Lifestyle You Lead Today May Affect Generations to Come

Environmental factors, trauma and more can alter genes, epigenetics experts say

By Dennis Thompson

Health Day Reporter

WEDNESDAY, June 8 (HealthDay News) — A new twist has been thrown into the classic debate of “nature versus nurture” through the budding field of epigenetics, which has found that nurture can alter the genetic nature of both an individual and the person’s descendents.

Epigenetics researchers investigate the ways that environmental factors — pollution, emotional stress, physical trauma — can affect the way people’s genetic blueprint is expressed through their physical and emotional development.

“Decades ago, we looked at genes as being the hard-wired plan for how the body develops and functions,” said Dr. Steven Dowshen, chief medical editor of Kids Health at the Nemours Center for Children’s Health Media and a pediatric endocrinologist with the Alfred I. duPont Hospital for Children in Wilmington, Del. “That still is the case. However, we didn’t understand until we knew more about this concept of epigenetics how environmental factors can change how those genes work.”

Doctors studying epigenetics also have found evidence that a person’s current...
EPIGENETICS (Continued from pg. 1)

environment can affect the health of their progeny, with today’s events echoing decades down the family tree.

The word “epigenetics” provides a clue to the concept, as the Greek prefix “epi” means “over” or “above.” Researchers have found that environmental factors essentially can flip an on or off switch in a person’s genetics, affecting not only that person’s development but also how genetics are transmitted in the person’s eggs or sperm.

“Epigenetic mechanisms don’t alter the actual DNA structure, but they do alter the DNA molecule in a way that modifies the amount of biologic information that will be transmitted by the gene,” said Rachel Yehuda, a professor of psychiatry and neurobiology and director of the traumatic stress studies division at the Mount Sinai School of Medicine in New York City. “Imagine if you’re listening to beautiful music and somebody mutes it. The music might still be playing, but it won’t be heard. Or you can amplify that music.”

Evidence of an epigenetic influence on human health and development include studies that found:

Hormonal differences in children born to mothers who had suffered extreme emotional and physical trauma. The differences make the children more susceptible to such mood disorders as anxiety and depression. The changes have been observed in second- and third-generation offspring of Holocaust survivors, as well as in the children of women who were pregnant on Sept. 11, 2001, and were evacuated from the World Trade Center, Yehuda said.

Extended longevity in people whose grandfathers suffered from malnourishment or starvation as children. This came from a landmark Swedish study that found that children raised in years when the harvest was bad produced grandchildren who lived longer than children who had plentiful food during their formative years, Dowshen said.

An effect on offspring from such behaviors as smoking and overeating. Dowshen said that such behaviors can predispose a person’s children to systemic diseases, including diabetes and obesity.

Epigenetic effects aren’t necessarily generational, however. There is evidence that trauma and stress may affect a person’s psychological health by fiddling with the genetics that regulate body chemicals, Yehuda said.

“We think that epigenetics may be very informative in helping us understand why environmental events like trauma may be so transformative,” she said. “When people undergo watershed life events, they say they are changed by them. What does that mean? This might help explain that.”

The medical benefits of an epigenetic view of health and

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Mental Disorders And Psychosocial Adversities During Childhood Linked To Chronic Physical Conditions Later On

A child who has a psychological adversity or a mental disorder that starts during childhood has a higher chance of developing a long-term (chronic) physical condition later on, researchers from the University of Otago, Dunedin, New Zealand reported in Archives of General Psychiatry.

The authors explain that child abuse has been linked to a higher chance of adverse physical health outcomes. However, they add that prior studies failed to control for factors that could impact on findings.

They wrote:

EPIGENETICS (Continued from pg. 2)

human development are not some pie-in-the-sky notion. Doctors already are putting this view of genetics to work in the treatment of patients.

“We’re probably using epigenetics already in, for example, giving folic acid to pregnant women to prevent neural tube defects that cause spina bifida,” Dowshen said. Folic acid influences the way a woman’s DNA is expressed in her offspring, reducing the chances of the baby developing the devastating birth defects.

Epigenetics also have led doctors to encourage pregnant women to eat well, avoid alcohol and smoking, and eliminate as much stress as possible in their environment, he added.

In the future, findings from epigenetic studies could uncover ways to treat depression, cancer and much more by manipulating a person’s genetics, Dowshen and Yehuda said.

“When treating depression, instead of treating the chemicals that flow through our neurons using antidepressants, we might be able to tackle more immediate causes for these chemical imbalances,” Yehuda said.

People with a family history of cancer may be able to avoid developing the disease through epigenetic therapies that inhibit the expression of cancer-causing genes, Dowshen said. Manipulation of those genes might even lead to a cure for cancer one day.

