Nutrition Action

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he numbers are startling.
Roughly one out of 10 American adults have diabetes. Experts predict that we'll hit one out of five by 2030 and one out of three by 2050.

But people who have diabetes are just the tip of the iceberg.
One out of three adults have prediabetes. Ninety percent of

"And up to 70 percent of people with prediabetes will develop diabetes in their lifetime," says Leigh Perreault, associate professor of medicine at the University of Colorado. "It's absolutely staggering."

them don't know it.

Here's how to lower your risk.

Continued on page 3.



diabetes tsunami is headed our way, say experts. One in three adults—and nearly one in two men—already have prediabetes. The chief culprits: two-thirds of adults (and one-third of children) are overweight or obese, and we're a nation of couch (and computer, car, TV, and phone) potatoes. But that's not all that matters.

The Iceberg

"We already have a diabetes epidemic on our hands," says Edward Gregg, chief of the Epidemiology and Statistics Branch of the Division of Diabetes Translation at the Centers for Disease Control and Prevention.

He's talking about the 29 million American adults who have diabetes.1 Most have type 2, the kind that's closely tied to obesity (unlike type 1 diabetes, which is an autoimmune disease). Type 2 used to be called adult-onset diabetes, but now it's showing up in teens.

"There's a fairly large proportion roughly 28 percent—of adults with diabetes who don't know it," says Gregg. "And then you have a third of the adult popu-

lation that's at very high risk for diabetes. And the vast majority of people with prediabetes don't know that they have it. That's why we think of diabetes as an iceberg."

Doctors use blood sugar levels to diagnose prediabetes and diabetes (see "How's Your Blood Sugar?"). But the trouble starts long before blood sugar soars out of control.

"For type 2 diabetes to develop, there are usually two problems," says Anastassios Pittas, co-director of the Diabetes Center at Tufts Medical Center in Boston. "The first is that the body is resistant to insulin."

Insulin acts like a key that allows sugar to enter cells, where it can be burned for fuel or stored for later. But in some people, especially those with an oversized waist, the key struggles

to open the lock (see "What is Insulin Resistance?" p. 4).

To compensate for insulin resistance which is also called impaired insulin sensitivity—the beta cells of the pancreas pump out more and more of the hormone. The extra insulin can keep a lid on blood sugar for years, but eventually the beta cells wear out.

"At some point, the pancreas cannot make enough insulin to overcome the resistance," says Pittas. That's when blood sugar surges into the "diabetes" range.

Millions of Americans are headed toward that breakpoint. Two reasons stand

"The population has steadily become more obese for the last few decades," says Gregg, thanks in part to larger portion

sizes, sugary beverages, and less exercise.

"And baby boomers are moving into the high-incidence years," he adds. "Aside from obesity, age is the most important risk factor. Beta-cell failure occurs more rapidly with age. About 25 percent of people age 65 and older have diabetes."

And that spells trouble.

"In many ways the population is getting healthier over time," says Gregg. "But diabetes is an exception."

Complications

Diabetes threatens nearly every part of the body, raising the risk of memory loss, heart attack, kidney disease, amputations, and more (see "From Head to Toe," p. 6).

"Once a person has diabetes, there are

so many different branches of complications that can occur, and the costs spiral out," says Gregg. "So if you could nip it in the bud, that would definitely be preferable."

On the upside, we're getting better at preventing those complications.2

"The rate of complications is lower than it used to be," notes Gregg. "And that spans the whole spectrum, from diabetic eve disease, kidney disease, and nerve disease all the way to the risk for stroke and heart attack."

But the risk of those problems starts to climb before a person has diabetes.3

"People with prediabetes have a 20 percent increased risk of cardiovascular disease compared to their peers with normal blood sugar," says the University of Colorado's Leigh Perreault.

HOW'S YOUR BLOOD SUGAR?

DIABETES

126 mg/dL or higher below 126 mg/dL

PREDIABETES

100 mg/dL or higher below 100 mg/dL

NORMAL

DIABETES

6.5% or higher below 6.5%

PREDIABETES

5.7% or higher below 5.7%

NORMAL

Fasting Blood Sugar

Hemoglobin A1C

The cutoffs for prediabetes and diabetes depend on whether your blood is tested after an eight-hour fast (left arrow) or without fasting (right arrow). If your doctor uses a third diagnostic tool, an oral glucose tolerance test, you have prediabetes if your blood sugar is 140 to 199 mg/dL and diabetes if it's over 199 mg/dL.

