

A more detailed explanation of strength index (SI) as the area under the curve of a force graph:

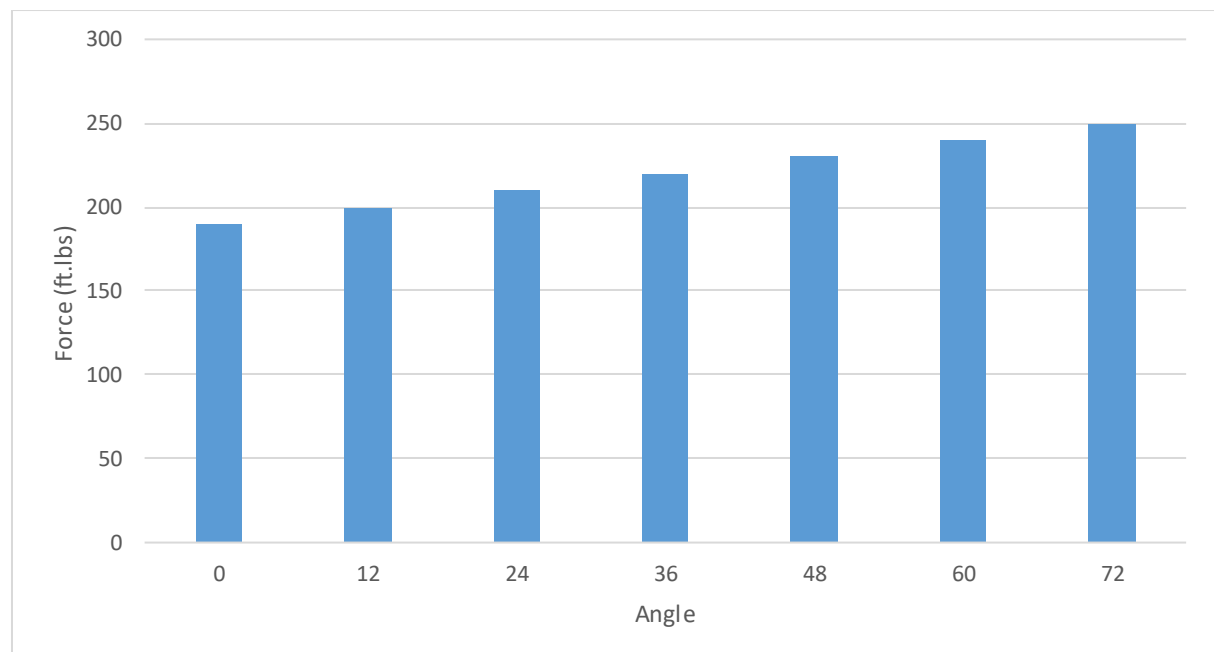
Maximal isometric testing was performed at 7 joint angles (0°, 12°, 24°, 36°, 48°, 60° and 72° of extension; data was collected in ft.lbs)

Based on hypothetical values the data (table 1) and strength curve (figure 1) would look something like this.

Table 1.

Angle	0	12	24	36	48	60	72
Force (ft.lbs)	190	200	210	220	230	240	250

Figure 1.



Using the following formula (Figure 2) to calculate the area of a trapezoid the following values are calculated for the respective areas of the curve (table 2) , depicted in figures 3 and 4.

Figure 2

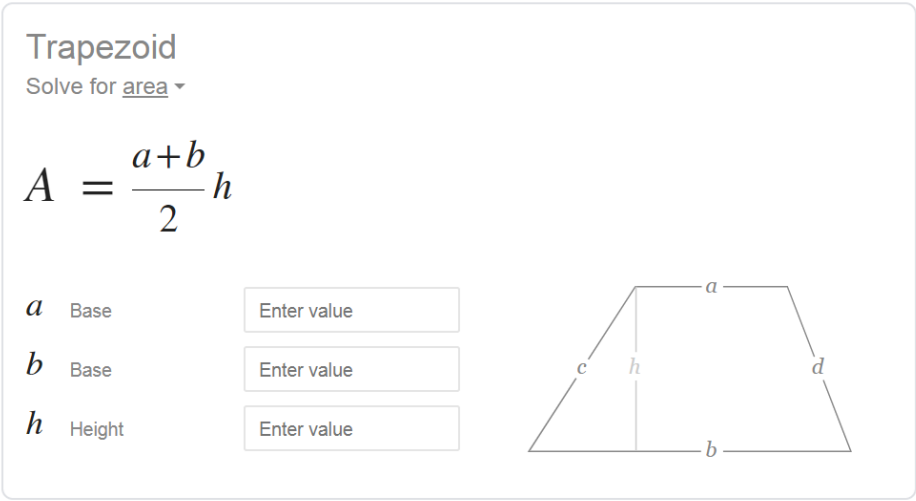


Table 2

Strength index for area						
0-12deg	12-24deg	24-36deg	36-48deg	48-60deg	60-72deg	Total
(a)	(b)	(c)	(d)	(e)	(f)	(g)
2340	2460	2580	2700	2820	2940	15840

