



The Vitamin & Herb Stores

#80

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Stress hormones accelerate tumor growth

Chronic stress has recently been implicated as a factor that may accelerate the growth of tumors. However, the mechanisms underlying this effect have not been determined. But now, Anil Sood and colleagues, at the University of Texas MD Anderson Cancer Center, Houston, have generated data using human ovarian cancer cell lines and tumor specimens that indicate that stress hormones, especially norepinephrine and epinephrine, can contribute to tumor progression in patients with ovarian cancer. They therefore suggest that targeting stress hormones and the signaling pathways that they activate might be of benefit to individuals with cancer.

Anoikis is the process by which cells are triggered to die when separated from their surrounding matrix and neighboring cells. Tumor cells that spread to other sites somehow escape anoikis. In the study, exposure of human ovarian cancer cell lines to either of the stress hormones norepinephrine or epinephrine protected them from anoikis. Similarly, in a mouse model of ovarian cancer, restraint stress and the associated increases in norepinephrine and epinephrine protected the tumor cells from anoikis and promoted their growth. This effect was associated with activation of the protein FAK. The clinical significance of these data was highlighted by the observation that in human ovarian cancer patients, behavioral states related to greater stress hormone activity were associated with higher levels of activated FAK, which was in turn linked to substantially accelerated mortality.

Public release date: 12-Apr-2010

Study identifies food combination associated with reduced Alzheimer's disease risk

Individuals whose diet includes more salad dressing, nuts, fish, poultry and certain fruits and vegetables and fewer high-fat dairy products, red meats, organ meats and butter

appear less likely to develop Alzheimer's disease, according to a report posted online today that will appear in the June print issue of Archives of Neurology, one of the JAMA/Archives journals.

"Epidemiological evidence linking diet, one of the most important modifiable environmental factors, and risk of Alzheimer's disease is rapidly increasing," the authors write as background information in the article. "However, current literature regarding the impact of individual nutrients or food items on Alzheimer's disease risk is inconsistent, partly because humans eat meals with complex combinations of nutrients or food items that are likely to be synergistic."

Yian Gu, Ph.D., of Columbia University Medical Center, New York, and colleagues studied 2,148 older adults (age 65 and older) without dementia living in New York. Participants provided information about their diets and were assessed for the development of dementia every 1.5 years for an average of four years. Several dietary patterns were identified with varying levels of seven nutrients previously shown to be associated with Alzheimer's disease risk: saturated fatty acids, monounsaturated fatty acids, omega-3 fatty acids, omega-6 fatty acids, vitamin E, vitamin B12 and folate.

During the follow-up, 253 individuals developed Alzheimer's disease. One dietary pattern was significantly associated with a reduced risk of the disease. This pattern involved high intakes of salad dressing, nuts, fish, tomatoes, poultry, fruits and cruciferous and dark and green leafy vegetables and low intakes of high-fat dairy, red meat, organ meat and butter.

The combination of nutrients in the low-risk dietary pattern reflect multiple pathways in the development of Alzheimer's disease, the authors note. "For example, vitamin B12 and folate are homocysteine-related vitamins that may have an impact on Alzheimer's disease via their ability of reducing circulating homocysteine levels, vitamin E might prevent Alzheimer's disease via its strong antioxidant effect and fatty acids may be related to dementia and cognitive function through atherosclerosis, thrombosis or inflammation via an effect on brain development and membrane functioning or via accumulation of beta-amyloid," they write.

"Our findings provide support for further exploration of food combination-based dietary behavior for the prevention of this important public health problem," they conclude.

Public release date: 12-Apr-2010

Over half of women in abusive relationships still saw their male partners as dependable

New study based on women's self-reports suggests a subtype of men -- categorized as 'dependable yet abusive' -- is most common

TORONTO, Ont., April 12, 2010— It's well known that many women remain in abusive relationships with their male partners. A new study by researchers in Toronto and New

York suggests that many who live with chronic psychological abuse still see certain positive traits in their abusers—such as dependability and being affectionate—which may partly explain why they stay.

"We wanted to see whether survey information from women who were not currently seeking treatment or counseling for relationship abuse could be a reliable source for identifying specific types of male abusers," says Patricia O'Campo, a social epidemiologist and director of the Centre for Research on Inner City Health at St. Michael's Hospital in Toronto.

She adds that past research has underscored abused women's personal evaluations of their intimate relationships—specifically, their commitment to the relationships and positive feelings about the abuser and/or the relationship—as critical in their decisions to continue or terminate abusive relationships. "We wanted to learn more," says Dr. O'Campo, who co-authored the study with researchers from Adelphi University in Garden City, New York.

Using survey data from a project funded by the U.S. National Institute of Mental Health, the researchers explored the experiences of 611 urban-dwelling, low-income American women.

•Overall, 42.8% of those surveyed said they had been abused by their intimate male partners in the year preceding the survey.

- Psychological abuse was significantly more of an ongoing problem than physical abuse, while sexual abuse was reported as least common.
- A relatively small number of women (2.3%) perceived their partners as extremely controlling, while 1.2% reported that their partners engaged in extreme generally violent behaviours.

But a considerable number of women felt their abusive male partners still possessed some good qualities: more than half (54%) saw their partners as highly dependable, while one in five (21%) felt the men in their lives possessed significant positive traits (i.e., being affectionate).

Based on the survey findings, the researchers divided the male abusers into three groups: "Dependable, yet abusive" men (44% of the sample) had the lowest scores for controlling and generally violent behaviors, and the highest scores for dependability and positive traits. "Positive and controlling" men (38% of the sample) had moderately high scores for violence and also for dependability and positive traits. However, they were more controlling than men in the first group, displaying significantly higher levels of generally violent behaviours. "Dangerously abusive" men (18% of the sample) had the highest scores for violence, controlling behaviour and legal problems and the lowest scores for dependability and positive traits.

The researchers say their findings suggest there is value in studying the problem of male violence through the perceptions of abused women, including those who are currently "outside" the social services and legal systems designed to help them.

"The importance of listening to women's voices cannot be highlighted enough and needs further exploration," says O'Campo. "This is just one step toward potentially increasing our understanding of how to find additional ways to improve women's safety."

Ralph's Note - A society that accepts this behavior as a norm. Is a society that no longer deserves to exist.

