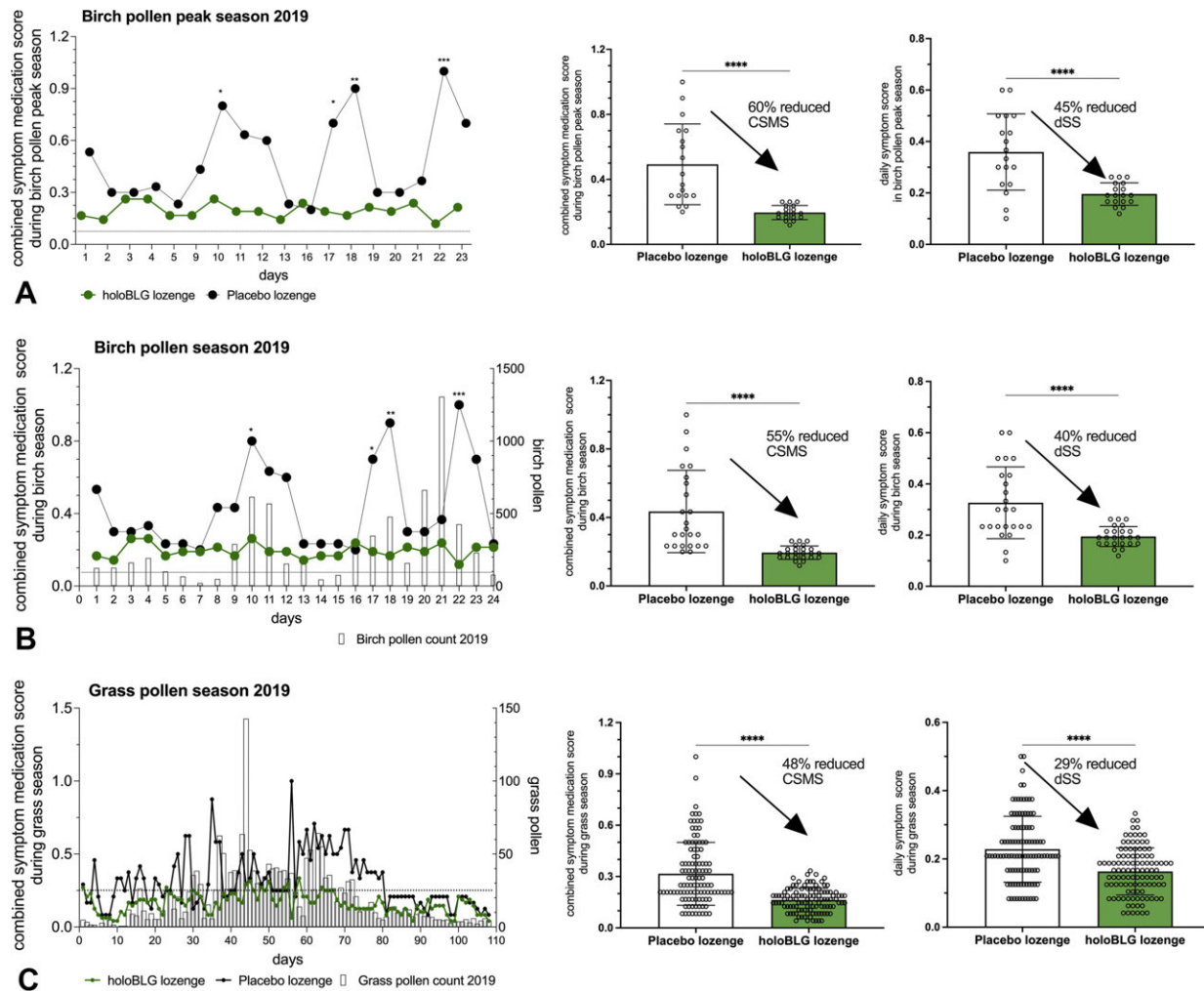


# Targeted micronutrition ameliorates allergy symptoms

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European Academy of Allergy and Clinical Immunology combined symptom medication score (CSMS) and daily symptom score (dSS) over (A) the peak, (B) the entire birch pollen season, and (C) the entire grass pollen season, 2019. A mixed-effect model using uncorrected Fisher least significant difference test

