

Limits of observation

Credits:

The Vitamin D Paradox in COVID-19 and Why It Predicts But Doesn't Always Protect

100.772 Aufrufe • 11.04.2022

 3584



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1,37 Mio. Abonnenten

Roger Seheult, MD of MedCram examines the vitamin D paradox. See all Dr. Seheult's videos at:

<https://www.medcram.com>

(This video was recorded on April 10, 2022)

Observational studies and Causality

PLOS ONE

RESEARCH ARTICLE

Pre-infection 25-hydroxyvitamin D3 levels and association with severity of COVID-19 illness

Amiel A. Dror^{1,2*}, Nicole Morozov³, Amani Daoud^{1,2}, Yoav Namir², Orly Yakir⁴, Yair Shachar¹, Mark Lifshitz⁵, Ella Segal^{1,2}, Lior Fisher^{1,2}, Matti Mizrachi^{1,2}, Netanel Eisenbach^{1,2}, Doaa Rayan^{1,2}, Maayan Gruber^{1,2}, Amir Bashkin^{2,6}, Edward Kaykov^{2,7}, Masad Barhoum⁸, Michael Edelstein², Eyal Sela^{1,2}

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1176 Patients; Patients with vitamin D deficiency (<20 ng/mL) were 14 times more likely to have severe or critical disease than patients with 25(OH)D \geq 40 ng/mL

Conclusions

Among hospitalized COVID-19 patients, pre-infection deficiency of vitamin D was associated with increased disease severity and mortality.

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Article

Vitamin D Deficiency and Outcome of COVID-19 Patients

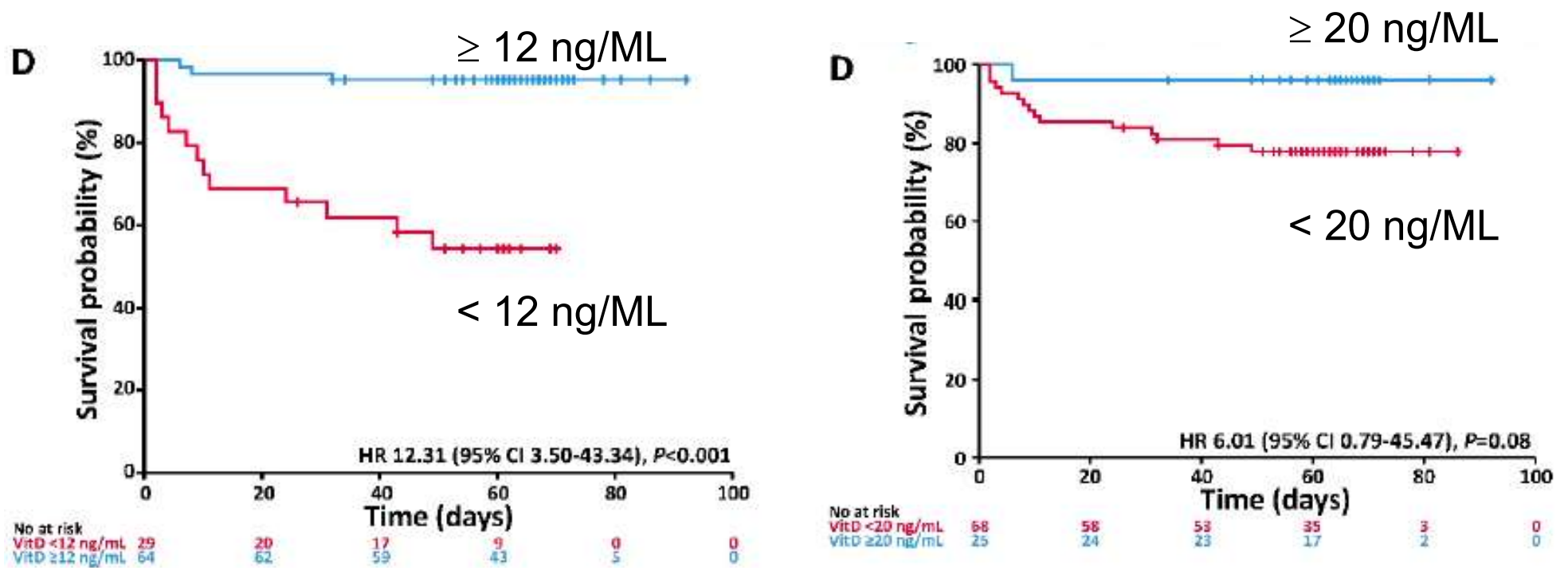
Aleksandar Radujkovic ¹, Theresa Hippchen ², Shilpa Tiwari-Heckler ², Saida Dreher ²,
Monica Boxberger ² and Uta Merle ^{2,*} 