Source: Diabetes Care 36 (Suppl.1): S11, 2013.



The same goes for damage to the small blood vessels of the eyes, nerves, and kidneys, she adds. "They all exist at a higher rate in people with prediabetes, even if they never develop diabetes."

Also disturbing: a recent study found that the risk of dementia climbs before blood sugar levels reach the diabetes range.⁴

And yet, prediabetes doesn't trigger much of a fuss in the doctor's office.

"When healthcare providers see numbers that are in the prediabetic range, they usually say, 'Your blood sugar is a little high, so go home and eat less and exercise,'" notes Perreault. "We know that doesn't work."

For starters, patients need targets. "They need lipid goals, blood pressure goals, glucose goals."

And doctors need to follow up. "They should tell patients to come back in three months to make sure they get back to normal," says Perreault. "Until now, all we've done is cross our fingers and say, 'Gosh, I hope they don't develop diabetes.'"

When Perreault and colleagues followed 1,990 people with prediabetes in the Diabetes Prevention Program Outcomes Study for five years, participants who had a normal blood sugar level on at least one yearly test were 56 percent less likely to convert to diabetes.⁵

But the goal for people with prediabetes should be not just to prevent diabetes but to return to normal.

"In most trials, if someone with prediabetes doesn't develop diabetes, the intervention is deemed successful," says Perreault.

"My argument to my colleagues in the Diabetes Prevention Program is that if you guys were taking care of my mom, I would fire you. Shouldn't our goal be not just to make sure that people don't get diabetes but to lower their risk as far as we possibly can?"

And for many people, we know how.

Weight & Exercise

The good news about diabetes: it's not inevitable.

"Up to 90 percent of type 2 diabetes is preventable by lifestyle modification,"

says JoAnn Manson, director of preventive medicine at Brigham and Women's Hospital in Boston.

"If you can stay within a healthy weight, you're about halfway there. Once you add exercise, you're down to about a 70 percent lower risk compared to people who are overweight and not engaging in regular exercise."

Those figures come from a study that tracked tens of thousands of healthy people for 16 years.⁶

Even stronger evidence comes from the

healthier diet and exercised about 30 minutes a day," notes Manson. "The reduction in risk you get just from weight control and regular physical activity is enormous, and it's true for all ethnicities, races, and age groups."

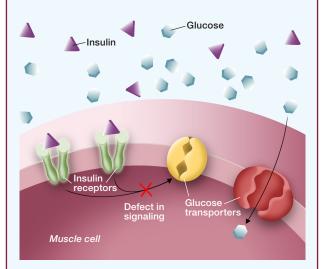
That also applies to people who have diabetes. "In the Look AHEAD study, we found that some people in the weight loss intervention could reverse their diabetes," says the CDC's Edward Gregg.⁸

"Among the group whose weight loss was on average 8 percent that first

year, 11 percent had at least a partial remission. They were going off their medications and their levels of blood sugar were below the diabetic threshold."

Does what—not just how much—you eat also make a difference in your risk of diabetes? Yes, says Manson, "but consuming more calories than you're burning is by far the stronger risk factor."

WHAT IS INSULIN RESISTANCE?



After you eat, insulin docks in receptors on cell membranes, which signals glucose transporters to let glucose (blood sugar) into the cell. But if you're insulin resistant, some glucose transporters never get the message. That leaves excess glucose in the blood, so the pancreas has to pump out more insulin. If it can't keep up, blood sugar rises and you have diabetes.

Diabetes Prevention Program study, which randomly assigned roughly 3,800 people with prediabetes to metformin (a drug that lowers blood sugar), typical diabetes education, or an "intensive lifestyle intervention" to exercise and cut calories (especially from fat).⁷

"The Diabetes Prevention Program found close to a 50 percent reduction in the progression to diabetes with very modest weight loss," says Manson, who is also a professor of medicine at Harvard Medical School. The average participant lost about 12 pounds. (The metformin takers had a 30 percent lower risk.)

"They ate a lower-calorie, generally

What May Also Matter

SUGARY DRINKS

"The data are pretty compelling that we should basically cut out sugar-sweetened beverages," says Frank Sacks, professor of cardiovascular disease prevention at the Harvard School of Public Health.

Sugary drinks—soft drinks, sports drinks, energy drinks, fruit drinks, and sweetened teas—are a double whammy.

First, "there is strong evidence that sugar-sweetened beverages lead to weight gain because people tend to not compensate for liquid calories by reducing calories

elsewhere," says Manson.

