The Mechanics of Performing Patch Testing

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DISCLOSURES
Celgene: Speaker Bureau

Useful Resources

European Society of Contact Dermatitis guideline for diagnostic patch testing – recommended on best practice. Contact Dermatitis. 73(4)October 2015, 195–221.

Online Tools

https://www.contactderm.org/

Goal of Patch Testing

- Detect cutaneous type IV (Delayed) hypersensitivity reactions
- Facilitate making the diagnosis of allergic contact dermatitis (ACD)

Positive Patch Test ≠ Allergic Contact Dermatitis
**Allergen Selection**

**What are we testing??**

1. Ingredients in products intended for skin exposure (leave-on or rinse-off products).
2. Ingredients & components of products/objects which are expected to be contacted during normal daily activities.
3. Non-caustic products with possible inadvertent or occupational skin exposure.

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**What Is NOT tested**

- Caustic chemicals
- Hazardous chemicals
- Unknown chemicals
- Potent nonstandard allergens (poison ivy)

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**Selecting Allergens**

- **Targeted Patch Test**
  - T.R.U.E. Test
  - 35 allergens

- **Expanded Patch Test**
  - North American Standard Series
  - 70 allergens
  - ACDS Core Allergen Series
  - 80 allergens
  - Allergen Groupings
  - Shoe grouping, Hair grouping, ect....
  - Patient Products
  - Patient specific

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**Test Substances**

- Ready-to-use (T.R.U.E. Test)
- Commercially prepared standardized allergens
  - (AllergEAZE, Dormer Laboratories, Chemotechnique Diagnostics, TroLab)
- Physician Prepared
- Pharmacy Prepared

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**Test Preparation**

Small amounts of test substances diluted in a vehicle, such as water or petrolatum, are applied in a chamber to the skin under a patch of cloth or paper tape and an impermeable membrane.

**Closed Chamber Patch Testing = Patch Testing**

Differentiates this technique from open testing with the Repeat Open Application Test (ROAT) technique.
Repeat Open Application Testing

Product intended for leave-on skin application (such as cosmetic or moisturizer) is suspected of causing contact dermatitis.

Suspect product is applied to the antecubital fossa twice a day for 7 days.

The development of dermatitis supports either allergic or irritant contact dermatitis.

Allergen Chamber Systems

Square Chambers
IQ Ultra & Ultimate®
AllergEAZE & Clear®

Round Chambers
Finn Chambers (8mm,12mm,18mm)

Aluminum vs. Plastic Chambers

Aluminum
Finn Chambers
Aluminum allergy rare
Available in polypropylene-coated aluminum if suspect aluminum allergy

Plastic
AllergEAZE:
• Polyethylene terephthalate
IQ
• Polyethylene; additive free

Can tests be prepared ahead of time???

Ideally tests would be prepared at the time they are placed. Early preparation of volatile allergens is the largest concern.

General rule – Avoid early preparation of acrylates, fragrances, and all allergens in aqueous vehicle.

Beyond the Allergens

Pre-visit questionnaire and mailing packet
UVA light source if photopatch testing will be performed

Other:
Allergen chambers, marking pens, hypoallergenic tape (scappor), disposable pipettes, 8 mm punch tool, scissors, dimethylglyoxime nickel spot test

Nurse/MA patch test clinic manager
Table or counter area available for the preparation of the tests for each patient
Refrigerator for the storage of the allergens
Storage area for patch testing supplies (chambers, reading plates, skin markers, educational materials, binders, etc) & Cart
Computer, printer, hole punch to generate allergen informational binder
**Patient preparation & education**

- Avoid application of topical corticosteroids to test site 7 days prior to testing.
- Avoid systemic steroids of >10mg daily for 2 weeks prior to testing.
- Stop phototherapy 2 weeks prior to testing.
- Advise patient to stop tanning bed use and adhere to sun protective measures for 2 weeks prior to testing.
- Sponge bath only during the week of testing.
- No strenuous exercise or activity during the week of testing.
- Wear older clothes to patch test visits.

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**Initial Visit**

Initial visit

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**48 Hour Visit**

48 Hour Visit

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**Reading Time**

Reading Time  
(Day 4-7; 96-168 Hour Visit)  

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Ensure no technical difficulties with testing.  
Remark and confirm diagram test sites.
The “Right Time to Read”
Most true allergic reactions occur between 72-96 hours.

Allergens reported to peak early include thiuram mix, carba mix, balsam of Peru.

Delayed reactions are seen between days 5-7 (96-168 hours). Reported delayed reactors include metals, corticosteroids, acrylates, and antibiotics.

De novo sensitization is seen with a reaction occurring after day 10.


• The best time for patch test reading is not clearly defined.
• Most yield is seen at either 72 or 96 hours.
• Consider delayed reading for certain allergens.

Pitfalls
Avoid testing patients with an acute and/or severe dermatitis.
Avoid testing patients on systemic corticosteroids.
Avoid Placing tests along the spine due to poor adhesion.
Test allergens must be removed at 48 hours.
Never test an unknown substance or a caustic substance.

Pearls
Ensure chambers are numbered and diagrammed correctly.
5-mm ribbon of petrolatum based antigen is sufficient amount.
For liquid antigens, place a filter paper disk in the Finn chamber and apply 1 drop of the liquid.
Systemic antihistamine therapy has no effect on patch test results.
Thank You!

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