

Metzler: Newtons putting physics to work for runners
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Danny Abshire has always looked at runners' footsteps a little differently than most.

The Boulder footwear guru has made custom insoles for top-level triathletes and marathoners and dabbled in new shoe designs for more than 15 years. This spring, with the help of business partner Jerry Lee, a local real estate developer, he has unveiled an innovative line of shoes aimed at helping runners move more efficiently.

The four lightweight models of Newton Running shoes utilize Sir Isaac Newton's third law of motion - for every action there is an equal and opposite reaction - by capturing a runner's impact on the ground and releasing it as maximal forefoot propulsion.

It's accomplished with four unconventional rubber "actuator" lugs that protrude from the shoe's outsole. On impact, the lugs stretch an elastic membrane and they press into the empty air chambers inside the shoe's midsole - an action Abshire says absorbs about 25 percent more shock than traditional running shoe foam.

Then, as the foot rolls forward toward the toe-off phase of a runner's stride, the resilient membrane thrusts the lugs from the chambers, transforming the impact energy into forward propulsion.

The result is 15 percent to 25 percent more energy return than other shoes, Abshire says. The shoes work best with an upright running form in which foot strikes occur at the midfoot or forefoot, not the heel, which Abshire says is more efficient for some runners.

Upright running form is not a new idea - many of the country's top running coaches preach it - but most current footwear designs don't accommodate it. In fact, with the exception of some racing flats and Nike's Free series of minimalist trainers, most of the running shoes on the market are designed for heel striking.

So far, the Newtons are selling like hot cakes. They debuted at a triathlon in California on March 31 on the heels of Natascha Badmann winning Ironman South Africa in a pair of Newtons two weeks earlier.

Newton critics, which have included running retailers and podiatrists, are wary of the technology, suggesting it's not conducive to every running style or foot shape and that it could lead to injury.

"We're OK with that because we're not for everybody," says

Abshire, an avid runner who owns a 1:19 personal best time in the half-marathon. "But for those who already have good form, it will allow you to run naturally and efficiently. We're not saying that it's space-age revolutionary science."

The shoes sell for \$155 to \$175 - about \$50 to \$80 more than most running shoes on the market - but are only available from Newton's Web site and Abshire's Active Imprints running store in Boulder. Still, the company says it's selling shoes 50 percent faster than it had projected and is about to receive its second shipment from its factory in China.

The innovative shoes might not work for everyone, but Boulder resident Dennis Meeker, who's training for the Oct. 13 Ironman World Championships in Hawaii, is among those sold on the concept.

"You can really feel a difference compared to normal shoes," he says. "I don't want to say it's a night-and-day difference to where it propels you forward, but you can definitely feel your forward stride and that you have a more efficient cadence. That's all I'm going to wear."

