

Olmedillas H, Gonzalez-Aguero A, Moreno LA, Casajus JA, Vicente-Rodriguez G. Cycling and bone health: a systematic review. *BMC Med* 2012;168. doi:10.1186/1741-7015-10-168.

Background

Cycling is considered to be a highly beneficial sport for significantly enhancing cardiovascular fitness in individuals, yet studies show little or no corresponding improvements in bone mass.

Purpose of the Study

This review aimed to summarize the current available literature concerning bone mass and bone metabolism in cyclists and to observe whether the findings of the collective research are in line with the general idea that cycling has a deleterious effect on bone mass.

Study Designs and Methods

In this study, a scientific literature search on 31 studies discussing bone mass and bone metabolism in cyclists was performed to collect all relevant published material from 1965 up to April 2012. Inclusion criteria for the review were: bone mass or bone metabolism markers had to be the main subject of each study, the study had to include cyclists or tri-athletes, and the studies had to be original research manuscripts (cross-sectional, interventional, follow-up or retrospective studies).

Data Analysis

The majority of the studies used dual energy X-ray absorptiometry (DXA) devices to measure bone mineral density (BMD) and bone mineral content (BMC). (2 out of 31 did not) Studies used age-matched, gender-matched control groups, and/or other types of athletes to compare BMD and BMC with cyclists. One study looked at calcium intake over a 1-yr season and acute calcium supplementation. Another study looked at comparing a fat-rich diet and BMD in cyclists. Other variables observed in the studies reviewed were: hormonal profile, age, gender, training level, and type of cycling practiced.

Conclusions

Various studies in terms of gender, age, data source, group of comparison, cycling level or modality practiced among others factors showed minor differences in results. It has been observed that adult road cyclists participating in regular training have low bone mineral density in key regions, specifically the lumbar spine compared to control groups and other athletes. Conversely, other types of cycling such as mountain biking, or combination with other sports could reduce this effect. These results cannot yet be explained by differences in dietary patterns or endocrine factors.

Implications

Cycling as a sole form of exercise is not recommended for people at risk of developing osteoporosis, unless it is combined with some kind of weight-bearing training.

Strengths

The studies were mainly all cross-sectional studies with the use of a DXA as a data score.

Limitations and Improvements

The study excluded non-English publications, which could show a language bias or exclude pertinent data. This review also included too many heterogeneous studies to perform a meta-analysis, which made it difficult to gather a strong conclusion. Longitudinal studies may help to understand if low bone mass is acquired during a specific age or period of time or if cycling alone has the harmful effect on the lumbar spine, BMD, and BMC. Further studies are needed to confirm or deny previous results that increased calcium intake may help reduce the detrimental effects of cycling on bone mass.

Nice Job: Grade=A

