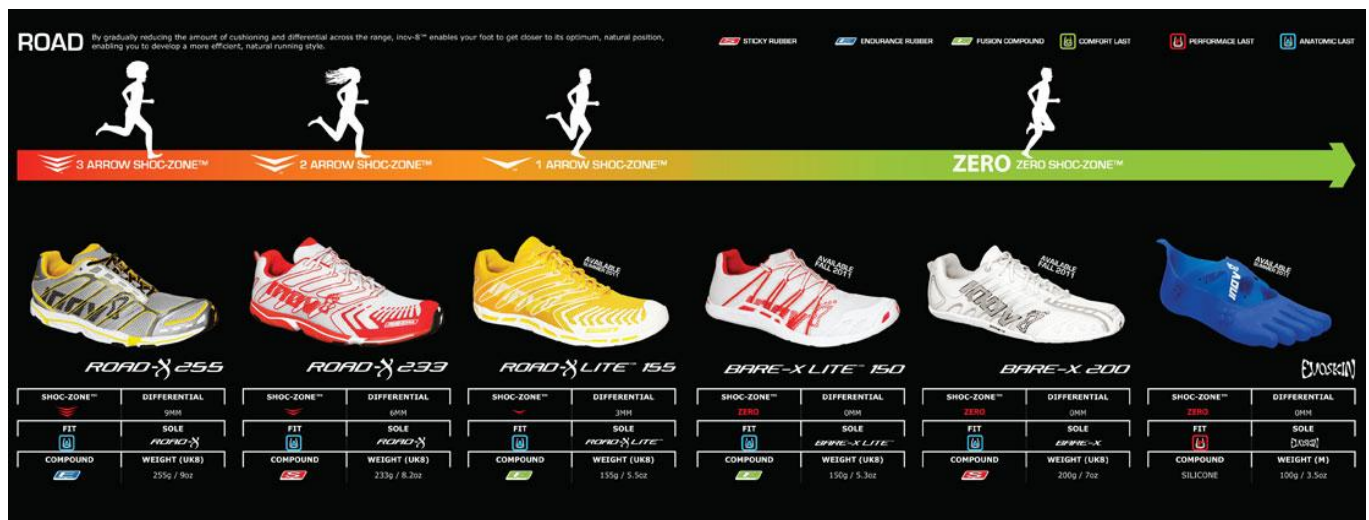


Transitioning to Minimalist Shoes Gradually Avoids Injury

Introduction

Inspired by barefoot running, many runners are switching to minimalist shoes, which help alter a runner's style into a more forefoot striking or 'natural running' gait. This running style has been associated with a reduced likelihood of injury and increased speed and efficiency.

What many runners fail to realize is that a rapid change to minimalist footwear often causes injury. In answer, inov-8™ has launched a unique range of shoes that can help provide an injury free transition by offering gradually reducing cushioning, support and differential. A booklet from inov-8™ containing information and training guides about making the transition is available free of charge at www.inov-8.com.



In this review, we find that a possible solution to the high incidence of running injuries has been inspired by barefoot running, and lies in the gradual transition into minimalist shoes.

Review

The great dichotomy between the grass routes driven interest in barefoot running and the rush into minimalist footwear, is that they can cause as many injuries as they prevent.

Changing from cushioned shoes to minimalist shoes is likely to change your running style. It's the same experience you will have if you try barefoot running, which for most runners instantly transforms them from heel strikers to midfoot/forefoot strikers with an increased cadence. Indeed, in 2011 Hamilla et al found that runners in their study* "**appeared to alter their footfall pattern from a rearfoot to a midfoot pattern when changing from running shod to barefoot**". It is this rapid change in style that puts new stresses and strains on the body and may lead to injury if not gradually introduced.

inov-8™ is unique amongst other running brands in offering a range of shoes that are neutral and have reducing levels of cushioning and differential (heel to toe drop). This enables runners to make a controlled and gradual transition into more minimalist shoes, significantly reducing the likelihood of injury but without losing the long-term benefits of adopting a more natural running style.

