The Health Effects Are Immediate

As Soon As You Sit:
- Calorie-burning rate drops by 30%
- The enzymes that break down fat drop by 90%

After 2 Hours:
- "Good cholesterol" (HDL) drops by 22%
- Blood begins to pool in your lower legs

After 3 Hours:
- Arteries contract by 50%, decreasing blood flow
- Brain activity slows due to lack of oxygen and mood-enhancing hormones

After 6 Hours:
- Insulin effectiveness drops by 25%
- The spine is stressed 40% more than when standing

After 2 Weeks:
- "Bad cholesterol" (LDL) increases, as does risk for weight gain
- Muscles begin to break down, impede circulation

You may have recently heard phrases such as "sitting is the new smoking", supported by articles that suggest our sedentary lifestyle is slowly killing us. So what does it really mean? Even if we walk or exercise at the gym every day, or never or no longer smoke, sitting for extended periods of time can cause major health problems. Circulation throughout the day is the key. We're here to lay out the risks and how to prevent them.

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The Risks
Between computers, desk jobs and TV, Americans are sitting more than ever before and it’s leading to a deluge of long-term health problems. Dr. James Levine, co-director and professor of medicine at the Mayo Clinic/Arizona State University, is a leading researcher of how inactivity affects our long-term health: “Sitting is more dangerous than smoking, kills more people than HIV and is more treacherous than parachuting.” People who sat for 4 instead of less than 2 hours a day had a nearly 50 percent increased risk of death from any cause and about a 125 percent increased risk of events associated with cardiovascular disease. Dr. Levine and other researchers have found that prolonged inactivity increases the risk of developing serious illnesses including heart disease, Type 2 diabetes, dementia and even certain cancers.

The Remedy
The good news? Prevention is relatively simple – stand up and move! Exercise, while important and beneficial, isn’t enough – the key is reducing both the frequency and duration of sitting sessions. A recent study of over 8,000 US adults showed that adults who sat for less than 30 minute intervals had a lower risk of early death. As Dr. Levine puts it, we lose two hours of life for every hour we sit.

The vascular system is key to the health of our entire body, and it is now clearer than ever that moving to keep our blood flowing is crucial to maintain our quality of life.

Stand Up For Vascular Health
Show us how you and your friends, family, colleagues and loved ones are standing up for your vascular health by being active. Share your photo or personal story with us on Facebook or Twitter (#standup4vascularhealth) or by emailing us at standup@vascularcures.org for your chance to win a FitBit Charge 2.

For more information please visit vascularcures.org/standup.
The Power Of The Patient

Beyond the Tests: Patient Goals and Decision-Making

Dr. Matthew Corriere (2014 Wylie Scholar) is developing a tool for doctors to engage patients in shared decision-making about treatments for their peripheral arterial disease (PAD). PAD affects over 8.5 million Americans, including over 20% of those over age 65. A symptom of advanced PAD is claudication, characterized by leg pain and impaired walking. It presents some of the most complicated decision-making challenges to patients and providers. “Existing treatment guidelines are primarily based on disease severity and test results, without much attention directed toward the patient’s own goals,” says Dr. Corriere. The hope is that, with this new tool, doctors and patients together can create an individualized treatment plan consistent with what the patient wants to achieve, improving both outcomes and patient satisfaction.

Dr. Corriere is an Associate Professor of Surgery University of Michigan and is the leader of Vascular Cures’ Project Voice, a program focused on patient-reported outcomes research and patient empowerment.

Steve was playing tennis several times a week when suddenly he could not walk more than a few blocks without pain and fatigue. His physician diagnosed PAD and recommended leg bypass surgery, noting it might be needed again within 5 years. Steve sought a second opinion from another vascular surgeon who suggested he try a walking regimen instead. Eight years later Steve is still walking every day, playing tennis and free of leg pain. “I feel lucky that learning more about my condition and beginning a daily walking routine helped me to avoid both disability and surgery. Project Voice is a great example of bringing together digital health tools to meet the unique needs of patients with vascular disease.”

Doug’s diagnoses of PAD, complicated by other health issues, meant both bypass surgery and multiple stents followed by nine weeks in a rehabilitation facility. Once back home, he felt that he was left facing the world without the knowledge or support that he needed to make the life changes required to maintain and improve his health. Doug was enrolled in the pilot Project Voice clinical research study in 2016.

Project Voice gave Doug the resources he needed to take charge of his health. It helps patients realize they’re not alone on the journey.

“I wish someone would have given me Project Voice immediately after surgery. I learned from the materials, used the activity tracker and stuck to exercising regularly, and could follow my own progress. It gave me more self-confidence to learn more about my disease and know that if I panicked or had an uneasy feeling, I had a resource I could look at immediately.”

