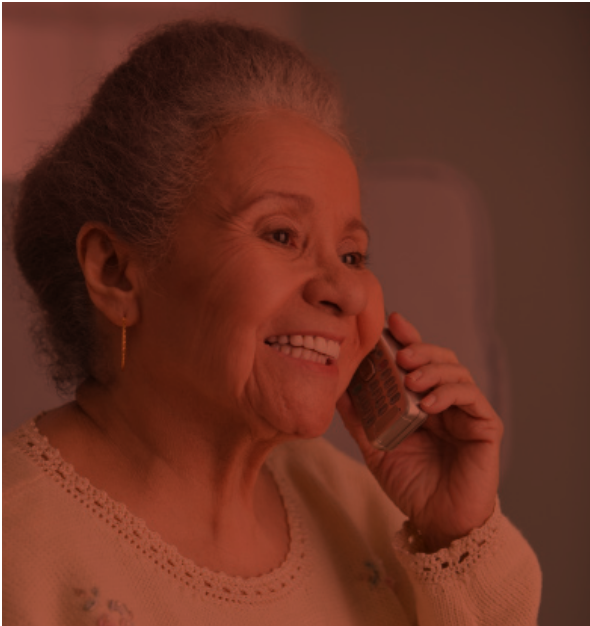


# NEWS

## Einstein–Mount Sinai Diabetes Research Center



### Dialing for Diabetes Control

**W**ith the rise of emails and text messages, the telephone faces stiff competition. But this old-fashioned technology can be a highly effective, low-cost tool for helping people control their diabetes and even lower their blood-sugar levels, according to Elizabeth A. Walker, Ph.D., R.N., above right, a professor of medicine (endocrinology) and of epidemiology & population health, and a pioneer of telephonic interventions in diabetes since the 1990s.

Dr. Walker's latest study involved 941 individuals with type 2 diabetes living in the South Bronx. All were identified through Einstein's research partners at the New York City Department of Health and Mental Hygiene's A1c Registry. A1c assesses long-term diabetes control by measuring blood levels of a type of hemoglobin.

All 941 participants were mailed diabetes self-management materials. Additionally, half the patients were randomized to receive telephone calls from health educators about the importance of adhering to medications, maintaining good nutrition and exercising. Telephone-group participants who had moderately elevated blood A1c levels (between 7% and 9%) received four counseling calls over one year; those with extremely elevated A1c levels (above 9%) received up to eight calls. After one year, the researchers assessed the participants' A1c change.

The greatest difference in A1c levels involved people who initially had extremely elevated A1c levels: Those levels decreased an average of 2.1% A1c among print/phone individuals (who received up to eight phone calls during the year) versus an average decrease of 1.3% A1c among print-only recipients with extremely elevated levels. Such an improvement is comparable to what

*(continued on page 2)*

MESSAGE FROM THE  
DIABETES RESEARCH CENTER



JEFFREY E. PESSIN, Ph.D.  
Judy R. and Alfred A. Rosenberg  
Endowed Professorial Chair in  
Diabetes Research  
Director, Diabetes Research Center



MEREDITH A. HAWKINS, M.D.  
Harold and Muriel Block Chair in  
Medicine  
Director, Global Diabetes Institute  
Associate Director, Diabetes  
Research Center

The prevalence of diabetes worldwide increased 45 percent between 1990 and 2013, with an estimated 409 million people currently afflicted. With its history of notable research into diabetes and obesity, the Einstein–Mount Sinai Diabetes Research Center (DRC) is at the forefront of the fight against this global epidemic.

Dr. Elizabeth A. Walker, director of the Einstein Prevention & Control Core, has made great strides in the field of behavioral modification. She has used telephone counseling, support groups and posters to encourage diabetic patients to adopt healthier lifestyles. Dr. Walker's innovative work knows no geographical boundaries: She has reached out to underserved communities in both New York and Uganda.

Two recent pharmacological innovations by DRC researchers could potentially help prevent amputations in diabetic patients. Dr. Michael Brownlee has shown that deferoxamine can help prevent and heal pressure ulcers. Dr. David Sharp has developed a topical therapy using nanoparticle technology to accelerate wound healing.

As noted above, the DRC also has long had an interest in obesity. Dr. Qibin Qi recently identified a gene variant that, along with a high-protein diet, can predispose people to obesity.

We look forward to continuing this legacy of success and innovation in tackling the global diabetes epidemic.

*Jeffrey Pessin M.D.*

Dialing for Diabetes Control (continued)

some medications achieve. Phone calls were less helpful for people in the moderately elevated A1c group—possibly because those individuals received less telephone contact.

The results, reported online in July in the *American Journal of Preventive Medicine*, are all the more impressive considering that those enrolled were predominantly poor, foreign born and non-English speaking—the hardest-to-reach individuals.

