Running: Heel-Strike Patterns & Impact Forces

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The above image illustrates what a heel strike, midfoot strike, and forefoot strike look like when the foot first impacts the ground during a habitual running stride.

It is known that a forefoot strike (FFS) generates the least amount of vertical impact compared to mid-foot strike (MFS) and heel strike (HS). However, even more differences were found between A subtle heel-strike (SHS) and an obvious heel strike (OHS). Suggesting that more research needs to be done to determine whether subtle changes in foot-strike (FS) patterns while running can effectively reduce impact forces on the body.

Running while barefoot has not only increased in popularity over the years, it yields a more common forefoot Strike, as shown in image C. Minimally shod (light footwear) runners were found to have been using a heel strike pattern, demonstrated in image A.

There are countless variables involved when analyzing FS patterns, running speed has been shown to Influence these patterns, footwear Is a popular variable of study, including running surfaces. More Subtle factors such as mood have also played a role in strides.

There are limitations to many of the current research due to these variables, and with the addition of the unpredictable nature of the human mind and body, we really have our work cut out for us.

References