



Swimming Training and the Risk Factor for Osteoporosis in Women: What Do We Need to Consider

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Women's participation in sport, and specifically in a competitive context, has been increasing over the past decade. Simultaneously with their participation, the interest by the public in general and the associated stakeholders has also reached major interests. Consequently, this upsurge in female athletics must be followed by updated findings in sports medicine. Since ever, swimming is considered one of the three pillars of Olympics simultaneously with athletics and gymnastics.

Based on the World Health Organization (WHO) the osteoporosis pathology in women is still a substantial issue nowadays. This pathology is a bone disease that develops when bone mineral density and bone mass decreases, or when the quality or structure of bone changes. Thus, it can lead to a decrease in bone strength, which ultimately can increase the risk of bone fractures. Overall, women present greater risks of developing osteoporosis than men because of their endocrine system (i.e., menopause directly affect bone density).

However, in specific sports such as swimming, athletes may have their bone health impaired because of specific training characteristics. For instance, the lack of gravity inherent to the aquatic environment is frequently pointed out as a reason for this sport to be considered mainly as a non-osteogenic physical activity. Despite all other benefits of the aquatic environment, there are some controversy about the possible negative effects that swimming can have on bone mass and structure. Nonetheless, a

recent systematic review indicated that there is still no meaningful evidence about this topic [1]. Specifically, the authors argued that there is no solid information whether swimmers are more likely to develop osteoporosis later in life or not. Moreover, most studies analyzed indicated that swimming did not have a negative effect on the bone's mass. Therefore, it can be suggested that this pathology should continue to be deeply studied mainly in female swimmers.

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