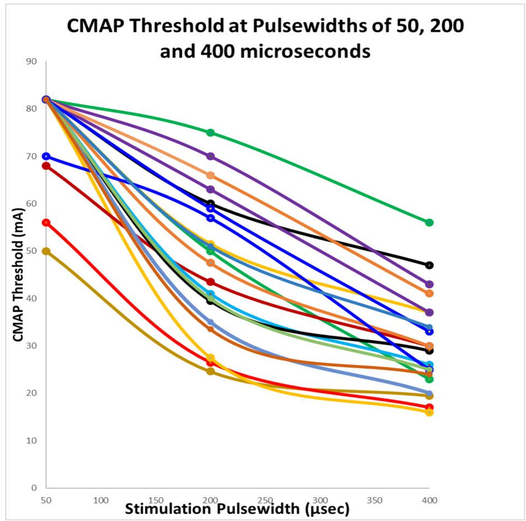
Pulse width Modulation During Pedicle Screw Stimulation

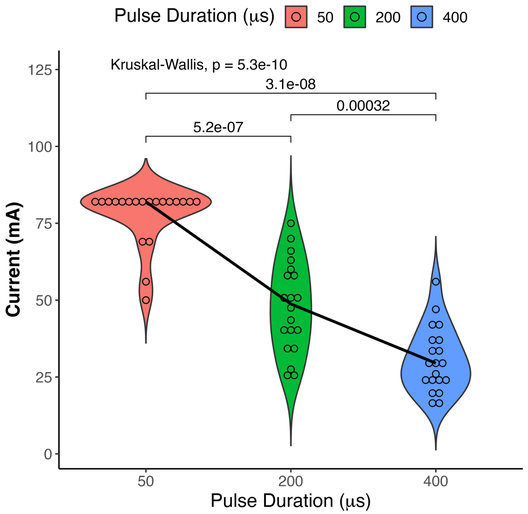
Objective: To investigate the relationship between stimulation duration and threshold intensity during pedicle screw stimulation

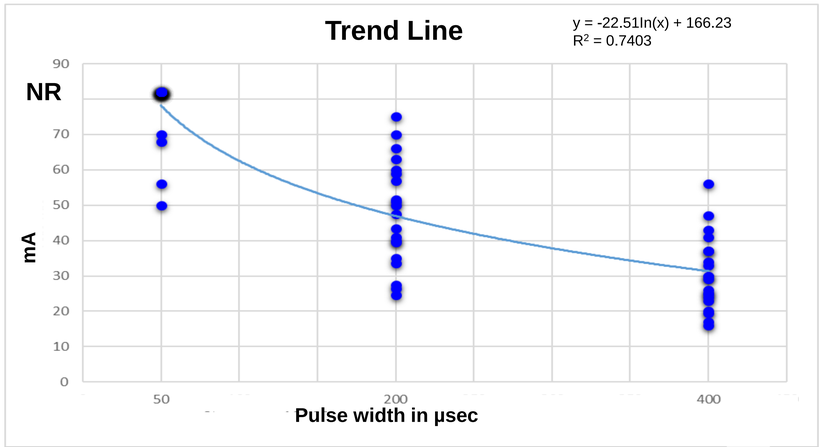
Methods: Pedicle screws were stimulated at 3 different pulse widths (50, 200 & 400 μsec) and the CMAP thresholds (>20μV) were recorded for each response

Results: Mean Threshold Δ I50mA-I400mA= 45.88
Mean Threshold Δ I200mA-I400mA= 17.55
Mean Threshold Δ I50mA-I200mA= 29.745
Overall Kruskal-Wallis p= 5.3e-10
Δ I50mA-I400mA= 3.1e-08; Δ I200mA-I400mA= 0.00032; Δ I50mA-I200mA= 5.2e-07

Discussion: Clinical applications may include modulating the pulse width parameter relative to bone density.







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