging may be 'a stem cell disease'

Tampa, FL (July 20, 2010) – A combination of nutrients called NT-020 promoted adult neural stem cell proliferation in aged rats and boosted their memory performance, reported University of South Florida researchers studying natural therapeutic approaches to promoting the health of neurons in the aging brain.

Researchers from the USF Department of Neurosurgery and Brain Repair tested two groups of aged laboratory rats; one group received NT-020 and another, the control group, did not. In the NT-020 group, the process by which neurons are generated -- called neurogenesis -- increased.

The NT-020 formula was patented by USF and licensed to Natura Therapeutics, Inc. The study was published in the current issue of *Rejuvenation Research* (Vol. 13 No. 5, June, 2010).

**"Aging has been linked to oxidative stress, and we have previously shown that natural compounds made from blueberries, green tea, and amino acids, such as carnosine, are high in antioxidants and have anti-inflammatory and anti-oxidative activity," said Sandra Acosta, MS, the study's lead author and a PhD student in the USF Center of Excellence in Aging and Brain Repair . "The combination of these nutrients, called NT-020, creates a synergistic effect that promotes the proliferation of stem cells in the aged animals."**

Acosta and colleagues compared the NT-020 group to the control group by evaluating their performance on a variety of behavioral and memory tests, including a spatial navigation test. The NT-020 group demonstrated increased adult neural stem cell proliferation in the two main stem cell niches in the brains and improvement in learning and memory.

In past studies, NT-020 has been shown to have beneficial effects on animals with simulated stroke. NT-020 has also been shown to encourage the proliferation of adult stem cells, which have the potential to develop into tissue and bone cells and also migrate to areas of damage to help with repair.

That increased stem cell proliferation coincided with better cognitive performance is significant.

"The notion that aging is a stem cell disease has been gaining popularity," said study senior author Paula Bickford, PhD, professor of neurosurgery and brain repair at USF. "Our hypothesis is that aging alters the local environment in the brain and other organs and can promote an environment that retards the growth of stem cells. For example, high glucose, which would be seen with diabetes, excessive alcohol and oxidative stress, can lead to reduced neurogenesis."

The researchers concluded that increased inflammation in the brains of the aged animals led to reduced production of stem cells, but that stem cell renewal created a rejuvenating effect. They found that NT-020 treated animals had fewer activated inflammatory cells in the brain, reflecting a decrease in factors that

reduced the production of stem cells.

**"NT-020 may have not only a positive effect on the stem cell niche," concluded Bickford. "NT-020 may have far-reaching effects on organ function beyond the replacement of injured cells, as demonstrated by cognitive improvement in the NT-020 group."**

**Public release date: 20-Jul-2010**

## **Probiotic use in mothers limits eczema in their babies**

(20.07.2010) Mothers who drank milk with a probiotic supplement during and after pregnancy were able to cut the incidence of eczema in their children by almost half, a new study published in the British Journal of Dermatology has shown.

The randomized, double-blind study, conducted by researchers at the Norwegian University of Science and Technology (NTNU), compared mothers who drank one glass of probiotic milk a day to women who were given a placebo. Use of the probiotic milk – which the mothers drank beginning at week 36 in their pregnancy up through to three months after birth -- reduced the incidence of eczema by 40 percent in children up to age two, the researchers found. The study is a part of a larger research project at the university called the Prevention of Allergy Among Children in Trondheim, or PACT, an ongoing population-based intervention study in Norway focused on childhood allergy.

### Random sample of pregnant women

Researchers followed 415 pregnant women and their children from pregnancy until the children were two years old. The participants were randomly selected among pregnant women in Trondheim - and then randomly divided into two groups, one of which was given milk with probiotics, and the other a placebo milk. Mothers in the study did not know whether they were given the probiotic milk or the placebo milk.

“The taste of both products was similar, and the milk was delivered in unmarked milk cartons. This means that neither the participants in the study or the researchers knew who had received probiotic milk or placebo milk,” says NTNU researcher Torbjørn Øien, one of the scientists involved in the study. “We can therefore say with great certainty that it was the probiotic bacteria alone that caused the difference in the incidence of eczema between the two groups.”