In the meantime, epigenetics experts say, people today should realize that the lifestyle they lead will affect not only their own health but will probably have impact on their children and grandchildren as well.

“Environmental factors like eating a healthy diet and physical activity and exercise are very likely influencing not just that individual but several generations emanating from them,” Dowshen said. “It’s likely that leading a healthy lifestyle will turn out to be understood to have some very direct effects on subsequent generations.”

More information: The Nemours Foundation has more on epigenetics.

In prior research that has considered the influence of the early psychosocial environment on later physical health, mental disorders have generally been out of the frame of consideration, which may be an important oversight. The span of time during which mental-physical sequential associations may be developing has important implications for the understanding of mechanisms and the planning of interventions.”

Kate M. Scott, Ph.D. and team gathered data from ten nations that took part in the WHO (World Health Organization) Mental Health Surveys initiative. Trained lay interviewers conducted the cross-sectional community surveys. Those who met criteria for a mental disorder in the first part of the survey, plus a probability sample of other participants, also completed the second part. Part 2 included assessment of chronic physical conditions and childhood adversities.

The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition was used to assess mental disorders - in this research the investigators used depression and anxiety disorders.

Childhood adversities included, family violence, parental criminal behavior, substance abuse by a parent, divorce, and family economic adversity. To assess chronic physical conditions, they used a checklist they had adapted from the US Health Interview Schedule.

Each of the mental disorders that started during childhood was linked to one of three chronic pain conditions that started during adulthood - frequent or severe headache, chronic spinal pain, or osteoarthritis.

Physical abuse during childhood was linked with each of the chronic disease outcomes, the researchers included - chronic spinal pain, headache, diabetes mellitus, osteoarthritis, asthma and heart disease.

Even after taking account childhood adversity, mental disorders that started during childhood were still linked to an adult-onset chronic physical condition.

The authors also found a correlation between the number of childhood adversities and the likelihood of adult-onset chronic physical conditions.

The authors concluded:

“These results are consistent with the hypothesis that childhood adversities and early-onset mental disorders have independent, broad-spectrum effects that increase the risk of diverse chronic physical conditions in later life.”

Source: Medical News TODAY

August 1, 2011

Source: Health Line

June 8, 2011
Psychiatrists Failing To Adequately Monitor Patients For Metabolic Side-effects Of Prescribed Drugs

People treated in psychiatric settings are receiving inadequate medical monitoring following high risk antipsychotic medication. New research from the University of Leicester demonstrates that psychiatrists are not offering adequate checks for metabolic complications that are common in patients with mental ill health, especially those prescribed antipsychotic medication.

Patients treated with antipsychotic medication, especially those with schizophrenia, have a high rate of metabolic problems, for example up to 60% have lipid abnormalities, 40% have high blood pressure, and 30% suffer from the metabolic syndrome. Some estimate that 90% of patients treated with antipsychotic medication have at least one metabolic risk factor. Given this, there are strong reasons why patients under psychiatric care should be offered regular monitoring.

Researchers from the University of Leicester in the UK, Kortenberg, Belgium and Albert Einstein College of Medicine, Bronx, New York reviewed 48 studies (involving almost 300,000 individuals) conducted between 2000-2011 in five countries. The work is published online today (Wednesday August 10, 2011) in Psychological Medicine.

The research found that only blood pressure and triglycerides were measured in more than half of patients who were under psychiatric care. Cholesterol, glucose and weight checks were offered to less than half. Monitoring was similar in US and UK studies and for both inpatients and outpatients.

Dr Alex Mitchell, a consultant psychiatrist with the Leicestershire Partnership NHS Trust and a researcher at the University of Leicester, said: “This study highlights that psychiatrists are not always considering the metabolic complications of prescribed medication. Several guidelines highlight the need for regular medical checks but even after the release of guidelines, monitoring rates have remained low especially for those checks that need a blood test. Even in the most recent studies about a quarter of patients don’t receive weight or blood pressure checks. One explanation is that responsibility is often lost between psychiatry and general practice. We recommend that mental health providers schedule physical health checks as a mandatory part of routine care.”

Sources: Leicester University, AlphaGalileo Foundation. As Seen In: Medical News Today August 11, 2011

Psychiatric Hospitalizations Increased Among Children And Teens, But Dropped Among Seniors

Over the last decade more children and teenagers and fewer seniors have been admitted to hospital for short stays for a primary psychiatric diagnosis, a researcher from the Stony Brook University School of Medicine, State University of New York wrote in Archives of General Psychiatry.

The author added that private health insurance appears to be covering a smaller proportion of inpatient days among all age groups.

