Why our Children should be Barefoot

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Acknowledgements

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- Dr. Simon Wikler
- Dr. Daniel E. Lieberman
- Damien Howell
- Dr. Fitzgerald's
- Stephanie Tourles
- Dr Paul Brand's
- Dr UB Rao & Dr. Joseph
- Dr. Lynn Staheli
- Dr. Andrew Shapiro
- Wegener, Adrienne E Hunt, enedicte Vanwanseele , Joshua Burns and Richard M Smith and many others

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Simple Principle

Being barefoot is beneficial for everyone but especially for babies and children as, it enhances proprioception, foot development including the crucial strengthening of the arch structures increased strength, flexion and general awareness.

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One in two children will go on to develop foot problems as a result of poorly fitting shoes or as a result of wearing shoes too early.

www.yougov.co.uk

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What's the message?

- We need to adapt our views and advice.
- We need to read the evidence and have it available to patients.
- We need to be at the forefront of this research.
- We need to educate in such a way as to prevent further problems.

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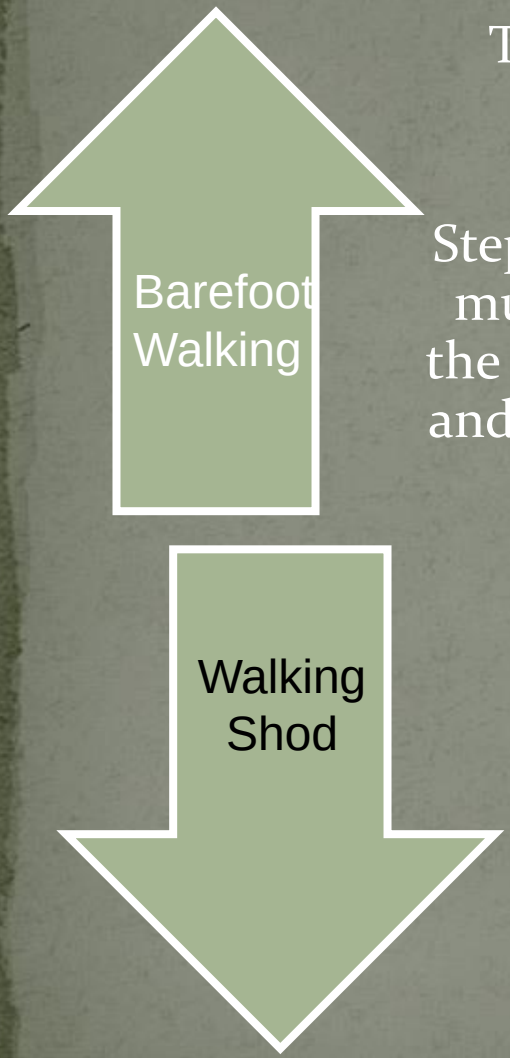
Barefoot Theory



The nerve endings on the bottom of the foot reflex muscle contraction to avoid the irritation, when stimulated.

Stepping on a something sharp or rough is painful – the muscles in the foot and leg contract in order to get off the irritation. This constant cycle of sensory stimulation and reflex muscle contraction is thought to improve the strength of the foot and leg muscles.

Conversely, wearing a cushioned shoe and shoe inserts diminishes the ability to feel irritations from the ground and the reflex muscle contractions are diminished. Over time, the muscles weaken, and proprioception lost

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Evidence of The Barefoot Theory

Studies comparing running shod and walking barefoot have shown that the timing of activation of the muscles on the front of the shin changes significantly. Perhaps using shoes contributes to the development of shin pain. Shin splints are not a common injury of individuals who participate in modern dance, which is often done barefoot.

