The aim of this pilot study was to investigate the efficacy of an alkaline mineral supplement as a means of suppressing disease activity in rheumatoid arthritis (RA) patients, and to check whether any change occurs in the circulating beta-endorphin concentration. Thirty-seven patients with moderately active RA of at least two years duration, who were receiving stable pharmacological treatment, participated in a 12-week study. All patients were randomly allocated to a supplemented group (30g of an alkaline mineral supplement daily) or to an unsupplemented group. Their usual diet and medication was maintained. Disease activity, pain, and health-associated status were recorded (DAS 28 - Disease Activity Score 28, VAS - visual analogue scale for pain, HAQ - Health Assessment Questionnaire). Plasma immunoreactive endorphin (ir-EP) was measured in the study groups and also in healthy subjects. DAS 28 and VAS decreased in the supplemented group, whereas there was no change in these parameters during the trial in the control group. The functions (HAQ) of the supplemented patients improved. The ir-EP levels increased in both groups but to a higher degree in the supplemented group. During the trial, medication (NSAIDs and steroids) could be reduced in the supplemented group only. Conclusion: This study suggests that an alkaline supplement may improve function and pain in rheumatoid arthritis and may represent an easy and safe addition to the usual treatment of RA patients.