Overall, there was an increase from 1970 through the 1990s in short-stay inpatient care for psychiatric conditions, while long-term stays dropped during the same period, the researcher explained. From the 1990s until the turn of the millennium, less has been spent in short-stay settings as policy makers and mental health advocates stressed the value of treatment alternatives with less restrictiveness and less negative stigma. According to various data, however, over recent years there has been a slight increase.

Joseph C. Blader, Ph.D. gathered data on acute care hospitalizations from the National Hospital Discharge Survey for primary psychiatric diagnoses between 1996 and 2007. Patients were classified as aged 5 to 13 (children), 14 to 19

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McLean Hospital Study Shows Religious Beliefs Impact Levels Of Worry

Researchers at Harvard-affiliated McLean Hospital have found that those who believe in a benevolent God tend to worry less and be more tolerant of life’s uncertainties than those who believe in an indifferent or punishing God.

The paper, recently published in the Journal of Clinical Psychology, which was presented by lead author David H. Rosmarin, PhD, assistant in psychology at McLean, at the annual meeting of the American Psychological Association on Friday, Aug. 5 in Washington, D.C., urges mental health professionals to integrate patients spiritual beliefs into their treatment regimens, especially for patients who are religious.

“The implications of this paper for the field of psychiatry are that we have to take patients’ spirituality more seriously than we do,” Rosmarin said.

“Most practitioners are unprepared to conceptualize how spiritual beliefs may contribute to affective states and thus many struggle to integrate such themes into treatment in a spiritually sensitive manner,” the paper says.

The paper reports data from two separate studies. One questioned 332 subjects solicited from religious web sites and religious organizations. It included Christians and Jews.

This study found that those who trusted in God to look out for them had lower levels of worry and less intolerance of uncertainty in their lives than those who had a “mistrust’ of God to help them out.

The second study was of 125 subjects culled from Jewish organizations. They were shown an audio-video program designed to increase trust in God and decrease mistrust in God. Participants in the two-week program reported significant increases in trust in God and significant decreases in mistrust in God, as well as clinically and statistically significant decreases in intolerance of uncertainty, worry and stress.

“These findings...suggest that certain spiritual beliefs are tied to intolerance of uncertainty and worry for some individuals,” the paper concludes.

“We found that the positive beliefs of trust in God were associated with less worry and that this relationship was partially mediated by lower levels of intolerance of uncertainty,” it added. “Conversely, the negative beliefs of mistrust in God correlated with higher worry and intolerance.

The study sought to get a greater understanding of why people worry.

We had proposed that beliefs about God, both positive and negative, would relate to both worry and intolerance of uncertainty and we found support for our model,” Rosmarin said in an interview. “They do relate.”

The paper noted that other studies have shown that 93 percent of Americans believe in God or a higher power and that 50 percent of them say that religion is very important to them.

“Furthermore, existing evidence indicates that many areas of spirituality and religion are salient predictors of psychological functioning,” it adds.

Yet Rosmarin said that mental health providers rarely if ever ask patients about their spiritual beliefs. “That’s crazy,” he said. “We don’t even ask. We aren’t trained to. And it is important.”

Rosmarin said the matter is “a health care issue, not a religious issue,” and said that by knowing what people believe, mental health professionals can do a better job of helping patients.

HOSPITALIZATIONS (Continued from pg. 4)

(adolescents), 20 to 64 (adults) and 65+ (seniors). Payers were broken down into private, government or other (self pay, no charge and other payment).

After evaluating data on discharges, the author found there had been an increase in numbers for children and adolescents, and also a slight increase for adults. However, numbers dropped among elderly patients.

Below are details on total inpatient days (days per 1,000,000):

• Children - 1,845 days in 1996, and 4,370 days in 2007
• Adolescents -5,882 days in 1996, and 8,247 days in 2007
• Seniors - 10,348 days in 1996, and 6,517 days in 2007

Among children, adolescents and adults the percentage of inpatient days covered by private payers dropped during the years studied. The author added that during the same period primary diagnoses of bipolar disorder rose while primary diagnoses of anxiety fell.

Blader wrote:

“In conclusion, a substantial increase in acute care psychiatric hospitalization rates and inpatient occupancy for children and adolescents, a moderate increase in the hospitalization rate of adults, and a steep decline for elderly individuals represent significant developments in mental health treatment in the United States with potentially strong ramifications for quality of care and service financing. Investigation of the clinical and organizational determinants of these trends, and their impact on patient outcomes, are vital to understanding their implications.”

Written by Christian Nordqvist

Source: Medical News TODAY
August 10, 2011
Depression Rates More Common in High-Income Countries, Study Says

Women were twice as likely as men to suffer depression, and the major contributing factor was loss of a partner because of death, divorce, or separation.

Depression is more likely to strike in high-income countries than in poor ones, according to new research on depression rates across 18 countries worldwide.