Public release date: 12-Apr-2010

U of I study: Lack of omega-6 fatty acid linked to severe dermatitis

URBANA –University of Illinois scientists have learned that a specific omega-6 fatty acid may be critical to maintaining skin health.

"In experiments with mice, we knocked out a gene responsible for an enzyme that helps the body to make arachidonic acid. Without arachidonic acid, the mice developed severe ulcerative dermatitis. The animals were very itchy, they scratched themselves continuously, and they developed a lot of bleeding sores," said Manabu Nakamura, a U of I associate professor of food science and human nutrition.

When arachidonic acid was added to the animals' diet, the itching went away, he said.

Nakamura's team has been focusing on understanding the function of omega-3 and -6 fatty acids, and doctoral student Chad Stroud developed a mouse model to help them understand the physiological roles of these fats. By knocking out genes, they can create deficiencies of certain fats and learn about their functions.

"Knocking out a gene that enables the body to make the delta-6-desaturase enzyme has led to some surprising discoveries. In this instance, we learned that arachidonic acid is essential for healthy skin function. This new understanding may have implications for treating the flaky, itchy skin that sometimes develops without an attributable cause in infants," he said.

Nakamura explained that our bodies make arachidonic acid from linoleic acid, an essential fatty acid that we must obtain through our diets. It is found mainly in vegetable oils.

Scientists have long attributed healthy skin function to linoleic acid, which is important because it provides the lipids that coat the outer layer of the skin, keeping the body from losing water and energy, which would retard growth, the scientist said.

But skin function seems to be more complicated than that. These itchy mice had plenty of linoleic acid. They just couldn't convert it to arachidonic acid because the gene to make the necessary enzyme had been knocked out, he noted.

Arachidonic acid is also essential to the production of prostaglandins, compounds that can lead to inflammatory reactions and are important to immune function. Common painkillers like aspirin and ibuprofen work by inhibiting the conversion of arachidonic acid to prostaglandins.

"We usually think of inflammation as a bad thing, but in this case, prostaglandins prevented dermatitis, which is an inflammatory reaction. We measured prostaglandin levels in the animals' skin, and when we fed arachidonic acid to the knockout mice, they resumed making these important chemical compounds," he said.

Nakamura cautioned that there are still things they don't understand about the function of this omega-6 fatty acid. "This new knowledge is a starting point in understanding the mechanisms that are involved, and we need to do more research at the cellular level."

Public release date: 12-Apr-2010

U of I study: Lack of omega-3 fatty acid linked to male infertility(DHA)

URBANA – According to a University of Illinois study, omega-3 fatty acids may be good for more than heart health. A little-known omega-3 may have implications for treating male infertility.

"In our experiment, we used 'knockout' mice that lacked the gene responsible for an enzyme important in making docosahexaenoic acid (DHA). In the absence of DHA, male mice are basically infertile, producing few if any misshaped sperm that can't get where they need to go," said Manabu Nakamura, a U of I associate professor of food science and human nutrition.

"We looked at sperm count, shape, and motility and tested the breeding success rate, and the mice lacking DHA simply were not able to breed," said Manuel Roqueta-Rivera, a U of I doctoral student who also worked on the study.

In the DHA-deficient knockout mice, sperm counts were extremely low. The sperm that were produced were round instead of elongated and they were unable to move well, he said.

But, when DHA was introduced into the diet, fertility was completely restored. "It was very striking. When we fed the mice DHA, all these abnormalities were prevented," he said.

This is the first time that the importance of DHA to male fertility has been shown this directly, although some studies have suggested that male fertility patients with low sperm counts and less motile sperm tend to have low levels of this fatty acid.

The DHA study is part of the Nakamura team's efforts to understand the function of the omega-3 and -6 fatty acids. As part of that work, they have developed a mouse model to help them understand a particular fat's physiological role. By knocking out genes, they can create deficiencies of the fats they are interested in and learn about their functions.

"Knocking out the gene for the delta-6-desaturase enzyme has led to some surprising discoveries, including this one about the importance of DHA in sperm formation and mobility," he said.

Nakamura said our body must make DHA from dietary alpha-linolenic acids, the parent compound of the omega-3 fatty acid family. Vegetable oils, including soybean and canola oil, are good sources of alpha-linolenic acid.

Nakamura's team plans to continue focusing on this omega-3's effects on fertility. But he cautioned that there are still things they don't understand.

"We get hints from looking at sperm in the DHA-deficient animals about what type of pathology we may be looking at and why these polyunsaturated fatty acids are important. But we're still at the starting point in understanding the mechanisms that are involved, and we need to do more research at the cellular level," he said.

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Fear of getting fat seen in healthy women's brain scans

A group of women in a new study seemed unlikely to have body image issues – at least their responses on a tried-and-true psychological screening presented no red flags.

That assessment changed when Brigham Young University researchers used MRI technology to observe what happened in the brain as these women viewed images of complete strangers.

If the stranger happened to be overweight and female, it surprisingly activated in women's brains an area that processes identity and self-reflection. Men did not show signs of any self-reflection in similar situations.

“These women have no history of eating disorders and project an attitude that they don't care about body image,” said Mark Allen, a BYU neuroscientist. “Yet under the surface is an anxiety about getting fat and the centrality of body image to self.”

Allen makes his report with grad student Tyler Owens and BYU psychology professor Diane Spangler in the May issue of the psychological journal *Personality and Individual Differences*.

Spangler and Allen collaborate on a long-term project to improve treatment of eating disorders by tracking progress with brain imaging. When anorexic and bulimic women view an overweight stranger, the brain's self-reflection center – known as the medial prefrontal cortex – lights up in ways that suggest extreme unhappiness and in some cases, self-loathing.

The motivation for this new study was to establish a point of reference among a control group of women who scored in the healthy range on eating disorder diagnostic tests. Surprisingly, even this control group exhibited what Allen calls “sub-clinical” issues with body image.

Seeing that, Allen and Owens ran the experiments with a group of men for comparison.

“Although these women's brain activity doesn't look like full-blown eating disorders, they are much closer to it than men are,” Allen said.

Spangler says women are bombarded with messages that perpetuate the thin ideal, and the barrage changes how they view themselves.

