IFA
Institut für Arbeitsschutz der
Deutschen Gesetzlichen Unfallversicherung

How to reduce the constantly rising climate risk due to solar UV-exposure in occupational settings at high risk

PEROSH 2025
6th Research Conference Manchester
Claudine Strehl

UV and skin cancer – Light and shade

Facts

- **skin cancer** is a persisting and constantly rising **global problem**
- one of the most important **risk factors** (especially for SCC) is excessive **exposure to solar UV radiation**
- the risk can be **substantially decreased** by implementation of **protective measures**

Reality

- **insufficient use** of sun protection
- **knowledge** on possible hazard and sun protective behaviour is **largely inadequate**

UV and climate change

Changes in cloud cover

Photochemical & Photobiological Sciences (2024) 23:2173–2199
https://doi.org/10.1007/s43630-024-00658-8

ORIGINAL PAPERS

Increasing solar UV radiation in Dortmund, Germany: data and trend analyses and comparison to Uccle, Belgium

Sebastian Lorenz[1] · Felix Heinzl[1] · Stefan Bauer[2] · Marco Janßen[2] · Veerle De Bock[3] · Alexander Mangold[3] · Peter Scholz-Kreisel[1] · Daniela Weiskopf[1]

Review › Public Health. 2024 Feb:227:243-249. doi: 10.1016/j.puhe.2023.12.003. Epub 2024 Jan 22.

Relationship between climate change and skin cancer and implications for prevention and management: a scoping review

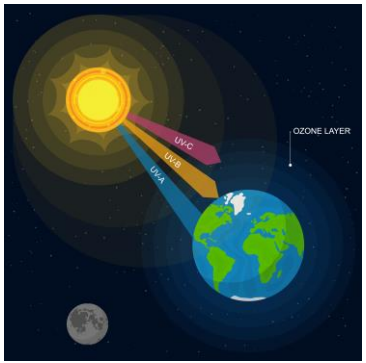
T P G Watson [1], M Tong [2], J Bailie [3], K Ekanayake [4], R S Bailie [5]

Affiliations + expand

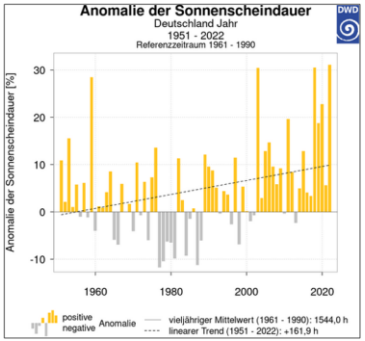
PMID: 38262229 DOI: 10.1016/j.puhe.2023.12.003

