

VITAMIN D (Vit.D) AND DISEASES ASSOCIATED WITH ITS METABOLISM

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Introduction

Vit.D receptor (VDR) and the enzymes that metabolize this vitamin have an impact, not only on the homeostasis of calcium and phosphate, but also on other tissues.

This allows the possibility to discover new aspects of metabolism and clinical implications of vitamin.

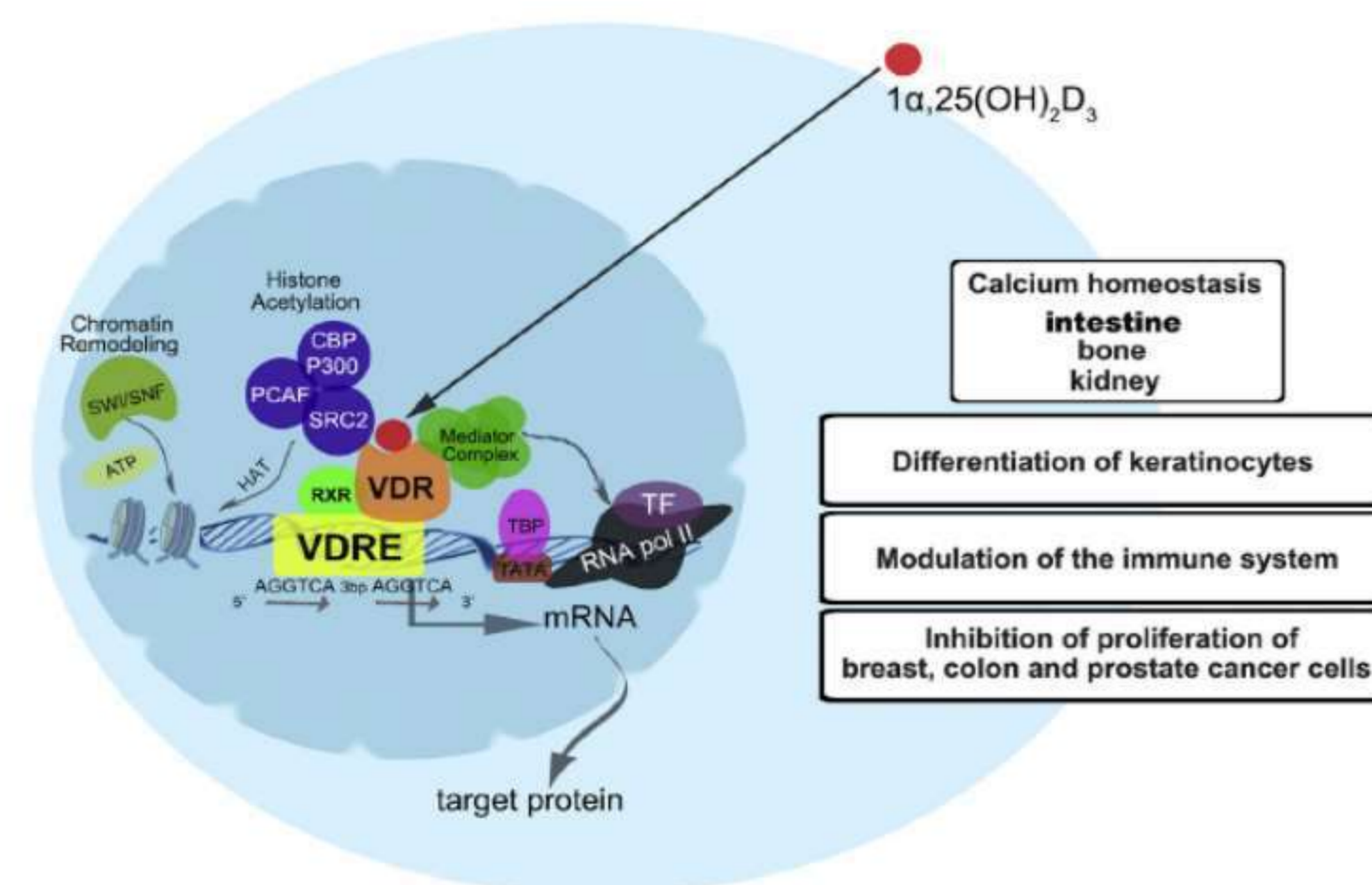


Image 1. The actions of Vit.D mediated by the VDR.

Results

Vitamin D participates in a lot of processes due to VDR and RXR receptors that are found in different tissues.

The enzymes and genes that encode them like CYP2R1, CYP27B1, CYP24A1, etc, play an important role in the development of these processes.

The disturbance of the metabolism enzymes enhances the correlation between Vit.D and a number of diseases such as: prostate, breast, colorectal cancer, diabetes etc.

