Researchers seek clues to high blood pressure's origins, impacts

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How high blood pressure develops and the effects it has on the body are the focus of a two-part study underway at Penn State and Johns Hopkins University that will look at hypertension in the human body and in the laboratory.

"One quarter of the population in the United States has undiagnosed or is being treated for essential hypertension," said Lacy Holowatz, assistant professor of kinesiology, who is the principal investigator on the project. "Not only is it pervasive, but it takes an emotional, physical, and financial toll on the people it affects. The results from our studies should provide new and important information on the how hypertension impacts the body's cardiovascular system."

The National Heart, Lung and Blood Institute of the National Institutes of Health will fund this five-year study for $1.7 million. The NIH's American Recovery and Reinvestment Act funding will supply $750,000 of the grant.

Essential hypertension, also known as primary hypertension, is high blood pressure with no identifiable cause. Secondary hypertension, in contrast, is high blood pressure that results from another condition or disease.

The research team will use a dual-examination approach analyzing hypertension and blood flow in the body and, in a more controlled situation, outside the body. The human studies will take place on the

University Park campus and will use microdialysis, a method where researchers insert a microfiber into a portion of skin about the size of a quarter and infuse certain drugs or solutions to only that area. For the external examination, Holowatz will work with researchers from the Johns Hopkins University who will analyze skin biopsy samples.

Holowatz will heat and cool the skin to examine blood vessel function. She will see how this differs in someone with hypertension compared with someone with normal blood pressure. Holowatz's aim is to shed light on potential therapeutic strategies for people with hypertension. The work is an extension of previous work by Holowatz and her colleagues that provided a better understanding of how hypertension affects the body's vascular system.

Source: Pennsylvania State University (news : web)