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Received: 9 August 2020; Accepted: 9 September 2020; Published: 10 September 2020



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Vitamin D deficit clearly associated with severity of COVID 19 illness

Suggests that vitamin D deficit contributes to (i.e., causally increases) severity

Therefore, vitamin D supplement is expected to improve the course of the disease

Observational studies and Causality

medRxiv



Cold
Spring
Harbor
Laboratory

BMJ Yale

THE PREPRINT SERVER FOR HEALTH SCIENCES

Vitamin D Supplements for Prevention of Covid-19 or other Acute Respiratory Infections: a Phase 3 Randomized Controlled Trial (CORONAVIT)

David A. Jolliffe, Hayley Holt, Matthew Greenig, Mohammad Talaei, Natalia Perdek, Paul Pfeffer, Sheena Maltby, Jane Symons, Nicola L. Barlow, Alexa Normandale, Rajvinder Garcha, Alex G. Richter, Sian E. Faustini, Christopher Orton, David Ford, Ronan A. Lyons, Gwyneth A. Davies, Frank Kee, Christopher J. Griffiths, John Norrie, Aziz Sheikh, Seif O. Shaheen, Clare Relton, Adrian R. Martineau

doi: <https://doi.org/10.1101/2022.03.22.22271707>

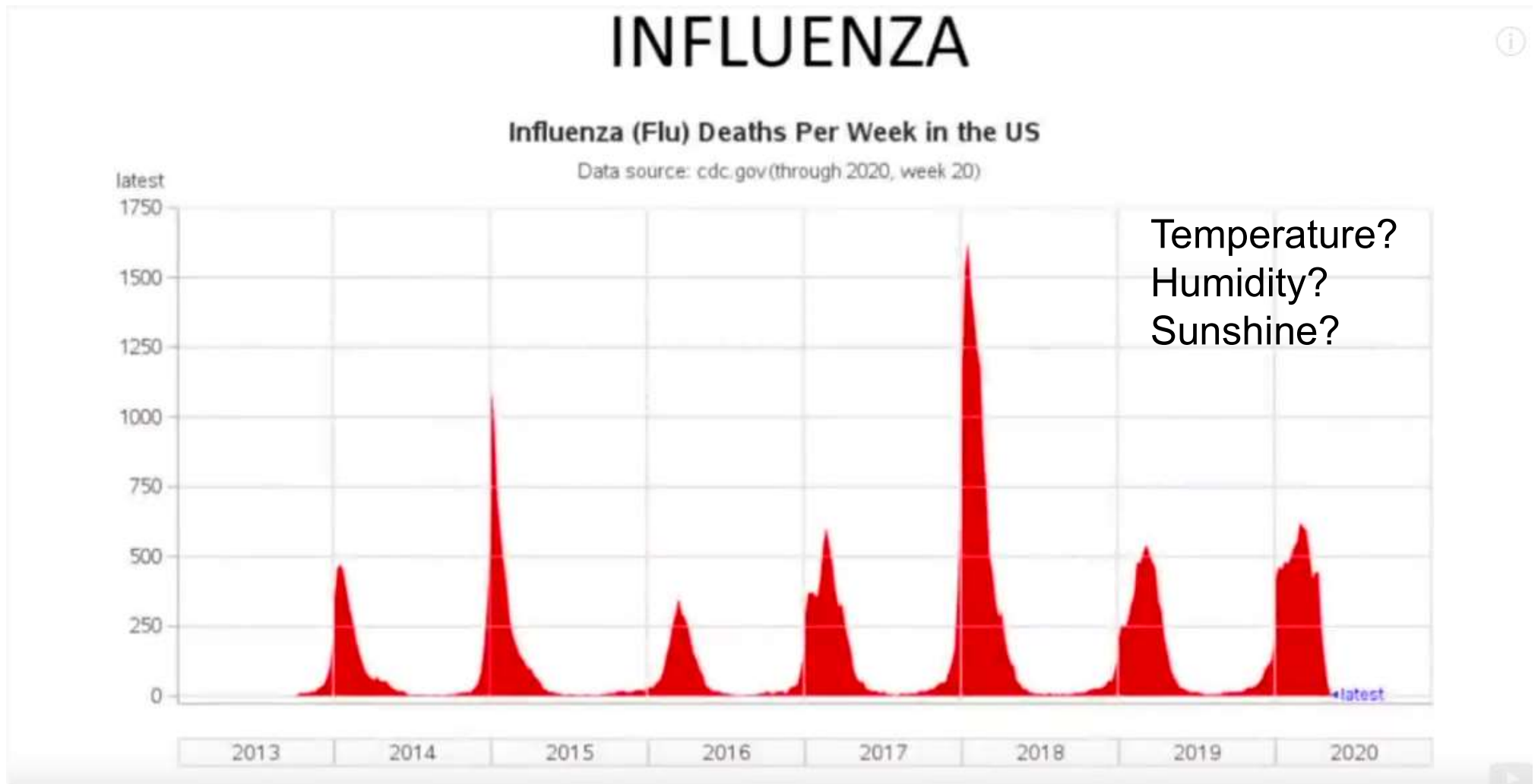
This article is a preprint and has not been peer-reviewed [what does this mean?]. It reports new medical research that has yet to be evaluated and so should *not* be used to guide clinical practice.

