# Epileptic disorders in Becker and Duchenne muscular dystrophies: a systematic review and meta-analysis


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**Abstract**

Dystrophin alterations in the brain have been associated with an increased risk of epilepsy in Becker and Duchenne muscular dystrophies (BMD and DMD). Moreover, an association between the mutation site and the risk of epilepsy is not ruled out. The aim of this systematic review and meta-analysis was to estimate the prevalence of epilepsy in BMD and DMD populations and to establish a possible association between the site of mutation in the dystrophin gene and the risk of epilepsy. Systematic searches of Medline, Scopus, Web of Science, and Cochrane Library were conducted to identify relevant studies published from inception to January 2022. Observational studies of participants with BMD/DMD estimating the prevalence of epilepsy were included. The main outcome was the prevalence of epilepsy, and the secondary outcome was the prevalence ratio considering genotype. A random effects meta-analysis was performed for the prevalence of epilepsy. Eight studies were included in the systematic review and meta-analysis. The prevalence of epilepsy was 7% (95% CI 3–11%) in BMD, 5% (95% CI 2–8%) in DMD, and 5% (95% CI 3–7%) in the overall estimate. No association was observed between mutation site and the prevalence of epilepsy. BMD/DMD is strongly associated with the prevalence of epilepsy, with a higher prevalence in BMD/DMD populations than in the general population, probably owing to alterations in Dp427. The current evidence does not support the hypothesis that Dp140 or Dp71 affect epilepsy risk.




**Author keywords**

Becker muscular dystrophy; Duchenne muscular dystrophy; Epidemiology; Epilepsy; Meta-analysis; Systematic review