

于动震,张立立,黄永京.2周和6周冷水游泳运动对大鼠海马中神经营养素家族及其mRNA表达水平的影响[J].中国康复医学杂志,2013,(9):817-821

2周和6周冷水游泳运动对大鼠海马中神经营养素家族及其mRNA表达水平的影响 [点此下载全文](#)

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基金项目:国家教育部人文社科青年基金项目(10YJCLX052),石家庄学院博士科研启动基金项目(12BS012)

DOI:

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摘要:

摘要目的:分别探讨2周和6周冷水游泳对大鼠海马中神经营养素家族及其mRNA表达水平的影响。方法:将64只SD大鼠随机分为4组:空白对照组1(C1),空白对照组2(C2),游泳2周组(S2)和冷水游泳6周组(S6),每组16只。S2组和S6组分别进行冷水游泳训练,并分别在2周和6周最后一次冷水游泳后24h取材,分离出海马。ELISA检测脑区中BDNF、NGF和INT-3的蛋白水平,RT-PCR检测BDNF、NGF和INT-3 mRNA的表达水平。结果:C1和C2组大鼠海马中BDNF、NGF、NT-3及其mRNA的表达水平均没有显著性差异。与C1相比,S2组大鼠海马中BDNF及其mRNA的水平显著升高,但是NT-3及其mRNA的水平未发生显著性改变。与C2相比,S6组大鼠海马中BDNF、NGF和INT-3的表达水平均显著性升高BDNF和NGF mRNA的表达水平显著升高,mRNA的表达水平未见显著性改变。与S2组相比,S6组大鼠海马中BDNF及其mRNA的表达水平显著降低,但是NGF、NT-3及其mRNA的表达水平未发生显著性改变。结论:2周和6周冷水游泳对大鼠海马中神经营养素家族及其mRNA的表达水平产生影响,6周冷水游泳影响的程度更为广泛。随着冷水游泳时间的加长,大鼠海马中神经营养素水平可能有适应性下降的趋势,表周冷水游泳对BDNF及其mRNA的影响比2周时的水平降低。

关键词:[大鼠](#) [海马](#) [神经营养素家族](#) [冷水游泳](#)

Effects of 2-week and 6-week cold water swim training on the levels of neurotrophins and their mRNA in hippocampus of rats brain [Download Fulltext](#)

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Abstract:

Abstract Objective: To investigate the effects of 2-week and 6-week cold water swimming on the levels of neurotrophins and their mRNA in hippocampus of rat brain. Method: A total of 64 male Sprague-Dawley rats were randomly divided into four groups: blank control group 1 (C1, n=16), blank control group 2 (C2, n=16), 2-week cold water swimming group(S2) and 6-week cold water swimming group (S6, n=16). Twenty-four h after the last swim training rats were sacrificed by decapitation. ELISA and real time-PCR were used to detect the expressions of brain-derived neurotrophic factor(BDNF), nerve growth factor(NGF), neurotrophins-3(NT-3), and their mRNA respectively. Result: The levels of BDNF, NGF, NT-3 and their mRNA didn't change in group C1 and group C2. Compared with C1 group, the levels of BDNF, NGF and their mRNA both increased in hippocampus in S2 group. The levels of BDNF, NT-3 and BDNF mRNA both increased, but NT-3 mRNA didn't change in hippocampus in S6 group compared with C2 group. Compared with S2 group, the BDNF and its mRNA decreased in hippocampus in S6 group. Conclusion: The 2-week and 6-week cold water swim training could both affect the levels of NTs in hippocampus of rat's brain, and 6-week cold water swim training maybe produce more extensive effects. With the prolonged cold water swim training,NTs could be down-regulated adaptively, because the expressions of BDNF and its mRNA were decreased after 6-week cold water swimming compared with 2-week cold water swimming.

Keywords:[rat](#) [hippocampus](#) [neurotrophins](#) [cold water swim](#)

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