

MARCH 2016

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

Endocrine news

Living Large

HOW ENDOCRINE SCIENCE IS ADDRESSING THE OBESITY EPIDEMIC:

- ✓ Bariatric surgery as cancer prevention
- ✓ Putting natural products under the microscope
- ✓ How does obesity affect the epigenome... and the next generation?
- ✓ How to talk to obese patients about weight

ENDO 2016 PREVIEW:

What to expect from the Early Careers Forum

LAB NOTES Q&A

Daniel Bernard, PhD, on FSH, budgets, and "new" mice

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FROM THE **EDITOR**


Examining the Obesity Epidemic from a Variety of Angles

AS WE DIVE DEEPER INTO THE YEAR OF ENDOCRINOLOGY we find ourselves in March which is devoted to obesity and obesity-related endocrine disorders. Of which there are many. Our cover story — “Lose Weight, Avoid Cancer?” (p. 10) — is a tantalizing topic to be sure: bariatric surgery as a method to avoid cancer. Despite the simplicity of the title, is it really that easy? “One in five women’s cancer deaths in the United States could be prevented by just diet and nutrition,” Susan C. Modesitt, MD, a professor at the University of Virginia in Charlottesville tells writer Eric Seaborg, adding that “Three out of the four big cancers in terms of incidence for women —breast, uterine, and colorectal cancer — are all obesity related.”

From bedside back to bench, Seaborg further investigates the effects obesity has on genes and gene expression, specifically the possible implications from one generation to the next. In “The Epigenetics of Obesity” (p. 21), the importance of epigenetic research is highlighted, especially in terms of potential treatments for obesity and its co-morbidities. According to Rebecca Simmons, MD, at the University of Pennsylvania, obesity researchers are excited about this promising new research, adding that “we are at the stage where we are thinking about [epigenetic-based drugs] in the way that cancer researchers thought about it a few years ago. The tools to study it are rapidly emerging, and I think that we will probably have the answers in the next few years.” Yet more exciting progress is taking place in the world of endocrine research!

From the lab to the doctor’s office, Seaborg explores a delicate issue that hasn’t been addressed very much and that’s how to communicate with patients about their obesity (“Advise & Consent,” p. 29). It’s a sensitive topic but for true doctor/patient communication to be beneficial, it’s a topic that must be discussed. It’s certainly not something that can be left unsaid, especially when the patient’s health is directly related to their weight.

As we leave the doctor’s office and the lab, we take a quick venture to the grocery store’s vitamin aisle for “Natural Selections” (p. 16), Glenda Faunterloy’s examination of the phenomenon of dietary supplements. The National Institutes of Health has gotten involved and is funding several research facilities around the country with a multi-million-dollar investment. These products are viewed as medicine or medical treatments by a vast majority of the public, so a deeper understanding of their actual benefits is important.

And there is even more exclusive content at www.endocrinenews.org as well as at the Centennial site at www.escentennial.org. 

— **Mark A. Newman**, Editor, *Endocrine News*

MARCH 2016

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Centennial Focus: Recognizing the Worldwide Epidemic of Obesity


THIS MONTH, THE CENTENNIAL CALENDAR WILL focus on obesity. This growing epidemic has been an area of focus for the Society since it was the Presidential theme for ENDO 2004. Then President, the late E. Chester Ridgway sought to bring the collective brainpower of our membership to focus on what at the time was considered a secondary risk factor related to endocrine disease. Fast forward 12 years and obesity is recognized not only as a worldwide epidemic with one in three adults obese, but a major comorbidity in the overall health of people with endocrine disorders.

In addition to featuring publications, education, and patient materials, the March Centennial Calendar has an infographic from the Facts and Figures project, which shows the impact of obesity on endocrine disease and why this focus area is so important to scientists and physicians. The Obesity Task Force continues to develop Scientific Statements that will provide research directions for the future. The endocrine community must continue to focus on this important area of science and medicine.

I hope you are also excited about attending **ENDO 2016**, April 1-4 in Boston. We will highlight the Centennial in the educational sessions and with special displays — both in the Society's booth and throughout the convention center. The **ENDO 2016** app will have a special icon to identify sessions that will incorporate a brief historical perspective at the beginning of the session. Many of the session moderators and speakers have embraced the Centennial celebration and I look forward to these wonderful enhancements to the outstanding program. There will also be photo and video opportunities — ways for you to remember this special event with colleagues and for you to share your perspectives on the future. In addition, a special keepsake for all attendees will allow you to take a small part of the Centennial Celebration home with you.

New features at **ENDO 2016**:

- ▶ “Respect the Science” Campaign – in order for **ENDO 2016** to present cutting-edge science, attendees need to respect their colleagues by eliminating the rampant picture taking that occurs at scientific meetings. We will launch a campaign of reminders that we are all responsible for ensuring that scientists who are sharing their cutting-edge data do not need to be concerned that it will be captured before publication.
- ▶ As a way to give back to the local community, the Society will sponsor a committee service project during **ENDO 2016** to raise funds to purchase science fair boards for about 400 Boston area middle school students, thus allowing them to participate in the Citywide Science Fair. Who knows, this may jumpstart a future endocrinologist's interest in science!
- ▶ American Board of Internal Medicine and the American Board of Pediatrics have approved Maintenance of Certification points for various sessions at **ENDO 2016** including the ESAP- Live and Pediatric ESAP-Live sessions.
- ▶ EndoCareers® is hosting a series of education and networking sessions to provide international clinical fellows key strategies on navigating US fellowships to help engage, train, and support early career endocrinologists.
- ▶ “K/O Rounds” also called “Why Endocrine Science Matters in 3 Minutes” will be introduced. This pilot competition for basic science trainees will focus on presenting short, focused talks on the rationale for their science – not the outcome of the experiment.

ENDO 2016 and the Society's Centennial Celebration make Boston the place to be, April 1-4! 

Lisa H. Fish MD

Lisa H. Fish, MD
President, Endocrine Society

“

We live with little cancers in our bodies our entire lives and they never grow up to be anything because of our immune system. The immune system is working overtime when it comes to adipose tissue inflammation. If your immune system is preoccupied with fat cells, then it won't do as good a job with the small nascent cancers.”

— JOHN M. MORTON, MD, MPH, chief of bariatric and minimally invasive surgery at Stanford University School of Medicine, Stanford, Calif. (Lose Weight, Avoid Cancer? P. 10)

FROM THE CENTURY OF
ENDOCRINOLOGY TIMELINE

1929:

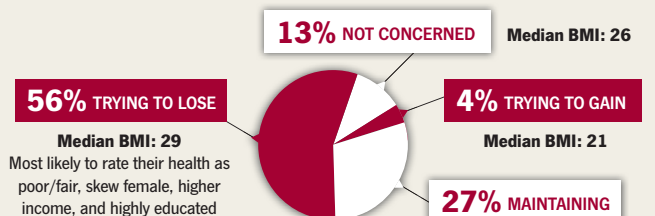
Walter B. Cannon
Coins the Term
Homeostasis



Walter B. Cannon (Society President, 1921-1922) coins the term “homeostasis” for “same” and “steady.” This important concept highlighted the critical role of negative feedback in governing endocrine physiology. This built upon the pioneering work of the French physiologist Claude Bernard (1813-1878). In 1865 Bernard published his landmark treatise “An Introduction to the Study of Experimental Medicine” in which he introduced the concept of “milieu interieur” (internal milieu) and the importance of endocrine systems in keeping this constant.

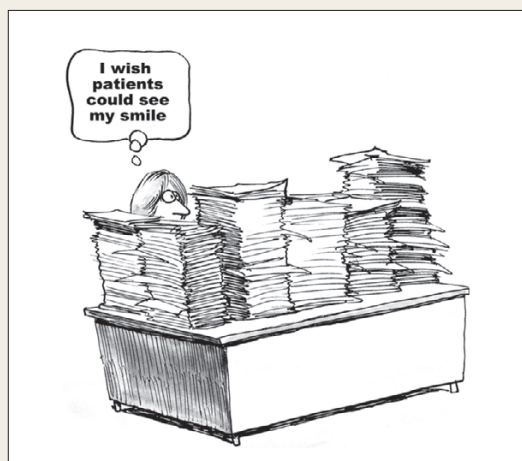
For more about the
Century of Endocrinology, go to:
www.ESCentennial.org/timeline.

How Americans Feel About Their Weight



— SOURCE: WEIGHT MANAGEMENT & HEALTHY LIVING 2015 REPORT, THE HARTMAN GROUP

Largely resemble the general population, except that they are more likely to believe they are healthy and tend to exercise more often



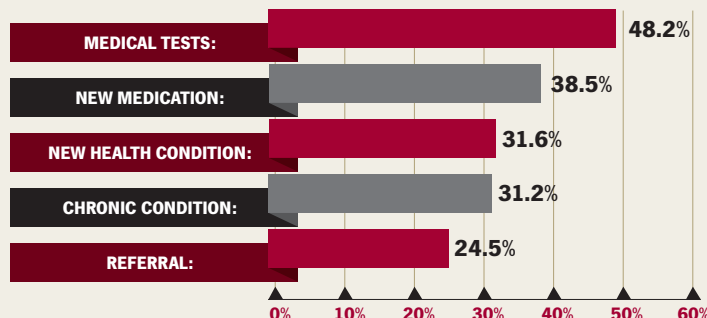
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**Annual medical
costs of obesity-
related diseases.**

— SOURCE: CENTERS FOR DISEASE CONTROL AND PREVENTION

Email as First Contact Based on Health Concerns



Percentages reported among participants with each specific type of health concern in the previous 12 months: 39% had a question about a medical test result, 38% had a medication-related question, 48% had a question about a new health condition; 47% had a question about a chronic condition, and 39% had a question about a referral. — SOURCE: AMERICAN JOURNAL OF MANAGED CARE 2015; 21(12): E632-E639.



WHY ENDOCRINOLOGY?

Lifestyle as Medicine

BY KARL NADOLSKY, DO, program director, Diabetes, Obesity & Metabolic Institute; assistant professor of medicine, Uniformed Services University of the Health Sciences, Walter Reed National Military Medical Center, Bethesda, Md.

My journey into endocrinology really starts primordially. I was fortunate to grow up with teachers as very supportive and loving parents. My dad was a biology teacher and that exposure sparked my interest of human physiology (I specifically loved human evolution) at a young age. My mom and dad both encouraged academic priority in a very life-balanced method including sports. My athletic career started early in wrestling, football, and sailing (my dad was also the wrestling coach, a football coach, and introduced me to weight training while my mom was a champion skipper) and eventually led to a successful career wrestling at Michigan State University where I was a four-year NCAA tournament qualifier and an academic all-American. It was this combination of interest in physiology and athletics that morphed into a desire to use my experience, academic comforts, and passion for helping those struggling with obesity, diabetes, and other metabolic diseases.

Nearing the end of my collegiate athletic career and preparation for graduation and medical school application, my younger brother (also a former division 1 athlete turned physician) and I had an intriguing conversation with my aunts (one is a cardiologist and the other an anesthesiologist). We were describing our interests in nutrition, adiposity, insulin, and performance when she exclaimed, “Well that sounds like you need to pursue endocrinology!” I really hadn’t thought much about medical subspecialization yet, as all I knew back then was that becoming a physician was likely the paramount path to

combining human physiology and fitness with improving the health of others.

Upon my review of the subject, endocrinology was the obvious path to pursue and ultimately was also the physiologically and clinically most comprehensible for me in medical school! In fact, I believe that endocrinology is the subspecialty most fitted to encourage and optimize “Lifestyle as Medicine” even beyond obesity, cardiometabolic disease, and diabetes to include prevention and treatment of other ailments such as osteoporosis. Many aspects of endocrinology are affected by the vast constituents of lifestyle and influence all the other systems of the body. My brother and I even have a website, www.DocsWhoLift.com, with the goal of encouraging healthy living.

My unique situation of joining the US Navy for my graduate medical education allowed me to practice as an internist for two years while earning diplomacy from the American Board of Obesity Medicine and eventually an endocrinology fellowship that I am very grateful for. My fellowship program, stationed at Walter Reed National Military Medical Center, allowed me to work under outstanding mentorship including Dr. Robert Vigersky, past president of the Endocrine Society. He, along with my other mentors, were very nurturing and supportive of my hopes, dreams, and passion to progress the field of obesity medicine and bariatric endocrinology within our system and beyond.

“
Endocrinology is most fitted to encourage and optimize “lifestyle as medicine” even beyond obesity, cardiometabolic disease, and diabetes to include prevention and treatment of other ailments such as osteoporosis.
”

WHY ENDOCRINOLOGY?

Dr. Mohamed Shakir, MACE, also played a critical role in my progress as an endocrinologist by helping me get involved with important work outside of our institution. Dr. Alicia Warnock, a great friend, took over the well-established Diabetes Institute after Dr. Vigersky's retirement last year and (along with a small "army" of diabetes specialist nurse practitioners) has joined forces with me and our bariatric/metabolic surgery colleagues to establish a comprehensive obesity treatment program coined the Diabetes, Obesity & Metabolic Institute (DOMI). We hope to establish precedent for other military medical treatment facilities to follow and give the treatment that our active duty service members and beneficiaries deserve.

I would like to add that I am very fortunate to have the support to pursue these endeavors from my wife who is also active duty as a nurse corp officer in the US Navy and my nearly four-year-old son and seven-month-old daughter who make parenting seem easier than anticipated. **EN**

To celebrate 100 years of the Endocrine Society, throughout 2016 *Endocrine News* is running a "Why Endocrinology?" column in each issue. If you'd like to share your story with our readers, contact Mark A. Newman at mnewman@endocrine.org.



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Severe Burn Injury Can Change Bone Metabolism

BY DEREK BAGLEY

People who have suffered a severe burn injury may also see adverse effects on their bone health, according to a study recently published in *The Journal of Clinical Endocrinology & Metabolism*.

Burn injuries are already known to set off a massive stress response, researchers led by Christian Muschitz, MD, of the Medical University of Vienna in Austria, note, “with heightened serum levels of acute phase proteins, cortisol levels, catecholamines, and insulin resistance.” They also point out that burn victims tend to be vitamin D deficient, and children who have suffered severe burns have experienced growth delay and increased fracture incidence. However, the authors write, concrete investigations looking at how severe burns affect bone health are scarce.

