

NICHOLAS CASINGAL & BRUCE ANTHONY. Dept of Biochemistry, West Virginia Wesleyan College, Buckhannon, WV, 26201, Neuroprotective effects of Creatine treatment on the differentiation of E14 rat cortical stem cells and expression of GABA-ergic neurons.

Along with the promotion of muscle growth and recovery, it has been observed that the supplement, Creatine, also contains neuroprotective properties that aid in the developmental process of neuronal cells by increasing developmental competency in early differentiation. In clinical research, addiction treatments are beginning to introduce dietary supplements such as Creatine for patients in early recovery to improve recovery abstinence. Research has shown that supplemental Creatine induces higher cerebral phosphocreatine levels which could help with improved neuron connectivity. In order to examine the neuroprotective effects of Creatine, E14 rat cortical stem cells were differentiated and treated with different dosages of alcohol and creatine. Alcohol was used as a negative control in order to compare the differentiation and expression of GABAergic neurons associated with alcohol exposure and neuronal protection from Creatine. We anticipate that Creatine acts as a neuroprotective agent in GABAergic neurons treated with alcohol.