“Many women learn that bodily appearance and thinness constitute what is important about them, and their brain responding reflects that,” Spangler said. “I think it is an unfortunate and false idea to learn about oneself and does put one at greater risk for eating and mood disorders.”

“It's like the plant in my office,” she continued. “It has the potential to grow in any direction, but actually only grows in the direction of the window – the direction that receives the most reinforcement.”

Ralph's Note - What is wrong with not desiring to be unhealthy?

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Why are allergies increasing?

Université de Montréal professor studies how probiotics can help

Montreal, April 13, 2010 – Allergies have become a widespread in developed countries: hay fever, eczema, hives and asthma are all increasingly prevalent. The reason? Excessive cleanliness is to blame according to Dr. Guy Delespesse, a professor at the Université de Montréal Faculty of Medicine.

Allergies can be caused by family history, air pollution, processed foods, stress, tobacco use, etc. Yet our limited exposure to bacteria concerns Dr. Delespesse, who is also director of the Laboratory for

Allergy Research at the Centre hospitalier de l'Université de Montréal.

"There is an inverse relationship between the level of hygiene and the incidence of allergies and autoimmune diseases," says Dr. Delespesse. "The more sterile the environment a child lives in, the higher the risk he or she will develop allergies or an immune problem in their lifetime."

In 1980, 10 percent of the Western population suffered from allergies. Today, it is 30 percent. In 2010, one out of 10 children is said to be asthmatic and the mortality rate resulting from this affliction increased 28 percent between 1980 and 1994.

"It's not just the prevalence but the gravity of the cases," says Dr. Delespesse. "Regions in which the sanitary conditions have remained stable have also maintained a constant level of allergies and inflammatory diseases."

"Allergies and other autoimmune diseases such as Type 1 diabetes and multiple sclerosis are the result of our immune system turning against us," says Dr. Delespesse.

Why does this happen? "The bacteria in our digestive system are essential to digestion and also serve to educate our immune system. They teach it how to react to strange substances. This remains a key in the development of a child's immune system."

Although hygiene does reduce our exposure to harmful bacteria it also limits our exposure to beneficial microorganisms. As a result, the bacterial flora of our digestive system isn't as rich and diversified as it used to be.

Dr. Delespesse recommends probiotics to enrich our intestinal flora. Probiotics are intestinal bacteria that have a beneficial impact on health. They've been used for decades to make yogurt. Probiotics have a proven effect on treating diarrhea, and studies are increasingly concluding similar benefits for the immune system and allergies.

"Consuming probiotics during pregnancy could help reduce allergies in the child," says Dr. Delespesse. "They are not a miracle remedy, yet they are one of many elements that improve our diet and our health."

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Diet alone will not likely lead to significant weight loss

PORTLAND, Ore – Newly-published research by scientists at Oregon Health & Science University demonstrates that simply reducing caloric intake is not enough to promote significant weight loss. This appears to be due to a natural compensatory mechanism that reduces a person's physical activity in response to a reduction in calories. The research is published in the April edition of the American Journal of Physiology – Regulatory, Integrative and Comparative Physiology.

"In the midst of America's obesity epidemic, physicians frequently advise their patients to reduce the number of calories they are consuming on a daily basis. This research shows that simply dieting will not likely cause substantial weight loss. Instead, diet and exercise must be combined to achieve this goal," explained Judy Cameron Ph.D., a senior scientist at OHSU's Oregon National Primate Research Center, and a professor of behavioral neuroscience and obstetrics & gynecology in the OHSU School of Medicine, as well as a professor of psychiatry at the University of Pittsburgh.

To conduct the research, Cameron and OHSU post-doctoral fellow Elinor Sullivan, Ph.D., studied 18 female rhesus macaque monkeys at the Oregon National Primate Research Center. The monkeys were placed on a high-fat diet for several years. They were then returned to a lower-fat diet

(standard monkey food) with a 30 percent reduction in calories. For a one-month period, the monkeys' weight and activity levels were closely tracked. Activity was tracked through the use of an activity monitor worn on a collar.

"Surprisingly, there was no significant weight loss at the end of the month," explained Sullivan. "However, there was a significant change in the activity levels for these monkeys. Naturally occurring levels of physical activity for the animals began to diminish soon after the reduced-calorie diet began. When caloric intake was further reduced in a second month, physical activity in the monkeys diminished even further."

A comparison group of three monkeys was fed a normal monkey diet and was trained to exercise for one hour daily on a treadmill. This comparison group did lose weight.

"This study demonstrates that there is a natural body mechanism which conserves energy in response to a reduction in calories. Food is not always plentiful for humans and animals and the body seems to have developed a strategy for responding to these fluctuations," added Cameron. "These findings will assist medical professionals in advising their patients. It may also impact the development of community interventions to battle the childhood obesity epidemic and lead to programs that emphasize both diet and exercise."

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BRAIN INFECTION FROM TAPEWORM "SERIOUS HEALTH CONCERN"

Increasing in Mexico and Bordering Southwestern States

MAYWOOD, Ill. -- Tapeworm infections of the brain, which can cause epileptic seizures, appear to be increasing in Mexico and bordering southwestern states, Loyola University Health System researchers report.

In Mexico, up to 10 percent of the population may have the infection, neurocysticercosis. While many people never develop symptoms, neurocysticercosis nevertheless "remains a serious health concern, especially among the poor," Loyola researchers wrote in the April issue of the journal *Neurological Research*.

Their article, "Management of Neurocysticercosis," is among several articles in the April issue of *Neurological Research* that describe neurological infections in Latin America. Guest editor is Dr. Jaime Belmares, assistant professor in the Division of Infectious Diseases, Loyola University Chicago Stritch School of Medicine.

Neurocysticercosis is caused by a tapeworm found in pigs called *Taenia solium*. A person can get infected with the parasite by eating undercooked pork. That person then can excrete tapeworm eggs. The contamination spreads through food, water or surfaces contaminated with feces. A person can become infected, for example, by drinking contaminated water or putting contaminated fingers in the mouth.

Neurocysticercosis is most common in poor rural communities in developing countries with poor sanitation and hygiene and where pigs are allowed to roam freely and eat human feces.