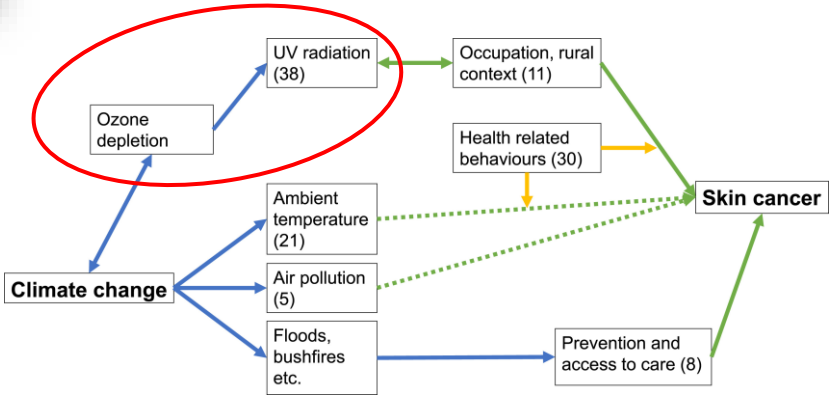
Free article

Filter effect of the ozone layer



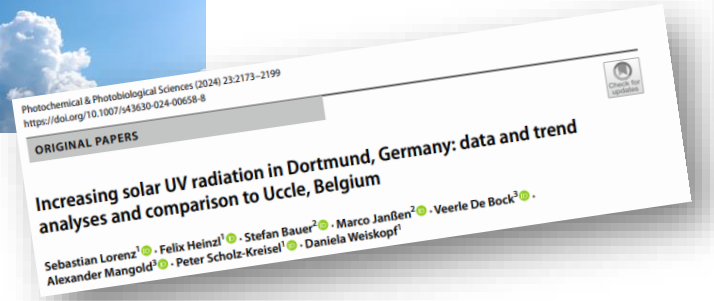
Increased sunshine duration

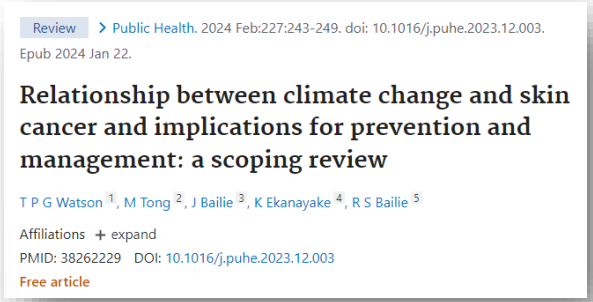




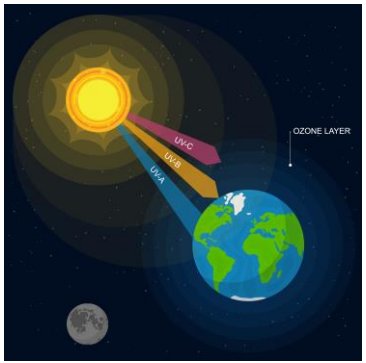
UV and climate change

Changes in cloud cover

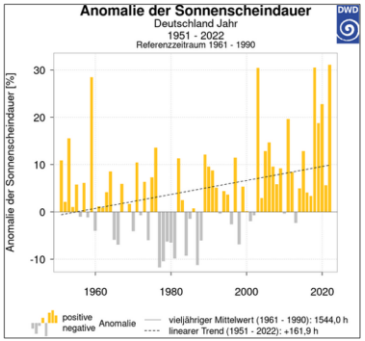


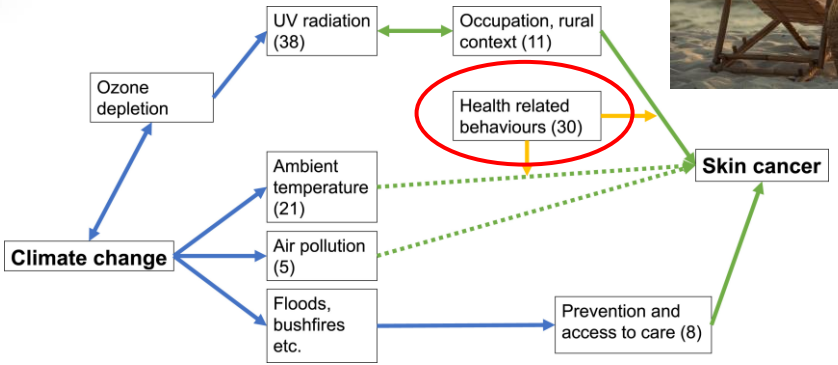


Filter effect of the ozone layer



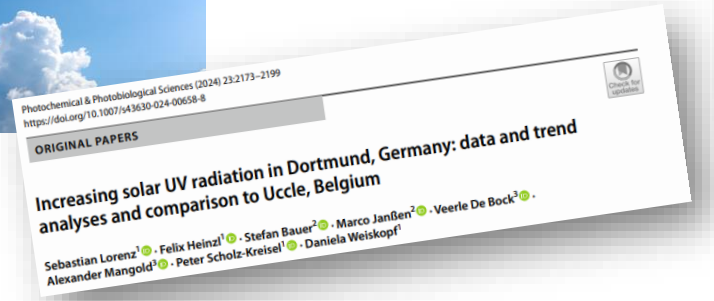
Increased sunshine duration





UV and climate change

Changes in cloud cover

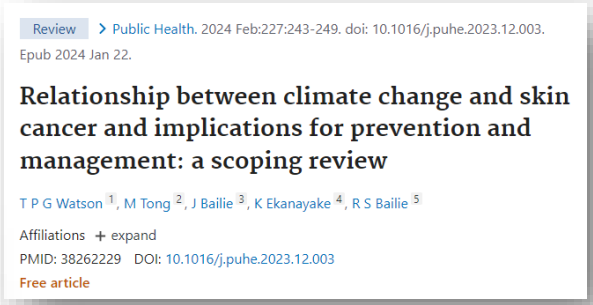


Photochemical & Photobiological Sciences (2024) 23:2173–2199
https://doi.org/10.1007/s43630-024-00658-8

