

Initially intact neural responses to pain in autism are diminished during sustained pain

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There is mixed evidence for whether and how perception of pain may differ in individuals with autism spectrum disorder (ASD). Anecdotal reports suggest blunted (reduced) sensitivity to pain (e.g., some individuals with ASD engage in self-injurious behaviours), but some individuals with ASD can also appear unusually sensitive to pain. Because communication is difficult for individuals with ASD, self-reporting of pain can be challenging. A more objective measurement, like brain imaging, may be useful. Using brain imaging, researchers have identified a network of brain areas that consistently respond to pain. We investigated this brain network's response to 20 seconds of moderately painful heat in 15 adults with ASD compared to 16 typical adults (who do not have ASD). During the first ten seconds of the painful heat, individuals with ASD had similar brain responses to the typical group. However, as the painful heat continued, we saw lower brain responses in ASD during the latter ten-second period, as well as during recovery from the pain. An additional brain region that is not part of the pain network, but interacts with it to alter the brain's response to pain (a region called the posterior cingulate cortex), also had lower responses in participants with ASD. This is the first brain imaging study of physical pain in individuals with ASD. This work may help us understand how individuals with ASD can sometimes appear both unusually sensitive and insensitive to pain, depending on how long the pain lasts. This altered brain response to pain suggests individuals with ASD may have different ways of coping with pain as it continues over time.