



Dedicated to the Integration of Biological, Psychological and Social Factors in Medicine

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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Unhealthy and Unhappy: Adolescents with Higher Cardiovascular Risk Have Poorer Psychological Health

San Antonio, TX – Previous research has suggested that psychological characteristics are associated with cardiovascular risk in adults, and we were interested in examining whether a similar pattern could be seen in adolescents.

We studied 173 high-school students from Pittsburgh, PA. Our research team measured several cardiovascular health factors, including blood pressure, abdominal fat, lipid profile, and blood sugar. We counted the number of factors that were elevated based on adult cut-off scores: 66% of the sample had elevated risk factors. Furthermore, more than a quarter of the sample of high-school students had 2-4 elevated risk factors, which resembles the cardiovascular risk seen in middle-aged adults. The psychological characteristics that we measured were optimism, pessimism, self-esteem, anger, cynicism, trait negative emotions, trait positive emotions, attachment, and perceived popularity.

Compared to healthier adolescents, our research team found that adolescents with the highest cardiovascular risk (2-4 elevated risk factors) experienced more negative emotions, avoided close relationships, had low self-esteem, and perceived themselves as less popular in their peer group. In addition, girls with the highest cardiovascular risk reported more anger, pessimism, and neediness in relationships, compared to healthier girls. Boys with the highest cardiovascular risk generally experienced less positive emotions compared to healthier boys.

In summary, compared to their healthier counterparts, adolescents with high cardiovascular risk factors also had poor psychological health.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Research suggests that improvement in somatic depressive symptoms after depression treatment is associated with survival in patients with myocardial infarction

San Antonio, TX – Depression following acute myocardial infarction is associated with adverse cardiac outcomes. Several studies have assessed whether treatment of depression can influence the prognosis of these patients. However, these studies found that depression treatment had only moderate effects on depression and did not affect cardiac prognosis. Recently, several studies have suggested that somatic depressive symptoms, such as fatigue and insomnia, are more important predictors of adverse cardiac outcomes than are cognitive depressive symptoms, such as guilt or low self-esteem.

In a secondary analysis of data from the Enhancing Recovery in Coronary Heart Disease (ENRICH) trial, we assessed whether treatment improved cognitive and somatic depressive symptoms and whether these changes were related to an improved prognosis.

Our sample consisted of 1,235 patients who were diagnosed with depression shortly after an acute myocardial infarction. There were 644 patients in the intervention arm, which consisted of cognitive behavior therapy and concurrent antidepressant medication when necessary, and 591 in the usual care group.

Both the cognitive and the somatic symptoms changed more in the treatment than in the usual care group. Improvements in somatic depressive symptoms were associated with longer survival in the treatment group but not in the usual care group. There was no association between changes in cognitive depressive symptoms and survival.

This study suggests that improvement in somatic depressive symptoms may play an important role in improving prognosis in depressed myocardial infarction patients. Hence, close monitoring of somatic depressive symptoms might help to improve clinical care for myocardial infarction patients. Additional treatments should be considered for patients whose somatic depressive symptoms do not improve after first-line therapy.



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Denial May be Fatal for Heart Transplant Patients

New research suggests patients in denial are at greater risk for organ rejection

San Antonio, TX – Heart transplantation is not simply a question of replacing a failing organ. Patients have to cope with the tremendous stress of dual challenges; the loss of their own heart and the fear of transplant rejection. Doctors estimate that many patients are in denial of their situation. According to a recent preliminary study, patients who report more denial are at greater risk for rejection.

Organ rejection can be fatal making it critical to identify factors that predict poor outcomes for heart transplant patients. “All patients cope differently following surgery, and it’s important to recognize which, if any, psychosocial factors may jeopardize outcomes,” said cardiac behavioral medicine researcher Jamie Jackson, PhD, who works with Northwestern University and [Northwestern Memorial Hospital’s Bluhm Cardiovascular Institute](#).

To better understand the relationship between denial and organ rejection, Jackson reviewed medical charts for 20 heart transplant recipients, including patient responses to a pre-transplant psychosocial evaluation. The findings revealed that patients with greater levels of denial were more likely to have experienced organ rejection within one year of transplant as compared to those who reported less denial. The research took place at Rush University Medical Center.

“Should coping style continue to predict health outcomes in a larger sample, the psychosocial evaluation of transplant candidates may offer a way to identify patients at higher risk for rejection,” explained Jackson.

Though the study was limited by a small sample, the findings highlight the importance of continuing to research how the mind-body connection impacts medical outcomes.



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***Neural characteristics of cognitive control of negative emotion in
subjects with irritable bowel syndrome***

San Antonio, TX – Irritable bowel syndrome (IBS) is a typical psychosomatic disease including symptoms of abdominal pain or discomfort associated with defecation and changes in bowel movements. The psychological origin of IBS is thought to be a weakness to mental pressures known as “stress vulnerability”. We assume that stress vulnerability is a representation of the cognitive dysfunction of “emotion regulation”, or the way a negative emotion is suppressed. Recent neuroimaging studies advocate that the lateral and medial prefrontal cortices (PFC) are associated with intentional and unintentional emotion regulation, respectively. In the current study, we test the hypothesis that the neural characteristics of IBS subjects differ from those of healthy control subjects in terms of how intentional and unintentional emotion regulation are processed.

During fMRI scanning, thirty IBS and twenty-nine control subjects performed “an emotion regulation task”. In this task, each subject viewed “negative pictures” to evoke negative emotions and they had to either suppress or maintain the negative emotions in two separate conditions. Brain activities between IBS and control subjects were compared.

During both conditions, IBS subjects showed less activation than control subjects in the right lateral PFC and greater activation in the right amygdale, which is related to emotional processing. Greater activation was seen in IBS subjects in the medial PFC only during the maintenance condition. Our results support our hypothesis by indicating that IBS subjects have a cognitive dysfunction of intentional emotion regulation and a dominance of unintentional emotion regulation.

It is important for clinicians to assess not only the body’s symptoms, but also the cognitive dysfunctions of IBS.



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The Influence of Oxytocin on Inflammation and Atherosclerosis in WHHL Rabbit

San Antonio, TX – Cardiovascular disease, including atherosclerosis, is a leading cause of death in the US. In our lab, we showed that a stable social environment, characterized by increased affiliative social behaviors, slowed the progression of atherosclerosis in the Watanabe Heritable Hyperlipidemic rabbit (WHHL), a genetic animal model that spontaneously develops atherosclerosis, compared to the same animals in an unstable social environment or housed alone. The findings suggested that affiliative social behaviors delayed the progression of disease. The hormone oxytocin, traditionally associated with promoting delivery and lactation, plays an important role in modulating positive social behaviors, such as affiliative social behavior. We demonstrated oxytocin to have anti-atherogenic properties by reducing oxidative stress and inflammation, processes involved in atherosclerosis, using cells in a controlled environment. In the present study we examined whether delivering oxytocin could reduce the extent of atherosclerosis in WHHL rabbits. Animals were given either oxytocin or saline (control group) through an implanted pump. We found that animals given oxytocin showed reduced plasma C-reactive protein, a marker of systemic inflammation, and fat tissue inflammation. Oxytocin-treated animals also had significantly less atherosclerosis in the thoracic region of the aorta compared to controls. These data suggest that oxytocin treatment slows the progression of atherosclerosis through anti-inflammatory processes, even in an animal model that is genetically predisposed to disease. These effects of oxytocin on inflammation and atherosclerosis provide a plausible mechanism by which prosocial behavior can influence disease outcome.



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Heart Failure study suggests social support may improve recovery

San Antonio, TX – A study conducted by researchers at the Uniformed Services University of the Health Sciences and the University of Maryland Medical Center found that the perception of having someone to talk to may improve physical function and symptoms in heart failure patients.

The Biobehavioral Triggers of Heart Failure (BETRHEART) study examined 87 heart failure patients to determine if psychological factors impacted patients' physical functioning and heart failure symptoms.

Heart failure, a condition in which the heart cannot pump enough blood to meet the body's needs, is a common medical problem, especially in the elderly. Treatment of heart failure is a major contributor to health care costs.

Participants in the BETRHEART study completed two questionnaires. The first was intended to measure self-reported physical functioning and frequency, severity, and changes in symptoms. The second, an Interpersonal Support Evaluation Level questionnaire, measured the perceived availability of social support, i.e., whether participants had supportive and good relationships with others. Participants also were asked to complete the Six Minute Walk Test, a physical test requiring patients to walk, at their own pace, on a 100-foot course for six minutes. The test is used to estimate how limited patients are in performing physical activities.

Study findings indicated that patients who scored high on appraisal support—whether they felt they had a confidant or someone to talk to about problems and issues—had fewer heart failure symptoms, and reported better physical functionality. These same patients performed better on the Six Minute Walk Test, demonstrating an ability to walk faster and further than those who did not think they had someone with whom they could talk. This correlation remained even after controlling for age, gender, and medical factors affecting participants' ability to walk.

These findings suggest that individuals with heart failure who reported having someone to talk to about their problems have less severe heart failure symptoms severity, both subjectively and objectively. This also suggests that medical treatment of heart failure should be supplemented by working with patients to improve the quality of their social networks to ensure the availability of someone to talk to about important problems.

The Uniformed Services University of the Health Sciences, or USU, is the nation's federal health sciences university. USU students are primarily active-duty uniformed officers in the Army, Navy, Air Force and Public Health Service who are being educated to deal with wartime casualties, emerging infectious diseases and other public health emergencies. Of the university's more than 4,500 physician alumni, the vast majority are supporting operations in Iraq, Afghanistan and elsewhere, offering their leadership and expertise.



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Research from the National University of Ireland suggests that sleep loss impedes the cardiovascular system's capacity to tolerate stress

San Antonio, TX – We asked a group of healthy men and women to undergo stress testing in a laboratory across on two separate days one week apart. Prior to one of these sessions, participants wore motion-detecting alarms during the night, which were programmed to reduce their sleeping hours to 40% of normal duration. The stress tests comprised a series of cognitive tasks presented on a computer, during which we monitored participants' cardiovascular functioning. We also asked all participants to complete psychometric questionnaires measuring each person's level of emotional stability.

