

New, non-invasive method allows to determine whether a child is celiac or not with just a puncture in the finger

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Researchers from the University of Granada (UGR) have developed a new, simple and non invasive method that determines whether a child aged two to four suffers from celiac disease without the necessity of a blood extraction.

Moreover, this method doesn't require experienced personnel, takes 10 minutes, is economical (€10 to €12 per device) and, most important for infants, is less invasive than a blood extraction.

This work has been carried out by M^a Vega Almazán de Bobadilla, researcher at the UGR department of Pediatrics, and led by José Maldonado Lozano. Part of their results have been published in the *Pediatric Research* magazine.

As de Bobadilla explains, "the idea of carrying out this research came from the need of responding to a question that I have considered when giving daily clinical care: is there any silent prevalence of the celiac disease in our field of specialization?"

Silent celiac disease

Silent celiac disease is that that goes unnoticed because it presents minor symptoms, imperceptible even to the patient. Celiac disease is a systemic disease caused by a permanent intolerance to gluten, which can be found in wheat, barley and rye, and it affects people with a genetic predisposition. The symptoms are intestinal (intestinal malabsorption, abdominal distension, diarrhea, abdominal pain, etc.) and extra-digestive (skin problems, joint pain, cephalalgia, etc.).

In order to diagnose celiac disease, three things are required: clinical symptomatology, the assessment of celiac disease antibodies present in blood, and a compatible histological study via intestinal biopsy.

The goal of the current research was to assess the prevalence of the silent celiac disease among children aged two to four. For that purpose, the researchers used new devices that detected the disease markers (auto-antibodies) present in the patient's capillary blood.

"A puncture in the finger is enough to take a little drop of blood, which is then put in the device and, in case the subject suffers from the disease, a pink line will appear in the strip (just like in pregnancy tests). Said pink line means that there are auto-antibodies characteristic to the celiac disease present in blood."

A study carried out with 198 children

A positive outcome requires further confirmation via blood extraction and assessment of the disease antibodies via other methods, but a negative outcome definitively rules out the disease.

This UGR research detected six celiac children among the 198 who participated in the study (which means a very high prevalence of 3 percent, higher than the European mean). All of them presented no symptoms at all, or minor imperceptible symptoms that didn't prompt their parents to consult a pediatrician.

The confirmation of this diagnosis was carried out at the Pediatric Gastroenterology Unit at the Virgen de las Nieves University Hospital (Granada), where those six patients underwent endoscopy and biopsy procedures.

"It's a novel study, given that there are few published works that use these devices in apparently healthy people, in Spain and the rest of Europe," says M^a Vega Almazán stresses. "Using this kind of diagnostic method in the family doctor's or the pediatrician's office would detect cases of [celiac disease](#) not diagnosed due to its atypical symptomatology,

and avoid unnecessary procedures, [blood](#) extractions or patient referral to specialized doctors."

More information: Maria Vega Almazán et al. Diagnostic screening for subclinical celiac disease using a rapid test in children aged 2–4, *Pediatric Research* (2015). [DOI: 10.1038/pr.2015.98](https://doi.org/10.1038/pr.2015.98)

Provided by University of Granada

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