

## ABSTRACT

### **Identification Factors Successfully Improving Bioscrew Mechanical Characteristics**

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Bioscrew is an absorbable (bioabsorbable) and degradable medical screw (biodegradable). Nowadays, bioscrew is an alternative that replace metal screws for bone fixation. This is due to, the use of metal screw has several unwanted effects. However, bioscrew implantation has a weakness regarding the strength of the screw. The objective of this study to understand factors that improve the mechanical strength of the bioscrews. In this literature review, a review of several literature was conducted to determine which factors influence the improvement of the mechanical characteristics of the bioscrew. Some of the databases were used PubMed, ProQuest, Ebscohost Cinahl, and Scopus. Keywords were used Bioabsorbable Screws OR ("Torsion, Mechanical" OR "Tension, Mechanical"). From this study, factors that increased in mechanical strength were constituent ingredients of material and the design of the screw such as length, diameter, thread size, solid or cannulated screw, and the size of the pilot hole used. Beside of that the use of additional fixation devices on bioscrews, such as: EndoPearl, washer, and biotenes were improved fixation strength of bioscrew. Mounting techniques such as RIVET can also improve fixation strength of the bioscrew.

**Keywords :** Bioabsorbable screws, mechanical strength, torsion, tension.