with a single pooled variance was used for analysis over the birch season. Normality in the groups was tested via the Anderson-Darling test. The placebo and  $\beta$ -lactoglobulin with flavonoid–iron complexes, zinc and retinoic acid (holoBLG) arms were compared with the unpaired t test for parametric data; nonparametric data were compared with the Mann-Whitney U test. \* $P^{12}/L$ ). Credit: *The Journal of Allergy and Clinical Immunology: In Practice* (2022). DOI: 10.1016/j.jaip.2022.02.028

Micronutrient deficiencies can promote inflammation and render the immune system particularly sensitive to allergenic substances. In particular, iron deficiency signals danger to immune cells and leads to a more pronounced, exaggerated immune response. For the first time, scientists at the Messerli Research Institute of MedUni Vienna, Vetmeduni Vienna and the University of Vienna conducted a placebo-controlled trial and showed that targeted dietary measures can reduce the symptom burden in allergic reactions. The researchers are therefore treading a completely new path in the care of allergy sufferers. The study was recently published in the *Journal of Allergy and Clinical Immunology: In Practice*.

The background to the studies conducted by researchers at the inter-university Messerli Research Institute in collaboration with the University Department of Ear, Nose and Throat Diseases at MedUni Vienna is the vicious circle of allergy: a hyperactive [immune system](#) sets the body on alert and inhibits adequate absorption of iron—even though this is precisely the micronutrient needed to moderate the overreaction. To compensate micronutritional deficiencies in [immune cells](#), the scientific team developed a [lozenge](#) that was tested for the first time in a double-blind, placebo-controlled manner as part of the study.

## Circumventing inhibition of iron absorption

The lozenge is based on the whey protein beta-lactoglobulin from cows, which acts as a carrier for numerous micronutrients. "Thanks to this carrier, absorption takes place via the lymph instead of [blood vessels](#)—in other words, exactly where immune [cells](#) are present in abundance ensuring micronutrient uptake in a targeted manner," explains study leader Franziska Roth-Walter from the Messerli Research Institute.

Since a tablet only contains a very small amount of iron, less than one milligram, it is not considered an iron supplement. Instead, the micronutrients are in a suitable form to be carried by the whey protein beta-lactoglobulin and thus to the immune cells. According to the study results, supplementation with this lozenge significantly reduced the symptom burden in birch and grass pollen-allergic individuals.

In addition, after six months of intake, there was an improvement identifiable in the iron status of circulating monocytes and red blood cell parameters. Supplementation with the lozenge resulted in a 45% reduction of the Combined Symptom Medication Score, a measure for the symptoms and medication use, during the peak birch pollen season.

## **Reducing immune cell hypersensitivity**

To date, specific allergen immunotherapy is considered the only causal treatment option for alleviating allergic diseases. This involves using an allergen specifically against the allergy in question, e.g. birch pollen against birch pollen allergy.

"Supplying the immune cells with micronutrients via the lozenge showed a strikingly similar efficacy, but in a completely allergen-independent and therefore universal way," clarifies Franziska Roth-Walter. The study therefore presents a new approach in the care of allergy sufferers. In this approach, a dietary measure is used to reduce the underlying hypersensitivity of the immune cells to allergenic substances rather than

targeting the [allergy](#) itself.

**More information:** Tina Bartosik et al, Ameliorating Atopy by Compensating Micronutritional Deficiencies in Immune Cells: A Double-Blind Placebo-Controlled Pilot Study, *The Journal of Allergy and Clinical Immunology: In Practice* (2022). [DOI: 10.1016/j.jaip.2022.02.028](#)

Provided by Medical University of Vienna

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