

Are Contact Allergies due to Tattooing a Problem ?

Observations from the IVDK

Axel Schnuch

IVDK

Göttingen

IVDK:

>50 dermatological
centres in
central Europa



- Register Data on *allergic Contact Dermatitis*
- > 12.000 Patients / Year
- > 250.000 Patients collected
- Data centre in Göttingen

....data on allergic contact dermatitis:

Results of Allergy Tests („patch tests“)



p-Phenylenediamine

Data on allergic contact dermatitis

-Patch test data (sensitization to ?)

-Exposure data (occupation, „contactant“ – sensitization caused by ?)

-Clinical data (e.g. site of eczema)

K1	Textiles
K2	cosmetics/creams
K5	drugs
K11	Rubber
K51	TATTOOS

Is there a role for tattooing in allergic contact dermatitis ?

Data registered in the IVDK from **2004 to 2012.**

n= 116.484

Selection and analysis of the „K51“ subpopulation:

n= 112 (= 0.1%)

NO

Selection and analysis of the „K51“ subpopulation:

Patients were patch tested

a) with commercial patch test preparations

b) (some) with their „own material“ (e.g. tattoo material)

Results of patch testing:

Substance	n tested	n Pos	% pos (Stand).
Nickel (II)-sulfat 6*H2O	104	16	14.8
p-Phenylendiamine (Free Base) (CI 76060)	49	14	24.6
p-Toluyldiamine (free Base)	36	12	23.9
Disperse Orange 3 (CI 11005)	49	12	18.7
p-Aminophenol (CI 76550)	37	11	22.4
N-Isopropyl-N'-phenyl-p-phenylendiamine	104	8	5.4
3-Aminophenol	25	7	19.5
Fragrance Mix	107	7	6.1
Myroxylon pereirae (Balm of Peru)	104	7	10.6

Results of patch testing:

p-Aminoazobenzol (CI 11000)	27	6	17.3
4,4'-Diaminodiphenylmethan	20	5	20.3
Dispers Yellow 3 (CI 11855)	43	5	8.9
Oil of Turpentine	104	5	4.7
Thiuram Mix	107	5	3.8
Hydrochinone	27	4	11.3
Cobalt (II)-chloride, 6*H2O	104	4	3.4
Colophony	107	4	5.3
Acid Yellow 36 (CI 13065)	43	4	7.0

Possible explanations for this allergen pattern:

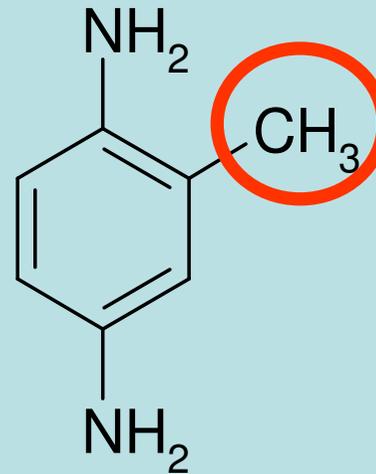
1. Primary sensitization to PPD (through temporary / Henna tattoos ?)
and cross reactions to other dyes

2. Primary sensitization to amino- and azo- dyes and cross reactions to PPD
and derivatives

Cross reactions:



p-Phenyldiamin



p-Toluyldiamin

~ 3 / 4 of PPD allergics react to PTD*

Results of patch testing:

Some patients (n=75) were patch tested with their „own material“

n= 24 with tattoo material

5/24 reacted to tattoo material

Results of patch testing:

Some patients (n=75) were patch tested with their „own material“

n= 24 with tattoo material)

5/24 reacted to tattoo material

1.

Permanent Make up lila	100	%		++
Permanent Make up bräunlich	100	%		+
Allergen	?			

2.

Substanz für Tattoo	100	%		+
Allergen	?			

Results of patch testing:

5/24 reacted to tattoo material

3.

