



Heart Murmurs

October 2019

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Heart Murmurs is the newsletter of CASE published in February, March, April, May, September, October, November and December each year. Suggested articles can be submitted to Barry Clark at kbclark1@telus.net Back issues of the newsletter are posted on the CASE website at: <http://www.edmontoncase.ca>

If you wish to unsubscribe from this newsletter, please e-mail stuart_e@telus.net with a subject line 'unsubscribe'.

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Support for CASE

As a recognized charitable institution, CASE makes a significant difference to people interested in maintaining their heart health. If you make a financial gift, either as a direct contribution, or in the memory of a member who has passed, we will issue a tax receipt.

EDUCATION EVENING

The Education Evening for October 21 in Terwillegar Multi Purpose Room B at 7:00 PM on the subject of "ESSEINTRICS". This is a is a great fitness program that will improve mobility, decompress the joints and work EVERY muscle, joint, soft tissue and fascia using safe dynamic motions. It will be taught by Lori Griffith, a Certified ESSEINTRICS® Instructor and lifelong fitness enthusiast who is the owner of eOne Fitness Studio in Windermere. The evening is focussed on the techniques that and how the program can improve your health and daily activities and reduce chronic pain. The session includes a 45 minute demonstration, so bring a yoga mat and come try it out.

UPCOMING EVENTS

Save the date of November 18 for an Education session on “***Live Safely and Longer in Your Home***”. This session was originally to be held in May but had to be postponed to November.

Also, Costco has its Christmas decorations and toys out so it is time to think about saving the date for the CASE Christmas Dinner that will be held the evening of Sunday December 8. Tickets will be on sale in November. Look for more information in the next newsletter.

MEDICAL DEVICES POWERED BY THE HEART

For those whose hearts occasionally go off rhythm, pacemakers are, quite literally, life savers. By providing a small electrical jolt at the right moment, they can keep a heart working at the appropriate pace. Their main drawback is that they use batteries. Even the best of them eventually run out of energy, and replacing the batteries requires surgery.

Since surgery is generally best avoided, the search has been on for long-lasting power sources. Various options have been explored, including, in the 1970's, plutonium. Nuclear-powered pacemakers have thankfully fallen out of fashion and today, devices with lithium batteries last between 5 and 15 years. Zhang Hao of the Second Military Medical University, in Shanghai, and Yang Bin of Shanghai Jiao Tong University sought a way of recharging a pacemaker's battery by scavenging energy from inside the body. As they report in the journal ACS Nano they have used the heart muscle itself to power a tiny generator.

Previous attempts to use cardiac muscle power to run pacemakers relied on piezoelectric materials. These release electrons when deformed and can be attached to beating hearts so that they are slightly bent with each heartbeat, generating electricity. This has worked, but not well enough: the output has rarely exceeded five microwatts, while most pacemakers require at least ten.

Dr Zhang and Dr Yang speculated that they could improve matters by arranging for their piezoelectric composites to be more dramatically deformed. First, they created a small capsule from a sheet of flexible polymer a tenth of a millimetre thick. After compression, this capsule would return to its original shape. They then attached strips of piezoelectric composite to either side of the capsule, attached electrodes to these strips, and covered the strips with a protective layer of silicone. This layout meant that the strips were slightly bent from the beginning and required only a tiny, brief pressure to generate 15 microwatts.

The question was where to put the capsule, either in or on the heart, in order to get a similar effect. A study of cardiac anatomy suggested the pericardial sac, at the organ's base, would be ideal. It would squeeze the capsule tightly as the heart contracted and still keep a firm grip on it when the heart was relaxed.

To test this idea, the capsule's electrodes were attached to a commercial pacemaker that had had its battery removed, and surgically implanted into a 50kg Yorkshire pig. The capsule generated enough power for the pacemaker to function normally. Whether such an arrangement will pass human trials remains to be seen. But if it does, the days of pacemakers that need battery replacements, with all their associated surgery, may be numbered.