n= 6 200

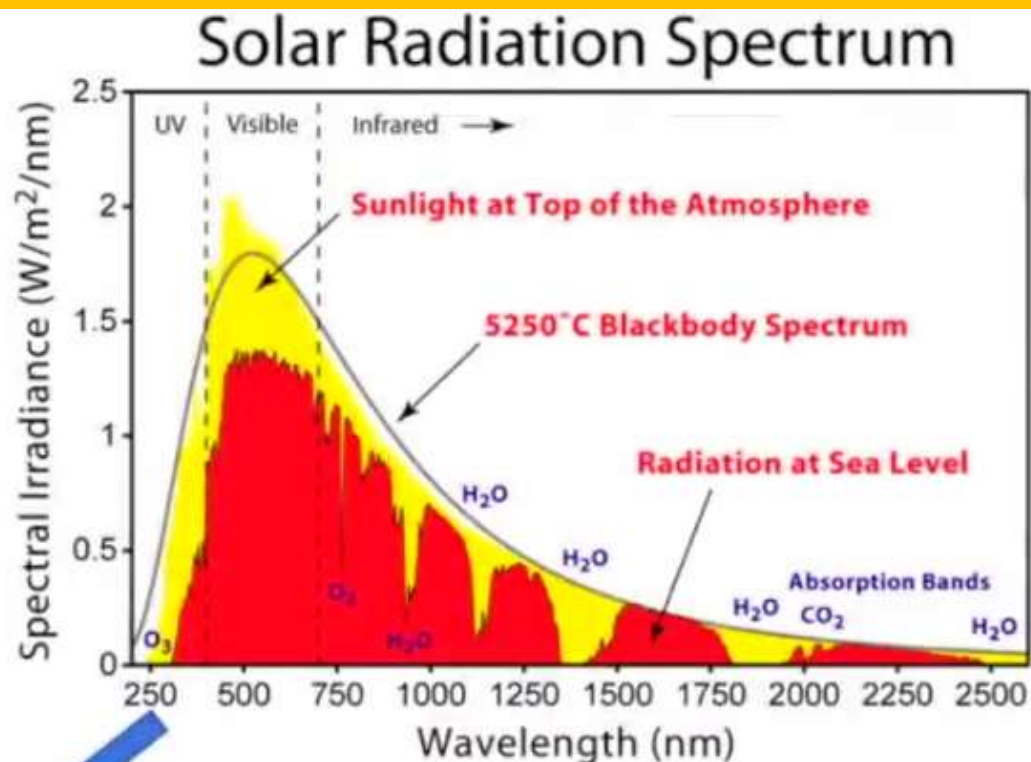
Randomized Controlled Trial (true experiment, prospective)

CONCLUSIONS Among adults with a high baseline prevalence of vitamin D insufficiency, implementation of a test-and-treat approach to vitamin D replacement did not reduce risk of all-cause ARI or Covid-19.

Observational studies and Causality



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www.nature.com/scientificreports

Vit D

scientific reports

OPEN

Autumn COVID-19 surge dates in Europe correlated to latitudes, not to temperature-humidity, pointing to vitamin D as contributing factor

Stephan Walrand

Set #1

Observational studies and Causality

scientific reports
OPEN Autumn COVID-19 surge dates in Europe correlated to latitudes, not to temperature-humidity, pointing to vitamin D as contributing factor

