

Physiological Effects of the Native American Flute

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Abstract:

This pilot study ($N = 15$) explores the physiological effects of playing the Native American flute, an instrument with a reputation for having meditative and healing qualities. Autonomic, EEG, and heart rate variability (HRV) metrics were recorded while subjects played flutes and listened to several styles of music. Flute playing was accompanied by an 84% increase in HRV ($p < .001$). Theta activity increased while playing flutes ($p = .007$) and alpha increased while playing low-pitched flutes ($p = .009$) but not while playing high-pitched flutes. Subject subtypes exhibiting alpha suppression and enhancement were identified. Increase in alpha from baseline to the flute playing conditions strongly correlated with experience playing Native American flutes ($r = +.700$). In novice Native American flutes players, a reduction in beta was seen during playing conditions ($p = .021$) that was not evident in experienced players. Wide-band beta decreased from the silence conditions when listening to solo Native American flute music ($p = .013$). The findings of increased HRV, increasing slow-wave rhythms, and decreased beta support the hypothesis that Native American flutes, particularly those with lower pitches, may have a role in meditative and healing contexts. In conclusion, we suggest that a study of the effects of flute playing on clinical conditions, such as post-traumatic stress disorder (PTSD), asthma, COPD, hypertension, anxiety, fibromyalgia, and major depressive disorder, is warranted.