So the team set out to look at the short- and long-term effects of severe burn injuries on serum bone turnover markers (BTM) and regulators of bone metabolism. They evaluated 32 male patients with a median age of 40.5 years and a median burned total body surface area (TBSA) of 40% (83% of patients with full thickness burn injury), and compared the early effects (2-7 days) to the prolonged effects (7-56 days) of the burn trauma’s changing of BTM and bone metabolism.

The researchers found that all the BTM and regulators of bone metabolism they were investigating changed significantly. CTX, P1NP, sclerostin, DKK-1, BALP, FGF23, and iPTH levels all increased in the early phase, while 25-OH vitamin D, albumin, serum, and ionized calcium levels decreased. “Changes of OPG, OCN, and phosphate were less pronounced, but remained significant,” the authors write.

“In the prolonged phase,” they continue, “changes of P1NP were most pronounced, followed by elevated sclerostin, OCN, BALP, and lesser changes for albumin levels. Calcium and ionized calcium levels tardily increased and remained within the limit of normal. In contrast levels of iPTH, FGF23, CRP, and to a lesser extent CTX and phosphate levels, declined significantly during this phase of investigation.”

Findings: The team conclude that in male patients who have experienced a severe burn trauma, the observed ongoing changes in BTM and regulators of bone metabolism point to adverse changes on bone quality and structure. However, they were careful to say that they could not make any definitive statements on how female patients would respond to the same injuries.

Eating Soy May Protect Women from Health Risks of BPA



Women who are undergoing infertility treatments could protect themselves from poor success rates linked to bisphenol A (BPA) exposure by eating soy regularly, according to a study recently published in *The Journal of Clinical Endocrinology & Metabolism*.

BPA has of course been recently implicated in a number of adverse health effects, but this study is believed to be the first to look at the interaction between soy and BPA in humans, according to lead author Jorge E. Chavarro, MD, ScD, of Harvard T.H. Chan School of Public Health, Brigham and Women's Hospital, and Harvard Medical School in Boston. "This is consistent with research in mice that found a soy-rich diet could protect against reproductive health problems associated with BPA exposure. More research is needed to determine why soy has this effect in humans," he says.

The researchers examined the relationship between BPA exposure, diet, and success rates among 239 women who underwent at least one in vitro fertilization (IVF) cycle at the Massachusetts General Hospital Fertility Center between 2007 and 2012. The women participated in the Environment and Reproductive Health (EARTH) Study, an ongoing prospective cohort study designed to evaluate the role of environmental factors and nutrition in fertility. The EARTH Study was funded by the National Institutes of Health's National Institute of Environmental Health Sciences.

Participants' urine samples were analyzed to measure BPA exposure. The women, who were between the ages of 18 and 45, completed a lifestyle questionnaire that included questions about how frequently they ate soy-based foods. Among the participants, 176 consumed soy foods.

Among women who did not eat soy foods, those with higher levels of BPA in their urine had lower rates of embryo implantation, fewer pregnancies that progressed to the point where the fetus could be seen on an ultrasound, and fewer live births than women with lower levels of BPA in their bodies. In comparison, BPA concentrations had no impact on IVF outcomes in women who routinely ate soy.

Findings: The authors conclude that soy food intake may protect against the adverse reproductive effects of BPA. They also note that this should be further studied in other populations. "Additional research could help identify other diet and lifestyle changes that may modify the effects of not only BPA exposure, but also exposure to other chemicals," Chavarro says. "In order to fully appreciate risks to human health, we need to design studies that adequately assess both diet and environmental chemical exposures."



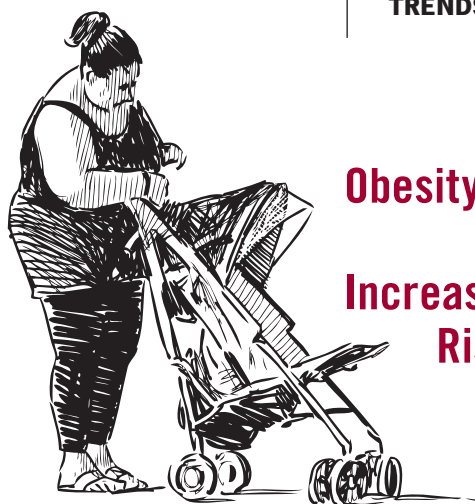
BMI Incorrectly Categorizes Millions of Americans as “Unhealthy”

Using body mass index (BMI) to determine whether someone is healthy incorrectly labels more than 54 million Americans as overweight or obese, according to a study recently published in the *International Journal of Obesity*.

Researchers led by A. Janet Tomiyama, an assistant professor of psychology at the University of California, Los Angeles, point out that the “United States Equal Employment Opportunity Commission has proposed rules allowing employers to penalize employees up to 30% of health insurance costs if they fail to meet ‘health’ criteria such as reaching a specified BMI.” The team’s objective was to really look at whether an “unhealthy” BMI meant that person was actually unhealthy, by cardiometabolic standards.

Tomiyama and her team used data from the most recent US National Health and Nutrition Examination Survey to examine the correlation of BMI and tangible health markers like blood pressure, triglyceride, cholesterol, glucose, insulin resistance, and C-reactive protein data. They found that nearly half of the people labeled by BMI as overweight and 29% labeled as obese were actually metabolically healthy. “Moreover,” the authors write, “over 30% of normal weight individuals were cardiometabolically unhealthy.”

Findings: The team concludes: “Using BMI categories as the main indicator of health, an estimated 74,936,678 US adults are misclassified as cardiometabolically unhealthy or cardiometabolically healthy. Policymakers should consider the unintended consequences of relying solely on BMI, and researchers should seek to improve diagnostic tools related to weight and cardiometabolic health.”



Obesity, Diabetes in Mother Increases Autism Risk in Child

Children born to mothers who are obese and diabetic have an increased risk of developing autism, according to a study recently published in *Pediatrics*.

Previous studies had suggested a link between maternal diabetes and autism. Researchers led by Xiaobin Wang, MD, ScD, MPH, of the Johns Hopkins University Bloomberg School of Public Health, point out that “no study has examined the independent and combined effects of maternal pre-pregnancy obesity and maternal diabetes on the risk of autism spectrum disorder (ASD) in parallel with other developmental disorders (DDs).”

The team evaluated 2,734 mother-child pairs, a subset of the Boston Birth Cohort recruited at the Boston Medical Center at birth between 1998 and 2014. They analyzed maternal pre-pregnancy weight and looked at whether the mothers had diabetes before getting pregnant or whether they developed gestational diabetes during pregnancy. The children were followed up on by reviewing electronic medical records, and the researchers identified 102 children diagnosed somewhere on the autism spectrum.

“When examined individually,” the authors write, “maternal pre-pregnancy obesity and pre-gestational diabetes (PGDM) were each associated with risk of ASD. When examined in combination, only mothers with obesity and PGDM (hazard ratio 3.91, 95% confidence interval 1.76–8.68) and those with obesity and gestational diabetes (hazard ratio 3.04, 95% confidence interval 1.21–7.63) had a significantly increased risk of offspring ASD.”

Findings: The researchers conclude that children with mothers who were both diabetic and obese were more than four times as likely to develop autism compared to children born to normal weight mothers without diabetes. “We have long known that obesity and diabetes aren’t good for mothers’ own health,” Wang says in a statement. “Now we have further evidence that these conditions also impact the long-term neural development of their children.” ^{EN}



Lose WEIGHT, *Avoid* CANCER?

BY ERIC SEABORG

The evidence that bariatric surgery reduces the risk of cancer continues to mount — adding to the reasons that severely obese patients should consider this option for weight loss.

Obesity's role in raising cancer risk is well-documented. It is implicated in 14% of cancer deaths in men and 20% in women, and appears to be overtaking smoking as the biggest preventable risk factor.

“One in five women’s cancer deaths in the United States could be prevented just by diet and nutrition,” says Susan C. Modesitt, MD, professor and chief of gynecologic oncology at the University of Virginia. “Three out of the four big cancers in terms of incidence for women — breast, uterine, and colorectal cancer — are all obesity-related.”

Two of the most influential studies indicating bariatric surgery’s role in lowering this risk were published in 2009. A team led by Ted D. Adams of the University of Utah School of Medicine found that over 24 years, cancer incidence was 24% lower and cancer mortality 46% lower in a gastric bypass surgery group compared with a severely obese control group. Significant effects were seen in a wide range of cancers, including colorectal, lung, melanoma, breast, ovarian, and non-Hodgkin’s lymphoma. The prospective Swedish Obese Subjects Study found that women who had bariatric surgery had 40% fewer first time cancers over 11 years compared with severely obese matched controls.

Precancers Disappear with Weight Loss

Since those studies, the evidence of a beneficial effect has continued to increase. Modesitt was the lead author of a recent study in *Gynecologic Oncology* that looked at bariatric surgery and endometrial cancer, a cancer strongly linked to obesity. Being 30 pounds overweight increases endometrial cancer risk by three times; being 50 pounds overweight increases the risk by 10 times. The patients in the study had a mean BMI of 51 kg/m², so were almost 200 pounds overweight. Almost half of the women had already had hysterectomies, probably because of abnormal bleeding caused by hormone dysregulation associated with obesity. Of the 30 study participants who still had a uterus, 10% had precancerous endometrial cells.

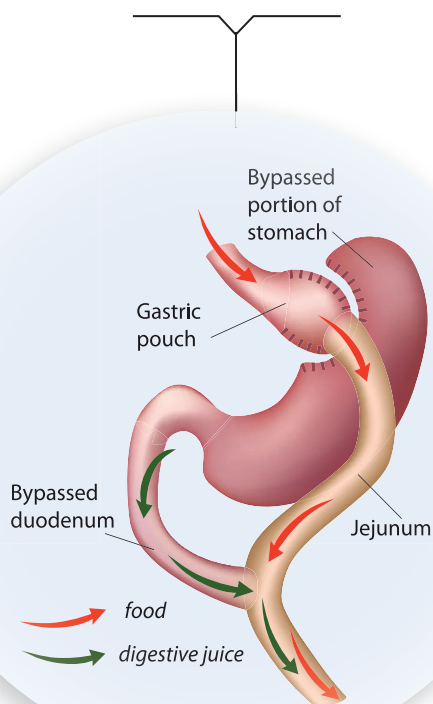
After surgery, the participants had a mean weight loss of about 100 pounds. In all the women with the precancerous cells, the condition resolved itself. After the weight loss, the cells returned to normal without any treatment. The sample size was too small for drawing conclusions, but the results did give a glimpse of effects at a cellular level.



Disregulation of hormones occurs when there is extra fat. The cancers that are hormonally sensitive include breast, uterine, and ovarian, and to some degree, probably prostate. And when obese patients do develop cancer, they are at greater mortality risk.



Roux-en-Y Gastric Bypass (RNY) Weight Loss Surgery



Three Ways to Raise Cancer Risk

The mechanisms by which obesity increases cancer risk are not entirely understood, but are believed to include disruption of hormone regulation, disruption of insulin homeostasis, and chronic inflammation.

“When you have all that extra fat, you have disregulation of your hormones,” Modesitt says. “Some of your testosterone precursors get converted to estrogen in the fat by aromatase, and everything grows when you have estrogen, like breast tissue and endometrial tissue. For example, the endometrial lining just grows and grows. If something grows long enough, then you can have an error made when a cell is replicating, and it becomes precancerous and then becomes a cancer.”

“The cancers that are hormonally sensitive include breast, uterine, and ovarian, and to some degree, probably prostate,” says John M. Morton, MD, MPH, chief of bariatric and minimally invasive surgery at Stanford University School of Medicine, Stanford, Calif.

Morton adds that obese patients “almost always have insulin resistance and hyperinsulinemia.” Insulin is a growth factor — and hyperinsulinemia leads to increased production of insulin-like growth factors — contributing another mechanism for cell proliferation and potential cancer growth.

Obesity also leads to a chronic inflammatory state that disrupts the body's defenses.

"We live with little cancers in our bodies our entire lives and they never grow up to be anything because of our immune system," Morton says. "The immune system is working overtime when it comes to adipose tissue inflammation. If your immune system is preoccupied with fat cells, then it won't do as good a job with the small nascent cancers."

And when obese patients do develop cancer, they are at greater mortality risk. They tend to be diagnosed later in the disease, at least in part because they receive fewer preventive measures such as colonoscopies and pap smears. "The other reason that obese patients are at more risk from cancer mortality is that it is more difficult to provide treatment for them. Chemotherapy doesn't work as well and it needs to be redosed. Performing surgery can be harder as well," Morton says.

Weight Loss Decreases Risk Factors

Weight loss improves all of the risk factors — Modesitt's paper is one of a host of studies that confirmed this by measuring improvements in patients' glucose homeostasis, insulin responsiveness, inflammation, and hormone milieu. A patient benefits whether the weight loss is induced by surgery or by diet and exercise, but most severely obese patients have little success with lifestyle changes. "If you look at long-term studies looking at diet, they don't work very well once you get to a BMI over 30. In fact, they fail about 95% of the time," Morton says.

"I would always be a huge proponent of diet and exercise first, but if that fails, bariatric surgery is something to consider," Modesitt says. "If a woman weighs 350 pounds, trying to lose it is really difficult. At that size, they have real difficulty exercising, and we are asking them to do something that they have never been able to do. So it really is a recipe for failure. Diet and exercise work, absolutely; but nobody that obese seems to be able to do it."