ORIGINAL PAPERS

Increasing solar UV radiation in Dortmund, Germany: data and trend analyses and comparison to Uccle, Belgium

Sebastian Lorenz[1] · Felix Heinzl[1] · Stefan Bauer[2] · Marco Janßen[2] · Veerle De Bock[3] · Alexander Mangold[3] · Peter Scholz-Kreisel[1] · Daniela Weiskopf[1]



Review › Public Health. 2024 Feb:227:243-249. doi: 10.1016/j.puhe.2023.12.003. Epub 2024 Jan 22.

Relationship between climate change and skin cancer and implications for prevention and management: a scoping review

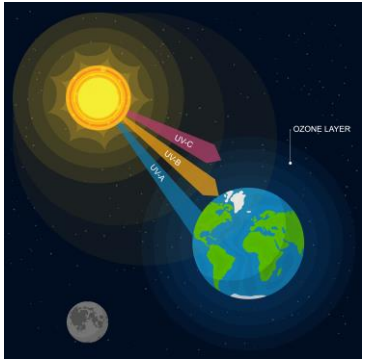
T P G Watson [1], M Tong [2], J Bailie [3], K Ekanayake [4], R S Bailie [5]

Affiliations + expand

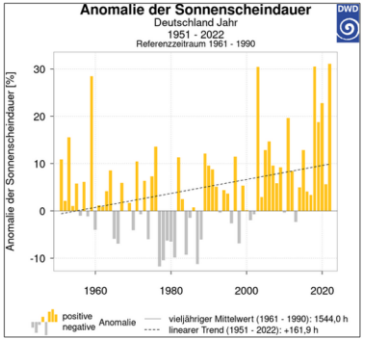
PMID: 38262229 DOI: 10.1016/j.puhe.2023.12.003

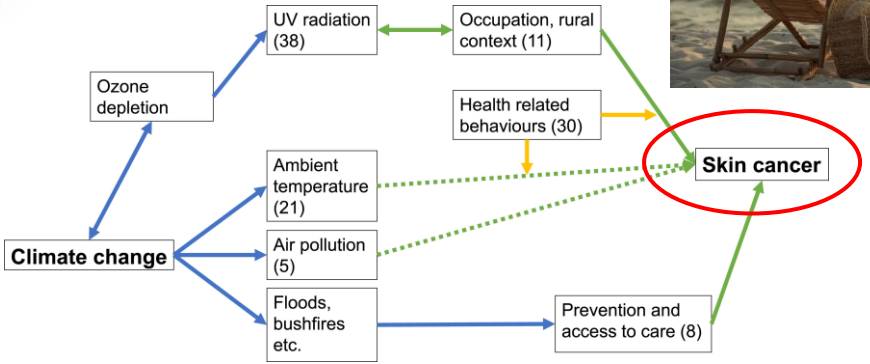
Free article

Filter effect of the ozone layer



Increased sunshine duration

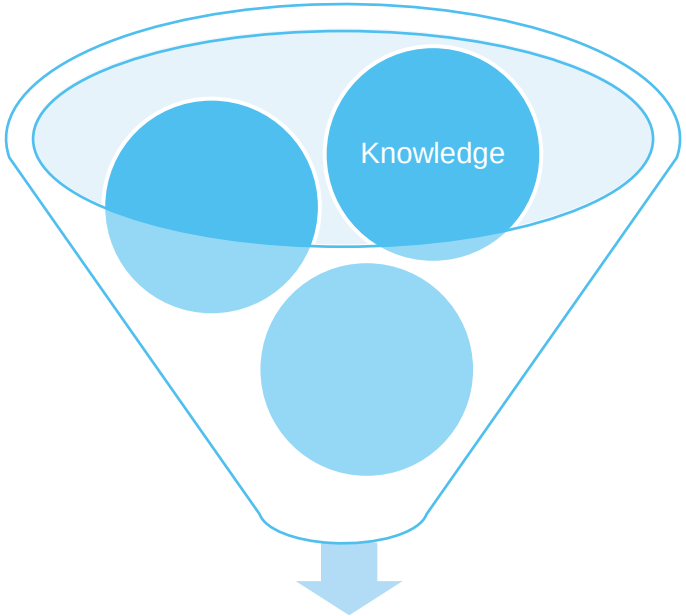




- 1% reduction in stratospheric ozone could lead to an **increase of 3-4,6% of SCC, 2,7% for BCC**
- with regard to Germany: **2500-3300 additional skin cancers** per year[1]