### Eczema incidence lower, or less severe

The children were checked for eczema throughout the period, as well as for asthma and allergy at age two. Afterwards, the incidence of asthma, eczema and allergy was compared in the two groups.

“The results showed that probiotic bacteria reduced the incidence of eczema in children up to age two years by 40 percent. And the kids in ‘probiotics group’ who did have eczema, had less severe cases,” explains Christian Kvikne Dotterud, a student in the Medical Student Research Programme at the Department of Community Medicine at NTNU.

The study did not show any effect from the probiotic milk on asthma or allergies, however.

### More research on allergic diseases

Dotterud and his research colleagues have started a follow-up study of the children to see if they find any preventive effect on allergic diseases, especially asthma, when children have reached six years old.

“Our study is the first to show that certain probiotic bacteria given to the mother during pregnancy and breast-feeding prevents eczema,” says Dotterud.

Previous studies have shown that ingestion of some probiotics by children may prevent eczema, but this is

the first study to show a preventative effect when the mother alone consumed the probiotics.

Via breast milk

“In Norway, there has been some skepticism about giving infants probiotics. Therefore, it is preferable that mothers take probiotics, not children,” he said. Probiotics are generally considered safe for healthy people.

To participate in the study mothers had to have planned to breastfeed their children.

“We believe that probiotic bacteria affects breast milk composition in a positive way,” Dotterud said.

The study was sponsored by Tine SA, which produced and distributed the milk used in the study. Tine SA is s Norway's largest producer, distributor and exporter of dairy products, and is a cooperative owned by 15,084 Norwegian dairy farmers. Tine SA had no role in the study designs, data collection or data analysis.

The results of the study have been published in the journal The British Journal of Dermatology. The article is entitled: Probiotics in pregnant women to prevent allergic disease: a randomised, double-blind trial [Epub ahead of print]

Why the increase in asthma and allergies in Norway?

PACT, the Prevention of Allergy Among Children in Trondheim study - was started in 2000 as a primary prevention, controlled study to look at measures that might reduce the increase in the incidence of asthma and allergies that has been recorded in Norway in recent decades.

It is an ongoing population-based intervention study in Norway focused on the impacts on childhood allergy of systematic and structure interventions to reduce tobacco exposure, increase the consumption of n-3 polyunsaturated fatty acids, and reduce indoor dampness.

What are probiotics?

Probiotics are live lactic acid bacteria which can be added to food and drink. In contrast to common lactic acid bacteria used in the acidification of products such as milk and yogurt, probiotic bacteria have the ability to survive through the acidic stomach environment and settle temporarily in the intestine. The probiotic lactic acid bacteria have a natural place in the digestive system, where they strengthen normal intestinal flora and are good for the body.

What kind of probiotic milk did the scientists use?

Researchers used the Norwegian product Biola from Tine SA. There are wide variations in terms of how well the strains in the probiotic products on the market have been documented. Biola contains LGG ®, the probiotic bacteria that are currently the most extensively studied in the world. Biola product used in the study also contains Lactobacillus acidophilus (La-5) and Bifidobacterium lactis (Bb-12). These also have documented health effects, albeit less extensive than LGG ®. There is reason to believe that it is beneficial for your health to consume a variety of bacterial strains with documented efficacy, rather than unilateral influence of only one bacterial strain.

What is LGG ®?

LGG ® (Lactobacillus rhamnosus GG) is the probiotic bacteria strain that has been the most studied and researched in terms of human health effects. It has been shown that LGG ® contributes to good gut function and a stronger defense against unwanted bacteria and viruses in the stomach. At present there are more than 500 published articles on LGG ® in international journals and more than 30 doctoral theses have been completed on LGG's ® effect on health. More than 40 countries in different parts of the world market products with LGG ®.