Patient Decisions

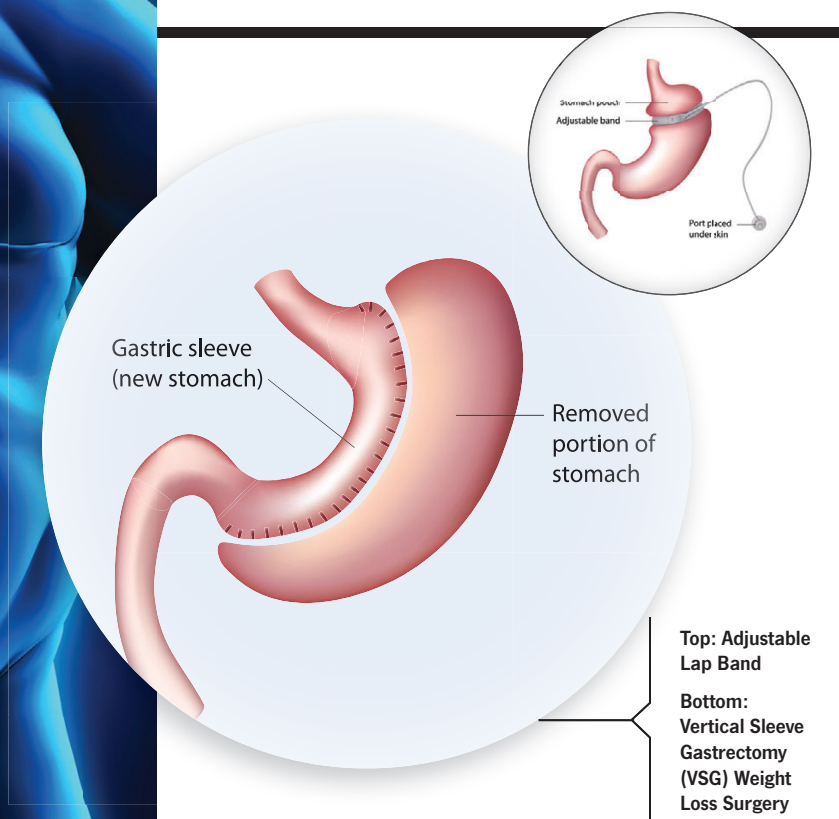
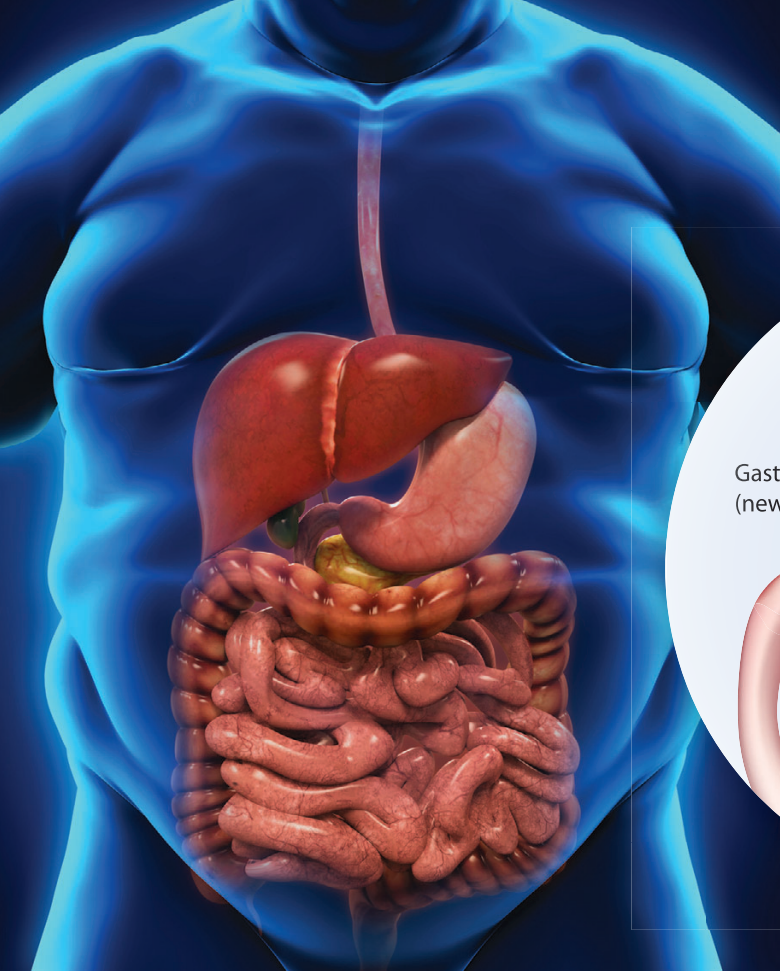
John Scott, MD, a bariatric surgeon with Greenville Health System in Greenville, S.C., says that lowering cancer risk can be an important factor in a patient's decision to have surgery: "I tell my patients up front that obesity is associated with increased cancer rates. But an eye-opening thing that we have discovered over the past ten years is that with bariatric surgery we have the ability to help people reduce their risk for getting cancer by helping them with weight loss. If you are able to reduce the oxidative stress on your body caused by obesity, the evidence shows that cancer rates are going to be lower."

He says patients do not take the decision lightly because surgery "is a life-altering procedure that is going to dramatically change their lifestyle, the way they approach food and physical activity, and all the different things in their life.



AT A GLANCE

- ▶ Obesity raises the risk of cancer, but weight loss following bariatric surgery can reduce the risk.
- ▶ Obesity apparently raises cancer risk by disrupting hormone regulation, causing hyperinsulinemia, and inducing chronic inflammation, all of which are ameliorated by weight loss.
- ▶ For people with a BMI of 30 or more, bariatric surgery is the best hope for meaningful weight loss.



“ It is extremely difficult to lose large amounts of weight and maintain it without surgery, but only about 1% of the people who would be eligible for this type of therapy are actually getting it. **The health benefits are so great that we really need to provide access to it for everyone.**”

— PETER HALLOWELL, MD, BARIATRIC SURGEON,
UNIVERSITY OF VIRGINIA, CHARLOTTESVILLE, VA.

I think that the three biggest things that attract them to it are the effect on diabetes, the decreased risk of cardiovascular incidents such as heart attacks and strokes, and cancer risk. When you can tell them, this is something that you can do to decrease your risk and increase your chances of living longer and living healthier, that is a powerful argument for someone who is unsure or on the fence about proceeding with surgery.”

Morton says that reducing cancer risk seems to be a particularly important consideration for patients who have survived cancer and want to minimize the chance of recurrence.

“Losing weight for people who are morbidly obese has so many positive health benefits that we really need to look at expanding access to bariatric surgery,” says Peter Hallowell, MD, a bariatric surgeon at the University of Virginia who collaborated with Modesitt on the endometrial cancer study. “It is extremely difficult to lose large amounts of weight and maintain it without surgery, but only about 1% of the people who would be eligible for this type of therapy are actually getting it. The health benefits are so great that we really need to provide access to it for everyone.” ^{EN}

SEABORG IS A FREELANCE WRITER BASED IN CHARLOTTESVILLE, VA. HE WROTE ABOUT HOW BIOTIN COULD AFFECT THYROID TESTS IN THE JANUARY ISSUE.

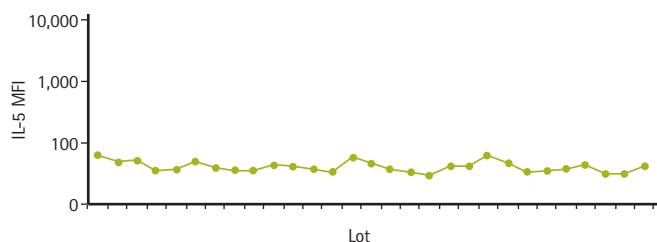
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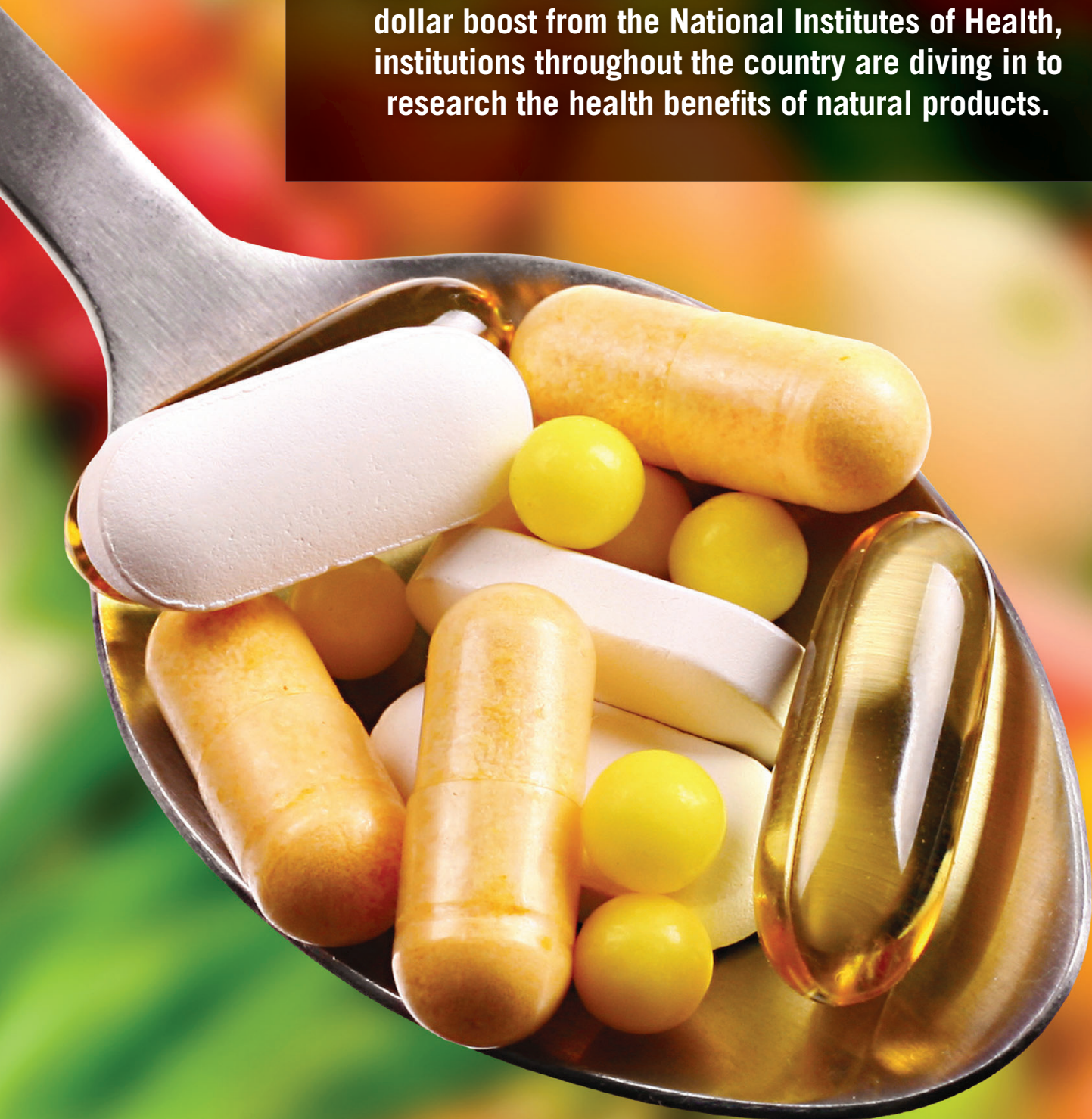


Trend chart shows consistent MFI values for each analyte's standard curve across 29 lots. ($\pm 10\%$ of reference lot)

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Dietary supplements have become the “snake oil” of the 21st Century, even though some natural products have positive benefits. With a multi-million dollar boost from the National Institutes of Health, institutions throughout the country are diving in to research the health benefits of natural products.





BY GLENDA FAUNTLEROY

Natural SELECTIONS

Research into the benefits of natural products to treat numerous chronic conditions has been underway for years. However, the investigation on whether natural products could be the key to preventing and treating diabetes and obesity was recently given a huge financial boost — a boost that may help reveal much-anticipated answers in the very near future.

Last September, the National Institutes of Health's (NIH) Office of Dietary Supplements (ODS) and the National Center for Complementary and Integrative Health (NCCIH) awarded five research centers nearly \$35 million to focus on the safety of natural products, on how they work within the body, and on the development of cutting-edge research technologies.

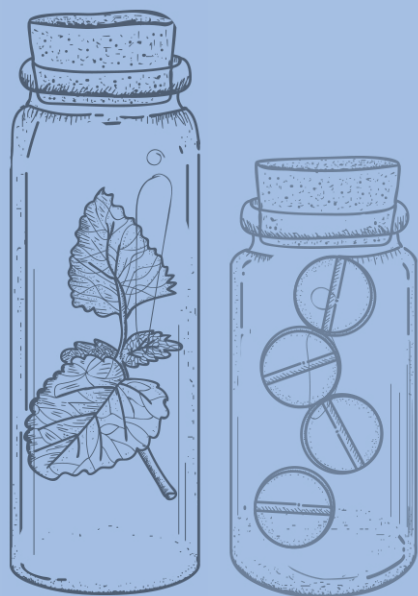
Natural products include a wide variety of substances produced by plants, bacteria, fungi, and animals that have historically been used in traditional medicine and other complementary and integrative health practices. Nearly one in five U.S. adults use botanical supplements and other non-vitamin, non-mineral dietary supplements, such as fish oil/omega-3 fatty acids, and probiotics, according to the 2012 National Health Interview Survey.

“Natural products have a long and impressive history as sources of medicine and as important biological research tools,” says Josephine Briggs, MD, NCCIH director. “These centers will seek not only to understand potential mechanisms by which natural products may affect health, but also to address persistent technological challenges for this field by taking full advantage of innovative advances in biological and chemical methodology.”



AT A GLANCE

- ▶ The investigation on whether natural products could be the key to preventing and treating diabetes and obesity was recently given a huge financial boost.
- ▶ Pennington Biomedical Research Center received a \$9.2-million grant to investigate botanical extracts.
- ▶ There's much misleading information about using dietary supplements and a goal is to provide better information that physicians can use.



NATURAL PRODUCTS AND OBESITY

Pennington Biomedical Research Center at Louisiana State University is one of the five NIH-funded centers and received a \$9.2-million grant over the next five years to support its work investigating botanical extracts from plants that are found globally and those that are native to Louisiana for the prevention and treatment of diabetes, obesity, and other chronic conditions.

Pennington has been home to the Center for Research on Botanicals and Metabolic Syndrome (BRC) since 2005. At its 222-acre campus in Baton Rouge, the research enterprise includes about 80 faculty and more than 25 post-doctoral fellows who make up a network of 44 laboratories supported by lab technicians, nurses, dietitians, and other personnel. The last five years at BRC have been spent evaluating the botanicals to prevent metabolic syndrome. Over the next five years, the team will begin focusing on the ability of botanicals to promote metabolic resiliency, the ability to maintain health in the presence of stressors such as high-fat diet or inflammation, and to study the mechanisms of action of the most promising botanicals in this context.

