

Getting Sloshed Increases Catabolic Genes

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It's the weekend...I time to get hammered! Acute alcohol intoxication has been shown to decrease protein synthesis in a dose dependent manner however gene expression in muscle is unknown. Researchers examined gene expression in muscle after rats were given an oral dose of alcohol equivalent to acute human alcohol ingestion. Acute alcohol intoxication dramatically up regulated the expression of MuRF1 (The MuRF1 protein was identified as an atrophy-specific factor, whose expression is up-regulated in atrophying muscle.) and, to a lesser extent, atrogen-1 (atrogin-1 is very strongly induced in many catabolic states). The alcohol-induced increase in atrophy genes expression appeared maximal between 4-8 hours after alcohol administration; however, values had returned to basal levels by 24 hours. Moreover, food restriction after alcohol administration was not responsible for this increase. Of note, this increase in atrogen-1 and MuRF1 appeared restricted to predominantly fast-twitch muscles, with no change detected in either the slow-twitch muscles. Don't expect to make gains in muscle if you are drinking and partying..

Vary TC, Frost RA, Lang CH. Acute Alcohol Intoxication Increases Atrogen-1 and MuRF1 mRNA without Increasing Proteolysis in Skeletal Muscle. Am J Physiol Regul Integr Comp Physiol. 2008