

JUNE 18, 2015

DR. VICTOR CHANG, DPT, OMPT

WWW.MOVEBALANCESPORT.COM

MOVING NATURALLY WITH HYPERMOBILITY

VICTOR CHANG, DPT, OMPT

- B.S. in Bioengineering with a focus in biomechanics - Rice University, Houston, TX // 2003
- D.P.T. - Washington University School of Medicine in St. Louis, MO // 2006
- O.M.P.T - Institute of Manipulative Physiotherapy & Clinical Training // 2012
- Practicing in DC metro region since 2006
- Started and directed two private orthopedic offices
- Founded Movement Balance & Sports Performance in 2014
 - 80-90% of clientele presenting with hypermobility
- Hypermobility athlete entire life
 - Controlling symptoms well for 10 years
 - Passionate in giving hope to others

OUTLINE

- Quality movement
- Alignment and control
- Faulty movement patterns
- Compensatory hypermobility
- Controlled compensations

QUALITY MOVEMENT

- Restoring and maintaining precise movement of specific segments is the key to preventing or correcting musculoskeletal pain.
- Movement is a type of stress and strain to tissues
- Optimal health and improved strength is a result of graded stress
 - Lower and upper constraints that help determine whether it will help or harm the health of tissues
- Loss of controlled precise movements begins a cycle of events
 - Progression from microtrauma to macrotrauma

TENSILE STRESS, σ (F/A)

$$\text{Young's Modulus} = \sigma/\epsilon$$

STRAIN, ϵ ($\Delta L/L_0$)



