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Comparison of Oxygenation Trends in the Latissimus Dorsi Across Handle Types During Seated Row Exercise

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Deoxygenation rates in the Latissimus Dorsi muscle have not been previously reported during seated rowing exercise. **PURPOSE**: This study compared near infrared spectroscopy (NIRS) responses during seated row exercise in the Latissimus Dorsi (LD) using a cylindrical handle versus a newer ergonomically designed handle. **METHODS**: Sixteen college-aged subjects (6 males, 10 females) with prior resistance training experience (4.9 ± 3.0 years) performed the exercise protocol on a cable machine. Participants completed a one-repetition maximal lift (1-RM) followed by one set @ 85% 1-RM until failure. NIRS recordings were normalized to the 1-RM values. **RESULTS**: Paired t tests showed significant differences ($p \leq 0.05$) between 1RM lifts as well as rate of muscle deoxygenation (HHb) in the LD. Strength and NIRs values (Mn ± SD) are presented in the table below:

	Handle Type	
	Cylindrical	Newer Ergonomic
LD 85% 1RM (kg)	83.52 ± 30.2	85.65 ± 30.7*
HHb (µMol/sec)	0.61 ± 0.39	0.663 ± 0.47*

* Sign. Diffs. ($p \leq 0.05$)

CONCLUSION: These findings showed significantly higher maximal lifts and greater muscle deoxygenation rates in the LD using the newer handle type. Further investigations are needed to identify oxygenation trends in additional muscle groups using varied handle designs.