

# PREVENZIONE PRIMARIA E PLANETARY HEALTH

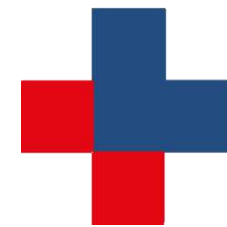
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Scuola di Specializzazione in Medicina dello Sport e dell'Esercizio Fisico  
DIPARTIMENTO DI FISIOLOGIA E FARMACOLOGIA «VITTORIO ERSPAMER»



SAPIENZA  
UNIVERSITÀ DI ROMA



SISTEMA SANITARIO REGIONALE

ASL  
VITERBO



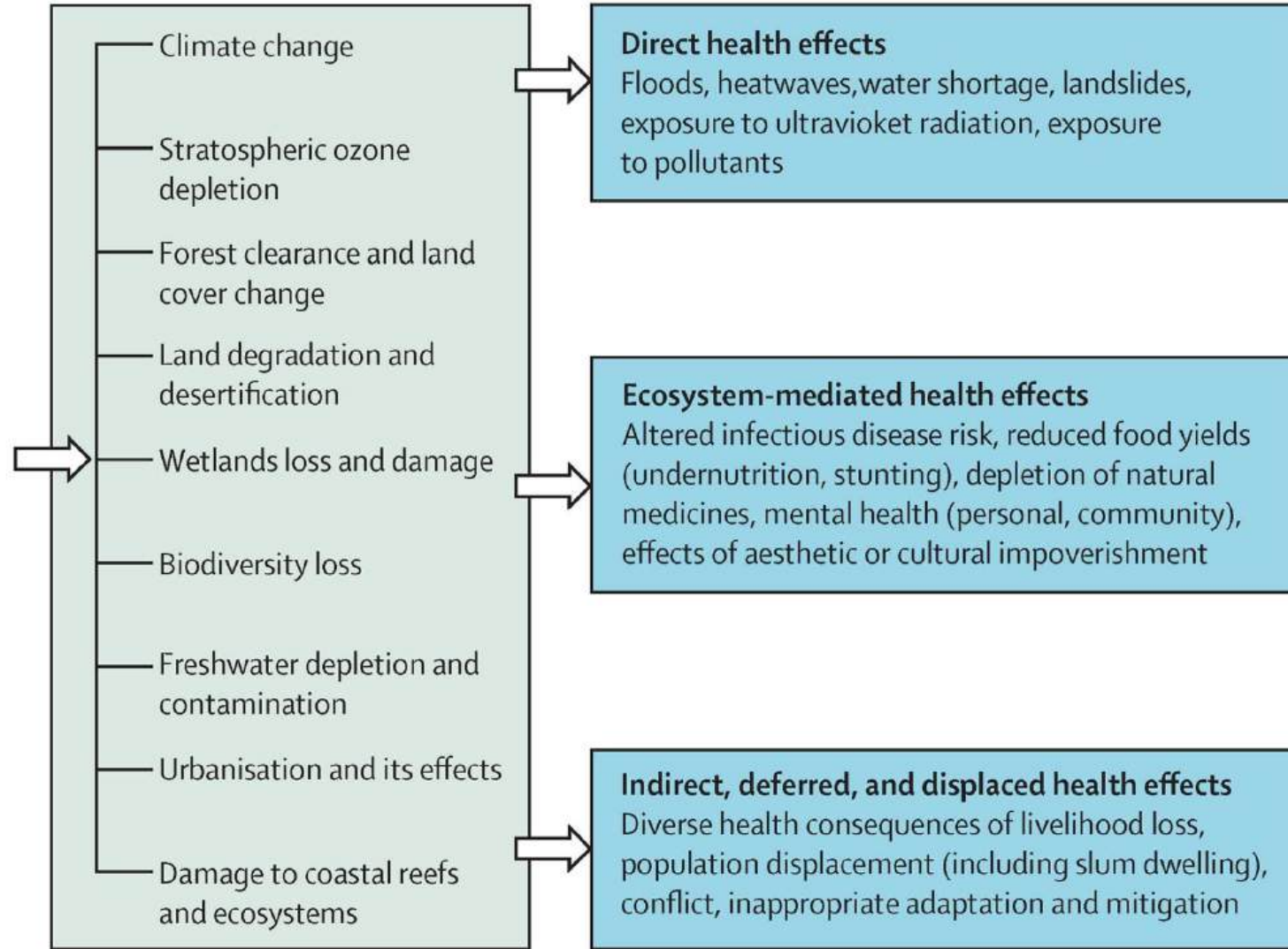
Assirem Ets  
Associazione Italiana  
per la Ricerca e l'Educazione  
nella Medicina del Sonno

