

PHYSICS FOR YOUR FEET

TOPDOG ILLUSTRATION

A new shoe promises more efficient running by taking a page from Isaac Newton

By Brian Metzler

THE IDEA

By utilizing Newton's Third Law of Motion—for every action there is an equal and opposite reaction—Newton Running shoes (newtonrunning.com), which will debut their first models this spring, think they've come up with a more efficient mechanism to capture and transfer energy (see right).

THE STRIDE

Using Newton shoes correctly requires a midfoot or forefoot plant rather than a heel-striking technique. This running form, which is actually more natural, is key to achieving maximum efficiency.



THE INNOVATION

On impact with the ground, Newton's Active Membrane Technology goes to work. Four "actuator" lugs stretch an elastic membrane and press it into air chambers inside the midsole. Newton claims the technology absorbs about 25 percent more shock than traditional running-shoe foam.

THE REACTION

As the foot rolls forward toward the toe-off phase, the resilient membrane thrusts the actuators back out of the chambers, transforming the impact energy into forward propulsion. Newton's tests (we have yet to try samples) have shown the forefoot returns 15 to 25 percent more energy than traditional running shoes.

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