

OUT- RACE HEART DISEASE

You're 4 weeks away from a healthier, more powerful pump. Here's how to get it
BY TREVOR THIEME PHOTOGRAPHS BY PHILIP NORTH COOMBES

Seldom are heart attacks as violent as they're portrayed in movies. Men don't suddenly stand up at the dinner table, clutch at their chests, gasp one last breath, and then fall sideways, dead, at the feet of their guests. Often, a potentially lethal cardiac moment simply feels like really bad heartburn.

Such was Mark Brockman's experience on October 13, 2002. The then 44-year-old printing salesman from La Grange, Kentucky, had begun that Sunday like every other—at church with his wife—and filled it with such pleasurable activities as watching the Green Bay Packers pummel the New England Patriots and lifting weights in his home gym. But as he folded laundry on that warm autumn afternoon, an intense burning sensation gripped his chest, as if someone had painted a bull's-eye on his sternum and set it afire for dramatic effect. Twenty minutes later, at nearby Baptist Hospital Northeast, an EKG confirmed his worst fear: He was having a heart attack.

In the time it takes most people to eat their lunch, Brockman had become a statistic, one of the nearly 1 million Americans who suffer a heart attack every year. As he sat there listening to his dismal health report, he became determined to separate his fate from that of his father, who had survived two heart attacks before succumbing to a third at the age of 79. But if Brockman was going to survive, he would need more than just a strong will. He would need a strong heart.

"The heart is like every other muscle in the body," explains Michael Crawford, M.D., chief of clinical cardiology at the UCSF School of Medicine, in San Francisco. "It can become stronger and healthier through exercise."

The heart is the powerhouse of the human body, the hybrid organ/muscle that pumps energy-giving nutrients and oxygenated blood to every other tissue, organ, and muscle contained below our soft epidermis. And the more efficiently it functions, the more efficiently those tissues, organs, and muscles work. "Strengthening the heart also

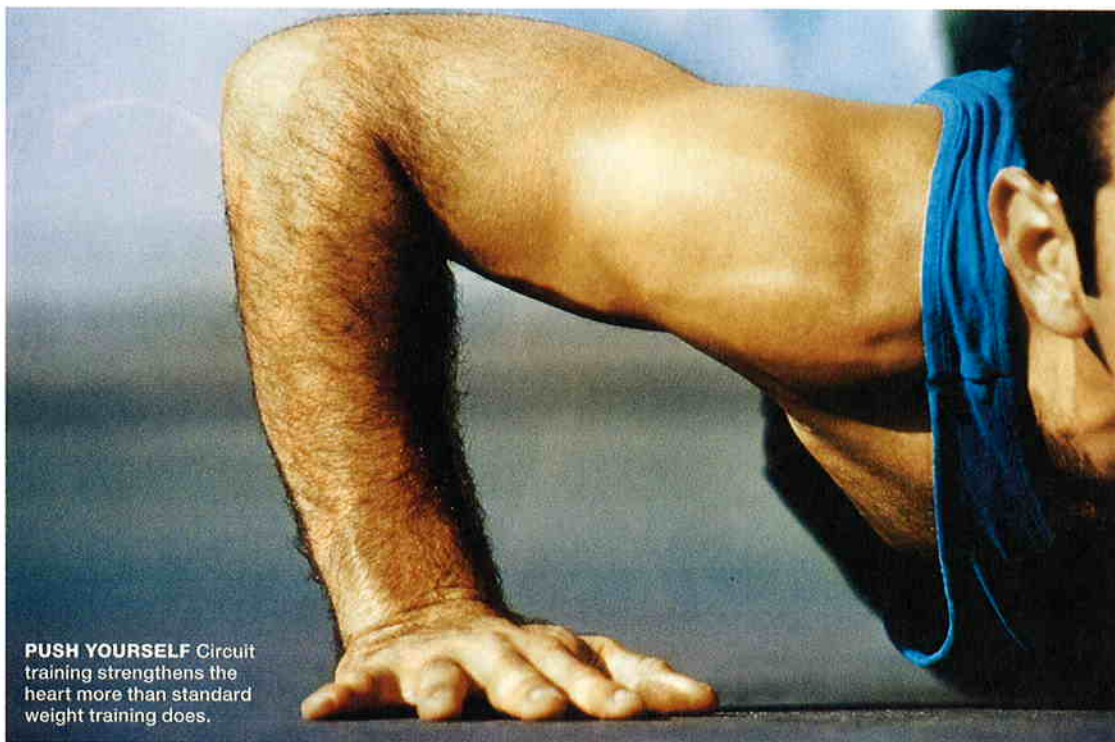
decreases the likelihood that you'll experience a heart attack," Crawford says. "But perhaps more important, it increases the likelihood that you'll survive one."