Tattoofarbe rosa	100	%		(+)
Allergens				
Cadmiumchlorid	0.5	%	Petr	++
Cadmiumsulfat	2	%	Aqu	+
Eisensulfat	5	%	Petr	++

Results of patch testing:

5/24 reacted to tattoo material

4.

Tattoofarbe 1:10	100	%		+
Allergens				
Ammoniumpersulfat	2.5	%	Petr	+
Narcissus absolut	2	%	Petr	+

Results of patch testing:

5/24 reacted to tattoo material

5.

Deep Purple 20 z	100	%		+
Allergens				
p-Phenylendiamin (CI 76060)	1	%	Petr	+

Intermediate Summary:

1. Contact allergy is rarely caused by tattooing

2. The allergen frequency and spectrum (**aromatic amines**) is plausible

3. Anorganic pigments are rarely the cause of contact allergy
(except Ni containing)

HOWEVER:



Zusammensetzung/Angaben zu Bestandteilen

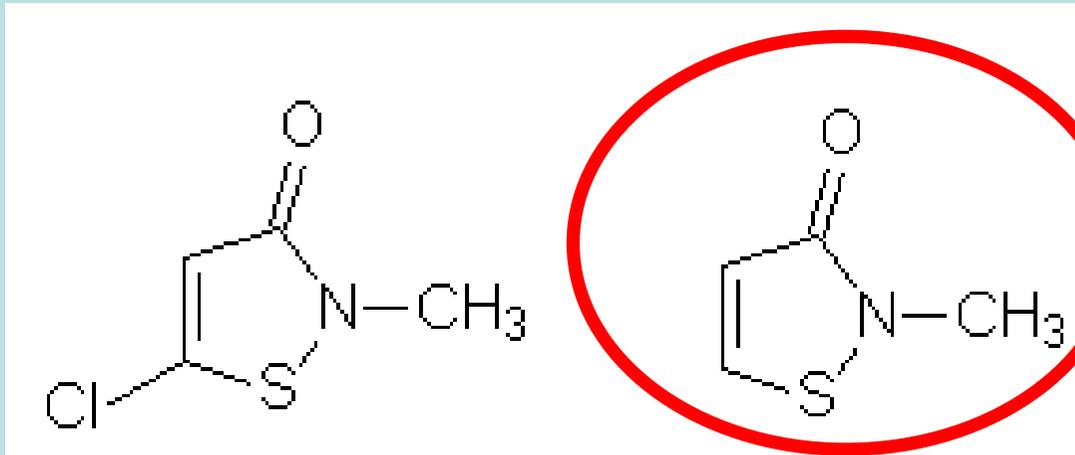
Chemische Charakterisierung

Beschreibung (INCI): Farzubereitung

Aqua dest. Pigmente (wechselnd): CI 77...
Shellac (Ph.Eur./USP): CAS-No.9000-59-3...
39-8; Propylene Glycol CAS-No. 57-55-6...
CAS-No. 67-63-0; Glycerin pflanzlich (Ph.Eur./USP) CAS-No. 56-81-5;
Block- Copolymer mit pigmentaffinen Gruppen; Phenoxyethanol CAS-No.
122-99-6; **Methylisothiazolinone** CAS-No. 2682-20-4; Benzisothiazolinone
CAS-No. 2634-33-5; Aminomethyl Propanol CAS-No. 124-68-5;

A potent contact allergen !