We found that, in general, sleep restriction did indeed affect people's ability to tolerate stress testing. While after normal sleep, people showed a consistent capacity to acclimatize to stressful tasks (as indicated by gradual reductions in blood pressure during the tasks), sleep restriction had the effect of eliminating this capacity for acclimatization.

We also found that persons scoring low on emotional stability were particularly affected by sleep restriction. Not only did these participants show a reduced capacity to adapt to stress, but in cardiovascular terms they appeared to be more affected by stress the longer their stress tests continued.

Chronic sleep loss has previously been shown to predict cardiovascular disease. Our research suggests that this might result from negative impacts on the cardiovascular system's capacity to tolerate stress. In addition, our research suggests that some people are more affected by sleep loss than others. In terms of personality traits, the capacity to remain emotionally stable may help protect against the negative effects of sleep loss. Cultivating this trait may form the basis for successful counseling interventions.



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Fatigue is Associated with Lower Parasympathetic Tone in Breast Cancer Survivors

San Antonio, TX – Many cancer survivors report feeling significantly fatigued after cancer treatment has ended. However, we know little about the biological mechanisms that underlie cancer-related fatigue. This study evaluated relationships between fatigue and autonomic nervous system activity in breast cancer survivors. The autonomic nervous system is divided into sympathetic and parasympathetic branches. The sympathetic branch is responsible for “the fight or flight response” in which heart rate and blood pressure increase. The parasympathetic branch is responsible for relaxation and restoration in which heart rate and blood pressure decrease. Higher parasympathetic activity facilitates energy conservation, while prolonged heightened sympathetic activity puts can drain the body of energy. Norepinephrine, a measure of sympathetic activity, and heart rate variability (HRV), a measure of parasympathetic activity, were evaluated at rest, as well as during stressful situation in 109 women who had completed treatment for stage 0-IIIa breast cancer within the past two years. Women who reported more fatigue had higher norepinephrine and lower HRV before and after the stressor than their less fatigued counterparts. Fatigue was not related to treatment type, cancer stage, time since diagnosis, or time since treatment. This study is the first to demonstrate associations between fatigue in cancer survivors and a maladaptive autonomic profile characterized by heightened sympathetic/lowered parasympathetic activity.



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Depression may relate to premature mortality more strongly in women than men. A research from INSERM, INED, Paris Descartes University, Paris Sud University, and Nancy Paul Verlaine University (France)

San Antonio, TX – Depressive mood has been associated with premature mortality in both men and women. However, the factors that explain this association may differ across gender. A large survey was conducted in 1996 in the north-east of France among 2,623 men and 2,836 women with questionnaires covering depressive mood and many other factors, including not only health behaviors, such as smoking status, alcohol consumption or weight, but also education level, marital status, chronic diseases, and social support. Dates of death were obtained from the French National Institute of Statistics and Economic Studies.

Here, we took advantage of this large prospective study to investigate the gender differences in factors that may explain the association between depressive mood and mortality. During a follow-up of more than twelve years, about two hundred men and women died before the age of 70 years. We found that depressive mood at baseline was associated with an increased risk of such premature mortality in both men and women. However, the role of education, marital status, health behaviors, chronic diseases, and social support in explaining this association was three fold higher in men than women. Indeed, when taking into account these factors, the association between depressive mood and mortality remained significant only in women.

These results replicate and extend similar results that were obtained in a recent large-scale Finnish prospective study. All together, they suggest that depression may be linked with increased premature mortality in women through specific mechanisms. For instance, it has been suggested by others that common genetic factors may contribute to both cardiovascular mortality and depression to a greater extent in women than men. From a prevention perspective, improving health behaviors and social support to reduce the increased mortality associated with depressive mood is more likely to be efficient in men than women. Future research should examine other potential explaining factors among women.



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Contact: Dr Cédric Lemogne, MD, PhD

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Research from IPC Center and Paris Descartes University (France) suggests that heart rate may relate to the risk of suicide

San Antonio, TX – About one million people commit suicide worldwide each year. The preventable nature of this huge public health burden urges to better understand the biological factors that may contribute to the decision of killing oneself. The risk factors of suicide encompass biological factors (e.g. genetics, brain functioning), social factors (e.g. social deprivation), and, obviously, psychological factors. Interestingly, most of these psychological factors, including depression, impulsivity, or hostility have been associated with an aberrant regulation of heart rate. Furthermore, many brain regions that are involved in emotion regulation are also involved in the regulation of heart rate. Therefore, we aimed to test whether heart rate could relate to the risk of suicide in general population.

We measured heart rate at rest among more than 300,000 men and women who were performing a health check-up. We also measured depression and stress through specific questionnaires. Many other relevant data were collected such as age, sex, marital, working and socio-economical status, physical activity, alcohol intake, and current medications. Dates and causes of death, including suicide, were obtained from the French National Institute of Statistics and Economic Studies and the French national Cause-of-Death Registry, respectively.

After a mean follow-up of nine years, we found a higher resting heart rate among the participants that finally completed suicide. Importantly, the increased risk of suicide associated with higher heart rate was independent from other risk factors, such as depression, stress, or male gender. A plausible explanation of these results is that resting heart rate and suicide risk may share some biological determinants, such as genetic factors or neural bases. These results may inform further attempts to understand how suicide is mediated at a brain level.



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Contact: Carissa Low

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Research from the University of Pittsburgh suggests that hostility and anger suppression may increase cardiovascular risk among healthy women

San Antonio, TX – The goal of this study was to determine whether emotional factors, such as frequent hostile feelings toward others, are related to increases in coronary plaque in women prior to the onset of chest pain or a heart attack. We asked 149 healthy older women (average age 64 years old) to complete standardized questionnaires assessing the tendency to suppress anger and keep it in as well as cynical or mistrustful attitudes toward others. Women then underwent an electron beam computed tomography scan to assess the extent of calcification in their coronary arteries, a measure of atherosclerosis that predicts risk for future cardiovascular events. Another scan was completed three years later, which allowed us to calculate a measure of atherosclerosis progression over time during women's late 60's.

We found that women who endorsed cynical attitudes toward others had significantly greater atherosclerosis progression than those who did not. Furthermore, the women who were mistrustful of others AND tended to suppress these hostile or angry feelings had the most atherosclerosis progression over three years. This suggests that the tendency to both experience hostile attitudes and feelings and to bottle up these emotions may be damaging to older women's cardiovascular health.

These findings suggest that interventions aimed at reducing hostile tendencies and encouraging healthy expression of anger may not only benefit psychological well-being, but may also reduce cardiovascular risk among older women.



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Type D personality and Flexibility of Vascular Dilation in Healthy Population

San Antonio, TX – Research from the cooperation of National Cheng-Cheng University and The Buddhist Dalin Tzu Chi General Hospital in Taiwan suggests that people with Type D personality may be at risk to develop cardiovascular disease.

Of cardiovascular diseases, coronary artery disease is the major cause of death. Biological and psychological factors are both important to disease development. Recently, distressed personality, also known as Type D personality, has been found to correlate significantly with the prognosis of coronary artery disease. People with Type D personality tend to experience excessive negative emotions and hold negative attitudes toward themselves. They search for impending trouble, face stress events often, and react strongly. Instead of expressing negative emotion, they inhibit emotional expressions in daily interpersonal situations to avoid the “possible” disapproval of others.

Reduced flexibility of vascular dilation is an index of atherosclerosis, occurring before clinical detection of the disease. We compared the flexibility of vascular dilation of individuals with Type D personality with that of non-Type D personality. We found that the flexibility of vascular dilation of individuals with Type D personality is inferior to that of non-Type D personality even after matching their age and sex.

The finding that Type D personality can adversely affect the flexibility of vascular dilation improves our understanding of early phases of atherosclerosis and suggests potential therapeutic and preventive approaches to modify the disease process. From the perspective of disease prevention, in addition to controlling traditional risk factors, we may add psychological intervention to high-risk population (people with Type D personality, especially the offspring of patients) by providing a cognitive-behavior program to modify their emotional experiences and behavior expression patterns in their daily life before they develop overt cardiovascular diseases.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Research from Kent State University suggests that low doses of hydrocortisone may protect against the development of posttraumatic stress disorder (PTSD) symptoms in injured trauma victims.

Hydrocortisone as a secondary intervention to prevent subsequent PTSD symptoms

San Antonio, TX – To determine whether hydrocortisone could reduce risk for posttraumatic stress disorder (PTSD) in injured trauma victims, 65 patients were recruited from a local hospital and randomized to either receive 20mg of hydrocortisone or a placebo pill twice a day for 10 days. Medication was initiated within 12 hours of admission to the hospital. We subsequently assessed PTSD and depression symptoms and self-reported quality of life 1- and 3-months later.

We found that participants who received hydrocortisone had significantly fewer PTSD symptoms at both follow-up time points than participants who received placebo. Further, hydrocortisone recipients reported fewer depression symptoms at both time points and demonstrated a significant improvement in quality of life reports over time in comparison to placebo recipients. Substance use/abuse did not differ between hydrocortisone and placebo groups. Results were especially pronounced for participants who had not received prior treatment for a mental disorder.

These results suggest that hydrocortisone, administered soon after a traumatic event, may protect against the development of post-traumatic distress, particularly in trauma victim who are treatment naïve and who do not have significant prior psychopathology.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Impact of Cardiovascular Comorbidity on Ovarian Cancer Outcome

San Antonio, TX – Ovarian cancer is the most lethal gynecologic cancer, with 5-year survival ranging from 15-30% and overall survival lasting 35 months on average. Since many women with ovarian cancer are diagnosed after age 60, they are also at risk of developing cardiovascular disease. While other studies have shown that having comorbid cardiovascular disease reduces survival time, the studies with ovarian cancer conflict. Therefore, we examined whether developing 15 types of cardiovascular diseases after cancer diagnosis impacted survival after controlling for factors traditionally associated with survival (e.g., tumor stage and whether their cancer surgery was successful in removing all of the tumor). Because the scientific evidence is strong and consistent when demonstrating the influence of depression and later development of cardiovascular disease in people without cancer, we also examined whether depression at cancer diagnosis was associated with the development of cardiovascular disease in a subset of 125 patients.

