


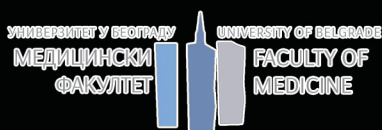


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Chronic unpredictable stress in adolescence causes disruption of colon morphology that is associated with depressive phenotype in adult mice

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Adolescence is a critical period for neurodevelopment, and exposure to chronic stress during this stage can have long-lasting effects on physiological systems and mental health, particularly on depression. Recent studies report that stress affects the gut-brain axis, leading to changes in gut morphology and motility, nutrient absorption, and gut microbiome, which can be associated with development of depression.

We investigated the impact of chronic unpredictable stress (CUS) in adolescence on depressive-like behavior and colon in adult mice. Male C57BL/6 mice were exposed to CUS, including different daily stressors such as social isolation, forced swim, and restraint stress, and others, during postnatal days 28-40. Control mice were housed under standard conditions. Behavioral assessments were conducted during adulthood (postnatal day 70), to evaluate depressive-like behavior. Alterations in mice colon were assessed by histopathological analysis.

Our results revealed that mice exposed to CUS during adolescence have disrupted colon, including loss of colonic crypts and significantly increased presence of mucosa and submucosa in respect to controls. Changes in colon were associated with increased depressive-like behavior in CUS-mice compared to control mice.

These findings suggest that CUS experienced in adolescence can disrupt colon morphology that is associated with depressive phenotype in adult mice, highlighting the importance of understanding the long-term consequences of chronic stress during this critical period of development as a potential risk for development of depression. Further research is needed to elucidate the underlying mechanisms and potential therapeutic interventions to mitigate the effects of stress on mental health and gut function.