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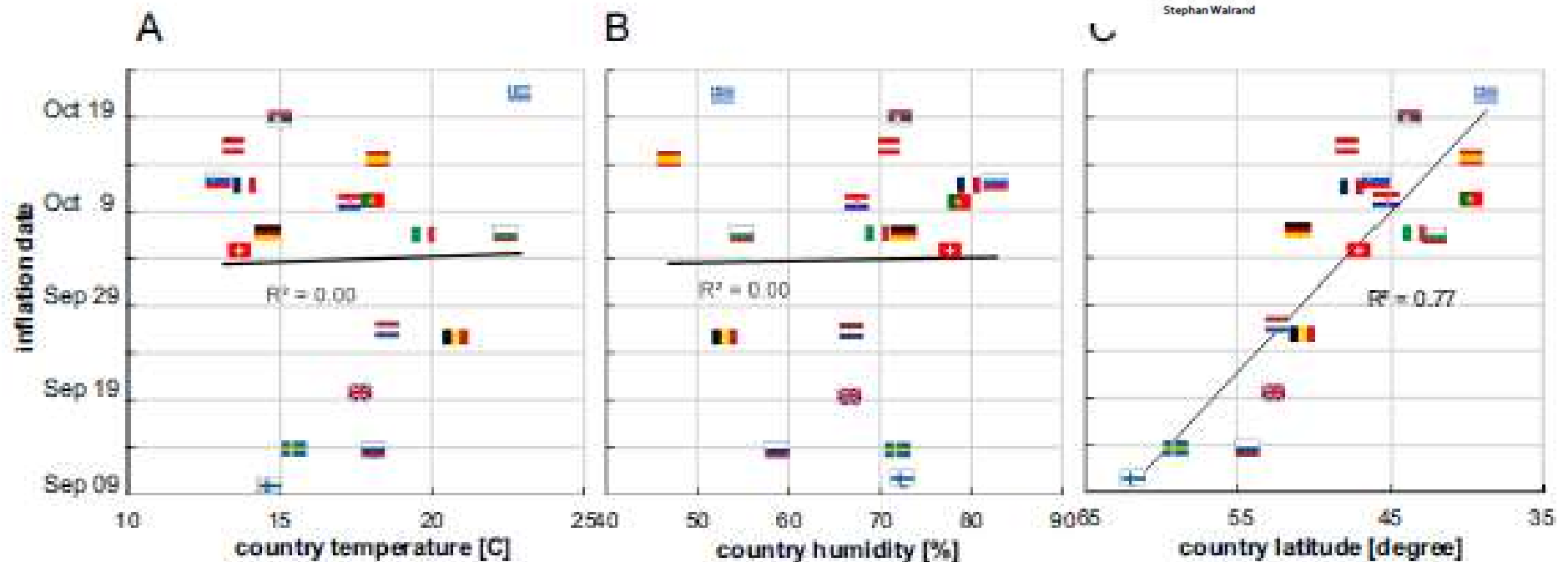


Figure 3. COVID-19 surge date as a function of country mean temperature (A) and humidity (B) during the 2 preceding weeks and as a function of country PWC latitude (C), pointing to vitamin D as one of the primary factors (flags link countries between graphs).

Temperature
Humidity
Sunshine

Observational studies and Causality

EPIDEMIOLOGY

BJD
British Journal of Dermatology

Ultraviolet A radiation and COVID-19 deaths in the USA with replication studies in England and Italy*

M. Cherrie,¹ T. Clemens,¹ C. Colandrea,¹ Z. Feng,¹ D.J. Webb,² R.B. Weller ³ and C. Dibben¹

¹School of Geosciences, ²Centre for Cardiovascular Science, ³Centre for Inflammation Research, University of Edinburgh, Edinburgh, UK

Linked Comments: R. McKenzie and B. Liley. *Br J Dermatol* 2021; 185:246–247.

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Areas in which there is not enough UV-A light to sustain good enough levels of vitamin D