Source: Damien Howell Physical Therapy

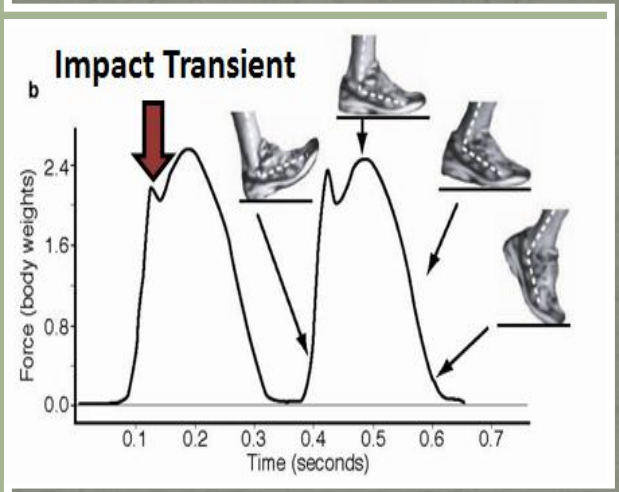
Fad or Fact?

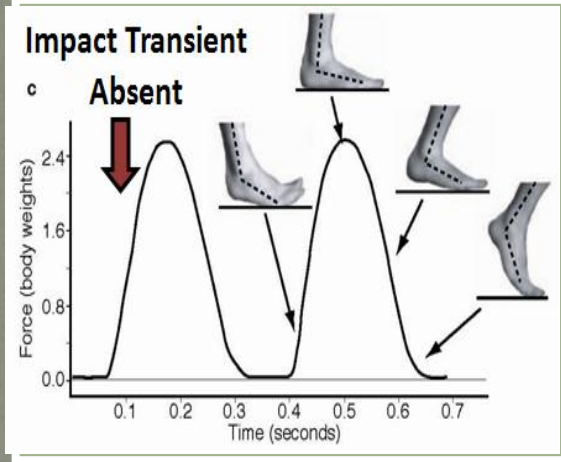
Humans have been running for millions of years, and until recently it was mostly barefoot or in very simple shoes (sandals or moccasins). Our research shows that habitually barefoot or minimally shod humans tend not to land on their heels, and instead strike the ground in a way that leads to very low collision forces, even on very hard surfaces. This style of running may have other benefits, which is still being researched upon

Source: Research of Dr. Daniel E. Lieberman

Heel Landing styles while running shod and unsdhod

There is a difference of landing of different parts of feet for shod and unshod runners, and experience a different pattern of forces in the leg. These differences are focused in areas associated with injury.
Figure below highlights these differences:





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Differences Elaborated

- Barefoot endurance runners often land on the fore-foot (fore-foot strike) before bringing down the heel, but they sometimes land with a flat foot (mid-foot strike) or, less often, on the heel (rear-foot strike).
- Barefoot runners who strike forefoot first generate smaller collision forces
- Shod runners mostly strike with rear-foot, facilitated by the elevated and cushioned heel of the modern running shoe.
- Shod rear-foot strikers generate higher collision forces.

Source: of Dr. Daniel E. Lieberman

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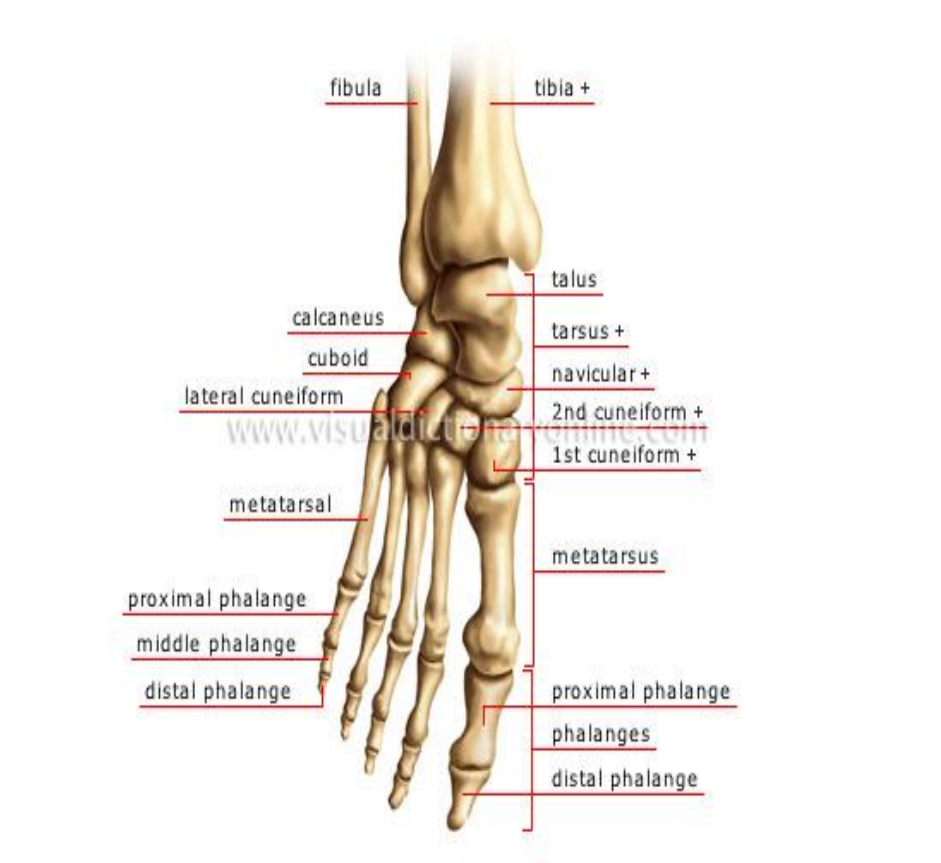
Back to school!



