



Will
Toning Shoes
Really Give You
a *Better Body?*

By John Porcari, Ph.D., John Greany, Ph.D., Stephanie Tepper, M.S., Brian Edmonson, B.S., and Carl Foster, Ph.D., with Mark Anders

“Burn more calories, tone muscles, improve posture, reduce joint stress.”

—Well, who wouldn't want all that?

“Train muscles your trainers never knew you had.”

—Sign me up.

“It's the shoe proven to work your hamstrings and calves up to 11% harder. And tones your butt up to 28% more than regular sneakers just by walking.”

—A better body without putting in any extra effort? That sounds good.

Or maybe too good to be true? All of the above are publicized claims marketing the latest toning shoes from Skechers Shape-Ups, MBT (Masai Barefoot Technology) and Reebok EasyTone. The shoes, each of which uses uniquely shaped rounded soles and extra cushioning to alter the wearer's normal walking gait, are currently all the rage in footwear. A quick Web search reveals many blogs touting the shoes and NFL great Joe Montana has even been hired as a pitchman for one of the brands.

With all this buzz about toning shoes, it was time to put their claims to the test. So we enlisted a team of exercise scientists from the Exercise and Health Program at the University of Wisconsin, La Crosse, to study each of the shoes.

The basic theory behind how they are supposed to work makes sense to consumers, so it's easy to see why many are quick to embrace—and purchase—the shoes, which range in price from \$100 to \$245. The common denominator is that they all have an unstable sole design, which forces the wearer's body to constantly struggle to find an equilibrium or balance point. The MBT and Skechers have rounded sole designs, while the Reebok shoes have 1 cm-diameter pods built into the forefoot and heel.

"It makes sense," says John Porcari, Ph.D. "People say, 'I can feel them working my muscles more because I'm unstable.'"

To make the shoes even more enticing to consumers, Skechers, MBT and Reebok each cite their own studies "proving" the results one can expect from wearing their shoes. What they fail to mention, however, is that these studies are not peer-reviewed, and most are of questionable design. For this reason, ACE's Chief Science Officer Cedric Bryant Ph.D., urges consumers to beware

of studies sponsored by manufacturers. "Depending on how they conduct the study, they can prove anything they want to prove."

The Study

To test the effectiveness of the shoes and evaluate their claims, a team led by Porcari, John Greany, Ph.D., Stephanie Tepper, M.S., Brian Edmonson, B.S., and Carl Foster, Ph.D., designed a pair of studies, one evaluating exercise responses to walking in traditional athletic shoes (a New Balance running shoe) versus the popular toning shoes. The second study evaluated muscle activation when walking in regular athletic shoes compared to toning shoes.

For the exercise response study, researchers recruited 12 physically active female volunteers, ages 19 to 24 years. All study subjects completed a dozen five-minute exercise trials in which they walked on a treadmill for five minutes wearing each type of shoe. The shoe order was randomized as the subjects were asked to walk at 3.0 mph with a 0% grade hill; 3.5 mph/0% grade; and at 3.5 mph/5.0% grade. Meanwhile researchers monitored each subject's oxygen consumption, heart rate, ratings of perceived exertion (RPE) and caloric expenditure.

To measure muscle activation, researchers recruited a second group of 12 physically active female volunteers, ages 21 to 27 years, who performed a similar battery of five-minute treadmill trials (as explained above) rotating shoes at random. Researchers used electromyography (a.k.a. EMG) to record muscle activity in six muscle areas: gastrocnemius (calf), rectus femoris (quads), biceps femoris (hamstrings), gluteus maximus (buttocks), erector spinae (back), and rectus abdominis (abs), as subjects walked in each of the four pairs of shoes. As a baseline for EMG analysis, maximum voluntary isometric contractions (MVIC) on all muscles were also performed using manual muscle techniques prior to testing.

The Results

Across the board, none of the toning shoes showed statistically significant increases in either exercise response or muscle activation during any of the treadmill trials. There is simply no evidence to support the claims that these shoes will help wearers exercise more intensely, burn more calories or improve muscle strength and tone (Table 1).

"We tested RPE, which is basically how hard one is working, and oxygen consumption, how much oxygen you take in versus being at rest, and caloric expenditure and we found no significant difference between any of the shoes," says researcher Stephanie Tepper, M.S. "So the toning shoes definitely don't do more than the regular running shoe."

THE CLAIMS

MBT: Masai Barefoot Technology \$245 (us.mbt.com)

"Helping solve knee and back problems, relieve tension in the neck, ease joint pains—and more or less in passing help to tone and shape firm buttocks and thighs. And burning more calories when standing and slow running compared to ordinary shoes."



Skechers Shape-Ups \$110–\$125 (www.skechers.com)

"Four clinical studies in the U.S. and Japan show that Shape-ups increase muscle activity and energy consumption over standard fitness shoes!"



Reebok EasyTone \$100–\$125 (www.reebok.com)

"It's the shoe proven to work your hamstrings and calves up to 11% harder. And tones your butt up to 28% more than regular sneakers just by walking."

