# Importance of Running Shoes

Mark J. Mendeszoon, DPM Precision Orthopaedic Specialties Achilles Running Shop



# **Running Shoes**





## History of Running

×Ancient Greeks- sound body & sound mind
×Initially barefoot & naked
×Romans- thin soled sandals
×Leather used due to durability



#### Running Shoe History

×1839- Charles Goodyear- vulcanized rubber

×1852- first running shoe with spikes

×1900- all purpose sneaker: canvas ×+rubber{sulfphur}

×A Scotsman 'Old Man' Richings- seamless toebox

## ADIDAS

×Adolph Dassler
×Rudolph Dassler
×1925
×Arch Support & Speed Lacing
×1936 Olympic Games
×Jesse Owens



#### Puma

#### ×Rudolph Dassler ×Family Fight

#### ×SNEAKER WARS

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### **New Balance**

×American Company
×1960's
×Provided Running Research
×Lightweight support & nylon
×Used as comfort



### ASICS

×Kihachiro Onitsuka - 1949 **×**Tiger ×Post World War Two ×Children Shoes- exercise ×Running 1956 ×Kohei Hori - Juvenal Satire



×"If you pray to God, you should pray for a sound mind in a sound body" ("Anima Sana in Corpore Sano")

### Other Running Shoe Companies

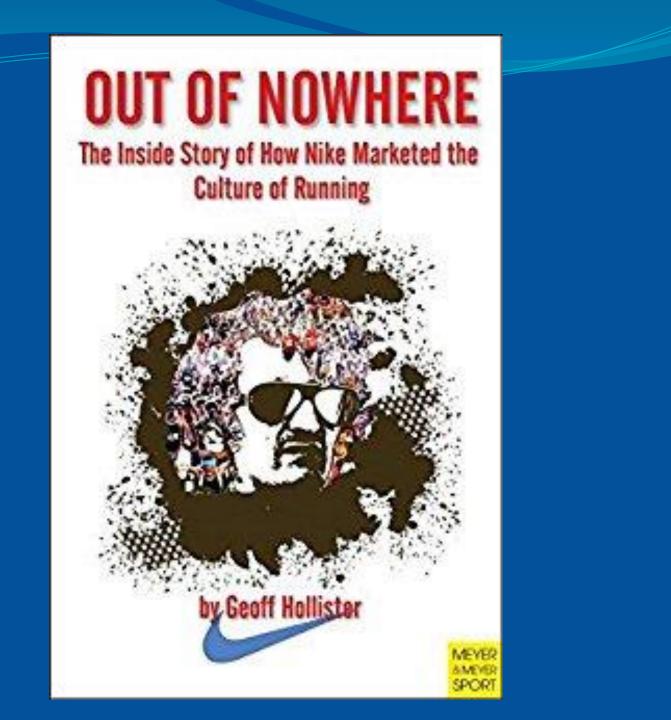
**×**Asics **×**Mizuno **×**Reebok × Saucony × Brooks ×Pearl Izumi × Altra **×Newton ×Hoka** ×On Cloud



## 1972- Nike

×Phil Knight
×Bill Bowerman
×Steve Prefontaine
×Waffle Iron
×Hayward Field





"There's hardly a more putfic' downthan biographer than Kenny Moore, who brings both Sports Illustrated writing chops and an intimate knowledge of Bowerman's coaching style to the task."