For 271 ovarian cancer patients who received their treatment at M. D. Anderson Cancer Center between 2002- 2008, medical records were analyzed from the time they were first diagnosed until 4 years later, or until they died (whichever came first). Information about cardiovascular disease was pulled from the chart and our cardiologists verified these events using the patient's laboratory-based test results.

111 women died during the study period, all from their ovarian cancer. After controlling for traditional tumor factors, we found that women who developed deep vein blood clot or pulmonary hypertension lived half as long as those who did not experience these events. Having hypertension and/or elevated heart rate of 100 beats per minute at cancer diagnosis were also independently related with shortened survival. Being depressed at cancer diagnosis was independently associated with the development of blood clot after controlling for BMI, family history of heart disease, age and smoking history.

This pattern of findings indicate that increased sympathetic activity is driving shortened survival in our sample. This avenue of research has the potential to generate potentially useful information in extending length of survival, even in an aggressive disease such as ovarian cancer.



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Research from Nagoya University, Japan suggests that chronic job stress alters brain functions and leads to blunted cardiovascular and immune responses.

San Antonio, TX – Decision-making in business often requires focused attention and flexible thinking. Coping with difficult situations is sometimes accompanied by physiological excitement of the body. Stress in the workplace can impair decision-making and cause bodily dysfunction. We examined the underlying mechanisms of the effects of chronic job stress.

Ten male employees engaged in chronically stressful employment, and ten with low-stress jobs completed a simple gambling task. In this task, to win money, the optimal option must be discovered through trial and error. In the second half of the task, the optimal option was changed without any explanation, and the new most appropriate option had to be discovered. We measured brain activity (using positron emission tomography; PET), heart rate and blood pressure during the task, and took blood samples to evaluate immune activity (number of natural killer [NK] cells).

Brain regions related to decision-making, including prefrontal cortex and caudate nucleus, were strongly activated in people with low-stress jobs. In addition, we observed activation in brain regions involved in controlling bodily states (the anterior cingulate cortex) which were associated with increases in blood pressure and the number of NK cells. These results appeared to reflect normal reactions to a challenging situation. In contrast, people with chronic job stress exhibited inflexible performance and decreased brain activity during the task. This suggests a lack of neural control over bodily states, accompanied by blunted cardiovascular and immune responses.

These results indicate that chronic job stress may cause brain activity dysfunction, which may harm job performance and physical health by impairing the appropriate regulation of bodily states.



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Research from the Veterans Affairs Hospital in San Francisco and Tilburg University suggests that persistent depressive symptoms affect white blood cell count in cardiac patients.

San Antonio, TX - Cardiac patients who suffer from depression are at greater risk for new cardiac events or cardiac death than patients without depression. But why is this so?

Our research suggests that inflammatory processes are involved. White blood cell (WBC) count is one way to assess inflammation. As previous research suggested that higher levels of WBC count are associated with prognosis in cardiac disease, we evaluated whether depression might affect WBC count.

We followed 667 patients with stable coronary heart disease for 5 years to investigate the depression-WBC count relationship. We asked patients about their feelings of depression annually and drew their blood at the first and last assessment to determine their WBC count. Because lifestyle behaviors such as smoking, physical activity and overweight have a great influence on both depression and cardiac disease, we also asked patients to rate these behaviors. We additionally measured height, weight and waist and hip circumference.

We found that patients with persistent depressive symptoms (depressed at two or more interviews) had higher levels of WBC count at year 5 compared to those reporting depressive symptoms at one interview or not at all, irrespective of their baseline WBC count. Lifestyle behaviors did not affect this association. In contrast, patients who had a higher WBC count during the first interview did not report more depressive symptoms during the entire follow-up period. This suggests that suffering from persistent symptoms over time increases WBC count. Inflammation might therefore be an explanation for why depressed cardiac patients have an increased cardiac morbidity and mortality rate.



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Factors in the Social and Physical Environment Interact to Influence Youth Asthma

Research from the University of British Columbia suggests that exposure to environmental tobacco smoke and youth anxiety interact to influence asthma outcomes among youth.

San Antonio, TX – We assessed whether factors in the social environment (i.e., youth anxiety levels) and in the physical environment (i.e., exposure to environmental tobacco smoke) interact to influence asthma-related biological markers among 93 children and adolescents between the ages of 9 and 19 years. All our participants had physician-diagnosed asthma and visited the lab together with a parent.

We asked youth's parents to report on their own smoking habits and whether anyone else smoked in their home. Youth completed a questionnaire assessing anxiety symptoms. We also obtained blood samples from all youth part of our study and measured the level of eosinophil cationic protein, a protein that is released in the airways and can damage airway cells, thereby bringing about worsened asthma.

Our results indicated that youth anxiety symptoms and smoking in the house were not related to asthma-related biological markers when considered independently. However, when considered jointly, we found that these factors interacted to influence biological markers. Specifically, youth whose parents reported greater smoking in the home showed evidence of worse immune outcomes, but only if they also reported greater anxiety symptoms. This suggests that factors in the social environment may make youth more vulnerable to negative influences in their physical environment.

Our study emphasizes the importance of considering the social and physical home environments of youth with asthma together when investigating factors that are influential with regards to asthma-related outcomes. Home-based interventions targeting pediatric asthma should consider more than just factors in youth's immediate physical environment.

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Daytime Physical Activity is Associated with Nocturnal Blood Pressure Dipping: The Pittsburgh Healthy Heart Project

San Antonio, TX – Nocturnal blood pressure dip refers to the drop in blood pressure from daytime to nighttime. A decline of at least 10% from daytime blood pressure is considered a dipping profile. Individuals who do not show this 10% decline have been shown to be at greater risk for cardiovascular disease.

We examined 134 participants who were a part of the Pittsburgh Healthy Heart Project which assesses cardiovascular disease in older, healthy adults. Blood pressure, measured by automated blood pressure cuffs, was taken every 45 minutes for 3 days and 2 nights. Daytime blood pressure was determined by participants' self report diary. Nighttime blood pressure was determined by examining a wrist watch-like device, which measures participants' sleep and wake times. Blood pressure dip was calculated by taking the difference of the nighttime and daytime blood pressure. Physical activity was measured by a device worn at the waist that measures movement in units referred to as "counts". These counts are then converted into amount of energy expenditure or kilocalories burned. Participants were instructed to wear these devices during the day.

We found that higher levels of physical activity were associated with a greater blood pressure dip. Interestingly, we found that amount of physical activity was not related to daytime or nighttime blood pressure levels.

It appears that the effect of physical activity on blood pressure dipping may be one of the beneficial effects of regular physical activity on cardiovascular health.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Study Suggests Emotions May Affect Stem Cell Transplants

San Antonio, TX – Optimism, emotional support, and other factors may affect the success of cancer patients undergoing stem cell transplants, recent research at the University of Rochester shows.

The study, presented at the annual meeting of the American Psychosomatic Society, is the first to show a link between emotions and immune function in patients receiving a stem cell transplant, a treatment increasingly used for certain cancers and other disorders.

The study involved 65 patients who completed a psychological survey. After undergoing intensive chemotherapy and possibly radiation therapy, the patients received healthy stem cells designed to restore the immune system. The researchers then collected and analyzed blood samples.

The data revealed that multiple emotional factors predicted a better functioning immune system, which is known to aid in recovery. In addition to the factors above, help with household responsibilities and the feeling that a doctor has control over the outcome of the treatment were tied to an improved immune system. Interestingly, however, lower levels of religiousness and higher levels of substance use were also connected to improved immune function.

More research is needed about these emotional factors and how they impact the immune systems of stem cell transplant patients. Research is also needed into whether support groups, therapy, or related treatment can be used to help these patients recover.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Linguistic Markers of Emotion Regulation and Their Relation to Cardiovascular Reactivity

San Antonio, TX –Research from the Yale School of Public Health and University of Pittsburgh finds that caregivers who try to understand and are more emotionally positive about their partners' suffering experience less cardiovascular stress.

The goal was to examine the degree to which spousal caregivers regulate their emotions by using positive emotion words and words that reflect understanding in the face of a partner's suffering and how this relates to their heart rate and blood pressure—potentially important pathways linking stress to health outcomes for caregivers.

In this study caregivers of osteoarthritis patients were asked to describe their partner's suffering and a typical daily interaction such as having a meal together. The caregiver's blood pressure and heart rate were measured while the verbal descriptions were recorded. Those recordings were then transcribed and the vocabulary analyzed for emotionally positive and negative words and cognitive processing words (e.g. think, realize, because) which demonstrate insight and reasoning about the partner's condition.

It was found that caregivers who focused on positive emotions and tried to understand their partners' suffering were less physiologically reactive and emotionally distressed, which may protect them against negative health consequences. Caregivers who used more negative words and cognitive processing words when describing the typical partner interaction had greater generalized reactivity, placing them at greater risk for negative health consequences.

These results have implications for caregiving interventions. People who cope less effectively with their partners' illness may need to be targeted for interventions, and all caregivers may benefit from activities in which they are encouraged to consider the positive emotional aspects of their role as a caregiver while also accepting and seeking meaning from the negative aspects.



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Research from The Ohio State University suggests that the multiple daily stressors experienced by dementia caregivers may contribute to the production of immune factors that place them at increased risk for heart disease.

San Antonio, TX- Caring for a parent or a spouse with dementia can be a stressful experience. We asked our sample of 53 dementia caregivers and 77 similar individuals without caregiving responsibility to describe the number of stressors that occurred to them during the past 24 hours. A blood sample was also collected to assess the blood levels of interleukin-6 and C-reactive protein. These two proteins promote inflammation in the body. Importantly, too much inflammation has been linked with greater risk of developing of heart disease.

