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Review [Prog Brain Res.](#) 2024;289:57-79. doi: 10.1016/bs.pbr.2024.06.009. Epub 2024 Jul 14.

Coffee and multiple sclerosis (MS)

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PMID: 39168582 DOI: [10.1016/bs.pbr.2024.06.009](#)

Abstract

Multiple Sclerosis (MS) is a long-term autoimmune disorder affecting the central nervous system, marked by inflammation, demyelination, and neurodegeneration. While the exact cause of MS remains unknown, recent research indicates that environmental factors, particularly diet, may influence the disease's risk and progression. As a result, the potential neuroprotective effects of coffee, one of the most popular beverages worldwide, have garnered significant attention due to its rich content of bioactive compounds. This chapter explores the impact of coffee consumption on patients with Multiple Sclerosis, highlighting how coffee compounds like caffeine, polyphenols, and diterpenes can reduce inflammation and oxidative stress while enhancing neural function. It highlights caffeine's effect in regulating adenosine receptors, specifically A1R and A2AR, which play important roles in neuroinflammation and neuroprotection in MS. The dual role of microglial cells, which promote inflammation while also aiding neuroprotection, is also highlighted concerning caffeine's effects. Furthermore, the potential of A2AR as a therapeutic target in MS and the non-A2AR-dependent neuroprotective benefits of coffee. In this chapter we suggest that the consumption of coffee has no harmful effect on an MS patient and to a larger extent on public health, and informs future research directions and clinical practice, ultimately improving outcomes for individuals living with MS.

Keywords: Adenosine receptors (A1R, A2AR); Caffeine; Coffee; Multiple sclerosis (MS); Neuroprotection; Neuroprotective effects.

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