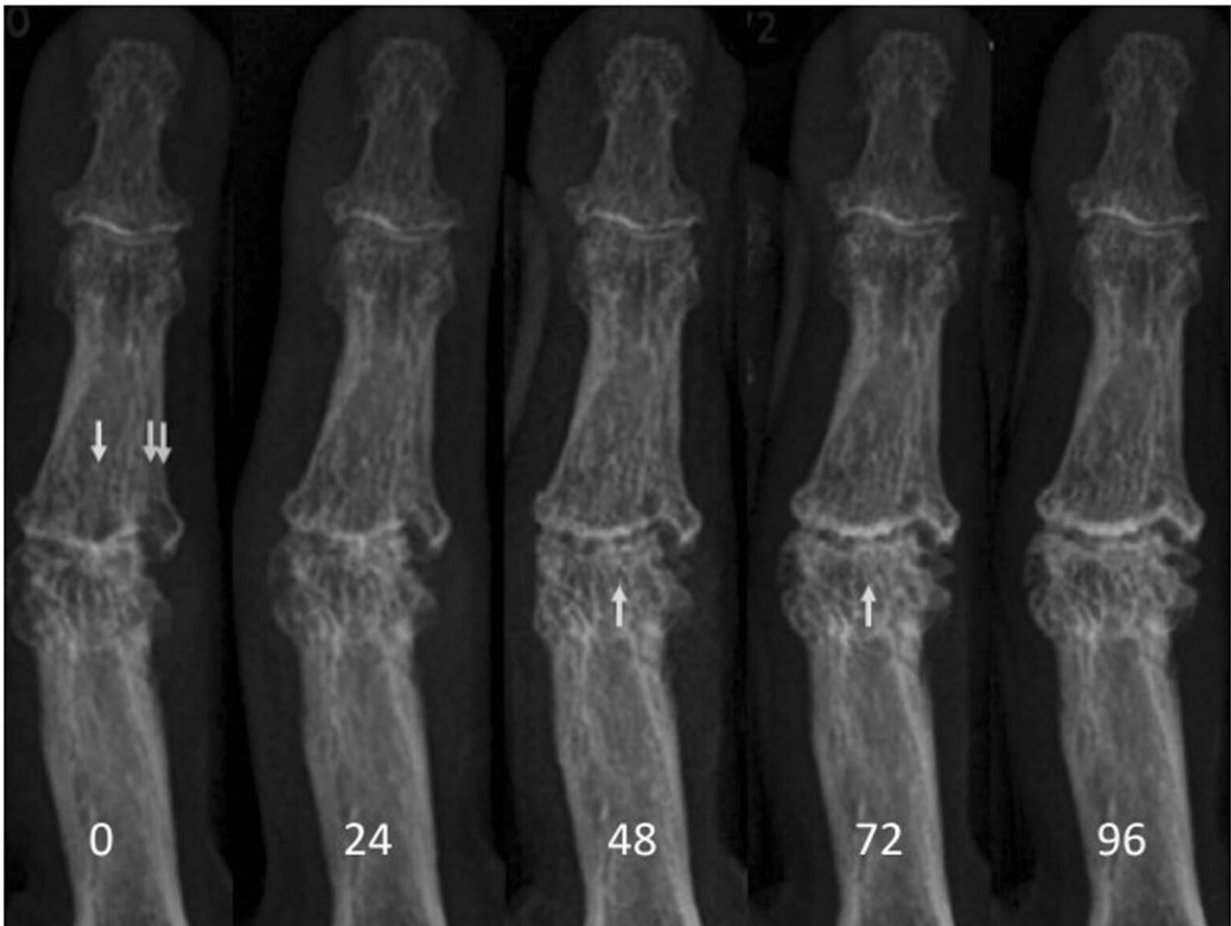


Erosion blockade breakthrough: Clinical trial signals hope for hand osteoarthritis

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Longitudinal images of an affected joint. Credit: *Nature Medicine*, DOI: 10.1038/s41591-024-02822-0

Researchers at Ghent University Hospital, Ghent University, and VIB-UGent Center for Inflammation Research, show that antibody therapy can be effective against erosive hand osteoarthritis. Using the antibody denosumab leads to bone remodeling and the prevention of erosive joint damage. This is the first evidence that erosive progression can be halted in this disease. The [results](#) appear in *Nature Medicine*.

The erosive type of hand osteoarthritis is a commonly occurring, inflammatory type of degeneration that notably affects the joints of the fingers. As a result, this condition has a high burden of disease, resulting in progressive damage and loss of function. While current therapies can alleviate symptoms, they do not address the structural damage in the affected hands.

Recent research, however, suggests that people with erosive hand arthritis have other issues as well. Overall, their bones are thinner and they lose bone and cartilage as the condition progresses, even in bones and joints that are not immediately affected by the osteoarthritis. In other words, rather than being a 'local' disease, erosive hand osteoarthritis is a 'systemic' bone condition.

Prof. Ruth Wittoek (Ghent University), first author of the study, said, "The realization that we're dealing with a systemic disease prompted us to consider that we may need a treatment that is also systemic. The antibody [denosumab](#) is already used to treat osteoporosis and cancer-associated bone loss. Moreover, it was demonstrated that denosumab reduced erosive progression in [rheumatoid arthritis](#), the prototype of inflammatory arthritis, which makes it a great candidate against erosive hand osteoarthritis too."

Prof Gust Verbruggen (Ghent University), co-first author added, "We anticipated that by using such anti-osteoporotic medication we could delay the structural progression and therefore focused on the impact of

denosumab on progression on X-rays in erosive hand osteoarthritis."

Antibody therapy

To test the potential of denosumab, the researchers recruited 100 patients with erosive hand osteoarthritis, who were subsequently randomly divided into a treatment and a [placebo group](#)—a double-blind, randomized, placebo-controlled trial, which is the golden standard for interventional studies.

Over 48 weeks, the patients received injections of 60mg of denosumab or a placebo every three months. After that treatment period, the people receiving the antibody showed clear bone remodeling and fewer new joint erosions compared to the placebo group. Importantly, the antibody treatment did not lead to more adverse effects.

Prof. Dirk Elewaut (VIB-UGent), senior author of the study said, "We provide a proof-of-concept that denosumab can be a valuable tool in the treatment of erosive hand osteoarthritis and show for the first time that inhibiting structural progression is an achievable goal in this disease."

This study demonstrates that denosumab has positive effects on erosive hand osteoarthritis by bone remodeling and the prevention of joint erosions. This work also supports the concept that erosive hand [osteoarthritis](#) is a systemic disease that requires systemic treatment.

More information: Ruth Wittoek et al, RANKL blockade for erosive hand osteoarthritis: a randomized placebo-controlled phase 2a trial, *Nature Medicine* (2024). [DOI: 10.1038/s41591-024-02822-0](https://doi.org/10.1038/s41591-024-02822-0)

Provided by Ghent University

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