Apart from a hearty band of barefoot purists, no one is claiming that the evidence for minimalist running is conclusive. However, it is compelling, logical and overwhelming.

Richards et al published a study* in 2008 seeking to answer the question ***“Is your prescription of distance running shoes evidence-based?”*** He concluded that ***“The prescription of this shoe type to distance runners is not evidence-based”***. Famously, Richards then issued an open challenge to the established running shoe brands to provide any evidence that their shoes reduced injuries and or improved performance. Years later he is still waiting for any reply.

Many runners will be familiar with the average running store experience. Typically, the store will offer video gait analysis, identify a biomechanical fault and then offer a motion controlling or stability shoe to solve the problem. Apart from asking who trained the Saturday help, it would be fair to assume that this process is based on proven scientific evidence. It is not.

A recent 2010 study* by Knapik et al demonstrated that prescribing motion control shoes or neutral shoes randomly had ***“little influence on injuries”***. Furthermore a 2009 study* by Ryan et al (co authored by Gordon Valiant, Head of Nike’s Biomechanical Research) found that ***“prescribing in-shoe pronation control systems on the basis of foot type is overly simplistic and potentially injurious”*** and their research concluded that, ***“This study is unable to provide support for the convention that highly pronated runners should wear motion control shoes.”***

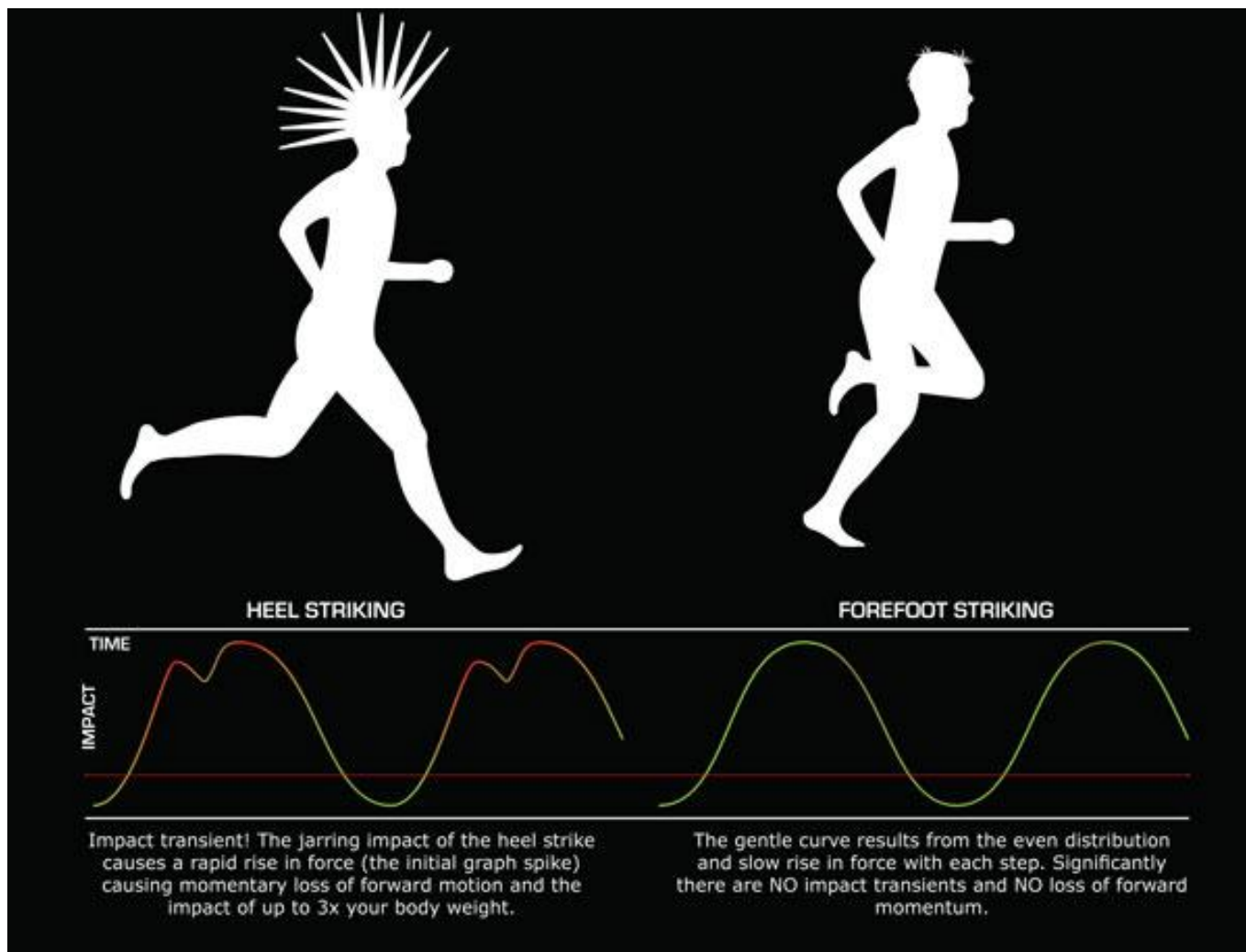
Many research papers* in the 1980s made the link between running shoes and injuries. Burkett et al demonstrated in 1985 that ***“displacement of the knee during barefoot running was significantly less than shoe and shoe-plus-orthotic conditions”*** and that ***“... the aerobic cost of running increased as the amount of mass added to the foot increased. In absolute terms, running in shoes plus orthotics was significantly more costly than running barefoot.”***