[1] Baldermann, Cornelia & Laschewski, Gudrun & Grooß, Jens-Uwe. (2023). Impact of climate change on non-communicable diseases caused by altered UV radiation. Journal of health monitoring. 8. 57-75. 10.25646/11653.

Components for successfull prevention



➢ **Who to address?**

Br J Dermatol 2023; **188**:350–360
https://doi.org/10.1093/bjd/ljac093
Advance access publication date: 11 November 2022

BJD
British Journal of Dermatology
Epidemiology

The GENESIS-UV study on ultraviolet radiation exposure levels in 250 occupations to foster epidemiological and legislative efforts to combat nonmelanoma skin cancer

Marc Wittlich,[1] Stephan Westerhausen,[2] Benjamin Strehl,[1] Helmut Versteeg[3] and Wiho Stöppelmann[3]

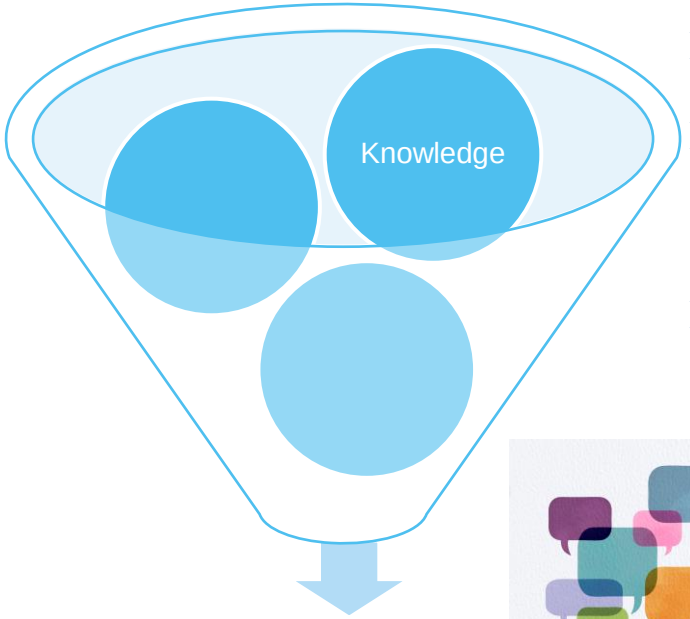
[1]Department 'Accident Prevention: Digitalisation – Technologies'
[2]Department 'Physical Environmental Factors, Ergonomics'
[3]Department 'Exposure and Risk Assessment', Institute for Occupational Safety and Health of the German Social Accident Insurance, Alte Heerstraße 111, 53757 Sankt Augustin, Germany
Correspondence: Marc Wittlich. Email: marc.wittlich@dguv.de

Linked Article: Kezic *et al. Br J Dermatol* 2023; **188**:315–316.

GENESIS-UV
GENeration and Extraction System for Individual expoSure

Occupational vs. leisure time UV exposure

Components for successful prevention



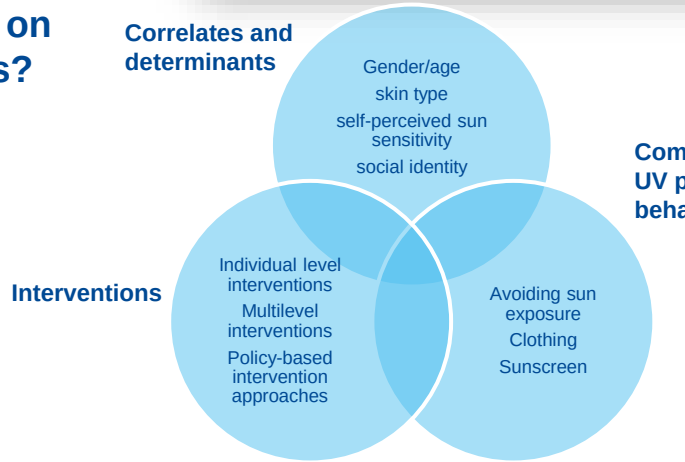
- **Who to address?**
- **What are specific needs and reservations of affected parties?**
- **What is the best way to raise awareness on possible hazards?**

