

# COOLEYS 16 KINEMATIC BIOMECHANIC PATTERNS™ FOR THE EVALUATION OF MYOFASCIA FLEXIBILITY AND STRENGTH

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**BACKGROUND** Traditional measures of joint ROM are from the neutral anatomical norm positions. Cooley's 16 Kinematic Biomechanical Patterns™ uses six degrees of freedom: flexion/extension, adduction/abduction, and outward/inward rotation to create 16 kinematic permutation patterns. The eight permutation kinematic patterns are FL/AD/IN, FL/AD/OU, FL/AB/IN, FL/AB/OU, and their complimentary patterns of EX/AD/IN, EX/AD/OU, EX/AB/IN, EX/AB/OU each for the lower and upper body. Each of the eight patterns encompasses a 45-degree arch to complete the 180 degrees of movement possible in the lower and upper body. Because myofascial structures present through 8 directions of movement, only Resistance Flexibility (RF) uses the 16 three-dimensional directional kinematic patterns as the model for evaluation, development, and rehabilitation. Balancing and opposing muscles groups, and bilateral symmetry balancing are included in this biomechanical evaluation.

**METHODS** Thirty individuals ranging in age from 16 – 66 were measured with a goniometer for hip and shoulder joint ROM and maximal shortening capacity on three consecutive days using Cooley's 16 Kinematic Patterns™. Balancing and opposing muscle groups of the hip and shoulder joint were also evaluated.

**RESULTS** Mean values for optimal ROM were created for the 8 Kinematic Patterns for the hip and shoulder joint and myofascial characteristics. ADFST usually occurs in the lateral and posterior muscle groups while chronic tenseness occurs in the anterior and medial. Best method to measure of true flexibility is not to measure ROM but to measure the capacity of the muscle to shorten.

**CONCLUSIONS** Current methods of evaluating ROM based on anatomical norm positions lack sufficient permutational analysis for human movement. Cooley's 16 Kinematic Patterns presents a new model for flexibility and strength evaluation that includes myofascial analysis for ADFST. The capacity of a muscle to shorten is dependent and directly proportional to the capacity of the muscle to shorten. Further research is warranted.

**DISCLOSURE** Research supported by The Genius of Flexibility 501(c)(3) Non-Profit Corporation.

**REFERENCES**

Cooley RD and Ware NM. "*Does Resistance Flexibility result in rapid hamstring*

*length increases and accelerated range of motion increases because of fascial changes?"*  
Poster Presentation March 2012, 3<sup>rd</sup> International Fascia Research Congress,  
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