For example, in the largest study done so far, people who were randomly assigned to drink just one cup of sugarsweetened soda every day for 1½ years gained more weight (and fat) than those who drank a diet soda.⁹

But sugary drinks aren't just fattening. When Manson and other researchers tracked roughly 75,000 nurses and 39,000 health professionals for 22 years, those who drank a sugary soft drink at least once a day had about a 30 percent higher risk of diabetes than those who drank one less than once a month. And that was *after* taking weight into account.¹⁰

"So increased weight didn't account for all of the higher risk of diabetes," says Manson.

Even those who drank fruit juice at least once a day had a 21 percent higher risk than those who drank juice less than once a week.11 And that also was over and above the impact that juice has on weight.

"It doesn't matter whether it's fruit juice or soda, the high consumption of sugar in liquid form may lead to weight gain and may pose a major stress on the pancreas," says Manson.

Researchers aren't sure why, but evidence is mounting that fructose-found in sweeteners like table sugar, high fructose corn syrup, honey, and agave—may make the body resistant to insulin.

"We now have two studies that show that a high level of fructose impairs insulin sensitivity," says Kimber Stanhope, of the University of California, Davis.

When her research team gave middleaged overweight or obese people a hefty daily dose (25 percent of their calories, or about 600 calories' worth) of either fructose or glucose for 10 weeks, insulin sensitivity was worse in those who got fructose. 12 And although both groups gained about the same amount of weight, the fructose group gained more visceral (deep belly) fat, which is linked to diahetes

And Swiss researchers saw a drop in insulin sensitivity in the liver when they gave lean young men only about 14 percent of their calories from fructose—320 calories' worth—every day for three weeks.13 (That's about twice what the average person consumes.)

"We believe that insulin resistance develops first in the liver and then in the rest of the body," says Stanhope.

"While it's not definitive, there is data to suggest that consumption of excess fructose-containing sugars reduces insulin sensitivity. And that's a risk factor for diabetes."

CARBS

Does a diet that's high in carbs—or high in the wrong carbs—raise your risk of diabetes? The answers are still murky.

When two large European studies pitted higher-carb diets against diets higher in monounsaturated fats, insulin sensitivity —that is, how much insulin it takes to remove a given amount of sugar from the blood—didn't change.14,15

ARE YOU AT RISK FOR TYPE 2 DIABETES?

Height

Write your

Add up

vour score

score in the box How old are you? Less than 40 years (0 points)

40-49 years (1 point) 50-59 years (2 points) 60 years or older (3 points)

Are you a man or a woman? Man (1 point) Woman (0 points)

If you are a woman, have you ever been diagnosed with gestational diabetes?

Yes (1 point) No (0 points)

Do you have a mother, father, sister, or brother with diabetes? Yes (1 point) No (0 points)

Have you ever been diagnosed with high blood pressure?

Yes (1 point) No (0 points)

Are you physically active? Yes (0 points) No (1 point)

What is your weight status? (see chart at right)

If you scored 5 or higher: You are at increased risk for prediabetes or type 2 diabetes.

However, only a blood test can

tell for sure.

_			
4'10"	119-142	143-190	191+
4'11"	124-147	148-197	198+
5'0"	128-152	153-203	204+
5′1″	132-157	158-210	211+
5'2"	136-163	164-217	218+
5'3"	141-168	169-224	225+
5'4"	145-173	174-231	232+
5′5″	150-179	180-239	240+
5'6"	155-185	186-246	247+
5'7"	159-190	191-254	255+
5'8"	164-196	197-261	262+
5'9"	169-202	203-269	270+
5′10″	174-208	209-277	278+
5′11″	179-214	215-285	286+
6'0"	184-220	221-293	294+
6′1″	189-226	227-301	302+
6'2"	194-232	233-310	311+
6'3"	200-239	240-318	319+
6'4"	205-245	246-327	328+
	(1 point)	(2 points)	(3 points)
	You weigh less than the amount in the left column (0 points)		

Weight (lbs.)

Nor does insulin sensitivity consistently change when researchers test high-glycemic carbs (which give blood sugar a big boost) against carbs with a low glycemic index. 15-17

"The literature does not support glycemic index making a big difference in insulin sensitivity, or much of anything besides short-term blood sugar levels," says Harvard's Frank Sacks.