Sun protection behavior: health impact, prevalence, correlates and interventions

Anne K. Julian, Rebecca A. Ferrer & Frank M. Perna

To cite this article: Anne K. Julian, Rebecca A. Ferrer & Frank M. Perna (2023) Sun protection behavior: health impact, prevalence, correlates and interventions, Psychology & Health, 38:6, 701-725, DOI: 10.1080/08870446.2022.2146112

To link to this article: https://doi.org/10.1080/08870446.2022.2146112



Attitude towards sun protection

long clothing increases sweating

under-estimated UV intensity in Germany

costs for sunscreen are too high

It takes too long to re/apply sunscreen

broad brimmed headgear restricts the visual field

limited risk awareness

skin is supposedly insensitive („used to exposure“)

applying organisational measures is not practical

J Occup Health. 2020 Jan;62(1):e12083. doi: 10.1002/1348-9585.12083. Epub 2019 Sep 2.

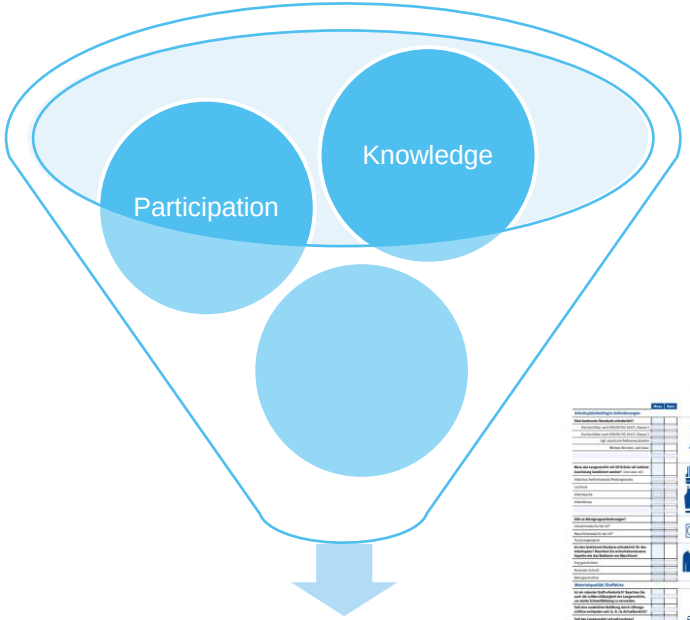
Outdoor workers' perceptions of skin cancer risk and attitudes to sun-protective measures: A qualitative study

Marc Rocholl [1,2], Michaela Ludewig [1,2], Swen Malte John [1,2], Eva Maria Bitzer [3], Annika Wilke [1,2]

Affiliations + expand

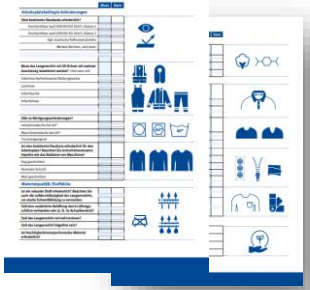
PMID: 31478315 PMCID: PMC6970388 DOI: 10.1002/1348-9585.12083