-THE SEATTLE TIMES

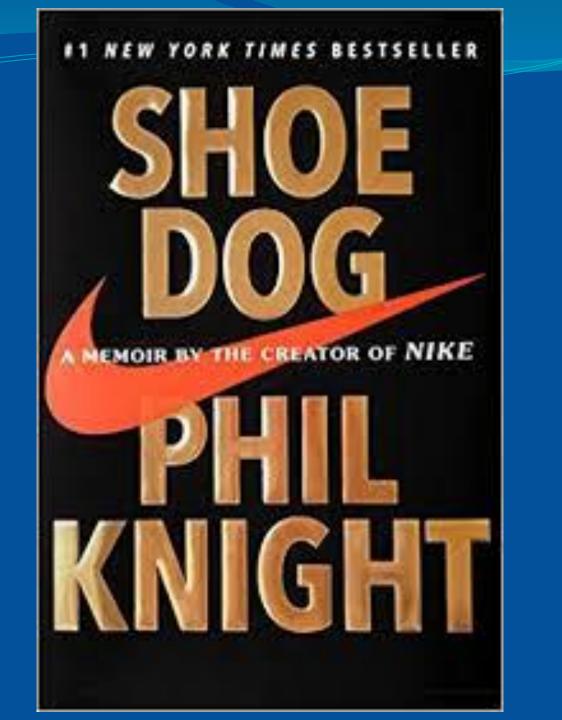


#### BOWERMAN AND THE MEN OF OREGON

The Story of Oregon's Legendary Coach and Nike's Cofounder

#### KENNY MOORE

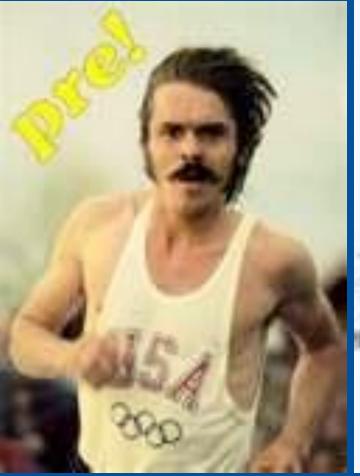
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## **Steve Prefontaine**





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WAFFLE IRON - THIS IS SIMILAR TO THE ORIGINAL WAFFLE IRON, WHICH BARBARA BOWERMAN THREW AWAY BECAUSE HER HUSBAND HAD GLUED IT SHUT.

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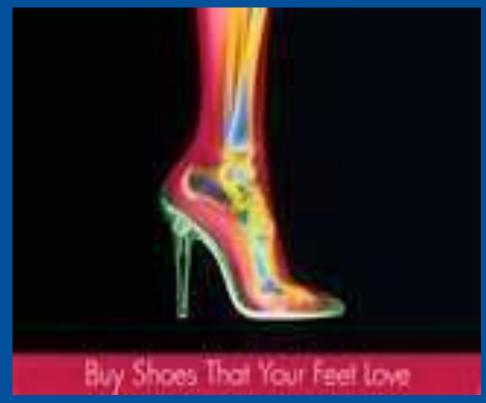
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## Nike Changed Running & Industry

×Thick Heel
×Promote heel-toe strike
×Addressed Pronation
×Blown Rubber
×Massive Marketing
×Overseas Production



### The Majority of Western Civilization wear the WRONG shoes



## Function of Running Shoes

Protection
Support
Shock Absorption
Ventilation
Cushioning
Performance



#### Have a General Understanding of ALL Musculoskeletal Injuries Lower Extremity MUST have a Thorough Understanding !

#### Foot & Ankle Biomechanics

#### X The Science of How the Foot Propels the Body From Point A to Point B

大学家大学家



#### **Running Statistics**

- × 8 times body weight per step
  × Approx. 1500-2000 steps per mile
  × Do the math
  - × <u>Distance X body weight X steps = total</u>



# The Foot Is a Mobile Adaptor

- × Absorbs shock
- × Adapts to underlying surfaces
- × Balances the body
- × Propels forward



As Foot & Ankle Specialist we must take into consideration several issues when placing patient into proper running shoes

As Foot & Ankle Experts We Must Learn the Anatomy of Shoes Familiarize with Shoe Materials Understand the Category of Shoes Realize One Brand isn't the BEST Work with Local Stores Work with Local Orthotist

### **Patient Considerations**

×Height
×Weight
×Foot Type
×Orthopedic Condition
×Medical Condition
×Activities
×Goals



### **Insoles & Custom Orthotics**

#### ×Will definitely change which running shoe to utilize





#### How Do People Buy Shoes?

- × Price
- × Color
- × Name
- × Trends
- × Advice









## Majority of People and Runners Are In The Wrong Shoes



# Many Type of Walking & Running Shoes

- × Cushion
- × Support
- × Stabilizing
- × Motion Control
- × Racing Flats
- × Spikes
- × Hybrids
- × Minimalist
- × Negative Heels



#### **Running Shoe Anatomy**

- × Uppers
- × Lace system
- × Lasts
- × Midsole- \$\$\$ research
- × Outsole/rubber
- × Achilles notch