Once inside the stomach, the tapeworm egg hatches, travels through the bloodstream and ends up in the muscles, brain or eyes. The worm, which can grow to more than one-half inch long, becomes enveloped in a fluid-filled cyst. Cysts in the muscles generally don't cause symptoms. But cysts in the eyes can cause blurry vision, while cysts in the brain can cause headaches, encephalitis and seizures. Less common symptoms include confusion and difficulty with balance.

Seizures occur in up to 70 percent of patients. "They're pretty dramatic," Belmares said. "Every seizure needs to be properly evaluated."

The article on neurocysticercosis was written by Dr. Adolfo Ramirez-Zamora, a former resident at Loyola now at the University of California at San Francisco and Tomas Alarcon, who did a rotation at Loyola during medical school.

Public release date: 15-Apr-2010

Health, life insurers hold \$1.88 billion in fast-food stocks: AJPH article

Harvard researchers say insurers put profits over health

Just weeks after the passage of a health bill that will dramatically increase the number of Americans covered by private health insurers, Harvard researchers have detailed the extent to which life and health insurance companies are major investors in the fast-food industry – to the tune of nearly \$2 billion.

Although fast food can be consumed responsibly, research has shown that fast-food consumption is linked to obesity and cardiovascular disease, two leading causes of death, and contributes to the poor health of children. The evidence is so compelling that as part of the new health law more than 200,000 fast-food and other chain restaurants will be required to include calorie counts on their menus, including their drive-through menus.

A new article on insurance company holdings, published online in today's [Thursday, April 15] American Journal of Public Health, shows that U.S., Canadian and European-based insurance firms hold at least \$1.88 billion of investments in fast-food companies.

"These data raise questions about the opening of vast new markets for private insurers at public expense, as is poised to happen throughout the United States as a result of the recent health care overhaul," says lead author Dr. Arun Mohan.

Among the largest owners of fast-food stock are U.S.-based Prudential Financial, Northwestern Mutual and Massachusetts Mutual Life Insurance Company, and European-based ING.

U.S.-based Northwestern Mutual and Massachusetts Mutual Life Insurance Company both offer life insurance as well as disability and long-term care insurance. Northwestern Mutual owns \$422.2 million of fast-food stock, with \$318.1 million of McDonald's. Mass Mutual owns \$366.5 million of fast-food stock, including \$267.2 in McDonald's.

Holland-based ING, an investment firm that also offers life and disability insurance, has total fast-food holdings of \$406.1 million, including \$12.3 million in Jack in the Box, \$311 million in McDonald's, and \$82.1 million in Yum! Brands (owner of Pizza Hut, KFC and Taco Bell) stock.

New Jersey-based Prudential Financial Inc. sells life insurance and long-term disability coverage. With total fast-food holdings of \$355.5 million, Prudential Financial owns \$197.2 of stock in McDonald's and also has significant stakes in Burger King, Jack-in-the-Box, and Yum! Brands.

The researchers also itemize the fast-food holdings of London-based Prudential Plc, U.K.-based Standard Life, U.S.-based New York Life, Scotland-based Guardian Life, Canada-based Manulife and Canada-based Sun Life. (Table of data available at <http://bit.ly/ds7elr> ; all data current as of June 11, 2009.)

"Our data illustrate the extent to which the insurance industry seeks to turn a profit above all else," says Dr. Wesley Boyd, senior author of the study. "Safeguarding people's health and well-being take

a back seat to making money."

Mohan, Boyd and their co-authors, Drs. Danny McCormick, Steffie Woolhandler and David Himmelstein, all at the Cambridge Health Alliance and Harvard Medical School, culled their data from Icarus, a proprietary database of industrial, banking and insurance companies. Icarus draws upon Securities and Exchange Commission filings and news reports from providers like Dow Jones and Reuters. In addition, the authors obtained market capitalization data from Yahoo! Finance.

The authors write, "The health bill just enacted in Washington will likely expand the reach of the insurance industry. Canada and Britain are also considering further privatization of health insurance. Our article highlights the tension between profit maximization and the public good these countries face in expanding the role of private health insurers. If insurers are to play a greater part in the health care delivery system they ought to be held to a higher standard of corporate responsibility."

Several of these same researchers, all of whom are affiliated with Physicians for a National Health Program, have previously published data about the extent to which the insurance industry is invested in tobacco. They say that because private, for-profit insurers have repeatedly put their own financial gain over the public's health, readers in the United States, Canada and Europe should be wary about insurance firms' participation in care.

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Diet high in B-vitamins lowers heart risks in Japanese study

In a large study in Japan, women who reported eating more foods containing the B-vitamins folate and B-6 were less likely to die from stroke and heart disease.

Japanese men reporting diets high in these B vitamins were less likely to die of heart failure.

DALLAS, April 15, 2010 — Eating more foods containing the B-vitamins folate and B-6 lowers the risk of death from stroke and heart disease for women and may reduce the risk of heart failure in men, according to Japanese research reported in *Stroke: Journal of the American Heart Association*.

"Japanese people need more dietary intake of folate and vitamin B-6, which may lead to the prevention of heart disease," said Hiroyasu Iso, M.D., professor of public health at Osaka University.

The findings on the value of B vitamins were consistent with studies in Europe and North America, although the dietary consumption of vitamin B-6 is generally lower in Japan than in the United States.

Researchers analyzed data from 23,119 men and 35,611 women (ages 40–79) who completed food frequency questionnaires as part of the large Japan Collaborative Cohort (JACC) Study. During a median 14 years of follow-up, 986 died from stroke, 424 from heart disease and 2,087 from all diseases related to the cardiovascular system.

Investigators divided participants into five groups based on their intake of folate, vitamin B-6 and vitamin B-12. Comparing those with the diets lowest and highest for each nutrient, they found that higher consumption of folate and vitamin B-6 was associated with significantly fewer deaths from heart failure in men, and significantly fewer deaths from stroke, heart disease and total cardiovascular diseases in women. Vitamin B-12 intake was not associated with reduced mortality risk.

The protective effects of folate and vitamin B-6 didn't change when researchers adjusted for the presence of cardiovascular risk factors, nor when they eliminated supplement users from the analysis. Folate and vitamin B-6 may help guard against cardiovascular disease by lowering homocysteine levels, the investigators said. Homocysteine is an amino acid in the blood that's affected by diet and heredity. Folic

acid and other B vitamins help break down homocysteine in the body.

A direct causal link hasn't been established, but evidence has shown that too much homocysteine may damage the inner lining of arteries and promote the formation of blood clots.

