

| Title | Shedding light on the myths of ultraviolet radiation in the Covid-19 pandemic |
|--------------------------------|--|
| Authors | O'Connor, Cathal;Courtney, C.;Murphy, Michelle |
| Publication date | 2020-09-24 |
| Original Citation | O'Connor, C., Courtney, C. and Murphy, M. (2020) 'Shedding light on the myths of ultraviolet radiation in the Covid-19 pandemic', Clinical and Experimental Dermatology. doi: 10.1111/ced.14456 |
| Type of publication | Article (peer-reviewed) |
| Link to publisher's version | 10.1111/ced.14456 |
| Rights | © 2020, John Wiley & Sons, Ltd. This is the peer reviewed version of the following article: O'Connor, C., Courtney, C. and Murphy, M. (2020) 'Shedding light on the myths of ultraviolet radiation in the Covid-19 pandemic', Clinical and Experimental Dermatology, doi: 10.1111/ced.14456, which has been published in final form at https://doi.org/10.1111/ced.14456. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions. |
| Download date | 2025-08-03 03:18:19 |
| Item downloaded from | https://hdl.handle.net/10468/10608 |



University College Cork, Ireland Coláiste na hOllscoile Corcaigh



DR CATHAL O'CONNOR (Orcid ID : 0000-0001-7084-5293)

Article type : Correspondence

Shedding light on the myths of ultraviolet radiation in the Covid-19 pandemic

C. O'Connor,^{1,2} C. Courtney¹ and M. Murphy^{1,2}

1 Department of Dermatology, South Infirmary Victoria University Hospital, Cork

2 University College Cork

Corresponding author: Dr Cathal O'Connor Email: drcathaloconnor@gmail.com ORCID: https://orcid.org/0000-0001-7084-5293 Twitter: @oconnorcathal1

Conflict of interest: None Financial disclosure: None

The rapidly evolving knowledge base surrounding the Covid-19 pandemic has led to anxiety and cognitive dissonance. Misinformation about the role of ultraviolet (UV) radiation has spread rapidly, including statements from the President of the United States of America in April 2020. Myths related to SARS-CoV-2 and UV radiation are being widely shared on social media. ¹ #uvKillsCovid19 and #UVdisinfection have emerged as new search terms on Twitter. It has erroneously been claimed that sunlight and tanning beds, which contain UVA

This article is protected by copyright. All rights reserved

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the <u>Version of Record</u>. Please cite this article as <u>doi:</u> <u>10.1111/CED.14456</u>

and UVB, eradicate Covid-19 via ultraviolet radiation. ² UVA and UVB are poorly virucidal. UVC is shorter wavelength (Figure 1), and is absorbed by atmospheric ozone, but manmade sources exist. Even a very brief exposure to UVC induces photo-dimerisation of thymine, therefore disrupting nucleic acid replication and rendering micro-organisms nonviable. ³

Sunlight that reaches earth contains only UVA and UVB and is ineffective in eradicating SARS-CoV-2. Analysis of Google Trends shows that the search term 'sunlight coronavirus' had exponential growth in April 2020 (Figure 2), with a relative search index of 100 on April 24th. The search 'sunlight kill coronavirus' is one of the highest trending Google searches related to Covid-19 globally.

Tanning salons have tried to remain open in several countries during the pandemic by claiming that their devices destroy SARS-CoV-2. Tanning beds use UVA for immediate tanning and UVB for delayed tanning, emitting no UV-C whatsoever.⁴

UV disinfection lamps have been marketed as hand sanitisers. ² These germicidal lamps use UVC and are toxic to the human skin and cornea, potentially causing radiation dermatitis, skin cancer, and visual impairment.

Germicidal irradiation using UVC may have a role in the fight against Covid-19 as a useful mechanism to disinfect and reuse personal protective equipment as well as the sterilisation of medical instruments. ⁵ UVC germicidal bulbs may also be useful in the disinfection of air and water but should not be used in any application with potential exposure to humans.

Multiple myths are circulating about the role of UV radiation against SARS-CoV-2. It is important to highlight the ineffective nature of UVA and UVB and the potentially harmful nature of UVC.

References

- 1. https://www.bbc.com/future/article/20200327-can-you-kill-coronavirus-with-uv-light
- 2. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-forpublic/myth-busters
- 3. Dai T, et al (2012). Ultraviolet C irradiation: an alternative antimicrobial approach to localized infections? *Expert Review of Anti-Infective Therapy, 10(2), 185–195.* doi:10.1586/eri.11.166
- 4. https://www.who.int/uv/faq/sunbeds/en/index2.html
- 5. Narla S et al (2020), The Importance of the Minimum Dosage Necessary for UVC Decontamination of N95 Respirators during the COVID-19 Pandemic. *Photodermatol Photoimmunol Photomed*. Accepted Author Manuscript. doi:10.1111/phpp.12562

Figure Legends

- Figure 1: The electromagnetic spectrum with ultraviolet highlighted.
- Figure 2: Interest over time for search term 'sunlight coronavirus' on Google Trends.





ced_14456_f2.jpg