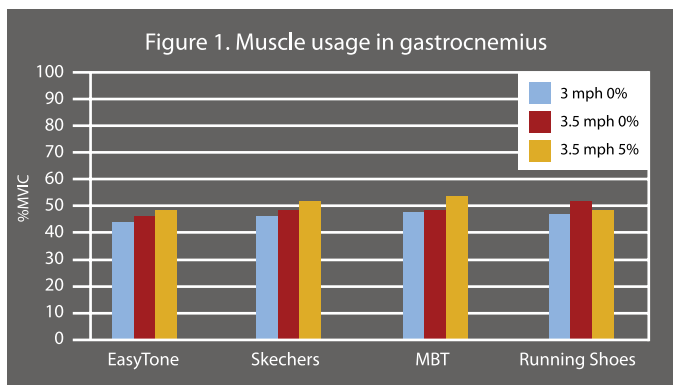


As for the muscle-activity testing, the results were strikingly similar. There was no significant difference in EMG levels in any of the muscles tested between the four types of shoes (Figures 1–6).

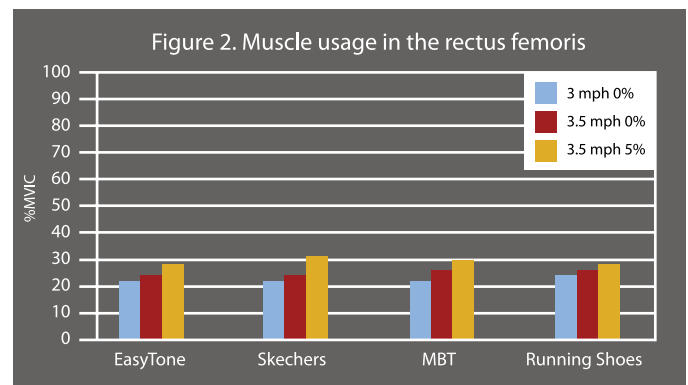
“Looking at the EMG data, we saw nothing there as well,” says Porcari. “There were some subtle differences—sometimes they favored the regular running shoe and other times they favored the toning shoes—but it was nothing statistically significant.”

Table 1:
Exercise Responses to Walking in Running Shoes, Skechers, MBT and EasyTone Shoes

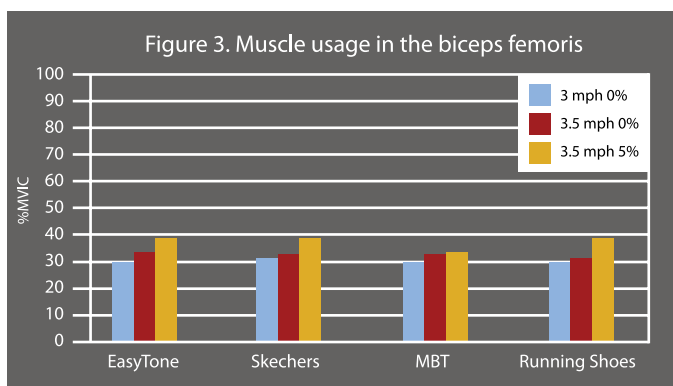
	Running Shoes	Skechers	MBT	EasyTone
3.0 mph/0% grade				
HR (beats/min)	94±15.0	94±13.9	93±13.2	96±15.0
$\dot{V}O_2$ (ml/kg/min)	14.3±1.17	4.1±1.07	14.1±.95	14.3±1.18
Kcal/min	4.6±0.50	4.5±0.51	4.5±0.40	4.6±0.52
RPE	8.0±1.41	8.2±1.58	8.4±10.62	7.9±10.44
3.5 mph/0% grade				
HR (beats/min)	98±13.0	99±13.5	100±14.2	99±13.2
$\dot{V}O_2$ (ml/kg/min)	15.7±1.13	15.9±1.21	16.2±1.46	15.8±1.20
Kcal/min	5.0±0.62	5.1±0.60	5.2±0.68	5.1±0.61
RPE	9.8±1.42	10.0±1.27	9.9±1.56	9.8±1.4
3.5 mph/5.0% grade				
HR (beats/min)	122±20.3	123±19.8	123±17.6	122±19.9
$\dot{V}O_2$ (ml/kg/min)	22.8±1.38	22.9±1.56	23.1±1.43	22.9±1.44
Kcal/min	7.3±0.97	7.4±1.00	7.5±1.01	7.4±1.01
RPE	11.3±1.55	11.7±1.72	11.8±1.73	11.2±1.64