When a heart attack strikes, the heart loses tissue; deprived of blood by clogged arteries, part of the heart dies. But just as your biceps can get bigger and stronger, so can your heart, and the more muscle the heart has, the more tissue loss it can withstand in the event of a coronary. To make this muscle bigger and stronger, we recommend that you adopt three cardiovascular conditioning programs: circuit training, cycling, and rowing. (You'll find specific workouts on the following pages.)

The typical heart weighs approximately 300 grams (10.6 ounces) and is about the size of a fist. With these

exercise programs, however, it can become slightly heavier and grow to the size of two fists. "Two things are going on here," says Crawford. "The cavities that hold the blood expand, and the muscle tissue that contracts them increases."

These increases in size and strength manifest themselves in another change: The heart pumps more blood with every beat. According to Crawford, the heart can eject about two-thirds of the blood contained inside it regardless of whether it's trained or not. But by doubling its size through aerobic conditioning, "you effectively double its output," says Crawford. "That, in turn, increases your exercise capacity by feeding your muscles more efficiently."



PUSH YOURSELF Circuit training strengthens the heart more than standard weight training does.

Perhaps the greatest benefit of an athletic pump is a lower resting heart rate. The average human heart beats 60 to 80 times per minute, according to the American Heart Association. Recent studies of male cyclists, though, suggest that regular aerobic exercise can decrease that number to the mid-50s. (In elite athletes, it can be as low as 30 beats per minute.) And the fewer times your heart has to beat, the longer it can do its job. "The average human life span is about 3 billion heartbeats," says Michael Lauer, M.D., director of clinical research and the Exercise Laboratory at the Cleveland Clinic Heart Center. "If you can lower your heart rate, you can increase your life expectancy. It's that simple." (See "The Beat Goes On," below.)

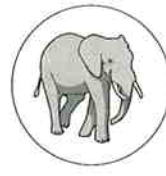
Numerous studies have demonstrated this link, the most well known being the Framingham Heart Study, which has monitored the health of Framingham, Massachusetts, residents since the early 1950s. But you need look no further than the animal kingdom for evidence. House mice, whose hearts drum out 500 beats per minute, live just 1 to 2 years, while elephants, whose enormous pumps flex a mere 25 times per minute, live to 70.

For someone like Brockman, however, the most promising advantage of a low pulse rate was demonstrated by a group of monkeys that had their hearts controlled by pacemakers. Some pacemakers were programmed for slower-than-normal heart rates; others (*continued on page 54*)

The beat goes on

Studies have linked a low resting heart rate to increased life expectancy. Here's how animals compare

ANIMAL	MOUSE	AVERAGE JOE	MARATHONER	ELEPHANT	TORTOISE
Heart Rate (beats per minute)	500	70	50	25	30
Life Expectancy (years)	2	77	84½	70	170



HEART PROGRAM 1 CIRCUIT TRAINING

Designed by Mike Mejia, M.S., C.S.C.S., a strength and conditioning specialist in Long Island, New York

Although a typical weight workout will make your heart stronger, it doesn't have nearly the same effect as a full-body cardio workout. The exception to this rule is circuit training, a conditioning technique in which you move from one exercise to the next with no rest in between, keeping your heart rate elevated throughout.

Researchers at the University of Hawaii recently found that circuit training not

only provides similar cardiovascular benefits as running at a moderate pace but also raises your heart rate 15 beats per minute more.

To maximize your aerobic gains, Mejia has designed a circuit routine according to the principle of peripheral heart action. "As you go through the workout, you'll alternate between muscle groups in your upper and lower body," explains Mejia. "In so doing, your body will constantly shuttle blood between different areas." The more it circulates, the greater the cardiovascular benefit.

Circuit-Training Tip If you haven't lifted weights in a while, feel free to substitute machine exercises as needed—a leg press instead of a squat, for example, or a lat pulldown instead of a chinup. "The key is to keep moving," says Mejia. "If someone is on a machine that you'd like to use, move on to the next exercise and come back to it."

