# D

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LIU Ting-ting, WEI Zi-heng, LI Wen (Department of Reproductive Medical Center, Changzheng Hospital, Second Military Medical University, Shanghai 200003, China)
Corresponding author: LI Wen, E-mail: liwen@smmu.edu.cn

Previous studies have suggested that the physiological functions of vitamin D are participating in bone metabolic regulation and promoting bone growth. Currently, a growing number of researches indicates that vitamin D receptors (VDR) mainly exist in bone, liver and kidney. Besides, they can also be found in some reproductive organs, tissues and cells, such as testis, sperm of male, and ovary, uterus of female. Deficiency of vitamin D will not only increase the incidence of reproductive related diseases, but also affect the quality of sperm and follicles, which can lead to infertility. In order to further explore the new idea that applying vitamin D to the prevention and adjuvant therapy of sterility infertility, this paper reviews researches on the relationship between vitamin D and human reproductive function.

Vitamin D; Reproductive function; Vitamin D receptor

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E-mail liwen@smmu.edu.cn

25 OH $D_3$

1α-

[1 25 OH $_2D_3$] 1 25 OH $_2D_3$

VDR

VDR

VDR

1 25 OH $_2D_3$

1 24 25 OH $_2D_3$ [4] 1

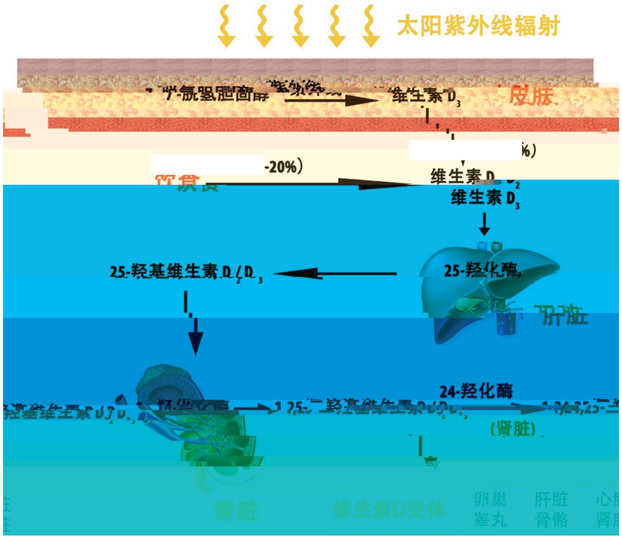
VD 1α-

1 25 OH $_2D_3$

[5] VD 25 OH D

2 3

VD [6]



## 2 D

### 2.1 D

anti-mullerian hormone AMH

AMH

AMH

AMH

[7] AMH AMH

[8] Malloy [9]

AMH D

VD VD AMH

25 OH D

AMH mRNA

[10] Irani [11] VD

Merhi [10] 388

VD AMH VD

40

Dennis [12] AMH

AMH

18% VD VD AMH

AMH

25 OH D

Irani [13] 35 VD

polycystic ovarian syndrome PCOS

VD AMH

Dennis [12] VD

AMH AMH

### 2.2 D PCOS

18%

PCOS

VD VD PCOS

insulin resistance IR

[14] Yildizhan

[15] 100 22 29 PCOS

25 kg/$m^2$ 25 OH D

VD

IR [16]

Kotsa [17] VD PCOS

VD PCOS

[13,18]

Li [19] PCOS

VD 11 ng/ml 17 ng/ml

Mahmoudi[20] 85 PCOS

115 VD
VD 29.3 ng/ml 19.4 ng/ml
Wehr[21] 206 16 41
PCOS 25 OH D
Yildizhan

VD VD
VD 10 ng/ml VD 30 ng/ml
VD
He[22]
VD PCOS
VD PCOS PCOS

## 2.3 D

10%

[23]
VDR 1α-
VD VD [24]
Agic[25]
VDR 1α-
Vilarino[26]
VDR mRNA
D
vitamin D binding protein VDBP
Faserl[27]
VDBP 3
87 53
25 OH D
[ 24.9 14.8 ng/ml 20.4 11.8
ng/ml] 25 OH D
[28]
1385
25
OH D [29]
1 25 OH $_2D_3$
25 OH D

[30] Borkowski[31]
26 17
VDBP
VDBP VDBP

VD
VD

## 3 D

## 3.1 D

50%
[32]
VD
VD
[33] Zhu[34] 186
79
25 OH D
1 25 OH $_2D_3$
1 25 OH $_2D_3$
VD

[35] 25 OH D 50 ng/ml
VD 25 OH D

[36] 1 VD 200 IU
600 mg 3

VD
Blomberg[37]

VDR VD
VDR[1,37] 1 25 OH $_2D_3$
VDR
[38]
VDR
[39] Boisen[40] VDR
VD
25 OH D

## 3.2 D

15 35

VDR [41] Jensen [42]

VDR VD VD

Feldman

[43] VD

25 OH D

VD

VD

[44] 100 nM 1

25 OH ${}_2D_3$ 1 μM 5 μM

[45] 1 25 OH ${}_2D_3$

[46] VD

4

IVF

VD

VD AMH

PCOS

VD

VD

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