Dr. Walker credits much of the study's success to its health educators—lay individuals who received specific training in telephone counseling for diabetes. "We took great pains to choose staff from the community with warm, sympathetic voices and who spoke the languages of the people," she says.

"The take-home message is that medications or print materials are not enough," she adds. "Patients need counseling and support for problem solving and goal setting."

The per-patient costs for the phone intervention were modest—less than the yearly costs of

many diabetes medications. The study was funded by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK).

Calling All Men!

Dr. Walker has recently focused on getting more men with prediabetes involved in the National Diabetes Prevention Program (NDPP), a series of group sessions that highlight healthy eating and exercise for weight loss. Men who develop diabetes generally have poorer health outcomes and lower life expectancy than women with the disease, and men of color fare worst of all. But men who could benefit—particularly black and Latino men—have shown less interest in "lifestyle" intervention.

Dr. Walker wondered if men in disadvantaged communities might be more inclined to join a program emphasizing physical activity, a notion she's now testing in a NIDDK-funded pilot study called Power Up for Health. "Our sessions encourage friendly competition in areas related to lifestyle changes," she notes. If the program is successful, the researchers hope the NDPP will adopt it.

**LOW BLOOD SUGAR IS DANGEROUS!**

**SYMPTOMS OF LOW BLOOD SUGAR\***

Nervous or Anxious	Cold and sweaty	Feeling hungry or shaky
Headache or Irritated	Heart beating fast	Can't think or confused

**TREATING LOW BLOOD SUGAR**

Small cup of sugary drink, juice or soda OR Large spoon full of sugar or honey OR If still feeling low, eat some food. BE SAFE!

**PREVENTING LOW BLOOD SUGAR**

Take right dose of medications Plan food and meals. Carry sweets for emergencies. Test blood sugar when possible.

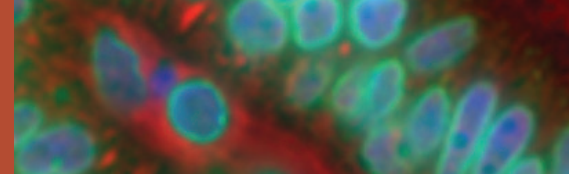
**\*IF SYMPTOMS PERSIST, SEEK MEDICAL ADVICE!**

**CAUSES OF LOW BLOOD SUGAR (less than 4.0 mmol/L):**

- TOO LONG BETWEEN MEALS
- TOO MUCH INSULIN OR DIABETES PILLS
- TOO MUCH EXERCISE

HYPOGLYCEMIA: INFORMATION AND EDUCATION

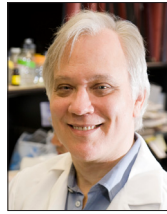
Since 2009, Dr. Walker has worked with Einstein's Global Diabetes Institute and Dr. Meredith Hawkins on diabetes programs in Uganda. "Most Ugandans with diabetes lack access to blood glucose monitoring at home, many of them are taking insulin injections, food is often in short supply—all risk factors for low blood sugar," she says. Her latest effort is a teaching poster to help prevent this life-threatening problem. The poster—developed with Ugandan colleagues and designed by Einstein's graphic arts department—will be distributed to clinics, hospitals and healthcare training programs in Uganda.



## Preventing Diabetic Pressure Ulcers

**Michael A. Brownlee, M.D.**

Anita and Jack Saltz Chair in  
Diabetes Research  
Professor of Medicine (Endocrinology)  
Professor of Pathology  
Albert Einstein College of Medicine  
Attending Physician, Medicine  
(Endocrinology)  
Montefiore



Diabetes is a leading cause of lower-limb amputation. One major reason is that in areas of constant pressure—from ill-fitting shoes, for example—foot ulcers do not heal because the pressure prevents new blood vessels from forming.

In a recent study, Dr. Michael Brownlee and his colleagues from Stanford University School of Medicine and Johns Hopkins University School of Medicine showed that topically applying the drug deferoxamine (DFO) prevented pressure ulcers from forming and improved pressure-ulcer wound healing in diabetic mice. Previously, they found that DFO normalizes transcription of genes that regulate blood vessel formation.

The authors developed a delivery system in which DFO is enclosed in gelatin-like capsules that ferry the drug deep within the skin and then release it. This system will allow for clinical studies of DFO, which already has U.S. Food and Drug Administration approval for another use. The study was published in the *Proceedings of the National Academy of Sciences*.

## Accelerating Wound Healing

**David J. Sharp, Ph.D.**

Professor of Physiology & Biophysics  
Professor of Ophthalmology  
and Visual Sciences  
Albert Einstein College of Medicine



Dr. David Sharp, his Ph.D. student Rabab A. Charafeddine and their colleagues have developed a topical therapy that cuts in half the time it takes for a wound to close and heal. The therapy involves a drug, enclosed in tiny particles called nanoparticles, that encourages healthy skin cells to move toward the wound by reducing the levels of an enzyme called fidgetin-like 2 that slows down cell motion. The researchers' findings were published in the

*Journal of Investigative Dermatology*.

