



Can you feel the burn? How moderate activity contributes to your fitness

By Dawn Whiting

As the impact of nutrition and physical fitness on overall health becomes more well-known, people are becoming increasingly aware of their caloric balance – how many calories are consumed compared to how many calories are burned. People with a goal of weight loss strive to achieve a negative caloric balance. Individuals aiming to improve physical performance may focus on a positive caloric balance to ensure they adequately replace calories lost during exercise and properly fuel for their next workout. Regardless of your goals, understanding how calories are burned is a crucial step in achieving your desired caloric balance. Increasing the amount of moderate activity throughout your day is one simple way to burn additional calories.

How do we burn calories?

If you do an internet search on how to lose weight, the results will contain everything from fad diets and weight loss pills to exercise programs and surgical interventions. At the most fundamental level, however, weight loss can be achieved in only one way – burn more calories than you consume. Understanding the factors that contribute to total energy expenditure (TEE), or the total amount of calories your body uses, is helpful in recognizing ways to increase calories burned and decrease body weight. Total energy expenditure has three primary components^{1,2}:

- Resting Metabolic Rate (RMR) – number of calories your body uses while at rest. RMR is determined primarily by body weight, composition (muscle vs. fat) and genetics. This generally accounts for about 70% of TEE.
- Thermic effect of food – number of calories you burn digesting your food. This can range from 6%-10% of your TEE.
- Activity-induced energy expenditure – number of calories burned doing any type of physical activity. This is the component of total energy expenditure over which you have the most control, so it makes sense to target your interventions at this component. Physical activity accounts for approximately 20% of your TEE.



How do we burn more calories?

Any form of physical activity causes activity-induced energy expenditure. Each week, it is recommended that individuals engage in a minimum of 250 minutes of moderate physical activity per week for weight loss, and 150 minutes in order to maintain a healthy weight, improve mood, and decrease the risk of chronic illnesses such as cancer, cardiovascular disease and diabetes.³ Many people rely on exercise, or the conscientious act of putting forth physical effort, for their physical activity, however, exercise is only one way to be physically active. It is important to consider all types of physical activity, including routine, daily activities. When doing so, you will discover lots of new ways to burn a few extra calories throughout your day. For example:

- Take the stairs instead of the elevator.
- Park in the furthest spot from the entrance when you are running errands.
- Consider walking or biking if you are traveling for less than one mile.
- Do active household chores:
 - Vacuum and clean your house.
 - Lift your groceries out of your car.
 - Get outside – plant a garden, mow the lawn with a push mower, rake the leaves or shovel snow. All are great ways to get your heart rate up!

Research has shown that prolonged sitting can contribute to weight gain which in turn may increase your risk of chronic diseases such as, cardiovascular disease, diabetes and cancer. The good news is that regular breaks from prolonged sitting have the potential to reduce body mass index, waist circumference and triglyceride levels, alleviating some of these health risks.⁴ Some ways to reduce the amount of time spent sitting include:

- March in place during commercial breaks when watching television, or see how many push-ups you can do before your show comes back on.
- Walk to your co-worker's desk to talk to them instead of sending an email.
- Set an alert on your calendar or phone to remind you to get up, stretch and walk around every two hours.
- Perform chair exercises to burn calories while you are at work or at your home computer. See the attached document for chair exercise suggestions and descriptions.

Another way to increase your calories burned is to add resistance training to your workout regimen. This can be accomplished in a variety of ways, including exercise using weight machines, free weights, resistance bands or your own body weight. While both endurance training and resistance training decrease total fat mass, resistance exercise training (also known as strength training) has



been shown to also increase fat-free mass, which includes lean muscle. Increases in fat-free mass also lead to higher RMR, which means you burn more calories after your workout is complete by simply going about your daily activities.⁵

The role of nutrition

Achieving and maintaining a healthy weight and level of fitness requires a combination of active living and healthy eating.⁶ In addition to helping you reach and sustain your desired weight, a healthy, well-rounded approach to nutrition is necessary to fuel your body, mind and daily performance. Selecting foods that are nutrient-dense provides your body with valuable energy. The [Navy and Marine Corps Public Health Center](#) has tools and resources for general nutrition, performance nutrition, weight management and active living.

Resources to help get you moving

Engaging in moderate to intense activity helps you look good, feel good and perform at your best. Achieving the recommended 150 minutes of moderate activity per week may seem overwhelming, until you consider all of the different ways you can get moving. To learn about more ways to be active, including the [Navy Operational Fitness and Fueling System](#) (NOFFS) designed to “eliminate the guesswork” from exercise programming, visit the Navy and Marine Corps Public Health Center Active Living website at <http://www.med.navy.mil/sites/nmcphc/health-promotion/active-living/Pages/active-living.aspx>.

Dawn Whiting is a Public Health Educator and a National Academy of Sports Medicine Certified Personal Trainer. A former Navy nurse, Dawn also holds a Masters Degree in Exercise Science and Health Promotion.

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Chair Exercise Suggestions and Descriptions

- **Triceps dips**
 - Slide forward in your chair until you are sitting on the edge.
 - Stick your legs straight out so your heels are on the floor and toes are pointed towards the ceiling.
 - Grab the front edge of your chair with both hands, about shoulder width apart, knuckles pointing forward.
 - Lift your tailbone and bring it about two inches in front of your chair. *If you are on a rolling chair do not forget to brace the chair against the wall for safety.
 - Bend your elbows and lower your hips towards the ground. Use your arms (not your legs) to push yourself back up.
 - Repeat 10-15 times.
 - To make the exercise more challenging, keep your legs straight; beginners can bend the knees slightly to decrease the effort.
- **Chair crunches**
 - Slide forward in your chair until you are sitting on the edge.
 - Grasp the sides of the chair with both hands.
 - Extend your legs straight out in front of you.
 - Lean backwards in your chair, but do not rest against the back of your chair. You should feel your abdominal muscles engage.
 - Keeping your legs straight, lift them off of the floor.
 - Bend your legs and bring your knees towards your chest, then extend them back out to straight.
 - Repeat 10-15 times.
- **Chair squats**
 - Slide forward in your chair until you are sitting on the edge, stomach pulled in and back straight.
 - Plant your feet flat on the floor about shoulder-width apart.
 - Digging your heels into the ground (you should be able to wiggle your toes), stand up straight. *Keep your knees pointing forward over your ankles – they should not cave in towards the center.
 - Keep your hands and arms out in front of you to resist pushing off.
 - Once you are standing up straight, slowly lower yourself back down over your chair like you are going to sit back down.



- As soon as your butt touches the chair, drive through your heels to stand back up again.
- Complete this 10 times.
- Speed-bag exercise
 - Slide forward in your chair until you are sitting on the edge, stomach pulled in and back straight.
 - Raise your arms so your elbows are above your shoulders and perform speed-bag punches.
 - Do 10 seconds to the left, 10 seconds to the right, and 10 seconds straight in front of you for a total of 30 seconds of punching.
- Desk push-ups
 - Stand up and face your desk. Place your hands on the edge of the desk, shoulder-width apart.
 - Extend your legs behind you so you are in a push-up position. Your head, back, butt and heels should be in a straight line.
 - Keeping your abdomen pulled in towards your spine, bend at the elbows to lower yourself towards the desk.
 - Push yourself away from the desk to return to the starting position.
 - Repeat 10-15 times.
 - To make this exercise easier, only lower your body a couple of inches towards the desk. To make this exercise more difficult, use a surface that is lower to the ground such as your chair instead of your desk, again remembering to brace chairs with wheels against a wall.