

Research Roundup

Exercise: Sprint Training vs. Moderate Training

According to a recent study conducted by McMaster University in Ontario, Canada, the physiological effects of sprint interval training (SIT) are congruent with the effects of moderate-intensity continuous training (MICT). Sprint interval training consists of several short periods of intense exercise, each followed by a period of low-intensity exercise, whereas moderate-intensity continuous exercise is characterized by a constant level of moderate exercise for a long period of time.



Over a period of 12 weeks, researchers recorded the changes in body fat, heart and lung fitness, blood sugar control, and skeletal muscle content in participants who were deemed inactive by an International Physical Activity Questionnaire. The total body fat percentage in all participants decreased by 2%, and the maximum oxygen intake increased by about 19% for both the SIT and MICT groups. Additionally, the body's ability to absorb blood sugar similarly increased in both groups, and the concentration of an energy-metabolizing protein in muscle cells increased by 48% and 27% in the SIT and MICT groups, respectively.

Twelve weeks of sprint interval training decreased body fat and increased cardiorespiratory fitness, blood sugar control, and skeletal muscle fitness to the same degree as moderate-intensity training; the only difference between these two exercise methodologies is the length of time that each one involved. A session of SIT took 10 minutes, whereas a session of MICT took 45 minutes—almost an 80 percent difference in time commitment. While SIT may appear to be a better option than MICT with regards to time commitment, not all people have the level of physical activity, fitness, and motivation that SIT requires.



USDA bans chemicals used in antibacterial soaps

The U.S. Food and Drug Administration (FDA) recently announced that manufacturers of over-the-counter consumer antiseptic wash products containing at least one of 19 specific active ingredients, including triclosan and triclocarban, will no longer be allowed to market those products.

According to the U.S. Food and Drug Administration (FDA), there isn't enough science to show that over-the-counter (OTC) antibacterial soaps are better at preventing illness than washing with plain soap and water. In 2013, the FDA requested safety and efficacy data from manufacturers, consumers, and others if they wanted to continue marketing antibacterial products containing those ingredients. However, the FDA received very little information. Consequently, the FDA recently issued a compliance ruling that bans the questionable chemical only in consumer antibacterial soaps and body washes used with water. It does not apply to hand sanitizers, hand wipes or antibacterial soaps used in healthcare settings.

“Following simple hand washing practices is one of the most effective ways to prevent the spread of many types of infection and illness at home, at school and elsewhere,” said Theresa M. Michele, MD, of the FDA's Division of Nonprescription Drug Products. “We can't advise this enough. It's simple, and it works.”

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The Coffee Curiosity

Coffee has a bigger impact on your health than the caffeinated high it produces several seconds after the first sip. Griffith University in Gold Coast, Australia, determined that coffee has a positive psychological and metabolic effect on exercise routines—specifically on general mood and energy utilization. The World Health Organization’s International Agency for Research on Cancer (WHO-IARC) also conducted a study that examined the connection between coffee and esophageal cancer.



Griffith University studied the physiological and metabolic effects of caffeine in a group of people who exercised on a regular basis. For the experiment, researchers split 14 people who were deemed physically active into three separate groups: a control, a placebo, and a caffeine group. Each group underwent a four hour routine that consisted of a period of exercise and rest, blood tests, psychological evaluations, and lunch. The caffeine group’s evaluations reflected a reduction in muscle pain and an increase in the enjoyment of the exercise compared to the placebo and control groups.

In order to discover the metabolic effects of caffeine during exercise, researchers assessed the amount of lunch that was consumed and recorded the energy output and chemical composition of respiration during the workout. These calculations revealed that caffeine caused a greater energy expenditure during the workout, decreased fat consumption, increased fat oxidation (burning fat), and suppressed hunger at the end of the workout.

The metabolic effects of caffeine require a long term exercise routine in order to produce substantial results, as caffeine only slightly influences short term exercise routines. Additionally, more research must be conducted in order to examine the roles of tolerance, as tolerance to caffeine may decrease metabolic effects. The results in this study can be expanded by conducting an experiment that investigates how manipulating variables such as intensity, time, and type of exercise will impact the metabolic and psychological effects of caffeine.

The WHO-IARC recently determined that coffee, specifically the chemical composition of coffee, is not carcinogenic; however, the agency classified hot beverages as “probably carcinogenic to humans”, as hot beverages may cause esophageal cancer. Their study consisted of analyzing patterns in countries such as China, the Islamic Republic of Iran, Turkey, and South America. Hot beverages are commonly ingested in these regions, and these regions revealed an elevated appearance of esophageal cancer.

Esophageal cancer begins in the esophagus, and occurs when cancerous esophageal cells travel to other parts of the body and produce tumors. This cancer is the 8th most common cause of cancer in the world, and is responsible for five percent of all cancer deaths. While limited evidence suggests that the elevated temperature of drinks such as coffee, tea, and mate may cause esophageal cancer, the magnitude of esophageal cancer cases that are linked to the ingestion of hot beverages is currently unknown.

Whether coffee promotes the positive effects of exercise or causes cancer at hot temperatures, more research must be conducted in order to expand and support the claims depicted in these studies.

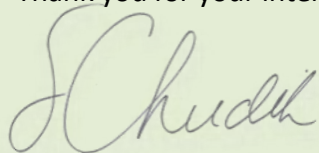
Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation helps people stay fit and healthy

Steven Chudik, orthopaedic surgeon and sports medicine physician with the Steven Chudik Shoulder and Knee Injury Clinic, founded the Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation (OTRF) in 2007. OTRF is a nonprofit, 501 (c)(3) organization dedicated to funding research and education for the purpose of keeping people active and healthy.

Dr. Chudik has seen a growing demand by patients, athletic trainers and clinicians for up-to-date medical information and unbiased research on injury prevention—especially for children—as well as facts on arthritis and wear and tear on joints, cartilage, tendons, ligaments, etc. To fulfill these requests, OTRF produces and distributes this newsletter, shares information about health performance-related issues like nutrition and fitness, hosts athletic training educational programs, conducts seminars for healthcare providers and the community and most important, funds unbiased research and development particularly in emerging areas such as arthroscopic and minimally invasive surgery for injuries to the meniscus, labrum, rotator cuff, ACL and cartilage.

However, none of this is possible without ongoing financial support. We are extremely grateful to all those who have contributed in the past. Many of the donations came from patients or their family members who benefited from Dr. Chudik's orthopaedic and sports medicine expertise. If you might be interested in helping us continue our research, please visit our website, otrfund.org and click on the donation link. Or, if you prefer, email me at contactus@chudikmd.com/. Also, many companies sponsor programs that match charitable contributions made by their employees. Some even match donations made by retirees and/or spouses. Matching gift programs are a great way to double your generosity. Regardless of the amount, every contribution helps make a difference.

Thank you for your interest in our newsletter, *Active Bones*, and the ongoing work of OTRF.



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