Figure 3

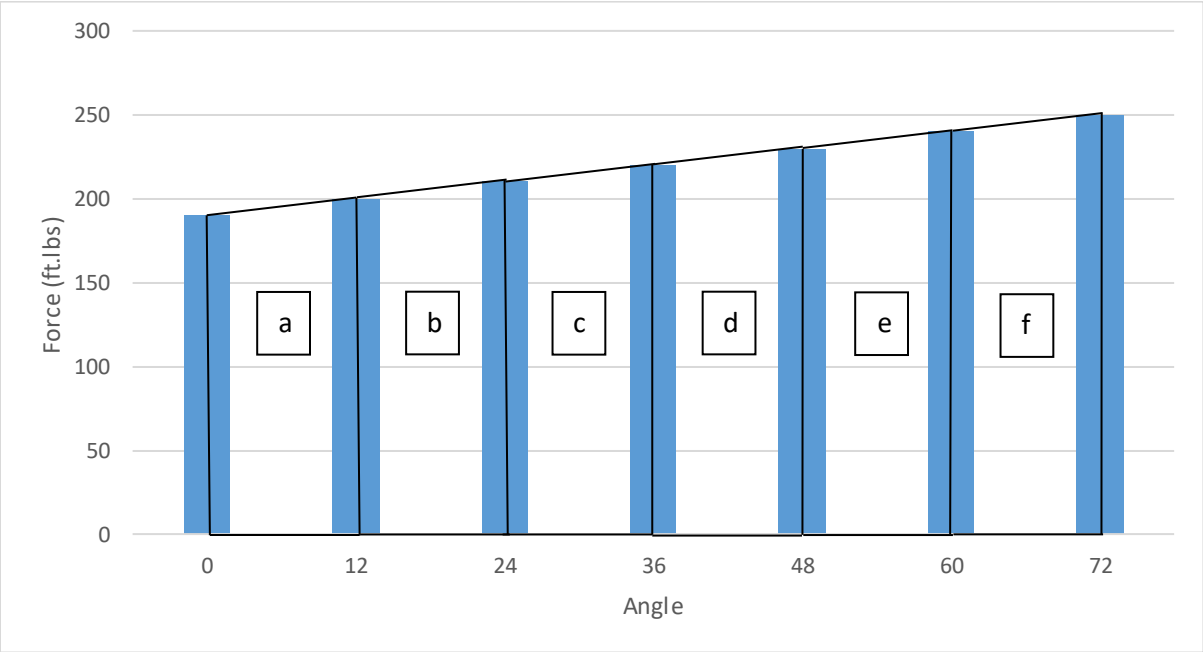
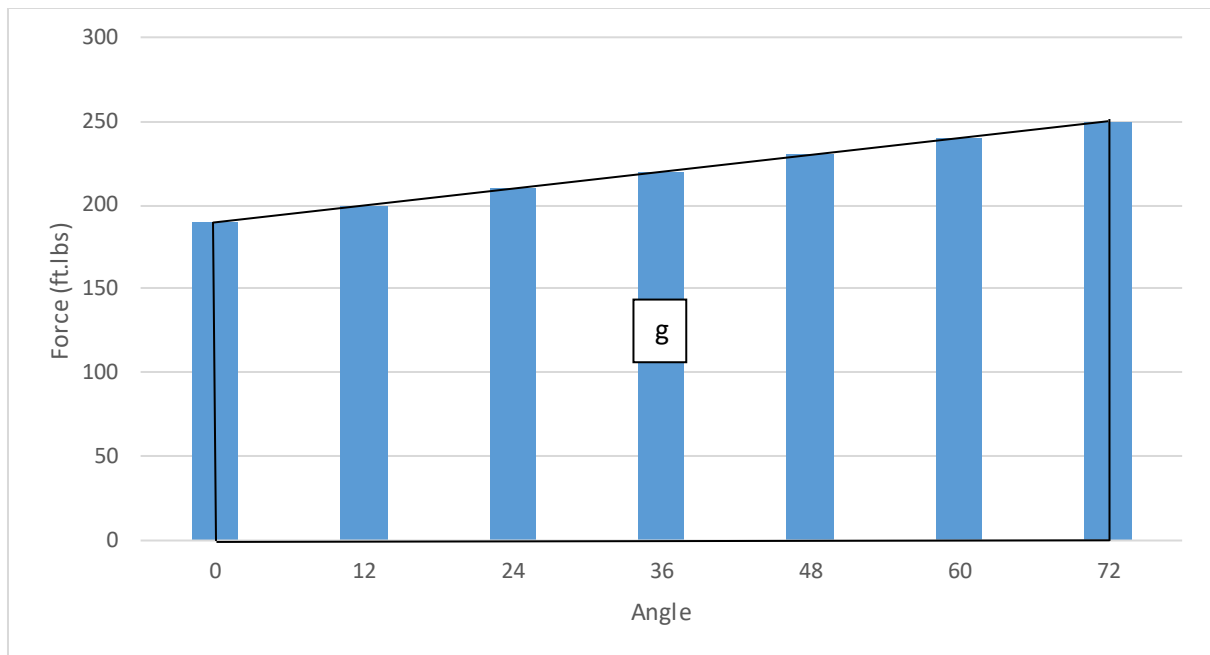


Figure 4



Our MedX Lumbar extension machine produces this data using these methods giving us the total value of 15840ft.lbs degrees. We convert the data to Newton metres by multiplying by 1.3556. Giving us a final strength index for the area under the curve (e.g. "g") of 21472Nm-degrees. The strength index is an integral and thus expressed as Nm-degrees.