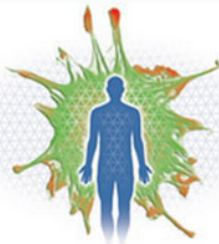


# Introducing the What Stops Me? Spectrum

The role of fascia and human variation on range of motion



By Bernie Clark

FOURTH INTERNATIONAL  
**FASCIA RESEARCH CONGRESS**

*Basic Science and Implications for  
Conventional and Complementary Health Care*

## What Stops Me?

Tension or Compression:

*Tension*: the resistance of tissues to being stretched,

*Compression*: the impingement of one tissue upon another

The reality is a bit more complex than this. We can consider tension & compression to spread out along a WSM? Spectrum

| Tensile Resistance |                      |                   |                            | Compression          |                       |                    |
|--------------------|----------------------|-------------------|----------------------------|----------------------|-----------------------|--------------------|
| Surface Tensions   | Myofascial Meridians | Muscles & Tendons | Ligaments & Joints Capsule | Soft: Flesh on Flesh | Medium: Bone on Flesh | Hard: Bone on Bone |

# Tension

- Tension occurs when stress requires tissues to elongate
  - But the tissues resist

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# Tension

- It is noticeable in the direction away from the movement of the body (the back side)
  - good yoga examples: the hamstrings & adductors



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# Sources of Tension

- Johns & Wright (1960) found several sources of tension:
  - Skin 2%
  - Muscles 41%
  - Tendons 10%
  - The Joint Capsule 47%
- Of course, fascia makes up most of these tissues
- Lesson to be learned for yoga teachers (and others)
  - What stops me is most often **NOT** short, tight muscles

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# Myofascial Meridians

- Fascial restrictions may stop us and yet the source of the restriction may be quite distant from where we sense the stoppages.
- These restrictions can be "spread out"
  - See Thomas Myers' Anatomy Trains for details



| Tensile Resistance |                      |                   |                              | Compression          |                       |                    |
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# Muscles & Tendons

- 30% of muscles are fascia, so these are myofascial tissues
- There are several reasons why muscles may restrict us
  - They may indeed be short & tight
  - Their tonus may be too high (nervous system)
  - Their fascial envelope may be too small
  - There may be fascial adhesions between the sliding surfaces of the muscle fibers
  - There may be disease or pathologies

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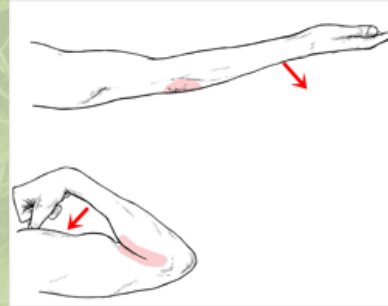
# Ligaments & Capsule

- These are also fascial tissues
- There are several reasons why this fascia may restrict us
  - Contracture caused by
    - Immobility
    - Pathology
    - Nervous System + Psychological Stress
    - Immune System
      - Inflammation
      - TGF-Beta1

| Tensile Resistance |                      |                   |                            | Compression          |                       |                    |
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# Compression

- Compression occurs when the body comes into contact with itself
- It is noticeable in the direction of the movement of the body



| Tensile Resistance |                      |                   |                              | Compression          |                       |                    |
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# Compression

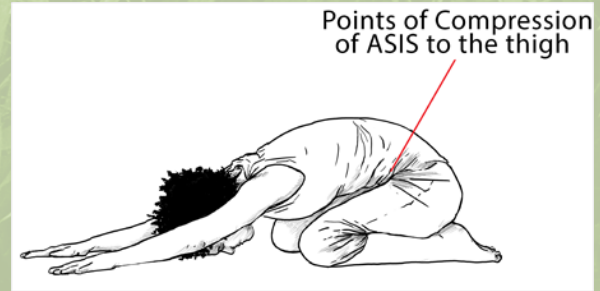
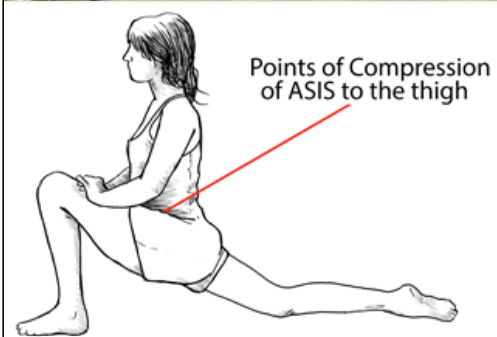
- There are 3 ways compression can arise
  1. "Soft" = Flesh hitting flesh



| Tensile Resistance |                      |                   |                              | Compression          |                       |                    |
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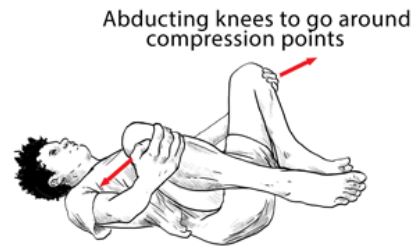
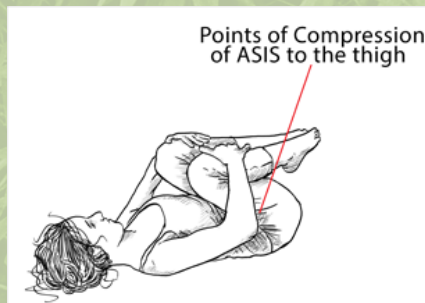
2. "Medium" = Flesh pinched by bone



| Tensile Resistance |                      |                   |                              | Compression          |                       |                    |
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# Compression

- Ultimately, compression is the end of the game, but sometimes we can go around the compression until a new point is reached.



