

RESEARCH SUMMARY

Speed bumps and appendicitis

The presence of pain while travelling over speed bumps has been found to be associated with an increased likelihood of acute appendicitis.

Why is the research needed?

Diagnosing appendicitis can be challenging, particularly in the early stages of the condition. Several different tests exist, but appendicitis can sometimes be easily missed and can only be properly confirmed once the appendix has been removed. It is important not to miss it, but it's also important to make sure a patient does not have a diagnosis of appendicitis, since between 5–42% of patients who have their appendix removed do not have appendicitis.

Sometimes patients report a worsening of their pain when they travel over speed bumps, and some doctors routinely ask about this as part of their initial conversation with the patient. Researchers at the University of Oxford and Stoke Mandeville Hospital carried out a study to find out whether there is any evidence to support the use of speed bumps as a tool to diagnose acute appendicitis.

How was the study conducted?

101 patients aged 17–76 years, who had been referred to Stoke Mandeville Hospital for surgical assessment by their general practitioner or an A&E doctor, were enrolled into the study. They were asked to complete a questionnaire about their symptoms within 24 hours of arriving at the hospital; this included four specific questions about their journey:

- How did they travel to the hospital?
- Did they travel over speed bumps?
- Had they experienced pain on the journey?
- Did that pain get worse when they went over a speed bump?



If the patient had experienced worsening pain while travelling over a speed bump they were defined as “speed bump positive.” If their pain had stayed the same while travelling over a speed bump, improved or they were unsure, they were defined as “speed bump negative.”

Participants were followed by the researchers through their hospital admission to determine the outcome of their visit, and whether their suspected appendicitis diagnosis was confirmed after they had been taken to theatre.

What do the results show?

Of the 101 patients enrolled, 68 had travelled over speed bumps, 64 of these were included in the main analysis after four patients' results had been excluded.

Research Summary: Speed bumps and appendicitis

Pain over speed bumps	Positive diagnosis of appendicitis	Negative diagnosis of appendicitis	Total
Positive	<u>33</u>	21	54
Negative	<u>1</u>	9	10
Total	34	30	64

The results show that the speed bump test is **highly sensitive** (97%) towards correctly diagnosing acute appendicitis. However, the test is **not very specific** to acute appendicitis alone (only 30% specific) – so a high proportion of people reporting pain over speed bumps did not have appendicitis, but had other abdominal conditions that were aggravated by the impact of the speed bump, or their pain just got better of its own accord.

What does this mean?

Speed bumps can be used as a **strong rule-out test** for appendicitis – it is **highly unlikely** for a patient reporting **no pain** while travelling over speed bumps on their way into hospital to then receive a **positive diagnosis** for appendicitis.

However, the speed bump test is a **poor rule-in test** for appendicitis, since many patients experiencing pain may have another abdominal condition or no condition at all.

So the speed bump myth is untrue with respect to appendicitis alone, but due to its strong rule-out value the researchers suggest that questioning about speed bumps is useful (when available) and should form a routine part of the assessment of patients with possible appendicitis. It can help to better identify those who don't need an operation.

Why is there a link between speed bumps and appendicitis?

One of the reasons for pain with appendicitis is due to inflammation of the peritoneum – this is a membrane that lines the whole abdominal cavity. It is possible that the impact of going over a bump irritates the peritoneum.

Where is the study published?

The research was published in the Christmas 2012 edition of the *British Medical Journal*.

Pain over speedbumps in diagnosis of acute appendicitis: diagnostic accuracy study.
Ashdown HF, D'Souza N, Karim D, Stevens RJ, Huang A, Harnden A.
BMJ 2012;345:e8012 doi: 10.1136/bmj.e8012

Who are the researchers?

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Find out more:

BMJ talk medicine podcast
Christmas 2012: The Speed bump test
<https://soundcloud.com/bmjpodcasts/sets/bmj-podcast-2012>

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