



Occupational Dermatology

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Pliny the Younger
1st Century AD



Healthy Skin@Work



www.epos2010.eu

EADV

UNIVERSITÄT OSNABRÜCK

YOUR SKIN.
THE MOST IMPORTANT
OF YOUR LIFE. **2m²**

EADV - EUROPREVENTION
CAMPAIGN: HEALTHY SKIN@WORK

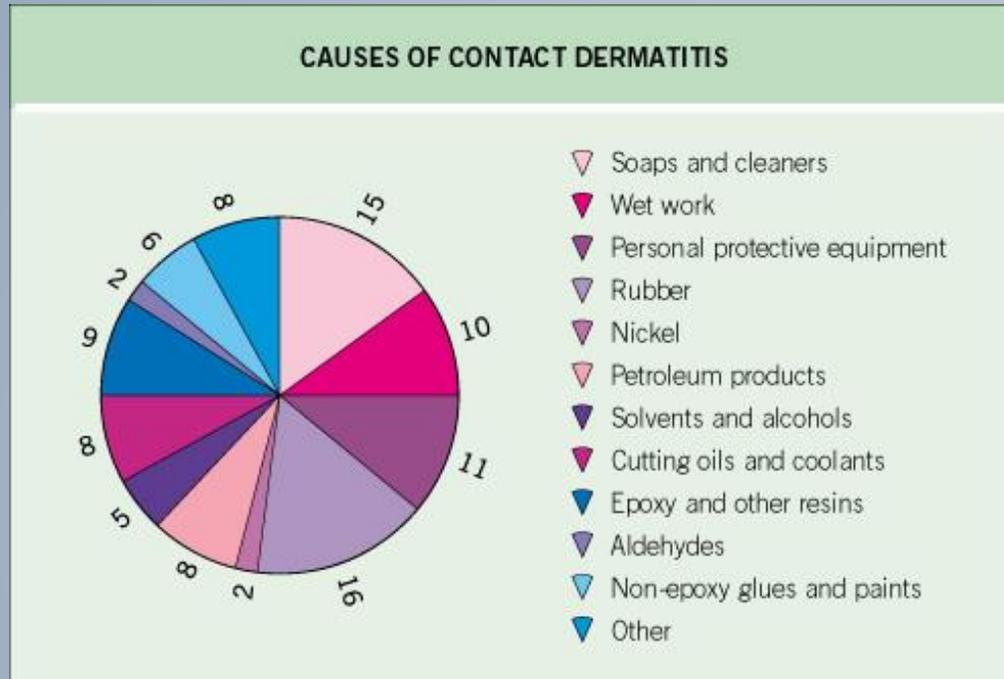
Skin disease comprises up to 40% of notified occupational disease across Europe (but there is significant under-reporting)

Contact dermatitis, contact urticaria, skin cancer

Rates of occupational dermatitis 0.5 to 1.9 cases per 1000 full-time workers p.a.

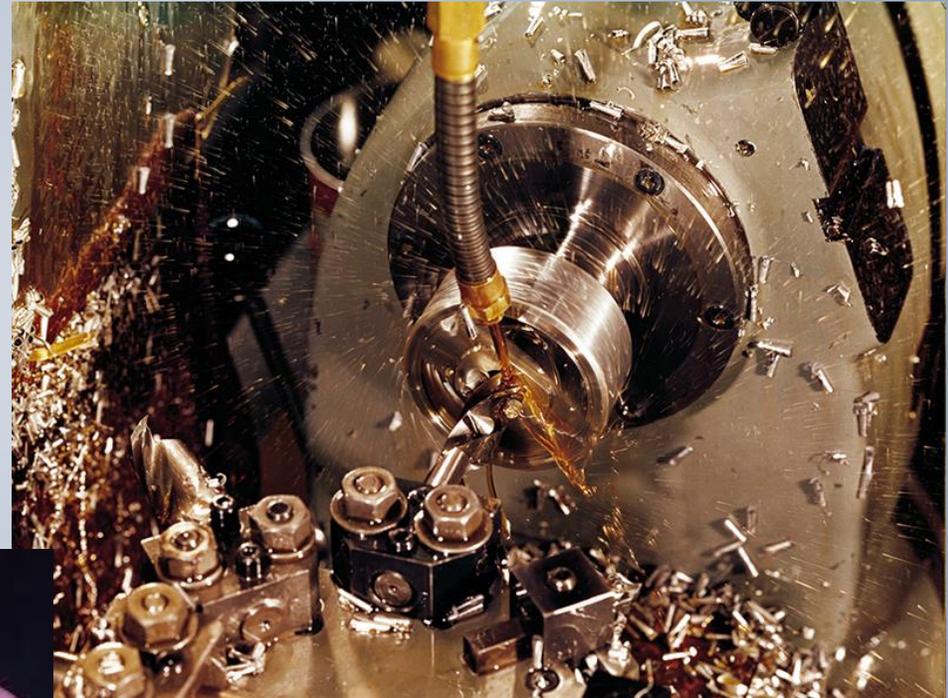
Within the EU, costs of occupational eczema (treatment, sick leave, loss of productivity) exceeds €5bn annually

