Research network yields significant findings related to obesity

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The Strategically Focused Research Network (SFRN) on Obesity has published its findings in a *Journal of the American Heart Association* special report, which hails the group's work as "the beginning of

innovative science, and importantly, the birth of new collaborations and research partnerships to propel the field forward."

Vanderbilt University Medical Center (VUMC) and Vanderbilt University (VU) collaborated with Johns Hopkins University School of Medicine, New York University Grossman School of Medicine and the University of Alabama at Birmingham for four years beginning in 2017 to study aspects of obesity that contribute to disorders such as Type 2 diabetes and heart disease that reduce quality of life and life span,

The Centers for Disease Control and Prevention (CDC) reports the prevalence of obesity in the U.S. was 42.4% in 2018, with current estimates indicating the global prevalence of overweight and obesity may exceed 57% by 2030.

"The importance of sharply focused scientific collaborations such as the SFRN on obesity cannot be overstated, particularly as the prevalence of overweight and obesity continues to escalate throughout the world," said Kevin Niswender, MD, Ph.D., associate professor of Medicine at VUMC and director of the Vanderbilt center, adding that "we have collectively taken several significant steps forward as we seek to more fully understand the causes of obesity, discover new therapeutic interventions and identify biomarkers to more precisely track both obesity and the success of weight loss."

A goal of the VUMC center research was to further advance precision medicine approaches to treating obesity while reducing cardiovascular disease risk.

The investigators focused on a particular drug target for diabetes and obesity, the glucagon-like peptide-1 receptor (GLP-1R), which has been shown to protect the heart and its arteries rather than increase the risk for cardiovascular disease.

As a result of the research of the VUMC team, it was determined that:

- Changes in the way the GLP-1R signals or communicates with cells, caused either by genetic variation or drug-like molecules, improve how cells respond to metabolic stress.
- GLP-1R activation does not directly alter how blood vessels function but does improve other markers of cardiovascular disease risk.
- Using electronic health record data, curated for cardiometabolic outcomes, together with linked genotyping, offers novel approaches to understanding obesity and cardiometabolic risk heterogeneity.

The SFRN was also tasked with developing a training program for investigators to pursue obesity-related investigations. AHA fellows were recruited at every center and presented their research at national and international conferences.

"This center accomplished many of the important goals of both VUMC and the AHA," said Joshua Beckman, MD, professor of Medicine, who served as a training co-director for the center.

"New knowledge was created that will advance our understanding of the interface between obesity and cardiovascular disease. New teams of investigators were brought together to attack these issues from basic, translational and clinical perspectives. New investigators were provided training in multiple disciplines to position them well to advance their careers and the science they will discover. All in all, it was a very VUMC-like effort—coming together to do big things," he said.

More information: Jeanne M. Clark et al, Obesity and Overweight: Probing Causes, Consequences, and Novel Therapeutic Approaches Through the American Heart Association's Strategically Focused

Research Network, *Journal of the American Heart Association* (2023). DOI: 10.1161/JAHA.122.027693