Source: The Economist March 23, 2019

HANDS ONLY CPR: A LIFESAVING TECHNIQUE WITHIN YOUR REACH

The simple version of cardiopulmonary resuscitation — pushing hard and fast on the chest — can double a person's odds of surviving cardiac arrest. If someone suddenly collapses and stops breathing, the most likely cause is cardiac arrest. An electrical malfunction causes the heart to beat rapidly and chaotically — or to stop beating altogether. But if a bystander immediately begins chest compressions, which mimic the heart's pumping action, blood keeps flowing to the person's brain.

For more than a decade, guidelines have recommended this simpler version of cardiopulmonary resuscitation (CPR), which does not involve the mouth-to-mouth breathing used in standard CPR. Now, a large Swedish study confirms that just like standard CPR, hands-only CPR doubles a person's odds of surviving at least 30 days after cardiac arrest. Researchers analyzed data from more than 30,000 cases of out-of-hospital cardiac arrest from 2000 to 2017, when hands-only CPR was gradually adopted into Sweden's CPR guidelines. Hands-only CPR use rose six-fold over the course of the study, published online April 1 in the journal *Circulation*.

Overcoming barriers: "We need to do a better job encouraging people to perform bystander CPR, and learning this simpler version seems to help," says Dr. Charles Pozner, associate professor of emergency medicine at Harvard-affiliated Brigham and Women's Hospital. Hands-only CPR eliminates worry about contracting a disease, one of the main reasons people say they'd hesitate to perform CPR. People also say they're afraid of injuring the person by doing compressions incorrectly or on someone who doesn't actually require CPR. "It's true that even correctly done CPR can crack a person's ribs," says Dr. Pozner. But it's better to perform chest compressions on somebody who doesn't need them than to withhold compressions from someone who does, he adds.

How to do hands-only CPR: If someone suddenly collapses, shake them and yell "Are you okay?" If you don't see what appears to be normal breathing, call 911. If you put your phone on speaker, the 911 operator can talk you through what to do, but here are the basic steps:

1. Place the person on the floor and kneel beside the person.
2. Place the heel of one hand on the center of the person's chest. Place the heel of the other hand on top of the first hand and lace your fingers together.
3. Position your body so that your shoulders are directly over your hands. Keeping your arms straight, push down with your arms and hands, using your body weight to compress the person's chest.
4. Push hard enough to press the chest down approximately two inches.
5. Continue pressing the chest at a rate of 100 to 120 compressions per minute.

Continue hands-only CPR until emergency medical personnel arrive. If possible, enlist another person to take over for you after a few minutes because doing the compressions can be tiring.

Chain of survival: To be clear, CPR does not restart a person's heart, but it's a crucial step in the chain of survival. CPR keeps blood circulating until the person's heart can be shocked back into a normal rhythm with an automated external defibrillator (AED). Although emergency personnel will bring and use this device, bystanders must be trained to obtain and use a public-access AED if we want to have the most favorable outcomes. Many public areas — airports, malls, casinos, sports arenas, and office buildings have AEDs. The devices use voice prompts, lights, and text messages to guide users through the required steps.

Remember these two steps: If you witness a cardiac arrest remember to:

- (1) call 911 and
- (2) push hard and fast (but not too fast) on the center of the chest.

Source: [Harvard Heart Letter](#). Published: July, 2019

CASE Events Calendar - October 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 Exercise Program Volleyball 3:45 Aerobic/Stretch 4:45	2	3 Exercise Program Volleyball 3:45 Aerobic/Stretch 4:45	4	5
6	7 Thanksgiving Day	8 Exercise Program Volleyball 3:45 Aerobic/Stretch 4:45	9	10 Exercise Program Volleyball 3:45 Aerobic/Stretch 4:45	11	12
13	14	15 Exercise Program Volleyball 3:45 Aerobic/Stretch 4:45	16	17 Exercise Program Volleyball 3:45 Aerobic/Stretch 4:45	18	19
20	21 Education Evening Essentrics TFRC 7:00 pm	22 Exercise Program Volleyball 3:45 Aerobic/Stretch 4:45	23 Social Breakfast SEESA 9am	24 Exercise Program Volleyball 3:45 Aerobic/Stretch 4:45	25	26
27	28 Board Meeting Bonnie Doon 9 a.m.	29 Exercise Program Volleyball 3:45 Aerobic/Stretch 4:45	30	31 Exercise Program Volleyball 3:45 Aerobic/Stretch 4:45		