Contact Dermatitis: irritant and allergic

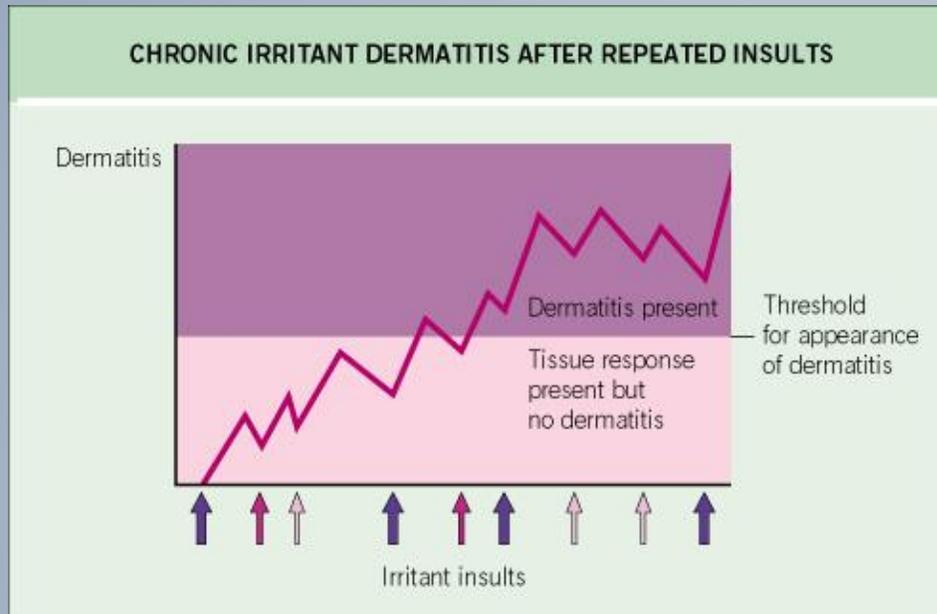


Irritant Contact Dermatitis

- › Commonest causes of occupational irritant contact dermatitis
 - soaps, wet work, petroleum products, cutting oils and coolants



Irritant Contact Dermatitis





Strimming dermatitis – phytophotodermatitis
(photocontact dermatitis)

Lime juice has the same effect:



Irritant Contact Dermatitis

- › Skincare principles in the workplace
 - Luke-warm water for washing
 - Use correct gloves before exposure
 - Remove rings where possible
 - Cotton liners under protective gloves
 - Avoid disinfectant hand cleansers
 - Apply emollient hand creams
 - Protect hands at home
 - Workforce education





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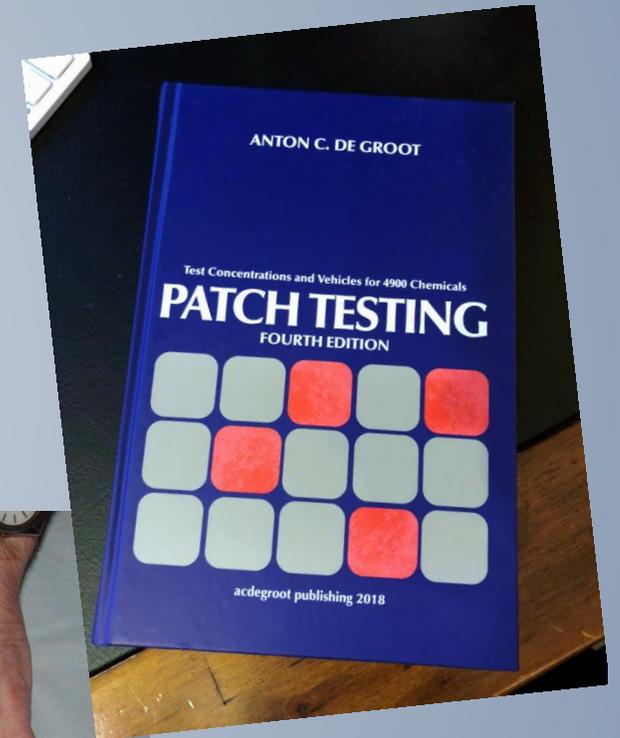
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Allergic Contact Dermatitis

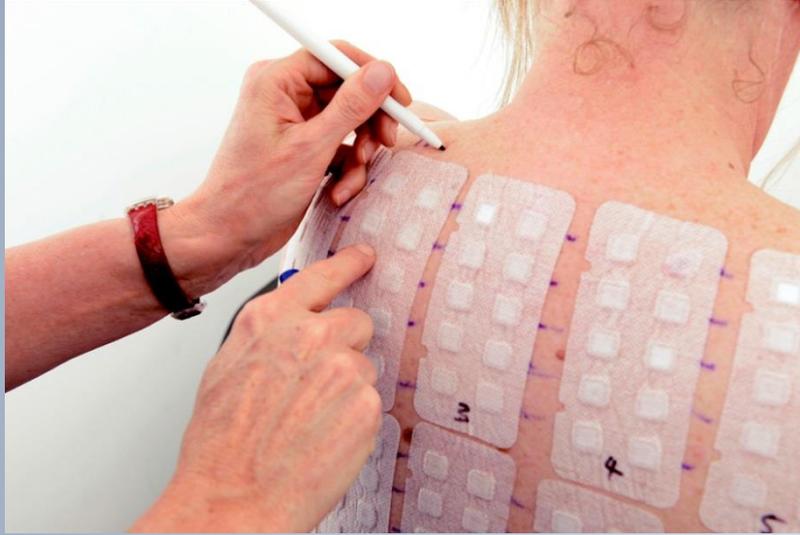
- › Less common than irritant contact dermatitis
- › Patch testing: baseline and extended series along with workplace products



Benzoisothiazolinone allergy



Patch testing



Day 0

BSCA Standard series
Extended series:

- Bakery
- Dental
- Epoxy
- Hairdressing
- Isocyanate
- (Meth)acrylate
- Oils and coolants
- Plant
- Plastic and glues
- Rubber additives
and more...



