

STUDY MATERIAL :- M. Sc 2 semester

DEPARTMENT :- Home Science (CCSU, CAMPUS, MEERUT)

COURSE :- Food & Nutrition

SUBJECT :- Advanced Nutrition

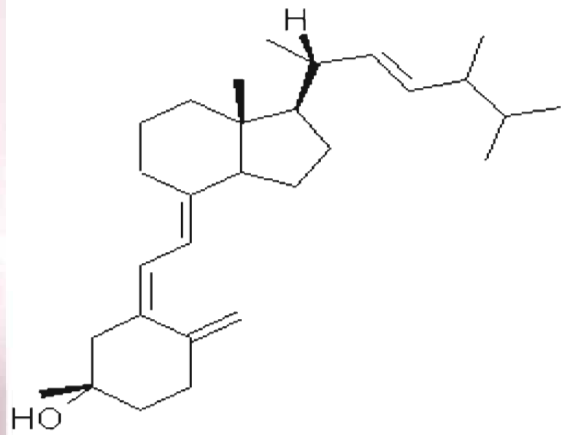
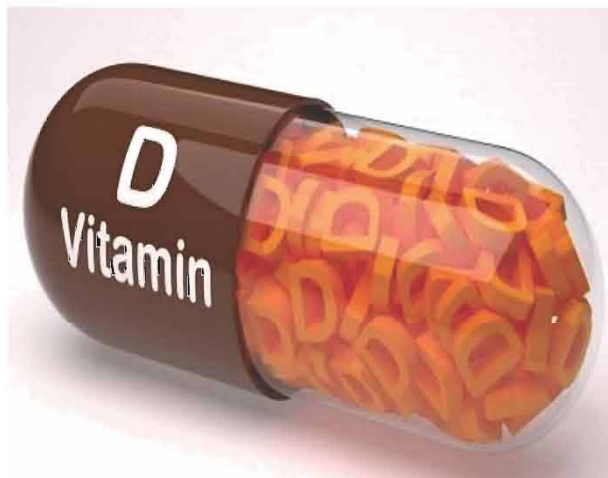
NAME OF THE FACULTY :- Dr. Nidhi Chaudhary

UNIT-5:-|

Topic:- Vitamin D(Bioavailability, & interaction with other nutrients)

### VITAMIN-D:-

- Vitamin D is a fat soluble vitamin. It contains Steroid nucleus. It functions like a hormone.
- Forms- >Vitamin D2 (Ergocalciferol).
- >Vitamin D3 (Cholecalciferol).

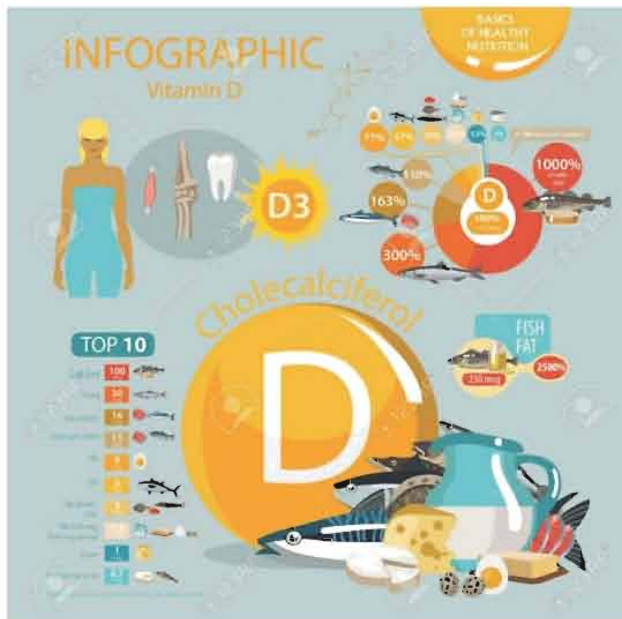


### \* DAILY REQUIREMENT:-

- Birth- 12 months= 400 IU.
- Children 1-13 years= 609 IU.

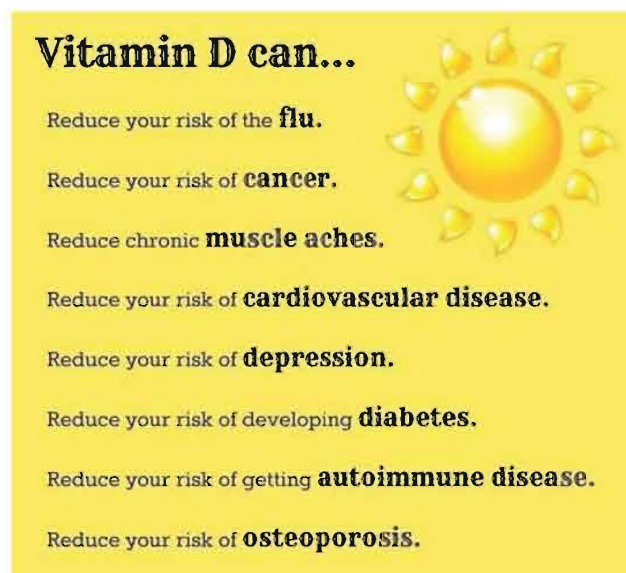
- Teens 14-18 years = 600 IU.
- Adults 19-70 years = 600 IU.
- Adults 71 years & Older= 800 IU.
- Pregnant & Breastfeeding Women= 600 IU.

## VITAMIN D BENEFITS



\* BIOAVAILABILITY:-

- Vitamin D is said to be one of the most bioavailable vitamins in our system. This is because our skin produces it through sun exposure.
- Less than exposure to the sunlight reduces the bioavailability.
- An SPF 8 reduces the amount of vitamin D, our skin can absorb by 95%.
- Obesity makes vitamin D less bioavailable.
- When non obese people are supplemented with a 50,000 IU dose of vitamin D<sub>2</sub>, they saw an increase in their vitamin D levels.
- In obese group, the level rise 54% less, because the fat compartments of their body reduces the bioavailability of vitamin D.



\* INTERACTION OF VITAMIN- D WITH OTHER NUTRIENTS:-

- It plays a role in maintaining normal blood levels of calcium.
- It impacts the absorption & storage of calcium.
- It also stimulates the absorption of phosphorus.
- Vitamin D is believed to regulate the production of certain calcium- binding proteins that function in the bones and kidneys.
- Iron deficiency results in the decreased Vitamin D absorption.

\* FUNCTIONS OF VITAMIN-D:-

- It's major function is to maintain normal blood levels of calcium & phosphorus.

- Vitamin D aids in the absorption of calcium, helping to form & maintain strong bones.



- It promotes bone mineralization.
- It maintains normal cellular growth.
- It helps in maintaining normal immune function.
- Helps in preventing excessive inflammation.

\* DEFICIENCY OF VITAMIN-D:-



- Dark skin.
- No sun exposure.

- Obesity.
- Strict vegan diet.
- Individuals with kidney disease.
- Individuals with osteoporosis.
- Individuals with a history of falls.

REFERENCE:-

- Nutritional Science-B. Shrilakshmi.
- Biochemistry-J. L Jain.
- <https://e.m.wikipedia.org>.