



Chiropractic BioPhysics
CBP—The Science of Spinal Health

Proper Placement of the Lumbar Elliptical Curve Template

Utilization:

- 1) With the lateral lumbo-pelvic x-ray radiograph on the view box, draw a vertical axis line (VAL) from the posterior-inferior body corner of S1 (parallel to vertical edge of film).
- 2) Draw a horizontal line through the posterior-inferior body corner of T12.
- 3) Locate the red line on the elliptical curve template for the posterior-superior sacral base. Place this point on the plastic tool (using one of the cut out curves) on the patient's posterior-superior sacral base. Pivot the plastic tool until the top of the chosen cut out curve intersects VAL. Measure the distance from this cut out intersection with VAL to the intersection of T12 horizontal line with VAL.
- 4) Try the above procedure with the next curve cut out. Determine the distance, which is minimum (several curves may be tried). The curve with the minimum distance to the intersection of the T12 horizontal line and VAL is the **Best-Fit Curve**.
- 5) Holding this cut out Best-Fit Curve in place from **sacral base** to **VAL**, draw the "RED" line through the cut out area from S1 to the height of T12.
- 6) Using a black x-ray marking pencil, draw along George's line from S1 to T12.
- 7) You are now ready for your report on the "Red line is normal, the Black line is you, can you see that you are not normal?" Report of Findings.

Average and Ideal Lumbar Lordotic Values

[Absolute Values From 552 Subjects⁷⁹]

Level	Average Value ⁷⁹	Ideal Value ⁸¹
<u>Height/Length</u>		
Inferior T12-Superior S1	0.96	0.96
Superior T12-Inferior S1	0.91	0.91
<u>Segmental Rotation</u>		
T12-L1	0°	0°
L1-L2	2.9°	5.1°
L2-L3	7.4°	6.3°
L3-L4	11.9°	9.1°
L4-L5	16.6°	18.5°
L5-S1 (post tangents)	32.4°	33.0°
L5-S1 (end plates)*	22.8°	[no value reported]
S1 to horizontal (Ferguson)	39.2°	40.0°
<u>Absolute Rotation</u>		
L1-L5	39.7°	39.1°
<u>Arcuate Angle</u>		
TzS1 to Femur Head	48.9°	50.0°
<u>Posterior Translation</u>		
T12 to S1	6 mm	0

* Superior surfaces of L5 & S1 are not perpendicular to their posterior bodies