Dott Rocco Santarone  
*Medicina generale*

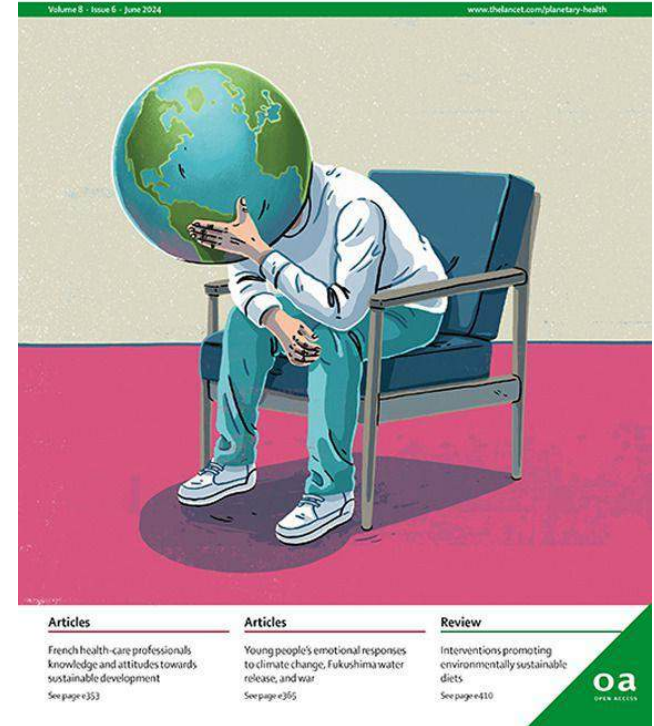
ABOCA, 19/10/2024

## Environmental changes and ecosystem impairment

## Examples of health effects

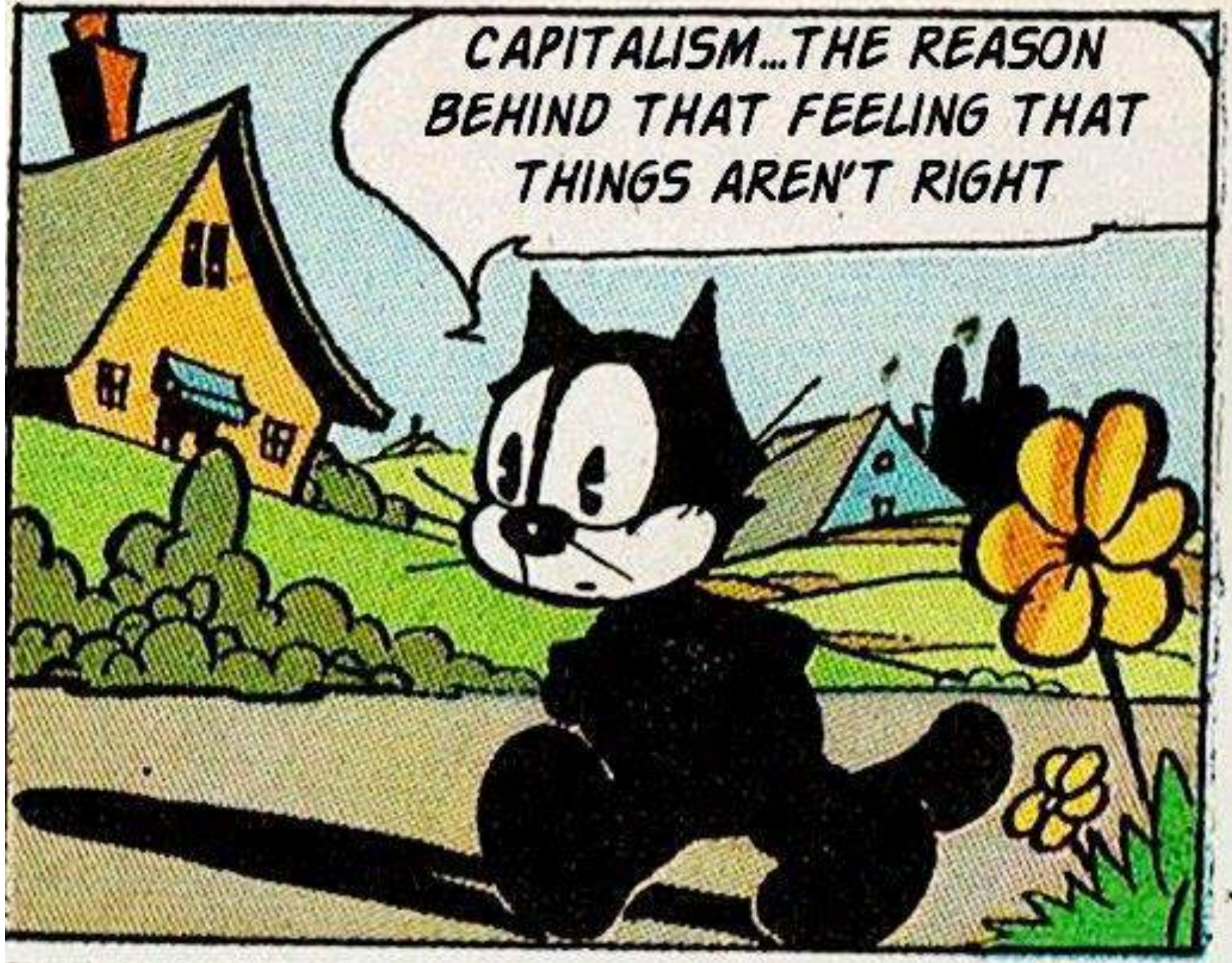


## THE LANCET Planetary Health



Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health – 2015 *The Lancet*. 386 (10007): 1973–2028.

**CAPITALISM...THE REASON  
BEHIND THAT FEELING THAT  
THINGS AREN'T RIGHT**



# Perhaps only degrowth can save us

Richard Smith *chair*

UK Health Alliance on Climate Change

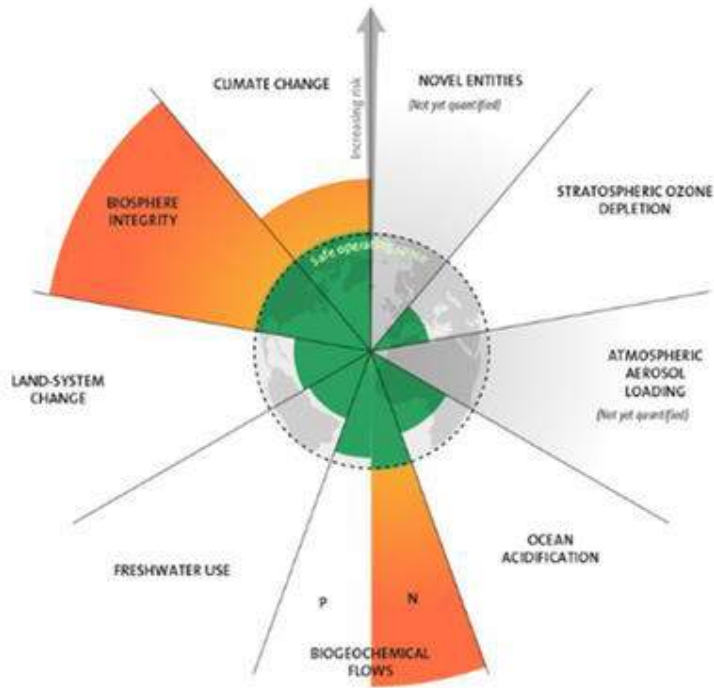
Economic growth has produced great benefits, including jobs and taxes, lifting many people out of poverty and funding improvements in health, housing, education, transport, and much more.

One big problem with capitalism is that compound growth is exponential, growing faster than humans can imagine. The pandemic helped us understand a little more about exponential growth ...