**Public release date: 20-Jul-2010**

**Asthma and eczema sufferers have a lower risk of developing a cancer**

Men who had a history of asthma or eczema generally had a lower risk of developing cancer, according to a study carried out by researchers at INRS–Institut Armand-Frappier, the Research Centre of the Centre hospitalier de l'Université de Montréal, and McGill University. The findings, published in the *Annals of Allergy, Asthma & Immunology*, show that male eczema sufferers had a lower risk of lung cancer while those with a history of asthma had a similar effect in relation to stomach cancer.

"Asthma and eczema are allergies brought about by a hyper-reactive immune system – a state which might have enabled abnormal cells to have been eliminated more efficiently, thereby reducing the risk of cancer," explained Professor Marie-Claude Rousseau of the INRS–Institut Armand-Frappier, one of the co-authors of the research.

The researchers analyzed information that was collected in a study on exposures in the workplace and the risk of developing cancer, undertaken between August 1979 and March 1986. It involved 3,300 men, between 35 and 70 years of age, who had been diagnosed with cancer in one of Montreal's 18 hospitals, and a control group of 512 people from the general population who did not have cancer. The researchers used the data from this study to determine if there was a link between allergies such as asthma and eczema and the incidence of eight most common types of cancer.

These findings contribute important knowledge to population health and provide new research leads. Although the study did not allow to identify which specific factors related to asthma and eczema were responsible for reducing the risk of cancer, it offers new angles for research into the molecular and immunological mechanisms that are involved in immunostimulation, a potentially promising strategy for cancer prevention.

**Public release date: 21-Jul-2010**

## **Research links recreational pool disinfectants to health problems**

URBANA – Splashing around in a swimming pool on a hot summer day may not be as safe as you think. A recent University of Illinois study links the application of disinfectants in recreational pools to previously published adverse health outcomes such as asthma and bladder cancer.

Each year, 339 million visits take place at pools and water parks across the United States. Not only is swimming fun, but it's also the second most popular form of exercise in the country. Because of this, disinfection of recreational pools is critical to prevent outbreaks of infectious disease.

However, Michael Plewa, U of I professor of genetics, said negative outcomes can occur when disinfection byproducts form reactions with organic matter in pool water.

Pool water represents extreme cases of disinfection that differ from the disinfection of drinking water as pools are continuously exposed to disinfectants.

"All sources of water possess organic matter that comes from decaying leaves, microbes and other dead life forms," Plewa said. "In addition to organic matter and disinfectants, pool waters contain sweat, hair, skin, urine, and consumer products such as cosmetics and sunscreens from swimmers."

These consumer products are often nitrogen-rich, causing concern that they may contribute to the generation of nitrogenous disinfection byproducts, Plewa added. When mixed with disinfectants, these products may become chemically modified and converted into more toxic agents. These disinfection byproducts can mutate genes, induce birth defects, accelerate the aging process, cause respiratory ailments, and even induce cancer after long-term exposures. In this study, collections from public pools and a control sample of tap water were evaluated to identify recreational water conditions that could be harmful to your health.

A systematic mammalian cell genotoxicity analysis was used to compare the water samples. Plewa said this sensitive DNA technology examined genomic damage in mammalian cells, allowing researchers to investigate damage at the level of each nucleus within each cell.

The study compared different disinfection methods and environmental conditions. Results proved that all disinfected pool samples exhibited more genomic DNA damage than the source tap water, Plewa said.

"Care should be taken in selecting disinfectants to treat recreational pool water," Plewa advised. "The data suggest that brominating agents should be avoided as disinfectants of recreational pool water. The best method to treat pool waters is a combination of UV treatment with chlorine as compared to chlorination alone."

Plewa recommends that organic carbon be removed prior to disinfection when the pool water is being recycled.

Also, swimmers can help reduce the genotoxicity of pool water by showering before entering the water. Pool owners should also remind patrons about the potential harm caused by urinating in a pool. These simple steps can greatly reduce the precursors of toxic disinfection byproducts, Plewa said.

