



DIFFERENTIAL DIAGNOSIS – POSITIVE REACTIONS

Recent studies indicate that between 23% and 62% of patients may test positive to at least one of the 28 allergens and allergen mixes included in T.R.U.E. TEST (Cohen et al., 1997; Marks et al., 1998). However, not all reactions are considered true positives, or are clinically relevant.

True Positive Reactions: When performed and read according to international guidelines, true positive reactions are indicative of sensitization, but are not absolute proof. Overall, the percentage of truly positive patients with allergic contact dermatitis has been estimated at 70% (Nethercott, 1994). The frequency of true positive reactions varies by allergen, test conditions and the frequency of testing.

Extreme positive (+++) and strong positive reactions (++) are usually true positive reactions. Their predictive value increases when the allergy is suspected based on clinical evidence. Therefore, the relevance of positive reactions to current or past eruptions and allergen exposure should be supported by the following:

- Nature and distribution of the skin eruption
- Validity of the relationship between allergen and recent exposure
- Patient’s history, especially regarding allergic reactions

	Extreme Positive +++		Strong Positive ++
<ul style="list-style-type: none"> • Coalescing vesicles 	<ul style="list-style-type: none"> • Bullous reaction 	<ul style="list-style-type: none"> • Erythema • Infiltration 	<ul style="list-style-type: none"> • Papules • Discrete vesicles

With true positive reactions of past or current relevance, provide the patient with detailed advice on avoiding the discovered allergen, and preventing future exposure (see *Patient Information About T.R.U.E. TEST and Contact Allergen*). Use extreme caution when advising patients about changing jobs or careers; skin condition may not improve in a new work environment. For corresponding physician information about the allergens included in T.R.U.E. TEST see *Allergen Components in T.R.U.E. TEST (Physician Information)*, Section 7.

If the relevance of a positive reaction is unknown: First, question the patient in greater detail about possible allergen exposure, allergic history and skin reaction patterns. If this fails to disclose the reaction’s significance, the patient should still be advised to avoid the suspected allergen. Reactions that appear positive but cannot be explained may be due to:

- an incomplete medical or occupational history;
- exposure to unsuspected, undetected, unrecognized or ubiquitous allergen(s);
- cross-reactivity to a related allergen; or
- low environmental exposure to an allergen prior to testing.



Weak Positive +

- Erythema
- Infiltration
- Discrete papules

Weak Positive Reactions: These reactions must meet the criteria for allergic reactions to be considered valid: papular or vesicular erythema, and infiltration. In contrast, pustules and patchy follicular or homogeneous erythema without infiltration characterize irritant reactions and are not positive reactions.

False Positive Reactions: If the reaction is a weak positive (+), there is a greater possibility that it is actually a false positive. The frequency of false positive patch test reactions is estimated at 20% or less, depending on the allergen and test conditions (*Nethercott, 1994*). With experience, physicians can learn to identify false positive reactions.

Although patch test allergen levels have been carefully calculated to minimize false positive reactions, some patients may manifest a reaction to what may be a substance well tolerated by others.

False positive reactions tend to occur more frequently with metals, mixes, and balsam of Peru. They are often due to irritation but may also be caused by the following conditions:

- A strong positive reaction to an adjacent allergen
- Acute dermatitis outbreak at time of testing
- Recent (<3 weeks) contact allergen testing
- Generally irritable skin
- A rare reaction to test tape or patches
- Test materials degraded by poor storage or aging

Remember that patient health, skin tone, sweating, and humidity can also affect reaction appearance and interpretation. Note that *p*-phenylenediamine may turn the skin test area black on some patients, but this does not represent an allergic reaction.

If skin reactions are doubtful: Physicians may consider retesting the patient depending on patient history, symptoms and testing conditions. Retesting may be of greater value when patch test application or care is suspect and reactions are likely to be clinically relevant.

If the reaction has little clinical relevance, interpret weak positive or doubtful reactions with caution. Remember that the safety and efficacy of repetitive testing are unknown, and that the benefit of repeat testing should be weighed against the possible risk of sensitization and false positives.

If patients undergo a second series of patch tests immediately, select a new test site for T.R.U.E. TEST application. Alternatively, the same site may be retested after a 3-week clearing period, provided the site remains free of significant scarring, skin disease, tanning or other conditions that might effect test results.

DIAGNOSTIC PATH FOR POSITIVE REACTIONS



Is reaction consistent with patient history?

YES
Current or past clinical relevance

TRUE POSITIVE
Discuss avoidance with patient

MAYBE
Unknown clinical relevance

Consider and check for:

- ◆ Incomplete history
- ◆ Unrecognized allergen exposure
- ◆ Ubiquitous allergen
- ◆ Cross-reacting allergen
- ◆ Latent sensitivity

Re-evaluate or discuss avoidance with patient

DOUBTFUL

For doubtful reactions or potential false positives, consider the possibility of:

- ◆ Irritant response
- ◆ “Angry Back” or hyperirritable skin
- ◆ Acute eruption during testing
- ◆ Strong positive at adjacent site
- ◆ Previous patch test on same site
- ◆ Improper storage and deterioration of T.R.U.E. TEST materials
- ◆ Reactions to T.R.U.E. TEST tape or patches (rare)

Consider retesting on different site or after 3 weeks, based on patient history, symptoms and test conditions