“Our goal is to understand if the extracts that we are interested in, fenugreek, PMI5011, which is an extract from Russian Tarragon, bitter melon, and moringa, rather than treating obesity-related diabetes or metabolic syndrome, if they’re taken soon enough, may actually prevent development of these obesity-related metabolic disorders,” says researcher Elizabeth Floyd, PhD, an associate professor at Pennington Biomedical. “So we are looking at a lot of different mechanisms and a lot of animal studies for this, and I think at the end of five years, we will know more about how each of these extracts are working and the different systems that they might be affecting,” she adds.

THE PROOF IS IN THE PUBLICATIONS

Pennington Biomedical is working on these efforts with researchers from Rutgers University’s Department of Plant Biology and Pathology. The collaboration has already led to several contributions to current research literature.

In the June 2015 issue of *Molecular Nutrition & Food Research*, investigators from both teams published research that found edible leaves from the moringa tree contain an abundance of secondary metabolites, such as polyphenols and four unique moringa isothiocyanates (MICs), with strong biological activity.

Mice that were fed a very high fat diet supplemented with 5% moringa concentrate had improved glucose tolerance and insulin signaling, and did not develop fatty liver disease compared to mice fed a very high fat diet. Mice in the moringa group also had reduced plasma insulin, leptin, resistin, and cholesterol. The researchers concluded that moringa concentrate may be an effective dietary food to prevent and treat obesity and type 2 diabetes.

“It’s always going to be complicated when you’re looking at dietary supplements or botanical extracts because it’s a complex mixture of things. So we do in vitro studies, we do animal studies, and we move our studies to humans whenever possible.”

— ELIZABETH FLOYD, PHD, ASSOCIATE PROFESSOR,
PENNINGTON BIOMEDICAL RESEARCH CENTER,
BATON ROUGE, LA.



Another team paper appearing in *Nutrition* (March 2014), investigated the effects of polyphenol-rich extract of Rutgers Scarlet Lettuce (RSL) on mice after 28 days of treatment. The RSL extract was shown to have antidiabetic effects in vitro and in vivo and may improve metabolic syndrome conditions of fatty liver and glucose metabolism.

“As lettuce is widely and regularly consumed around the world, benefits from RSL consumption could have significant effect,” wrote the authors.

EXPANDING THE SCIENCE, PROVIDING ANSWERS

One of the many challenges to the acceptance of complementary and integrative medicine is educating healthcare providers who may be slow to embrace the use of natural products. Many feel there just is not enough research on the proven safety, quantities, and concentrations for humans.

Floyd acknowledges the difficulty many providers have in understanding how these botanical extracts work. “That’s really why the NIH is interested in doing very stringent research to look at what is going on with these extracts. A lot of people use dietary supplements and they really need better information,” she says.

“As part of our studies, our colleagues at Rutgers University ‘fingerprint’ each extract so that we can know exactly what compounds are present,” Floyd continues. “This is essential for eventually identifying the bioactive components of the extracts.”

And how should providers best respond to patients who ask: “I saw this online! Is it better than my medications?”

“There’s so much misleading information out there about using dietary supplements and it’s really one of our goals to provide better information that the physicians can use,” Floyd stresses. “Physicians can always do a better job of educating themselves by going to NIH website and learn what’s going on with really rigorous research in these supplements.”

Physicians should absolutely tell their patients to keep following their medical routine and not take dietary supplements from a retail store, Floyd continues. A keyword search for “diabetes,” for instance, on the NCCIH site (nccih.nih.gov) reveals news for both consumers and health professionals about the common dietary supplements used for the condition, including safety information and summaries of recent scientific research. ^{EN}

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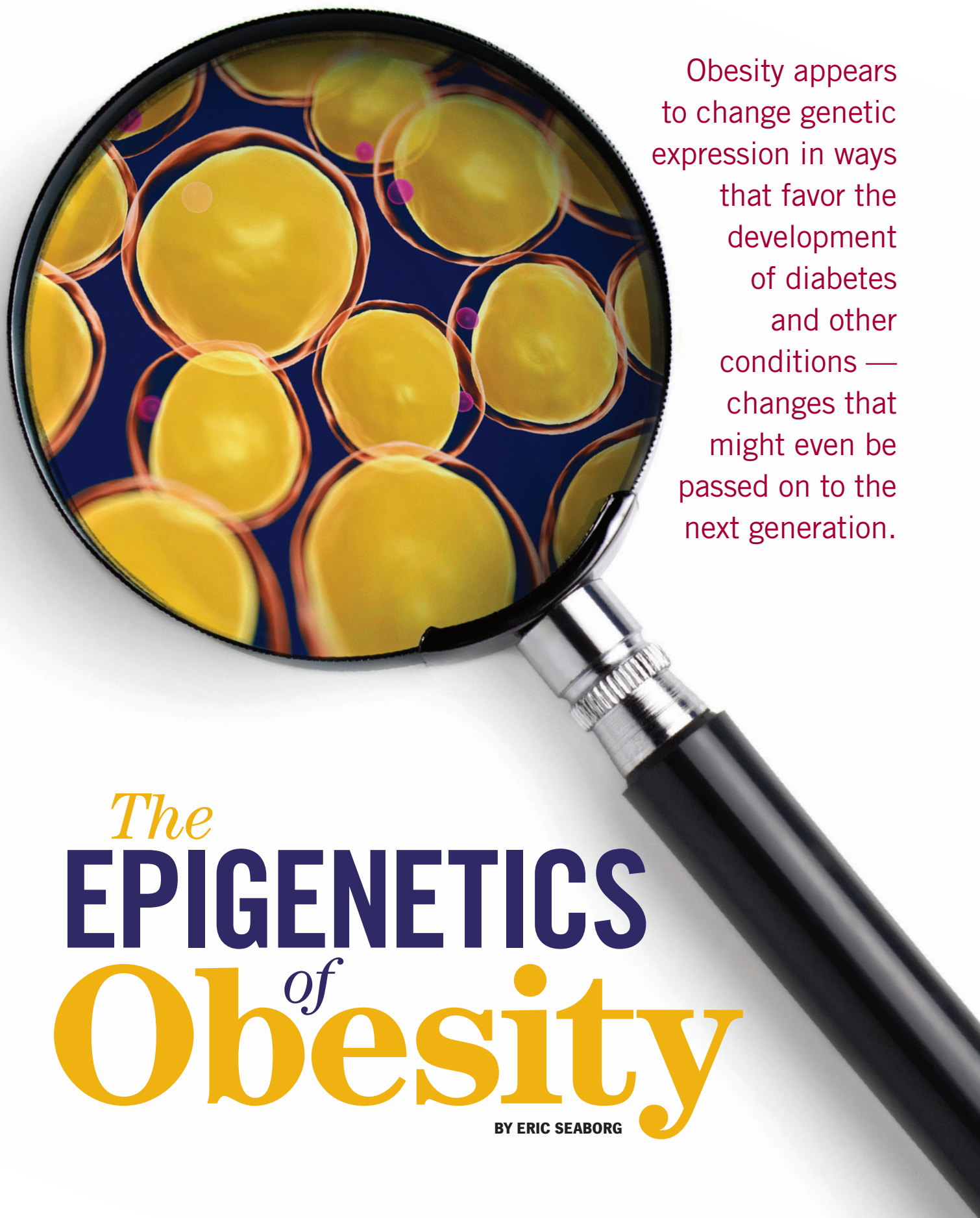
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This program is supported by educational grants from Lilly USA, LLC and Medtronic Diabetes.



Obesity appears to change genetic expression in ways that favor the development of diabetes and other conditions — changes that might even be passed on to the next generation.

The **EPIGENETICS** *of* **Obesity**

BY ERIC SEABORG



“Mice and humans are separated by 50 million years of evolution, so it is interesting that obesity causes similar epigenetic changes to similar genes in both species.”

— ANDREW FEINBERG, MD, MPH, DIRECTOR,
CENTER FOR EPIGENETICS, JOHNS HOPKINS
UNIVERSITY SCHOOL OF MEDICINE,
BALTIMORE, MD.

Researchers are beginning to unlock the complicated interplay between obesity and its downstream morbidities by looking at changes it appears to be causing in gene expression. The emerging field of epigenetics is elucidating underlying mechanisms — and epigenetic drugs already in use for cancer treatment offer hope that similar drugs could be found for obesity and diabetes.

Genes control an organism's phenotype, but outside forces can switch genes on and off. “Epigenetic mechanisms control how genes work,” says Rebecca A. Simmons, MD, professor of pediatrics at the University of Pennsylvania, Philadelphia.

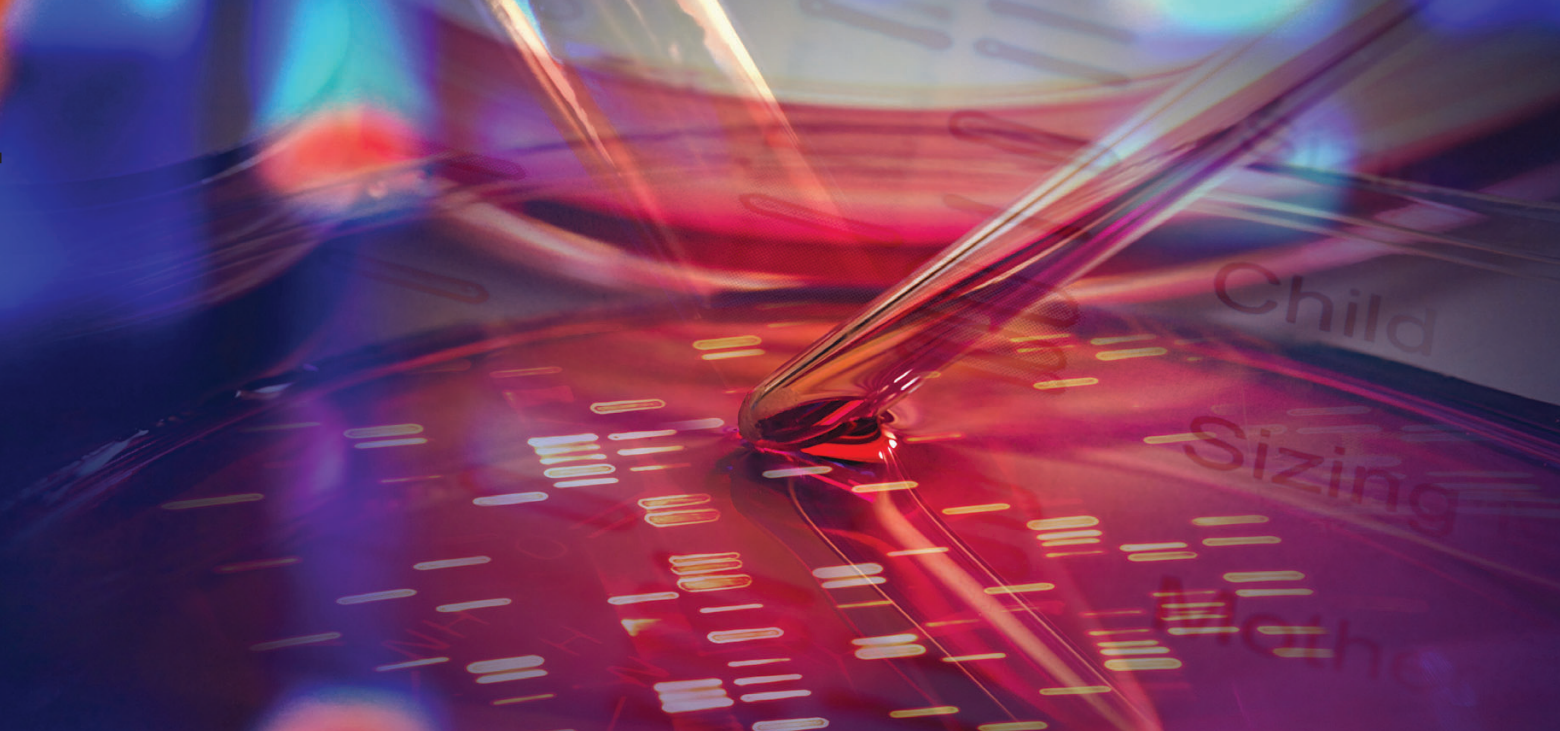
Insulin production is a clear illustration of this idea, says Charlotte Ling, PhD, professor at Lund University Diabetes Centre in Sweden. Every cell contains the same DNA sequence, so every cell contains the gene for insulin production. “Yet insulin is only expressed in one cell type in the whole body, in the pancreatic beta cells. The body needs some kind of tool to regulate in which cell and when things will be expressed, and it can use epigenetic modifications to control this kind of cell-specific gene expression,” Ling says.

The field of epigenetics is so new that even the definition is in flux. The term was coined to refer to heritable changes that occur in gene expression without a change in the underlying DNA sequence, but has since been expanded to include other alterations in gene expression, particularly those that survive cell replication. Basically, chemical tags or marks can be attached to DNA that affect its expression, and the tags may be passed on to future generations.

One of the main epigenetic mechanisms receiving attention, particularly in relation to obesity and diabetes, is DNA methylation. In DNA methylation, methyl molecules bind to DNA, generally to cytosine. Methylation typically represses gene expression, so identical genes with different methylation patterns express differently. Researchers are trying to map this “methylome” portion of the epigenome to understand the changes involved.

MAPPING THE METHYLOME

A team of researchers from the US, UK, and Sweden compared obese and lean mice and identified several hundred regions where methylation patterns differed. When the researchers compared fat cells from obese and lean humans, they found the same pattern of differences. “Mice and humans are separated by 50 million years of evolution, so it is interesting that obesity



One of the main epigenetic mechanisms receiving attention, particularly in relation to obesity and diabetes, is DNA methylation. Researchers are trying to map this “methylome” portion of the epigenome to understand the changes involved.

causes similar epigenetic changes to similar genes in both species,” says study lead author Andrew Feinberg, MD, MPH, director of the Center for Epigenetics at the Johns Hopkins University School of Medicine, Baltimore, Md.