Sources of folate include vegetables and fruits, whole or enriched grains, fortified cereals, beans and legumes. Sources of vitamin B-6 include vegetables, fish, liver, meats, whole grains and fortified cereals.

Co-authors include: Renzhe Cui, M.D.; Chigusa Date, M.D.; Shogo Kikuchi, M.D.; Akiko Tamakoshi, M.D.; and the JACC study group. Author disclosures and funding sources are on the manuscript.

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Study shows potential benefit of dark chocolate for liver disease patients

Vienna, Austria, Thursday 15 April: Doctors could soon be prescribing a dose of dark chocolate to help patients suffering from liver cirrhosis and from dangerously high blood pressure in their abdomen, according to new research presented today at the International Liver Congress™ 2010, the Annual Meeting of the European Association for the Study of Liver in Vienna, Austria.

According to the Spanish research, eating dark chocolate reduces damage to the blood vessels of cirrhotic patients and also lowers blood pressure in the liver. Dark chocolate contains potent anti-oxidants which reduce the post-prandial (after-meal) blood pressure in the liver (or portal hypertension) associated with damaged liver blood vessels (endothelial dysfunction). The data also showed that eating dark chocolate may exert additional beneficial effects throughout the whole body. In comparison, white chocolate, which contains no beneficial 'phytochemicals', did not result in the same effects.

Professor Mark Thursz, MD FRCP, Vice Secretary of EASL and Professor of Hepatology, at Imperial College London said: "As well as advanced technologies and high science, it is important to explore the potential of alternative sources which can contribute to the overall wellbeing of a patient. This study shows a clear association between eating dark chocolate and portal hypertension and demonstrates the potential importance of improvements in the management of cirrhotic patients, to minimise the onset and impact of end stage liver disease and its associated mortality risks".

Cirrhosis is scarring of the liver as a result of long-term, continuous damage to the liver. In cirrhosis, circulation in the liver is damaged by oxidative stress and reduced antioxidant systems. After eating, blood pressure in the abdominal veins usually increases due to increased blood flow to the liver.

This is particularly dangerous and damaging to cirrhotic patients as they already have increased blood pressure in the liver (portal hypertension) and elsewhere which, if severe, can cause blood vessel rupture. Thus, eating dark chocolate may ultimately prevent this potential threat to cirrhotic patients.

In this study 21 cirrhotic patients with end stage liver disease (child score 6.9 ± 1.8 ; MELD 11 ± 4 ; hepatic venous pressure gradient (HPVG*) 16.6 ± 3.8 mmHg) were randomised to receive a standard liquid meal. Ten patients received the liquid meal containing dark chocolate (containing 85% cocoa, 0.55g of dark chocolate/Kg of body weight) while 11 patients received the liquid meal containing white chocolate which is devoid of cocoa flavonoids (anti-oxidant properties) according to body weight. HPVG, arterial pressure and portal blood flow (PBF)** were measured at baseline and 30 minutes after meal administration, using a US-Doppler.

Both meals caused a highly significant but similar increase in portal blood flow with a +24% increase in dark chocolate compared to +34% in those patients who received white chocolate. Interestingly, post-prandial hyperaemia*** was accompanied by an increase in HPVG resulting in a statistically significant increase (17.3 ± 3.6 mmHg to 19.1 ± 2.6 mmHg, $p=0.07$) for those patients eating dark chocolate and those

receiving white chocolate (16.0 ± 4.7 mmHg to 19.7 ± 4.1 mmHg, $p=0.003$). Post-prandial increase in HVPG was markedly reduced in patients receiving dark chocolate ($+10.3 \pm 16.3\%$ Vs $+26.3 \pm 12.7\%$, $p=0.02$).

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*HVPG is blood pressure in the liver

**PBF refers to blood flow in the liver

***Hyperaemia refers to increase blood flow to tissues

Public release date: 15-Apr-2010

Low vitamin D levels associated with more asthma symptoms and medication use

Low levels of vitamin D are associated with lower lung function and greater medication use in children with asthma, according to researchers at National Jewish Health. In a paper published online this week in the Journal of Allergy & Clinical Immunology, Daniel Searing, MD, and his colleagues also reported that vitamin D enhances the activity of corticosteroids, the most effective controller medication for asthma.

"Asthmatic children in our study who had low levels of vitamin D were more allergic, had poorer lung function and used more medications," said Dr. Searing. "Conversely, our findings suggest that vitamin D supplementation may help reverse steroid resistance in asthmatic children and reduce the effective dose of steroids needed for our patients."

The researchers examined electronic medical records of 100 pediatric asthma patients referred to National Jewish Health. Overall, 47 percent of them had vitamin D levels considered insufficient, below 30 nanograms per milliliter of blood (ng/mL). Seventeen percent of the patients had levels below 20 ng/mL, which is considered deficient. These levels were similar to vitamin D levels found in the general population.

Patients low in vitamin D generally had higher levels of IgE, a marker of allergy, and responded positively to more allergens in a skin prick test. Allergies to the specific indoor allergens, dog and house dust mite, were higher in patients with low vitamin D levels. Low vitamin D also correlated with low FEV1, the amount of air a person can exhale in one second, and lower FEV1/FVC, another measure of lung function. Use of inhaled steroids, oral steroids and long-acting beta agonists were all higher in patients low in vitamin D.

"Our findings suggest two possible explanations," said senior author Donald Leung, MD, PhD. "It could be that lower vitamin D levels contribute to increasing asthma severity, which requires more corticosteroid therapy. Or, it may be that vitamin D directly affects steroid activity, and that low levels of vitamin D make the steroids less effective, thus requiring more medication for the same effect."

The researchers performed a series of laboratory experiments that indicated vitamin D enhances the action of corticosteroids. They cultured some immune cells with the corticosteroid dexamethasone alone and others with vitamin D first, then dexamethasone. The vitamin D significantly increased the effectiveness of dexamethasone. In one experiment vitamin D and dexamethasone together were more effective than 10 times as much dexamethasone alone.

The researchers also incubated immune-system cells for 72 hours with a staphylococcal toxin to induce corticosteroid resistance. Vitamin D restored the activity of dexamethasone.