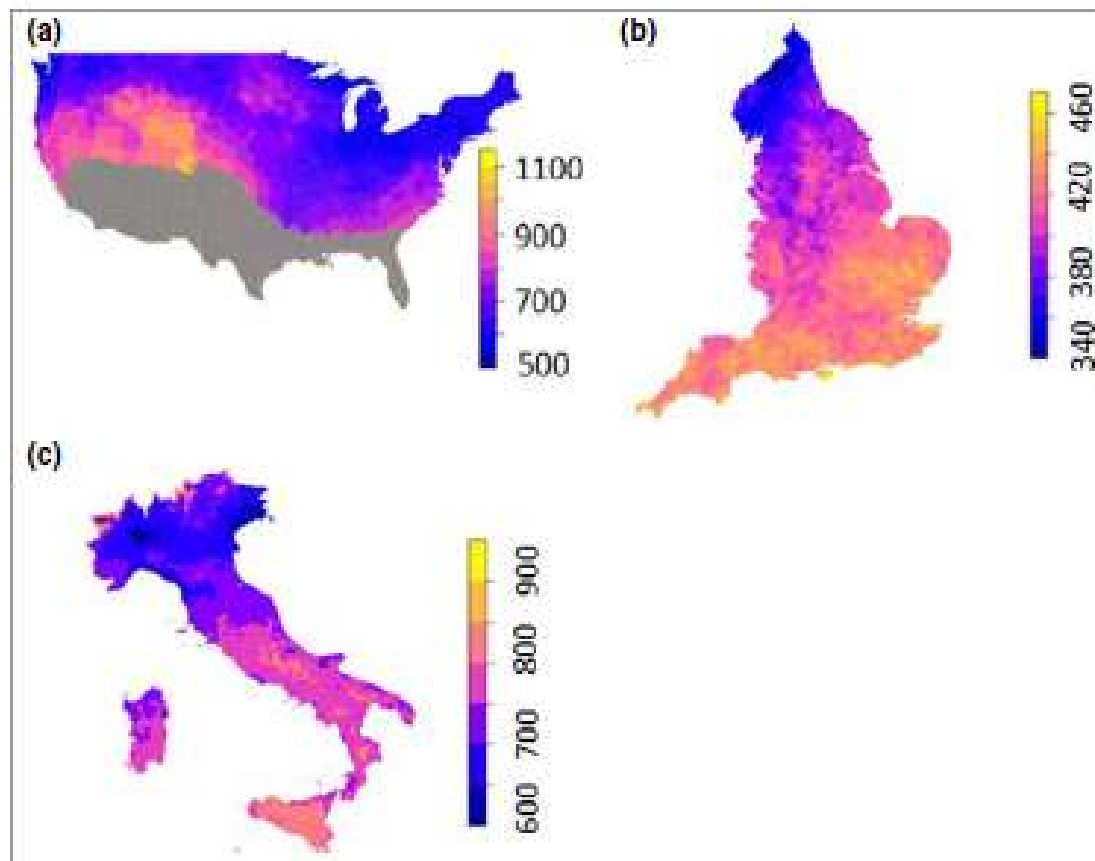


Figure 1 Average daily mean UVA (kJ m^{-2}) January to April: (a) the USA, (b) England and (c) Italy. The UVA colour scale differs between countries. USA countries shown in grey were excluded from the study because they had monthly mean UV_{vis} of over 165 kJ m^{-2} .

Observational studies and Causality

EPIDEMIOLOGY BJD
British Journal of Dermatology

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It is indeed light that reduces COVID-19 deaths