**Public release date: 21-Jul-2010**

## **New evidence that chili pepper ingredient fights fat**

Capsaicin, the stuff that gives chili peppers their kick, may cause weight loss and fight fat buildup by triggering certain beneficial protein changes in the body, according to a new study on the topic. The report, which could lead to new treatments for obesity, appears in ACS' monthly Journal of Proteome Research.

Jong Won Yun and colleagues point out that obesity is a major public health threat worldwide, linked to diabetes, high blood pressure, heart disease, and other health problems. Laboratory studies have hinted that capsaicin may help fight obesity by decreasing calorie intake, shrinking fat tissue, and lowering fat levels in the blood. Nobody, however, knows exactly how capsaicin might trigger such beneficial effects.

In an effort to find out, the scientists fed high-fat diets with or without capsaicin to lab rats used to study obesity. The capsaicin-treated rats lost 8 percent of their body weight and showed changes in levels of at least 20 key proteins found in fat. The altered proteins work to break down fats. "These changes provide valuable new molecular insights into the mechanism of the antiobesity effects of capsaicin," the scientists say.

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

## **Could diabetes be in your bones?**

Our bones have much greater influence on the rest of our bodies than they are often given credit for, according to two new studies in the July 23 issue of Cell, a Cell Press publication. Both studies offer new insights into the interplay between bone and blood sugar, based on signals sent via insulin and a bone-derived hormone known as osteocalcin.

Mice whose bones can't respond to insulin develop high blood sugar and insulin resistance, both hallmarks of diabetes. Those symptoms are tied to a drop in osteocalcin. The findings suggest that osteocalcin, or perhaps a drug that targets bone, might hold promise in fighting the global epidemic of type 2 diabetes, according to the researchers.

"Our study reveals a key molecular link between bone remodeling and metabolism," said Gerard Karsenty of Columbia University.

"Bone is an organ that has to pay attention to where calories are going," added Thomas Clemens of Johns Hopkins University School of Medicine. "It talks to muscle, fat, the pancreas. It's a player in energy metabolism."

And perhaps that makes a lot of sense, Karsenty said. The remodeling of bone relies on two cell types, bone-building osteoblasts and bone-resorbing osteoclasts, making bone the only organ with a cell type that is entirely focused on destroying host tissue. "On a daily basis, the formation of bone is expensive in terms of energy," he said.

In fact, the idea that the skeleton is much more than a reservoir for calcium and phosphate isn't entirely new, the researchers said. Earlier evidence by Karsenty's group had shown links between bone and the fat hormone leptin. (Obese adults are significantly less likely to develop osteoporosis.)

Scientists also had evidence that osteoblasts might respond to insulin in important ways. Osteoblasts bear insulin receptors and when treated with insulin show signs of collagen synthesis and take up more glucose, Clemens' team notes. People with type 1 diabetes due to a lack of insulin can also develop weakened bones.

Karsenty's team describes bone as a multitasker. It has mechanical, hematopoietic (blood-producing) and metabolic functions. It also acts as an endocrine organ through the release of osteocalcin hormone, which favors glucose metabolism when in its active form.

Still, Clemens said he was surprised by what they saw after developing a mouse lacking insulin receptors only in their osteoblasts. "The mice started to get fat," he said. They showed changes in their biochemistry that were consistent with insulin resistance. They also had low osteocalcin levels and fewer osteoblasts to produce less bone.

With age, the animals became even fatter and developed more marked high blood sugar accompanied by severe glucose intolerance and insulin resistance. Those symptoms improved with osteocalcin treatment.

Karsenty's group presents independent evidence for the important role of insulin in bone for keeping glucose in check through osteocalcin, in what he refers to as a "feed-forward loop." But his group goes a step further to suggest that bone-resorbing osteoclasts (not just osteoblasts) have a place in this too.

Karsenty explains that bone-building osteoblasts actually control bone resorption by osteoclasts, a process that takes place under very acidic conditions. Those conditions would also favor the chemical modification necessary to produce active osteocalcin, which can escape bone to act as a hormone.