And so far, large studies that swap white bread and other refined grains for whole grains have largely come up empty. 18,19

Still, Sacks and other researchers argue that it's worth cutting back on carbs to lower blood sugar and insulin levels after

"We can't say that reducing carbohydrate improves insulin sensitivity, but it reduces the need for more insulin," says Sacks. "It's logical that if you eat less carbs, less glucose will go into the bloodstream and stimulate the pancreatic beta cells to secrete insulin."

And there isn't much room for white

flour and added sugars in a diet that's rich in vegetables, fruits, beans, and other healthy carbs.

Source: American Diabetes Association.

"So to simplify the message, let's just say that in a more healthful diet, carbohydrate is lower—not extremely low, but at the lower end of the range of what many people now eat," says Sacks.

"And for the carbs that you eat," notes Manson, "it would be better that they be whole grains, or that they come from fruits, vegetables, and legumes."

Whole grains are rich in fiber and magnesium, which may explain why people who eat them have a lower risk of diabetes.

Carbs aside, *any* diet that helps you lose unwanted pounds is your best bet.

"We found reduced fasting insulin which is a pretty clear indication of improved insulin sensitivity—after weight loss on any of the diets that we studied in the Pounds Lost study," says Sacks. "It's the reduction in body weight and body fat that decreased insulin levels."



COFFEE

While soda may boost your diabetes risk, coffee may lower it.

When researchers followed 96,000 women and 27,000 men for four years, those who upped their coffee intake by about two cups a day had an 11 percent lower risk of diabetes—while those who cut their intake by about two cups a day had a 17 percent higher risk—compared to those who didn't change.20

"Coffee is very consistently linked to a reduced risk of type 2 diabetes, even two or three cups a day," says Manson. Note that she's talking about an 8 oz. cup, not a Starbucks cup, which is typically 12 oz. (tall), 16 oz. (grande), or 20 oz. (venti).

Researchers aren't sure why coffee may matter. "It's not necessarily the caffeine. because even decaf is linked to a lower risk, though not as strongly as regular coffee," explains Manson.

So far, few studies have tested whether coffee can boost insulin sensitivity. In one preliminary study, both regular and decaf coffee seemed to curb the insulin resistance triggered by six days on a high-fructose diet.21

But Manson adds some cautions.

"Overall, I think coffee is very safe in terms of heart disease and chronic disease. But many people get jittery and get a rapid heart rate, especially if they drink more than three cups a day."

What's more, many coffee drinks are loaded with sugar and calories.

"People may think, 'I should get a large Frappuccino because coffee prevents diabetes,'" says Manson. "All those extra calories are not going to reduce the risk of diabetes."

MAGNESIUM

Whole grains, leafy greens, nuts, and beans. All are linked to a lower risk of diabetes and all are rich in magnesium.

What's more, people who get more magnesium from food have lower insulin levels and a lower risk of diabetes.22

"Magnesium looks promising," says Manson. "And it's one of the few minerals that have been tested in randomized trials."

For example, when German researchers randomly assigned 32 overweight people with insulin resistance to take either magnesium (365 milligrams a day) or a placebo for six months, fasting blood sugar dropped and insulin sensitivity improved in the magnesium takers.²³ (Note: more than

vitamin D have a lower risk of developing type 2 diabetes in the future," says Tufts Medical Center's Anastassios Pittas, who is also a professor of medicine at Tufts University's Sackler School of Graduate Biomedical Sciences.²⁴

But those studies can't tell if something else about people with low vitamin D increases their risk. So researchers have looked further.

"We and others have done short-term intervention studies looking at insulin sensitivity, insulin secretion, or similar outcomes," says Pittas. "Some have not shown any difference, but others show promise."

For example, Pittas and his colleagues gave 92 overweight or obese adults with

> prediabetes vitamin D (2,000 IU a day), calcium (400 mg twice a day), both, or a placebo for four months. Those taking vitamin D (either alone or with calcium) had better pancreatic beta-cell function than those who didn't take vitamin D.25

"Beta-cell function is one of the best measures we have for future risk of getting type 2 diabetes," notes Pittas.

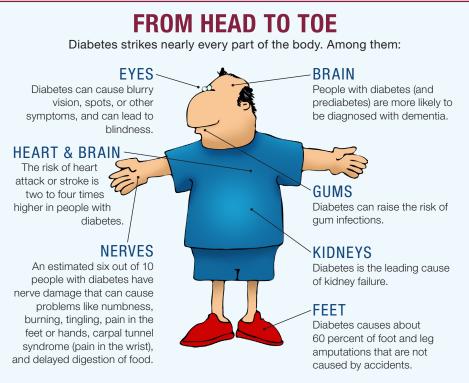
But in other studies, vitamin D didn't help. Why?