A seminal study* of the 1984 Bern Grand Prix by Marti et al showed that, as competitors trained prior to the race, injuries soared; ***“Of 4,358 male joggers, 45.8% had sustained jogging injuries during the 1 year study period”***.

Back in the running store, it’s the footwear brands that provide the technical training to the retail staff, who then advise you. If you were an over-pronator, you almost certainly would have been recommended motion-control shoes. It would seem that the advice many runners receive has little basis in fact, and it remains obvious to anyone involved with running that injury rates are unacceptably high.

A significant body of research* indicates that running barefoot enables runners to increase their speed and efficiency whilst also reducing the likelihood of injury. In a watershed moment, Lieberman et al took the arguments for barefoot running mainstream with their 2010 paper* published in Nature stating that ***“habitually barefoot endurance runners often land on the fore-foot (fore-foot strike)”*** and that ***“Fore-foot- and mid-foot-strike gaits were probably more common when humans ran barefoot or in minimal shoes, and may protect the feet and lower limbs from some of the impact-related injuries now experienced by a high percentage of runners”***

Tossing out your favorite running shoes is both impractical and fortunately unnecessary for most runners, especially those that run in rough terrain or high mileage. The logical solution points to adopting a natural running style through the use of minimalist footwear.

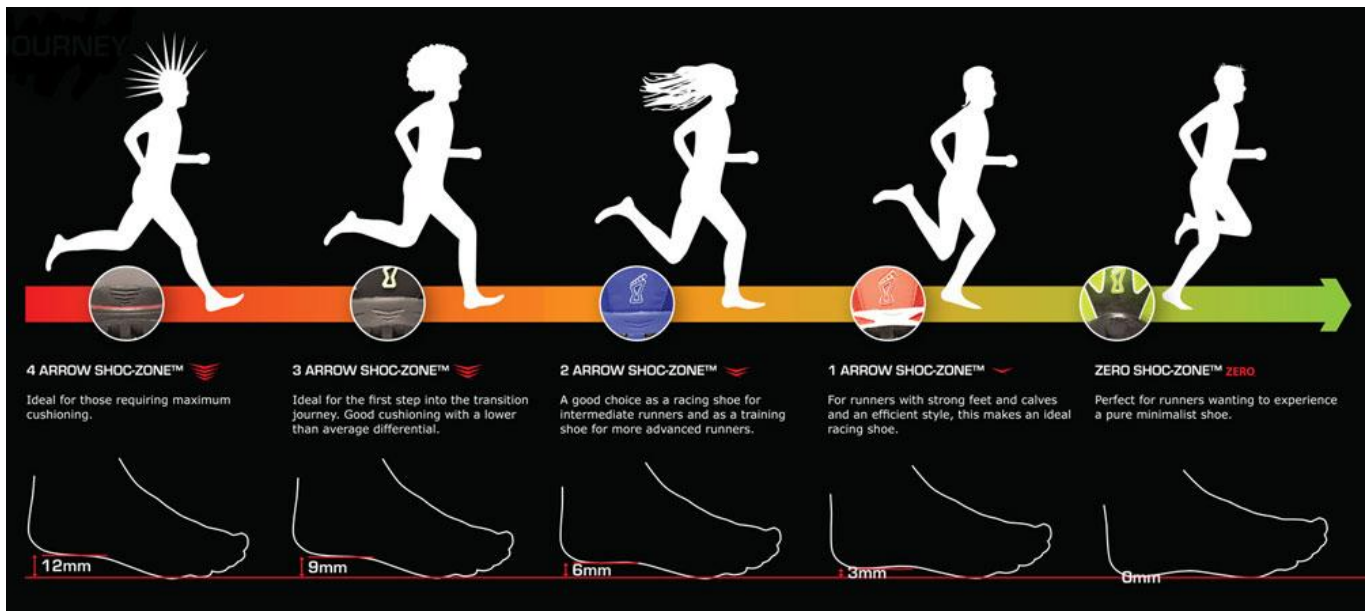


Natural running describes a forefoot-striking gait. Your center of gravity is forward and your cadence is faster than if you were heel striking. Barefoot runners naturally adopt this style of running and minimalist shoes encourage runners to do the same.