As expected, caregivers reported more daily stressors than the noncaregiving controls. Caregivers also had higher blood levels of C-reactive protein, compared to participants without caregiving responsibility. Interestingly, the number of daily stressors was associated with blood levels of the two inflammatory proteins. Individuals who experienced multiple stressors in the past 24 hours had greater levels of interleukin-6 and C-reactive protein than participants who reported zero or only one stressors. Statistical analyses revealed that the higher levels of C-reactive protein observed among caregivers was partially due to the greater number of daily stressors that they experienced in the past 24 hours.

These results suggest that the multiple daily hassles faced by individuals providing care for a loved one with dementia may lead to physiological changes that put them at greater risk for heart disease.



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Research with Veterans Suggests that Posttraumatic Stress Disorder Increases Risk of Diabetes

San Antonio, TX - We know that depression makes some persons vulnerable to diabetes. Long term stress has negative consequences for our health. Thus we wanted to see if posttraumatic stress disorder (PTSD) which is a reaction to extreme stress, may make some people vulnerable to developing diabetes. We used data from approximately 150,000 records from patients who used the Veterans Administration Health Administration between 1999 and 2006. None of the patients had diabetes at baseline. We then compared the risk of developing a new case of diabetes in patients with PTSD compared to patients without PTSD. We found patients with PTSD were at a 25% increased risk for developing diabetes compared to patients without diabetes. These findings were true even after controlling for the effects of obesity and age. The results tell us that PTSD is a direct risk factor for diabetes. It is possible that close monitoring of diabetes risk factors such as smoking and weight may be wise in patients with PTSD. In addition this study adds to the growing literature on the negative consequences of chronic stress in diabetes.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Research from the University of Arizona shows our health beliefs, as well as health-related comments made by our romantic partners, play important roles in maintaining a healthy diet.

San Antonio, TX- We asked 64 committed couples to fill out daily diaries for a week telling us whether their partner made any comments that were helpful or unhelpful to them in maintaining good health. The participants also noted how much and how well they ate each day, relative to their usual diet, and reported on how important their health was to them. We used this information to answer the question, “Do we eat more healthily on days when our partner makes helpful comments?” We were also interested in whether the answer to this question depended upon partners having shared or divergent health beliefs.

Consistent with our predictions, people whose partners made more positive comments were more likely to maintain a healthy diet.

Interesting gender differences emerged: women whose partners made helpful comments tended to eat healthier foods than usual, whereas men tended to eat less than usual. This was especially true for men in couples where both partners highly valued health. Similarly, in couples where the partners held divergent health beliefs, people who did not value health as much responded to helpful comments by improving their diet. However, health behaviors of those who highly valued their health were unrelated to the comments of their less health-motivated partners.

These results suggest that people who are more invested in their health are less easily influenced by their partners, while those less committed to health benefit more from helpful comments.

Helpful partner comments and the health beliefs of both partners in a couple appear to be important in maintaining a healthy diet. This study, along with existing research, provides growing evidence of the link between relationships and health and suggests tools to be used in therapeutic interventions and daily life.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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The Chronic Stress of Caregiving is Associated with Increased Oxidative Damage to RNA/DNA

San Antonio, TX – Research from the University of California San Francisco suggests that chronic stress may contribute to oxidative damage to an individual’s DNA and RNA, which can promote cancer, cardiovascular and neurodegenerative diseases.

To study the impact of chronic stress on health, we recruited 33 women caring for a family member with dementia and 28 non-caregiving women who were demographically and medically similar. We analyzed their urine to measure two biochemical markers that reveal tell-tale signs of free radical damage to an individual’s cellular DNA and RNA. Indicators of inflammation were measured in blood.

Caregivers had significantly more oxidative damage to the RNA/DNA of their cells, compared to their non-caregiving peers. Damage to the cells’ genes can impair normal cellular functions and increase the risk of mutations, promoting disease. In order to better understand the “dosage” of caregiving stress, we asked the caregivers to estimate how many hours a day they provide care. Roughly half of the caregivers were providing more than 12 hours of care a day. These “high-burden” caregivers had even greater oxidative damage to the genome and more inflammation than caregivers who provided relatively less care.

Family caregivers play a crucial role in society; yet, when they have no respite, they pay a high cost themselves. The chronic psychological stress of providing care for a loved one with a severe illness appears to contribute to inflammation and free radical damage to the genome, which can promote cancer, cardiovascular and neurodegenerative disease. Exactly how stress might lead to an increase in damage to DNA/RNA remains a mystery for future studies to uncover. Reducing caregiving burden by providing respite services (a temporary break from caregiving responsibilities) may be a critical part of protecting caregivers from premature chronic disease. The broad implications of these findings are that cutting-edge health care needs to be integrative, treating both the mind and the body.

Collaborator, Institutional and Funding Support: This research was conducted by a team of researchers from UCSF, Stanford University, and Kronos Science Laboratory whose interdisciplinary expertise spans the fields of clinical psychology, psychiatry, biochemistry and neuroimmunology. We appreciate contributions by Drs. Firdaus Dhabhar, Yali Su, Owen Wolkowitz, Eli Putterman, Synthia Mellon and Elissa Epel, and support from the National Institute on Aging.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Relationship Quality and Allostatic Load in Middle-Aged and Older Adults

Research from the University of California, Los Angeles, suggests that demands, criticism, and insensitivity from others are associated with greater physiological dysregulation.

San Antonio, TX – As part of the Midlife in the United States project, approximately 1,000 adults between the ages of 34-84 rated the quality of their relationships with spouse, family, and friends at 2 timepoints, 10 years apart. They rated both positive (i.e., how caring, understanding, and supportive others were) and negative (i.e., how often others were demanding, critical, or insensitive) aspects of their social networks.

At the second timepoint, aspects of their endocrine, immune, cardiovascular, and metabolic function were assessed and a summary index of dysregulation across these systems was computed. Analyses examined whether the quality of social relationships was related to biological risk.

Those who rated the people in their lives as more demanding, critical, and insensitive at baseline had elevated biological risk scores ten years later. Positive aspects of their relationships were not related to biological risk nor were changes in positive or negative aspects of relationships (perhaps due to the relative stability of both positive and negative features of relationships). Importantly, the association between negative aspects of relationships and biological risk was independent of age, gender, education, health behaviors (smoking, alcohol use, exercise), and underlying health status. These findings suggest that negative aspects of social relationships may contribute to wear and tear on biological systems, which can confer risk for disease and death over time.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Effects of a Meditation Intervention on Endothelial Function in African Americans with Metabolic Syndrome: A Randomized Trial

San Antonio, TX – Too much stress in our lives may increase mental and physical diseases. Stress may also play a role in the development of Metabolic Syndrome (MetS) and cardiovascular disease (CVD), possible through the over activation of stress hormones. A major problem arising from MetS is endothelial dysfunction, an impairment of the blood vessels to dilate disallowing more blood flow when demand increases. Meditation can reduce psychological stress and improve some cardiovascular risk factors but whether it improves endothelial function in the setting of MetS was unknown.

Therefore, researchers randomized 65 African Americans, aged 30-65, to a meditation program called Consciously Resting Meditation™ (CRM) or to a control treatment of health education (HE). All participants had at least 2 MetS risk factors, including high blood pressure, obesity, diabetes, or abnormal lipids. Over the 12 month intervention period, vascular function and risk factor measurements were taken three times. No significant differences were found between the two groups at baseline.

Researchers found a significant improvement in endothelial function in the CRM group but not the HE group. Of the MetS and CVD risk factors, the CRM group reduced diastolic blood pressure, weight and triglycerides but not the HE control group. CRM may improve the body's response to stress and be a useful tool to decrease metabolic and cardiovascular risk in high-risk African American populations.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Relationship of Self- and Informant-Reported Personality Ratings to Presence of the Metabolic Syndrome

San Antonio, TX – We asked our sample of 1144 men and women to complete a questionnaire that measures five major dimensions of personality, including one's level of 1) emotional stability, 2) extraversion (how sociable and fun-loving we are), 3) conscientiousness, 4) agreeableness (how altruistic or sympathetic we are towards others), and 5) openness to new experiences. In addition, we obtained ratings of our participants' personalities on the same five traits from their spouses, other relatives, or friends, with two informants generally reporting on each participant. We then evaluated several risk factors for heart disease in our study participants. These risk factors included high blood pressure, high waist circumference, high fasting blood sugar, high serum triglycerides, and low HDL cholesterol. These factors were then combined to identify the presence or absence of a composite risk index known as the metabolic syndrome.

We found that all five personality traits predicted whether or not study participants had the metabolic syndrome, but only when these traits were rated by informants. Specifically, people who tested positive for the metabolic syndrome were viewed by others as significantly less stable emotionally, less extraverted, less conscientious, of less agreeable temperament, and less open to new ideas or experiences. In contrast, only agreeableness predicted whether or not participants had the metabolic syndrome when based on individuals' ratings of their own personality traits.

These findings indicate that how others see in us may sometimes prove more informative than how we see ourselves, and in this case, better predict personality-associated cardiovascular and metabolic risk factors for future heart disease. It may be that when we report on our own personalities, our ratings are biased to some degree by tendencies to present ourselves in a particular light. Alternatively, when others report on our personalities, they may rely on different types of information than we do when describing ourselves – for instance, others may see how well we regulate the expression of our emotions, while we may be more attuned to the emotions themselves.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Cortisol Reactivity 15 years After the New Beginnings Program for Children from Divorced Families

San Antonio, TX – Research from Arizona State University suggests that a parenting-focused intervention for divorced mothers has long-term benefits for their children’s physical as well as psychological health. Approximately 34% of children in the U.S. experience parental divorce, placing them at higher risk of a range of mental and physical health disorders. The New Beginnings Program (NBP) is a 10-week intervention designed to promote positive adaptation following parental divorce by minimizing risk factors such as family conflict and stress, and maximizing resilience factors such as a high quality mother-child relationship and effective discipline. A controlled trial of the NBP was conducted with 240 recently divorced families when children were 9-12 years old. Two-thirds of the families participated in the NBP and one-third were assigned to a control group. We followed the children over 15 years to evaluate mental health and biological measures of stress. Benefits of the NBP for the children included reduced mental disorder, and lower alcohol use. When the offspring were 24-28 years old, they completed a task designed to elicit hormone responses associated with stress and long-term physical health. Mental health problems and alcohol abuse predicted maladaptive hormone responses. Older offspring in the control group also showed hormone responses associated with poor adaptation, while older and younger offspring who participated in the NBP showed responses associated with positive adaptation. Our findings suggest that poor psychological adaptation following parental divorce can impact health, but a parenting-focused intervention can minimize negative long-term health risk following parental divorce.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Research from the Inova Heart and Vascular Institute suggests that heart surgery patients that are married have better outcomes and survival.