the **bmj** 2023

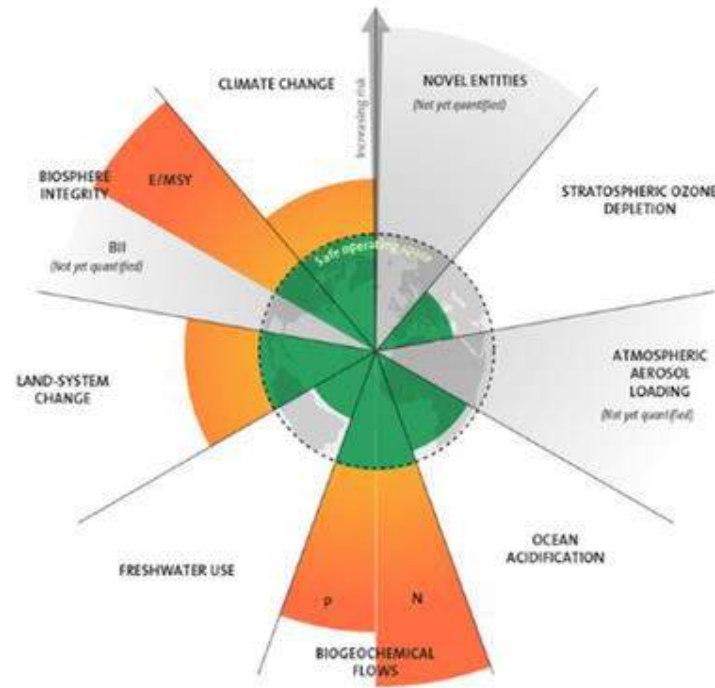
# THE EVOLUTION OF THE PLANETARY BOUNDARIES

