MEASURE OF PAIN VARIABLES AND PRIMARY PROSTHESIS (BODY VS ELECTRIC)

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BACKGROUND

Numbness and phantom limb pain(PLP) have been found to negatively impact the upper limb(UL) amputees' functional ability and/or participation in activity. Clinicians must evaluate and monitor the impact of any association between prosthesis use and physical discomfort. Secondary to clinical experiences indicating a differences in physical discomfort severity between body powered(BP) and electric users, objective clinical survey results of UL amputees' report of residual limb numbness and pain, PLP and level of wear are presented.

METHODS

Consenting subjects from a convenience sample from patients presenting in seven out-patient UL prosthetic rehabilitation specialty centers completed the Comprehensive Arm Prosthesis and Rehabilitation Outcome Questionnaire-Revised©, (CAPROQ-R©) at various prosthetic fitting phases of care. These subjects objectively ranked the physical and functional factors influencing prosthetic performance. Categories reviewed for this study include: residual limb numbness and pain, phantom limb pain(PLP) and prosthesis wear time. The consented final sample size, after excluding non-responses, was one hundred eighteen. Results of subjects' survey most distant from the initial fitting were evaluated for this study.

A series of paired-samples t-tests were conducted to assess change in self-reported numbness, residual limb pain, and PLP when the participant was wearing their prosthesis versus not wearing their prosthesis. Analyses were conducted separately for participant that nominated a BP prosthesis as their "primary prosthesis" (n = 27; Mage = 46.61; 85.2% male) and those who nominated an electrically-powered prosthesis as their primary prosthesis (n = 64; Mage = 59.12; 70.3% male).

RESULTS

Results of the analyses of BP users found no significant change in numbness ($p = .858$), residual limb pain ($p = .340$), or PLP ($p = .826$). Similarly, results of the analyses of electrically-powered users found no significant change in numbness ($p = .780$) or residual limb pain ($p = .294$). However, there was a significant change in electrically powered users' PLP ($p < .001$); more specifically, these participants reported significantly less PLP when wearing their prosthesis ($M = 3.86$, $SD = 2.96$) than when they were not wearing their prosthesis ($M = 5.41$, $SD = 2.44$).

CONCLUSION

Objective outcomes describing the impact of prosthesis control on factors known to limit an UL amputee's activity engagement have the potential to positively influence clinical protocols and industry research and development. Continued research to further evaluate the impact of the variances in electric prosthesis types and materials and methods of prosthesis-human integration and the potential positive impact on medical outcomes.