The researchers found that many of the epigenetic changes associated with obesity affected genes known to raise diabetes risk. They also compared before and after samples from obese patients who had undergone gastric bypass and found that many of the obese-type methylation patterns reverted to lean-type patterns.

Ling and her team compared the methylome in pancreatic islets of healthy individuals and patients with type 2 diabetes. The analysis revealed epigenetic changes in about 800 genes in people with type 2 diabetes. More than 100 of these genes had altered expression, many of them in ways that could contribute to reduced insulin production.

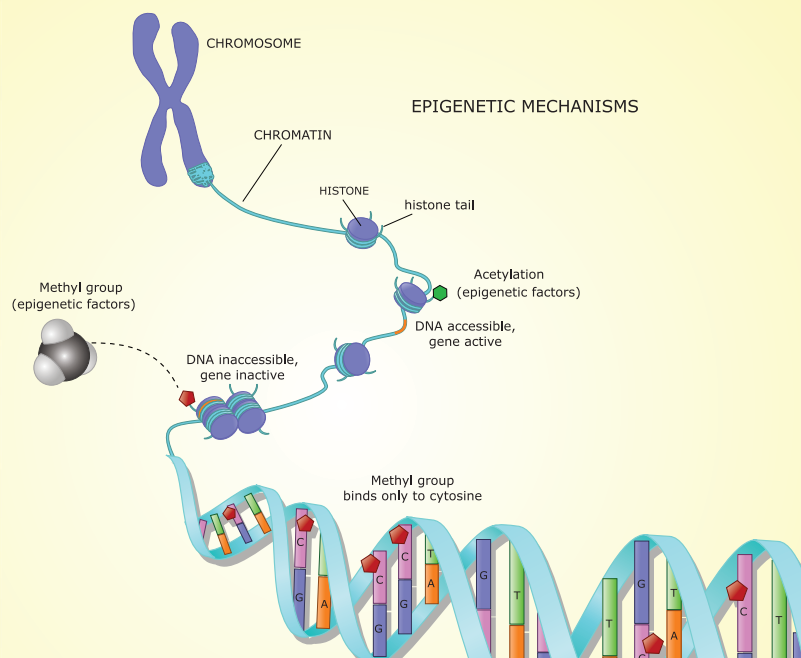
In another study, Ling and colleagues looked at the methylation patterns of 14 pairs of identical twins, one healthy and one with type 2 diabetes. Although they found that the twins had similar methylation patterns in general, in the twins with diabetes the genes involved in inflammation were upregulated and those involved in fat and glucose metabolism were downregulated. The researchers believe that the differences are due to lifestyle.

Ling says that the methylation patterns marking diabetes could turn out to be useful early warning signs, for example, if the methylation patterns in target tissues could be reflected in blood. “Thereby, we can at an early stage identify people at risk for disease, and then try to be preventative,” she says.



AT A GLANCE

- ▶ **Obesity is associated with unfavorable changes in the epigenome — the many compounds that tell the genome what to do.**
- ▶ **Weight gain can lead to changes in gene expression that favor development of type 2 diabetes, whereas diet and exercise can lead to beneficial metabolic changes.**
- ▶ **Epigenetic-based drugs are already used in cancer treatment, and could serve as models for treatment of obesity and its co-morbidities.**



REVERSING CHANGES WITH EXERCISE

In a first of its kind study, Ling also investigated how exercise changes methyl groups in the fat cells. The study involved 23 slightly overweight, healthy men aged about 35 who had a low level of physical activity. For six months, the men attended aerobic exercise classes an average of twice a week, and showed improved fitness and weight loss without dietary changes.

In before and after cell samples, the researchers found changes in the methylation patterns in 7,000 genes, including beneficial changes in many genes linked to diabetes and obesity. The researchers confirmed the findings using in vitro studies of adipocytes in which they silenced some of the implicated genes, resulting in changes in insulin sensitivity and fat storage. “Our study shows positive effects of exercise, because it changes the epigenetic pattern of genes that affect fat storage in the body,” says Ling, who is speaking on epigenetic changes in patients with type 2 diabetes at ENDO 2016 in Boston in early April.

OBESITY HERITABILITY THROUGH SPERM?

Is it possible that some of these changes are heritable? Obesity runs in families, with the usual questions of nature vs. nurture, but some researchers are starting to believe that parents’ obesity itself (independent of their DNA) could affect a child’s epigenome. A study by Danish researchers in December in *Cell Metabolism* implicates an epigenetic mechanism in sperm that could potentially tend a child toward obesity. A comparison of the sperm of 13 normal weight subjects and 10 obese subjects showed a “distinct epigenome that characterizes

“Our study shows positive effects of exercise, because it changes the epigenetic pattern of genes that affect fat storage in the body,” says Ling. A Danish study examined the sperm of morbidly obese men who underwent gastric bypass before the surgery and, a year later, after weight loss. They found “a dramatic remodeling of sperm DNA methylation, notably at genetic locations implicated in the central control of appetite” back toward the lean type.

human obesity” with distinguishing small noncoding RNA expression and DNA methylation patterns, particularly in genes controlling brain development and function.

The study also examined the sperm of morbidly obese men who underwent gastric bypass before the surgery and, a year later, after weight loss. They found “a dramatic remodeling of sperm DNA methylation, notably at genetic locations implicated in the central control of appetite” back toward the lean type.

“Everybody in the field is very excited about this study,” says Simmons. “But the question remains whether those changes can be transmitted to the offspring to result in a phenotype.” Simmons is cautious in interpreting many results, pointing to the perennial issue that association is not causation. Teasing out causes will take a lot more work. “We know that there are changes. We know that they can be reversed. But we don’t know how they influence the phenotype,” she says.


CANCER DRUGS ALREADY IN USE

Epigenetic changes can drive the unrestrained cell growth that characterizes cancer cells by switching on or off genes involved in cell growth or switching off the immune response leading to a failure to destroy tumors. Armed with this knowledge, cancer researchers have developed a relatively new class of drugs targeted at another main epigenetic mechanism, histone modifications. Histone is the protein spool that DNA is wrapped around that plays a key role in DNA replication. The FDA has approved drugs designed to inhibit the activity of histone deacetylases for the treatment of cutaneous T cell lymphoma, pancreatic cancer, and multiple myeloma.

A drug to treat glioblastoma, temozolomide, takes advantage of DNA methylation, killing cancer cells by adding methyl groups to their DNA.

These epigenetic-based drugs could serve as models for drugs for obesity or diabetes. “All the enzymes that are modifying our epigenome are potential targets for drugs,” says Ling.

“We are at the stage where we are thinking about this in the way that cancer researchers thought about it a few years ago,” says Simmons. “The tools to study it are rapidly emerging, and I think that we will probably have the answers in the next few years. We have mapped epigenetic changes in lots of populations, and now we need to understand what causes those changes.”

As this greater understanding emerges, the impact of epigenetic research will undoubtedly be felt. 



“ We are at the stage where we are thinking about [epigenetic-based drugs] in the way that cancer researchers thought about it a few years ago. The tools to study it are rapidly emerging, and I think that we will probably have the answers in the next few years. **We have mapped epigenetic changes in lots of populations, and now we need to understand what causes those changes.**”

— REBECCA A. SIMMONS, MD,
PROFESSOR OF PEDIATRICS, UNIVERSITY
OF PENNSYLVANIA, PHILADELPHIA

SEABORG IS A FREELANCE WRITER BASED IN CHARLOTTESVILLE, VA. HE WROTE ABOUT EXPANDING THE DEFINITION OF OSTEOPOROSIS IN THE DECEMBER ISSUE.

Jump Starting an Endocrinology CAREER



BY DEREK BAGLEY

Endocrine News
spoke with four
of this year's
Early Career
Forum speakers
to get a sneak
peek of their
presentations at
ENDO 2016
in Boston.

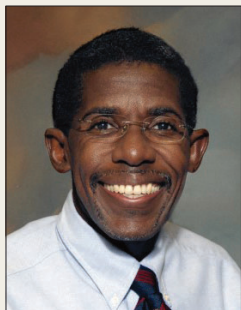
Next month at **ENDO 2016** in Boston, physicians and researchers just starting out will have the opportunity to gain valuable insight and information from some of the world's leading endocrinologists in the Early Career Forum. The speakers will be presenting on a number of topics, from tips on getting papers published to developing business acumen.

This prestigious forum for all of the next generation of endocrinologists — graduate students, medical students, post-doc fellows, and clinical fellows — also provides a unique opportunity for basic scientists, clinical investigators, and clinical practitioners to share their ideas and experiences among each other.

But perhaps the most beneficial aspect of the forum is the fact that attendees can look to the forum's speakers and moderators as experienced mentors, all of whom have tales and tips to share, informed by their own successes and hardships in their respective fields.

Of course, this is just a small sampling of the forum, and as you can see, you'll be in good hands, learning from these leaders and experts, not to mention their extraordinary teaching and mentorship accomplishments.

It's an all-day event — Thursday, March 31, 8:00 AM to 6:00 PM — just before **ENDO 2016** kicks off. That way, attendees will hopefully not only leave the forum inspired and energized, but they'll also be able to navigate the annual meeting with a clearer course and get the most out of the meeting's career-building and networking activities.



**E. Dale Abel, MD,
PhD, University
of Iowa**

Abel is the director of the Fraternal Order of Eagles Research Center, director of the Division of Endocrinology & Metabolism in the Department of Internal Medicine at the University of Iowa, and head of the Interdisciplinary Diabetes Clinic at Iowa River Landing/UIHC. A Rhodes Scholar and distinguished endocrinologist, he has spent much of his career mentoring early-career researchers, through the Endocrine Society, the American Heart Association, and many other associations and institutions.

Why is it important for your Negotiations in Clinical Research and Private Practice lecture to be part of the ENDO Early Careers Forum?

Most endocrine fellows are faced with the daunting prospects of navigating and negotiating contracts for their first professional practice position shortly after the first year of their Endocrine Fellowship. The typical endocrinology fellowship does not provide any formal training in job negotiations. Over the years, I have observed many of the pitfalls that trainees experience in attempting to understand the ramifications of contracts. Also, many trainees do not know which things in a contract are negotiable or non-negotiable. Participation in this workshop will provide attendees with these critical tools.

What can attendees expect to learn from your lecture?

- How to articulate a career vision.
- How to negotiate a starting salary.
- Understanding differences in negotiating a position in a private versus group practice versus academic practice.
- Understanding the differences between base salary and total compensation.
- Understanding how to negotiate for benefits.

How can attending your lecture help further the career of an endocrinologist just starting his or her career?

This presentation will provide attendees with the necessary skills to understand the diverse job opportunities and positions that they may be considering upon completion of their endocrinology fellowship trainees and how to negotiate to ensure that they are fully equipped to succeed.



**Lori Raetzman,
PhD, University of
Illinois at Urbana-
Champaign**

Raetzman is an associate professor of molecular and integrative physiology, as well as an associate professor of neuroscience at the University of Illinois at Urbana-Champaign. Her research focuses on development and diseases of the pituitary gland. She received the James E. Heath Award for Excellence in Teaching Physiology in 2010.

Why is it important for your Transitioning from PhD to Post Doc lecture to be part of the ENDO Early Careers Forum?

A postdoc is probably the most frequent job placement after a PhD in biomedical sciences. It is important to know what to look for in a postdoc and how to use the time during the postdoc to position yourself for your next career move. Additionally, the transition from the camaraderie of a graduate school cohort to the relative isolation of a postdoc can sometimes be challenging.

What can attendees expect to learn from your lecture?

I plan to cover what you should expect to get out of a postdoc and what your mentor will expect of you. Tips about transitioning to a different mode of time management will be discussed. Also, “extracurricular” activities like finding time for career exploration will be covered. Finally, the idea of building mentoring networks will be touched on.

How can attending your lecture help further the career of an endocrinologist just starting his or her career?

By attending this lecture, the hope is that the postdoc process will be demystified and the young endocrinologist will learn skills to cope as well as thrive in the postdoc.

“The transition from the camaraderie of a graduate school cohort to the relative isolation of a postdoc can sometimes be challenging.”

— LORI RAETZMAN, PHD, ASSOCIATE PROFESSOR OF MOLECULAR AND INTEGRATIVE PHYSIOLOGY, UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN



**James Hennessey,
MD, Beth Israel
Deaconess Medical
Center**

Hennessey is the director of clinical endocrinology at Beth Israel Deaconess Medical Center and an associate professor of medicine at Harvard Medical School. Specializing in thyroid disease and osteoporosis, he has won many awards, for clinical research and teaching.

Why is it important for your Tips and Tools for Planning Next Steps lecture to be part of the ENDO Early Careers Forum?

Be prepared to put your best foot forward. Presenting your accomplishments in a well-organized CV is a great tool in making your qualifications clear.

What can attendees expect to learn from your lecture?

The essential components of a complete CV. Several formats exist but the basic information is fairly consistent. Interviewing is an art, being well prepared helps to show how well qualified you are for the position you seek.

How can attending your lecture help further the career of an endocrinologist just starting his or her career?

Proper documentation of your achievements goes a long way towards building a well-organized and successful professional career.

“ Each attendee comes with an area of interest and passion and many want to make sure that their fundamental discoveries don’t ‘just’ end up in a paper or grant.”

— TERESA K. WOODRUFF, PHD, VICE CHAIR FOR RESEARCH, DEPARTMENT OF OBSTETRICS AND GYNECOLOGY, NORTHWESTERN UNIVERSITY, CHICAGO



**Teresa K. Woodruff,
PhD, Northwestern
University**

Woodruff is the director of the Women’s Health Research Institute at Northwestern University Feinberg School of Medicine, as well as chief of that school’s Division of Obstetrics and Gynecology-Fertility Preservation. She’s also an accomplished professor and mentor, named Feinberg School’s Faculty Mentor of the Year in 2009. A former president of the Endocrine Society, she was included on the *Time* Magazine 2013 list of the World’s Most Influential People, the only scientist to make the list.


Why is it important for your Bench to Bedside plenary lecture to be part of ENDO, and especially the Early Careers Forum?