2009



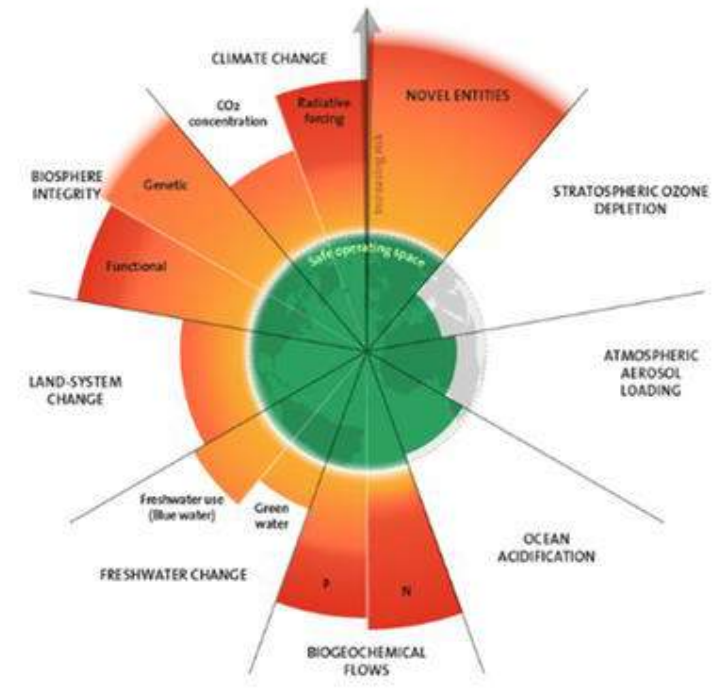
7 boundaries assessed,  
3 crossed

2015



7 boundaries assessed,  
4 crossed

2023



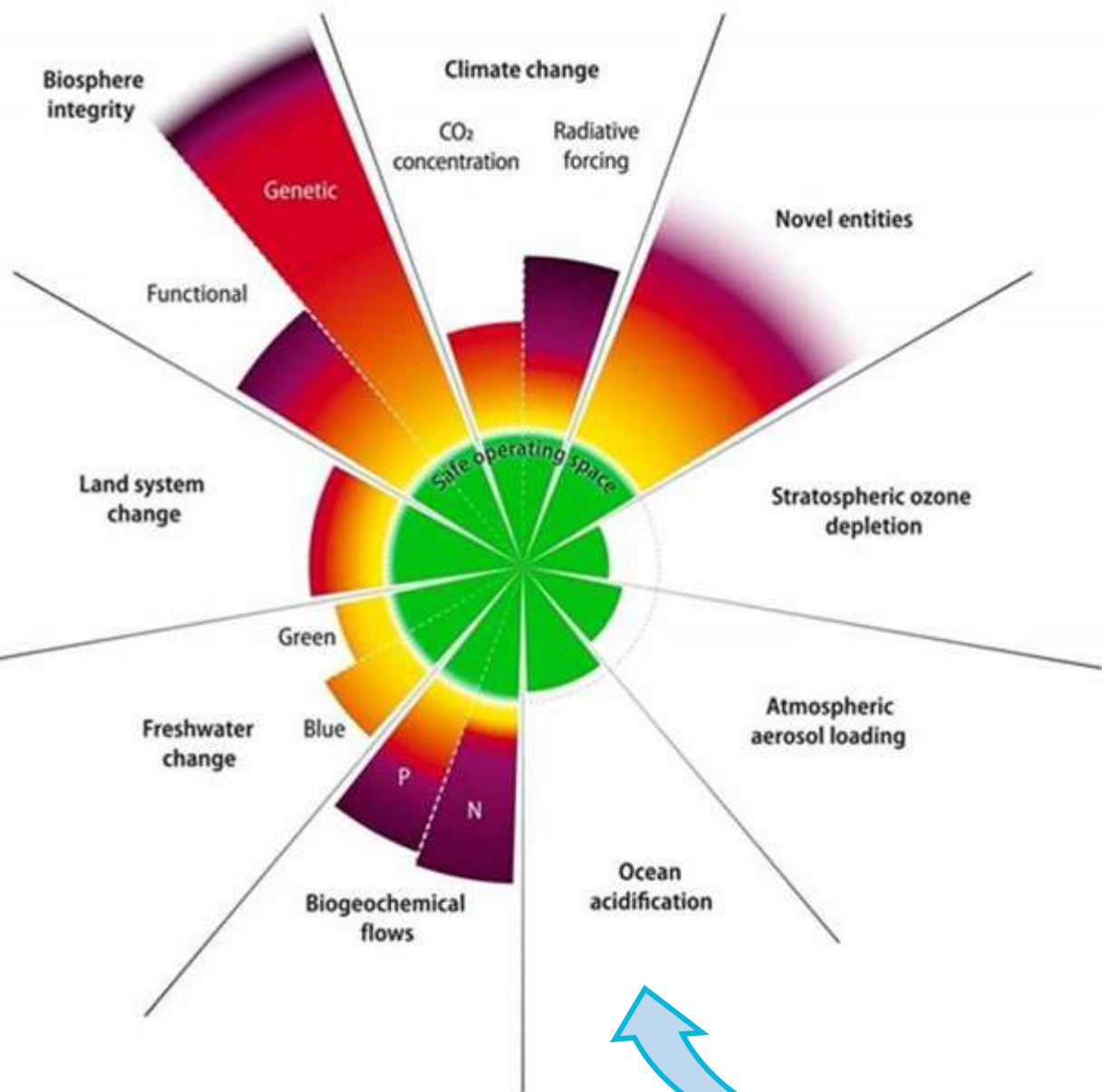
9 boundaries assessed,  
6 crossed

Licensed under CC BY-NC-ND 3.0 Credit: Azote for Stockholm Resilience Centre, Stockholm University  
Based on Richardson et al. 2023, Steffen et al. 2015, and Rockström et al. 2009

## CRISI CLIMATICA

# L'acidificazione degli oceani è vicina alla soglia critica, secondo un nuovo rapporto

Con la crescente acidificazione degli oceani il pianeta è sul punto di superare una nuova soglia d'allerta che influirà sulla sua stabilità, resilienza e abitabilità, secondo un rapporto del Potsdam institute for climate impact research (Pik).



