

# Abstract

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## Impact of folate and homocysteine metabolism on human reproductive health.

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**BACKGROUND:** Folates belong to the vitamin B group and are involved in a large number of biochemical processes, particularly in the metabolism of homocysteine. Dietary or genetically determined folate deficiency leads to mild hyperhomocysteinemia, which has been associated with various pathologies. Molecular mechanisms of homocysteine-induced cellular dysfunction include increased inflammatory cytokine expression, altered nitric oxide bioavailability, induction of oxidative stress, activation of apoptosis and defective methylation.

**DISCUSSION:** Whereas the involvement of folate metabolism and homocysteine in ageing-related diseases, in several developmental abnormalities and in pregnancy complications has given rise to a large amount of scientific work, the role of these biochemical factors in the earlier stages of mammalian reproduction and the possible preventive effects of folate supplementation on fertility have, until recently, been much less investigated.

**SUMMARY:** In the present article, the possible roles of folates and homocysteine in male and female subfertility and related diseases are systematically reviewed, with regard to the epidemiological, pathological, pharmacological and experimental data of the literature from the last 25 years.

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