How many bones are there in the human foot

26? (If we exclude sesamoid bones)

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Back to school

- How many nerve endings are there in foot?
- 7200
- One point of view says that each of the 7,200 nerve endings in the feet connects to a different area of the body. By direct pressure on specific areas of the foot, we send a stimulation to the corresponding body area.

- Dr. Fitzgerald's zone theory divides the body into ten zones – five on each side of the body—with each zone having its own nerve-stimulation pattern, so that when pressure is applied to a reflex point on that zone, a stimulation is sent to a corresponding organ or gland

Source: http://home.frognet.net/~footloos/reflex.html

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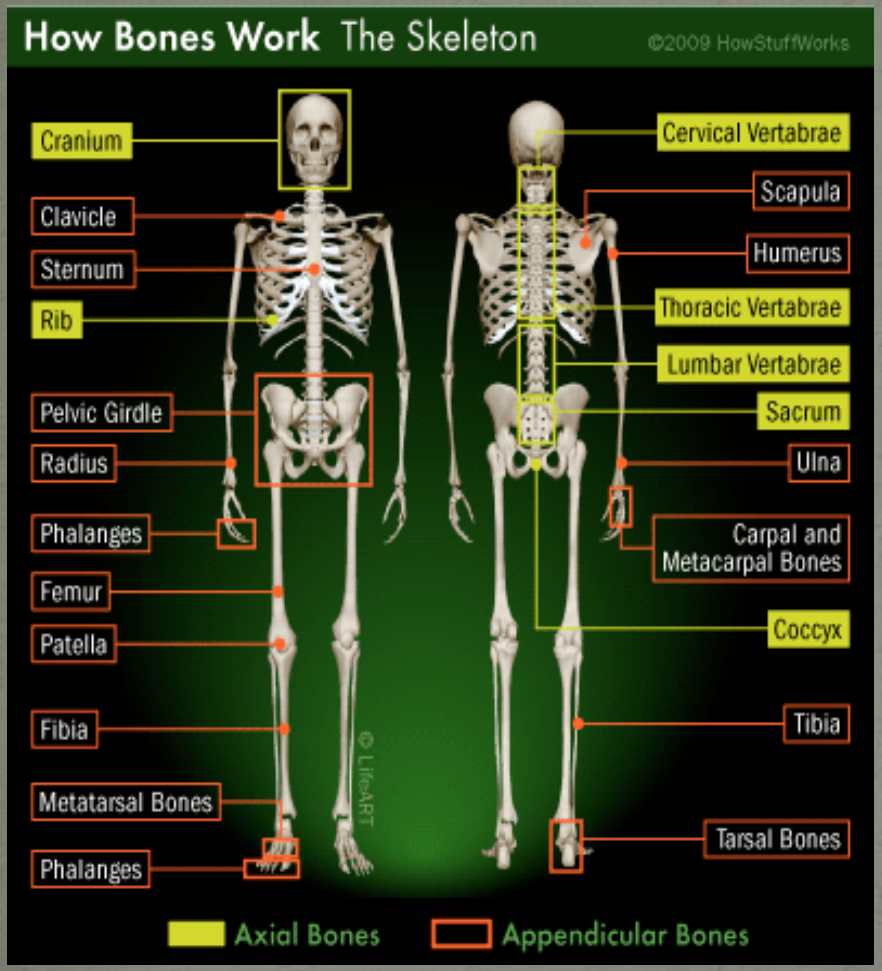
Back to school



What percentage of the entire bones in the body are in the foot?