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## Planet Earth as our patient

THE LANCET

Vol 347 • March 2, 1996

We must always consider the balance between care of the individual and care of Earth. This goes beyond conventional notions of economic cost-effectiveness. It will not be easy; soon we may have no choice in the matter. At the very least we can encourage our colleagues, patients, and politicians to think carefully about the ecological costs of healthcare.

And when will *The Lancet* be printed with soy-based ink on recycled, chlorine-free paper?

*E Goldstein*

381 Hewlett Road, Hermon, NY 13652, USA

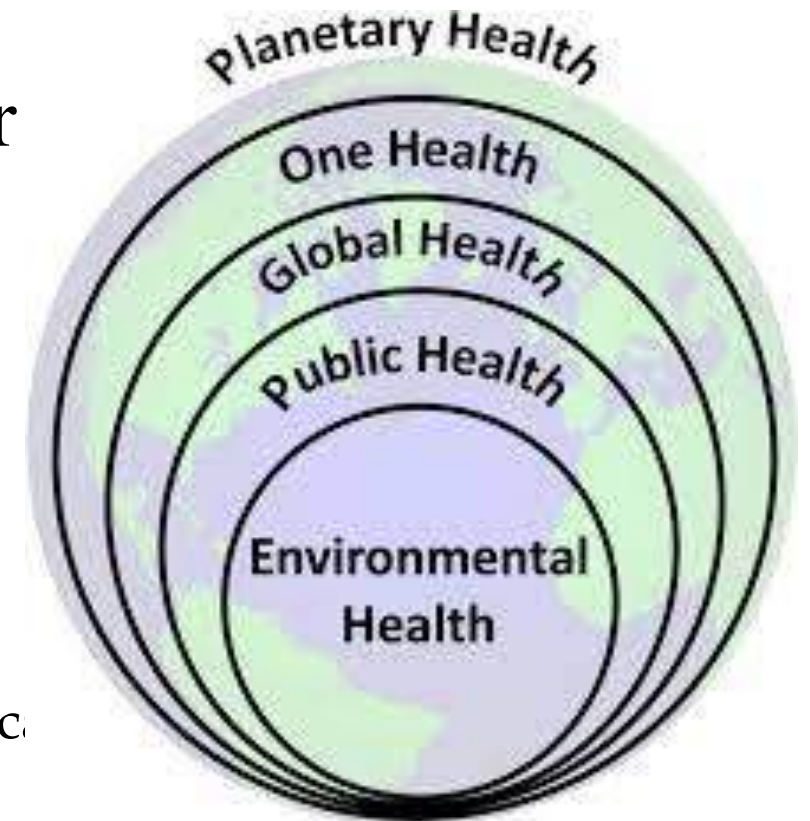
In the original “Manifesto,” Planetary Health is presented as  
“**an attitude towards life and a philosophy for living**”  
(2014 – The Lancet)