30-MINUTE WORKOUT

Group 1

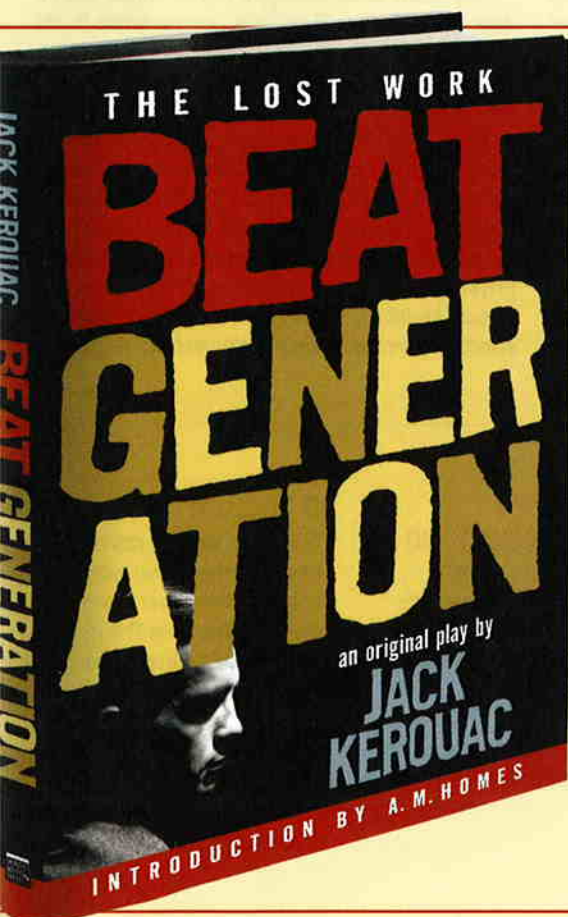
Barbell squat • pushup • lunge • chinup • situp

Group 2

Romanian deadlift • dumbbell shoulder press • stepup • one-arm row • dumbbell wood chop

For exercise descriptions, visit BestLifeOnline.com.

Perform the exercises as two mini-circuits, doing two sets of Group 1 before moving on to two sets of Group 2. (Do 10 to 12 repetitions per exercise, and rest 1 minute between sets.) The entire routine should take no longer than 30 minutes.



A MAJOR LITERARY FIND: A NEVER-BEFORE PUBLISHED PLAY BY JACK KEROUAC

In 1957, the same year that *On the Road* was published, Jack Kerouac finished a play he called *Beat Generation*. It was never published or performed. Today, after nearly fifty years, *Beat Generation* finally gets the chance to reach the audience it deserves.

AVAILABLE WHEREVER BOOKS ARE SOLD



AN IMPRINT OF AVALON PUBLISHING GROUP

WWW.THUNDERSMOUTH.COM

were set for escalated ones. By the end of the study, the primates in the first group developed less arteriosclerosis (thickening and hardening of the arteries) than those in the second group. "Every time the heart beats, it puts stress and strain on the walls of the arteries," explains P.K. Shah, M.D., director of cardiology at Cedars-Sinai Medical Center, in Los Angeles. "This is a risk factor for plaque buildup. But if you slow your heart rate and reduce this stress, you may lower your risk of arteriosclerosis."

Brockman was unaware of these studies when he had his heart attack, but, to be honest, he wouldn't have cared anyway. He was going by his gut, and his gut was telling him that cardiovascular exercise had to be a part of his recovery. Unfortunately, his cardiologist felt otherwise. "He treated me like a 90-year-old lady," recalls Brockman, his voice tinged with disdain. "He told me no exercise, no weight lifting. But I couldn't accept that. I knew that I needed to exercise, so I went doctor shopping."

The decision probably saved Brockman's life. A recent study in the *British Medical Journal* suggests that cardiac survivors who incorporate exercise into their recovery cut their risk of having a fatal heart attack by 35 percent and are readmitted to the hospital for coronary problems 28 percent less often. "Some physicians frown on the issue of rehab and exercise, but most of that is rooted in ignorance," says Shah. "There is plenty of evidence-based data showing that it improves quality of life and reduces recurrent-coronary-event rates."



LOW RIDER Regular cycling may slow your pulse by 16 beats per minute.

To solely stave off another coronary event, however, wasn't good enough for Brockman; he wanted to be in the best shape of his life. With the support of a new and slightly better informed doctor, he returned to running and weight lifting.

Today, at the age of 47, he has competed in numerous 5- and 10-Ks and is the youngest member of the Second Chance Racing Team, which is composed entirely of cardiac survivors like him. And the races keep getting longer. Last summer, less than 2 years after his heart attack, he completed the 13.1-mile Kentucky Derby Mini Marathon in a very respectable 2 hours and 11 minutes. On January 8, 2006, he'll face

his greatest running challenge yet: the Walt Disney World Marathon.

