



# The Impact of Site on Patch Testing

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## Background

As per the BAD guidelines for the management of contact dermatitis, the back is the most commonly used site for patch testing, principally for convenience because of the area available, although the limbs, in particular the outer upper arms, are also used.<sup>1</sup> The European guidelines agree that for practical reasons, the upper back is chosen for patch testing as the back offers a flat surface for good occlusion, and usually a large enough surface for application of the necessary number of patch test substances. They also note the back is less often affected by skin diseases, is not regularly exposed to sun, and is less prone to scratching. They suggest the outer surface of the upper arms or thighs can also be used if the surface on the back is insufficient or cannot be used for other reasons, for example scars, acne, or large tattoos.<sup>2</sup> Patch testing is a time consuming test requiring three visits over a five day period. We test to extensive panels of allergens to avoid having to repeat the study and we often test to more allergens than we can fit on the back. In these cases we apply the series to the upper arms and occasionally the abdomen. In some units the lateral thigh is also used. There have been few studies on the impact of site on patch testing.<sup>3-8</sup> In these studies the back has been suggested as the most sensitive site.<sup>3,4,5,7</sup> There is little evidence available regarding the suitability of using the abdomen as an alternative site.

## Aim

To compare patch testing responses on upper arm, lateral thigh, and abdomen to conventional patch testing on the back.

## Methods

This was a prospective study recruiting from patients referred for patch testing. We applied patch tests to the 10 commonest allergens (as per a local audit since 2009) on day 0 to the upper back, upper arm, abdomen and lateral thigh. Patch tests were removed at day 2 and assessments were undertaken at day 2 and day 4, as per ICDRG, by a consultant dermatologist or specialist registrar blinded to the allergens tested. Results of the patch tests were recorded as negative (-), doubtful (+/-), weak positive (+), strong positive (++), extreme positive (+++), irritant reaction (ir). Results from the different sites were compared to determine if variations in response due to anatomical site tested.

## Results

100 patients participated in this study between September 2018 and July 2020. 70% of participants were female. Mean age was 47 (± 14). 53% had definite positives to at least one allergen. Of these 53 patients, 38 were of current or past relevance (72%). Of these 38 patients the strongest reaction was seen most commonly on the abdomen (20; 52.6%) followed by the upper back (9; 23.7%) and upper arm (6; 15.8%). (Figure 1) Of the 38 with positive reactions of known or past relevance 12 (31.6%) were positive on the abdomen and were negative or uncertain (+/-) on the upper back. (Figure 2) The weakest site was the lateral thigh in most cases (19; 50%) followed by the upper back (8; 21.1%) and upper arm (6; 15.8%). One patient became sensitised to 2-hydroxyethyl methacrylate (HEMA) post patch testing.

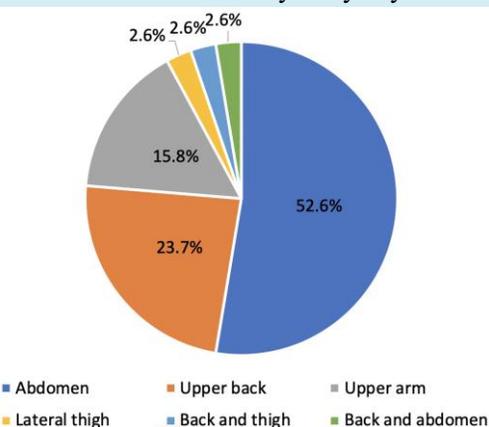


Figure 1: Strongest site on patch testing

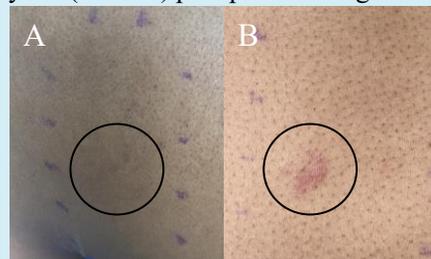


Figure 2: A. Negative patch test to Nickel on upper back at 96 hours  
B. Positive patch test to Nickel on abdomen at 96 hours

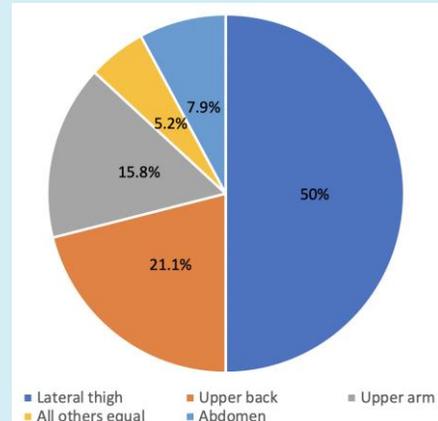


Figure 3: Weakest site on patch testing

## Discussion

Variability in reactions to patch tests is seen by anatomical location in this study. In this pilot study a pattern is emerging that the abdomen may also be a suitable alternative site for patch testing. It appears to be more sensitive than the commonly used upper arm when space is no longer available on the back.

## References

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