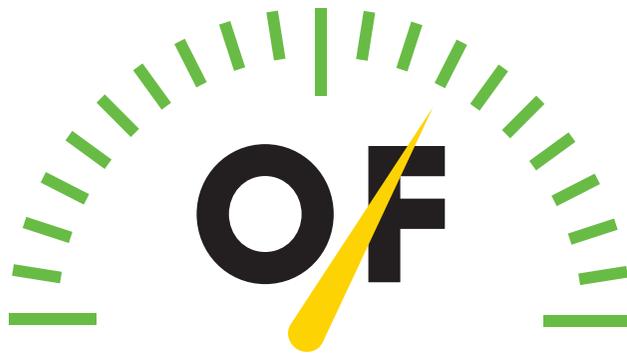




THE SCIENCE



METABOLISM

There's a microscopic chemistry lab in each of your cells, working around the clock to turn your food into fuel. Here's how this process affects your energy, weight and even mood — plus tips on how to make your metabolism as speedy and efficient as possible

By Elaine Chin, M.D., William Howatt, Ph.D., and Jaclyn London, M.S., R.D.

THE BASICS

So What Is Metabolism, Anyway?

Think of it as the engine within your cells that keeps you going. A car runs on gas; you run on calories, which are units of energy. Most of these calories are burned through your body simply doing its job existing: fueling your cells and keeping your heart pumping, your blood circulating, your lungs breathing, your digestive system working and your brain neurons firing (in fact,

your brain alone needs about 420 calories a day just to keep functioning). You're always incinerating calories, even while asleep.

Here's how it works:

- 1)** You eat food.
- 2)** Your body breaks it down into its simplest forms of carbohydrates, protein and fat.
- 3)** The calories in those components are converted to energy, used by your cells and tissues to grow and repair themselves.

We know what you really want to know: Is there a way to burn more—that is, to get

a faster metabolism? The answer is yes. It begins with what you eat and how you move—more on these two coming up. Other factors:

Genetics: You may have a naturally faster or slower metabolism, though lifestyle still has a big impact.

How stressed you are: Long-term stress releases hormones that screw with your digestion so your food isn't used as efficiently.

How well you sleep: This is critical. When your body is shortchanged on zzz's, it's pushed into conservation mode, so you burn fewer calories.

Eat to Burn

It's lunchtime! As your body breaks down your meal, your brain gets feedback signals—from the nutrients, your hormones and how much you're moving around—and “decides” whether to use the calories right then or store them. This is what affects your metabolic rate:



HOW MUCH YOU EAT. Consistently take in more calories than you need, and a lot of what isn't used gets stored as fat.



WHEN YOU EAT. Chowing down every three to four hours keeps your metabolism chugging. There may also be an advantage to front-loading calories: People who skip breakfast tend to have a surge of the hunger-boosting hormone ghrelin in the p.m., so they munch before bed. This can disrupt sleep, which messes with your metabolism.



WHAT YOU EAT. Skip low-nutrient simple carbs. They're digested so quickly that they set off a cascade of metabolic reactions that soon leaves you hungry again. You eat more overall—hello, lbs! Down a combo of fibrous complex carbs and protein, which will keep you full so you'll eat less.



TURMERIC AND SPICY FOODS

Compounds in turmeric have been linked to reduced risk of chronic inflammation, which is connected to obesity. But (sorry) more turmeric doesn't rev your metabolism. As for spicy foods, some research has tied the capsaicin found in hot peppers to an increased metabolic rate; it also may help mobilize fat cells to be used for energy. But you'd need to eat a ton: In one study, people who took a daily capsaicin supplement for 12 weeks lost less than a pound.

WATER WITH LEMON Sipping a very hot or very cold beverage may help raise metabolism—but the impact lasts only about 30 to 40 minutes after drinking it. That said, being well hydrated is crucial for maintaining a healthy weight; if adding some lemon helps you do that, go for it.



CAN FOODS MELT FAT?

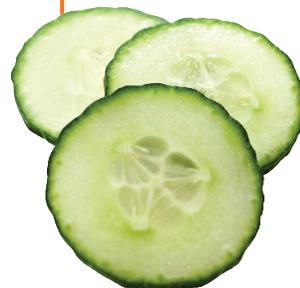
If you believe what you see online, you probably think there are loads of miracle eats that eradicate pudge. If only! The real deal...

“NEGATIVE CALORIE” FOODS

This is not a thing, although we wish it were. There's no scientific basis to the long-standing perception that some foods—like celery and sugar-free gum—boost metabolism because they're low in calories and require so much chewing that you actually burn more cals than you eat.



TEA AND COFFEE A few small studies have linked a speedier metabolism to certain teas (especially green and black) and caffeinated coffee. The effect apparently comes from the combo of caffeine and flavonoids (antioxidant-like compounds); the modest benefit seems to kick in once you've had at least four cups in a day. However, because sleep is also key to a swifter metabolism, you'll want to find a balance.



OF THE CALORIES YOU TORCH...

60%-75%

are expended to fuel hardworking organs like the brain, heart and lungs

15%-30%

are used as you move, whether that's at Zumba or while vacuuming

10%

are burned by the process of digesting your food and drink

**THE FITNESS FACTOR**

Moves that fire up your metabolism

There are so many reasons to exercise—it's super-important for your heart, brain, bones and immune system. And the more you move, the more calories you'll burn. But exercise will not zero out a high-calorie, bad-quality diet—you just won't burn enough. For weight control, follow the advice in "Eat to Burn" (*previous page*). What exercising *can* do: make your metabolism speedier by increasing your levels of testosterone and growth hormone. So kick it up with a three-pronged approach:

**CARDIO**

Doing intervals can be especially effective at raising your metabolic rate and burning fat. It can also produce an afterburn, meaning you'll continue to zap calcs after exercising. To do an interval workout, alternate steady movement (say, a brisk walk) with faster movement (a moderate jog). Aim for 20 to 30 minutes at least three times a week.