Day 4

British Society for Cutaneous Allergy: Standard Series 2018

- 
- 1 potassium dichromate
 - 2 neomycin sulphate
 - 3 thiuram mix
 - 4 p-phenylenediamine
 - 5 cobalt chloride
 - 6 caine mix III
 - 7 formaldehyde
 - 8 colophony
 - 9 quinoline mix
 - 10 Myroxylon pereirae (Balsam of Peru)
 - 11 N-isopropyl-N-phenyl-4-phenylenediamine
 - 12 lanolin alcohol
 - 13 mercapto mix
 - 14 epoxy resin
 - 15 parabens mix
 - 16 p-tert-butylphenol formaldehyde resin
 - 17 fragrance mix I
 - 18 quaternium 15
 - 19 nickel sulphate
 - 20 methylchloro & methyl isothiazolinone
 - 21 mercaptobenzothiazole
 - 22 amerchol L101
 - 23 sesquiterpene lactone mix
 - 24 p-chloro-m-Cresol
 - 25 2-bromo-2-nitropropane-1,3-diol
 - 26 Cetearyl alcohol
 - 27 sodium fusidate
 - 28 tixocortol-21-pivalate
 - 29 budesonide
 - 30 imidazolidinyl urea
 - 31 diazolidinyl urea
 - 32 methyldibromoglutaronitrile
 - 33 Tree Moss
 - 34 p-chloro-meta-xyleneol
 - 35 carba mix
 - 36 disperse Blue mix 106/124
 - 37 fragrance mix II
 - 38 Lyrar
 - 39 Compositae Mix
 - 40 methylisothiazolinone
 - 41 sodium metabisulphite
 - 42 Linalool
 - 43 Limonene
 - 44 hydroxyethylmethacrylate



Allergy to chromate in leather gloves





Allergy to rubber accelerators
(thiurams)



Garlic allergy in a chef





Hand dermatitis in hairdresser



Occupational nickel allergy in cashier



Primula dermatitis
in a gardener





Recent Advances in Occupational Dermatology: New allergens

› Isothiazolinones

- Benzoisothiazolinone and octylisothiazolinone important allergens in leather (one cause of sofa dermatitis)
- Methylisothiazolinone allergy now a worldwide epidemic (cosmetics, wet wipes, sunscreen, shaving products, deodorants, detergents, paints, glues, mattress covers, ultrasound gel, water beds...)



- Variety of presentations (including systemic reactions following inhalation)
- Latex gloves not always protective against penetration of isothiazolinones
- Still significant levels of MCI/MI in some EU countries and other parts of the world

Airborne allergic contact dermatitis due to methylisothiazolinone in paints



Recent Advances in Occupational Dermatology: New allergens

- › Polyaminopropyl biguanide (aka polyhexanide, polyhexamethylene biguanide)
 - Used in contact lens industry
 - Now found in antiseptics, disinfectants, cosmetics
 - Can cause immediate- and delayed-type hypersensitivity
 - Partial cross-sensitivity with chlorhexidine (another biguanide)





Recent Advances in Occupational Dermatology: New allergens

- › Ethylhexylglycerin
- › C12-15 alkyl benzoate
 - Antibacterial properties, present in cosmetics, not classified as preservatives under current regulations.
- › Caprylhydroxamic acid
 - Chelating agent, caused an epidemic of contact dermatitis in Finland when used in a moisturizer.

Recent Advances in Occupational Dermatology: New allergens

› Rubber derivatives

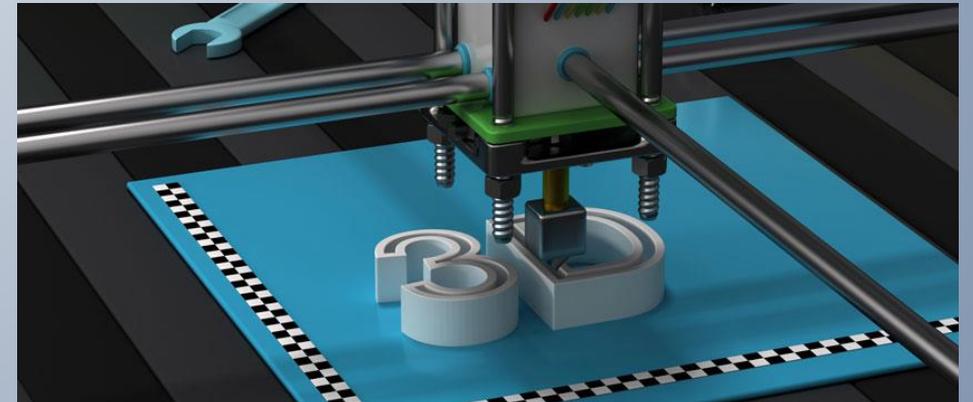
- Diphenylguanidine – accelerator (carbamate)
 - › Found in nitrile gloves
- DMTBS (dimethylthiocarbamylbenzothiazole sulphide)
 - › Strongly sensitizing chemical formed during vulcanization, related to thiurams



Recent Advances in Occupational Dermatology: New allergens

› Epoxys

- Bisphenol A-type – baseline series
- Bisphenol F-type
- Alkyl glycidylethers
 - › Aircraft and helicopter construction; more than 60% of cases of epoxy allergy missed in a recent Canadian Study of epoxy allergy in aircraft industry without testing to workplace products
 - › 3D printing (along with acrylics)



Recent Advances in Occupational Dermatology: New allergens

› Acrylates

- Isobornyl acrylate
 - › Glucose sensors
- Cyanoacrylates
 - › Glucose sensors, false eyelashes, surgical and instant glues, nail cosmetics
- Methacrylates
 - › Can lead to severe nail dystrophy





Dermatitis in a
nail technician



Recent Advances in Occupational Dermatology: New allergens

› Fragrances

- Cinnamic alcohol cross-reacting with ketoprofen
 - › Systemic contact dermatitis can occur after consumption (e.g. herbal tea)
- Many unlabeled fragrances
 - › E.g. toothpastes – menthol, carvone, peppermint oil etc
 - › Linalyl acetate in hospital antiseptic – oxidized to linalool
- Terpenes
 - › Limonene, linalool, found in all essential oils, tea-tree oil, propolis, spices, compositae plants, colophony.