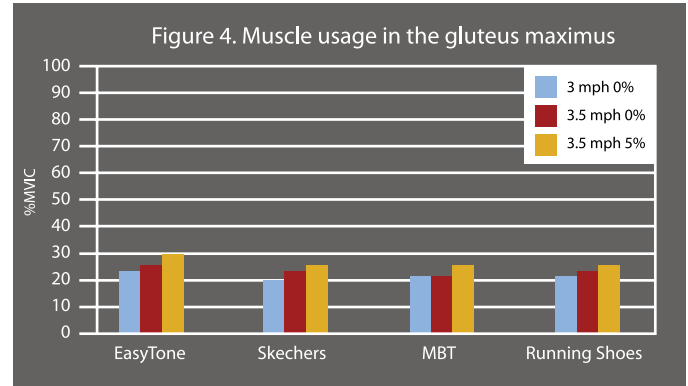
MVIC = maximum voluntary isometric contractions



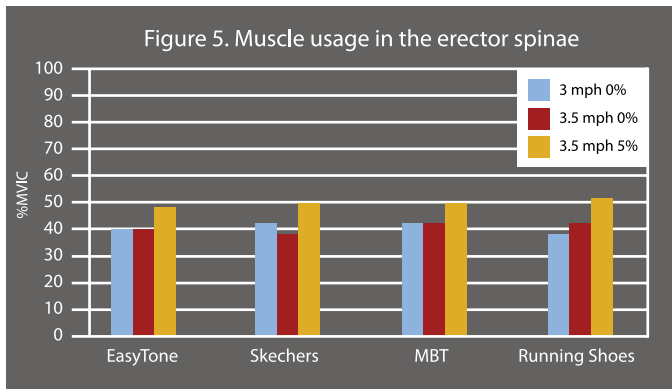
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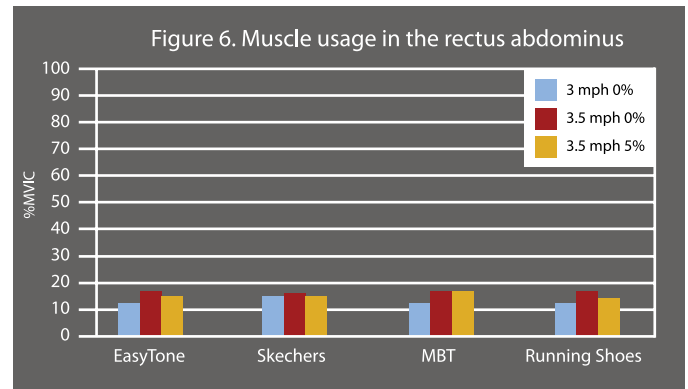
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The Bottom Line

“Don’t buy these shoes because of the claims that you’re going to tone your butt more or burn more calories. That’s absolutely wrong,” says Porcari.

Then how do researchers account for the anecdotal evidence (found on blogs, etc.) from those who wear the shoes and claim their muscles get sore, which must mean the shoes are working?

“Do you feel different when you’re wearing these shoes? Of course you do because you’re walking on probably an inch worth of cushioning,” explains Porcari. “They feel different, and that’s why when people first wear them they’re probably going to be sore because you’re using different muscles. But if you wear any sort of abnormal shoes that you’re not used to wearing, your muscles are going to get sore. Is that going to translate into toning your butt, hamstrings and calves? Nope. Your body is just going to get used to it.”

Bryant isn’t surprised by the findings: “When you think about it, it’s kind of the same old song and dance,” he says. “People will still fall prey in their search for the quick-and-easy fitness solution. These shoes are just another attempt to find that magic bullet.”

Bryant says he’s also concerned that extended wear of

these toning shoes may alter the walking gait mechanics of wearers and, in some cases, potentially cause problems for those who may already be at risk for lower-extremity issues. But to evaluate that will require another longer-term study. And although the toning shoes don’t deliver on their advertised claims, Porcari mentions there may be potential that these shoes could improve wearer’s balance over time, but that too will require a long-term training study.

In the meantime, Bryant is reaching for the silver lining.

“These shoes may be encouraging a fair number of people who probably wouldn’t put on a normal pair of walking shoes and go out and walk, to do so because they think they’re getting some super toning effect,” says Bryant. “So if you want to look at a positive, it’s probably serving as a bit of a motivator to get a group of inactive individuals to at least get up and get moving.”

And, no matter how you spin it, that’s a good thing.

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Mark Anders is an award-winning journalist who has covered a wide range of topics from rock star profiles to surfing river waves in Africa. His work has been published in more than 20 different magazines and books.



Rev Up Your Walking Workout—Guaranteed!

Here is a gimmick-free fitness solution to getting the most benefit from your walking workout.

Want to burn more calories and tone your muscles while you walk? Instead of spending hundreds on “toning shoes,” simply carry a pair of handweights. By pumping your arms actively as you walk, you’ll boost the intensity of your workout, toning muscles and burning extra calories in the process. If you want to take it one step further, ACE’s Chief Science Officer Cedric Bryant Ph.D., recommends wearing a weighted vest (of up to 10% of your total bodyweight) to provide your walking workout an even bigger boost. Just be sure to take it easy, starting slow with light weights (1 to 3 pounds) so you don’t put undue stress on your elbows and other joints.