

# Does bisphosphonate use in individuals undergoing tooth extraction and implant placement affect implant stability?

## Clinical problem

Bisphosphonates are a common treatment for osteoporosis-related bone loss in postmenopausal women. Bisphosphonates reduce bone resorption, which is a critical process in bone healing. However there are counterarguments regarding the effect of bisphosphonate on implant stability and the bone quality after extraction.

## Clinical question

Does bisphosphonate affects implant stability in individual adults who undergo implant therapy after tooth extraction compared to healthy individuals who are not taking any medications within 5-6 years?

## Evidence search

Search date: November 18th, 2021

PubMed results: 47 articles; 9 final articles Additional search: EBD journals, ADA EBD website, TRIP database , C.A.T. website.

## Acknowledgments

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## References:

Ata-Ali J, Ata-Ali F, Peñarrocha-Oltra D, Galindo-Moreno P. What is the impact of bisphosphonate therapy upon dental implant survival? A systematic review and meta-analysis. *Clin Oral Implants Res.* 2016 Feb;27(2):e38-46. doi: 10.1111/clr.12526. Epub 2014 Nov 19. PMID: 25406770.  
 Stavropoulos A, Bertl K, Pietschmann P, Pandis N, Schiødt M, Klinge B. The effect of antiresorptive drugs on implant therapy: Systematic review and meta-analysis. *Clin Oral Implants Res.* 2018 Oct;29 Suppl 18:54-92. doi: 10.1111/clr.13282. PMID: 30306695.

## Clinical Bottom line

The placement of dental implants in patients treated with bisphosphonates does not reduce the implant success rate, although there are valid reasons to consider for for patients with high risk of MRONJ.



## Clinical Applicability

Results are applicable to dental practice due to increased interest in implant placement. However, both studies were done in the US which has different demographic in terms of population risk factors and dental care coverage. Also, given the studies included in these studies, further prospective studies involving larger sample size and longer follow-ups are required to confirm the results obtained.

## Results

### Evidence quality

- Studies on 4562 dental implants: 1090 BP group, 3472 control group. OR= 1.43 (95% 0.87, 2.34). NNH= 509. RD= 0.19% (CI 95% 0.11, 0.32) meaning patients taking BP had 19 additional implants failed per 10,000 people compared to the people not taking bisphosphonates. (Ata-ali et al., 2014). However, The results are not statistically significant, not clinically meaningful and not decisive.

- At patient level RD = 0.02 (95% -0.01, 0.06), patients taking BP had 2 additional implants loss per 10,000 people compared to the people not taking bisphosphonates. At implant level, RD 0.00 (95% -0.01,0.01), patients taking BP had 0 additional implants loss per 10,000 people compared to the people not taking bisphosphonates (Stavropoulos et al., 2018). However the results are not statistically significant, not clinically meaningful and clinically decisive showing no effect.

### Strengths

Multiple database searched, long follow-up range, no conflict of interest, inclusion and exclusion criteria, PRISMA diagram, evident quality analyzed (Newcastle Ottawa Scale), low heterogeneity.

### Limitations

Selection/publication/language bias, not sensitive and rigorous search, age 18-30 exclusion, no risk factor record, no control in some studies.