The objective of this study was to evaluate the effect of dosing with reverse osmosis water (ROW), 0.5% carboxymethylcellulose (CMC) and corn oil (CO) on motor activity, grip strength and foot splay of Wistar rats when administered for ninety days via oral gavage. Each test group consisted of total 40 male and 40 female rats. Rats were 17-18 weeks of age at the time of motor activity and other parameters assessment.

Motor activity measurements performed for total thirty minutes (three 10 minutes period) revealed 24% and 20% higher fine movement in CO treated male rats as compared to CMC and ROW treated male rats, respectively and for female rats increase was higher than 31% and 26%, respectively. In CO treated rats ambulatory activity was of 28% and 8% higher than CMC and ROW treated rats, respectively.

Some small differences in forelimb and hindlimb grip strength as well as hindlimb foot splay were noted among the various vehicles. Higher hindlimb and forelimb grip strength was seen in CO treated male rats (7-14%) as compared to CMC and ROW treated male rats, respectively. In CMC treated female rats, slight increase (4-6%) in hindlimb grip strength was observed when compared to the CO and ROW treated female rats. Hindlimb foot splay measurement was decreased (14-15%) in CMC treated male and female rats compared to ROW treated rats and a similar decrease (14%) in hindlimb foot splay was seen for CO treated females compared to ROW treated females. The results from this study show that choice of vehicle may significantly affect motor activity measurements in neurotoxicity study. Minor influences of vehicle selection on forelimb and hindlimb grip strength and hindlimb foot splay were also noted.

Based on the results, it could be concluded that the selection of vehicle plays a vital role in neurotoxicity studies. The choice of vehicle may significantly affect motor activity measurements in neurotoxicity study. Minor influences of vehicle selection on forelimb and hindlimb grip strength and hindlimb foot splay were also noted.