

## Solving the Running Shoe Mystery: How to Find Your Ideal Running Shoe

By Sarah Wu, BSc, DC

**W**ith the array of athletic shoes available on the market today, it becomes a daunting task to choose a shoe that works best with our individual foot biomechanics. As the feet serve as the base of support for the rest of the body, selecting an appropriate shoe becomes paramount in avoiding injuries of the lower extremity. A shoe that provides inadequate foot support may place an individual at greater risk for injuries related to the feet, eventually working its way up the kinetic chain to the knees, hips, and low back due to the compensatory nature of our bodies.



In order to simplify the task of locating your ideal runner, I will provide an overview of the common base features in every shoe and some fitting tips to consider.

### Learn Your Foot Type

In addition to the joint and muscle/ligament support of the foot, another major contributing factor to your foot biomechanics is your foot type. A simple way to determine whether you are *neutral*, an *over-pronator* or an *over-supinator* is to wet the bottom of your foot in a shallow pan of water and then step onto a brown paper bag or coloured sheet of paper. Observe the imprint.

If you can see about half-your arch, you are ***pronation-neutral***

If you can see almost your entire foot, your arch collapses too far inward and you are an ***over-pronator/have flat (low) arches***.

If you see mostly your heel and ball of the foot, you are likely a ***supinator*** and have high arches.



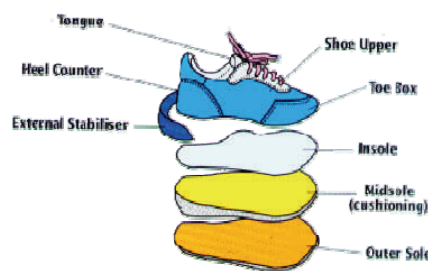
## Solving the Running Shoe Mystery: How to Find Your Ideal Running Shoe <Continued>

### ANATOMY OF THE RUNNING SHOE

Understanding shoe construction, will help you to become more aware as to what to look for in store. Below are the basics:



**UPPER** – the soft body of the shoe made of materials ranging from lightweight mesh to heavier leather. Upper materials provide some of the stability comfort of the shoe. The heel counter (reinforced, inflexible cup) is built into the upper of running shoes to surround the heel and pad the Achilles tendon; heel counters come in varying degrees of stiffness. A stiffer heel counter will promote rearfoot stability to help control pronation.



**MIDSOLE**- The layer of cushioning and stabilizing material between the outsole and the upper. The mid-sole typically consists of either ethyl-vinyl acetate (EVA), Polyurethane, or a combination of both. Often there's a dual density midsole that has firmer material on the inner portion of the foot to help limit pronation (rolling in) of the foot. A Post or footbridge (firm material along the arch side of the midsole) may be added to increase stability.



Straight      Semi-curved      Curved

**LAST**- When looking from the bottom of the shoe, the *last* is the inside shape of the shoe upon which the rest of the shoe was constructed. It can take three basic shapes: 1) Straight, 2) Semi-curved, and 3) Curved

**OUTSOLE** - the bottom of the shoe that provides traction and 1st line shock absorption. The harder the sole, the heavier and less cushioning it provides.

## Solving the Running Shoe Mystery: How to Find Your Ideal Running Shoe <Continued>


### Basic Categories of Running Shoes

	Stability	Motion-control	Cushioned	Lightweight
<b>Features</b>	Good mix of cushioning, medial support and durability	Most rigid shoe, designed to limit pronation	Most flexible outsole, least medial support, softest midsole	Designed for speed
<b>Midsole</b>	Polyurethane for stability and motion control May feature a medial post	Firmer anti-pronation posting on the inside of midsole Firm or dual density midsole Firm heel counter	May incl. compression moulded or encapsulated EVA, silicone gel pads, silicone flow chamber or other shock-absorbing features	
<b>Last</b>	Semi-curved	Straight	Curved or semi curved	
<b>Suited For</b>	Midweight runners MED-to-LOW arches	Heavyweight runner Over-pronator FLAT arches	Light-to-Midweight runners HIGH arches	High performance, biomechanical neutral runners

### When to Replace Your Shoes

- Depending on the amount of use your runners undergo, the midsole typically wears out before the outsole, which compromises the stability and cushioning of the shoe. Watch for creasing in the midsole material in high load areas
- A quality running shoe will usually last up to 1, 000 km

### Final Fitting Tips

- Choose a shoe of adequate length. About a thumb's width between your longest toe and the front of the shoe will allow the foot to flex properly during toe-off of the gait cycle. A toe box that is too narrow will restrict the muscles and tendons in the foot and lead to pain and cramping.
- Heel counter should fit snugly to prevent rubbing in order to stabilize the forefoot.
- Ensure that the shoe flexes where the toes flex, rather than at the midfoot.
- If you have orthotic supports, fit the shoes with them in to prevent over-correction of foot biomechanics. 



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