**That could be important to those who take osteoporosis drugs designed to block bone resorption, Karsenty suggests. "It's a red flag," he said. "Osteoporotic patients treated with [bone resorption inhibitors] may be at risk of glucose intolerance."**

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

## **Vitamins needed to help celiacs stave off bone disease**

Children with celiac disease need to include certain must-have vitamins in their diets to stave off weak bones and osteoporosis, say researchers at the University of Alberta.

A study of 43 children and teens from three to 18 years of age diagnosed with celiac disease showed that they also tended to have low bone density, likely due to poor intake and absorption of vitamins and minerals. That means they should be getting more of bone-boosting vitamins such as K and D in their diets, says Diana Mager, a professor of agricultural, food and nutritional science at the U of A, and one of the researchers on the project.

"Children with celiac disease are at risk for poor bone health, but by adding vitamins K and D to their diets, it can help reduce the risk of fractures and osteoporosis," Mager said.

The study revealed that the children were getting less than 50 per cent of their recommended dietary intake of Vitamin K, and that they also suffered from low levels of Vitamin D, which can be raised through increased exposure to sunlight and by eating fortified dairy products.

Mager also recommends that children with celiac disease include physical activity in their daily routines to build their bone strength and boost their Vitamin D intake by exercising outside.

"Enjoying activities such as walking and running outdoors when there is more sunshine is a great way to contribute to healthy bones," Mager said

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

## **Non-human sugar in biotech drugs causes inflammation**

**Researchers at the University of California, San Diego School of Medicine have discovered that a kind of sugar molecule common to chimpanzees, gorillas and other mammals but not found in humans provokes a strong immune response in some people, likely worsening conditions in which chronic inflammation is a major issue.**

This non-human sialic acid sugar is an ingredient in some biotechnology drugs, and may be limiting or undermining their therapeutic effectiveness in some patients, the scientists report in a letter published in the advance online July 25 edition of the journal Nature Biotechnology. However, they also propose a simple modification to the drug-making process that could solve the problem.

**The presence of the non-human sialic acid sugar contaminant, called N-glycolyneuraminic acid or Neu5Gc, has long been known but ignored because it was believed healthy human immune systems did not react to it, said Ajit Varki, MD, professor of medicine and cellular and molecular medicine at UC San Diego School of Medicine. "Now we know that to be untrue." "We're all exposed to this non-human sugar," Varki added. "It's part of our diet, and especially abundant in red meat. We all develop antibodies to Neu5Gc, but this immune response varies greatly in people. Meanwhile, Neu5Gc from animal foods can get incorporated into the human body. For most people, this may not be a problem. But for some, the immune response to incorporated Neu5Gc may exacerbate a chronic inflammation process. This isn't the cause of any disease or condition, but we believe it might be akin to adding fuel to an existing fire."**

Every animal cell is cloaked in sugar molecules, which serve as vital contact points for interaction with other cells and their surrounding environment. At the same time, the attached sugars are targets for infectious diseases like influenza, malaria and cholera.

"Sialic acids are required for survival, but they're also used to attack you," said Varki, who is founder and co-director of the Glycobiology Research and Training Center at UC San Diego. "They are crucial for things like brain plasticity and kidney function, but lots of pathogens attach to them, and some even coat themselves with these sugars to avoid detection. In evolutionary terms, if you have sialic acid, you're going to be attacked. But you don't have it, you're going to die."

Perhaps because of this evolutionary pressure, different species can have different kinds of sialic acids. In mammals, there are two major types: Neu5Gc and Neu5Ac, which differ by one oxygen atom. Humans have only the "Ac" version; other mammals also have the "Gc" version. This human-specific change likely happened two or three million years ago, said Varki, who also co-directs the Center for Academic Research Training in Anthropogeny at UCSD. "No one knows why, but this may have been selected by an infectious disease, like malaria"

Although the Ac and Gc versions are very similar in structure, the single oxygen atom difference is recognized by the human immune system, which develops antibodies to the non-human sugar.