#### ANATOMY OF A RUNNING SHOE & SOME FUN FACTS

#### preserved by Believe in the 😝



#### ANATOMY OF A RUNNING SHOE





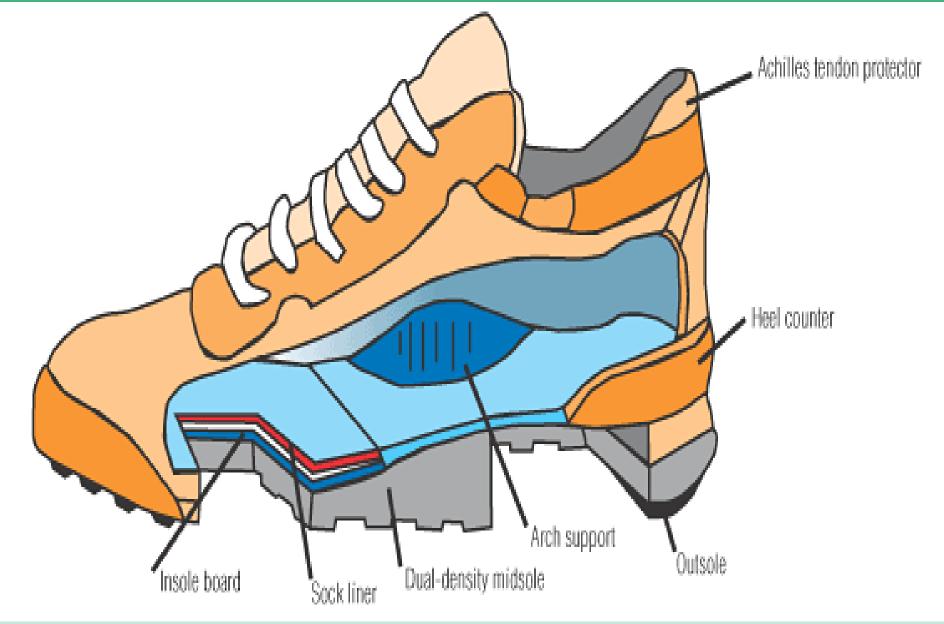


FIGURE 1. Knowing basic running shoe anatomy will help physicians recommend shoes that are best suited for an individual patient's needs.

# Running Shoe Materials

Nylon Mesh Plastic Gels Carbon Rubber Cardboard Compressed Air Liquid Silicone



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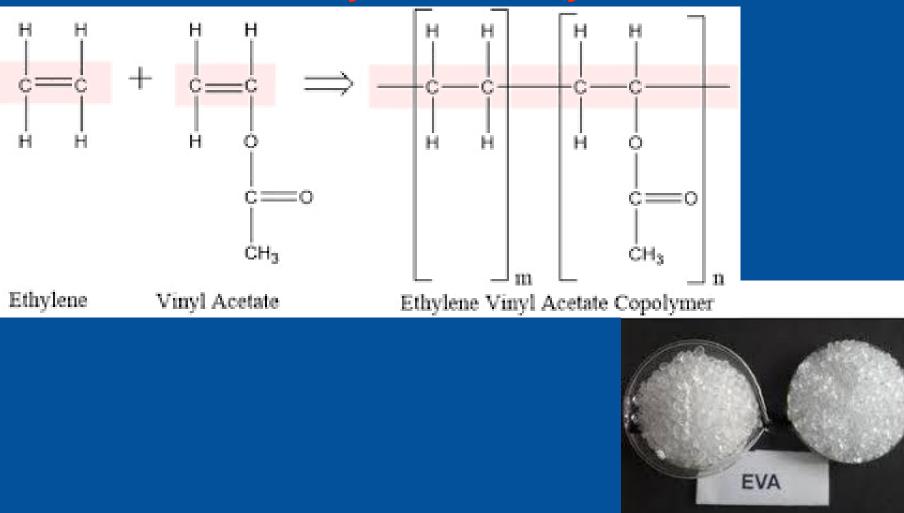
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#### **Most Import Material** EVA: Ethylene Vinyl Acetate





#### **Adidas Boost**



# Thermoplastic Poly Urethane TPU



### Shoe Lasts







#### **Curved Last**



## Straight Last



### **Modified Last**

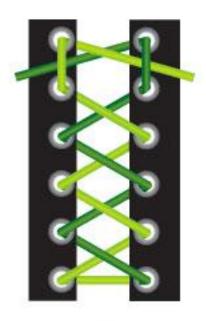


#### **Uppers & Lace System**

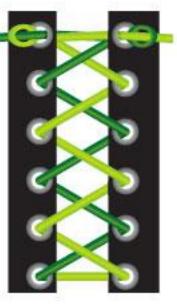
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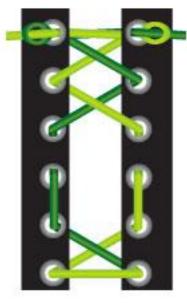
#### Shoe Lace Techniques



