

About CÚRAM

Backed by Science Foundation Ireland (SFI), CÚRAM is a world leading SFI research centre with expertise in medical device technology. With ten partner institutes and 32 industry partners, researchers at CÚRAM are designing the next generation of medical devices. CÚRAM's aim is to improve the quality of life for people suffering from chronic illnesses like diabetes, cardiovascular disease and Parkinson's disease.

In support of SFI's 'Agenda 2020' goal of having the most engaged and scientifically informed public, CÚRAM has developed an innovative Education and Public Engagement programme (EPE) called 'Breaking Barriers'. CÚRAM's EPE programme aims to raise awareness of Irish research and increase understanding of preventative behaviours that can reduce the incidence of chronic illnesses.



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Further resources such as films, flyers and lesson plan booklets are free to download at:
www.curamdevices.ie/curam/public-engagement/teachers-in-residence



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Strength in Science



The Effects of Exercise on Your Blood



SFI Research Centre for Medical Devices

www.curamdevices.ie



? What is The 'Strength in Science' Project?

Physical inactivity is one of the leading risk factors for poor health and is now identified by the World Health Organization (WHO) as the fourth leading risk factor for global mortality.

In Ireland, physical inactivity is thought to be responsible for 8.8% of the burden of disease from coronary artery disease, and 10.9% of type 2 diabetes. The 'Strength in Science' project aims to develop cross-curricular resources that are linked with both Science and Physical Education curricula that will increase students' interest in both learning science and participating in exercise.

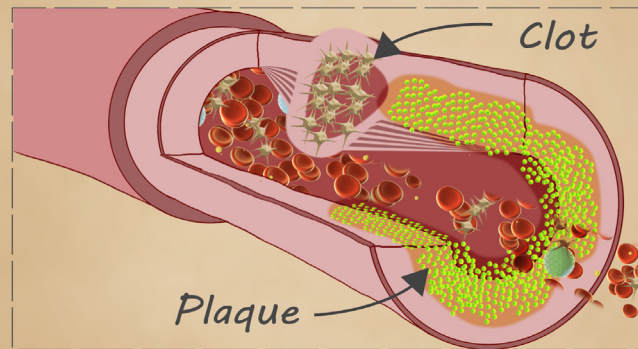
Photo: Dr. Karen Doyle



Image © A Tiny Spark

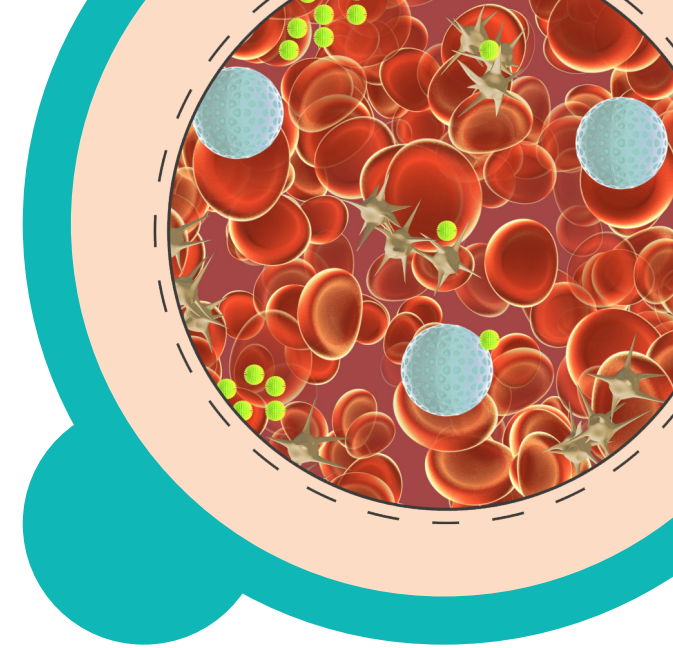
? How Does Exercise Affect Your Blood?

Your blood is the life source of your body, as it brings oxygen and nutrients to all of your vital organs. In your blood you will find red blood cells, white blood cells, plasma, platelets and cholesterol. Your body needs a certain amount of cholesterol to build your cells, but if you have too much it can build up on the inner walls of your blood vessels and cause what is called a plaque to form.



Plaques can form in blood vessels all over your body, including the ones in your brain. Plaques in blood vessels can signal to your platelets to form a clot which can block the flow of blood. If a clot blocks a blood vessel in your brain, it prevents oxygen and nutrients from fuelling your brain which can result in a stroke.

Exercise keeps blood vessels healthy by lowering your blood pressure and cholesterol. Exercise also boosts nitric oxide production by the cells lining the insides of the blood vessels. This keeps the insides of your blood vessels dilated and healthy which prevents blood cells and platelets from attaching and forming clots.



? How Are Irish Researchers Developing Treatments for Stroke Patients?

Dr. Karen Doyle and her team at the National University of Ireland Galway are helping to develop new strategies to treat blood clots in stroke patients. The components of blood clots that cause strokes can vary considerably. What a clot is made up of can affect how easily it is removed from a blood vessel in the brain using a surgical procedure called a thrombectomy. Dr. Doyle and her Postdoctoral Researcher, Dr. Seán Fitzgerald, study the composition of blood clots after they have been removed from patients. This research helps clinicians and a local medical device company, Cerenovus, to improve the design of medical devices used to surgically remove clots following a stroke and hopefully improve the outcome for patients.