Treadmill Running versus Over-Ground Running

The debate between treadmill running and road/ground running has been raging ever since treadmills were invented. The major question you will be asked is “does treadmill running represent over-ground running?” Like most things in science there is no simple answer but the following paragraphs should give you sufficient information to answer this common.

From an analysis perspective both treadmill running and ground running have their inaccuracies and technical problems, the question really is which has the lesser number of problems.

TREADMILL RUNNING

Advantages:
- The runner is in one place all the time and this means the camera can be very close to them (even 0.5 – 1 meter) creating a high level of accuracy in any measurement.
- There are no acceleration or deceleration phases compared to running on an indoor track therefore you can capture the runner at steady state which is critical. (NOTE: this is also a huge problem with the validity and usefulness of pressure pads on the floor, the customer never runs naturally over the pad at a steady pace).
- Decrease space needed in the store.
- Speed can be very accurately reproduced for each shoe tested.

Disadvantages:
- Detailed biomechanical studies have shown that treadmill running does differ from road running but these differences do decrease the more the customer practices and feels comfortable running on the treadmill.

OVER-GROUND RUNNING

Advantages:
- It is natural.

Disadvantages:
- You need a very long runway (15-20 m) to get the runner in a steady state and avoid acceleration and deceleration problems.
- Your camera is many meters (4-6m) away from the runner in order to get one full cycle in; this dramatically reduces the accuracy of the analysis.
- Speed cannot be accurately reproduced between shoes, speed affects foot mechanics.

SUMMARY
The treadmill is the best option for space and consistency of analysis in running retail. Because you are comparing one shoe to another shoe or perhaps to barefoot running, consistency and close up analysis are critical and the treadmill option provides these.