

# *Review on the Importance of the Routine Measurement of Calcium in Individuals Engaged in Sports* \_\_\_\_\_

\_\_\_\_\_ ***Phd. Klotilda Vrenjo*** \_\_\_\_\_

SPORTS UNIVERSITY OF TIRANA, FACULTY OF MOVEMENT SCIENCES  
Email: kvrenjo@ust.edu.al

\_\_\_\_\_ ***Phd. Oltiana Petri*** \_\_\_\_\_

SPORTS UNIVERSITY OF TIRANA, FACULTY OF REHABILITATION  
SCIENCES

\_\_\_\_\_ ***Phd. Esmeralda Thoma*** \_\_\_\_\_

SPORTS UNIVERSITY OF TIRANA, FACULTY OF TECHNICAL MEDICAL  
SCIENCES

## **Abstract**

Hypocalcemia is one of the major health problems worldwide, as it causes a variety of diseases in the population such as Osteoporosis, Multiple Sclerosis, Renal diseases, Early breast cancer, etc. In Albania there is a lack of checkups for any age group or category, as these checks are not provided for free by the state, but more importantly, people are not informed that there are important health examinations that must be carried out as early as possible, possibly since childhood, in order to be healthy adults in the future. Consequently, a great deal of work is needed to identify, as well as to draft national strategies to optimize consumption, as well as to set up a national database of adult calcium intake. This needs to be done simultaneously even for Mg, Na, K, and vitamin D.

**Keywords:** hypocalcemia, adult, athlete, dietary calcium intake, dosage, Osteoporosis

## Introduction

Calcium is one of the most abundant electrolytes in the body, and levels are tightly controlled by parathyroid hormone and vitamin D. Calcium is essential for cell function, cell membrane stability, neuronal transmission, bone physiology, blood homeostasis, and cell signaling.

Circulating calcium levels are impaired by several factors, but hypocalcemia is mainly secondary to the imbalance of calcium absorption, excretion, and distribution.

Hypocalcemia is defined as a total calcium level of less than 4.6 mg / dl in the blood serum. Hypocalcemia is accompanied with a number of diseases and these become more serious in people who engage in physical activity or sport causing fatigue and reducing muscle strength in them. Hypocalcemia causes bone breakdown and reduces bone strength, the bones become brittle and are more prone to breaking, increasing the risk of sports injury and early osteoporosis in sportspeople. Hypocalcemia reduces muscle strength in sportspeople, thus affecting their performance during training and competitions.

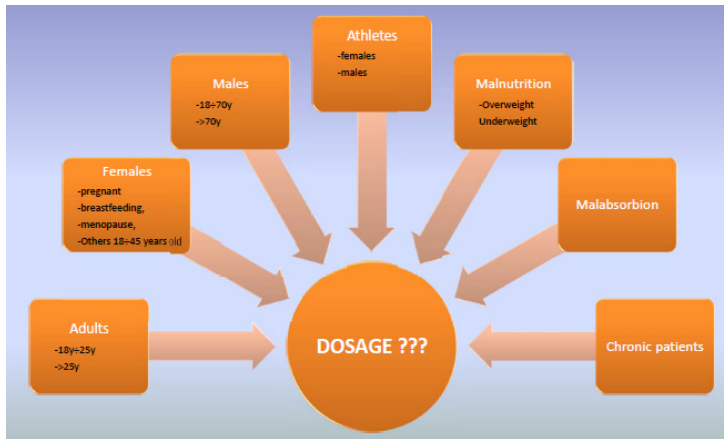
This viewpoint is based on study “**The importance of the measurement of functional and clinical parameters in athlete students and students engaged in physical activity**”. I am focused on this issue, and specifically on the category of people who engage in moderate physical activity, for several reasons which are as follows:

- Physiologically they consume more calcium daily, because in sport there are no resting days;
- Climatic conditions are changing, so changes the daily intake of D vitamin from sun rays source
- Albania lacks sports physicians;
- Also in the first study we found out that these parameters were not measured in sports students, i.e. raising their awareness is important for their health as future health promoters

## Conclusions and future instructions

In this brief review, it is discussed the importance of calcium in the human body and the problems that its deficiency causes in individuals, especially in athletes. Aiming to find solutions for the general population and for athletes in particular, I propose that: given the enormous health and financial benefits that can come from early detection of calcium deficiency, long-term prospective cohort studies

are needed to investigate dietary intake and optimal dosing of calcium via oral supplements as well as vitamin D and magnesium supplements if the deficiency is present (during and after bone mineralization), this dosing based on age, gender or socioeconomic and health status. More work is also needed to identify national strategies to optimize consumption as well as to create the national database of adult dietary calcium intake.



Also for persons involved in sports i propose:

- Cohort studies by the UST or sports associations regarding the replacement of Calcium deficiency at an early age especially at 18-25 years which may lead to the avoidance of Hypocalcaemia-causing diseases,
- Routine measurement (each 6 months or 1 / year) of electrolytes,
- Daily consumption of foods containing Ca.

## References

Changes in bone mineral content in male athletes. Mechanisms of action and intervention effects. Klesges RC, Ward KD, Shelton ML, Applegate WB, Cantler ED, Palmieri GM, Harmon K, Davis J.

JAMA. 1996 Jul 17;276(3):226-30. Erratum in: JAMA 1997 Jan 1;277(1):24.

Excessive Calcium May Damage Your Heart: Study (The research was published in the Journal of the American Heart Association)

Calcium Deposits May Cause Premature Births (according to World Health Organization (WHO)).

SOURCE: <https://bit.ly/2SZc1bd> Journal of Clinical Sports Medicine, online February 24, 2020. Reuters Health Information © 2020 Cite this: 'Electrolyte' Drinks Don't Assure Healthy Sodium Levels in Endurance Athletes - *Medscape* - Feb 26, 2020.

Global dietary calcium intake among adults: a systematic review E. M. Balk<sup>1</sup> & G. P. Adam<sup>1</sup> & V. N. Langberg<sup>1</sup> & A. Earley<sup>2</sup> & P. Clark<sup>3</sup> & P. R. Ebeling<sup>4</sup> & A. Mithal<sup>5</sup> & R. Rizzoli<sup>6</sup> & C. A. F. Zerbinì<sup>7</sup> & D. D. Pierroz<sup>8</sup> & B. Dawson-Hughes<sup>9</sup> & for the International Osteoporosis Foundation Calcium Steering Committee

Changes in bone mineral content in male athletes. Mechanisms of action and intervention effects. Klesges RC, Ward KD, Shelton ML, Applegate WB, Cantler ED, Palmieri GM, Harmon K, Davis J. JAMA. 1996 Jul 17;276(3):226-30. Erratum in: JAMA 1997 Jan 1;277(1):24.

Essential Role of Serum Calcium for Muscle Strength in Football Athletes Yusni<sup>1\*</sup>, Amiruddin<sup>2</sup>, A Purba<sup>3</sup>, and B Tarigan<sup>4</sup>

To cite this article: Yusni et al 2017 IOP Conf. Ser.: Mater. Sci. Eng. 180 012186

Phd.Klotilda Vrenjo<sup>1</sup> The Importance Of The Measurement Of Functional And Clinical Parameters In Athlete Students And Students Engaged In Physical Activity,page 38.

Proceedings of the Eight International Multidisciplinary Conference:ICTEA-8-2018-Malta Academic Research for Sustainable Development Goals in a Mediterranean Perspective ISBN 978-88-923547-3-9. Edited by Francesco Favia, Iris F. Cekani & Pietro Iaquina.