And therein lies the problem, said Varki. Antibodies are naturally circulating proteins that identify and neutralize invaders, such as viruses or bacteria. **Part of that process involves inflammation, the host's attempt to kill and remove invasive cells or tissues perceived to be harmful. If there is a strong antibody response to diet-incorporated Neu5Gc, the resulting inflammation could cause harm to the person. This may partially explain associations between certain foods and increased risk of diseases associated with inflammation, such as cancer and heart attacks – diseases that are rare in other primates.**

**The problem may also be exacerbated by the presence of Neu5Gc in drugs developed through recombinant biotechnology, some of which are actually used to treat inflammatory disorders.** Neu5Gc contamination is unavoidable with current methods, said Varki, because many biotherapeutics such as antibodies, clotting factors or hormones are produced using cells, tissues or serum from mammalian sources, which naturally contain the non-human sialic acid.

Varki and colleagues studied several biotherapeutic agents currently in clinical use, and found the non-human sialic acid in almost all of them, although in varying amounts.

They also report that anti-Neu5Gc antibodies from normal humans interacted with a Neu5Gc-containing drug used to treat some forms of cancer, producing immune complexes in vitro. Mice with a human-like defect in Neu5Gc synthesis also generated anti-Neu5Gc antibodies when injected with the drug, and cleared it from the circulation faster.

These problems were not seen with another otherwise similar drug, which happened to be practically free of Neu5Gc.

"It's reasonable to suggest that for some patients who have problems with some drugs, this may be part of the reason why," although a lot more needs to be done to work out the details," Varki said.

Meanwhile, the UCSD scientists have developed a novel yet simple solution: Add the human sialic acid to the drug-making process. The Ac version, said Varki, competes with the Gc version, reducing the chances of the Gc version making it into the final product.

**"In our initial tests, it removes low-level Gc contamination in drugs," said Varki. "It's simple and should only require minor FDA approval for the process adjustment. We think that while we've identified a problem, we've also come up with an answer, at least for some drugs."**

**Public release date: 27-Jul-2010**

## **Alcohol reduces the severity of rheumatoid arthritis**

Drinking alcohol may reduce the severity of rheumatoid arthritis according to new research published today. It is the first time that this effect has been shown in humans. The study also finds that alcohol consumption reduces the risk of developing the disease, confirming the results of previous studies.

The study which is published online today in the journal *Rheumatology* (Wednesday 28 July), looked at 873 patients with rheumatoid arthritis and compared them with 1004 people without RA (the control group). The researchers, led by Gerry Wilson, Professor of Rheumatology at the University of Sheffield (Sheffield, UK), asked the two groups how frequently they had drunk alcohol in the month preceding their inclusion in the study. The study participants completed a detailed questionnaire, had x-rays and blood tests, and an experienced research nurse examined their joints.

The first author of the study, Dr James Maxwell, a consultant rheumatologist at the Rotherham Foundation

NHS Trust and an honorary senior clinical lecturer in the Academic Rheumatology Group at the University of Sheffield, said: "We found that patients who had drunk alcohol most frequently had symptoms that were less severe than those who had never drunk alcohol or only drunk it infrequently. X-rays showed there was less damage to joints, blood tests showed lower levels of inflammation, and there was less joint pain, swelling and disability. This is the first time that a dose dependent inverse association between frequency of alcohol consumption and severity of RA has been shown in humans."

**Dr Maxwell and his colleagues also found that non-drinkers were four times more likely to develop RA than people who drank alcohol on more than ten days a month. The risk of developing RA decreased according to the frequency of alcohol consumption. "This finding agrees with the results from previous studies that have shown a decreased susceptibility to developing RA among alcohol drinkers," said Dr Maxwell.**

The researchers found that their findings applied regardless of gender and in both the anti cyclic citrullinated peptide (CCP) positive and negative forms of RA. "Anti-CCP antibodies are not present in most 'normal' people without arthritis," explained Dr Maxwell. "We know that these antibodies develop prior to the onset of RA, and are probably directly linked to the process which causes RA. Some patients have RA without having anti-CCP antibodies, but we know that the disease is much more severe in patients who do."