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# Compression

3. "Hard" = Bone hitting bone



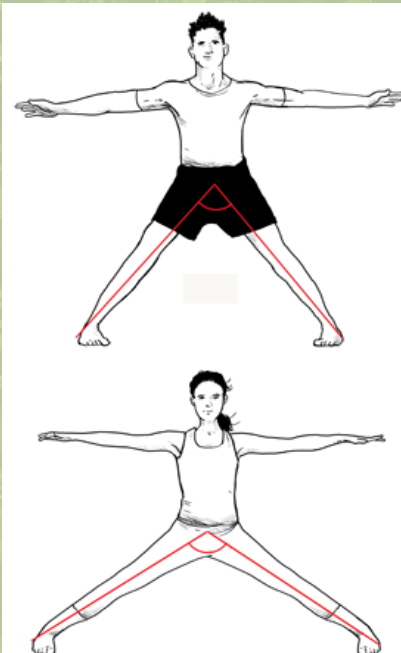
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# Human Variations

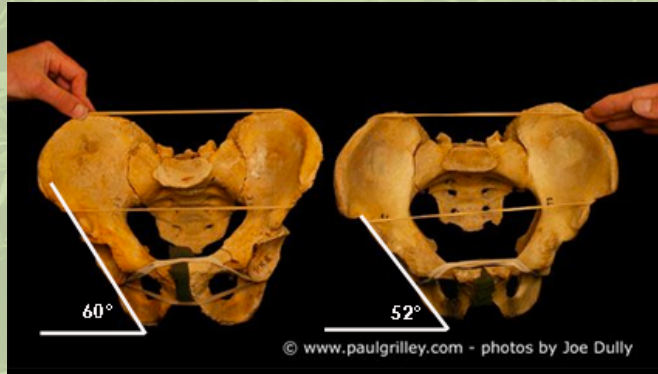
Human variation will cause wide differences in where a restriction arises and how much movement is ultimately possible

Samakonasana depth depends upon several factors:

- Tension in adductors and other fascia
- Shape of the femur and pelvis



# Pelvis Variations

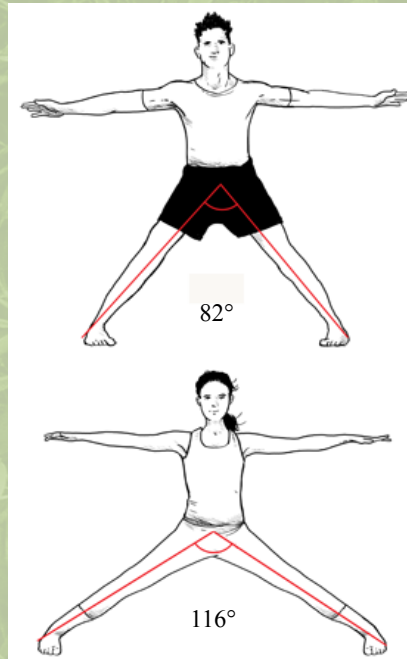
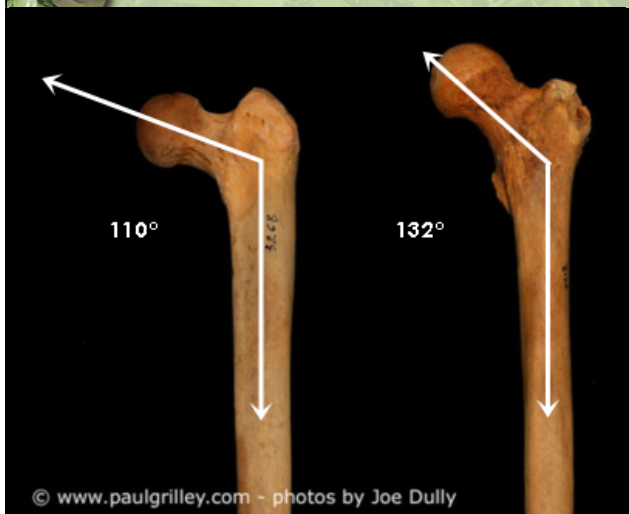


|         | Males     | Females   | Average |
|---------|-----------|-----------|---------|
| Study 1 | 28° - 42° | 28° - 42° | 37.5°   |
| Study 2 | 36° - 43° | 37° - 47° | 40.5°   |
| Study 3 | 48° - 66° | 51° - 67° | 56.5°   |
| Study 4 | 29° - 57° | 35° - 45° | 39.5°   |

