

Table 1. Nickel sulfate patch test results among unselected schoolgirls from Northern Copenhagen

Study population	Reaction		Number (%)
	D2	D4	
Public school girls	A	A	9 (81.8)
	NA	A	2 (18.2)
	A	NA	0
Total			11 (100)
High school girls	A	A	31 (70.4)
	NA	A	13 (29.6)
	A	NA	0
Total			44 (100)

A, allergic (i.e. a 1+, 2+, or 3+ reaction to 0.20 mg/cm² nickel sulfate, equivalent to 5% nickel sulfate); NA, not allergic (i.e. negative reaction, irritative, follicular, or +? to nickel sulfate).

Results from additional nickel patch test readings in a sample of schoolgirls from the general population

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Jacob Pontoppidan Thyssen¹, Christian Stab Jensen^{2,3}, Jeanne Duus Johansen¹ and Torkil Menné¹

¹Department of Dermatology, National Allergy Research Centre, Gentofte University Hospital, Gentofte 2820, Denmark, ²National Center for Antimicrobials and Infection Control, and ³Division of Microbiology and Diagnostics, Statens Serum Institut, Copenhagen S, 2300 Denmark

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Patch testing is a standardized diagnostic method. There has been significant interest in the optimal patch test reading times when investigating eczema patients (1–6), but only a few patch test studies have carried out more than a single reading when used in the general population (7). We investigated the outcome of repeated nickel patch test readings among unselected schoolgirls.

Materials/Methods and Results

Between March 1999 and March 2000, 300 girls from 12 public schools in Northern Copenhagen (mean age 12.4 years, range 10–14 years) and

242 girls from 7 high schools and 2 technical colleges in Northern Copenhagen (mean age 18.8 years, range 17–22 years) were TRUETM tested with nickel sulfate (Mekos Laboratories AS, Hillerød, Denmark) (8). The test concentration was 0.20 mg/cm², equivalent to 5%. The tests were applied to the upper back and occluded for 2 D. Readings were on D2 and D4 among 219 public school girls and 211 high school girls, whereas 81 public school girls and 31 high school girls were read only on D2. All readings were performed according to International Contact Dermatitis Research Group recommendations (9). Homogeneous redness and infiltration in the entire test area was scored as a 1+ reaction. Homogeneous redness, infiltration, and vesicles in the test area were scored as a 2+ reaction and homogeneous redness, infiltration, and coalescing vesicles in the test area as a 3+ reaction. Table 1 shows the outcome of patch test readings.

Discussion

Our data show that potentially 18.2–29.6% positive patch test reactions to nickel sulfate may be missed if readings are only performed on D2. These general population estimates are comparable to nickel sulfate patch test data from eczema patient populations (14–26%) (2, 4, 5). Whether other allergens also share similar patch test reactivity patterns is unknown. Because the concordance rate between nickel sulfate TRUETM testing and nickel sulfate in pet. and Finn Chambers[®] is generally high (10, 11), we assume that the effect of different test systems is of limited relevance.

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References

1. Dickel H, Taylor JS, Evey P, Merk HF. Delayed readings of a standard screening patch test tray: frequency of 'lost,' 'found,' and 'persistent' reactions. *Am J Contact Dermat* 2000; 11: 213–217.
2. Geier J, Gefeller O, Wiechmann K, Fuchs T. Patch test reactions at D4, D5 and D6. *Contact Dermatitis* 1999; 40: 119–126.
3. Rietschel R L, Adams R M, Maibach H I, Storrs F J, Rosenthal L E. The case for patch test readings beyond day 2. Notes from the lost and found department. *J Am Acad Dermatol* 1988; 18: 42–45.
4. Shehade S A, Beck M H, Hillier V F. Epidemiological survey of standard series patch test results and observations on day 2 and day 4 readings. *Contact Dermatitis* 1991; 24: 119–122.
5. Uter W J, Geier J, Schnuch A. Good clinical practice in patch testing: readings beyond day 2 are necessary: a confirmatory analysis. Members of the Information Network of Departments of Dermatology. *Am J Contact Dermat* 1996; 7: 231–237.
6. Jonker M J, Bruynzeel D P. The outcome of an additional patch-test reading on days 6 or 7. *Contact Dermatitis* 2000; 42: 330–335.
7. Thyssen J P, Linneberg A, Menne T, Johansen J D. The epidemiology of contact allergy in the general population – prevalence and main findings. *Contact Dermatitis* 2007; 57: 287–299.
8. Jensen C S, Lisby S, Baadsgaard O, Volund A, Menne T. Decrease in nickel sensitization in a Danish schoolgirl

- population with ears pierced after implementation of a nickel-exposure regulation. *Br J Dermatol* 2002; 146: 636–642.
9. Wilkinson D S, Fregert S, Magnusson B et al. Terminology of contact dermatitis. *Acta Derm Venereol* 1970; 50: 287–292.
 10. Fernandez Vozmediano J M, Hita J C. Concordance and discordance between TRUE Test and Finn Chamber. *Contact Dermatitis* 2000; 42: 182–183.
 11. Gollhausen R, Przybilla B, Ring J. Reproducibility of patch test results: comparison of TRUE Test and Finn Chamber test results. *J Am Acad Dermatol* 1989; 21: 843–846.

Address:

Jacob Pontoppidan Thyssen, MD
Department of Dermatology
National Allergy Research Centre
Gentofte University Hospital
Ledreborg Allé 40
1. 2820 Gentofte
Denmark
Tel: +45 3977 7307
Fax: +45 3977 7118
e-mail: jacpth01@geh.regionh.dk