...curiously, the main supporter of Planetary Health presented it as  
“**A New Discipline in Global Health**” Rodin J – 2015 (The Rockefeller Foundation)

**Global Health** is the answer to the need for  
“**a ‘planetary’ vision for One Health**”

...in the process of decolonizing GH,  
a **counter-hegemonic vision of Global Health**  
**must be adopted.**

Global health, planetary health, One Health: conceptual and ethic challenges and concerns - E Missoni. *Theor Med Bioeth*, May 2024

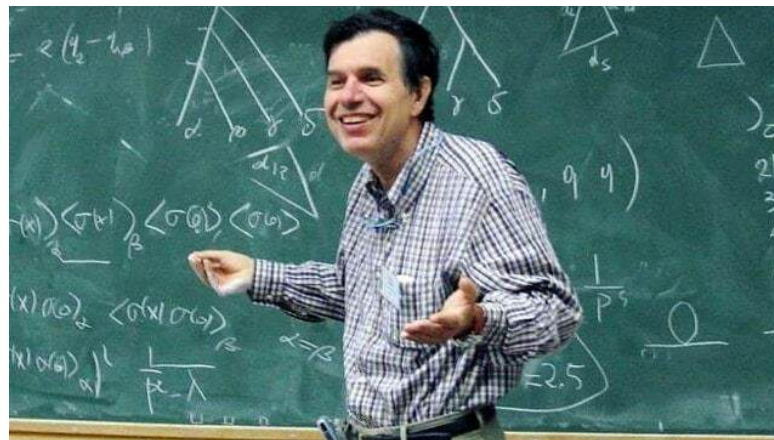




«**Tutto** ciò che vediamo intorno a noi  
è un **sistema complesso**, compresi noi stessi.

Nel cervello o nell'organismo i neuroni o gli organi si scambiano di continuo messaggi che **influenzano** il loro funzionamento. Sistemi complessi sono anche le **interazioni** tra le persone protagoniste dell'economia e altrettanto un **ecosistema con i vari organismi in azione** o **l'intero insieme della vita sulla Terra**»