Feet has 25% of the entire bones in the body.

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How is a child's foot different to an adults foot?

- No bones
- Heel is very narrow
- Arch undeveloped
- The bones have not fully ossified.
- Children are born with flat feet and the longitudinal arch of the foot forms itself in the first decade of life.

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Research Facts

Children with the healthiest and most supple feet are those who habitually go barefoot. (Dr. Lynn Staheli, M.D. pediatric orthopedist, The N.Y. Times, Aug. 14, 1991)

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A child's First steps

- A child's feet just like the rest of the body needs to be toned and stretched in their natural state, that is barefoot.(Stephanie Tourles)

The delicate and soft tissues of a child grow much faster when allowed in a free environment that is barefoot walking.

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Some Early Research

Most doctors confirm that going barefoot is good... There are many podiatrists who promote barefoot exercise...But the foot is still held unhealthily immobile and unventilated after such efforts. The obvious alternative is to minimize time spent in shoes.

Source: (Parents for Barefoot Children website)

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Dr.Simon J. Wikler D.S.C- Rewards of Walking Barefoot(specially for children)

Greater flexor strength and less deformed toes

More ability to spread the toes naturally.

Denser muscles on the bottom of the feet

Greater agility compared to those who had never gone barefoot in their life

More flexibility of the gluteal and hamstring muscles

Findings of Dr UB Rao & Dr. Joseph Kasturba Medical College India

- Researchers in India, analyzed static footprints of 2300 children between the ages of 4 and 13 years to establish the influence of footwear on the prevalence of flat foot. Flat Foot amongst children who used footwear was 8.6% compared with 2.8% in those who did not).

- Their findings suggest that shoe-wearing in early childhood is detrimental to the development of a normal longitudinal arch.

Dr Paul Brand's Research Findings

- The barefoot walker receives a continuous stream of information about the ground and about his own relationship to it, while a shod foot sleeps inside an unchanging environment. Sensations that is not used or listened to become decayed and atrophy. There is a sense of aliveness and joy which I experience walking barefoot that I never get in shoes.

- Direct contact with the ground has a great deal to do with preventing fractures of the ankle. In India, Dr. Brand saw no ankle fractures except those who wore shoes.

Interesting Facts & Research About A Child's Feet(1/3)

- A childs connective tissue exhibits a significantly higher elasticity, including that in the foot.
- The mechanical stability of tendons and ligaments develops in the children's school age Bone development: the foot can be easily injured during the growth phase due to its soft structures as well as slightly deformed due to the exerted forces.
- At the age of 4 years, there is the risk of inward heel angulations (heel Valgus) of 15 -20 ^{0} Physiological club or fallen feet should not cause any pain in childhood; if stressed in an unrestrained manner, it should be completely moveable along the upper and lower ankle joint and independent of structural changes.

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Interesting Facts & Research About A Child's Feet (2/3)

- 98% of girl' feet are fully grown at the age 12 to 13
- 98% of boys' feet are fully grown at the age of 15.
- Fast longitudinal growth of the feet in the first three years of life of up to 2mm per month, decreasing to about 1mm per month until the age of 5(6-7mm correspond to one shoe size)
- After reaching the age of 5, the yearly longitudinal growth up to the age of 12 amounts to between 0.8 and 2cm.

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Interesting Facts & Researches About A Child's Feet(3/3)

- The shoe must follow the natural motion of foot and not vice versa, it should ideally resemble barefoot walking on. This primarily relates to sole design, since the sole bears the weight of the body and represents the junction between the foot and the ground.

- Until school going age, special cushioning elements, pronation support or heel lifts are inappropriate for a childs foot

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Research Findings

Shoes & Impact

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Research findings of Shulman

- Baby shoes cause great harm to growing, formative feet. The so-called “sentimental” value of baby’s shoes might well be dispensed with.
- Optimum foot development occurs in the barefoot environment, and, therefore, children should be encouraged to partake in barefoot activity.

