

### **Omega-3: Neuroprotection and Behavior Modulation in Born Rodent of Supplemented Rats.**

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Ômega-3(alpha-linolenic acid,ALA) is the precursor of an important fatty acid of plasmatic membranes, docosahexaenoic-acid(DHA). Several studies have demonstrated the importance of ALA/supplemented from the intrauterine life to ensure beneficial effect, since, DHA can be incorporated into neural cell membranes of the cerebral cortex. Thus, the objectives of this study was to evaluate neuroprotective and the behavior of the modulation response in rats born to rats supplemented with Ômega-3 throughout pregnancy. For neuroprotection analysis the neural ischemic injury was realized in vitro by deprivation of glucose and oxygen(PGO) and glutamate excitotoxicity(GLU), and the cell viability was analyzed by metabolism 3-(4,5-dimethylthiazol-2-yl)-diphenyltetrazoliumbromide(MTT). Behavioral analysis was used the modeling (Skinner,2000), the water presence was the reinforcer of learning, and we analyze the installation and maintenance of learned by continuous reinforcement. In preliminary findings, we found that under PGO, the supplemented rodents showed significant neuroprotection( $p=0.002$ ) in relation to control group (unsupplemented), however, has not happened to toxicity by excess GLU. For behavioral outcomes, the supplemented group presented exercise runtime values learning statistically lower than the unsupplemented rats( $p=0.009$ ). This supplementation also assured the supplemented animals higher response frequencies for the presence of continuous reinforcement, both immediately after learning( $p=0.002$ ) and after one week( $p=0.0006$ ) compared to control group. Thus, possibly, supplementation modified the dynamics of membrane receptors on neuronal cells, which resulted in neuroprotection in PGO, but not for toxicity GLU. In fact, the literature suggests that DHA incorporated into the neural membrane increases the production NPD1 and improves the dynamics of NMDA receptors, which could explain our biochemical/behavioral outcomes partly seen that the improvement in the dynamics of receptors also culminates in improvement of perception and speed of responses to different stimuli. With this, it is believed that supplementation of these intrauterine rodents has been effective for the neural dynamics, which will be confirmed by future analysis.

Key words: Ômega-3, neuroprotection, bahavior modulation

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