"I think that it is very difficult to show any results in people with

normal glucose tolerance or established type 2 diabetes," says Pittas. "If you're normal, vitamin D will not make you any more normal. And if you have established type 2 diabetes and you're treated with insulin or other medications, vitamin D cannot compete."

That's why Pittas has launched D2d, a large trial testing vitamin D (4,000 IU a day) in people with prediabetes.

"We're targeting people at high risk for diabetes," he explains. "D2d is a national study taking place in 21 cities. There is a questionnaire online, at d2dstudy.org,



350 mg of magnesium from a supplement may cause diarrhea and stomach cramps.)

"The smaller randomized trials suggest benefits for glucose tolerance and insulin sensitivity," says Manson. "It's possible that taking a magnesium supplement could reduce your risk of diabetes, but larger randomized trials are needed to prove it."

VITAMIN D

Many studies that track healthy people for years have reached the same conclusion: "People with higher levels of

that people can complete to find out their risk of diabetes. Even if people are not interested in participating in the study, they can go there to evaluate their risk by answering a few questions."

Meanwhile, the VITAL trial will test whether a lower dose of vitamin D (2,000 IU a day) can prevent diabetes in people who aren't at high risk.

"Between the two trials, I think there will be a clear answer as to whether vitamin D supplementation is promising for preventing diabetes," savs Manson.

How might vitamin D work? "There's preliminary evidence that it may improve insulin secretion," says Pittas.

"The enzyme that converts vitamin D to its active form is expressed in beta cells. which means that the beta cell needs an adequate vitamin D supply to function. Only a few organs outside of the kidney have the ability to activate vitamin D so they don't have to depend on the circulating levels of the active vitamin."

OTHER

Many foods have been linked to the risk of diabetes but haven't been tested in trials. Among them:

■ Red meat.

"Red meat and particularly processed meats like luncheon meats—have been pretty consistently linked to an increased risk of diabetes," says Manson.26

The iron in red meat could damage the pancreas and increase the risk of diabetes, as it does in people with hemochromatosis, a genetic predisposition to iron overload.

"People with high total

FILLING YOUR PLATE



A handy rule of thumb: Fill half your plate with vegetables, a quarter with lean protein, and just a quarter with (preferably whole) grains.

body iron stores, even in the absence of hemochromatosis, also have a higher risk of diabetes," says Manson.

The nitrites in processed meats could also play a role. "It isn't entirely clear, but those foods should be minimized anyway," she adds. That's because processed meats are salt laden and linked to a higher risk of colon cancer.

■ Vegetables. When European researchers pooled the data from five studies, they found only one type of vegetable that was linked to a lower risk of diabetes:

THE BOTTOM LINE

■ The best way to dodge diabetes is to lose

■ Do at least 30 minutes of brisk walking or

also recommend strength training sessions

■ Limit sweets, especially sugar-sweetened

drinks. Even the naturally occurring sugars

in 100% fruit juice may raise your risk.

■ Fill up half your plate with vegetables

and only a quarter with (preferably whole)

■ Eat leafy greens, whole grains, beans,

■ Replace saturated and trans fats with

unsaturated fats to lower the risk of heart

■ Get the RDA for vitamin D (600 IU a day

up to age 70 and 800 IU over 70) from sup-

plements or foods fortified with vitamin D.

and nuts to get enough magnesium.

disease.

other aerobic exercise every day. Experts

(or not gain) extra pounds.

two or three times a week.

green leafy vegetables, like spinach, chard, lettuce, and kale.27

But Manson doesn't take those results as gospel. Leafy-green eaters tend to be more health conscious.

"I would certainly recommend eating salads, leafy greens, cruciferous vegetables, beans, and fruit," she says.

"Even if they don't prevent diabetes, they have other health benefits."

■ Dairy. "Yogurt and low-fat dairy products have been linked to a reduced risk of diabetes, but it's not well understood," says Manson.28

Could people who eat yogurt or low-fat dairy have a lower risk because they're more health conscious?

"Absolutely," says Manson. "The studies tend to account for physical activity, smoking, alcohol, and other obvious things, but they can't account for everything. That's why short-term randomized trials would be so helpful."

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- ²⁴ Diabetes Care 36: 1422, 2013.
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- ²⁷ Eur. J. Clin. Nutr. 66: 1082, 2012.
- ²⁸ J. Nutr. 141: 1969, 2011.

