Abstract

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The effect of oral selenium supplementation on human sperm motility.

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OBJECTIVES: To determine whether the decline in selenium intake and selenium status in men in the West of Scotland might be a contributory factor to male subfertility.

PATIENTS AND METHODS: Two semen samples were collected from patients attending a subfertility clinic and those patients with samples showing reduced motility were invited to participate in an ethically approved double-blind clinically controlled trial with informed consent. Sixty-nine patients were recruited and received either placebo, selenium alone or selenium plus vitamins A, C and E daily for 3 months. A further semen sample was collected at the end of the trial. Plasma selenium status was determined at the beginning and end of the trial period, as was total sperm density and motility.

RESULTS: Plasma selenium concentrations were significantly ($P < 0.001$) higher in both selenium-treated groups than in controls. No significant effect of treatment on sperm density was recorded. Sperm motility increased in both selenium-treated groups, in contrast to a slight decline in the placebo group, but the difference was not significant. However, as the provision of additional vitamins had no effect on any variable measured it was considered justified to combine the two selenium-treated groups and compare them with the placebo treatment. On this basis, selenium treatment significantly ($P < 0.002$) increased plasma selenium concentrations and sperm motility ($P = 0.023$) but sperm density was again unaffected. Five men (11%) achieved paternity in the treatment group, in contrast to none in the placebo group.

CONCLUSION: This trial confirms the result of an earlier study, that selenium supplementation in subfertile men with low selenium status can improve sperm motility and the chance of successful conception. However, not all patients responded; 56% showed a positive response to treatment. The low selenium status of patients not supplemented again highlights the inadequate provision of this essential element in the Scottish diet.

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