

# Abstract

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## Hematologic and urinary excretion anomalies in patients with chronic fatigue syndrome.

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**OBJECTIVE AND METHODS:** Patients with chronic fatigue syndrome (CFS) have a broad and variable spectrum of signs and symptoms with variable onsets. This report outlines the results of a single-blind, cross-sectional research project that extensively investigated a large cohort of 100 CFS patients and 82 non fatigued control subjects with the aim of performing a case-control evaluation of alterations in standard blood parameters and urinary amino and organic acid excretion profiles.

**RESULTS:** Blood biochemistry and full blood counts were unremarkable and fell within normal laboratory ranges. However, the case-control comparison of the blood cell data revealed that CFS patients had a significant decrease in red cell distribution width and increases in mean platelet volume, neutrophil counts, and the neutrophil-lymphocyte ratio. Evaluation of the urine excretion parameters also revealed a number of anomalies. The overnight urine output and rate of amino acid excretion were both reduced in the CFS group ( $P < 0.01$ ). Significant decreases in the urinary excretion of asparagine ( $P < 0.0001$ ), phenylalanine ( $P < 0.003$ ), the branch chain amino acids ( $P < 0.005$ ), and succinic acid ( $P < 0.0001$ ), as well as increases in 3-methylhistidine ( $P < 0.05$ ) and tyrosine ( $P < 0.05$ ) were observed.

**CONCLUSION:** It was concluded that the urinary excretion and blood parameters data supported the hypothesis that alterations in physiologic homeostasis exist in CFS patients.

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