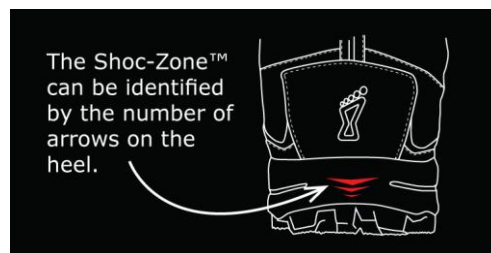
Minimalist shoes are neutral, have minimal (or even no) cushioning, offer no support or motion control and crucially have minimal differential between heel and forefoot height (imagine your barefoot on the ground, it is flat and the heel isn't raised, this means that your natural biomechanics are unaltered).

Hamill et al* made the link between shoe cushioning, support and injury in 1988 "***since foot control seems to improve as cushioning is lost and foot control accounts for at least half of running shoe related injuries***". By shielding the foot from the ground with excessive cushioning, you limit proprioception (ground feel) and how the body reacts to the terrain through fine adjustments in balance and body position. Research* back in 1987 by Robbins et al indicated that "***The sensory insulation inherent in the modern running shoe appears responsible for the high injury frequency associated with running***".

inov-8™ believes that by getting the foot closer to the ground (by minimising midsole cushioning) you increase proprioception and reduce the chance of injury. Combined with a forefoot 'natural running' style, every runner can limit the likelihood of injury further still.



inov-8™ is leading the running shoe industry by taking a responsible approach to the introduction of minimalist footwear, and has launched a range of shoes that have decreasing levels of heel to toe drop (differential), and also cushioning and support (so that runners can make a safe and injury free transition to minimalist shoes). The heel of each inov-8™ shoe provides arrows indicating the amount of cushioning, differential and support. A 4 Arrow Shoc-Zone shoe offering the most and Zero Shoc-Zone™ offering the least.