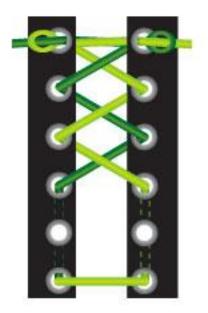
Lock Lacing



Loop Lacing Lock



**High-Instep Lacing** 



Wide Forefoot Lacing

## Midsole



### Shock Absorption System



#### Midsole Arch



#### Midsole Arch



#### Midsole Arch



#### Counter & Achilles Notch

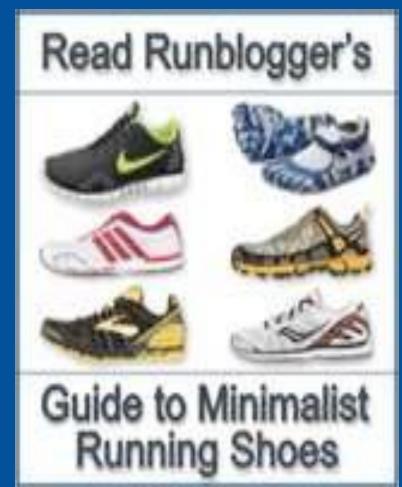


#### Outsole





#### **Minimal Shoes**



## **Minimalist Philosophy**

Man is not designed to walk/run in shoes ??? Reduce injuries Natural Gait & Foot Strike



#### Vibram Five Fingers



## Barefoot







## Minimal to Zero Drop

Measurement Heel height to Forefoot height
Typical shoe is 12 MM
Minimal : 8 mm, 4 mm, 0 mm

# 12 mm drop



# 8 mm Drop



#### 4 mm drop shoe



### O mm Drop



# Negative Heel



**Negative Heel** Allows Achilles to be elongate Reduces equinus Rolling action

# Earth Shoe







-

#### **Protocol For Proper Shoe Selection**

- × Individual's running history
- × Inspection of old shoes
- × Proper measurement of feet
- × Evaluation of walking & running
- $\times$  Video analysis





## Video Analysis



## Running Shop Shoe Fitting Protocol

× Place the individual in the proper fitting and functional shoe !!!



# Custom Orthoses & Insoles Will Change Shoe Selection

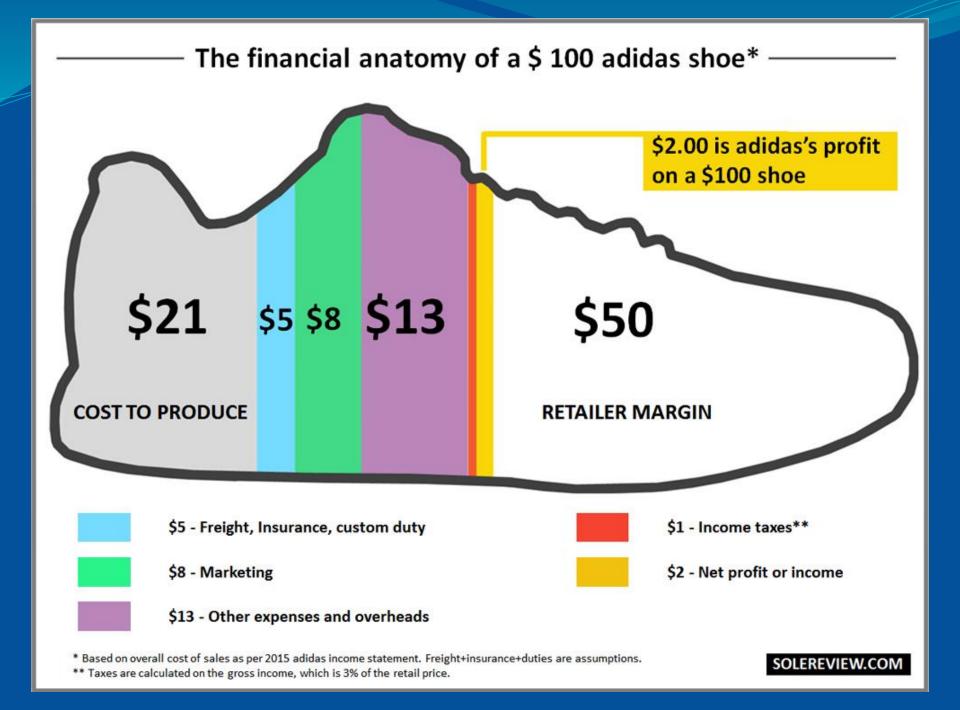


# Care of Your Walking & Running Shoes

- × Use them only for running
- × Wear proper socks- 'wicking' fabric
- × Lace & Unlace shoes at all times
- × Powder shoes
- × Keep in area of air currents
- × Rotate Shoes
- × Maximum mileage 400-600 miles







#### **Advantages of Bricks & Mortar Stores**

×Local Community Business ×Price Points are set by Industry ×Local Discounts ×Support Local Events & Schools ×Local Employment ×Fit Process ×Shoe Variability **×Knowledge** ×Symbiotic Relationship

# Thank You