Components for successful prevention

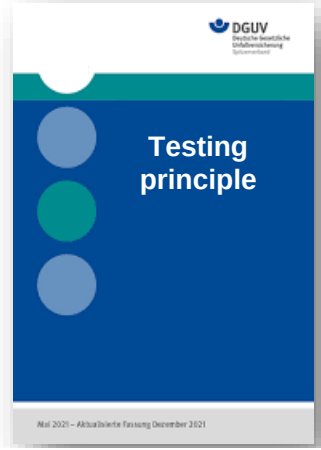


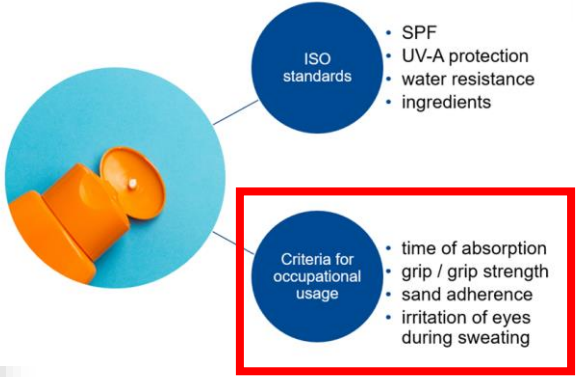
UPF of UV protective clothing

categories	sample number	colour	new	10 wash cycles	25 wash cycles	declared UPF
UV-Shirts	1	green	-	+	+	UPF 40+
	2	dark blue	+	+	+	UPF 40+
	3	grey	-	+	+	UPF 40+
	4	green	+	+	+	UPF 40+
	5	light blue	+	+	+	UPF 50+
HiVi-Shirts	6	orange	+	+	+	UPF 40+
	7	orange	-	+	+	UPF 40+
	8	yellow	-	+	+	UPF 40+
	9	yellow	+	+	+	UPF 40+
	10	yellow	+	+	+	UPF 40+
	11	yellow	+	+	+	UPF 50+
Overalls	12	orange	+	+	+	UPF 40+
	13	red	+	+	+	UPF 40+



Testing and certification of sunscreens for occupational use





Multi-performance shirt with cooling and warning function and UV-protection

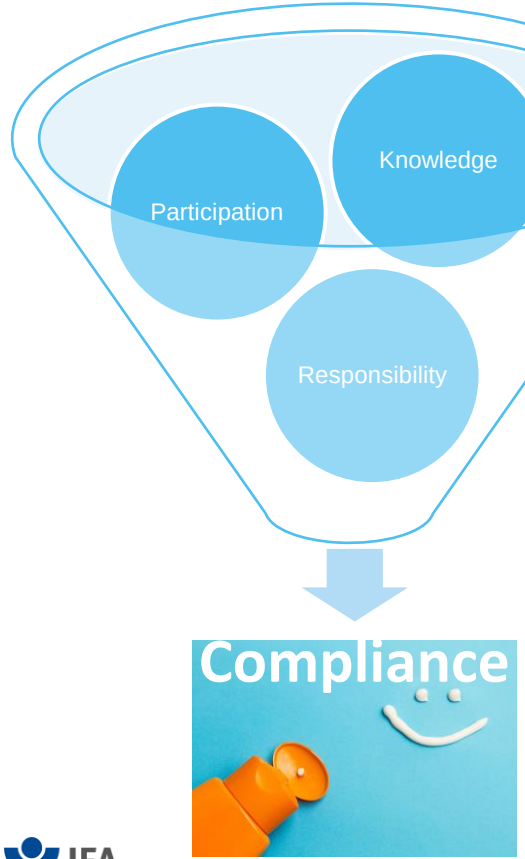
Project No. FF-FP 0506

Status:

ongoing

https://www.dguv.de/ifa/forschung/projektverzeichnis/ifa4249-2.jsp
https://www.dguv.de/ifa/forschung/projektverzeichnis/ifa4267.jsp
https://www.dguv.de/ifa/forschung/projektverzeichnis/ff-fp0506-2.jsp

Components for successful prevention



Published in final edited form as: J Occup Environ Med. 2018 Nov;60(11):900–997. doi: 10.1097/JOM.0000000000001427

Sun Safe Workplaces: Effect of an Occupational Skin Cancer Prevention Program on Employee Sun Safety Practices

Barbara J Walkosz [1], David Buller [2], Mary Buller [3], Allan Wallis [4], Richard Meenan [5], Gary Cutter [6], Peter Andersen [7], Michael Scott [8]

- promotion of **policy adoption** (workplace risk assessment)
- provide **education** on protective measures
- **increase compliance** with the required protective measures

IFA
Institut für Arbeitsschutz der
Deutschen Gesetzlichen Unfallversicherung

Claudine Strehl
Section manager
Optical Radiation

claudine.strehl@dguv.de
Telefon: 030 13001-3470

Thank you for your attention!