Contact Dermatitis

- › Outlook for occupational contact dermatitis is relatively poor:
 - 55% still had disease 2 years after diagnosis
 - Of those staying in same job 68% remain symptomatic
 - 37% of those who moved to different work environment remain symptomatic
 - 25% who moved jobs still had similar chemical exposures
 - 11.5% had persistent disease in absence of any obvious cause ('persistent post-occupational dermatitis')

Wall LM, Gebauer KA. A follow-up study of occupational skin disease in Western Australia. *Contact Dermatitis* 1991; 24: 241-3.

Contact Urticaria

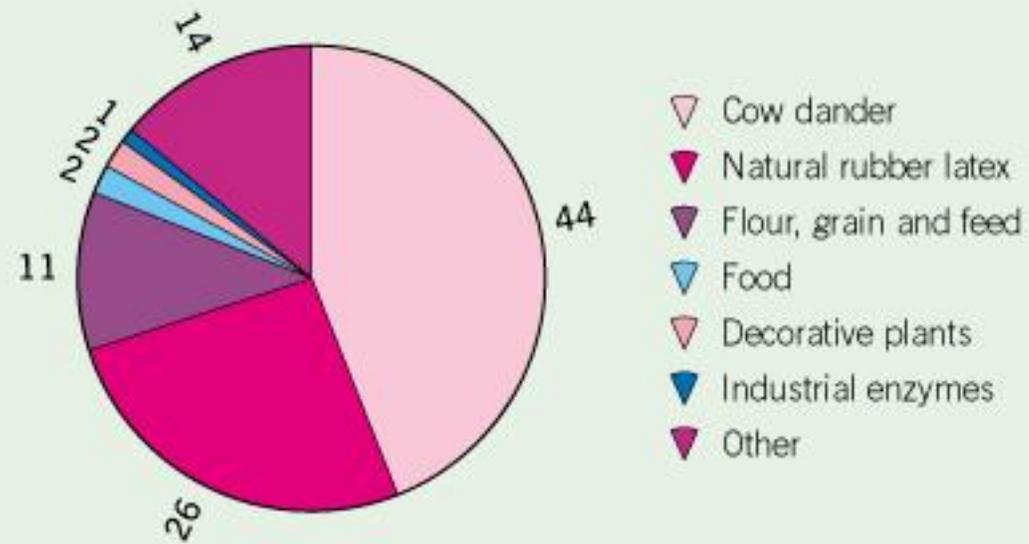
(syn: protein contact dermatitis)

- › Pruritus and wheal and flare reaction
- › Develops within 60 mins of exposure and resolves within 24 hours. Systemic symptoms can occur in immunologically-mediated reactions



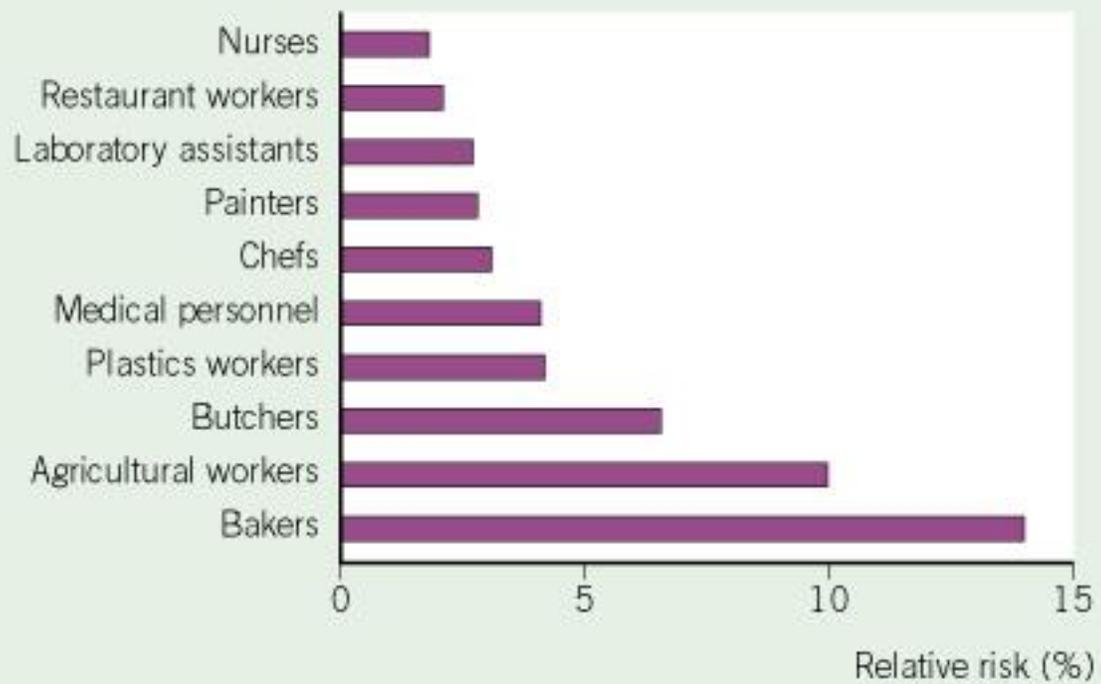


OCCUPATIONAL CONTACT URTICANTS IN FINLAND





RELATIVE RISK OF DEVELOPING CONTACT URTICARIA





Latex allergy

- › Reaction is to the protein content
- › Subgroup of patients also react to other plant proteins: banana, avocado, chestnuts, kiwis and other fruits
- › Powdered latex gloves risk disseminating latex protein and are no longer used in the healthcare setting