But it is not UV A, so it cannot be vitamin D

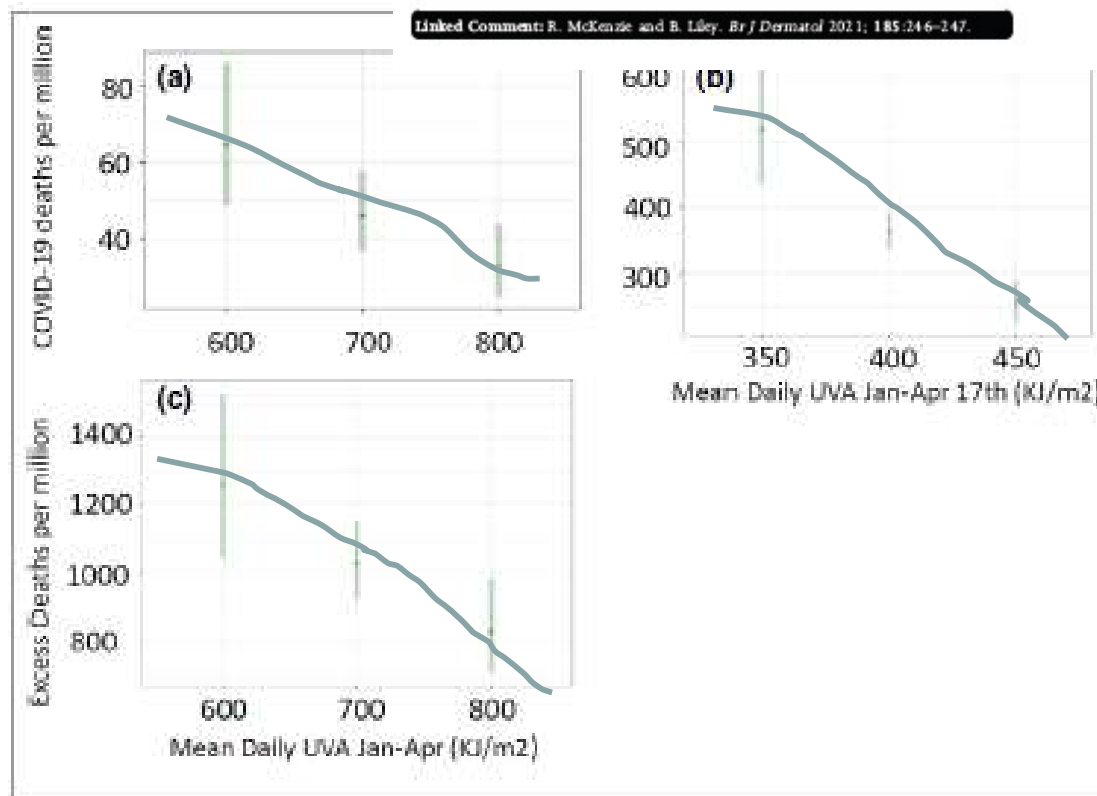
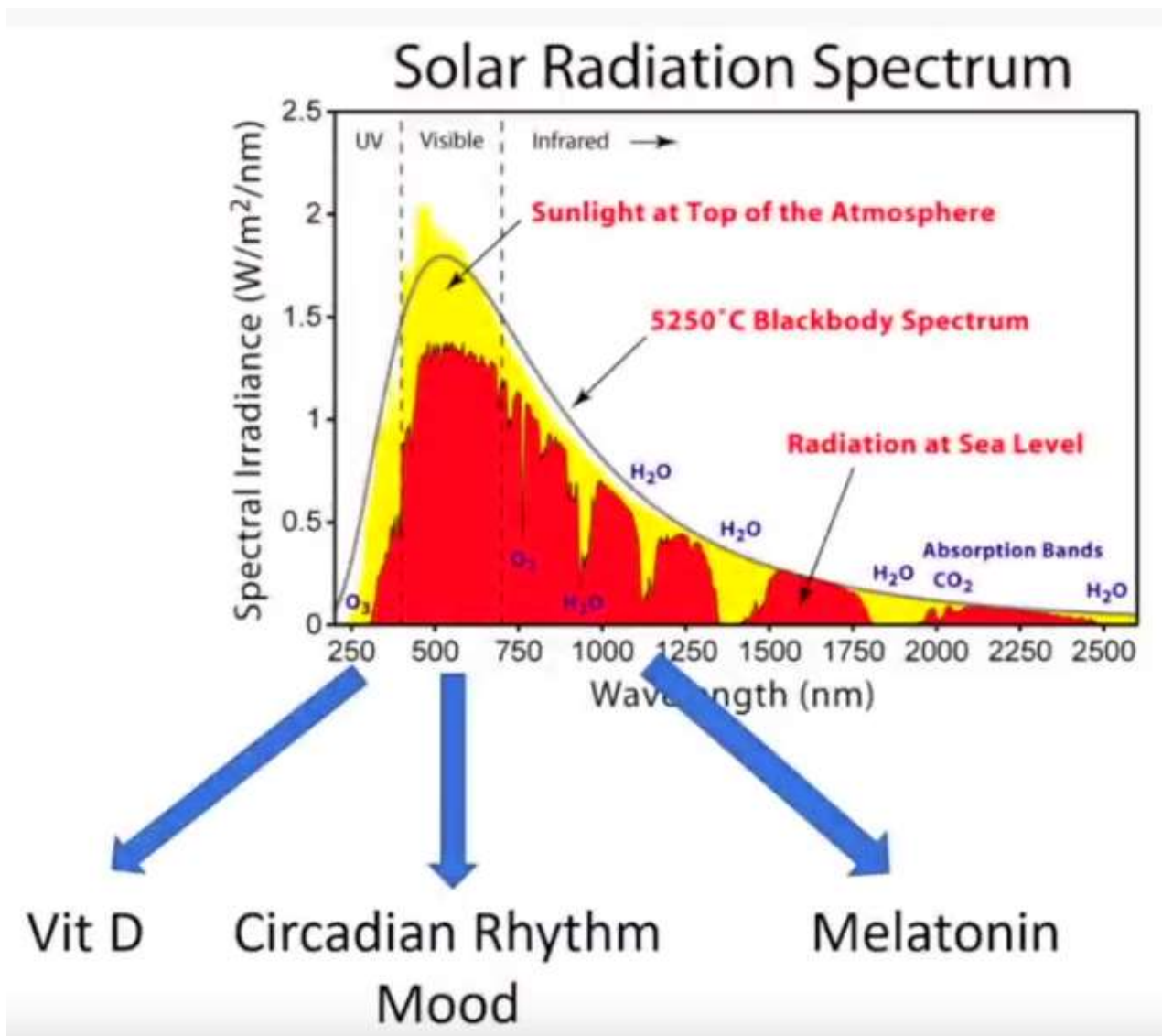


Figure 3. Predicted COVID-19 rates of deaths at selected levels of UVA in (a) the USA, (b) England and (c) Italy, given the model random effect, at the mean level of all other covariates. The predicted risks reflect the pandemic situation (i.e. infection levels) in each country at the time of the study.

