Exercise

Cardiovascular exercise (CVE) is associated with healthy aging and reduced risk of disease in humans, with similar benefits seen in animals. Most rodent studies, however, have used shorter intervention periods of a few weeks to a few months, begging questions as to the effects of longer-term, or even life-long exercise. Additionally, most animal studies have utilized a single exercise treatment group - usually unlimited running wheel access - resulting in large volumes of exercise that are not clinically relevant. It is therefore incumbent to determine the physiological and cognitive/behavioral effects of a range of exercise intensities and volumes over a long-term period that model a lifelong commitment to CVE. In the current study, C57/Bl6 mice remained sedentary or were allowed either 1, 3, or 12 h of access to a running wheel per day, 5 days/weeks, beginning at 3.5-4 months of age. Following an eight-month intervention period, animals were tested in a behavioral battery, then euthanized and blood and tissue were collected. Longer access to a running wheel resulted in greater volume and higher running speed, but more breaks in running. All exercise groups showed similarly reduced body weight, increased muscle mass, improved motor function on the rotarod, and reduced anxiety in the open field. While all exercise groups showed increased food intake, this was greatest in the 12 h group but did not differ between 1 h and 3 h mice. While exercise dose-dependently increased working memory performance in the y-maze, the 1 h and 12 h groups showed the largest changes in the mass of many organs, as well as alterations in several behaviors including social interaction, novel object recognition, and Barnes maze performance. These findings suggest that long-term exercise has widespread effects on physiology, behavior, and cognition, which vary by “dose” and measure, and that even relatively small amounts of daily exercise can provide benefits [1].

Exercise, diet, and personal fitness programs are essentially lacking in modern graduate medical education. In the context of long hours and alternating shift and sleep cycles, the lack of exercise and poor dietary choices may have negative consequences on physician physical and mental health. This opinion piece aims to generate important dialogue regarding the scope of the problem, the literature supporting the health benefits of exercise, potential solutions to enhancing diet and exercise among resident trainees, and possible pitfalls to the adoption of exercise programs within graduate medical education [2].

Most studies evaluating the exercise habits of resident physicians have demonstrated a significant reduction in exercise during graduate medical education compared with medical school [3] [4] [5] [6].

Indications

Traumatic brain injury

Patients with traumatic brain injury (TBI) usually have mood and anxiety symptoms secondary to their brain injury. Exercise may be a cost effective intervention for the regulation of the affective responses of this population.

Twelve male patients with moderate traumatic brain injury or severe traumatic brain injury [mean age of 31.83 and SD of 9.53] and 12 age- and gender-matched healthy volunteers [mean age of 30.58 and SD of 9.53] participated in two sessions of exercise of high and moderate-intensity. Anxiety and mood

was evaluated, and subjective assessment of experience pre- and post-exercise was assessed. A mixed between and within-subjects general linear model (GLM) analysis was conducted to compare groups [TBI, control] over condition [baseline, session 1, session 2] allowing for group by condition interaction to be determined. Planned comparisons were also conducted to test study hypotheses.

Although no group by condition interaction was observed, planned comparisons indicated that baseline differences between patients and controls in anxiety (Cohens' d = 1.80), tension (d = 1.31), depression (d = 1.18), anger (d = 1.08), confusion (d = 1.70), psychological distress (d = 1.28), and physical symptoms (d = 1.42) disappear after one session of exercise, independently of the intensity of exercise.

A single-section of exercise, regardless of exercise intensity, had a positive effect on the affective responses of patients with TBI both by increasing positive valence feelings and decreasing negative ones. Exercise can be an easily accessible intervention that may alleviate depressive symptoms related to brain injury [7)].

Lumbar disc herniation

Core stabilization exercise training performed on land or in water both could be beneficial in LDH patients and there is no difference between the environments. Implications for Rehabilitation An 8-week core stabilization program performed in water or on land decrease pain level and improve functional status in LDH patients. Both programs seem beneficial to increase health-related quality of life and static endurance of trunk muscles. Core stability exercises could be performed in water as well, no differences were found between methods due to environment [8)].

Exercise for Chronic Low Back Pain Treatment

Exercise for Chronic Low Back Pain Treatment

Exercise for Stroke

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