ORIGINAL ARTICLE

Minimum standards on prevention, diagnosis and treatment of occupational and work-related skin diseases in Europe – position paper of the COST Action StanDerm (TD 1206)

J.H. Alfonso,^{1,†} A. Bauer,^{2,†} L. Bensefa-Colas,^{3,4} A. Boman,⁵ M. Bubas,⁶ L. Constandt,⁷ M.N. Crepy,³ M. Goncalo,⁸ J. Macan,⁹ V. Mahler,¹⁰ D. Mijakoski,¹¹ J.M. Ramada Rodilla,¹² T. Rustemeyer,¹³ P. Spring,¹⁴ S.M. John,^{15,16} W. Uter,¹⁷ M. Wilkinson¹⁸ A.M. Giménez-Amau^{19,*}

Recent multinational consensus document (2017) addressing unmet needs relating to occupational skin disease, with recommendations for notification, early diagnosis, management and product labelling





An occasional occupational dermatosis in dermatologists

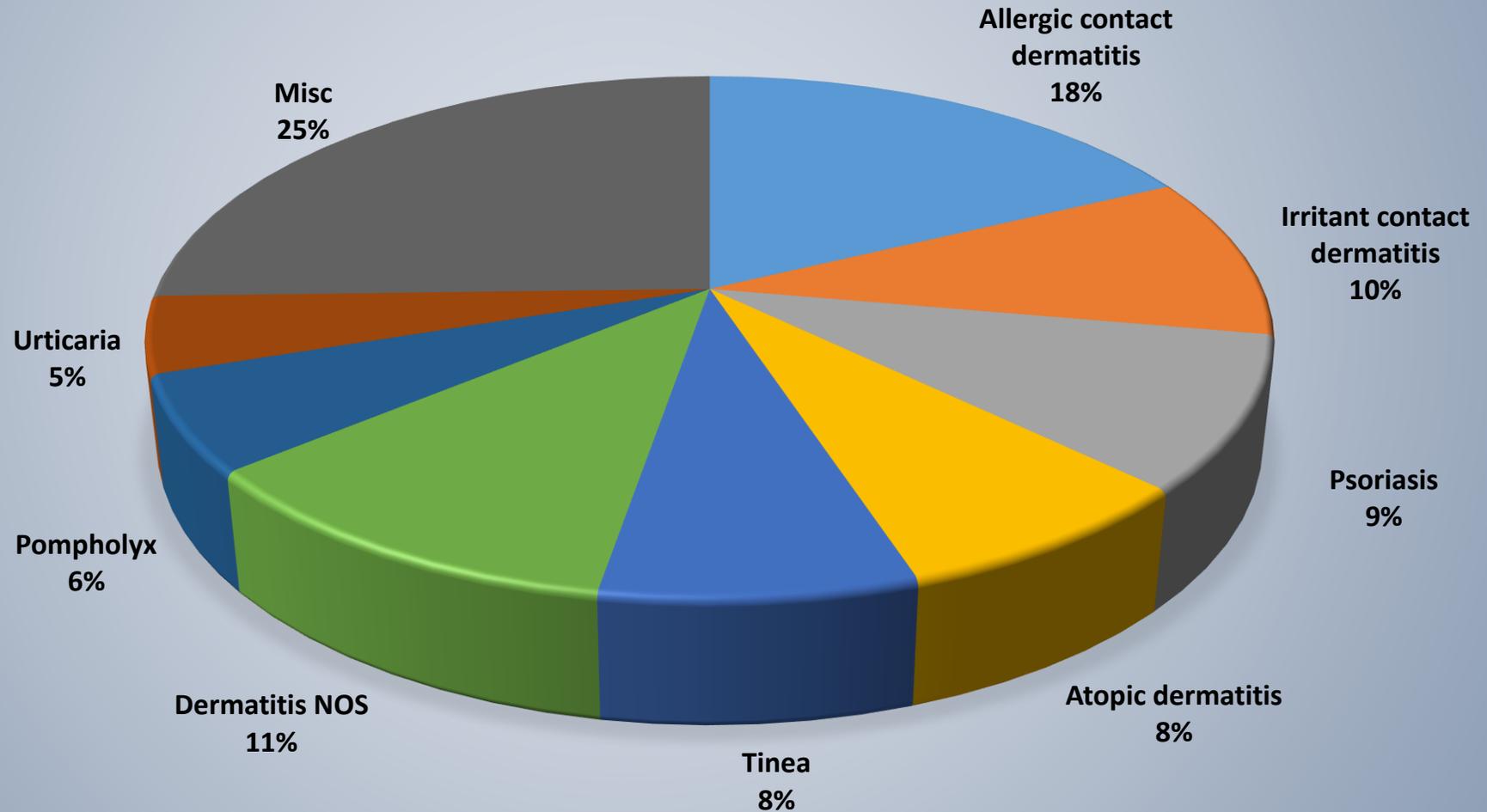


Occupational Dermatology at JCB

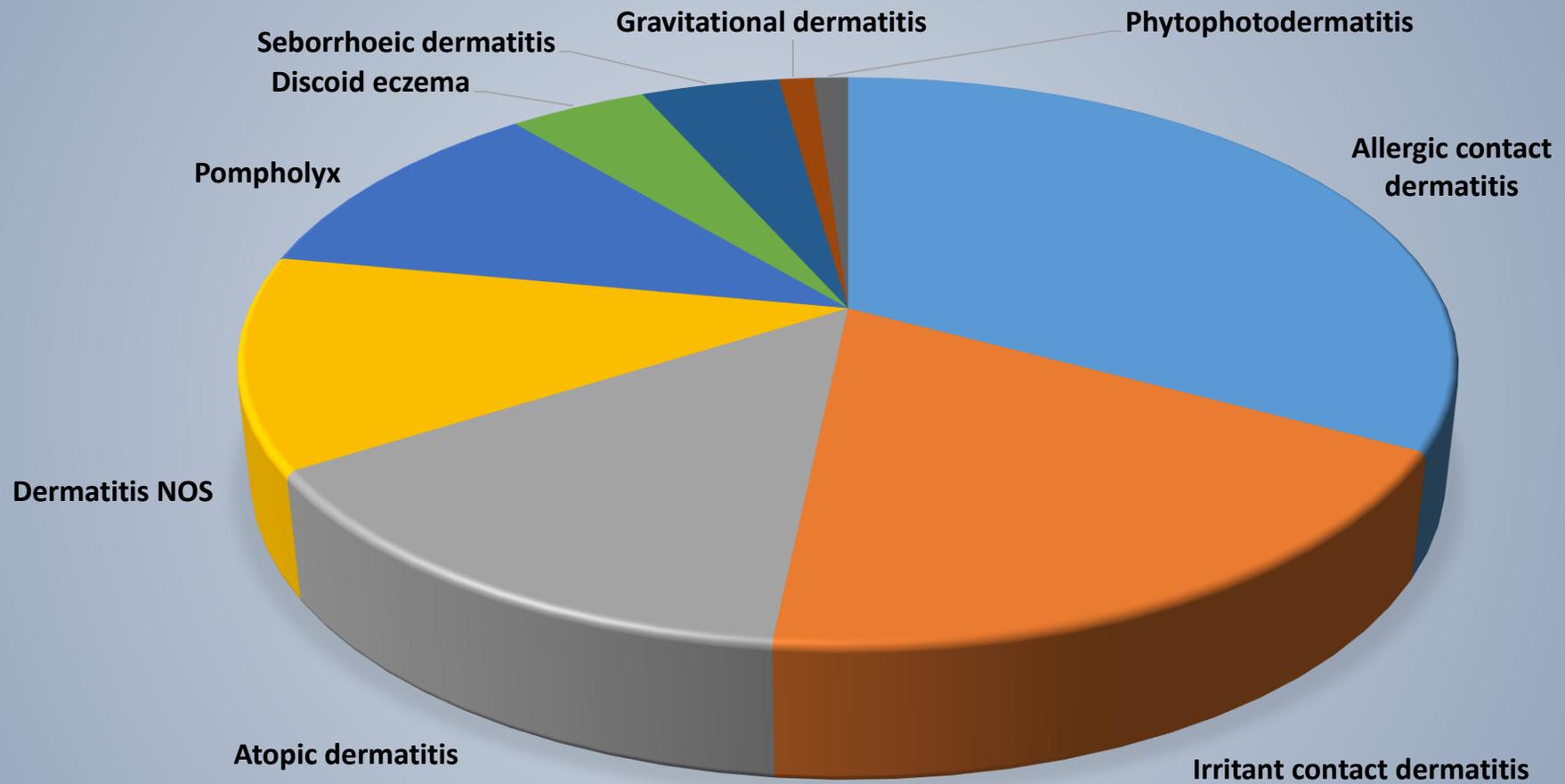
- › Monthly Clinics at JCB since 2011
 - Referrals via Occupational Health Team
 - Self referrals
 - Mole-mapping images
 - › Executive screening and self-referrals