FOR MORE INFORMATION

American Diabetes Association (diabetes.org)

Centers for Disease Control and Prevention

(cdc.gov/diabetes)

National Diabetes Education Program (ndep.nih.gov)



(ymca.net/diabetes-prevention)

At risk for diabetes? At a growing number of YMCAs (and other

locations) nationwide, you can participate in a year-long diet and exercise Diabetes Prevention Program supported by the CDC.

STEP IT UP

GET FITTER FASTER WITH INTERVAL TRAINING



Martin Gibala is professor and chair of the department of kinesiology at McMaster University in Hamilton, Ontario. He has published

numerous studies on the benefits of high-intensity interval training. Gibala spoke to *Nutrition Action*'s Bonnie Liebman from Hamilton.

Q: What is high-intensity interval training?

A: Interval training at its heart is just alternating periods of relatively intense exercise with periods of rest or light exercise for recovery. It's a pattern of peaks and valleys: going hard, backing off, going hard, backing off, and repeating that pattern.

Q: Why do people do it?

A: Interval training is a way to get relatively fit with a relatively lower time commitment. Depending on the survey, 75 percent of people aren't following the public-health exercise guidelines. And the number-one-cited barrier is lack of time.

Q: How long does interval training take?

A: There's no accepted definition. In many studies, the time commitment has been around 20 minutes per session, three times per week.

Q: Twenty minutes of working hard?

A: No. That includes recovery periods. One protocol that we've used in our lab involves 10 one-minute hard efforts with one minute of recovery between each. The hard efforts are at 85 to 90 percent of your maximum heart rate, so they're high intensity.

Q: And that's enough?

A: I don't want to overstate interval training research. It's a bit like a new drug on the market. In its early trials it's showing a lot of promise, but we're nowhere near

o time to exercise? Here's how to get more bang for your buck. Two caveats: A short exercise session doesn't burn enough calories to help you lose weight. And getting out of your chair throughout the day can help lower your blood sugar.

the grade A evidence—the large randomized controlled trials—that we need to say that it has all the benefits of traditional endurance exercise.

But we know, for example, that interval training makes the heart a better, stronger pump. It makes the blood vessels more elastic. And it makes your muscles better at using oxygen, because it can rapidly enhance the amount of fuel-burning mitochondria in your muscles.

Q: Does it lower blood sugar?

A: In our study on people with type 2 diabetes, the average blood sugar level over the course of 24 hours was reduced—by a fairly large margin—after only two weeks of interval training. And fasting insulin and glucose scores were reduced after two weeks in a study of sedentary middle-aged individuals without diabetes.

Q: Why would exercise help?

A: Roughly half our body weight is skeletal muscle. That's where most of our blood sugar goes. When you have prediabetes, your muscles get resistant to taking up blood sugar. Any exercise—not just interval training—dramatically enhances



To get the most out of any exercise, push yourself for a minute, back off, and repeat.

the ability of muscles to take up and store the glucose.

You get more of the transporters that take up the blood sugar and they become more receptive, so it takes less insulin for them to do their job. And you have less sugar floating around in the blood.

Q: Do the people in your studies typically ride stationary bikes?

A: Yes, because it's easy to quantify their work and power. It's also safer because you're not talking about high ground impact. And it's better tolerated if people have underlying knee or joint issues.

But any exercise that involves large muscle groups, like swimming, stair climbing, or running, should be effective.

Q: Is any exercise better than nothing?

A: Absolutely. And the best exercise is the one that you like and you're most likely to stick with. If you hate interval training, it's unlikely that you'll do it. But if you're pressed for time—whether it's an excuse or whether you're really busy—trying intervals is not a bad strategy.

Q: And you don't have to sprint?

A: No. Some people think interval training is only sprinting as hard as you can, like you're saving your child from an oncoming car.

But it can be scaled to any starting level of fitness. Just get out of your comfort zone. If your usual exercise is walking around the block, walk faster between the next two light posts.

You can feel yourself a little more out of breath, maybe it's harder to talk to your partner, your heart rate's up a little more. And then you back off. That's an interval training session for you.

Q: Can interval training be dangerous?

A: The knee-jerk reaction is that interval training is a heart attack waiting to happen. And that's wrong.

People should be medically cleared before they engage in any type of exercise program. But they don't need to be afraid of intervals. The potential risks are similar to other forms of exercise. The greater risk is sitting on the couch all day.