2008 OAAC Conference
April 25 & 26

DEADLINE FOR ABSTRACT – December 18, 2007

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☒ Podium Presentation
Approximate length (minutes) 15

☐ Poster Presentation

Title of Abstract:
The influence of a concurrent cognitive task on lower limb reaction time following traumatic, unilateral transtibial amputation

Curriculum Vitae (indicate how you would like to be introduced)

Tim Pauley, Manager, Research & Evaluation

Audiovisual Aids Required:

- ☐ Slide Projector
- ☒ Power Point Presentation
- ☐ Overhead Projector
- ☐ Other _____

ABSTRACT OF PRESENTATION

Format: Title, Presenter(s), and Precis of presentation (150 words, Arial font, 11 point, single spaced)

Note: Electronic submission to **Karen.fairley@sunnybrook.ca** is preferred.

Objective: To evaluate the influence of a secondary cognitive task on foot pedal reaction (RT), movement time (MT) among patients with traumatic, unilateral, transtibial amputation and age-matched controls.
Design: Controlled trial without randomization.
Subjects/Patients: 5 patients with right- and 5 patients with left-sided transtibial amputation; 13 controls.
Methods: Foot pedal RT and MT were measured for the intact and amputated limbs of amputee subjects, as well as the left and right legs of controls. One block of 20 trials was completed under simple RT conditions; the second block of 20 trials was completed with the additional of a cognitively demanding secondary task.
Results: For the simple RT condition, controls demonstrated significantly faster RT than LBKs (237 $\pm$ 28 vs. 257 $\pm$ 41 ms; $t(134.3) = 4.53$, $p < .0001$), but not RBKs (252 $\pm$ 56 ms; $t(117.5) = 2.64$, N.S.). For the dual-task condition, controls demonstrated significantly faster RT than both LBKs (316 $\pm$ 57 vs. 410 $\pm$ 115 ms; $t(118.9) = 7.80$, $p < .0001$) and RBKs (446 $\pm$ 117 ms; $t(115.4) = 10.53$, $p < .0001$). Neither RBKs (433 $\pm$ 112 vs. 458 $\pm$ 123 ms; $t(47) = 1.09$, $p = .28$) nor LBKs (405 $\pm$ 108 vs. 416 $\pm$ 122 ms; $t(49) = .81$, $p = .42$) demonstrated any significant differences between the right or left legs for the dual-task condition.
Conclusions: This study suggests a measurable functional manifestation of central reorganization following transtibial amputation, affecting equally the amputated and intact lower limbs.