Shoes and its Impact

Findings of Dr Benjamin Joseph		
Arch generally develops in a child's foot at a age of 6 years. Shoe-wearing in early childhood is detrimental to the development of a normal or a high medial longitudinal arch	The susceptibility for flat foot among children who wear shoes is most evident if there is associated ligament laxity	Children from affluent families were more likely to visit the orthopedic clinic.

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Going Barefoot Helps in Balancing

- The child will have better balance and stability barefoot and the lower extremity muscles will develop properly," he says. "Of course a safe environment is needed.-Dr. Andrew Shapiro, a podiatrist in private practice in Valley Stream, New York

A Child's Feet Self Adaptability

Many babies have feet pointing inward, pigeon-style, usually after being squeezed into the fetus position for several months.

Other children have hip bones or leg bones that rotate inward a bit more than they do outside because of the feet point inward. Pigeon toes generally correct for six months to three years.

Many other children begin to walk with their feet turned out, more like a duck, a pigeon, but most take a more simplified approach within six months of stumbling.

Flat feet are perfectly healthy feet, and in fact are subject to fewer stress fractures to the feet with high arches. So, a child's feet should be allowed to adapt naturally without shoes

Source: www.runningshoes.nongbeam.com

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Going Barefoot

Benefits

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General Foot Health

- As per new Harvard study, People who begin walking barefoot in childhood have less trouble with their feet than those who keep their feet constantly covered. These children tend to have fewer occurrences of foot deformities, greater agility and better flexibility.

- Feet are not just what we walk on; they serve multiple functions to keep a person healthy and in tune with their inner energy.

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Circulatory Benefits

- When a child walks barefoot, it stimulates the micro leg muscles to pump blood back to the heart. This decreases the likelihood of developing varicose veins. Feet act as a natural cooling system as it absorbs heat through the soles of the feet. When the feet are covered, heat is trapped, which makes the body feel warmer.

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Emotional Benefits

- Walking barefoot in the park, a garden or simply in the backyard can help a person feel closer to nature. This has a calming emotional effect by increasing energy levels, relaxing the mind and refocus attention to less stressful areas. In oriental exercises such as martial arts, tai-chi and yoga, it is believed that practicing these arts barefoot allows the person to absorb Chi, the life force.

Promoters of Barefoot Walking

" "The message is feet, not shoes. Our feet are amazing, and we just don't know it." "Conventional wisdom is so anti-barefoot, but this is new knowledge, new research, that is starting to permeate the market"

Galahad Clark a descendant of the Clarks shoe family.

Source: http://www.ft.com/cms/s/2/fd929f02-2d75-11de-9eba-00144feabdc0.html#axzz1OYsbvjAD

Even Nike are buying into the idea that the foot is a design masterpiece that doesn't need our help." According to Nike, "Studies show that barefoot training leads to stronger feet, that stronger feet lead to a stronger body, and that natural movement enhances agility."

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Shoes And Its Impact On A Child's Gait

- The reduction of hallux motion that occurs while walking in shoes may adversely affect the 'windlass' mechanism in which winding of the plantar aponeurosis around the metatarsophalangeal joint during hallux extension assists raising the medial longitudinal arch and inverting the rear foot following heel rise. It is likely that the increases in sagittal plane motion at the ankle and knee are due to the increased stride length while walking in shoes.

(Source Effect of children's shoes on gait: a systematic review and meta-analysis Researchers Wegener, Adrienne E Hunt, enedicte Vanwanseele , Joshua Burns and Richard M Smith)

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Shoe's And A Child's Feet

- Shoes restrict children’s foot motion during walking particularly at the mid foot during the contact period and propulsion phases of gait

- Shoes decrease the intrinsic motion of the foot during walking. Eight of the nine range of motion variables measuring foot motion were reduced in shoes.

- 'Subtalar' rotation was the only range of motion variable to increase in one shoe condition, designed to have greater flexibility, possibly because of the lateral lever arm effect of footwear increasing 'subtalar' joint motion .The extent of the reduced foot motion indicates that shoes have a splinting effect on foot joints.

