



Restore *the* Balance

# CIRETA

Calcium Citrate Malate and Vitamin D<sub>3</sub> Tablets

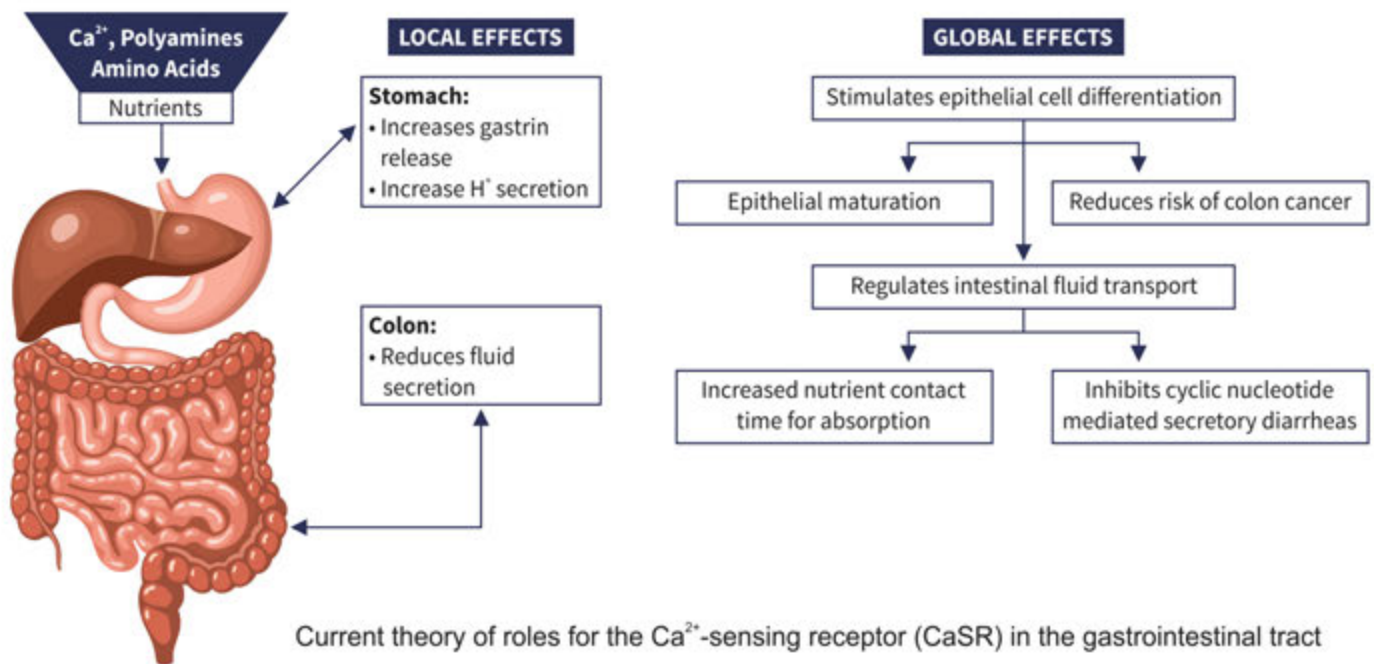
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## INTRODUCTION

### ROLE OF CALCIUM AND VITAMIN D<sub>3</sub>

- Calcium play role in many bodily functions, including bone health muscle movement, fluid secretion, blood pressure, and nerve cell communication. It is necessary for normal functioning of cells, muscles & bone and nerve cells. If there is not enough calcium in the blood then the body will take calcium from bones, there by weakening the bones.
- The activated Vitamin D play an important role in maintaining blood calcium and phosphorus level and mineralization of bone. The activated form of cholecalciferol binds to vitamin D receptors and modulates gene expression. This leads to an increase in serum calcium concentrations by increasing intestinal absorption of phosphorus and calcium, promoting distal renal tubular re-absorption of calcium and increasing osteoclastic resorption.



### ROLE OF LOW CALCIUM & VITAMIN D IN GI DISORDERS

- Vitamin D deficiency is common in irritable bowel syndrome (IBS) & inflammatory bowel disease (IBD) patients, but more pronounced in Chron's disease (CD) patients.
- Vitamin D has a potential role as immune modulator, anti-inflammatory, and anti-microbial agent that can explain its role in IBS.
- Secondary osteoporosis is heightened in patients diagnosed with celiac disease (CD), inflammatory bowel disease (IBD), irritable bowel syndrome, short bowel syndrome, chronic hepatitis, and cirrhosis.
- 15% of patients with CD have secondary osteoporosis.
- Prevalence estimates for secondary osteoporosis in patients with IBD range from 4% to 40%.

## Calcium citrate malate (CCM) versus conventional calcium salts

### CALCIUM CARBONATE

- Insoluble in water
- 22% of  $\text{CaCO}_3$  is absorbed normally, dependent on gastric pH
- $\text{CaCO}_3$  reduces gastric PH, thereby reducing absorption of other nutrients like iron.

### CALCIUM CITRATE MALATE (CCM)

- Soluble in water
- 45% of Ca is absorbed from CCM, independent of gastric pH
- Ability to ionize, and easily makes it highly bioavailable compound

### CALCIUM CITRATE

- Sparingly soluble in water
- 2.5 times faster than  $\text{CaCO}_3$ , independent of gastric pH
- Does not block iron absorption

## CLINICAL EVIDENCE:

DESIGN	INDICATION	RESULT
Comparative case control study. <sup>1</sup>	Vitamin D deficiency in IBS patients	Vitamin D deficiency was detected in 49 of the 60 patients (82%) in the IBS group and 31 of the 100 patients (31%) in the control group.
Single-centre, prospective, cross-sectional study. <sup>2</sup>	Vitamin D deficiency in IBD patients	A total of 181 patients, 156 with IBD and 25 with IBS, were included. 58.6% Patient found with Crohn's disease (CD) & 44.6% with Ulcerative colitis (UC). CD patients showed significantly decreased Vitamin D3 levels compared to the IBS patients
Double-blind, placebo-controlled trial. <sup>3</sup>	Osteoporosis	A study in 389 patient with nonvertebral fractures. Patients received either 500 mg of calcium plus 700 IU of vitamin D <sub>3</sub> per day or placebo. The dietary supplementation with calcium and vitamin D moderately reduced bone loss measured in the femoral neck, spine, and total body over the three-year period.

Reference:

1. Oman Medical Journal [2015], Vol. 30, No. 2: 115-118
2. Inflamm Intest Dis 2017;2:200-210
3. The New England Journal of Medicine; Volume 337 Number 10



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## DESCRIPTION

CIRETA is a film coated tablet consisting of Calcium Citrate Malate Eq. to Elemental Calcium 250mg and Vitamin D<sub>3</sub> IP 1000 IU.

## CALCIUM CITRATE MALATE (CCM) - MERITS



## PHARMACOKINETIC PROPERTIES

Citrate and Malate anions chelated to calcium in calcium citrate malate are considered to enhance calcium absorption, possibly by forming relatively stable soluble complexes, such that precipitation of calcium by phosphate in the gut is not chemically favored and the likelihood of calcium absorption is improved.

## ADVANTAGES

- Helps to reduce deficiency of Calcium and Vitamin D<sub>3</sub>
- Enhances calcium absorption and toughens the bones
- Effective in case of Osteoporosis, Osteomalacia and Hypoparathyroidism
- Helps to reduce deficiency of vitamin D in case of IBS & IBD.

## RECOMMENDED DOSAGE

Once or twice a day or as suggested by healthcare professional.



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