Observational studies and Causality



Observational studies and Causality

Total Body Melatonin Production



< 5%
Pineal Gland

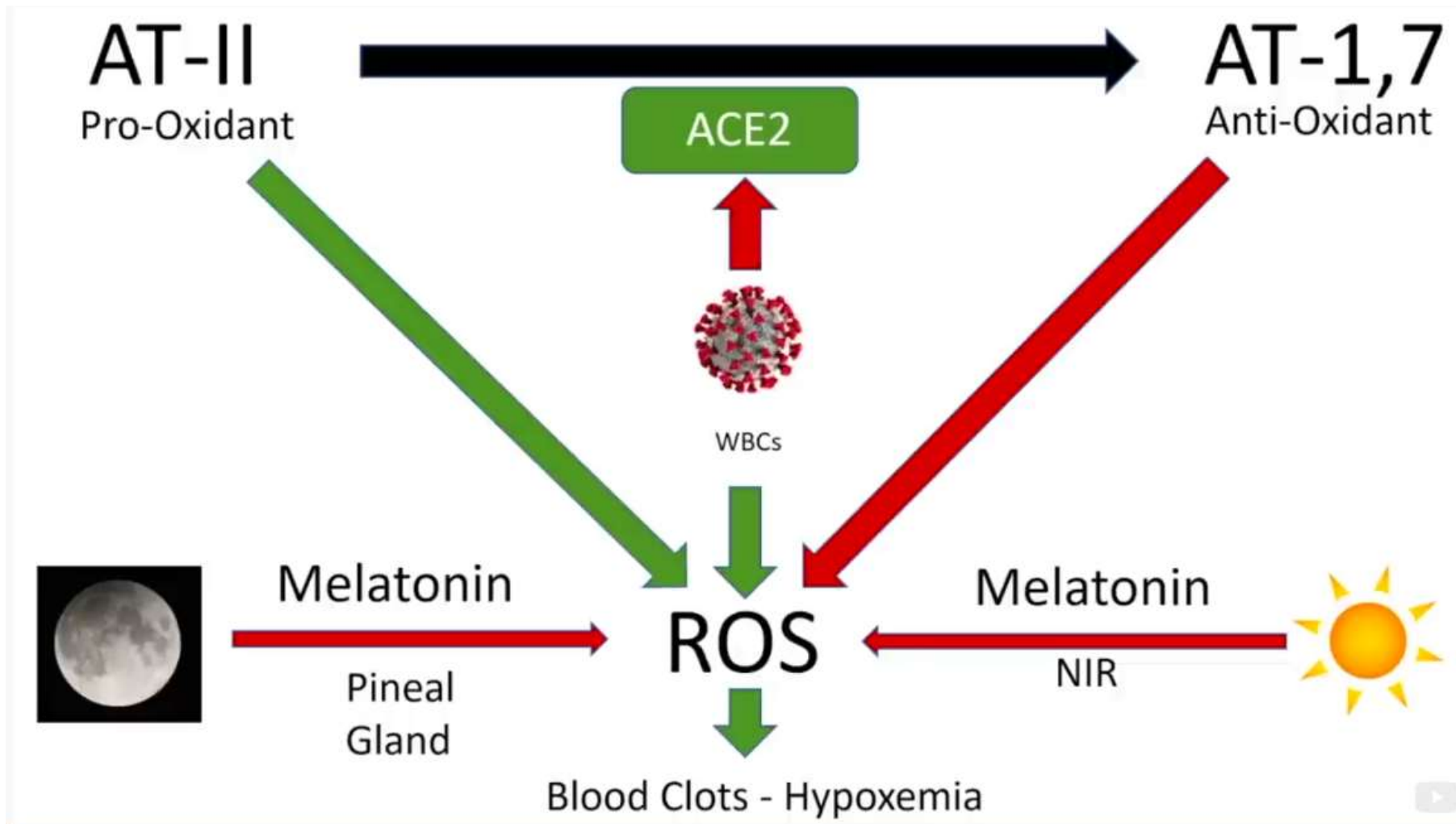


> 95%
Mitochondria

“It has now been shown that the mitochondria produce melatonin in many cells in quantities which are orders of magnitude higher than that produced in the pineal gland. This subcellular melatonin does not necessarily fluctuate with our circadian clock or release into the circulation system, but instead has been proposed to be consumed locally in response to the free radical density within each cell, in particular in response to Near Infrared (NIR) exposure.”