Failure

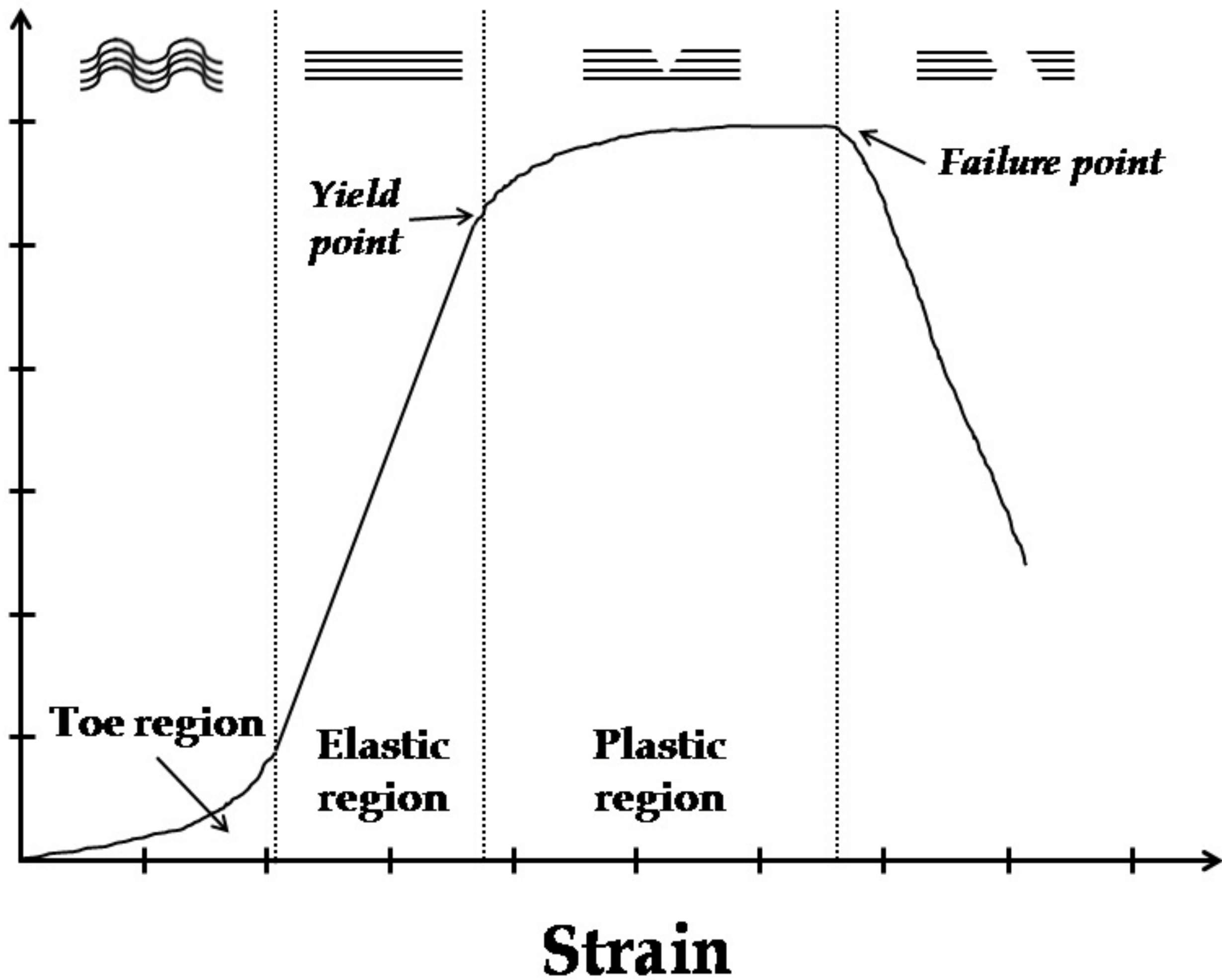


Linear
Region



Toe Region

Stress



ALIGNMENT & CONTROL

- Ideal alignment facilitates optimal movement.
- Optimal muscular performance
 - Refined pattern of muscle recruitment
 - Subtle adjustments in muscle length & strength
 - RESULT: proper alignment & balance of human joint motion.
- Ideal alignment decreases chances of microtrauma to joints and supporting structures.
- Achieving ideal alignment should not feel tense everywhere, but stable and relaxed



**Wear
Indicator**



Overinflation



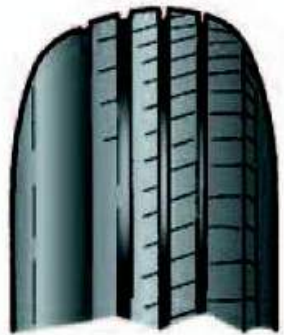
Underinflation



Negative Camber



Positive Camber



**Feathered
Wear**
(excessive toe
in or out)



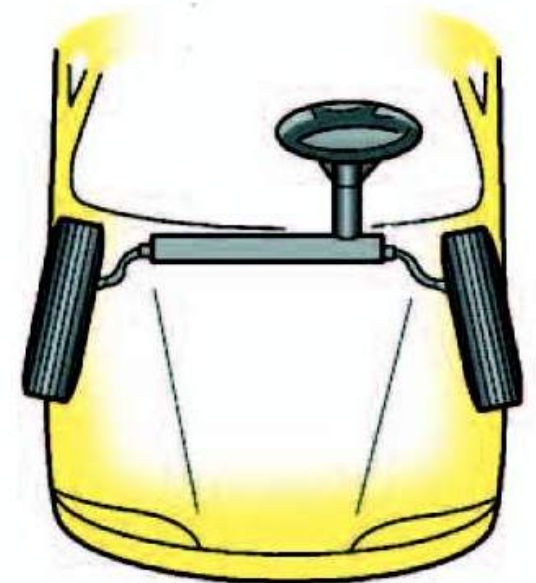
**Camber
Wear**



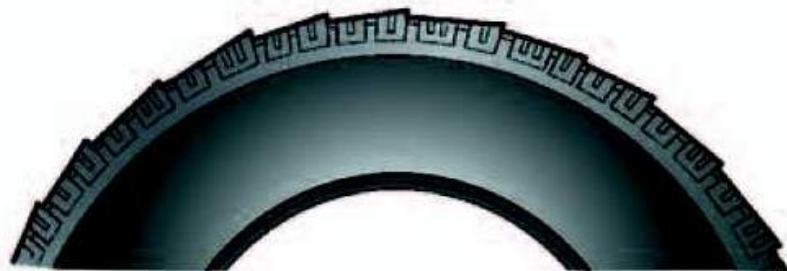
**Spotty/
Chopped
Wear**
(multiproblem)