"My heart is as strong, if not stronger, than it was before," says Brockman with a smile in his voice. "In fact, the last time I saw my cardiologist, he said, 'I can't make you any healthier than you are right now.' I feel pretty good about that."

To strengthen your heart, you can simply lace up your running shoes and pound the pavement. But if you want an athlete's heart—the kind of pump that allows Lance Armstrong to perform seemingly superhuman feats of physical endurance—you'll need to focus on circuit training, cycling, and rowing. "These sports exercise your (continued on page 56)

Find your rhythm

Exercise smarter with a heart monitor



1 | SUUNTO T6 (\$450, suunto6.com)

For Serious athletes who want to track their progress
Coollest feature It measures the time between heartbeats to calculate excess post-exercise oxygen consumption (EPOC), a gauge of how much you're improving.

2 | GARMIN FORERUNNER 301 (\$325, garmin.com)

For Gearheads who want to gauge distance and heart rate
Coollest feature Virtual partner. Program in a target speed, and it tells you how well you're keeping pace with the rate you've set.

3 | POLAR F6 (\$110, polarusa.com)

For Beginners who want a solid no-frills heart monitor
Coollest feature The device blocks signals from other people's heart-rate monitors, so you won't accidentally get a reading from the guy on the bike next to you.

HEART PROGRAM 2 CYCLING

Designed by Riley McAlpine, a pro cyclist and celebrity cycling coach and the owner of Team Riley (teamriley.com), in Santa Monica, California

A good half-hour bike workout requires a warmup and constant pedaling. If you're on a road bike, you'll need a stretch of pavement with relatively few stop signs (bike trails or large urban parks are ideal). The gears for this workout are on the front cassette (1 to 3 are on the small ring, and 4 to 6 are on the big ring). The key is to maintain a 96 cadence (the number of pedal strokes you complete in 1 minute) for

the entire workout. A bike computer will monitor this, but you can also calculate it yourself by counting out 24 pedal strokes in 15 seconds. Shift the rear cassette as much as necessary to maintain that 96 cadence at a moderate workout intensity.

If you're on a spin bike, remember that your brake knob is your gearshift. Start with the knob turned all the way to the left (gear 0, no resistance), and twist it to the right to progress through the gears. Each time you feel the resistance change, you've shifted one gear.

Cycling Tip Your seat must be positioned correctly. When your leg is fully extended, you should be able to place your heel on the pedal at the bottom of its rotation. (When you move your foot back to the correct position on the pedal, you'll have the right amount of bend in your knee.) Next, place your elbow at the tip of the saddle and hold your arm out straight: Your fingertips should touch the handlebar. "If you feel pain in the back of your knee when you're cycling, the seat could be too high," says McAlpine. "If you feel it below your kneecap, the seat may be too far forward."



30-MINUTE WORKOUT

Gear 1	5 minutes
Gear 2	5 minutes
Gear 3	5 minutes
Gear 4	5 minutes
Gear 5	3 minutes
Gear 6	2 minutes
Gear 4	2 minutes
Gear 3	1 minute
Gear 2	1 minute
Gear 1	1 minute

**IF SHAVING YOUR LEGS
DOES NOTHING TO
DIMINISH YOUR
MASCULINITY,
YOU'RE A
MITCHUM MAN.**



WITH YOU ALL THE WAY.

Antiperspirant with the maximum level of active ingredient for all-day protection.