The Early Career Forum provides the first of many venues offered by the Endocrine Society to bring basic scientists together with clinical investigators and clinicians in practice — so having a plenary lecture that bridges the disciplines is a terrific way to model the way endocrine science is done.

What can attendees expect to learn from your lecture?

The lecture will describe how fundamental discoveries about ovarian follicle development led to the field of oncofertility. We will talk about the endocrine and fertility consequences associated with cancer treatment and the emerging technologies that are addressing these twin concerns to young cancer survivors.

How can attending your lecture help further the career of an endocrinologist just starting his or her career?

Each attendee comes with an area of interest and passion and many want to make sure that their fundamental discoveries don’t ‘just’ end up in a paper or grant; and others want to make sure that tomorrow’s patient can be treated more effectively than the one they see today — these aspirations are important to foster and seeing the success of those who have been on the path a little longer can be quite powerful. Case studies in bridging disciplines can be good templates for success! 

BAGLEY IS THE ASSOCIATE EDITOR OF *ENDOCRINE NEWS*. HE WROTE ABOUT THE HISTORY OF RADIOIODINE THERAPY TO TREAT THE THYROID IN THE JANUARY ISSUE.

BY ERIC SEABORG

Advise & Consent



Obesity is such a sensitive issue that many physicians avoid discussing it. Here are some tips on the right (and wrong) ways to broach the subject.

Talking to patients about their weight is a critical task that many physicians find difficult — and even embarrassing. Too many physicians find it so uncomfortable that they avoid it altogether. Or they become so frustrated because “patients don’t listen” that their approach ends up being counter-productive.

“ Doctor-patient conversations lead to many positive obesity-related behavior changes. There is a much higher likelihood that the patients will realize that obesity is a health issue, that they will put an obesity management plan in place, and that they will lose clinically meaningful amounts of weight and keep that weight off.”

— SCOTT KAHAN, MD, MPH, MEDICAL DIRECTOR, STRATEGIES TO OVERCOME AND PREVENT (STOP) OBESITY ALLIANCE, GEORGE WASHINGTON UNIVERSITY, WASHINGTON D.C.



AT A GLANCE

To download the free “Why Weight?” guide and view videos of productive — and unproductive — approaches to patient encounters, visit www.whyweightguide.org.

But it is worth the effort because it can make a big difference if done in a sensitive manner, according to Scott Kahan, MD, MPH, medical director of the Strategies to Overcome and Prevent (STOP) Obesity Alliance at George Washington University.

“There has been a lot of research over the past few years showing that doctors can productively talk to patients about obesity,” Kahan says. “Doctor-patient conversations lead to many positive obesity-related behavior changes. There is a much higher likelihood that the patients will realize that obesity is a health issue, that they will put an obesity management plan in place, and that they will lose clinically meaningful amounts of weight and keep that weight off.”

Despite all the medical problems that accompany obesity, physicians tend to avoid the topic — few patients with obesity even have the condition documented in their medical record. A third of the patients who came to a University of Virginia clinic because they were considering bariatric surgery did not even consider themselves to have obesity — clearly physicians along the way had not given them a realistic view of their weight and its effects.

To help doctors overcome the barriers to talking to patients about their weight — and highlight the best approaches — Kahan and the STOP Obesity Alliance developed a web-based tool called the “Why Weight?” guide.

The tool’s focus is not on the advice to give, but how to give it.

The Physician’s Own Barriers

Doctors often say that there is so much to cover in a visit that they don’t have time to talk about weight, but they can at least start a conversation, Kahan says. “You don’t have to do it all at once. This isn’t something that you solve in a single visit. This is a chronic disease, like diabetes. You can make progress with each discussion. Fifteen minutes here and 15 minutes there over the course of months and years can be really helpful,” Kahan says. “And you don’t have to do it all by yourself.” There are a plethora of resources, including dietitians, community programs, and even commercial programs like Weight Watchers, that can take the burden off the healthcare provider.

An important aspect of preparing the groundwork for the conversation is accommodating the patient’s size in a way that keeps the patient comfortable and encourages collaboration. Examples include having a high-capacity scale to fit patients whose weights exceed 300 or 350 pounds and offering a wide-based chair that a patient can sit in without fear of breaking it.

“ Every single patient who comes into my office is explicitly asking for my help around weight management, yet when we start talking about weight, I always start by asking if it’s okay to talk about it.”

— SCOTT KAHAN, MD, MPH, MEDICAL DIRECTOR,
STRATEGIES TO OVERCOME AND PREVENT (STOP) OBESITY ALLIANCE,
GEORGE WASHINGTON UNIVERSITY, WASHINGTON D.C.

Permission to Start the Conversation

Physicians can deflect some of the sensitivity about weight by asking permission to even bring it up. “Weight is a very personal issue that many patients have had to deal with their whole lives. They have had to deal with a lot of stigma and a lot of teasing,” Kahan says. “In my experience, asking permission is an extremely valuable strategy, and this is coming from a doctor who specializes in obesity. Every single patient who comes into my office is explicitly asking for my help around weight management, yet when we start talking about weight, I always start by asking if it’s okay to talk about it.”

Physicians should also strive to make the language they use nonjudgmental. “We don’t call patients by the condition. Just as we don’t call patients diabetic anymore — we refer to ‘having diabetes’ or ‘a patient with diabetes’ — it’s the same with obesity,” Kahan says. “We don’t call patients ‘obese,’ but instead ‘a patient with obesity’ or ‘a patient who has obesity.’ Patients tend to respond much better to more neutral language that doesn’t feel off-putting and stigmatizing.” They may also respond better to other neutral terms, such as “weight” rather than “obesity.”



Motivational Interviewing

Physicians need to explore their own implicit assumptions and biases about obesity to ensure that they don’t give patients a feeling of being judged, and move past their accustomed prescriptive approach in favor of a more collaborative effort called motivational interviewing.

“Motivational interviewing is an open-ended way of interacting built around helping patients go from being disinterested in or against a behavior change, to taking steps toward being willing to make some changes,” Kahan says. “It is an open-ended approach to trying to learn where the patient is coming from and what they want, and helping them lead the way toward positive behavioral changes. It starts with trying to get the patient to open up about their feelings, rather than assuming we know who they are, and then together coming up with a set of initial steps they can take.”

Donna Ryan, MD, professor emerita at Pennington Biomedical Research Center in New Orleans, says that she uses the guide in presentations to physicians about engaging patients about weight management: “Doctors need a script for what to say and how to say it. The model that doctors have been trained with is that they educate the patient on what to do. The new model is that doctors engage the patient and then the patient activates behavior change.” ^{EN}

SEABORG IS A FREELANCE WRITER BASED IN CHARLOTTESVILLE, VA. HE WROTE ABOUT THE DANGERS OF THE DIETARY SUPPLEMENT BIOTIN IN THE JANUARY ISSUE.

Q&A Songs in a Key of GnRH

Endocrine News talks with Daniel Bernard, PhD, about his obsession with FSH, what he would do if budget weren't an issue, and why he thinks mice are the king of the research lab.

By Melissa Mapes



For Daniel Bernard, PhD, a professor at McGill University and recently elected Council member of the Endocrine Society, it all started with a songbird.

In graduate school, he studied behavioral neuroscience using a songbird system. Because song is a sexual behavior, Bernard found himself entrenched in the ties between testosterone levels and singing.

“Simply put, when males are on long days and it’s the reproductive season, their testosterone levels go up and this drives changes in their brains, which increases singing behavior,” he explains.

From there, Bernard segued into a postdoc that focused on the modulation of steroid effects in the brain by seasonal variables. He became fascinated by the differential regulation of follicle stimulating hormone (FSH) and luteinizing hormone (LH). This drew him to the lab of Teresa Woodruff, PhD, former Endocrine Society president and professor at Northwestern University.

Bernard continued to specialize in reproductive endocrinology and established his own laboratory in 2001. He recently spoke with *Endocrine News* about his past, current, and future research projects — and what he would do with unlimited research funding.

EN: What is unique about the tools and techniques used in your lab?

Bernard: My lab takes existing technologies and applies them to our system in specialized ways. Often that will require us to learn new techniques or collaborate with people who are experts in applying specific tools.

In terms of tool development — and this is unpublished — we’ve made a new mouse that enables us to delete genes in adulthood. In the previous models, any manipulation in the specific pituitary cell type would happen during development.

Any effect that you’d see in an adult might reflect the loss of that gene’s function on some developmental program that you’ve perturbed. We can avoid this with our new mouse because we selectively ablate genes in the adult.

EN: How is your lab influencing the field of endocrinology? And which projects are you most proud of?

Bernard: Right now we have three core projects going on. One — and perhaps the most well-known — concerns how the pituitary gland makes follicle-stimulating hormone.

We've discovered that a protein, which no one knew played a significant role in the pituitary, actually is a critical factor in the production of FSH. When we ablate the gene encoding this protein in the pituitary of mice, they essentially stop making follicle-stimulating hormone, but they continue making luteinizing hormone. That was an important discovery and it's something I'm proud of.

The second project came from work that I started when in Teresa Woodruff's lab. At the time, we'd identified a protein that's made at high levels in the pituitary. We thought it was a unique inhibin receptor. The data haven't really substantiated that hypothesis, but that project migrated with me when I left the lab.

Not much happened with it until a couple of years ago. I was contacted by some investigators — clinical scientists in Europe — who had families with this unusual form of central hypothyroidism. Using next generation sequencing, they discovered mutations in the gene that make the protein we'd studied, called IGSF1 or immunoglobulin superfamily, member 1.

Together, we showed that loss of function mutations in this gene lead to impairment in pituitary functioning, such that the brain is limited in its ability to stimulate thyroid-stimulating hormone secretion from the pituitary. This leads to a hypothyroid state.

That's really new. Our work identified a novel player in the central control of the thyroid. I want to emphasize that this could not have been done without a really robust international collaboration involving clinicians, clinical scientists, and basic scientists.

The last project I would mention — and again this is unpublished — is that we're trying to address some pretty old, and clinically significant, questions about the actions of GnRH.

In the late 70s, it was demonstrated that continuous GnRH inhibits reproductive function. The pituitary prefers to see a pulsatile stimulus and pulse frequency differentially regulates LH and FSH. If you give GnRH continuously, however, you downregulate the system. We still don't know mechanistically how that happens, but the phenomenon has been exploited clinically.

In women undergoing controlled ovarian hyperstimulation in association with IVF, some protocols call for continuous GnRH to block endogenous GnRH action. This prevents a premature LH surge, which would disrupt the stimulation cycle.

Also, in some patients with hormone-dependent cancers or disorders like endometriosis, continuous GnRH can downregulate production of the steroids that stimulate the progression of these diseases. We're very interested in understanding how the pituitary decodes different GnRH signals.

NOTES ON ANIMAL MODELS

Bernard has studied a wide range of animal models, from zebra finches to Siberian hamsters.

“Working with all these different organisms has given me a healthy appreciation for the power of comparative endocrinology and really comparative biology and evolution in general,” he says. “It's helped me understand how systems become specialized in a variety of organisms, including humans.”

But today, Bernard mostly works with mice, the standard-bearer of laboratory research. Although studies with unusual creatures offer novelty, he believes that we still have a lot to learn from the rodent model.

Some researchers have moved to farm animals and other larger species because the advent of CRISPR-Cas9 technology has made it relatively easy to take genetic approaches to almost any specimen. Bernard thinks this trend creates a new set of challenges. The lifecycle of these animals alone means that projects will likely take longer and cost a lot more.

So, despite his love for songbirds, Bernard plans to stick with rodents for the foreseeable future.



“

In terms of tool development — and this is unpublished — **we’ve made a new mouse that enables us to delete genes in adulthood.** In the previous models, any manipulation in the specific pituitary cell type would happen during development.

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EN: If you had unlimited resources, how would you use that to enhance your lab and your research?

Bernard: To enhance my specific research, I think that there are a couple of fundamental questions left to address in terms of LH and FSH regulation. I’ve articulated some of them, but I would like to open it up even more.

More broadly, every few years, a new hormone pops up and I am convinced that we haven’t described the full set of hormones. I’ve got some ideas along those lines of different tissues to examine, or even different cell types within known endocrine tissues.

EN: Where do you see your scientific work heading in the future and how do you hope it will affect change?

Bernard: That’s the great thing about science — that we don’t know exactly where it’s going.


We always follow the data, so I could say over the next five years we’re going to sort out this GnRH frequency decoding issue. I think we’re also going to get more insight into how the IGSF1 protein functions.

In terms of affecting change, I think we’d all like to think that our results will somehow have an impact on human health. I teach a lot about drug development, so I’m very familiar with the realities of the situation. A lot of great scientific work doesn’t necessarily translate into a therapy.

I’m perfectly fine with that. We are a curious species and there are still many questions to address. To me, knowledge is a great return on the investment in research. **EN**

MAPES IS A WASHINGTON D.C.-BASED FREELANCE WRITER AND A REGULAR CONTRIBUTOR TO *ENDOCRINE NEWS*. SHE WROTE ABOUT THE TOP ENDOCRINE DISCOVERIES OF 2015 IN THE DECEMBER ISSUE.

Society Conducts Survey to Assess Barriers and Standard Practices for Hypoglycemia



Society Vice President (Clinical Scientists) Anthony L. McCall, MD, PhD, (right) takes part in one of many discussions at the Hypoglycemia Roundtable held at the Society headquarters.

Hypoglycemia continues to be a critical barrier for patients with diabetes to reach their goals. Hypoglycemic unawareness or fear of low blood sugar may lead these individuals to take less insulin than prescribed or for physicians to utilize oral medications that do not contribute to these events. In an effort to understand these issues, the Endocrine Society conducted a comprehensive survey among its members to assess standard practices for diabetes education, how hypoglycemia may impact prescribing patterns, and ways in which formulary approvals may contribute to economic burdens on the healthcare system. The Society received more than 200 responses to the survey, which found the following key findings:

- Endocrinologists educate their patients on the signs and symptoms of hypoglycemia during most office visits and typically utilize a certified diabetes educator for supplemental diabetes training. However, no standard resource is used among those who responded to provide such education.
- Over the last five to 10 years, 75% of endocrinologists have changed their prescribing practices in patients with type 2 diabetes to select drugs with reduced hypoglycemic risk. Prescribing practices for patients with type 1 diabetes had also changed, though slightly less frequently than in the type 2 population.
- Approximately 90% of endocrinologists personalized A1C goals for their patients from those recommended in guidelines based on the frequency and/or severity of hypoglycemia that the patient had experienced.
- To address hypoglycemic unawareness, endocrinologists have referred patients to diabetes educators, increased A1C goals, prescribed CGM or pump therapy, changed insulin dosages, and recommended more frequent testing.

