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## Electrolyzed-reduced water inhibits acute ethanol-induced hangovers in Sprague-Dawley rats

Seung-Kyu Park <sup>1</sup>, Xu-Feng Qi, Soon-Bong Song, Dong-Heui Kim, Yung-Chien Teng, Yang-Suk Yoon, Kwang-Yong Kim, Jian-Hong Li, Dan Jin, Kyu-Jae Lee

Affiliations

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### Abstract

Ethanol consumption disturbs the balance between the pro- and anti-oxidant systems of the organism, leading to oxidative stress. Electrolyzed-reduced water (ERW) is widely used by people in East Asia for drinking purposes because of its therapeutic properties including scavenging effect of reactive oxygen species. This study was performed to investigate the effect of ERW on acute ethanol-induced hangovers in Sprague-Dawley rats. Alcohol concentration in serum of ERW-treated rats showed significant difference at 1 h, 3 h and 5 h respectively as compared with the rats treated with distilled water. Both alcohol dehydrogenase type 1 and acetaldehyde dehydrogenase related with oxidation of alcohol were significantly increased in liver tissue while the level of aspartate aminotransferase and alanine aminotransferase in serum was markedly decreased 24 h after pre-oral administration of ERW. Moreover, oral administration of ERW significantly activated non-enzymatic (glutathione) and enzymatic (glutathione peroxidase, glutathione-S-transferase, Cu/Zn-superoxide dismutase and catalase) antioxidants in liver tissues compared with the control group. These results suggest that drinking ERW has an effect of alcohol detoxification by antioxidant mechanism and has potentiality for relief of ethanol-induced hangover symptoms.

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