San Antonio, TX – Spouses may drive you crazy at times, but they may also benefit your health if you suffer from heart disease.

We reviewed 6,942 patients who had first-time open heart bypass surgery at our hospital since 2001. As a whole, married patients came to surgery younger, healthier and with lower risk factors than the unmarried patients we examined. Married patients also enjoyed shorter stays in intensive care and the hospital overall, were more often sent home instead of to rehabilitation or nursing care facilities, and demonstrated better survival rates five years after surgery.

So what gives married patients such an advantage over patients of other relationship statuses?

The married patients' favorable health status prior to surgery accounts for most of the benefits they reaped afterwards, as anyone who came to surgery younger and healthier enjoyed similar positive outcomes, regardless of marital status.

A concerned spouse may encourage earlier recognition and treatment of heart disease, which is known to improve survival and outcomes. Additionally, knowing that a patient has someone at home to navigate the critical period immediately following open heart surgery may give hospital staff the confidence to discharge patients more quickly and more often to the home.

Education and prevention strategies should focus on early warning signs of heart disease that are easy for single and unmarried people to recognize in themselves, and encourage this population to prioritize seeking treatment right away, in order to maximize positive results if open heart surgery is necessary.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Empirically Derived Components of the Cook-Medley Scale and Inflammation in African Americans

San Antonio, TX – We were interested in understanding if being hostile increases the risk for cardiovascular disease (CVD). Since being hostile can have many meanings, we set out to see what hostility looked like in a sample of middle-aged African Americans, a group that is more often affected by CVD. Research has suggested that biological markers that measure inflammation in the body are strongly related to CVD risk. Therefore, we wanted to see if there was a relationship between how hostility looks in African Americans and the biological markers of inflammation.

Our participants were 214 African Americans that resided in the Washington, DC metropolitan area. They provided us with a blood sample to look at their biological markers of inflammation. They also completed the Cook Medley Hostility Scale which is a test that measured their hostility level and helped us categorize their hostility into different dimensions.

The pattern of hostility identified involved elements of suspicion of others' intentions, resentment about the success of others, cynicism, and irritability. This pattern was unique from other studies that had not looked at African Americans and suggests that they may display a different type of hostility than other groups. Also, we found that being suspicious about others' intentions was related to one of the biological markers of inflammation in the study. This finding suggests that having suspicious thoughts may put African Americans at greater risk for CVD.

It may be important for health professionals to assess and understand how hostility looks in African Americans for a more complete picture of their patients' health. Interventions that reduce levels of hostility in African Americans may reduce CVD risk.



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THE INFLUENCE OF DEPRESSION, ANTI-DEPRESSANT MEDICATION ON MORTALITY IN A SAMPLE OF PORTUGUESE HEART FAILURE PATIENTS, AT 1-YEAR FOLLOW-UP

San Antonio, TX – Heart Failure (HF) is a syndrome with a poor prognosis and high rate of morbidity and mortality. In Portugal, the estimated prevalence of HF amongst adults is 4.4% and is rising.

Research from São Francisco Xavier Hospital, and Faculdade de Ciências Médicas, Universidade Nova de Lisboa, Portugal, indicates that the severity of depression influences negatively the mortality rate of Portuguese patients with HF.

One year ago, 51 patients with HF were asked about depression; the prevalence rate was found to be 27 % in this sample. The Investigators also examined in these patients what were the symptoms/signals and concerns belonging to different dimensions that could predict depression; including biological (NT-proBNP levels, orthopnea and not being on statines), psychological (hopelessness), social (negative perception of social support), existential (loss of resilience), and suffering (belonging to all dimensions). Poor adherence to medication was also an important behaviour factor.

At this year's meeting of the American Psychosomatic Society in San Antonio, TX investigators will report that the one-year follow-up mortality rate in this cohort of HF patients was 17.6%. The features associated with a greater mortality rate included depression, particularly cognitive symptoms, old age, and greater initial severity of HF. During the follow-up, the investigators also verified that the HF patients who died had many more episodes of acute HF, higher cardiovascular and higher total hospitalisations, which also were factors significantly associated with higher mortality rate. The strongest predictors of mortality were the severity of depression and of HF (as measured by New York Heart Association class). Age, HF aetiology and anti-depression drug use were also considered in our sample.

Effective treatment of depression in HF population is clearly warranted. This is a very important fact, to be considered by all clinicians, psychologists and even social workers who can contribute to the treatment of depression changing risk factors or referring to a specialist.



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Stress during Pregnancy Can Increase the Occurrence of Complications and Poor Infant Outcome, Especially for Latinas

San Antonio, TX – Being pregnant and having a baby are among the most wondrous times in a woman’s life, but recent research shows that stress during pregnancy can be a real threat to the well-being of moms and babies. Importantly, these stress effects are especially hard on pregnant women who are members of ethnic minority groups. New findings showing the “hows and whys” of these relationships will be presented by Dr. Mary Coussons-Read and her colleagues from the University of Colorado at Denver at The American Psychosomatic Society Annual Meeting, held March 8-12 in San Antonio, TX.

Stressors ranging from feelings of stress to not feeling supported by family and others to major life events, such as losing a job or a home can endanger an apparently healthy pregnancy. Among the findings reported are that all of the above stressors increase levels of chemicals associated with pregnancy complications in otherwise healthy women, and that these chemical changes are related to increased complications in pregnancy and poorer outcome for babies. The study also shows that more “Americanized” Hispanic women reported higher levels of stress and major life challenges and were more likely to have pregnancy complications and postnatal depression than majority women.

These findings show that even non-life-threatening stress experiences can adversely affect pregnancy and infant health, and emphasize the importance of not only physical, but social and psychological care, for expectant moms, especially those who are members of underrepresented minority groups.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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***Biological mechanisms distinguishing depression and complicated grief:
circulating IL-6***

San Antonio, TX – Grief is universal, and most of us will probably experience it at some point in our lives. Grief is one of life's most painful experiences, yet most people adapt without sustained depression. However for a minority, it's impossible to let go, even years later.

The question is, why? Why do some grieve and ultimately adapt, and others develop complicated grief? That's the type of grief that includes debilitating recurrent pangs of painful emotions, with intense yearning, longing and searching for the deceased, and preoccupation with thoughts of the loved one. This syndrome is being considered for inclusion in the DSM-5, the next edition of the psychiatric manual for diagnosing mental disorders.

In a study presented at the American Psychosomatic Society annual meeting, scientists from UCLA suggest that complicated grief may have different biomarkers than depression.

"There is good evidence now that major depression is often linked to higher levels of inflammation in the body," said Dr. Mary-Frances O'Connor, lead author of the study. "We wanted to know, 'Is higher inflammation more tightly linked to depressive symptoms or grief symptoms, in widowed older adults'?"

The investigators interviewed 22 adults between 60 and 80 years of age, who had lost a spouse or partner in the past four years, and also took measures of their inflammation from a blood test.

"None of the widow(er)s in this study had major depression," O'Connor said. But she found that even low levels of depressive symptoms showed an association with interleukin-6 (IL-6), a form of general inflammation that circulates throughout the body. Grief symptoms did not show this same relationship to IL-6.

O'Connor, who is an assistant professor of psychiatry at the Cousins Center for Psychoneuroimmunology in the David Geffen UCLA School of Medicine, cautions that this is a small study and needs replication, but that, "thinking that complicated grief and depression are the same thing may not reflect the underlying biological markers".

Future research in understanding biomarkers may help psychologists do a better job of treating those with complicated grief, said O'Connor. "Doing research on biomarkers is not always designed to help us find drugs to help people. It also may show us finer distinctions between clinical disorders, and help us to understand the impact of psychological problems on the body".

The study was funded by the National Institute of Aging.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Stress and Appetite Regulation in the Context of Nicotine Dependence

San Antonio, TX – The purpose of the study was to examine the extent to which leptin levels predict craving for cigarettes and smoking relapse.... (Leptin is a hormone that has a central role in fat metabolism.) Results indicate that circulating leptin is a promising biological marker of craving for smoking and warrants further investigation of the links between appetite regulation and nicotine dependence.



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Stress and Taste: Potential Mechanisms Linking Affect and Appetite Regulation

San Antonio, TX – The purpose of the study was to examine effects of acute stress on taste perception and the extent to which depressed mood moderates these effects....(The) findings demonstrate that acute stress weakens sweet taste sensitivity, and this appears to be particularly the case among those who report high levels of depression and anxiety. The results could help identify potential mechanisms of how stress may lead to increased food intake.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Researchers from the University of Mount Union and Virginia Tech note temperament, emotion regulation, and exercise differences for students with high or low right frontal functioning

San Antonio, TX –This multi-lab collaboration gathered data on 186 undergraduate students including cardiac recordings, design fluency (a measure of right frontal lobe functioning), and validated self report measures on a number of psychological and health related variables. The aim of this project was to examine how right frontal lobe functioning related to psychological and health related areas such as temperament, emotion regulation, anxiety/worry, trauma, exercise, and substance use.

Results suggest several interesting relationships between right frontal functioning and other variables. Poorer right frontal functioning was associated with significantly lower orienting sensitivity. These differences were primarily due to lower affective perceptual sensitivity and associative sensitivity, which are focused more on the emotion and cognitive segments of temperament sensitivity. This suggests that individuals with poorer right frontal functioning are less aware of low intensity emotion-based cognition. Further, there was a trend suggesting these students with lower right frontal functioning had less emotional suppression than their peers. One worry is that they may overexpress emotional feelings of which they do not understand the roots. Surprisingly, individuals with lower right frontal functioning reported greater amounts and frequency of leisure-time exercise in the absence of other positive health outcomes.