Variations in Acetabular Abduction Angle

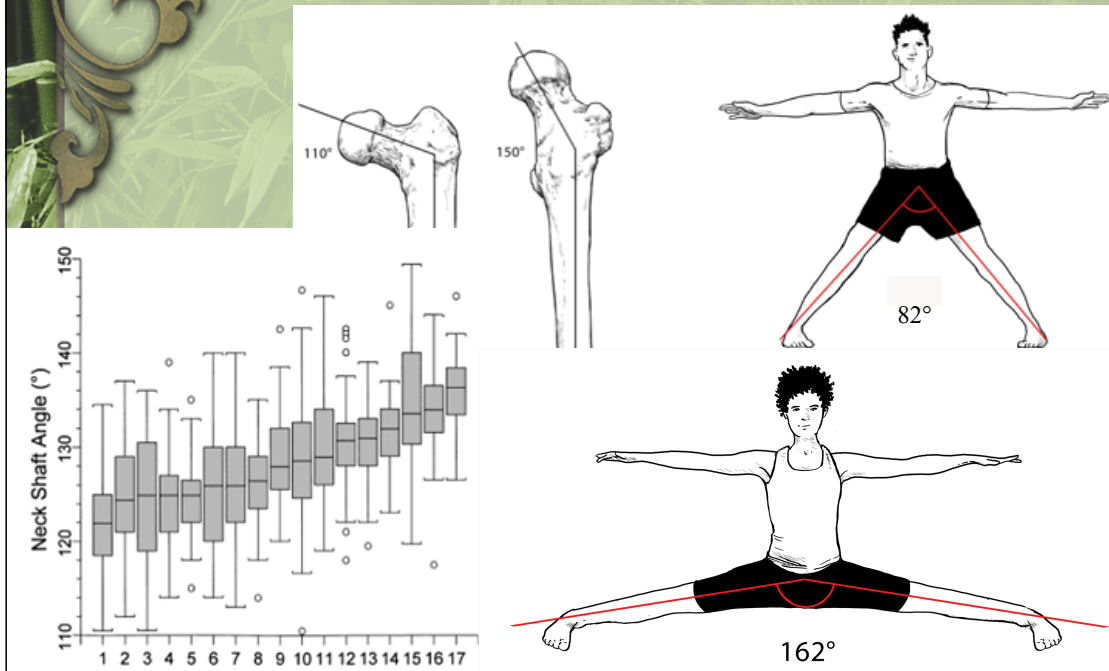
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# Femur Variations





# Femur Variations



## Self Exploration

- What stops me? (Tension or Compression?)
  - Bring heel to buttocks while standing
  - Bring thigh to chest while standing
  - Raise arms overhead and backwards
  - Interlace fingers behind your back
  - Hug your elbows in front of you

# Implications

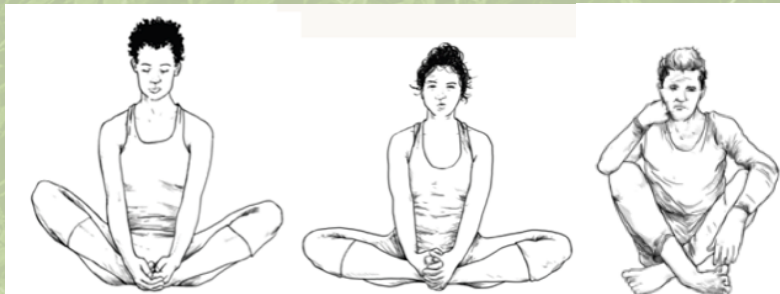
Answering the WSM? question, and understanding the reality of human variation allows us to

- Know when to try for greater range of motion (when the answer is tension)
- Know when to accept a fundamental limit has been reached (compression)
- To accept that my ultimate range of motion will be as unique as I am

| Tensile Resistance |                      |                   |                              | Compression          |                       |                    |
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# Conclusions

- You are unique!
- Continually ask “What stops me?”
- Based on the answer, set your intention and then pay attention.



*Thank you for your  
unique attention*

(There are no known  
health benefits to  
being able to do this!)



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## To learn more

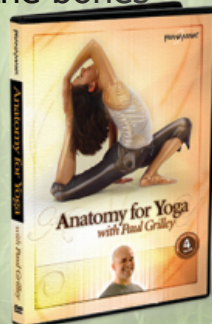
- Watch for Bernie's newest book in early 2016

[www.yourbodyyouryoga.com](http://www.yourbodyyouryoga.com)

Sign up for his newsletters

- Visit Paul Grilley's website for pictures of the bones

[www.PaulGrilley.com](http://www.PaulGrilley.com)



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LEARN WHY STANDARDIZED ALIGNMENT CUES MAY  
NOT BE SKILLFUL, APPROPRIATE OR SAFE FOR YOU

YOUR  
BODY  
YOUR  
YOGA

BERNIE CLARK

Foreword by Paul Grilley

BOOK ONE

VOLUME 1: What Stops Me? Sources of Tension & Compression  
VOLUME 2: The Lower Body – The Ranges & Consequences of Human Variation