**It is not fully understood why drinking alcohol should reduce the severity of RA and people's susceptibility to developing it. "There is some evidence to show that alcohol suppresses the activity of the immune system, and that this may influence the pathways by which RA develops. We do know that the changes in the immune system that lead to RA happen months and maybe even years before the arthritis actually develops," said Dr Maxwell. "Once someone has developed RA, it's possible that the anti-inflammatory and analgesic effects of alcohol may play a role in reducing the severity of symptoms.**

"Further research is needed to confirm the results of our study and to investigate the mechanisms by which alcohol influences people's susceptibility to RA and the severity of symptoms. It is also possible that different types of alcoholic drinks may have different effects on RA."

The authors point out that there are some limitations to their study. These include the fact that they only recorded the frequency rather than the amount of alcohol consumption in the month before people joined the study; there might be bias due to people recalling inaccurately how often they drank alcohol and also the information represents a snapshot of drinking behaviour at one point in time, rather than giving information about fluctuating alcohol consumption over a longer period; and, finally, there were marked differences in age and gender between the RA and the control groups, although the researchers did adjust their results for these factors.

Writing in their paper, the study authors conclude: "While there are a number of limitations to the methodology of this study, the results do suggest that the consumption of alcohol may modify RA, influencing both risk and severity."

### **Public Release: 29-Jul-2010**

## **Western diet link to ADHD**

**A new study from Perth's Telethon Institute for Child Health Research shows an association between ADHD and a 'Western-style' diet in adolescents.**

The research findings have just been published online in the international Journal of Attention Disorders.

Leader of Nutrition studies at the Institute, Associate Professor Wendy Oddy, said the study examined the dietary patterns of 1800 adolescents from the long-term Raine Study and classified diets into 'Healthy' or

'Western' patterns.

**“We found a diet high in the Western pattern of foods was associated with more than double the risk of having an ADHD diagnosis compared with a diet low in the Western pattern, after adjusting for numerous other social and family influences,” Dr Oddy said.**

“We looked at the dietary patterns amongst the adolescents and compared the diet information against whether or not the adolescent had received a diagnosis of ADHD by the age of 14 years. In our study, 115 adolescents had been diagnosed with ADHD, 91 boys and 24 girls.”

**A “healthy” pattern is a diet high in fresh fruit and vegetables, whole grains and fish. It tends to be higher in omega-3 fatty acids, folate and fibre. A “Western” pattern is a diet with a trend towards takeaway foods, confectionary, processed, fried and refined foods. These diets tend to be higher in total fat, saturated fat, refined sugar and sodium.**

“When we looked at specific foods, having an ADHD diagnosis was associated with a diet high in takeaway foods, processed meats, red meat, high fat dairy products and confectionary,” Dr Oddy said.

“We suggest that a Western dietary pattern may indicate the adolescent has a less optimal fatty acid profile, whereas a diet higher in omega-3 fatty acids is thought to hold benefits for mental health and optimal brain function.

“It also may be that the Western dietary pattern doesn't provide enough essential micronutrients that are needed for brain function, particularly attention and concentration, or that a Western diet might contain more colours, flavours and additives that have been linked to an increase in ADHD symptoms. It may also be that impulsivity, which is a characteristic of ADHD, leads to poor dietary choices such as quick snacks when hungry.”

Dr Oddy said that whilst this study suggests that diet may be implicated in ADHD, more research is needed to determine the nature of the relationship.

“This is a cross-sectional study so we cannot be sure whether a poor diet leads to ADHD or whether ADHD leads to poor dietary choices and cravings,” Dr Oddy said.