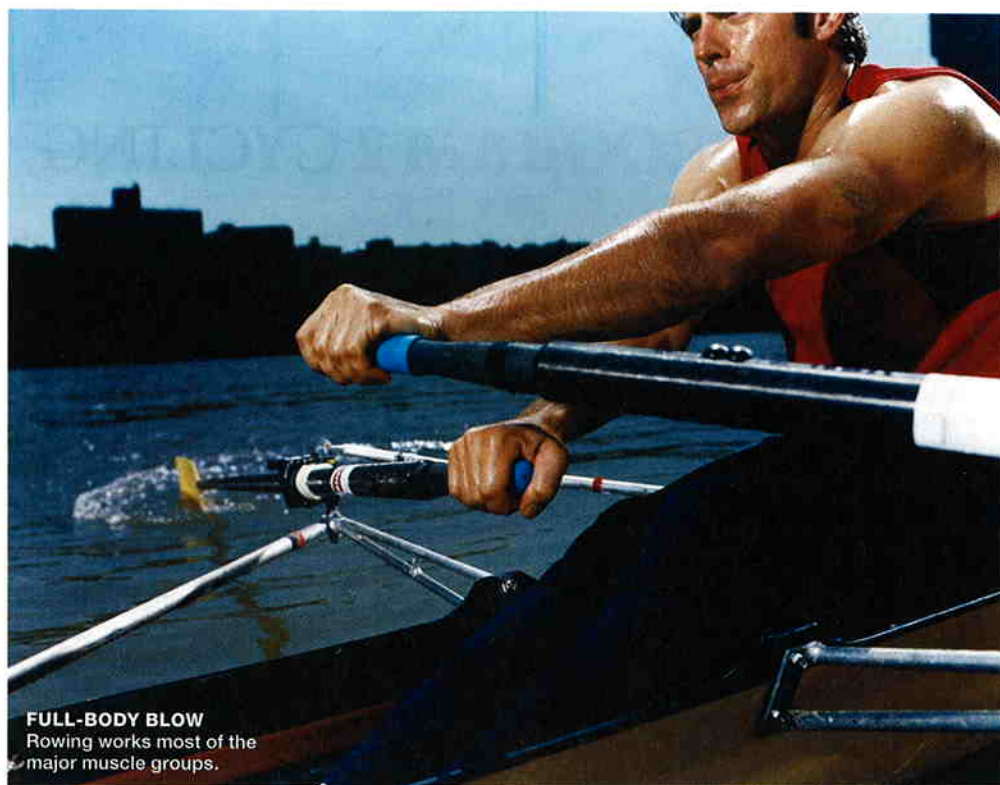
MITCHUMMAN.COM

©2010 Revlon Consumer Products Corp., New York, NY 10017

entire body,” explains Crawford, who has spent more than 3 decades studying the phenomenon of the athlete’s heart. “The more muscles you exercise, the greater the demand on your heart, and the bigger it gets as a result.”

The cardiovascular programs outlined in this article are easy to incorporate into a busy schedule. You can do them in the lamest of hotel gyms or outside on the bike trail or local river. Our recommendation: Try the circuit routine twice a week for 30 minutes, and break it up with a rowing or biking workout in the middle of the week. The key is to get your heart pumping for at least 30 minutes, three times per week. “That’s the minimum you’ll need to start building an athlete’s heart,” says Crawford. As you feel your fitness level increase—after about 2 weeks—you can lengthen your workouts as time allows.

Regardless of which workout you’re performing, you’ll need to be able to gauge your intensity. This is most easily accomplished with a heart-rate monitor (see “Find Your Rhythm,” page 54), but in a pinch, you can recite the Pledge of Allegiance. In a study of 16 moderately active men and women, researchers at the University of Wisconsin at La Crosse found



FULL-BODY BLOW
Rowing works most of the major muscle groups.

that saying the pledge while exercising provided an excellent barometer of workout intensity. If you can recite it easily, you’re exercising lightly (60 to 65 percent of maximum exertion). If you’re breathing hard but are still able to recite the words, you’ve entered the moderate

zone (70 to 75 percent of max exertion). Practically speechless? You’re exercising vigorously (80 to 90 percent).

Follow our plan for 4 weeks, and you’ll build yourself the heart of an athlete. Follow it for life, and you’ll never lose it. ■

HEART PROGRAM 3 ROWING

Designed by Josh Crosby, a former world-champion rower and the creator of the Indo-Row exercise program

Rowing taxes just about every muscle in the body, making it easy to overdo your workout. If you’ve never rowed before, break your first few workouts into six easy sets of 3 minutes of rowing followed by 2 minutes of rest. Once you’re comfortable with the technique (see below) and can row three sets of 8 minutes (with 2 minutes of rest after each), you’re ready for this interval workout.

Rowing Tip “Initiate the drive with your legs, not your arms or back, and then pull the handle into your sternum,” says Crosby. “On the recovery, keep your legs flat as the handle travels away from your body, pivot your torso over your hips, and then bend your knees to return to a strong starting position.”



30-MINUTE WORKOUT

- 1 Warm up for 2 minutes at a 3 or 4 vent setting (this is the resistance setting on the side of the machine), and then do three sets of 10 strokes, with each set becoming progressively harder (light, moderate, and vigorous).
- 2 Step off the machine and stretch your legs, back, and arms.
- 3 Perform four intervals, each consisting of 3 minutes at 24 strokes per minute (your stroke rate, or spm, is displayed on the monitor), 2 minutes at 26 spm, and 1 minute at 28 spm. When you complete one interval, go right into the next without resting.
- 4 Cool down for 3 minutes at the lowest vent setting.