- (Source: Articles from Journal of Foot and Ankle Research are provided here courtesy of BioMed Central)

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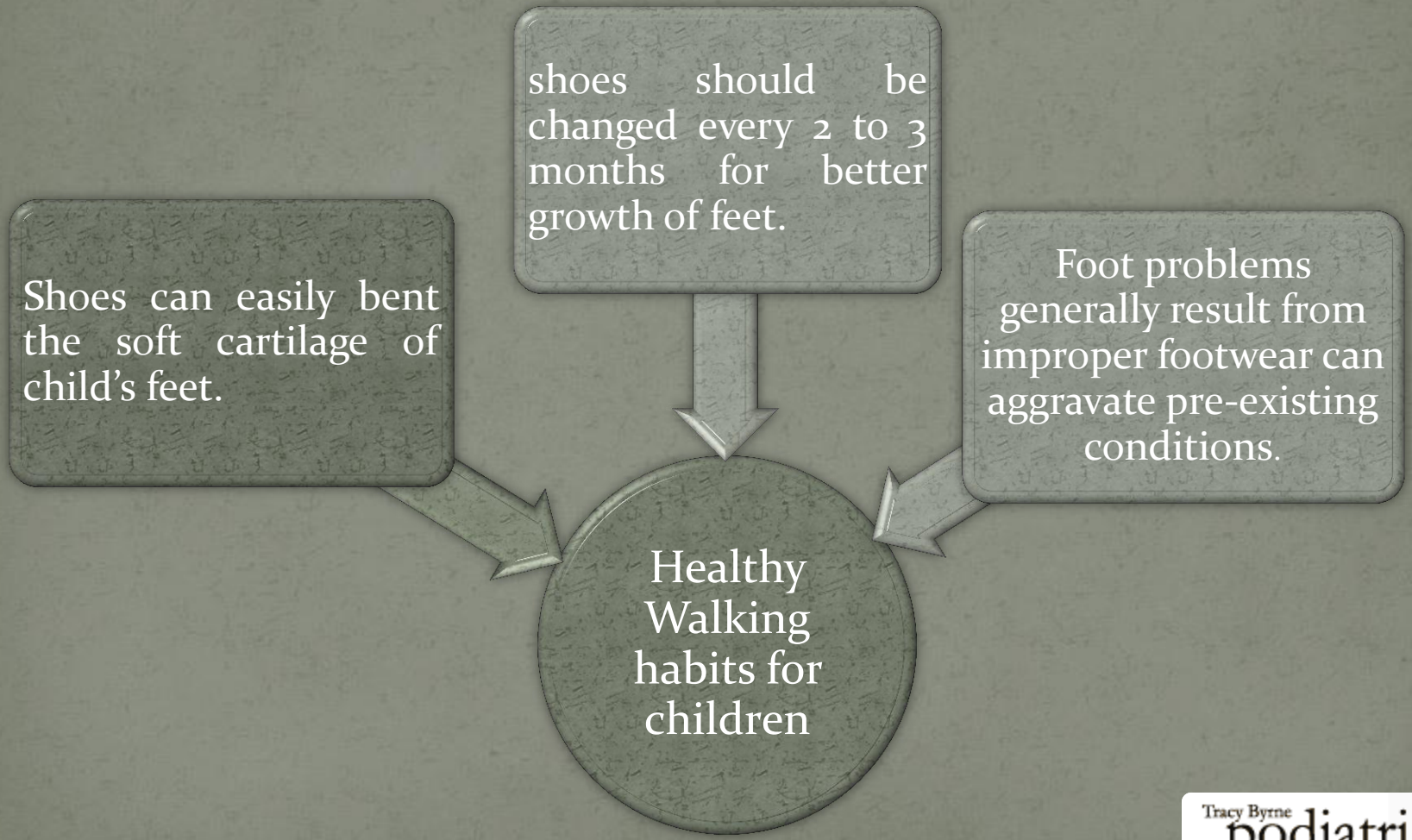
Effective Walking for Children



Source: http://motoricdevelompent.wordpress.com/2009/07/23/children-feet/

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Enjoy the Freedom!

Source : Going Barefoot By Aileen Fisher

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This is about the foot and not the shoe.

Thank you and Questions!

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