Zimmerman, S. and Reiter, R. 2019. Melatonin and the Optics of the Human Body. *Melatonin Research*. 2, 1 (Feb. 2019), 138-160. DOI:<https://doi.org/https://doi.org/10.32794/mr11250016>.

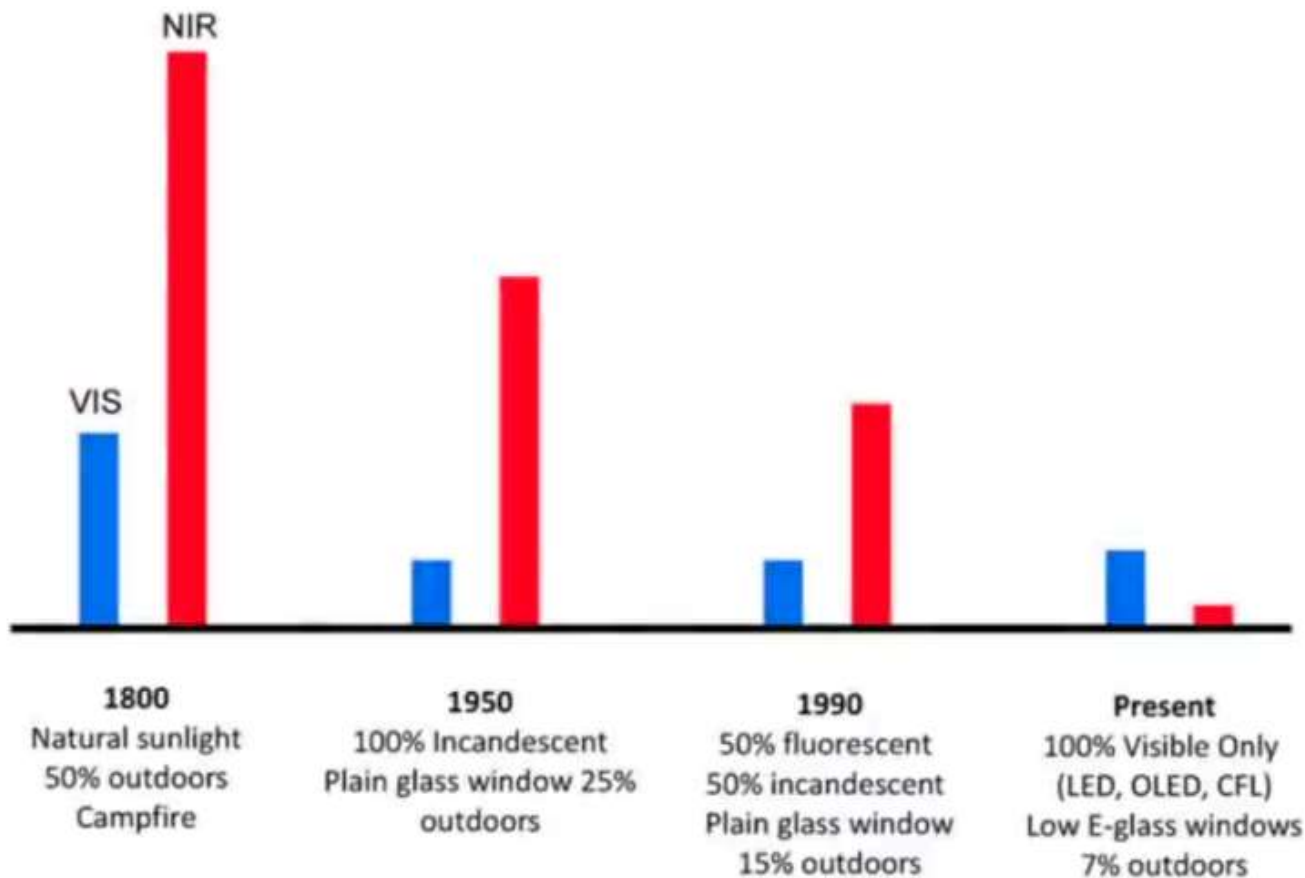
Observational studies and Causality



AT Angiotensin; NIR Near infrared; WBCs white blood cells; ROS Reactive oxygen species

Observational studies and Causality

NIR human exposure is decreasing over the last century



Zimmerman, S. and Reiter, R. 2019. Melatonin and the Optics of the Human Body. *Melatonin Research*. 2, 1 (Feb. 2019), 138-160. DOI:<https://doi.org/https://doi.org/10.32794/mr11250016>.