

The Effect of Menthol on Anxiety and Related Behaviors in Mice

Fayez Mushbab Albishi* Saeed Mushabab Albeshi** Khalid Alotaibi** Najeeb Alhussain**
Amer Kamal, MD***Ameera Abdulhadi Sultan, MSc**** Mona Jaber Aljishi, BSc*****

Objective: To evaluate menthol in the reduction of symptoms of anxiety in mice.

Design: An Experimental Animal Study.

Setting: Animal House, College of Medicine and Medical Sciences, Arabian Gulf University.

Method: Male BALB/c mice (8 weeks old, 15-20g), underwent different stressors to exhibit anxiety-like behaviors in two different periods (7 days to induce acute and 30 days for chronic stress). Six groups of animals (control, control+menthol, acute stress, chronic stress, acute stress+menthol, chronic stress+menthol) were tested in the elevated plus-maze and forced swimming test as well as in behavioral spectrometer. The cortisol level in the animals of all the groups was tested. Menthol as crystals dissolved in water and administered by oral gavage technique 30 minutes before test.

Result: Administration of menthol decreased the level of cortisol in the blood and showed less anxiety behavior by spending more time in the open arms of the elevated plus-maze and reduced the immobility time in the forced swimming test.

Conclusion: Administration of menthol decreased the level of cortisol in the blood and showed less anxiety behavior. In behavioral spectrometry tests, mice treated with menthol showed an increase in grooming behavior (still, paw, nose, and hand) and a notable decrease in locomotor behavior (walk, trot, run).