*Giorgio Parisi*



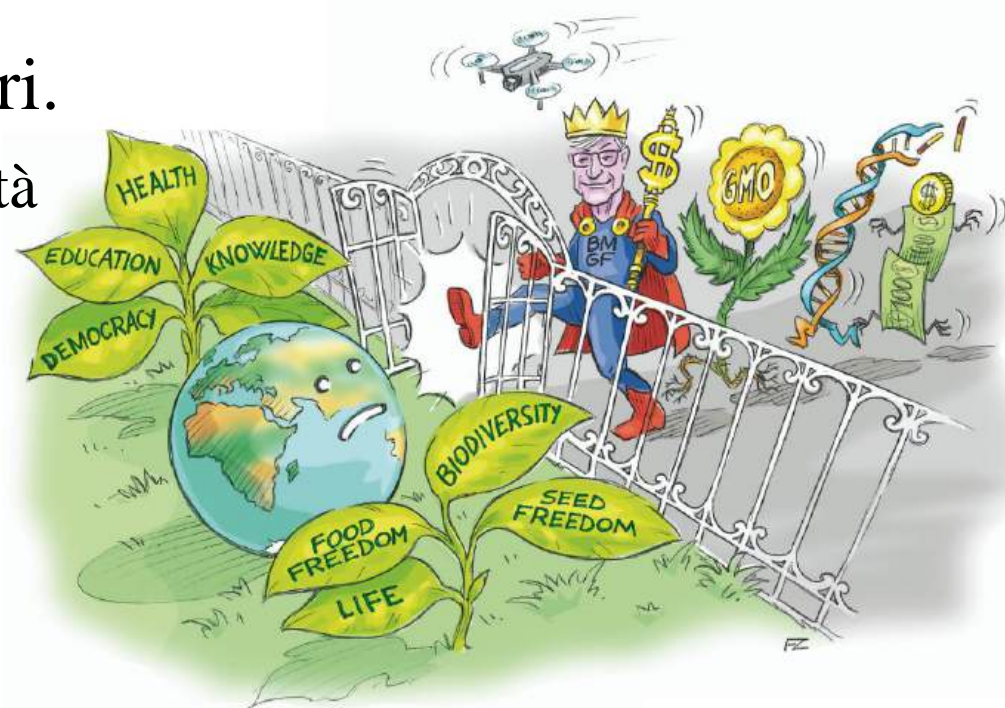
*Corriere della Sera,*  
6 ottobre 2021

La giuria di Stoccolma (2021) ha premiato  
Parisi per i suoi studi sul «caos e i sistemi  
complessi» ed i climatologi Manabe e Klaus  
«per la **modellazione fisica del clima della  
terra, che ne qualifica la variabilità  
e prevede in modo affidabile il  
riscaldamento globale**»



«La filantropia classica è vicina ai territori.

Ha cura delle relazioni e dà libertà di azione alle realtà cui eroga le donazioni, lasciandole libere di autodeterminarsi su come utilizzare i soldi ricevuti.



Il filantrocapitalismo è diverso

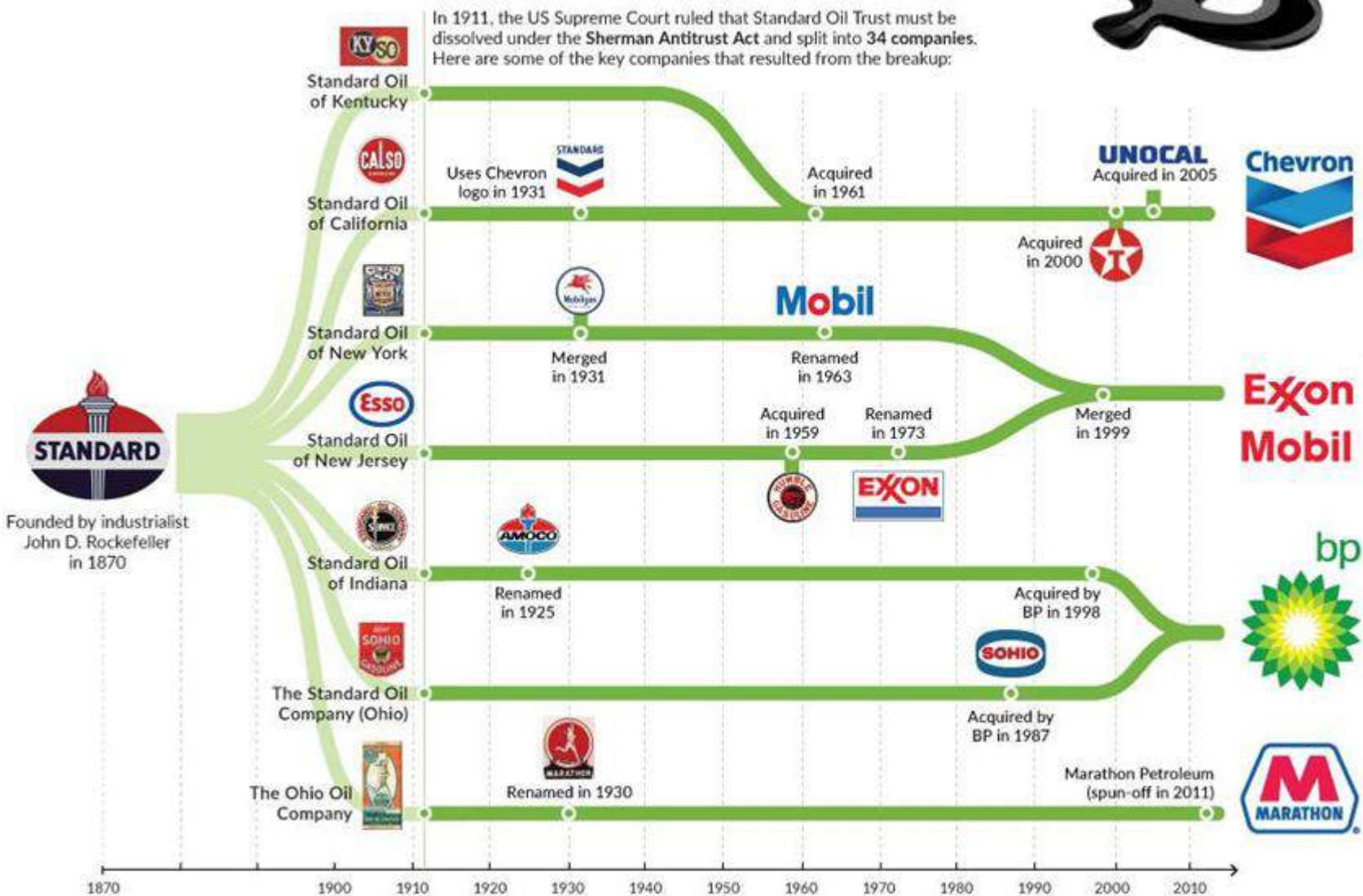
**...attraverso le loro donazioni i nuovi filantropi sono riusciti a ottenere un cambio di immagine e hanno lavorato per colmare i vuoti lasciati dalla politica, per esempio finanziando alcune agenzie delle Nazioni Unite».**

