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Patch tests (contact allergy testing)

Dermatologists apply patch tests in patients with [dermatitis](#), to find out whether their skin condition may be caused or aggravated by a [contact allergy](#). Patch tests are not the same as [skin prick tests](#), which are used to diagnose hay fever allergy (house dust mite, grass pollens and cat dander). Skin prick tests have very limited value for patients with skin rashes.

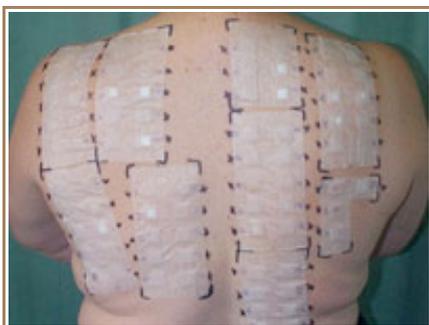
The patch testing described here is as it is undertaken in Hamilton, New Zealand. There may be slight differences in methods used at other centres – if you are having patch tests done, ask your [dermatologist](#) to explain.

A range of substances can be used for patch testing. The European Series Standard Battery (or similar) is applied to nearly every patient, together with specific tests appropriate to the individual. Each substance (known as an allergen) has been tested to find the best concentration to demonstrate an allergic reaction without causing irritation to those who are not allergic to the material.

Sometimes the results can be inconclusive or misleading. Instead of one or two positive reactions, sometimes nearly all test areas become red and itchy. This is known as 'angry back' and is most likely to occur in those with very active dermatitis (false positive result). At other times, there may be little or no apparent reaction to a substance that regularly causes dermatitis in that person (false negative result).

Further testing may be necessary. Patch tests do not always explain the cause of a dermatitis.

Patch testing



Patch tests applied



Several positive results



Angry back

The appointments

The first appointment will take about half an hour. Tiny quantities of 25 to 150 materials in individual square plastic or round aluminium chambers are applied to the upper back. They are kept in place with special hypoallergenic adhesive tape. The patches stay in place undisturbed for 48 hours.

At the second appointment, usually two days later, the patches will be removed. Sometimes further patches are applied. The back is marked with an indelible black felt tip pen or other suitable marker to identify the test sites.

These marks must still be visible at the third appointment, usually two days later (4 days after application). The back should be checked and if necessary remarked on several occasions between the 2nd and 3rd appointments.

The results

The dermatologist will complete a record form at the second and third appointments (usually 48 and 96 hour readings). The result for each test site is recorded. The system we use is as follows:

- Negative (-)
- Irritant reaction (IR)
- Equivocal / uncertain (+/-)
- Weak positive (+)
- Strong positive (++)
- Extreme reaction (+++)

Irritant reactions include sweat rash, follicular pustules and burn-like reactions. Uncertain reactions refer to a pink area under the test chamber. Weak positives are slightly elevated pink or red plaques. Strong positives are 'papulovesicles' and extreme reactions are blisters or ulcers. The relevance depends on the site and type of dermatitis and the specific allergen. The interpretation of the results requires considerable experience and training.

Positive patch test reactions



++ reaction



+++ reaction

Notes

- Do not expose your back to the sun for four weeks before your patch tests
- Wear old clothing; felt tip pen marks can stain clothes
- Do not swim, rub, or exercise, as the patches may come off
- Keep the back dry, so no baths, showers or unnecessary sweating
- Arrange for someone to remark the test sites with indelible felt tip marker

Bring Your Own Materials For Testing

Discuss the particular substances with which you come into contact with your dermatologist; you may be asked to bring materials from home or work.

- Bring or send all chemical items for testing at least a week before the first appointment so that they can be prepared for testing if necessary.
- Only small quantities are required eg. a few drops or grains.
- Label items carefully with their common and chemical names – provide data sheets if available.
- Identified food items and plants (if relevant) should be brought fresh to the first appointment; ice block trays are useful to separate items.
- Bring a selection of cosmetics to be tested (up to ten items) including nail varnish, [moisturiser](#), [sunscreen](#), [perfume](#), [shampoo](#). [Soap](#) is not usually tested (it always causes a reaction if left on the skin for two days).
- Bring all prescribed and non-prescribed ointments, creams and lotions that you have used.

- Relevant clothing including rubber gloves and footwear can be tested; about one centimetre of material is needed, taken from seams or other unimportant areas in contact with the affected skin.

Photopatch tests

Some patients have photopatch tests because their dermatitis develops on skin exposed to the sun ([photosensitivity](#)). Two sets of perfumes, antiseptics, plant materials and sunscreens may be applied. After removal, one set is exposed to a small dose of ultraviolet radiation (UVA). This is not enough to cause a photosensitivity reaction on its own.

Related information

On DermNet NZ:

- [Dermatitis](#)
- [Allergic contact dermatitis](#)
- [Pompholyx](#)
- [Hand dermatitis](#)

Contact allergies:

- | | |
|--|---|
| • Balsam of Peru | • Nickel |
| • Benzocaine | • Paraben mix |
| • Chrome | • Paraphenylenediamine |
| • Clioquinol | • Plants |
| • Cobalt | • P-tert butylphenol formaldehyde resin |
| • Epoxy resin | • Quaternium-15 |
| • Ethylenediamine | • Rosin |
| • Formaldehyde | • Rubber accelerators |
| • Fragrances | • Topical corticosteroids |
| • Glyceryl thioglycate (acid perming solution) | • Wool alcohols (lanolin) |
| • Imidazolidinyl urea | |
| • Neomycin | |

Other websites:

- [Chemotechnique Diagnostics](#) – Supplier of contact allergens; the site includes patient information about 400 materials
- [TROLAB® Hermal patch test allergens](#) – information about 250 allergens
- [T.R.U.E. tests®](#) – Information on contact dermatitis and contact allergy testing
- [AllergEAZE](#) system of patch tests
- [Allergy New Zealand](#)
- [AllAllergy.Net](#)
- [Allergic contact dermatitis](#) – e-medicine dermatology, the online textbook

DermNet does not provide an on-line consultation service.

If you have any concerns with your skin or its treatment, see a [dermatologist](#) for advice.

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