



# Functional Planar Mapping and Movement Index



Index Score	Assessments	Dysfunctions	Notes
<b>Overall Score</b>	ALL	ALL	Indexing is based on the presence and number of dysfunctions of the movement assessments. The indexing is based on current research and professional opinion on the significance and acceptable range for each dysfunction of each respective KAMS movement.
<b>Balance Index</b>	<ul style="list-style-type: none"> <li>• Single leg balance left</li> <li>• Single leg balance right</li> </ul>	Scoring of the head, shoulder axis, hip axis, knee axis, and ankle deviations	Each segment of the body is scored in the balance assessments based on the amount of sway (anterior-posterior and lateral) and the amount of frontal planar deviation.
<b>Flexibility Index</b>	<ul style="list-style-type: none"> <li>• Multi-segmental flexion</li> <li>• Multi-segmental extension</li> <li>• Multi-segmental lateral flexion (left and right)</li> <li>• Overhead squat</li> <li>• Reverse lunge (left and right)</li> <li>• Posture angel</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced Multi-segmental flexion and extension (AMA guidelines)</li> <li>• Reduced right and left multi-segmental lateral flexion (AMA guidelines)</li> <li>• Inability to maintain arms vertically overhead (overhead squat and reverse lunge)</li> <li>• Do not reach horizontal (overhead squat and reverse lunge)</li> <li>• Reduced shoulder extension and external rotation (posture angel)</li> <li>• Low back hyperextension (posture angel)</li> </ul>	<p>Index scoring is based on the ability the various segments of the body to reach a "normal" range of motion without incorporating compensatory tilts and rotations in the adjacent segments</p> <p>ROMs are based on the AMA guidelines and research of functional movement pattern mobility.</p> <p>The premise is based on the "core stability for distal mobility" principle developed by Vladimir Janda and expanded by Craig Liebenson</p>
<b>Core Stability Index</b>	<ul style="list-style-type: none"> <li>• Overhead squat</li> <li>• Reverse lunge (left and right)</li> <li>• Posture angel</li> </ul>	<ul style="list-style-type: none"> <li>• Frontal plane tilt of the shoulder/hip axis (overhead squat, reverse lunge, and posture angel)</li> </ul>	<p>"Scissoring" of the core is described as rotation in the trunk or deviation between the frontal plane shoulder and hip axes. "Scissoring" of the core also pertains to deviation in rotation of the shoulder axis and hip axis</p> <p>Research has found that weakness in the core spinal and hip stabilization can cause "scissoring" deviation to occur in non-rotational movements. Limitations in proximal mobility will often manifest themselves as compensations of rotation and lateral tilting in the core.</p>

<b>Dynamic Posture Index</b>	<ul style="list-style-type: none"> <li>• Posture angel</li> </ul>	<ul style="list-style-type: none"> <li>• Forward head posture when arms are externally rotated</li> <li>• Frontal plane tilt of the shoulder axis</li> <li>• Transverse plane rotation of the shoulder axis</li> <li>• Frontal plane tilt of the hip axis</li> <li>• Transverse plane rotation of the hip axis</li> </ul>	<p>Dynamic posture takes into account the compensatory movement deviations that occur when there is a limitation of shoulder girdle extension and external rotation. Upper crossed syndrome (Janda) involving tension of the pectoralis minor/major and kyphosis of the thorax from muscles such as the latissimus dorsi. When performing the posture angel in individuals with upper crossed syndrome it is common to see "scissoring" of the core, hyperextension of the low back and forward head deviation</p>
<b>Lower Extremity Power Index</b>	<ul style="list-style-type: none"> <li>• Single leg vertical jump (left and right)</li> </ul>	<ul style="list-style-type: none"> <li>• Height of vertical jump (left and right)</li> <li>• Difference in vertical jump height achieved (left and right)</li> </ul>	<p>Lower extremity power through the single leg vertical jump test is a good indicator for one's ability to eccentrically and concentrically load the posterior chain (i.e. glutes, hamstrings, etc.) A weak posterior kinetic chain and overactive anterior kinetic chain can be a cause of chronic low back pain.</p>
<b>Functional Asymmetry Index</b>	<ul style="list-style-type: none"> <li>• Multi-segmental lateral flexion (left and right)</li> <li>• Overhead squat</li> <li>• Reverse lunge (left and right)</li> <li>• Single leg balance (left and right)</li> <li>• Posture angel</li> </ul>	<ul style="list-style-type: none"> <li>• Difference in multi-segmental lateral flexion (left and right)</li> <li>• Difference in ability to maintain arms vertically overhead (overhead squat, reverse lunge)</li> <li>• Difference in single leg balance score (left and right)</li> </ul>	<p>Asymmetrical movement is a good indicator of compensatory movement that can lead to altered muscle activation and kinetic chain sequencing.</p>
<b>Susceptibility to Injury Index</b>	<ul style="list-style-type: none"> <li>• Multi-segmental flexion</li> <li>• Vertical jump (left and right)</li> <li>• Overhead squat</li> <li>• Reverse lunge (left and right)</li> <li>• Posture angel</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced shoulder mobility in external rotation left vs right (posture angel)</li> <li>• Valgus knee collapse (reverse lunge)</li> <li>• Greater than 15% difference in vertical jump height (left vs right)</li> <li>• Reduces multi-segmental flexion (&lt;90 degrees)</li> </ul>	<p>Research has shown that greater than a 16 degrees valgus collapse puts an abnormal "shear" force on the ligaments of the knee, increasing the risk of non-contact ACL injuries.</p> <p>Limitations in multi-segmental forward flexion can be an indicator in the lack of eccentric control of the posterior chain muscles This can lead to an increase risk of low back pain if multi-segmental flexion is limited by lack of flexibility in the sacro-iliac joints</p>