Inflammatory Dermatoses

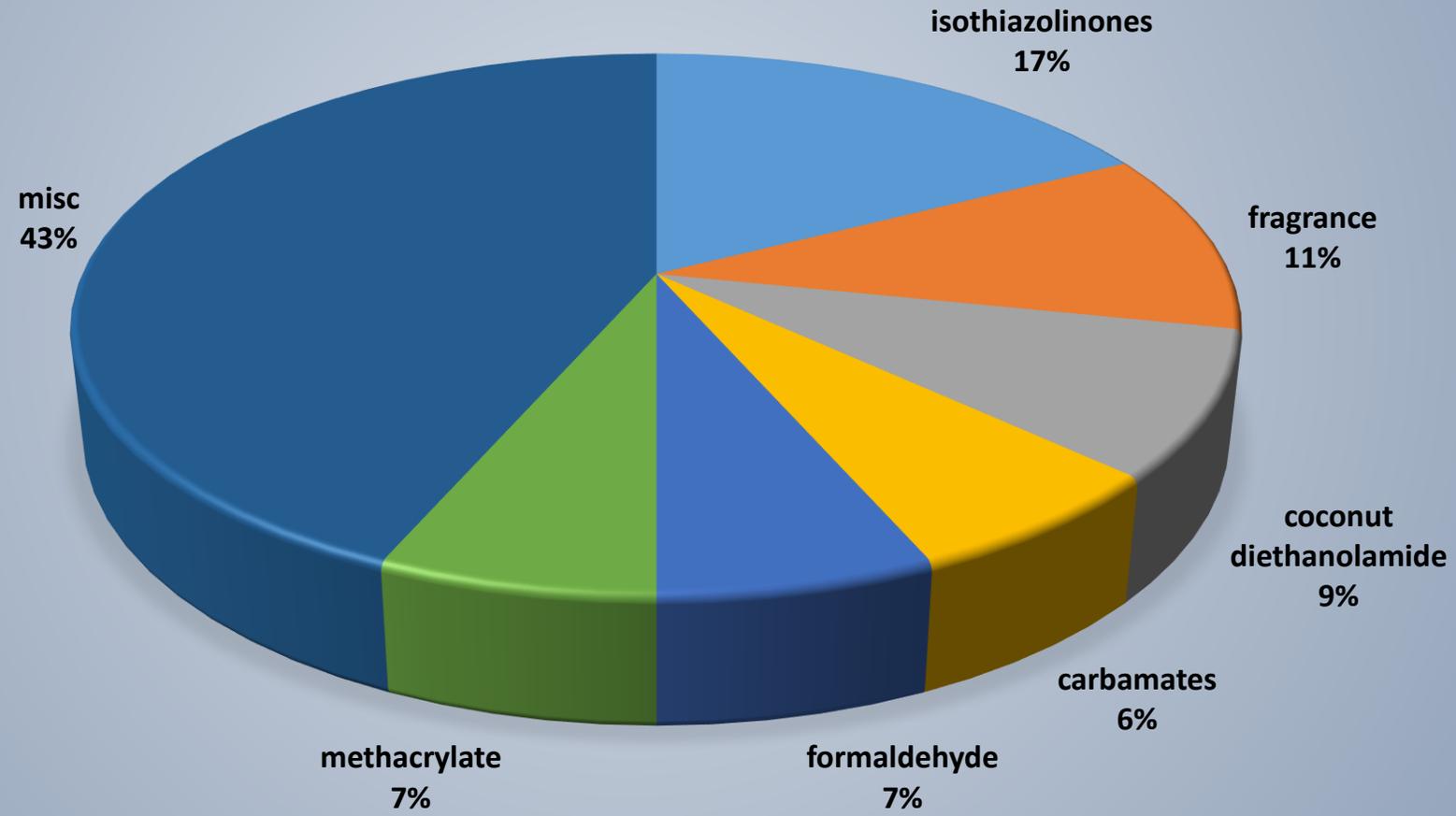
169 cases



Dermatitis

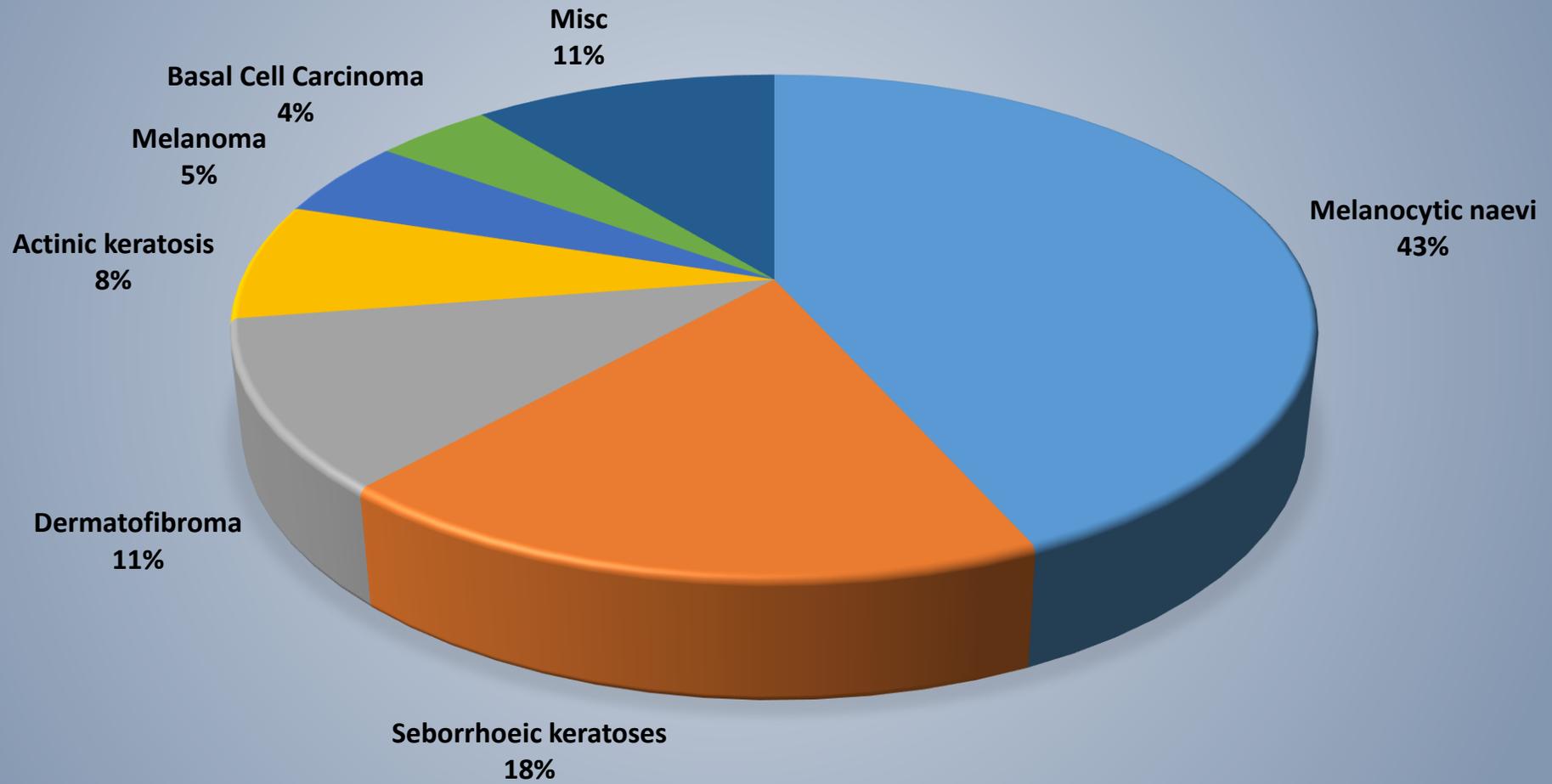


Culprit allergens

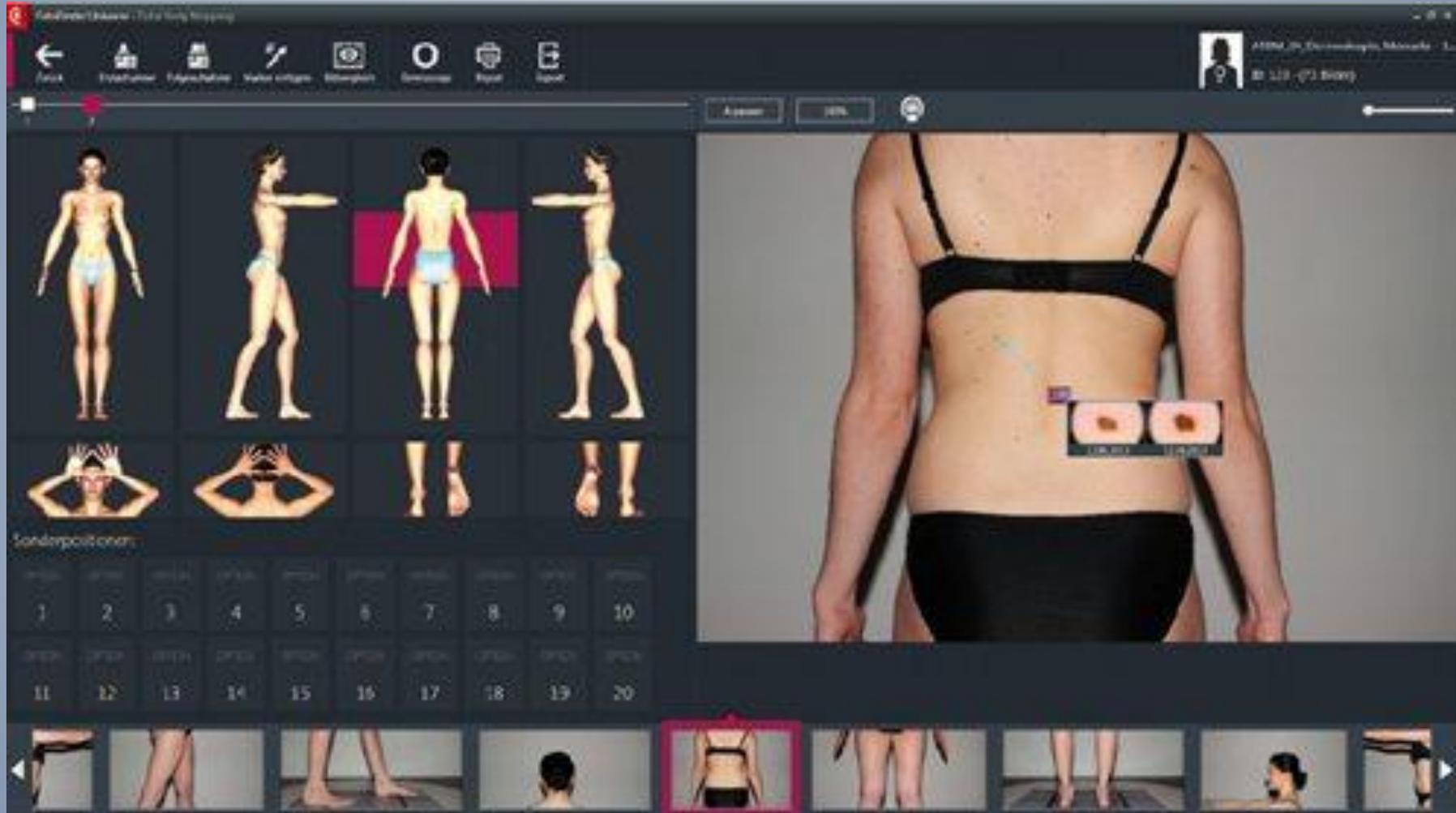


Lesions

120 cases



Mole-mapping





Miscellaneous inflammatory dermatoses:

dermographism

erysipelas

erythema multiforme

exanthem

exfoliative keratolysis

folliculitis / **furunculosis**

granuloma annulare

gravitational dermatitis

hidradenitis suppurativa

keratoderma

lichen planus

palmar plantar pustulosis

paronychia

pemphigoid

phytophotodermatitis

pigmented purpuric dermatosis

pitted keratolysis

pityriasis rosea

pityriasis rubra pilaris

pityriasis versicolore

polymorphic light eruption

prurigo

rosacea

urticaria pigmentosa

urticarial vasculitis

urticated erythema

Furunculosis?



Furuncular myiasis - Botfly larvae





