

## **Serum lipid concentrations among persons with spinal cord injury: A systematic review and meta-analysis of the literature**

**Background:** Lipid optimization comprises a therapeutic cornerstone of primary and secondary cardiovascular disease prevention. This **systematic review** and **meta-analysis** sought to clarify patterns of **lipid** profiles in **spinal cord injury** (SCI) patients compared to able-bodied individuals as well as **among** subgroups of SCI patients stratified by sex, activity level, race, and level of **injury**.

**Methods:** Searches were conducted in PubMed, CINAHL, PsycINFO, and EMBASE. The initial **literature** search broadly identified peer-reviewed studies that examined cardiovascular risk factors in SCI. A total of 50 studies were ultimately identified that focused on **lipid** levels in SCI. Demographic data (including subject age, duration of **injury**, height, weight, and body mass index [BMI]) and **lipid** values were extracted for able-bodied individuals and subjects with SCI. Statistical analyses included t-testing and **analysis** of variance (ANOVA).

**Results:** Compared with controls, individuals with SCI had significantly lower total cholesterol (TC) (183.4 mg/dL versus 194.9 mg/dL,  $p = 0.019$ ) and high-density lipoprotein cholesterol (HDL-C) (41.0 mg/dL versus 49.6 mg/dL,  $p < 0.001$ ) and higher TC/HDL-C ratios (4.5 versus 4.0,  $p = 0.002$ ), though no significant differences were found for triglyceride (TG) and non-HDL-C values.

**Conclusions:** SCI represents an increasingly common chronic condition, now secondarily characterized by heightened CVD risk potentially in part due to unique **lipid** profiles characterized primarily by low HDL-C and an increased TC/HDL-C ratio. As other at-risk patient populations have received increased acknowledgment with more stringent **lipid** panel screening at earlier ages and increased frequency, we would propose that the same be implemented for the SCI population until more-specific CVD risk stratification guidelines are established for this population.