

## Vitamin D induces NO-dependent proliferation and migration in HUVEC

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Recently, Vitamin D (Vit. D) has gained importance in cellular functions of a wide range of extraskeletal organs and target tissues, other than bone. In particular, Vit. D has displayed important beneficial effects in the cardiovascular system (1). Although little is known about the mechanism by which this response is exerted, a Vit. D-induced eNOS-dependent nitric oxide (NO) production in endothelial cells (EC) has been reported (2). The aim of this study was to evaluate whether Vit. D administration could affect human EC proliferation and/or migration through NO production. For this purpose, HUVEC (human umbilical vein endothelial cells) were used to evaluate Vit. D effects on cell proliferation and migration in a 3D matrix. Experiments were also performed in the presence of the specific VDR ligand ZK159222 and eNOS inhibitor L-NAME. This study demonstrated that Vit. D can promote both HUVEC proliferation and migration in a 3D matrix. These effects were NO dependent, since HUVEC proliferation and migration were abrogated along with Vit. D induced MMP-2 expression by inhibiting eNOS activity by L-NAME. These findings support the role of Vit. D in the angiogenic process (3), suggesting new applications for Vit. D in tissue repair and wound healing.

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### References

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### Keywords

Cell migration; Endothelial cell; Matrix metalloproteinase-2; Nitric oxide; Vitamin D.