## Genetic Obesity

**Qibin Qi, Ph.D.**

Assistant Professor of Epidemiology &  
Population Health  
Albert Einstein College of Medicine



Obesity is a major risk factor for diabetes: Almost 90 percent of diabetic patients are overweight. Various genes help control appetite and metabolism, predisposing individuals to obesity under certain dietary conditions.

In a recent study, Dr. Qibin Qi, together with colleagues from 28 health centers worldwide, found that a genetic variant of the *FTO* gene (associated with fat mass and obesity) predisposes children and adolescents to opt for high-calorie diets and become obese. However, obesity attributed to *FTO* variation in these individuals was less severe if their diets contained less protein. The researchers concluded that avoiding overconsumption of dietary protein might help prevent or treat obesity in children and adolescents. The study was published in *Diabetes*.

## Obesity Link to Prostate Cancer Recurrence

**Illir Agalliu, M.D., Sc.D.**

Assistant Professor of Epidemiology &  
Population Health  
Assistant Professor of Urology  
Albert Einstein College of Medicine



Obese men have a higher risk of developing aggressive prostate cancer and of their prostate cancers recurring—due in part to higher levels of circulating insulin in obese individuals. But is this also true for patients with diabetes whose insulin levels are medically controlled or who have lower insulin levels in advanced diabetes?

In a recent study, Dr. Illir Agalliu and his colleagues found that obese nondiabetic patients with prostate cancer whose body mass indexes were higher than 30 kg/m<sup>2</sup> were twice as likely as normal-weight, nondiabetic men to have recurring cancer in the 2.5 years after their first prostate cancer surgery.

But when the study included patients with diabetes—who may have low or controlled insulin levels—the obesity/cancer association disappeared.

The authors suggest that careful analysis is important when patients with diabetes are included in obesity/cancer-association studies. The study was published in *Cancer Causes & Control*.

## Notable Grants

### NIH Grants \$10.5 Million for Einstein–Mount Sinai Diabetes Research Center

**A**lbert Einstein College of Medicine and the Icahn School of Medicine at Mount Sinai have received a \$10.5 million, five-year grant from the National Institutes of Health (NIH) to continue the Diabetes Research Center (DRC), now known as the Einstein–Mount Sinai DRC. The regional collaborative combines Einstein’s basic and clinical research strengths with Mount Sinai’s beta cell and community outreach expertise. Researchers and clinicians at Montefiore Health System, Cornell University, Weill Cornell Medical College, Hunter College, Winthrop-University Hospital, Stony Brook University and NYU Langone Medical Center also participate. This new grant is part of an ongoing NIH effort to encourage multi-institution, regional research centers.



**Gary J. Schwartz, Ph.D.**

*Brainstem nutrient sensing in the integrative control of food intake*

4/15/2015–3/31/2019

National Institute of Diabetes and Digestive and Kidney Diseases

\$1,503,000.00

## Events

### Einstein–Mount Sinai DRC Hosts Fourth Annual Regional Diabetes Meeting

**E**ndocrinology experts primarily from the New York City area gathered on May 1 in Einstein’s Ethel and Samuel J. LeFrak Auditorium to share their knowledge about diabetes and metabolic diseases. This was the fourth of these one-day annual meetings, which were conceived and organized by DRC director Jeffrey E. Pessin, Ph.D., to “bring together local scientists with common research interests.”

The 2015 keynote speaker was Clay F. Semenkovich, M.D., the Herbert S. Gasser Professor and chief of the Division of Endocrinology, Metabolism, and Lipid Research at Washington University School of Medicine in St. Louis. His talk was titled “Lipogenesis, Metabolic Signaling and Diabetes.”

Einstein’s Rajat Singh, M.D., M.B.B.S., associate professor of medicine (endocrinology) and of molecular pharmacology, delivered a talk, “Hypothalamic Autophagy Regulates Peripheral Lipid Metabolism.” Fajun Yang, Ph.D., associate professor of medicine (endocrinology) and of developmental and molecular biology, and Derek M. Huffman, Ph.D., assistant professor of medicine (endocrinology) and of molecular pharmacology, chaired sessions by presenters from New York University School of Medicine, Columbia University College of Physicians and Surgeons, the Rockefeller University, Weill Cornell Medical College and the Icahn School of Medicine at Mount Sinai.

To learn more about supporting the work of the DRC, please contact:

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Harold and Muriel Block Building  
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**ON THE WEB**

To learn more about the Diabetes Research Center, please visit:  
[www.einstein.yu.edu/diabetes](http://www.einstein.yu.edu/diabetes)

## DIABETES RESEARCH CENTER

### Our mission:

- To support and conduct basic and clinical research related to diabetes and its causes, treatment and complications
- To encourage research that will rapidly lead to diabetes therapies, especially in minority and underserved populations

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