Returning to Richards et al.'s famous challenge from 2008. The mainstream running industry has failed to provide any evidence to support the use of cushioned and supportive running shoes. It is hoped that many runners will read this, view the research at www.inov-8.com/research and follow the links below before making up their own mind.

END

* Please refer to www.inov-8.com/research for a comprehensive list of all independent, peer reviewed scientific research mentioned in this article.

Further Reading

Don't just take our word for it. Below are some links to some great, informative articles about barefoot and minimalist running.

Press Reports, Reviews and Articles

RunBlogger: New Science on Running Barefoot vs. Low Drop Shoes

1st March 2011

<http://www.runblogger.com/2011/03/new-science-on-running-barefoot-vs-in.html>

RunBlogger: The Pronation Control Paradigm is Starting to Crumble: Review of a Study in the British Journal of Sports Medicine

22nd July 2010

<http://www.runblogger.com/2010/07/pronation-control-paradigm-is-starting.html>

The New York Times: Do Certain Types of Sneakers Prevent Injuries

21st July 2010

<http://well.blogs.nytimes.com/2010/07/21/phys-ed-do-certain-types-of-sneakers-prevent-injuries/>

The Minimalist Runner: Nicholas Pang

31st October 2010

<http://minimalistrunningshoes.org/the-minimalist-runner>

BareFootRunningShoes: More Research Results: Shoes Bad, Barefoot Good

28th January 2010

<http://barefootrunningshoes.org/2010/01/28/more-research-results-shoes-bad-barefoot-good/>

The Daily Mail: The Painful Truth About Trainers: Are Running Shoes a Waste of Money? (2009)

<http://www.dailymail.co.uk/home/moslive/article-1170253/The-painful-truth-trainers-Are-expensive-running-shoes-waste-money.html>

New York Times: You Walk Wrong

21st April 2008

<http://nymag.com/health/features/46213/>

Joseph Froncioni Blog: Athletic Footwear and Running Injuries

22 August 2006

http://www.quickwood.com/my_weblog/2006/08/athletic_footwe.html

Christopher McDougall Blog: The Author of 'Born to Run' writing about Barefoot Running

<http://www.chrismcdougall.com/barefoot.html>

Videos

PoseTV: Haile Gebrselassie Analysis

13th October 2010

<http://www.youtube.com/posetv#p/u/35/PUJhnEmx8Do>

San Diego Running Institute: Comparison of Minimalist Running Shoes Vs Standard Running Shoes - Video

15 September 2010

<http://www.youtube.com/watch?v=FdRoyEDTbFI>

Nature Video Channel: The Barefoot Professor

27th January 2010

<http://www.youtube.com/watch?v=7jrnj-7YKZE>

Slow Motion of Foot Striking in Marathon Runners – Video Analysis

27th January 2010

http://www.youtube.com/watch?v=hsUfo_jHQ60

New York Times: Barefoot Running

5th October 2009

<http://www.youtube.com/watch?v=iIT7t2jtdP0>

Carl Lewis and Pose Method Analysis

13th July 2009

<http://www.youtube.com/watch?v=RwNw6zT2s-U&feature=channel>

Barefoot Running and Heel Strike - Video Analysis

26th May 2009

<http://www.youtube.com/watch?v=auntctXMS5Q>

New Jersey Sports Medicine: Running Analysis of Heel Strike versus Forefoot Strike (Same runner, 2 weeks apart)

4th March 2009

<http://www.youtube.com/watch?v=XrOgDCZ4GUo>

New Jersey Sports Medicine: Haile Gebrselassie, Overpronation, The Truth

28th January 2009

http://www.youtube.com/watch?feature=player_embedded&v=EAW87NsiGuI

BBC Tomorrows World: Economical Running with the Pose Method

6th July 2008

<http://www.youtube.com/watch?v=u7zEruVUwr4>