

# Clinical Update

## Vitamin D may protect against placental infection

Supplementing the diet of pregnant women with vitamin D may enhance the placental innate immunity and protect it from infection, according to new study.

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Researchers from the University of California, Los Angeles (UCLA) report that production of an antimicrobial protein called cathelicidin was stimulated when trophoblasts - cells that develop to make up a major part of the placenta – were exposed to the active form of vitamin D (1,25(OH)2D). The study, published online ahead of print in the journal *Biology of Reproduction*, claims to be the first to report such observations.

Vitamin D refers to two biologically inactive precursors - D3, also known as cholecalciferol, and D2, also known as ergocalciferol. The former, produced in the skin on exposure to UVB radiation (290 to 320 nm), is said to be more bioactive. Both D3 and D2 precursors are hydroxylated in the liver and kidneys to form 25-hydroxyvitamin D (25(OH)D), the non-active 'storage' form, and 1,25-dihydroxyvitamin D (1,25(OH)2D), the biologically active form that is tightly controlled by the body.

Hewison and his co-workers exposed the human trophoblast cells to 1,25(OH)2D at doses ranging from 1 to 100 micromoles. A dose-dependent response was observed with respect to the induction of cathelicidin.

Moreover, exposure to either 25(OH)D or 1,25(OH)2D both produced a “*significantly enhanced antibacterial responses in trophoblastic cells*”, said the researchers. Indeed, cells infected with *Escherichia coli* (*E. coli*) showed reduced numbers of *E. coli* when treated with both 25OHD (49.6 %) or 1,25(OH)2D (45.4 %).

A reduction in cell death as a result of *E. coli* exposure was also observed after exposing the cells to both forms of the vitamin.

Eighteen scientists from UC recently issued a “call to action” to raise the recommended daily intakes of vitamin D to 2,000 International Units (IU). This echoed a number of others from leading academics across the globe, and may increase the need for policy makers to review current guidelines for the vitamin. Such increases could also open opportunities for food fortification and supplements.

Current recommended daily intakes (RDIs) of vitamin D are 200 IU for people up to 50 years of age, 400 IU for people between 51 and 70, and 600 IU for over the 70s years.

Source: [www.nutraingredients.com](http://www.nutraingredients.com)