- While the vast majority of respondents use an EMR, it is not generally used to monitor data on hypoglycemia. Furthermore, such data is not generally automatically incorporated into the EMR.
- More than two-thirds of the respondents agreed that formulary or insurance approvals were contributing to economic burdens on the healthcare system.

Findings from the survey have demonstrated that hypoglycemia remains a key barrier to optimal patient outcomes and has contributed to changes in prescribing practices among the majority of endocrinologists. Many approaches are used to address hypoglycemia among patients with type 1 and type 2 diabetes. To better understand these barriers, the Society held a policy Summit, *ACA Implementation: Impact on the Patient with Diabetes*, to explore opportunities and challenges for improving diabetes care.

Drawing participants from numerous stakeholder groups, the Summit featured talks from key officials from the Centers for Disease Control and Prevention, the Department of Health and Human Services, and the National Institute of Diabetes and Digestive and Kidney Diseases. Summit participants discussed policies that can positively impact the growing diabetes epidemic and identified key areas that require action. Following the Summit, the Society reconvened key diabetes stakeholders in attendance and held a hypoglycemia roundtable to delve deeper into these issues and to prioritize policies to address these barriers. The Society has developed a list of policy recommendations, as a result, which will be published in the March issue of *The Journal of Clinical Endocrinology & Metabolism*.

— MEREDITH DYER, ASSOCIATE DIRECTOR, HEALTH POLICY, ENDOCRINE SOCIETY



National Institutes
of Health

NIH Advisory Councils Discuss New Advances, Budget Issues

On January 27, Endocrine Society attended the 200th meeting of the National Diabetes and Digestive and Kidney Diseases (NIDDK) Advisory Council. Society members Lee Kaplan, MD, PhD; Alan Saltiel, PhD; Jerry Palmer, MD; and Joel Elmquist, PhD, DVM, are members of the Council. Endocrine Society member Steven Kahn, MB, CHE, served as an ad hoc Council member for this meeting.

During the open session of the meeting, the Director of NIDDK, Griffin Rodgers, MD, MACP, announced the publication of Recent Advances & Emerging Opportunities 2016, which can be read in full at the following link: <http://www.niddk.nih.gov/about-niddk/strategic-plans-reports/Pages/NIDDK-recent-advances-emerging-opportunities-2016.aspx>. This report, issued annually, highlights important advances and discoveries that resulted from NIDDK-funded research over the previous fiscal year. Rodgers then gave the Council an update on the NIDDK budget process, including the additional funds provided by the omnibus appropriations bill for FY 2016. The NIDDK expects that the regular R01 payline will be maintained at the 13th percentile, with grants requesting over \$500,000 in direct costs having a payline of 8%. Early stage investigators (ESIs) will have a differential payline of 18%, while first competitive renewal applications of R01 grants awarded to NIDDK ESIs will have a payline of 15%.

During the open session of the Diabetes, Endocrinology and Metabolism (DEM) Subcommittee, Council members discussed initiatives that NIDDK might pursue. NIDDK staff presented potential initiatives on 1) circadian biology, sleep, and diabetes; 2) clinical studies of diabetic foot ulcers; 3) sleep apnea, glycemia, and type 2 diabetes; and 4) type 2 diabetes prevention and management. The Council gave advice on key focus areas and priority topics for these proposed initiatives.

During the open session of the National Advisory Child Health and Human Development Council (NACHHD) on January 21, Acting Director Catherine Spong, MD, gave the Advisory Council an update on the new Environmental influences on Child Health Outcomes (ECHO) program and plans for archiving data from ECHO studies so that it can be used by other researchers. Spong also described how NICHD plans to allocate funds from the Fiscal Year (FY) 2016 budget increase, of which NICHD will receive nearly \$51.4 million. Of this total, nearly \$20.5 million will go to required increases in trans-NIH initiatives such as the BRAIN initiative. Additionally, NICHD plans to use funds to support additional FY 2015 grants that were at the published payline for the institute. After accounting for these and other expenditures, NICHD will have nearly \$6.7 million left in additional available funds for FY2016.

NICHD Associate Director for Extramural Research, Della Hann, PhD, then gave a report to the Advisory Council. Hann indicated that the NICHD received a significant increase in grant applications in FY2015, and that this increase is roughly in alignment with a trend of increasing numbers of applications requesting more funds on average. The Advisory Council then discussed the implementation of recommendations from the review of the research training programs at NICHD, these included shifting support from institutional K awards to individual K awards, increasing the success rate for K99/R00 grants, and modifying the salaries for K08 and K23 awardees.


—JOSEPH LAAKSO, PHD, ASSOCIATE DIRECTOR, SCIENCE POLICY, ENDOCRINE SOCIETY

Obama Unveils FY2017 Budget; Endocrine Society Disappointed in Decreases in Areas of NIH

The Obama administration unveiled its annual budget proposal on February 9. The budget proposal would give the National Institutes of Health (NIH) \$33.1 billion, a 2.6% raise over 2016. The money would include \$680 million for Vice President Biden's cancer moonshot; \$100 million more for the Precision Medicine Initiative's 1-million-person cohort study; and \$45 million in added funds for the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) initiative. However, the new money for these presidential priorities plus \$1 billion from NIH's existing budget would come out of so-called mandatory funds, which require Congress to establish a dedicated funding stream and would likely be a hard sell in Congress.

In addition, even if that money came through, aside from the three targeted programs, all of NIH's 27 institutes and centers except the National Cancer Institute would receive a 0% increase. The number of research grants funded would rise by 600 to 36,440, but new and competing would drop by 807 grants to 9,946. As a result, NIH expects the success rate, or the portion of reviewed grants that receive funding, to drop from 19.2% to 17.5%.

WHERE WE STAND: The Endocrine Society is extremely concerned about the impact of the proposed budget on investigator-initiated research and worries about the ability to establish a mandatory funding stream. While we appreciate that President Obama's overall goal is to increase funding for biomedical research, we are disappointed his proposed budget would actually decrease the baseline funding level for the NIH in FY2017. Further, while we commend the president's inclusion of funding to support cancer-related research activities, we are disappointed that the proposed budget reduces funding for research aimed at diabetes and a host of other endocrine-related diseases affecting our nation's health. The Endocrine Society will continue to advocate for increased appropriations needed to put the NIH back on a sustainable growth path, make up for more than a decade of flat funding, and continue the important progress gained by last year's \$2 billion increase for the NIH.

NEXT STEPS: The President's Budget is just a starting point for funding decisions. Attention now will shift to the House and Senate appropriations committees. The Endocrine Society will continue to advocate strongly for NIH funding. Please visit the Endocrine Society's online advocacy campaign at <http://www.endocrine.org/advocacy-and-outreach/take-action> to urge Congress to support biomedical research funding. 

—MILA BECKER, JD, CHIEF POLICY OFFICER, ENDOCRINE SOCIETY

TIME TO CELEBRATE: See You at ENDOExpo

ENDO2016 is almost here — time to celebrate 100 years of the Endocrine Society, share the latest discoveries in our field, and have fun with colleagues from around the world. The excitement builds from ENDOExpo, with action at every booth.

First stop: The Society's Booth #735. You'll find lots of great giveaways, including selfie sticks, and the chance to win big prizes, receive a gift when you join the Society, meet Clinical Practice Guideline experts, network with editors-in-chief, and win prizes, too! Meet the staff, get your membership questions answered, and learn about the new products. Then, become part of the show by recording your thoughts about our Centennial testimonial! Not a member? Join and you can take some great selfies with a FREE selfie stick!

Visit the Hormone Health Network next door and check out the new Journey through the Endocrine System mobile app: a multi-dimensional tool with an interactive animation of the entire endocrine system. Healthcare professionals can use it to dissect, highlight, and show 3D visualizations to patients. Don't forget your delicious gland-shaped cookie!

Get the Knowledge Download on Endocrine Society Journals

Get the latest news, research, and giveaways, from the Endocrine Society's publications staff — the team behind the field's foremost journals. Learn about the Society's new Open Access journal launching in 2017 and be among the first to get your copy of *The Best of JCEM 2015*, premiering at ENDOExpo. This collection features important findings and notable advances encompassing the full range of clinical endocrine science and medicine. You can also attend *The Best of JCEM 2015* live session moderated by editor-in-chief, R. Paul Robertson, MD, on Sunday April 3rd.

Don't miss your chance to *Meet the Editors* of our top journals throughout ENDO 2016. See app for specific times.

Guidelines on the Go

We're unveiling the Endocrine Society's *Clinical Practice Guidelines* app, the go-to resource for the latest evidence-based clinical guideline content at the point of care. You'll have access to the most cutting-edge guidelines with powerful tools and knowledge on endocrine and metabolic disorders. Need help downloading or just want more info? Visit ENDOConnect Booth #862.

Looking Back, Moving Forward

Endocrinology has come a long way. To honor the history of our field, Lynn Loriaux, MD, Oregon Health and Science University, will give the Clark T. Sawin Memorial History of Endocrinology Lecture. He'll also present his latest book, *A Biographical History of Endocrinology*, with a signing immediately after the lecture.

Don't miss the amazing display of endocrinology artifacts from the past 100 years of practice, located just outside the main hall. We can't wait to celebrate the past, present, and future of the Endocrine Society with you. See you at ENDO 2016!

GET SOCIAL

ENDO 2016 is all about you, so show off how you're spending your time in Boston by using #ENDO100 and tagging us @TheEndoSociety. Look for selfie stations throughout the convention center and post your pics online. You can share your photobooth pics via social media, too. Then look for the Big Questions Boards by the Plenary Ballroom where you can use old fashioned pens to share your thoughts, and we'll share them with the world via Facebook and Twitter. #ENDO100

Remembering Marion Sewer (1972-2016)



Marion Sewer, PhD, a national and international leader in the field of steroid hormone biosynthesis and an active member of the Endocrine Society, passed away on January 28, 2016 at the age of 43.

Sewer grew up in Saint John, U.S. Virgin Islands. She graduated from Spelman College with a BS in biochemistry in 1993 and then went on to earn a PhD in pharmacology at Emory University under the mentorship of Edward Morgan, PhD. She then trained as a postdoctoral fellow at Vanderbilt University in the laboratory of Michael Waterman, PhD. She began her career as a faculty member at Georgia Institute of Technology and moved to the University of California San Diego in 2009 where she rose to the rank of full professor.

Sewer's work was at the leading edge of her field. Notably, she made the seminal finding that nuclear receptors are targets for sphingolipids. Her lab identified distinct sphingolipid and phospholipid species as endogenous ligands for the nuclear receptor steroidogenic factor 1, thereby revealing a novel role for nuclear phospholipids and sphingolipids in the control of gene transcription.

Sewer had a tremendous commitment to service within the scientific community. Among her many important roles, she served on several National Institutes of Health and National Science Foundation study sections, including membership on the Molecular and Cellular Endocrinology IRG. In addition, Sewer chaired symposia at prestigious national and international meetings, served on the editorial boards of *Endocrinology* and *Steroids* and was secretary/treasurer of the Drug Metabolism Division of American Society for Pharmacology and Experimental Therapeutics.

Improving diversity in science was a passion of Sewer's and she worked tirelessly toward this mission as a member of the Mentoring Committee of Women in Endocrinology and a member of the Minority Affairs Committees of both the Endocrine Society and American Society for Biochemistry and Molecular Biology.

New Hormone Health Network Resource Aligns with Year of Endocrinology

The Hormone Health Network (HHN) launched a patient resource comprised of digital toolkits that align with topics identified on the Centennial Calendar.

For example, January's focus is on Thyroid Health and Thyroid Cancer (www.hormone.org/diseases-and-conditions/thyroid/digital-toolkit), and patients will find the following:

- **Thyroid Cancer Infographic**
- **Thyroid Myth vs. Fact Social Media Tiles**
- **NEW! Quiz**
- **NEW! Whiteboard Animation**
- **NEW! What the Endo Says Thyroid Edition**
- **Endocrine Society Thyroid Awareness Month Activities**

According to HHN director Cheretta Clerkley, patients want to be engaged in their healthcare decision-making process and we know that those who are engaged in their care tend to be healthier and have better outcomes. "With the release of the Hormone Health Network's new digital toolkits, it not only is an extension of the resources in our product portfolio, but more importantly, it allows us to target certain audience segments who are interested in particular endocrine-related disease states and gives them the tools necessary they need to feel empowered when talking to healthcare provider," she says.

The Society is extremely excited about these new resources for patients and is already seeing such positive responses from patient groups and through social media channels. This toolkit allows the Society's thyroid partners and others the ability to link to all Society resources in one place and to share with their constituents. We encourage you to check back each month to see what's new.



Richard S. Legro Visits Society Offices

On January 8, incoming Endocrine Society Secretary-Treasurer Richard S. Legro, MD, paid a visit to the Society's Washington, D.C. headquarters for a "lunch and learn" session with Society staff.

Legro, professor of obstetrics and gynecology and public health sciences at Penn State College of Medicine in Hershey, Pa., spoke to the staff about a variety of topics including why he first got into endocrinology as well as what he thinks the Society can do to further promote the specialty around the world.

"I realized early on that I was more interested in birth than death," he explains, "so that led me to reproductive and pediatric endocrinology" both as a clinician and researcher. He adds that he spends about 75% of his time doing research but he finds the face-to-face contact with his patients just as rewarding as his research duties, calling it a "nice, vicious circle."

An active Society member for 17 years, Legro serves on the Finance and Audit Committee and previously served on the Research Affairs Core Committee. He also has served on the editorial boards for *The Journal of Clinical Endocrinology & Metabolism* and *Endocrine Reviews*. When asked by one of the staffers why he wanted to become more involved in the Society's leadership, Legro says he wanted to make a meaningful impact on the entire world. "The Clinical Practice Guidelines [that the Society publishes] do a wonderful job of disseminating information," he says, "thus eliminating potential practice errors around the world."