**STRENGTH TRAINING**

Building muscle revs your metabolism. The why: Even at rest, muscle burns four times as many calories as fat, so the more muscle you have, the more you'll burn. (That's why men tend to have faster metabolisms—more muscle!) Do at least two weight workouts per week.

**"NEAT" MOVEMENT**

That's "nonexercise activity thermogenesis": the calories expended by fidgeting during a meeting or running to the water fountain. In one study, those who did lots of NEAT movement burned as much as 2,000 calcs more a day! So stroll when you're on the phone; hit a museum rather than a movie; go to the store instead of ordering online.

OUTSMART YOUR WEIGHT

FIRST, THE BUMMER NEWS

For complex biological reasons, putting on major pounds can lead to a sluggish metabolism, which can mean more weight gain. Being overweight can lead to health issues (such as diabetes) that can further slow your metabolism, leading to... you guessed it: even more weight gain.

THE GOOD NEWS

You can flip that cycle on its head. Start with: **Exercise** This helps you sleep and increases certain appetite-suppressing hormones; eating lean protein and less sugar and junky carbs also helps.



The hormone surge makes your metabolism crank, helping you lose pounds and get healthier.



More serotonin is produced because you're eating and sleeping better, which can relieve symptoms of depression.



A happier you is apt to be more active, which leads to an even faster metabolism. Nice work.

JILLIAN MICHAELS'S

Fast Blast

By incorporating nearly every muscle group in the body, this dynamic, explosive exercise burns more calories while you do it and long after your workout is over.



LONG JUMP WITH CRAWL BACK

1. Start standing with feet hip-width apart.
2. Perform long jump: Bend knees and, swinging arms, take off as far forward as you can, landing on both feet (A).
3. Hinge at hips to place both hands on floor.
4. Jump back into plank position, with arms straight under shoulders and abs tight.
5. Walk hands backward toward feet (B), keeping legs as straight as possible and lifting tailbone toward the ceiling. Stand and repeat for 30 seconds. Do three sets.



WORK OUT WITH JILLIAN'S APP

Skip the gym—use your smartphone instead! Jillian's personalized fitness app makes it easy to tone up at home. *Good Housekeeping* readers get a special 10% off at jillianmichaels.com/gh.

THE SCIENCE OF...

Experts On Call



ELAINE CHIN,
M.D.

Founder and chief medical officer of Executive Health Centre in Toronto, Canada



WILLIAM
HOWATT, PH.D.

Behavioral scientist and expert in mental health and coping skills



JACLYN
LONDON,
M.S., R.D.

Nutrition director of the Good Housekeeping Institute

Jillian Michaels: My Fitness App. London: Mike Garten.

IMPORTANT SAFETY INFORMATION (Continued)

There has not been a confirmed serious case of spread of toxin effect away from the injection site when BOTOX® (onabotulinumtoxinA) has been used at the recommended dose to treat chronic migraine.

BOTOX® may cause loss of strength or general muscle weakness, vision problems, or dizziness within hours to weeks of taking BOTOX®. If this happens, do not drive a car, operate machinery, or do other dangerous activities.

Do not take BOTOX® if you are allergic to any of the ingredients in BOTOX® (see Medication Guide for ingredients); had an allergic reaction to any other botulinum toxin product such as Myobloc® (rimabotulinumtoxinB), Dysport® (abobotulinumtoxinA), or Xeomin® (incobotulinumtoxinA); have a skin infection at the planned injection site.

The dose of BOTOX® is not the same as, or comparable to, another botulinum toxin product.

Serious and/or immediate allergic reactions have been reported. They include itching, rash, red itchy welts, wheezing, asthma symptoms, or dizziness or feeling faint. Get medical help right away if you experience symptoms; further injection of BOTOX® should be discontinued.

Tell your doctor about all your muscle or nerve conditions such as ALS or Lou Gehrig's disease, myasthenia gravis, or Lambert-Eaton syndrome, as you may be at increased risk of serious side effects including difficulty swallowing and difficulty breathing from typical doses of BOTOX®.

Tell your doctor about all your medical conditions, including if you: have or have had bleeding problems; have plans to have surgery; had surgery on your face; weakness of forehead muscles; trouble raising your eyebrows; drooping eyelids; any other abnormal facial change; are pregnant or plan to become pregnant (it is not known if BOTOX® can harm your unborn baby); are breastfeeding or plan to (it is not known if BOTOX® passes into breast milk).

Tell your doctor about all the medicines you take, including prescription and nonprescription medicines, vitamins, and herbal products. Using BOTOX® with certain other medicines may cause serious side effects. Do not start any new medicines until you have told your doctor that you have received BOTOX® in the past.

Tell your doctor if you have received any other botulinum toxin product in the last 4 months; have received injections of botulinum toxin such as Myobloc®, Dysport®, or Xeomin® in the past (tell your doctor exactly which product you received); have recently received an antibiotic by injection; take muscle relaxants; take an allergy or cold medicine; take a sleep medicine; take aspirin-like products or blood thinners.

Other side effects of BOTOX® include: dry mouth, discomfort or pain at the injection site, weakness, headache, neck pain, and eye problems: double vision, blurred vision, decreased eyelid, drooping eyelids, swelling of your eyelids, and dry eyes.

For more information refer to the Medication Guide or talk with your doctor.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

Please refer to the Summary of Information about BOTOX® on the following page.



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