The study, published July 25 in *BMC Magazine*, found that the average lifetime prevalence of major depression in the 10 high-income countries in the study was 14.6 percent. In the eight low- and middle-income countries, the lifetime prevalence of major depression was 11.1 percent. The study also presents data on the impairment and demographic correlates of depression from 18 high- and low-middle income countries in the World Mental Health Survey Initiative.

DSM-IV major depressive episodes (MDE) were evaluated in face-to-face interviews with 89,037 people using the World Health Organization’s Composite International Diagnostic Interview (CIDI).

The results found that the average age of MDE onset was 25.7 in high and 24 in low-middle income countries. Functional impairment was associated with recency of MDE. In high-income countries, younger age was associated with a 12-month prevalence, compared to several low-middle income countries, where older age was associated with greater likelihood of MDE.

Women were twice as likely as men to suffer depression, and the major contributing factor was loss of a partner because of death, divorce, or separation.

The study concluded that MDE is a significant public health problem across all regions of the world and is strongly linked to social conditions. Future research is needed to investigate the combination of demographic risk factors that are most strongly associated with MDE in the specific countries included in the WMH.

Below are percentages the study provided:

**High-income:**
- Japan: 6.6 percent
- Germany: 9.9 percent
- Italy: 9.9 percent
- Israel: 10.2 percent
- Spain: 10.6 percent
- Belgium: 14.1 percent
- New Zealand: 17.8 percent
- Netherlands: 17.9 percent
- United States: 19.2 percent
- France: 21 percent

**Low- and middle-income:**
- China: 6.5 percent
- Mexico: 8 percent
- India: 9 percent
- South Africa: 9.8 percent
- Lebanon: 10.9 percent
- Colombia: 13.3 percent
- Ukraine: 14.6 percent
- Brazil: 18.4 percent

Source: \*OH&S Occupational Health & Safety July 28, 2011

When Positive Emotion Is Bad In Bipolar Disorder

Positive emotions like joy and compassion are good for your mental and physical health, and help foster creativity and friendship. But people with bipolar disorder seem to have too much of a good thing. In a new article to be published in the August issue of *Current Directions in Psychological Science*, a journal of the Association for Psychological Science, psychologist June Gruber of Yale University considers how positive emotion may become negative in bipolar disorder.

One of the characteristics of bipolar disorder is the extreme periods of positive mood, or mania. People in the grip of mania also have increased energy, sleep less, and experience extreme self-confidence. At first glance, this may sound good and even desirable. However, during these times of mania, people with bipolar disorder often take dangerous risks, run up their credit card debt, and wreak havoc in marriages. “The fact that positive emotion has gone awry is something unique about bipolar disorder, as almost all other emotional disorders are characterized by difficulties in negative emotions” Gruber says.

Gruber points out that positive emotions are problematic for people with bipolar disorder even when they’re not experiencing mania. Gruber has studied people whose bipolar

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disorder is in remission and found that they still experience more positive emotions than people who have never had bipolar disorder. More positive emotions may not sound like a bad thing, but there are times when these positive emotions aren’t appropriate. “In our work, those with bipolar disorder continue to report greater positive emotions whether it’s a positive film, very sad film clip of a child crying over his father’s death, and even disgusting films involving someone digging through feces” she says. In more recent work Gruber and her colleagues have found they still feel good even if a close romantic partner tells them something sad face to face, they still feel good. “It’s rose-colored glasses gone too far.”

Clinical psychologists may also be able to use this research to figure out who with bipolar disorder is likely to relapse; people who have a lot of positive emotions, even at inappropriate times, may provide a window into possible early warning signs, Gruber says. In a study of healthy college students who had never been diagnosed with bipolar disorder, Gruber found that those who showed these same high levels of positive emotions that persisted across positive, negative and neutral situations were at higher risk for bipolar disorder. But not all emotions are alike in bipolar disorder; in fact, they seem to have particular kinds of positive emotions. They report feeling more achievement and self-focused emotions like pride and rewarding feelings like joy. They don’t differ social emotions that connect us with others, like love and compassion. “This mirrors early clinical observations and more recent scientific work,” Gruber says -that people with bipolar disorder set very high, ambitious goals, are sensitive to rewards, and in periods of mania, some believe they have special powers.

Psychologists should also consider that there are downsides of positive emotions even for people who don’t have bipolar disorder, Gruber says. “Although positive emotions are generally good for us, when they take extreme forms or when they’re experienced in the wrong context, the benefits of positive emotion begin to unravel,” she says. The goal: “experience it in moderation, in the right place and time.”

Source: Association for Psychological Science
As Seen In: Medical News TODAY July 25, 2011