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Neural Control Mechanisms in Respiration in Children with Autism Spectrum Disorders[1]

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Abstract: In a sample of 289 children diagnosed with autism spectrum disorders, electromyograms (EMGs) were recorded from the right and left ventrolateral surfaces of the chest wall to study the activity of the diaphragm during moderately deep breathing. EMGs were analyzed in the frequency domain by computing the average spectrum of 128-ms intervals selected from the rising phase of the EMG in 90 repetitions of a respirational cycle. Coherence functions between bilateral pairs of EMGs were computed and examined for significant coherence in the range of 20-230 Hz. In the deep breathing condition, significant coherence was present in two ranges, 20-60 Hz and 60-110 Hz. Oscillations in the 60- to 110-Hz range have long been associated with the operation of the primary respiratory pattern generator, and the present results replicate earlier reports of correlated oscillations in this range in bilateral recordings of typically developing human respiratory muscles during voluntarily controlled breathing.

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(This is satire by Lydia Brown/Autistic Hoya, with apologies to Anne Smith and Margaret Denny, authors of 1994 article "High-frequency oscillations as indicators of neural control mechanisms in human respiration, mastication, and speech.")