Toe In



Toe Out

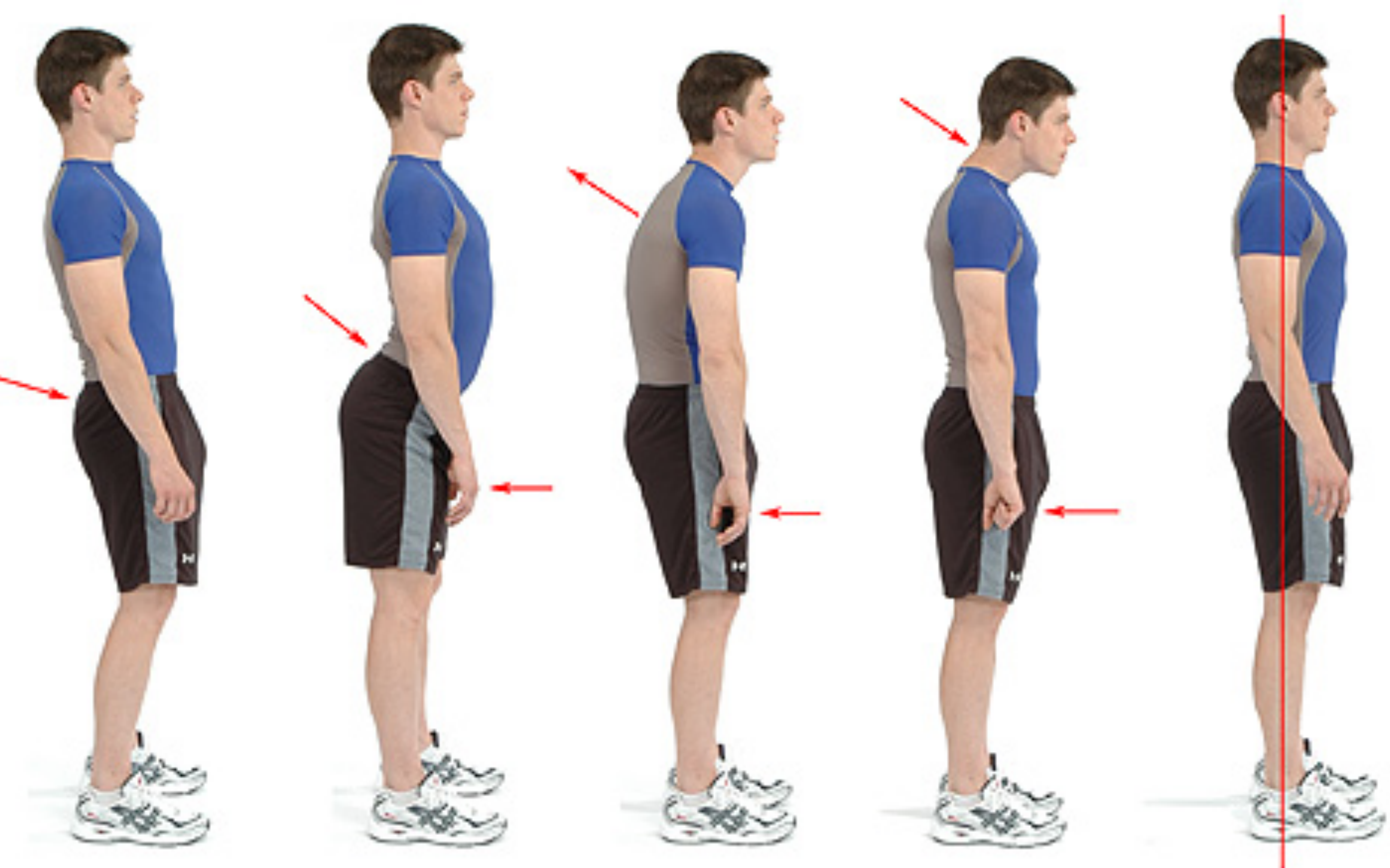


**Diagonal Wear/
Heel and Toe Wear**



**Local
Wear**





**Sway
Back**

**Lumbar
Lordosis**

**Thoracic
Kyphosis**

**Forward
Head**

**Good
Posture**

FAULTY MOVEMENT PATTERNS

- Faulty alignment before motion is initiated
 - Constant corrections are made throughout the motion
 - Biological advantage: dynamic and regenerative properties of tissues
- Routine daily movements and sustained postures that are repeatedly performed incorrectly result in pain
- Faulty movements are not necessarily painful until the stressed tissues reach its yield point
- Faulty movement patterns, restrictions, and limitations may easily be missed in hypermobility patients
 - Goal: reduce faulty movement as much as possible so your body does not have to work as hard to heal

COMPENSATORY HYPERMOBILITY

- No one has perfect alignment and control
 - We all compensate to a degree
- Body is naturally efficient (aka lazy)
 - Easiest way to move with the least amount of effort
 - Move in the path of least resistance
 - Activate more readily available and dominant muscles before others
- Hypermobility - more room for compensations that you may not even be aware of
 - Compensate for traumatic orthopedic injuries differently
 - Seems like you "heal" fast, when in reality it is slow - just compensate well
 - Multiple areas of intermittent pain is common
 - Body has to work to achieve good stability

CONTROLLED COMPENSATIONS

- Understanding your vulnerabilities and where you compensate the most easily
- Corrective exercises
- Improve neuromuscular control of a specific muscle and movement
- Start with the basics - then apply it to dynamic situations and movements, practice often
- Will return to former faulty patterns unless you understand the importance of preventing poor motions
- Specifically trained to move correctly during all activities
- Maintain correct alignment in static positions - sitting and standing
- BOTTOM LINE: learn to move well without pain, then do it often

EMBRACE YOUR MOBILITY

- Being hypermobile is not a bad thing
- Controlled hypermobility allows for great movement
- "With great power comes great responsibility"

