

# Centre for Neuro Skills Presents an Abstract

## Effects of Gender on Sleep Alterations after Stroke.

by Grace S. Griesbach, Sarah K. Finley, Jennifer Williams, and David Harrington

**Introduction:** Stroke in women tends to lead to greater disabilities and increased likelihood of institutionalization compared to men. We explored if sleep disturbances following stroke are influenced by gender. We also evaluated if levels of thyroid hormone (TSH, T3, T4), which are associated to functional outcome are influenced by gender.

**Methods:** Sleep was evaluated via polysomnography in 33 stroke patients (men: n=20; women: n=13; M age = 54). Functional outcome was assessed with the Supervision Rating Rating Scale (SRS) and the Mayo-Portland Adaptability Inventory 4 (MPAI). Patients were also evaluated for hormonal alterations. Sleep values were also compared with age-matched published normative data from uninjured adults.

**Results:** Women performed worse on the MPAI Ability Index and Adjustment index compared to men ( $p < 0.05$ ). Women also showed more disability according the SRS ( $p < 0.05$ ). Ability Index and sleep efficiency was correlated for all ( $p < 0.01$ ). Both male and female stroke patients had a higher percent time in Stage 2 (M: 61.5 and 66.7, respectively) compared to normative data (45.7). Moreover, 88% of stroke survivors did not reach Stage 3. Women showed lower sleep efficiency, spent less percent of time in REM and had a higher percent wake after sleep onset compared to normative data. Women also had lower T3 levels compared to men ( $p < 0.01$ ). Incidence of apnea was higher in men compared to women ( $p < 0.05$ ). Men tended to have more central apnea ( $p = 0.08$ ). Men had more spontaneous arousals during sleep and reported more daytime sleepiness compared to women ( $p < 0.05$ ). Accordingly, Epworth scores were correlated with low levels of participation in the MPAI for men ( $p < 0.03$ ). Comparisons to normative data showed that men have a shorter sleep-latency (M: 8.3 vs 15.8).

**Conclusions:** Whereas apnea is more predominant in men, alterations in sleep architecture appear to be more marked in women. Women also have lower levels of T3. Sleep alterations after stroke are associated with functional deficits. These findings have implications for cognitive processing, as Stage III and REM are important for memory consolidation.

Key words: sleep, stroke, gender