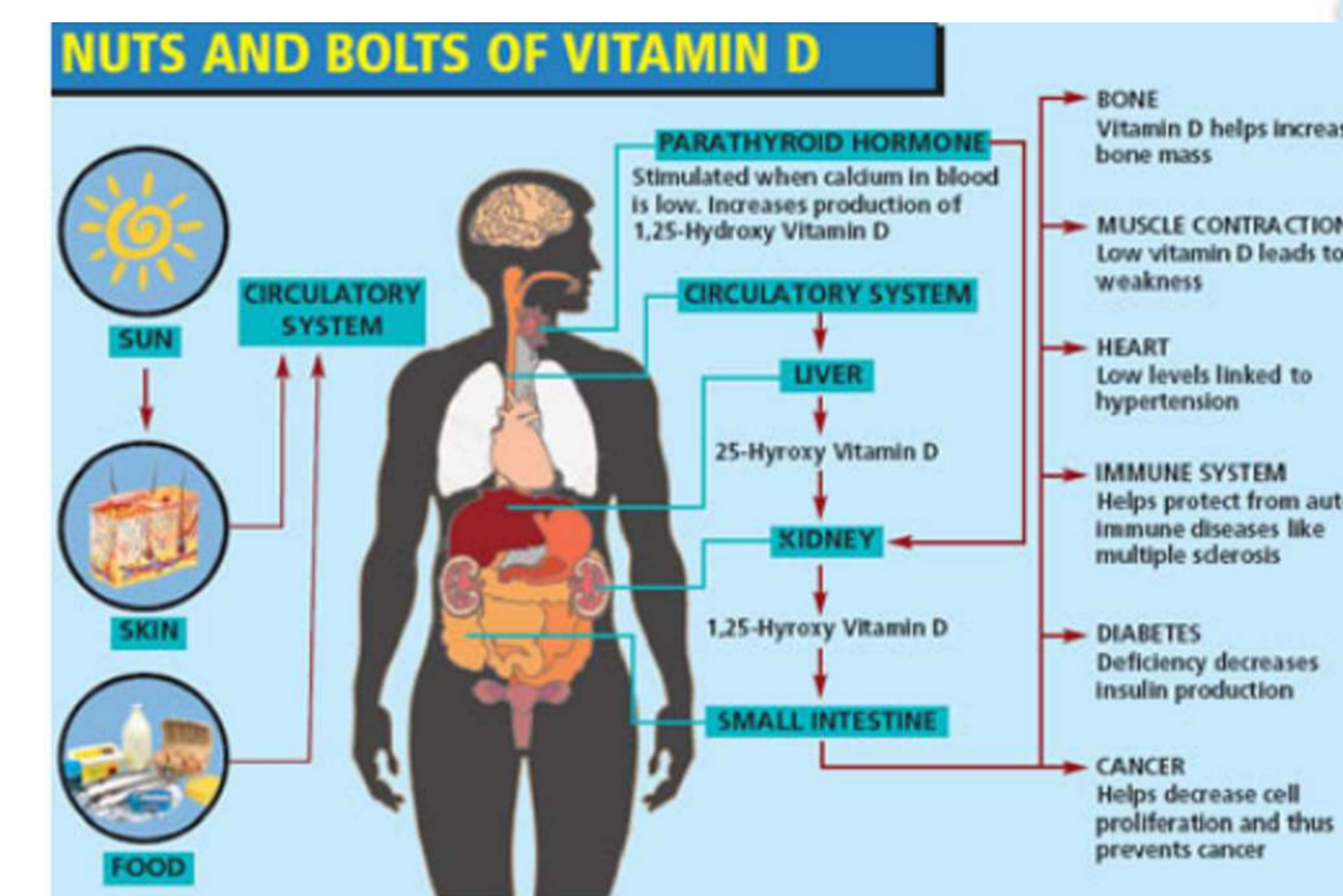


Image 2. The effects of Vitamin D

Purpose

To analyze and synthesize modern data from the literature on the pleiotropic effects of vitamin D, the importance, causes, mechanism and consequences of its metabolism defects to identify new diagnostic and therapeutic strategies.

Material and methods

Recent data on international scientific literature were analyzed, especially in the PubMed and PubMed Central online library.

Life stage group	IOM recommendations		Committee recommendations for patients at risk of vitamin D deficiency
	EAR (IU)	RDA (IU)	
Infants (0-12 mo)	400	600	400-1000
Children (1-8 yr)	400	600	600-1000
Adolescents (9-18 yr)	400	600	600-1000
Adults (19-70 yr)	400	600	1500-2000
Elderly (>70 yr)	400	800	1500-2000
Pregnancy and lactation	400	600	1500-2000

EAR: Estimated Average Requirement; RDA: Recommended Dietary Allowance; IOM: Institute of Medicine

Table 1. Daily intake recommendation of vitamin D

Keywords

Vitamin D, metabolism, mechanism of action, effects.

Conclusions

The enzymes and genes involved in the metabolism of the vitamin and its action have effects on different cells. Treatment and supplementations with Vit.D, with variable dose, starting 400 U/l attenuates the manifestations of symptoms as well as the risk of developing other diseases.