"Our work suggests that vitamin D enhances the anti-inflammatory function of corticosteroids," said Dr. Leung. "If future studies confirm these findings vitamin D may help asthma patients achieve better control of their respiratory symptoms with less medication."

Public release date: 16-Apr-2010

First evidence that chitosan could repair spinal damage

Chitosan offers hope for spinal injury patients

Richard Borgens and his colleagues from the Center for Paralysis Research at the Purdue School of Veterinary Medicine have a strong record of inventing therapies for treating nerve damage. From Ampyra, which improves walking in multiple sclerosis patients to a spinal cord simulator for spinal injury victims, Borgens has had a hand in developing therapies that directly impact patients and their quality of life. Another therapy that is currently undergoing testing is the use of polyethylene glycol (PEG) to seal and repair damaged spinal cord nerve cells. By repairing the damaged membranes of nerve cells, Borgens and his team can restore the spinal cord's ability to transmit signals to the brain. However, there is one possible clinical drawback: PEG's breakdown products are potentially toxic. Is there a biodegradable non-toxic compound that is equally effective at targeting and repairing damaged nerve membranes? Borgens teamed up with physiologist Riyi Shi and chemist Youngnam Cho, who pointed out that some sugars are capable of targeting damaged membranes. Could they find a sugar that restored spinal cord activity as effectively as PEG? Borgens and his team publish their discovery that chitosan can repair damaged nerve cell membranes in *The Journal of Experimental Biology* on 16 April 2010 at <http://jeb.biologists.org>.

Having initially tested mannose and found that it did not repair spinal cord nerve membranes, Cho decided to test a modified form of chitin, one of the most common sugars that is found in crustacean shells. Converting chitin into chitosan, Cho isolated a segment of guinea pig spinal cord, compressed a section, applied the modified chitin and then added a fluorescent dye that could only enter the cells through damaged membranes. If the chitosan repaired the crushed membranes then the spinal cord tissue would be unstained, but if the chitosan had failed, the spinal cord neurons would be flooded with the fluorescent dye. Viewing a section of the spinal cord under the microscope, **Cho was amazed to see that the spinal cord was completely dark. None of the dye had entered the nerve cells. Chitosan had repaired the damaged cell membranes.**

Next Cho tested whether a dose of chitosan could prevent large molecules from leaking from damaged spinal cord cells. Testing for the presence of the colossal enzyme lactate dehydrogenase (LDH), Borgens admits he was amazed to see that levels of LDH leakage from chitosan treated spinal cord were lower than from undamaged spinal cords. **Not only had the sugar repaired membranes at the compression site but also at other sites where the cell membranes were broken due to handling. And when the duo tested for the presence of harmful reactive oxygen species (ROS), released when ATP generating mitochondria are damaged, they found that ROS levels also fell after applying chitosan to the damaged tissue: chitosan probably repairs mitochondrial membranes as well as the nerve cell membranes.**

But could chitosan restore the spinal cord's ability to transmit electrical signals to the brain through a damaged region? Measuring the brain's response to nerve signals generated in a guinea pig's hind leg, the duo saw that the signals were unable to reach the brain through a damaged spinal cord. However, 30-min after injecting chitosan into the rodents, the signals miraculously returned to the animals' brains. Chitosan was able to repair the damaged spinal cord so that it could carry signals from the animal's body to its brain.

Borgens is extremely excited by this discovery that chitosan is able to locate and repair damaged spinal

cord tissue and is even more enthusiastic by the prospect that nanoparticles of chitosan could also target delivery of neuroprotective drugs directly to the site of injury 'giving us a dual bang for our buck,' says Borgens.

Public release date: 18-Apr-2010

Vitamin and calcium supplements may reduce breast cancer risk

WASHINGTON, D.C. — Vitamins and calcium supplements appear to reduce the risk of breast cancer, according to findings presented at the American Association for Cancer Research 101st Annual Meeting 2010.

"It is not an immediate effect. You don't take a vitamin today and your breast cancer risk is reduced tomorrow," said Jaime Matta, Ph.D., professor in the Ponce School of Medicine in Puerto Rico. "However, we did see a long-term effect in terms of breast cancer reduction."

Matta said the findings suggest that the calcium supplements are acting to enhance DNA repair capacity, a complex biological process involving more than 200 proteins that, if disrupted, can lead to cancer.

"This process involves at least five separate pathways and is critical for maintaining genomic stability," said Matta. "When the DNA is not repaired, it leads to mutation that leads to cancer."

The study included 268 women with breast cancer and 457 healthy controls. Women were more likely to have breast cancer if they were older, had a family history of breast cancer, had no history of breastfeeding and had lower DNA repair capacity.

Vitamin supplements appeared to reduce the risk of breast cancer by about 30 percent. Calcium supplements reduced the risk of breast cancer by 40 percent. After controlling for the level of DNA repair capacity, calcium supplements were no longer as protective, but the link between vitamin supplements and breast cancer reduction remained.

"We're not talking about mega doses of these vitamins and calcium supplements, so this is definitely one way to reduce risk," said Matta.

Public release date: 19-Apr-2010

Meat, especially if it's well done, may increase risk of bladder cancer

Genetic variants in metabolism pathway further raise likelihood

WASHINGTON, D.C. - People who eat meat frequently, especially meat that is well done or cooked at high temperatures, may have a higher chance of developing bladder cancer, according to a large study at The University of Texas M. D. Anderson Cancer Center presented at the American Association for Cancer Research 101st Annual Meeting 2010. This risk appears to increase in people with certain genetic variants.

"It's well known that meat cooked at high temperatures generates heterocyclic amines (HCAs) that can cause cancer," said study presenter Jie Lin, Ph.D., assistant professor in M. D. Anderson's Department of Epidemiology. "We wanted to find out if meat consumption increases the risk of developing bladder cancer and how genetic differences may play a part."

Meat-eating habits examined

According to the American Cancer Society, almost 71,000 new cases of bladder cancer were diagnosed in this country last year, and more than 14,000 people died because of the disease. Men are at much higher risk of developing bladder cancer than women.

HCAs form when muscle meats, such as beef, pork, poultry or fish, are cooked at high temperatures. They are products of interaction between amino acids, which are the foundation of proteins, and the chemical creatine, which is stored in muscles. Past research has identified 17 HCAs that may contribute to cancer.