Identification of new problems by surveillance



Chlormethylisothiazolinon

Methylisothiazolinon

Preservative

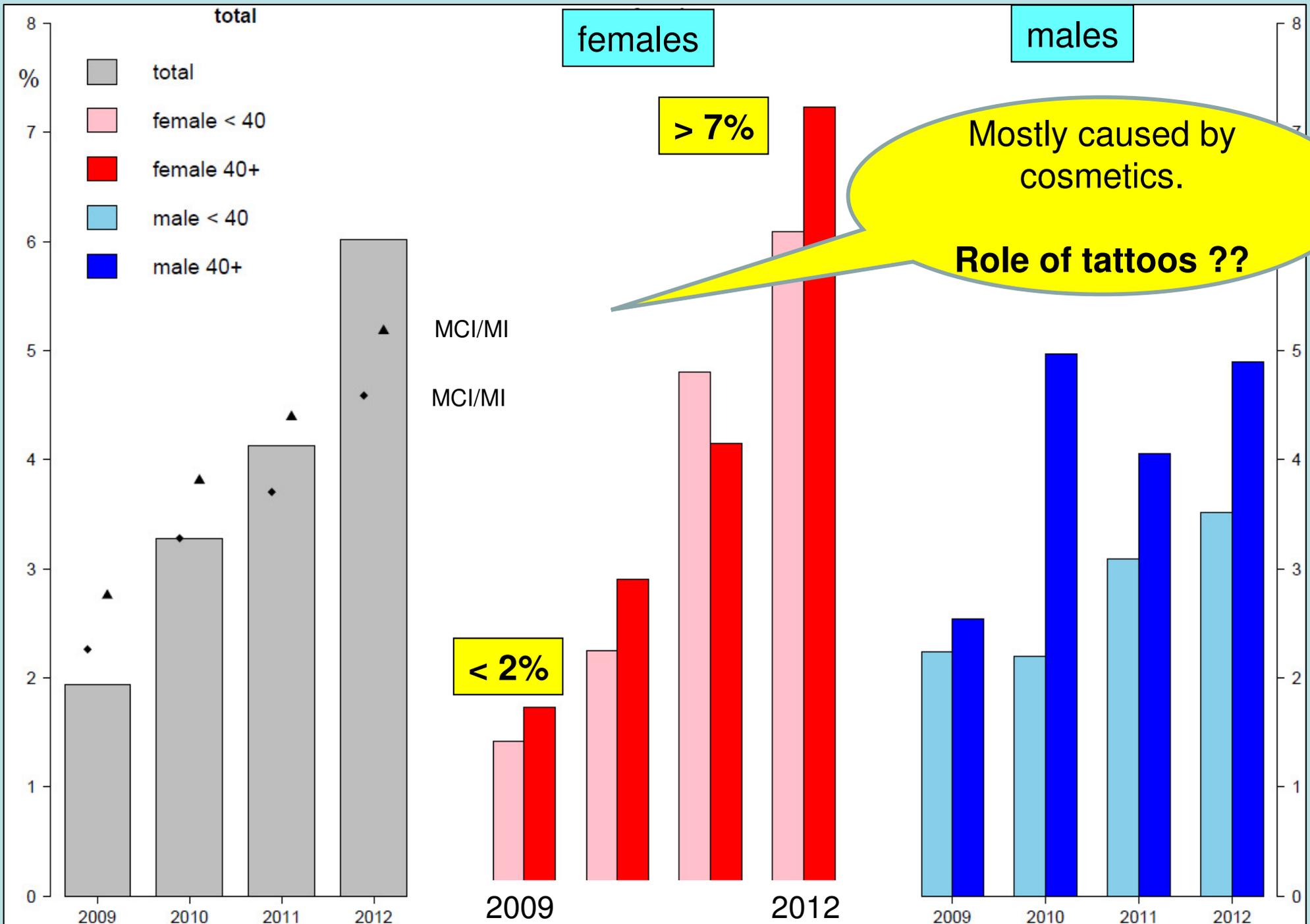
in:

- paints
- glues
- metal working fluids,
- liquid soaps....

- Cosmetics

Tattoo inks

Allergic reactions to Methylisothiazolinone (IVDK 2009 and 2012)



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**(aromatic amino /azo compounds)
in tattoos**

Textile allergy



Hair dye allergy



Are Contact Allergies due to Tattooing a Problem ?