ADHD is the most commonly diagnosed childhood mental health disorder and has a prevalence of approximately 5%. ADHD is known to be more common in boys

Plant Compound Resveratrol Shown to Suppress Inflammation, Free Radicals, in Humans  
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**Public Release: 29-Jul-2010**

## **Research by UB's Paresh Dandona and colleagues points to the anti-inflammatory effects of the plant compound resveratrol.**

BUFFALO, N.Y. -- Resveratrol, a popular plant extract shown to prolong life in yeast and lower animals due to its anti-inflammatory and antioxidant properties, appears also to suppress inflammation in humans, based on results from the first prospective human trial of the extract conducted by University at Buffalo endocrinologists.

Results of the study appear as a rapid electronic publication on the Journal of Clinical Endocrinology & Metabolism website and will be published in an upcoming print issue of the journal.

The paper also has been selected for inclusion in Translational Research in Endocrinology & Metabolism, a new online anthology that highlights the latest clinical applications of cutting-edge research from the journals of the Endocrine Society.

Resveratrol is a compound produced naturally by several plants when under attack by pathogens such as bacteria or fungi, and is found in the skin of red grapes and red wine. It also is produced by chemical synthesis derived primarily from Japanese knotweed and is sold as a nutritional supplement.

Husam Ghanim, PhD, UB research assistant professor of medicine and first author on the study, notes that resveratrol has been shown to prolong life and to reduce the rate of aging in yeast, roundworms and fruit flies, actions thought to be affected by increased expression of a particular gene associated with longevity.

The compound also is thought to play a role in insulin resistance as well, a condition related to oxidative stress, which has a significant detrimental effect on overall health.

"Since there are no data demonstrating the effect of resveratrol on oxidative and inflammatory stress in humans," says Paresh Dandona, MD, PhD, UB distinguished professor of medicine and senior author on the study, "we decided to determine if the compound reduces the level of oxidative and inflammatory stress in humans.

"Several of the key mediators of insulin resistance also are pro-inflammatory, so we investigated the effect of resveratrol on their expression as well."

The study was conducted at Kaleida Health's Diabetes-Endocrinology Center of Western New York, which Dandona directs.

A nutritional supplement containing 40 milligrams of resveratrol was used as the active product. Twenty participants were randomized into two groups of 10: one group received the supplement, while the other group received an identical pill containing no active ingredient. Participants took the pill once a day for six weeks. Fasting blood samples were collected at the start of the trial and at weeks one, three and six.

Results showed that resveratrol suppressed the generation of free radicals, or reactive oxygen species, unstable molecules known to cause oxidative stress and release proinflammatory factors into the blood stream, resulting in damage to the blood vessel lining.

Blood samples from persons taking resveratrol also showed suppression of the inflammatory protein tumor necrosis factor (TNF) and other similar compounds that increase inflammation in blood vessels and interfere with insulin action, causing insulin resistance and the risk of developing diabetes.

These inflammatory factors, in the long term, have an impact on the development of type 2 diabetes, aging, heart disease and stroke, noted Dandona.

Blood samples from the participants who received the placebo showed no change in these pro-inflammatory markers.

While these results are promising, Dandona added a caveat: The study didn't eliminate the possibility that something in the extract other than resveratrol was responsible for the anti-inflammatory effects.

"The product we used has only 20 percent resveratrol, so it is possible that something else in the preparation is responsible for the positive effects. These agents could be even more potent than resveratrol. Purer preparations now are available and we intend to test those."

Additional contributors to the study, all from Dandona's laboratory, are Chang Ling Sia, Sanaa Abuaysheh, Kelly Korzeniewski, Priyanka Patniak, MD, Anuritha Marumganti, MD, and Ajay Chaudhuri, MD.

The study was supported in part by grants to Dandona from the National Institutes of Health and the American Diabetes Association.

The University at Buffalo is a premier research-intensive public university, a flagship institution in the State University of New York system and its largest and most comprehensive campus. The School of Dental Medicine is one of five schools that constitute UB's Academic Health Center. UB's more than 28,000 students pursue their academic interests through more than 300 undergraduate, graduate and professional degree programs. Founded in 1846, the University at Buffalo is a member of the Association of American Universities.

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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.**