This study, which took place over 12 years, included 884 M. D. Anderson patients with bladder cancer and 878 people who did not have cancer. They were matched by age, gender and ethnicity.

Using a standardized questionnaire designed by the National Cancer Institute (NCI), researchers gathered information about each participant's dietary habits. They then categorized people into four levels, ranging from lowest to highest red meat intake.

Well-done red meat nourishes cancer risk

The group with the highest red-meat consumption had almost one-and-a-half times the risk of developing bladder cancer as those who ate little red meat.

Specifically, consumption of beef steaks, pork chops and bacon raised bladder cancer risk significantly. Even chicken and fish - when fried - significantly raised the odds of cancer.

The level of doneness of the meat also had a marked impact. People whose diets included well-done meats were almost twice as likely to develop bladder cancer as those who preferred meats rare.

Further questioning of a subset of 177 people with bladder cancer and 306 people without bladder cancer showed that people with the highest estimated intake of three specific HCAs were more than two-and-a-half times more likely to develop bladder cancer than those with low estimated HCA intake.

"To quantify intakes of HCAs, we began three or four years ago to gather information on meat-cooking methods and doneness level, and then used a program developed by the NCI to estimate intakes of three major HCAs," Lin said. "These data gave important information about the relationship between HCAs and bladder cancer."

Genetic variants increase incidence

To take the investigation a step further, researchers analyzed each participant's DNA to find if it contained genetic variants in the HCA metabolism pathways that may interact with red meat intake to increase the risk of cancer.

People with seven or more unfavorable genotypes as well as high red-meat intake were at almost five times the risk of bladder cancer.

"This research reinforces the relationship between diet and cancer," said Xifeng Wu, M.D., Ph.D., professor in M. D. Anderson's Department of Epidemiology and lead author on the study. "These results strongly support what we suspected: people, who eat a lot of red meat, particularly well-done red meat, such as fried or barbecued, seem to have a higher likelihood of bladder cancer. This effect is compounded if they carry high unfavorable genotypes in the HCA-metabolism pathway."

Wu said this research is a step toward a future in which a comprehensive cancer-risk prediction model will integrate environmental, diet and genetic risk factors to predict an individual's chances of developing cancer.

Public release date: 19-Apr-2010

Substance in breast milk kills cancer cells

A substance found in breast milk can kill cancer cells, reveal studies carried out by researchers at Lund University and the University of Gothenburg, Sweden.

Although the special substance, known as HAMLET (Human Alpha-lactalbumin Made LEthal to Tumour cells), was discovered in breast milk several years ago, it is only now that it has been possible to test it on humans. Patients with cancer of the bladder who were treated with the substance excreted dead cancer cells in their urine after each treatment, which has given rise to hopes that it can be developed into medication for cancer care in the future.

Discovered by chance

HAMLET was discovered by chance when researchers were studying the antibacterial properties of breast milk. Further studies showed that HAMLET comprises a protein and a fatty acid that are both found naturally in breast milk. So far, however, it has not been proven that the HAMLET complex is spontaneously formed in the milk. It is speculated, however, that HAMLET can form in the acidic environment of the babies' stomachs. **Laboratory experiments have shown that HAMLET kills 40 different types of cancer**, and the researchers are now going on to study its effect on skin cancer, tumours in the mucous membranes and brain tumours. Importantly, HAMLET kills only cancer cells and does not affect healthy cells.

Public release date: 19-Apr-2010

Are doctors missing depression medication side effects?

Study finds patients report 20 times more side effects than recorded in charts

PROVIDENCE, RI – **A study from Rhode Island Hospital shows that patients report side effects from medication for the treatment of depression 20 times more than psychiatrists have recorded in the charts.** The researchers recommend the use of a self-administered patient questionnaire in clinical practice to improve the recognition of side effects for patients in treatment. The study is published in the Journal of Clinical Psychiatry, Volume 71, No. 4, now available online ahead of print.

One of the most frequent reasons for the discontinuation of medication to treat depression is the side effects that patients may experience. The premature discontinuation of medication is also associated with poorer treatment outcomes. In his recent study, lead researcher Mark Zimmerman, MD, director of outpatient psychiatry at Rhode Island Hospital, notes that despite the clinical importance of detecting side effects, few studies have examined the adequacy of the detection and documentation methods currently in use among clinicians.

Zimmerman and his colleagues asked 300 patients in ongoing treatment for depression to complete a self-administered version of the Toronto Side Effects Scale (TSES). The patients rated the frequency of the 31 side effects and the degree of trouble they experienced. Those patients' charts were then examined to extract side effects information recorded by the treating psychiatrist.

The findings indicate that the mean number of side effects reported by the patients on the TSES was 20 times higher than the number recorded by the psychiatrist. **When the self-reported side effects were limited to "frequently occurring" or "very bothersome" the rate was still found to be two to three times higher than recorded in their charts.**

Zimmerman, who is also an associate professor of psychiatry and human behavior at The Warren Alpert

Medical School of Brown University, says, "Despite the importance that side effects have on premature medication discontinuation, there is some evidence that clinicians may not do a thorough job of eliciting information regarding their presence. This study finds that clinicians do not record in their progress notes most side effects reported on a side effects questionnaire.."

While there may be several explanations for this, Zimmerman says, "Our research found that the only specific side effect that was regularly inquired about by clinicians was on sexual dysfunction, presumably because of concerns that some patients may be too embarrassed to spontaneously report that without prompting." The researchers also suggest that patients stop reporting to psychiatrists the side effects that they have grown accustomed to, but patients reported these side effects in the self-report scale because there were specific questions about them. .

The researchers also question whether side effect frequencies reported in industry-sponsored studies may underestimate the prevalence of side effects from medication. As a result, clinicians may not be accurately informing patients of the potential likelihood of such side effects, and that lack of adequate preparation may result in patients prematurely discontinuing their medication.

Zimmerman says, "As a result of this study, we believe that ongoing dialogue about side effects during treatment will help to reduce premature medication discontinuation and would help reduce depression relapse rates. Incorporating a self-report questionnaire like the TSES may be helpful to adopt into clinical practice for the treatment of depression."