Doug and Steve’s experiences are not unique – engaged patients have been shown to have better outcomes, and walking has a proven benefit for PAD. Project Voice is a unique digital health platform that encourages patients to manage their own health through education, communities, exercise and self-monitoring. It also provides information reported directly by patients to their doctors to improve disease management (“patient-reported outcomes”). As Dr. Matthew Corriere describes, the ultimate benefit should be improved patient health and quality of life. “Often a patient with PAD may end up getting a procedure before they’ve had, what I would consider, a fair chance at succeeding with exercise therapy. There’s no question that Project Voice will allow some patients to succeed where they previously would have failed.”
Saving Organs for Transplant

In the United States, only 25% of the 120,000 patients who need an organ transplant ultimately receive one. Meanwhile, thousands of organs that might be used are discarded each year because of injury from inadequate blood flow (ischemic injury) as the donor is dying. Bryan Tillman, MD, PhD, and his team at the University of Pittsburgh Medical Center, have just received $1.3 million from the NIH to address this critical shortage. The project will test a new type of stent that could protect organs while being removed for later transplant. The ultimate goal is to increase both the number and success rate of organ transplants.

Saving Lives on the Battlefield

In recent years, the wars in Afghanistan and Iraq have caused an increase in the incidence of lethal injury. Dr. Bryan Tillman’s laboratory at UPMC is leading a Department of Defense-funded research study of a stent designed to save both military and civilian lives on the battlefield. This novel stent allows any emergency physician to stop bleeding at the point of trauma until patients can receive proper treatment at a healthcare facility.

Saving Diabetics from Amputation

The 20+ million people in the US living with Type 2 diabetes are at a much higher risk for major life and limb-threatening problems. Patients with diabetes have increased risk of wounds, infections, and lower-limb amputations – the main cause is diabetic peripheral arterial disease accelerated by damage to the nerves and blood vessels cause by high glucose levels. Approximately 60% of the more than 130,000 non-traumatic lower extremity amputations performed annually in the US are in diabetic patients, in spite of advanced medical therapies and procedures to open vessels for better blood flow. Two of our Wylie Scholars, Drs. Katherine Gallagher and Mohamed Zayed, are conducting groundbreaking research in this area to ultimately save limbs and lives.

Dr. Katherine Gallagher has received $2.4 million from the NIH to investigate how we may be able to better treat non-healing wounds, a major cause of illness and death in patients with Type 2 diabetes. The project aims to understand how certain healing factors are triggered so that, one day we may be able to manipulate that mechanism with targeted therapeutics. This builds on her Wylie project, which evaluated how stem cells that could help healing may be disordered in diabetic patients.

Dr. Mohamed Zayed is dedicated to understanding why his patients with diabetes are more prone to developing rapidly progressing forms of PAD. His research focuses on the factors that contribute to the distinct way in which PAD begins to develop in diabetics, specifically looking at the fat molecules that cause plaque progression in the arteries. The findings could lead to the development of targeted therapies that can treat diabetic patients with PAD sooner, thus improving limb salvage rates in this vulnerable population.
Developing Innovators Who Advance New Patient Treatments

The Wylie Scholar career development grant is awarded annually to young surgeon-scientists who combine patient care with academic research – a pipeline of innovators who go on to have a lifetime of patient impact. With the research supported by this award, they can successfully compete for more substantial research funding. There have been 20 recipients to date and the program has a return on investment of 24:1 – for every $150,000 invested in them, on average Wylie Scholars secured an average of $3.5 million in additional research funding from federal or foundation sources.

Collaborations Accelerate and Improve Results

As part of our mission to advance collaborative relationships within healthcare, Vascular Cures launched our Collaborative Patient-Centered Research (CPCR) Grants program in January of this year. Two multi-institutional teams are receiving $100,000 to conduct short-term, high impact projects that utilize and create shared resources.

Dr. Larry Kraiss, University of Utah with collaborators at Emory, Dartmouth, Stanford and Nebraska is developing a tool to predict a patient’s ability to maintain independent living following surgery. The goal is to enable patients and clinicians to make fully informed decisions about whether or not to have surgery. Since funding, five sites have initiated the clinical trial approval process and 46 patients have been enrolled to date.

Dr. Karen Ho, Northwestern with collaborators at University of Chicago and Harvard is studying the mechanism by which some of the trillions of microbes that live in our gut influence the development of severe atherosclerosis (narrowing of the arteries), including peripheral arterial disease. The study has already completed its first milestone, a pilot study to expand our understanding of the specific molecules linked to severe atherosclerosis. The results, titled “Microbiome-modulated Metabolites and Advanced Atherosclerosis”, will be published in the Journal of Vascular Surgery later this year.

A New Chief in Town

Vascular Cures congratulates Matthew Eagleton, MD on his new position as Chief of Vascular and Endovascular Surgery at Massachusetts General Hospital. Dr. Eagleton is the 2007 Wylie Scholar and former Associate Professor, Vascular Surgery and Biomedical Engineering at the Cleveland Clinic Lerner College of Medicine.

$100 Million for Cardiovascular Artificial Intelligence

Dr. Barry Rubin has obtained a $100 million donation for the Peter Munk Cardiac Centre (PMCC) in Toronto, Canada to improve health outcomes for patients living with cardiovascular diseases. Dr. Rubin (on our advisory board and the 1998 Wylie Scholar), is the Chair and Medical Director of PMCC at the University Health Network. The unprecedented donation will be invested largely in the Centre’s potentially revolutionary artificial intelligence platform. “We could monitor a patient’s heart beat every second of the day,” said Dr. Rubin. “That system, using an AI-based protocol, could do things that no human could do, which is identify problems that may be on the horizon.”

Mark your calendars for our annual celebration

Circulate!
May 12, 2018
San Francisco, CA