Wall paints



**Preservative: methylisothiazolinone
in tattoos**

cosmetics

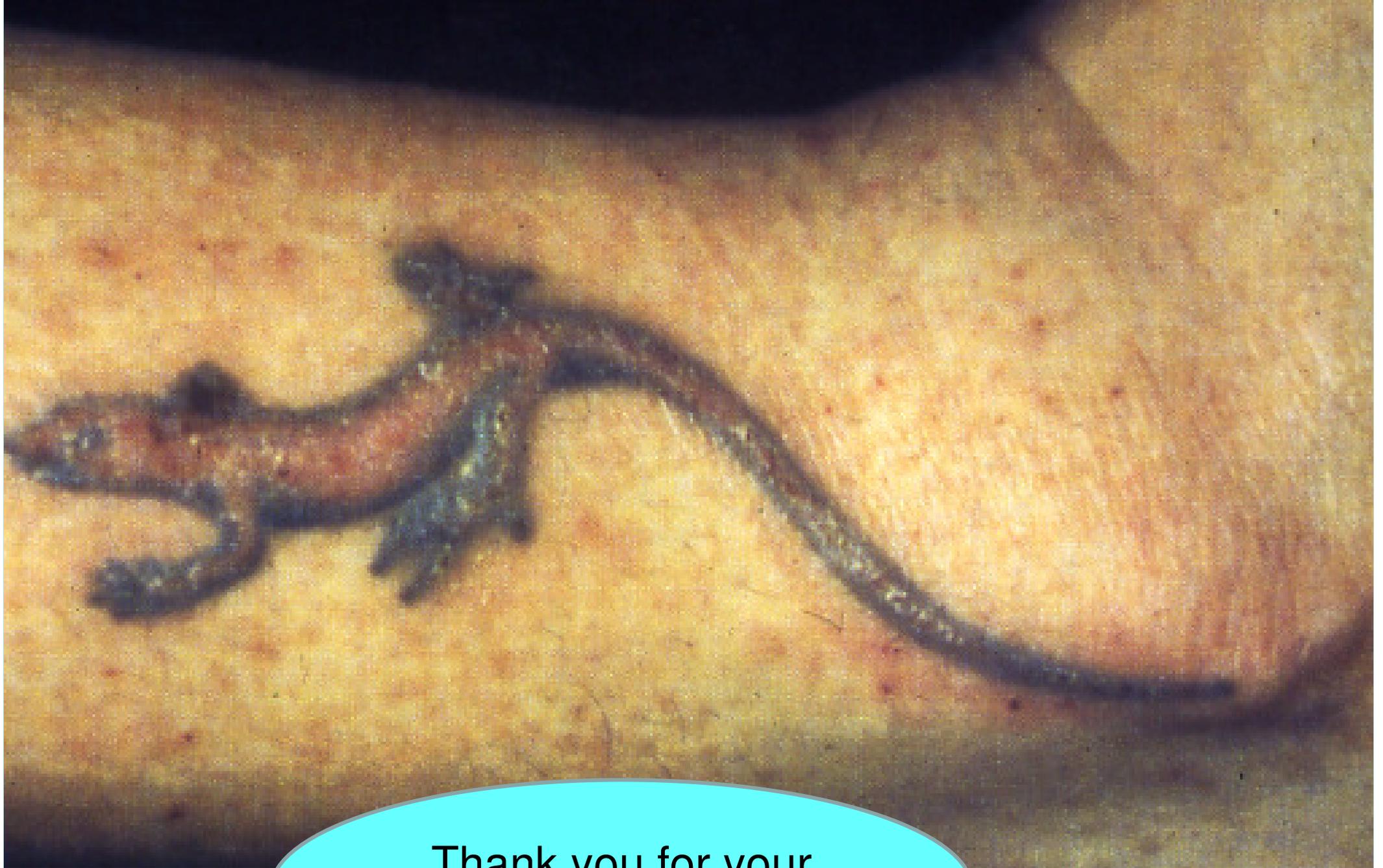


The Problem:



„Promiscuity of
the allergen“





Thank you for your
attention