These results give some indication that college students with high and low right frontal functioning have different sensitivities and emotionality regarding their environments, which can impact how they interact with the world both physically and psychologically. By furthering this line of research, we hope to better understand how these differences impact functioning in other areas such as social interactions and academic or occupational achievement.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Perceived happiness level influences evocation of positive emotions

San Antonio, TX – Stress and anxiety are known to cause or facilitate several mental and physical diseases such as depression and cancer. The idea that perceived happiness level is associated with health and well-being has recently been focused on. A recent study showed that perceived happiness level was negatively correlated with depression and anxiety; however, the neurobiological mechanisms underlying these positive effects of happiness on the psychological and physiological well-being remain obscure.

We recruited 18 healthy right-handed men as volunteers and divided them into high- and low-happiness groups depending on the score on the Japanese version of the subjective happiness scale. Brain activities and evocation of positive emotions while the volunteers looked at their favorite actresses were compared between these groups. Stronger activation of the prefrontal cortex (PFC) was observed and stronger positive emotions were evoked in volunteers with high perceived happiness levels than in those with low perceived happiness levels. Moreover, changes in the positive mood were positively correlated with the PFC activity.

Happiness is a positive feeling characterized by contentment, satisfaction, joy, pleasure, or love; therefore, happiness may be associated with the PFC function, which regulates peripheral physiological systems such as autonomic and endocrine systems. A feeling of happiness may improve the brain function and decrease the risk of mental and physical diseases.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Neural Correlates of Providing Support to a Loved One

Research from the University of California, Los Angeles suggests that giving support to loved ones in need may be psychologically rewarding.

San Antonio, TX- Social support has long been shown to benefit mental and physical well-being. Although it has been assumed that the benefits of social support come from the support that we *receive* from others, it is also possible that some of these benefits come from the support that we *give* to others. Here, we explored the potentially beneficial effects of support-giving by examining the neural correlates of giving support to a loved one.

Females in long-term romantic relationships completed a functional magnetic resonance imaging (fMRI) scan as they provided support to their boyfriends, who underwent a painful task just outside of the scanner. While in the scanner, each female provided support to her boyfriend by holding his arm as he experienced painful stimuli. We found that giving support to a loved one activated brain regions associated with reward-related processing. Specifically, giving support to a loved one activated the ventral striatum—a neural region known to be involved in responding to basic rewards like chocolate and money. Not only did women recruit this reward-related neural region when they gave support, but this activity also correlated with how connected they felt to their boyfriend. In other words, the more reward-related neural activity these women demonstrated while providing support, the more connected they felt toward their partner. This study is the first to show that providing support to loved ones relies on reward-related neural regions and suggests that social support may be beneficial, not only for the receiver, but for the giver as well.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Research from the National University of Ireland suggests that some people are more susceptible than others to anxiety-related cardiovascular stress.

San Antonio, TX – Research findings indicate that the tendency to direct attention towards negative/ threatening emotional information is a causal factor in the experience of greater anxiety to stress. Experimental studies show that people trained to attend to negative information report greater anxiety when presented with a subsequent stressor.

In this study we used a sample of 64 undergraduate women ranging in age from 17 to 32 years. All participants underwent computer based training designed to direct their attention either towards or away from words that had a negative emotional meaning, for example, ‘lethal’, ‘unhappy’, ‘conflict’ and ‘destroyed’. The participants then completed a standard laboratory stressor which involved performing a speech task while being video recorded. Blood pressure and heart rate were monitored throughout the entire procedure and the participants completed questionnaire measures of personality.

We found that the impact of the training on the participants’ responses to the stress task was determined by their scores for the personality trait neuroticism. More neurotic participants who were trained to attend to the negative words showed more heightened blood pressure responses to the stressor. The exact opposite pattern was evident among non-neurotic participants who showed a more heightened blood pressure response to stress when trained to direct their attention away from the negative words.

These findings show that the way in which negative emotional information is processed impacts directly on a person’s physiological response to stress and that this effect is highly contingent on individual temperaments. The findings may help explain why anxiety is associated with cardiovascular health and suggest a role for attention training in the reduction of anxiety.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Despite many similar clinical symptoms, patients with anorexia nervosa and the irritable bowel syndrome exhibit opposite regulatory mechanisms.

San Antonio, TX – Patients with anorexia nervosa (AN) and the irritable bowel syndrome (IBS) share a number of symptoms of the upper (dyspepsia, nausea, early satiety) and lower gastrointestinal tract (abdominal pain, constipation); similarly, patients with IBS often demonstrate abnormal eating behaviors and food aversions such as in AN. However, potential underlying physiological mechanisms were never directly compared between both groups. Measuring heart rate variability (HRV) is based on the evaluation of the time intervals between consecutive heartbeats. These reflect the influence of the autonomic nervous system (ANS) with its sympathetic and parasympathetic branches that act in concordance to maintain balance (homeostasis) in healthy subjects. The ANS is known to also modulate bowel motility and secretion as well as feeling of hunger and food intake.

We investigated 21 female patients with AN, 21 female patients with IBS and 42 healthy female subjects that were match to the patients by age and body mass index (BMI) (only for IBS). HRV was measured under different physical and mental stress conditions, such as metronomic breathing, color-word conflict (Stroop) test, the Valsalva maneuver, a mental arithmetic test, and whole body tilt testing. They provoke specific and unspecific reactions in the sympathetic and parasympathetic ANS. We observed opposite response pattern in both groups: patients with AN exhibited strong parasympathetic dominance and low sympathetic activation, while patients with IBS showed parasympathetic withdrawal and predominant sympathetic activation, compared to their respective control groups. In addition, we observed a strong relationship between HRV parameters and the BMI for AN patients which may explain their increased risk for cardiac failure. We believe our findings may provide a valid starting point for the investigation of regulatory mechanisms in psychosomatic patients and for the development of clinical routine diagnostic tools.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Faster Vagal Recovery after Cognitive Challenge Attenuates Age-Related Deficits in Executive Function

San Antonio, TX – A new study by researchers at Columbia University Medical Center found that older individuals who were heart-healthy performed better on certain cognitive tasks.

The researchers asked 718 participants from the Midlife in the U.S. Study, a national study of health and well-being, to solve computerized mental arithmetic and color-word conflict challenges, and measured their cardiovascular functioning before, during, and after these challenges. For the purposes of the study, cardiac vagal control, an important predictor of cardiovascular health outcomes, was used as a measure of cardiovascular functioning. On a separate occasion, researchers also evaluated cognitive functioning in participants using a battery of tests administered by phone. Executive functioning, a higher-order cognitive ability, such as being able to adapt to changing situations and prioritize tasks, was assessed as a part of this battery. Participants were required to adopt a set of rules and then keep switching these rules throughout the test at unpredictable intervals. For the purposes of the study, reaction time to this test was used as a measure of executive functioning.

Confirming the results of previous studies, study results showed age-related deficits in executive functioning: older participants took longer to respond correctly to the test compared to their younger counterparts. However, those older participants who had faster vagal recovery from the cognitive challenge, that is, were able to return to their normal levels of cardiac vagal control, had better executive functioning (e.g., responded faster to the test) compared to their peers who had slower vagal recovery.

This suggests that vagal recovery from a cognitive challenge moderates the well-known relationship of age to executive functioning; as people grow older, their executive function tends to decline. Our results suggest that faster vagal recovery may protect against this normal aging pattern. Therefore, improving cardiovascular health may help improve cognitive functioning among older individuals.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

Contact: Paul J. Mills
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A simple 15 min exercise task improves the antibody response to Pneumococcal vaccination

Research from the University of California, San Diego suggests that a brief set of arm exercises before receiving a vaccine helps promote a stronger response.

San Antonio, TX – We split our sample of 132 young healthy adults (aged 18-30 years) into four groups. Half of our participants performed a 15 minute exercise task immediately before receiving a vaccine to protect against Pneumonia, the other half rested quietly before getting the same vaccine. We also split each of the exercise and control groups so that half received a full dose vaccine, while half received a reduced dose. Everybody came back one month after they received the vaccine so that we could measure their immune response.

The 15 minute exercise task used resistance (elastic) bands. Arm, shoulder and chest exercises were performed for 30 seconds at a time, followed by 30 seconds of rest.

We found that overall, participants who performed the exercise task before receiving the vaccine had a stronger response, indicating a better degree of protection. When we compared full and reduced dose groups, we found that the effect was only seen in the reduced dose group, while the full dose groups showed no difference in their responses.

Our results follow previous studies which have found that a short bout of exercise increases the immune response to vaccination. It is important to note that the effect of exercise was seen when a reduced dose was given. A reduced dose imitates what we might see in weaker immune systems, in the elderly, for example, or in individuals with immune disorders (e.g. HIV). Our finding, that exercise is effective in improving weaker responses, is exciting as it might provide a no-cost behavioural approach to boost responses and give greater levels of protection to those most at risk.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Mood Disturbance Following Exercise Withdrawal Is Associated With Greater Inflammatory Responses To Stress

San Antonio, TX – Regular physical activity is beneficial for cardiovascular health and one of the mechanisms might be linked to the way exercise affects our ability to adapt and cope with mental stress. This study involved 51 healthy and fit individuals who regularly exercise. We examined how they respond to laboratory induced mental stress before and after abstaining from their regular training regime for two weeks. We also obtained repeated measures of mood and wellbeing throughout the study. In both laboratory sessions we collected blood samples before and after the stress tasks (public speaking and a hand-eye coordination test) that was used to measure markers of inflammation (Interlukin-6 and C-reactive protein), which are implicated in stress disorders and cardiac risk.

Firstly, we found that our participants reported marked changes in negative mood feelings especially fatigue, anxiety and general malaise following the 2 weeks of forced exercise abstinence. These negative moods changes were greater in the fittest participants. More importantly, those participants with the greatest mood disturbance also produced more of the inflammatory marker IL-6 following the stressful tasks, after accounting for their body mass, age, gender, and initial stress responses at baseline.