Public release date: 19-Apr-2010

Vitamin K May Protect Against Developing Non-Hodgkin Lymphoma, Say Mayo Clinic Researchers

WASHINGTON — In the first study of vitamin K and Non-Hodgkin lymphoma risk, researchers at the Mayo Clinic campus in Minnesota have found that people who have higher intakes of vitamin K from their diet have a lower risk of developing Non-Hodgkin lymphoma. Non-Hodgkin Lymphoma is a cancer of the immune system and is the most common hematologic malignancy in the United States.

At the 101st Annual Meeting of the American Association for Cancer Research (AACR), the researchers report that the risk of developing Non-Hodgkin lymphoma was approximately 45 percent lower for participants who had vitamin K intakes in the top quartile of intake in the study (>108 ug/day), compared to participants who had intakes in the bottom quartile (<39 ug/day). This association remained after accounting for other factors such as age, sex, education, obesity, smoking, alcohol use and intake of foods with high amounts of antioxidants.

Vitamin K is a fat-soluble vitamin and is derived from either plants (phylloquinone or vitamin K1) or bacterial synthesis. This study estimated intake of the plant form of vitamin K from diet and supplement use. The most common sources of vitamin K1 in the diet include leaf lettuce and spinach, with smaller amounts found in other vegetables, vegetable oils and some fruits.

Researchers at the Mayo Comprehensive Cancer Center are studying the connection between diet and Non-Hodgkin lymphoma risk, and they became interested in a potential role for vitamin K. While vitamin K is best known for its essential function in several proteins involved in blood clotting (the name of the vitamin is derived from the German word "Koagulations"), it also appears to be important in other biological processes, including inhibition of inflammatory cytokines thought to play a role in Non-Hodgkin lymphoma, as well as pathways involved in cell cycle arrest and cell death.

"These results are provocative, since they are the first work we have done on the connection between

vitamin K and Non-Hodgkin lymphoma, and this is a fairly strong protective effect," says the study's lead investigator, James Cerhan, M.D., Ph.D., a cancer epidemiologist. "However, as with all new findings, this will need to be replicated in other studies."

The Mayo study enrolled 603 patients who were newly diagnosed with Non-Hodgkin lymphoma as well as 1,007 matched cancer-free "control" participants. Researchers asked the participants to answer a food questionnaire about their usual intake of over 120 food items two years prior to their cancer diagnosis or enrollment into the study (controls). They also asked about use of a variety of supplements. Vitamin K intake was estimated from this data.

While there was a clear trend showing that a greater intake of vitamin K from dietary sources was associated with a lower risk of Non-Hodgkin lymphoma, the use of vitamin K supplements presented a slightly different picture. Increasing intake of vitamin K from supplements did protect against Non-Hodgkin lymphoma, but reached a point where the highest intake offered no reduction in risk. "The significance of this finding is unclear," notes Dr. Cerhan, "but suggests that taking high doses of supplements is unlikely to be helpful." Dr. Cerhan also notes that people taking certain oral anticoagulants or seizure medications should closely follow their physician's dietary recommendations with respect to vitamin K intake, since vitamin K can interfere with these drugs.

"Whether the protective effect we observed is due to vitamin K intake, or some other dietary or lifestyle exposure, cannot be definitely assessed in this study," notes Dr. Cerhan. "But these findings add to a lot of other data that support a diet that includes plenty of green leafy vegetables in order to prevent many cancers as well as other diseases."

The study was funded by the National Cancer Institute.

Public release date: 19-Apr-2010

Obesity gene, carried by more than a third of the U.S. population, leads to brain tissue loss

Three years ago, geneticists reported the startling discovery that nearly half of all people in the U.S. with European ancestry carry a variant of the fat mass and obesity associated (FTO) gene, which causes them to gain weight — from three to seven pounds, on average — but worse, puts them at risk for obesity.

Now, UCLA researchers have found that the same gene allele, which is also carried by roughly one-quarter of U.S. Hispanics, 15 percent of African Americans and 15 percent of Asian Americans, may have another deleterious effect.

Reporting in the early online edition of the journal *Proceedings of the National Academy of Sciences*, senior study author Paul Thompson, a UCLA professor of neurology; lead authors April Ho and Jason Stein, graduate students in Thompson's lab; and colleagues found that the FTO variant is also associated with a loss of brain tissue. This puts more than a third of the U.S. population at risk for a variety of diseases, such as Alzheimer's.

Using magnetic resonance imaging, the researchers generated three-dimensional "maps" of brain volume differences in 206 healthy elderly subjects drawn from 58 sites in the U.S. as part of the Alzheimer's Disease Neuroimaging Initiative, a large, five-year study

aimed at better understanding factors that help the brain resist disease as it ages.

They found that there was consistently less tissue in the brains of those who carry the FTO allele, compared with non-carriers. Individuals with the "bad" version of the FTO gene had an average of 8 percent less tissue in the frontal lobes, the "command center" of the brain, and 12 percent less in the occipital lobes, areas in the back of the brain responsible for vision and perception. Further, the brain differences could not be directly attributed to other obesity-related factors such as cholesterol levels, diabetes or high blood pressure.

Thompson called the findings worrying and mysterious.

"The results are curious. If you have the bad FTO gene, your weight affects your brain adversely in terms of tissue loss," he said. "If you don't carry FTO, higher body weight doesn't translate into brain deficits; in fact, it has nothing to do with it. This is a very mysterious, widespread gene."

People who carry this specific DNA sequence are heavier on average, and their waist circumference is half an inch bigger.

This is a large percentage of the population, said Thompson, who is also a member of UCLA's Brain Research Institute and the UCLA Laboratory of Neuro Imaging.

"This is a shocking finding. Any loss of brain tissue puts you at greater risk for functional decline," he said. "The risk gene divides the world into two camps — those who have the FTO allele and those who don't."

But the news is not necessarily completely negative, Thompson said, because "carriers of the risk gene can exercise and eat healthily to resist both obesity and brain decline."

Thompson sees both a public health message and a science message in this finding.

"Half of the world carries this dangerous gene. But a healthy lifestyle will counteract the risk of brain loss, whether you carry the gene or not. So it's vital to boost your brain health by being physically active and eating a balanced diet," he said.

And from a scientific standpoint, he said, "the gene discovery will help to develop and fine tune the anti-dementia drugs being developed to combat brain aging."

Funding for the study came from the National Institutes of Health and from private industry. The authors report no conflict of interest.

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.**