a) GT movement and cable tension variations corresponding to the selected single cycle: from the loaded state of the 50th cycle to the unloaded state of the 49th cycle (L_{50}-U_{49});
b) GT movement and cable tension variations accumulated from the 1st to the 50th cycle of testing: from the unloaded state of the last cycle to the initial state (U_{50}-IS).

EXPERIMENTAL PLAN

A Box, Hunter & Hunter (2005) two-level fractional factorial experimental design (2^{4-1}) was performed to evaluate the effect of four parameters: Plate Type or **PT** (Zimmer vs. Y3), Cable Type or **CT** (Co-Cr vs. SMA), GT force Application Angle or **AA** (Normal Angle, NA vs. Wide Angle, WA) and Specimen or **SP** (two different femur specimens were used for each plate modality ($SP1_Z$, $SP2_Z$, $SP1_{Y3}$, $SP2_{Y3}$). Two replications of the experiments – presented in the appendix – were performed for a total of 24 trials.

Note that the **SP** variable (specimen) is dependent on the **PT** variable (plate type), because the latter influences specimen configuration. The **SP** variable implementation was deemed necessary to ensure that specimen variations do not introduce significant variations in the results, which implies that **SP** must yield as a non-significant variable throughout the testing to allow the other input variables as to be evaluated independently.

The regression factors of the linear model with the interactions resulting from this factorial plan are presented in Table 2.

Equation [1] of the resulting model gives the estimated output variables ($\hat{y}$) as a function of the input variables' value or modality (Box, 2005).

$$\hat{y} = \mu + \frac{\beta 1}{2} CT + \frac{\beta 2}{2} PT + \frac{\beta 3}{2} AA + \frac{\beta 4}{2} SP$$

$$+ \frac{\beta 5}{2} [CT * PT] + \frac{\beta 6}{2} [CT * AA] + \frac{\beta 7}{2} [CT * SP] \qquad [1]$$