This suggests that the beneficial effects of regular physical activity are not only psychological, but can also be seen in response to a stressful situation. Just two weeks of exercise withdrawal is enough to see changes in biological responses to mental stress. Disturbances in stress responses might play an important role in future disease risk, and regular exercise can prevent this.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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The Number Of Pieces A Portion Is Divided Into Impacts Perceived Consumption

San Antonio, TX – Estimating the volume of food or drink consumed is affected by visual perception and illusions. Past studies have shown that the height of a container and the size of a bowl or plate can lead to the subject overestimating or underestimating the amount of food or drink displayed. These estimation errors can lead to more or less satisfaction with the food or drink that is consumed.

The purpose of our study was to investigate the effect of manipulating the number of pieces a portion was divided into on (1) post-consumption satisfaction and (2) the perceived amount of consumption. Our test group contained 39 participants; 21 males and 18 females. Participants were asked to eat a Jell-O snack on two separate occasions under counter-balanced conditions. In both conditions, participants were given a 160 gram portion of Jell-O and instructed to eat the entire portion. In one condition the Jell-O was divided into nine equal pieces, and in the other condition the Jell-O was divided into 16 equal pieces. Participants were instructed to eat each piece of Jell-O at one time in its entirety.

After eating the Jell-O, participants completed an experimenter-developed 32-item questionnaire to assess satisfaction and perceptions of the amount of food consumed. Satisfaction did not differ between the 9-piece and the 16-piece conditions. However, the estimated amount of food consumed (as perceived by the subjects) was significantly higher in the 16-piece condition. Therefore, when portion-size is held constant and the number of food pieces is manipulated, the higher number of pieces is perceived as containing more food.

This finding has direct implications for eating behavior and obesity interventions. Dividing fixed portions into more pieces may be a way for individuals aiming to lose weight to decrease food intake, given that these individuals will perceive that they have consumed more food.

Participating Researchers: Melissa Zielinski, Psychology, The College of New Jersey, Charlene Blades, Psychology, City College of CUNY, Jenna L. Scisco, M.S., Psychology, Adam W. Hoover, Ph.D., Electrical and Computer Engineering, and Eric R. Muth, Ph.D., Psychology, Clemson University



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Associations among Daily Stressors, Negative Affect, and Salivary Cortisol: Findings from the National Study of Daily Experiences

San Antonio, TX – A national sample of 1,694 adults across the U.S., aged 33-84, completed telephone interviews about their daily stressful experiences, emotions, and physical health on eight consecutive evenings. Participants also provided saliva samples on four consecutive days in order to measure their cortisol, a well-known hormone reflective of stress. We examined how people's stressful experiences on a given day were related to their emotions, self-reported physical health, and cortisol levels.

Participants experienced at least one stressor on 35 percent of interview days (or 2-3 days per week). Of these stressors interpersonal tensions (arguments or tense moments involving another individual) were most prevalent, followed by overload stressors (having too much to do at work or home and not enough time or resources to complete tasks), and then network stressors (stressors that happened to someone in the respondents social network that were stressful to the respondent).

Participants reported significantly higher levels of negative emotions and physical symptoms, and significantly lower levels of positive emotions on days they experienced stressors compared to stressor-free days. Participants also exhibited significantly higher levels of cortisol on days they reported experiencing stressors compared to stressor-free days. Additionally, arguments and home-related overload stressors were the most potent for elevating cortisol levels.

The relatively minor stressful events that arise out of daily living influence both the way people feel emotionally and physically, and also 'get under the skin' to influence hormones and biological health.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Research from the Uniformed Services University suggests that excess fatty tissue may explain the “natriuretic peptide handicap” in obese individuals.

San Antonio, TX - Obesity has been linked to lower levels of a heart hormone called BNP (B-type natriuretic peptide). This unexplained phenomenon has been named “natriuretic peptide handicap”. BNP acts as a regulator in the body. If an individual has too little BNP, then their body may not be able to regulate itself appropriately, which could lead to high blood pressure and other related disorders. Two main theories have been proposed to explain this handicap: removal of BNP from the blood stream by excess fatty tissue in obese individuals or defective BNP production in the heart for obese individuals.

To test these theories of the natriuretic peptide handicap, we asked 33 participants (ages 18-40) to take part in math and speech challenges aimed at increasing heart rate, blood pressure, and BNP. We measured weight, height, waist, hip, and body mass index (BMI). Our participants also had blood taken before and after mental stress to measure BNP at each time point.

In our study, higher BMI was not related to lower BNP levels. However, using a different measure of obesity (greater waist-to-hip ratio or central obesity) we found lower levels of BNP at rest in the obese participants, which is consistent with the natriuretic peptide handicap. Because men and women have different acceptable ranges for waist-to-hip ratio, we looked at the results separately for each gender. We found that women with higher waist-to-hip ratios had lower amounts of BNP, but saw no relationship in men. Regardless of gender, the obese participants in our study had the same BNP increase in response to the mental challenges as those who were not obese.

We found that our obese participants had lower resting BNP levels, but were able to produce similar BNP amounts when presented with a stressor. The results from our work provide support for the fatty tissue theory of the natriuretic peptide handicap, but not the defective BNP production theory. Our study also highlights the role of waist-to-hip ratio and abdominal fat compared to the traditional measure of obesity (BMI). Future research into the natriuretic peptide handicap should emphasize various measures of body composition in order to fully understand why this phenomenon occurs.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

Contact: Susan Holtzman, PhD

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Research from the University of British Columbia suggests that a genetic predisposition to produce high anti-inflammatory responses is associated with lower symptoms of depression in patients with end stage kidney disease.

San Antonio, TX – Rates of depression among patients with end stage kidney disease are significantly higher than the general population. The immune system – particularly high levels of inflammation – has been implicated in the development of depression. In fact, some people may actually be genetically predisposed to having higher or lower inflammatory responses. We conducted a pilot study to explore whether a genetic predisposition to produce high or low levels of inflammation might be associated with symptoms of depression among patients with end stage renal disease. A total of 93 patients with end stage kidney disease were asked to provide a blood sample and to complete a written questionnaire of physical and mental health (including a measure of depression). The DNA in patients' blood was analyzed to determine whether they had genes that make them more likely to produce stronger *pro*-inflammatory responses and/or genes that make them more likely to produce stronger *anti*-inflammatory responses.

We found that patients who had a genetic predisposition towards higher (versus lower) *anti*-inflammatory responses reported significantly lower symptoms of depression. This was specifically true for a gene related to IL-10 production (IL-10 is an immune system protein that inhibits inflammatory responses). Genes related to the production of *pro*-inflammatory responses were not related to symptoms of depression in our study.

Our findings are preliminary and need to be replicated in a larger sample. However, the results point to a potential causal role of anti-inflammatory pathways in depression, and may eventually lead to new targets in the treatment of depression.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Psychosocial Factors of Japanese Obese Candidates for Intra-gastric Balloon Placement Therapy

San Antonio, TX – Bariatric surgery for treatment of obese patients, which promotes the reduction of gastric volume and absorption of food, is not so popular in Japan as in other countries. Instead, intra-gastric balloon placement therapy, which reduces the volume of the stomach by putting a rubbery balloon filled with water in the stomach, has been performed in our hospital since 2007. Success and failure of intra-gastric balloon placement therapy could be influenced by patient’s psychosocial factors. Therefore, it is important to assess psychosocial factors before the therapy.

We asked our sample of 13 male and 14 female patients with body mass index over 35 kg/m² as candidates for intra-gastric balloon placement therapy to answer several questionnaires about their psychosocial factors, including mood states, coping skills (how they were coping with their own problems), self-esteem (how they were thinking about themselves), and social support. We assessed the relationship between their body mass index and the psychosocial factors.

We found that heavier patients tended to have lower scores in problem-focused coping, especially in “planful problem solving” and “confrontive coping”. This implied that heavier patients were weaker in addressing the problem systematically and attempting to solve the problem actively.

This result must be important to support patients undergoing the therapy if future prospective studies confirm that baseline coping skills influence outcomes of intra-gastric balloon placement therapy.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Sleep Predictors of Depression, Fatigue, and Quality of Life in Heart Failure Patients: a Longitudinal Study

San Antonio, TX – Samueli Institute, a recognized leader in integrative medicine research, recently collaborated with the University of California San Diego (UCSD) on a study that examined the effects of sleep patterns in heart failure patients. The study concluded that sleep disturbance and sleep disordered breathing may cause increased depression and lower quality of life overall.

Heart failure patients often experience feelings of depression and fatigue, report poor quality of life, and complain of sleep problems. Researchers at the Institute along with UCSD researchers investigated whether such sleep problems were related to reports of increased depression, fatigue, and lessened quality of life. They recorded sleep measures via polysomnography in 37 stable heart failure patients and then used those sleep measures to predict subsequent changes in depression, quality of life, and fatigue over the next year and a half.

Measures of sleep disturbance and apneic events were recorded at the beginning of the study. Self-report measures of depression, fatigue and quality of life were then measured once every three months for a total of eighteen months. Researchers found that in these heart failure patients, sleep-disordered breathing was predictive of depression over time, and sleep disturbance was predictive of poorer quality of life over time, even when controlling for sleep disordered breathing.

These findings point to the need to evaluate potential sleep problems in heart failure patients and the need to treat any existing sleep problems in order to help improve patients' mood and quality of life.

The study was conducted at UCSD with the support of the National Institutes of Health/National Heart Lung Brain Institute (NIH/NHLBI).

About Samueli Institute

Samueli Institute is a non-profit 501(c)(3) research organization supporting the scientific investigation of healing processes and their role in medicine and health care. Founded in 2001, the Institute is advancing the science of healing worldwide. Samueli Institute's research domains include integrative medicine, optimal healing environments, the role of the mind in healing, behavioral medicine, health care policy, and military and veterans health care. Our mission is to transform health care through the scientific exploration of healing. More information can be found at www.SamueliInstitute.org



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Comorbidity of Anxiety and Neuropsychiatric Disorders

San Antonio, TX – We wanted to explore the relationship between 2 anxiety disorders (panic disorder and social phobia) and 4 medical conditions -migraine, epilepsy, fibromyalgia and chronic fatigue syndrome. We used a national database containing 36 984 people from the general population. We were interested in knowing whether those with one of the anxiety disorders were also more likely to have one of the 4 medical disorders, suggesting the possibility of a common cause to both psychiatric and medical disorders under study. We were also interested in knowing whether those with anxiety disorders and a family history of anxiety were more likely to have the medical disorder. Lastly, we wanted to know whether being male or female with an anxiety disorder also increased the likelihood to have the medical disorder.

