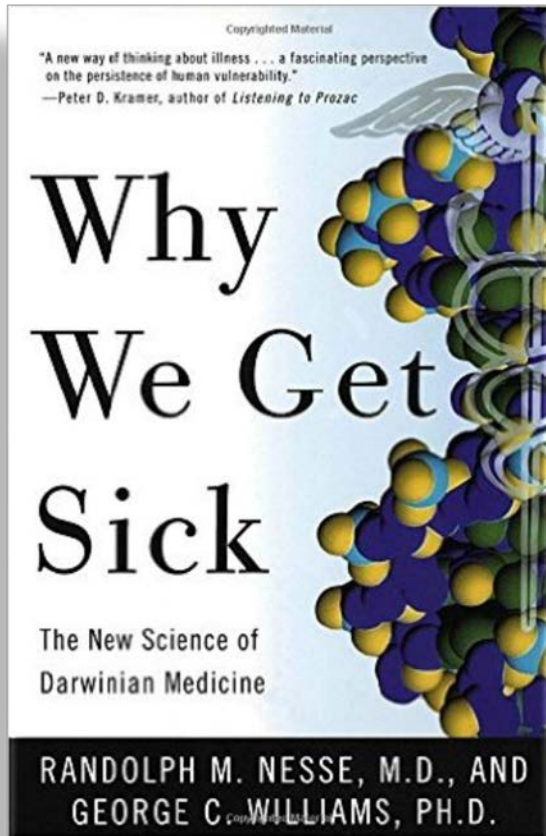


Evolutionary Medicine



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Evolutionary “Mismatch” Disease

Using the body in a way that it is not evolved to be used

Adaptive
Phenotype?

Habitual barefoot walking (HBW)
Deliberate walking (DW)
Associate with Health & Fitness?



Maladaptive
Phenotype?

Shod – Heel-toe walking (HTW)
“Normal”
Associated with Disease?

Is it possible that maladaptive phenotypic variation in human locomotion (walking & running) causes evolutionary mismatch disease?

Evolutionary Mismatch Diseases?

- Neck and back pain
- Joint pain / arthritis
- Falls – fractures
- Enthesopathies (sprains and strains)
- Osteoporosis
- Fibromyalgia

Musculoskeletal “Mismatch” Diseases

- Back and neck pain
- Falls/imbalance
- Joint pain
 - Hip
 - Knee
 - Foot/Ankle
- Arthritis
- Osteoporosis
- Fibromyalgia/chronic pain
- Peri-surgery
 - Delay or prevent
 - Pre-habilitation
 - Rehabilitation
- Adolescent overuse injuries
- Older adult
 - Obesity
 - Weakness
- Walking and running injuries

Solution: DW/HBW

- Shorter Stride
- Higher step cadence frequency
- Reciprocal UE and LE motion
- Midfoot strike
- Knee unlocked at foot strike
- Foot contact just in front of COM
- Early stance heel lift-off