His other concerns — in response to various staffers' queries — are to help the Society stimulate more endocrine research; a greater focus on reproduction issues by the Society; and his concerns that electronic health records are not only time-consuming but they limit the treatment time with patients. He also praised the Society for the progress it has made in getting the word out about polycystic ovarian syndrome, a very important hormone anomaly that he feels is not getting enough attention from the public at large. "The Endocrine Society does as good a job as anybody in highlighting PCOS," he adds.

These "lunch and learn" sessions were established by Society CEO Barbara Byrd Keenan in order to give the staff an opportunity to not only meet the leadership of the Endocrine Society but to learn about the organization's initiatives from the member leaders involved in creating them and determining the Society's direction.

Legro has served as president of the Androgen Excess-PCOS Society and on the American Society of Reproductive Medicine's Board of Directors. His honors include being named a Longjiang Scholar, a Chair Professorship at Heilongjiang University of Chinese Medicine in Harbin, China, and being selected by the Chinese government for its 1,000 Talents Program. He received his MD from Mount Sinai Medical School. Legro's three-year term begins on April 4.

Editors-in-Chief Meet with Endocrine Society Staff

December was a busy month in the Society offices and was highlighted by visits from the editors-in-chief of three Society journals: R. Paul Robertson, MD, editor-in-chief of *The Journal of Clinical Endocrinology & Metabolism*; Andrea C. Gore, PhD, editor-in-chief of *Endocrinology*; and Steven R. Hammes, MD, PhD, editor-in-chief of *Molecular Endocrinology*.



Robertson visited on December 2 and had lunch with the staff where he addressed his work as an endocrinologist, his many connections with the study of diabetes, the need for greater diversity within the endocrine workforce, and his time as editor-in-chief for both *Endocrine Reviews*

and *JCEM*. Staff members had many questions and the session proved to be lively and informative.



On December 15, both Gore and Hammes met with staff and addressed questions about their career paths and work on their respective journals.

Society staff learned how

both of these remarkable scientists entered the endocrinology field, what they have planned for their respective journals in the future, and the importance of getting more early-career endocrinologists interested in conducting research.

Society Comments on Senate Working Group Report on Chronic Care



The Endocrine Society submitted comments on potential policy changes outlined in a report from the Senate Finance Committee Bipartisan Working Group on Chronic Care.

The Working Group was formed in response to a series of hearings held by the Finance Committee in 2015 to learn about the challenges faced by people with multiple chronic conditions and the healthcare providers who care for them. Based on what the Working Group learned during these hearings and from feedback from relevant stakeholders, a series of policy proposals was released for comment. The working group outlined three main bipartisan goals that each policy under consideration should strive to meet:

1. The proposed policy increases care coordination among individual providers across care settings who are treating individuals living with chronic diseases;
2. The proposed policy streamlines Medicare's current payment systems to incentivize the appropriate level of care for beneficiaries living with chronic diseases; and
3. The proposed policy facilitates the delivery of high quality care, improves care transitions, produces stronger patient outcomes, increases program efficiency, and contributes to an overall effort that will reduce the growth in Medicare spending.

The proposals ranged from providing greater access to telehealth services, providing payment to providers for extended counseling sessions after a patient is diagnosed with specific conditions, and implementing a medication synchronization system for patients with chronic conditions that require multiple medications.

The Society's comments focused primarily on improving care and offering targeted services to people with diabetes, as over 70% of these individuals have three or more chronic conditions, complicating healthcare providers' ability to coordinate and manage the myriad of health issues that they face. The Society is committed to supporting the Working Group's efforts to further define these policy proposals to ensure that providers have the resources needed to manage the care of these patients, and patients have the support that they need to avoid further complications.

New *Endocrine Facts and Figures* Focuses on Bone & Mineral

The latest chapter in the Society's *Facts and Figures* series has just been released and it highlights the many endocrine disorders of the skeleton.

Entitled Endocrine Facts and Figures: Bone & Mineral, this chapter presents the most current US-based epidemiology, health economics, and trends data on: osteoporosis, osteopenia (low bone mass), vitamin D deficiency, primary hyperparathyroidism, hypoparathyroidism, Paget's disease of bone, and phosphate disorders. We thank the Bone & Mineral Expert Reviewers for their guidance and expertise: John Bilezikian, MD, Bart Clarke, MD, and Matthew Drake, MD.

Endocrine Facts and Figures is a compendium of epidemiological data and trends related to a spectrum of endocrine diseases. The data is organized into nine chapters covering the breadth of endocrinology: adrenal, bone and calcium, cancers and neoplasias, cardiovascular and lipids, diabetes, hypothalamic-pituitary, obesity, thyroid and reproduction and development.

All data is sourced from peer-reviewed publications, with an additional round of review by a group of world-renowned experts in the field. Additional oversight from the *Endocrine Facts and Figures* Advisory Panel ensured fair and balanced coverage of data across the therapeutic areas.

Make sure to visit endocrinefacts.org to get access to this, and all other *Endocrine Facts and Figures* chapters.

Celebrating the Centennial at ENDO 2016

Embracing the Society's centennial theme, the ENDO 2016 plenaries will commemorate the accomplishment of Nobel and Lasker Prize-winning endocrine researchers.

For example, the Presidential Plenary Session will celebrate the accomplishments of Frederick G. Banking, MD, John Macleod, MD, their collaborators Charles Best, MD, James B. Collip, PhD, and Frederick Sanger, PhD, for the initial discovery of insulin and the subsequent elucidation of its structure. In this special opening session, Douglas Melton, PhD, will present his laboratory's latest advances in developing beta cells from induced pluripotent stem cells, and Edward Damiano, PhD, will provide the very latest data from his group's development of an artificial pancreas. The goal of these sessions is to illuminate how basic sciences discoveries and their translation into practice have dramatically improved patient health.

New this year:

- American Board of Internal Medicine and the American Board of Pediatrics have approved Maintenance of Certification points for various sessions at ENDO including the ESAP- Live and Pediatric ESAP-Live sessions;
- EndoCareers® is hosting a series of education and networking sessions to provide international clinical fellows key strategies on navigating U.S. fellowships to engage, educate, and support early career endocrinologists; and
- "K/O Rounds" aka "Why Endocrine Science Matters in 3 Minutes" will be introduced. This pilot competition for basic science trainees will focus on presenting short, focused talks on the rationale for the science – not the outcome of the experiment.

The Centennial will be featured in sessions and in special displays of historical artifacts. The Society's booth will include an area for sharing your memories and a keepsake will be provided to all attendees. For more information, go to www.endocrine.org/endo-2016.



Pfizer Offers New Endocrinology Award

Pfizer has created a competitive grants award program to improve the care of endocrine disorder patients, as well as advance medical knowledge of the fundamental mechanisms of disease and potential future treatments.

The 2016 U.S. Aspire Endocrinology Award is designed to support exceptional investigators working in the field of endocrinology and advance the understanding of disease mechanisms or treatments through translational basic science or clinical research to enhance the clinical care of pediatric and adult patients with endocrine diseases.

The areas of research that this grant is focusing on are acromegaly in adults and growth hormone disorders in children. Any interested investigators in these fields should provide a research proposal that seeks to explore translational or clinical research in these areas.

Application is open to all U.S. investigators. Selection of the research proposals that are to be funded will be performed by an independent, external expert panel comprised of nationally known academic clinicians.

Available awards will be the following:

- One award of up to \$100,000 over two years focusing on acromegaly in adults
- One award of up to \$75,000 over two years focusing on growth hormone disorders in children

Funding is inclusive of indirect costs (capped at 28%). The application process is currently open and concludes April 11, 2016.

Please go to www.aspireresearch.org for more information.

Two Endocrine Society Members Elected to National Academy of Medicine

Two Society members — E. Dale Abel, MD, PhD; and Christopher K. Glass, MD, PhD — were recently elected to the National Academy of Medicine (NAM).

NAM, formerly the Institute of Medicine, was established in 1970 to address “critical issues in health, science, medicine, and related policy.” In 2015, the NAM elected 70 new domestic and 10 international members in recognition of major contributions to the advancement of medical sciences, healthcare, and public health.



Glass is a professor of medicine and cellular and molecular medicine at the University of California, San Diego's Department of Health Sciences. His laboratory investigates transcriptional mechanisms that regulate the development and function of the macrophage, a cell that plays key roles in immunity and inflammatory diseases. Current efforts are to determine the biochemical and biological roles of


sequence-specific transcription factors and their associated co-regulators at gene-specific and genome-wide scales



Abel is the chair and department executive officer, Department of Internal Medicine; chief, Division of Endocrinology and Metabolism; director of Fraternal Order of Eagles Diabetes Research Center (FOEDRC); professor of internal medicine - Endocrinology and Metabolism; and professor of biochemistry at the University of Iowa Carver College of Medicine in Iowa City. His lab's recent studies have underscored

the importance of mitochondrial oxidative stress as a major mechanism leading to cardiac dysfunction in obesity and diabetes.

The Academy has addressed many issues of importance to Endocrine Society members, including testosterone replacement therapy in men, Medicare coverage of routine thyroid screening, and contraceptive research and development.

The Society congratulates Abel and Glass, and looks forward to the impactful work that they will contribute to as members of the Academy. 

NIH Seeks Expertise in Prevention Research

The Office of Disease Prevention (ODP) at the National Institutes of Health (NIH) is seeking grant reviewers with methodological and content expertise in five areas closely aligned with prevention research:

- Study Design Topics
- Research Methods
- Content Topics
- Settings
- Populations

As disease and disability due to chronic diseases become more prevalent, prevention research is increasingly necessary to reduce or mitigate disease-related harms before they occur. Many endocrine researchers are actively engaged in basic and clinical research projects that are closely related to prevention research efforts. For example, Society members are at the leading edge of integrative efforts in neuroscience and endocrinology to understand the drivers of obesity in order to target developmental pubertal effects in children and lifelong consequences, such as metabolic syndrome and cardiovascular disease in adults.

TAKE ACTION: Endocrine Society members with expertise in the five areas mentioned above are encouraged to complete the survey and serve as reviewers for prevention-related research grants. To create an account on the NIH website, fill out the survey, and share your information with the ODP and the Center for Scientific Review, please examine the instructions on the NIH ODP website: www.endocrine.org/survey



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Endocrinology Physician

The Division of Endocrinology, Diabetes, and Metabolism at Penn State Hershey Medical Center, Penn State College of Medicine (Hershey, PA) seeks to fill a junior faculty clinical position. This is a fixed-term position for a board-certified/board-eligible endocrinologist at the Assistant Professor rank. While the primary focus of this position is in patient care, candidates are also expected to participate in teaching and scholarly activities. Candidates will join an academic department dedicated to education, innovation, leadership and work among highly qualified, friendly colleagues who foster excellent networking opportunities.

Located in a safe, family-friendly setting, Hershey, PA, our local neighborhoods boast a reasonable cost of living whether you prefer a more suburban setting or a thriving city rich in theater, arts, and culture. Known as the home of the Hershey chocolate bar, Hershey's community is rich in history and offers an abundant range of outdoor activities, arts, and diverse experiences. We're conveniently located within a short distance of major cities such as Philadelphia, Pittsburgh, NYC, Baltimore, and Washington, DC. We're proud of our community involvement and encourage you to learn more about our organization.

Appropriate candidates must possess an MD, DO, or foreign equivalent and be board-certified/eligible in Internal Medicine and Endocrinology. Candidates should be energetic and highly motivated.

Qualified applicants should upload a letter of interest and CV at <http://tinyurl.com/pj45tup>, Ref Job ID #954.

For additional information please contact: Andrea Manni, MD, Professor and Division Chief of Endocrinology, Diabetes, and Metabolism, c/o Heather Peffley, Physician Recruiter, Penn State Hershey Medical Center, hpeffley@hmc.psu.edu

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Endocrinology Physician - Assistant/Associate Professor of Medicine

Marshall University Joan C. Edwards School of Medicine in Huntington, WV, seeks Endocrinology Physician (Assistant/Associate Professor of Medicine) to provide evaluation and care as a faculty attending physician for outpatients in ambulatory practice and for inpatients as assigned on a rotational basis. Duties will include teaching students and residents in an inpatient or ambulatory setting, participating and presenting in medical rounds, participating in assigned committees at the University and related hospitals and performing endocrinology research.

Candidate must have a medical degree or foreign equivalent, must have completed a residency in Internal Medicine and a fellowship in Endocrinology, Diabetes and Metabolism or equivalent endocrinology fellowship program. Must have a clear and unrestricted West Virginia medical license at time of employment.

Send letter of application and current CV in PDF file format to:

smccallister@marshall.edu

Background Check Required.

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Assistant/Associate/Full Professor, Division of Endocrinology, Diabetes & Metabolism, University of Florida/Shands.

The University of Florida, Department of Medicine, Division of Endocrinology, Diabetes & Metabolism is seeking a full-time, 1.0 FTE research track or clinical track position at the Assistant/Associate/Full Professor level. The position seeks talented endocrinologists with a strong interest in developing a career in academic medicine, either with an emphasis on clinical responsibilities with options to perform teaching and clinical translational research, or with a basic research orientation and willingness to support an ongoing successful laboratory.

Resources for professional development at the University of Florida HSC include leadership, education, and research tracks, formal mentorship programs, and supported opportunities for teaching and research. The position has the option to include a part-time appointment at the immediately adjacent VA Hospital. Requisite attributes include a strong sense of teamwork and a desire to train tomorrow's doctors through our fellowship program. The Gainesville community has superb weather, nationally ranked schools, multiple year-round recreational opportunities, and is surrounded by several major metropolitan areas. Foreign national candidates whose employment conditions meet federal and University requirements under an immigrant classification are eligible to apply. The University of Florida is an equal opportunity institution dedicated to building a broadly diverse faculty and staff. Qualifications: Applicants must be board-certified or board eligible in Endocrinology, Diabetes and Metabolism.

Send Curriculum Vitae and three (3) letters of recommendation to Kenneth Cusi, MD, Chair, UF Department of Medicine, Endocrinology, P.O. Box 100226, Gainesville, FL 32610; kcusi@ufl.edu.



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