We found that individuals with panic disorder were twice as likely to have migraine, fibromyalgia and chronic fatigue syndrome. Individuals with social phobia were 1.5 times more likely to have migraine and fibromyalgia. Men with social phobia were 2.5 times more likely to have epilepsy but women with social phobia were not at increased risk of having epilepsy. In men with social phobia, those with a family history of social fear were 8.5 times more likely to have epilepsy. These findings indicate the possibility that anxiety disorders may share a possible common cause with the selected medical disorders, which in some cases have to do with gender and family history of anxiety.



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Changes in serum levels of pyrogenic and cryogenic cytokines associated with the treatment of psychogenic fever

San Antonio, TX – Research from the Kyushu University, Japan suggests that psychological stress increases body temperature by different mechanisms from fever when people catch a cold.

Psychological stress, such as bullying and caregiving, causes persistent high body temperature in some individuals. Stress-induced high body temperature above normal range has been called “psychogenic fever”. However, its mechanisms are not fully understood yet. When we catch a cold, fever is initiated by proteins secreted from immune cells called pyrogenic cytokines, such as interleukin-1 β (IL-1 β) and interleukin-6 (IL-6), and is counter-regulated by cryogenic cytokines, such as tumor necrosis factor- α (TNF- α) and interleukin-10 (IL-10).

As psychological stress is suggested to increase pyrogenic cytokines, we investigated if these cytokines are involved in the development of psychogenic fever. Seventeen patients with psychogenic fever that persisted for more than one month were treated with psychosomatic therapy (PST), which includes medical treatment, relaxation training, psychotherapy, and assessment and improvement of environmental stressors. Their axillary temperatures, blood cytokine levels were compared between before and four weeks after PST.

After the 4-week PST, axillary temperature was significantly reduced from 37.5°C to 36.7°C. However, pre- and post-treatment serum cytokine levels were not different. In addition, serum IL-1 β , IL-6, and TNF- α levels were not correlated with axillary temperature.

This study suggests that psychogenic fever is induced by different mechanisms of a cold-induced fever. It may be one of the reasons why doctors can't find any abnormal test findings despite patients have high body temperature. As PST reduced body temperature, stress mediators such as activated sympathetic nerve might account for the high body temperature of “psychogenic fever” patients.

Release from American Psychosomatic Society Meeting, San Antonio, TX

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Deciphering the role of interferon in major depression

San Antonio, TX- Major depression is a common, sometimes fatal disorder and the leading cause of disability worldwide. Typically, depressive patients present with cognitive-affective symptoms such as sadness, feelings of worthlessness and guilt, as well as physical symptoms including exhaustion, loss of energy and others. Numerous clinical studies have reported that patients with depressive symptoms exhibit higher levels of circulating inflammatory markers in their blood serum as compared to healthy subjects. In particular, interferons can cause severe depressive symptoms when administered to patients with hepatitis or certain entities of blood cancer. The most serious adverse events reported with interferon therapy are depression and suicidal ideation. Withdrawal of the drug commonly resulted in a complete remission of depressive symptoms. This observation indicates that interferons are engaged in the pathology of depression. However, it is currently unknown how these cytokines can cause depressive symptoms on a molecular and cellular level.

A group of researchers from the Universities of Marburg and Göttingen in Germany funded by the Dr.-Reinfried-Pohl-Foundation has addressed this research question and presented their data on interferon-induced depression at the Annual Meeting of the American Psychosomatic Society in San Antonio/Texas. The scientists investigated the role of the transcription factor STAT1 (signal transducer and activator of transcription 1) in the context of interferon-induced depression. Because interferons released in the blood act via STAT proteins to activate specific target genes, they generated STAT1 mutants that upon stimulation of cells with interferons resulted in increased signal strength as compared to cells expressing the wild-type protein. Exposure to increasing concentrations of interferon resulted in increased phosphorylation levels of mutant STAT1. The researchers found that these mutants accumulated longed in the nuclei of cells where they bind to interferon-responsive target genes. When they tested the mutants in human cells, they found that the mutation was associated with enhanced gene activation. In contrast, they also identified loss-of-function mutations which do not activate STAT1 target genes at all. From these data the scientists conclude that STAT1 mutants are useful biological tools in the study in interferon-induced depression. Additionally, these results encourage further studies to search for such mutations in patients with clinically relevant depressive disorders.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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Research from the Medical University of South Carolina suggest behavioral stress reduction programs that are tailored based upon individuals' genetic architecture, attitudes, and environmental triggers will show increased results upon blood pressure reduction.

San Antonio, TX - Similar to pharmaceutical studies, stress reduction programs show a wide range of blood pressure responses across individuals. Some show substantial reductions, while others very little. We examined whether a stress activated vasoconstrictive blood pressure control gene variant (ET-1 LYS198ASN) and background chronic stress, measured by self-report of discrimination, influence impact of stress reduction programs upon 163 African American prehypertensive teenagers' 24 hour blood pressure levels.

Participants were randomly assigned to one of three programs taught by health teachers at school over 3 months. Programs were Breathing Awareness Meditation (deep breathing technique practiced twice a day), Life Skills Training (problem-solving skills and strategies training for conflict resolution), or Health Education Control (exposure to guidelines and strategies for increasing physical activity and establishing and maintaining prudent diet).

Before and after the intervention, participants wore blood pressure monitors for 24-hours and completed a scale assessing discrimination exposure. DNA was derived from buccal cells by rubbing a cotton swab on the inside of their cheek.

ET-1 genotype carriers did not benefit from any intervention unless they received meditation and came from low discrimination backgrounds. ET-1 genotype noncarriers tended to show blood pressure reductions, irrespective of intervention, if they came from low discrimination exposure environments. Breathing meditation had the greatest benefit overall, with non-carriers' from high stress exposure showing largest reductions compared to all other subgroups.

Findings support "behaviomics", an integration of pharmacologic and behavioral therapies tailored based upon individuals' genetic architecture, attitudes, and environmental triggers.



Dedicated to the Integration of Biological, Psychological and Social Factors in Medicine

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Release from American Psychosomatic Society Meeting, San Antonio, Texas
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University of Louisville research suggests social support fails to counteract disrupted rest and activity patterns that accompany early-stage tumor fight

San Antonio, Texas – A breast cancer patient's own biology may outweigh the effects of social support in fighting the early stages of the disease.

Some research has shown that social support may benefit cancer patients by buffering stress and possibly, by bringing about better stress hormone levels and sleep-wake cycles, which also relate to immunity. As cancer progresses, those cycles can become disrupted.

A study led by Dr. Sandra Sephton at the University of Louisville found that for newly diagnosed patients, quality of social support was not significantly related to their body rhythms or immunity.

But patients who had disrupted circadian patterns of rest and activity did have higher blood levels of tumor-promoting agents.

Results of the study were presented by doctoral student Elizabeth Lush at the American Psychosomatic Society Annual Meeting, held March 9-12 in San Antonio, TX.

Breast surgeon Dr. Anees Chagpar (Yale University) invited patients who were newly diagnosed with breast cancer to be in the study. Fifty-seven women reported on their personal data and the quality of social support they received. During four days at home, they wore monitors to measure their rest and activity patterns and gave saliva samples to indicate cortisol hormone levels. Blood samples were analyzed at Stanford University in the laboratory of Dr. Firdaus Dhabhar. Findings showed patients with irregular sleep-wake cycles had elevated serum levels of tumor-promoting factors. Researchers adjusted for age, cancer stage and socio-economic status.

The patients' disrupted rest and activity patterns appeared to be associated with tumor-promoting agents. And social support did not seem to relate to their immunity and daily rhythms.

The research suggests that circadian rhythms may be tightly linked with cancer defense mechanisms, and may help govern how effectively the body fights early-stage breast cancer.



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Release from American Psychosomatic Society Meeting, San Antonio, TX

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University of Louisville research suggests distress, instead of physical factors, contributes most to cancer-related fatigue in newly diagnosed breast cancer patients

San Antonio, Texas – The emotional burden of a cancer diagnosis may contribute more to a patient's initial fatigue level than physical factors often associated with the disease.

A study led by Dr. Sandra Sephton at the University of Louisville, "Psychoneuroimmune Pathways Related to Cancer Fatigue," looked into the fatigue issue, which is often the most common distressing side-effect that a patient experiences during the breast cancer diagnosis and treatment.

Fatigue can stem from the disease itself, from psychological responses to cancer and from treatment. Previous research has shown that by several years after a breast cancer diagnosis, women's fatigue is linked to disrupted circadian rhythms (stress hormone rhythms and rest-activity patterns) and the inflammation-fighting response of their bodies' immune systems.

Results of the study were presented by undergraduate honors student Abigail Thompson at the American Psychosomatic Society Annual Meeting, held March 9-12 in San Antonio, TX.

Breast surgeon Dr. Anees Chagpar (Yale University) invited patients who were newly diagnosed with breast cancer to be in the study. Data they provided by 57 patients before surgery and treatment showed no relation between their fatigue and physiological factors – but did link their psychological distress to fatigue.

The women were asked to self-report their cancer-specific distress and fatigue levels. During four days at home, they completed questionnaires, gave saliva samples to indicate cortisol hormone levels and wore monitors to measure rest and activity patterns. Blood samples were analyzed at Stanford University in the laboratory of Dr. Firdaus Dhabhar for cytokine levels indicating immune responses. Researchers adjusted for age, cancer stage and socio-economic status and explored both emotional and physical factors.

The team found that neither rest-activity patterns nor cytokines levels were associated with the women's tiredness; however, distress was significantly linked to fatigue.

The research suggests that early interventions to reduce distress among women entering breast cancer treatment may help reduce their fatigue.