(N Dentico, 2020)



# THE EVOLUTION OF STANDARD OIL

Following the remnants of John D. Rockefeller's oil juggernaut



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# Navigating fundamental tensions towards a decolonial relational vision of planetary health

*Lancet Planet Health 2022*

Planetary health has an important role to play in guiding humanity towards a healthy, equitable, and sustainable future.

However, given **planetary health's dominant colonial and capitalist underpinning ideologies**, it risks reinscribing the same exploitative power dynamics that are fundamental drivers of global ecological collapse.

*A decolonial relational conceptualisation of planetary health*

In this Personal View, we reaffirm the need for a vision of planetary health grounded in **Indigenous epistemologies**, which centre relational ecocentric norms and values.

*Indigenous ontologies and epistemologies*

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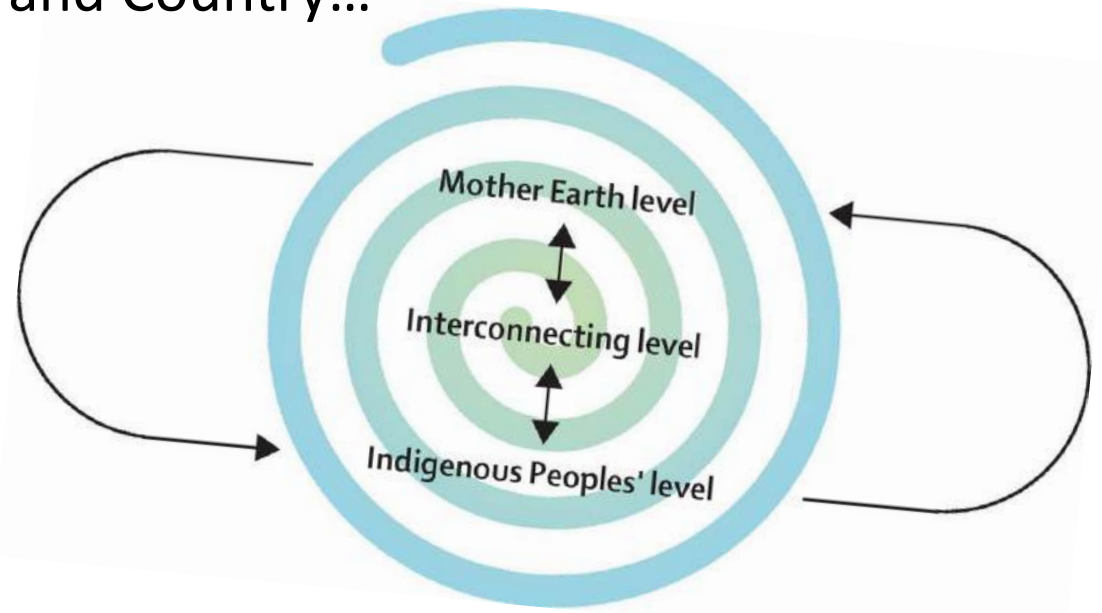
# The determinants of planetary health: an Indigenous consensus perspective

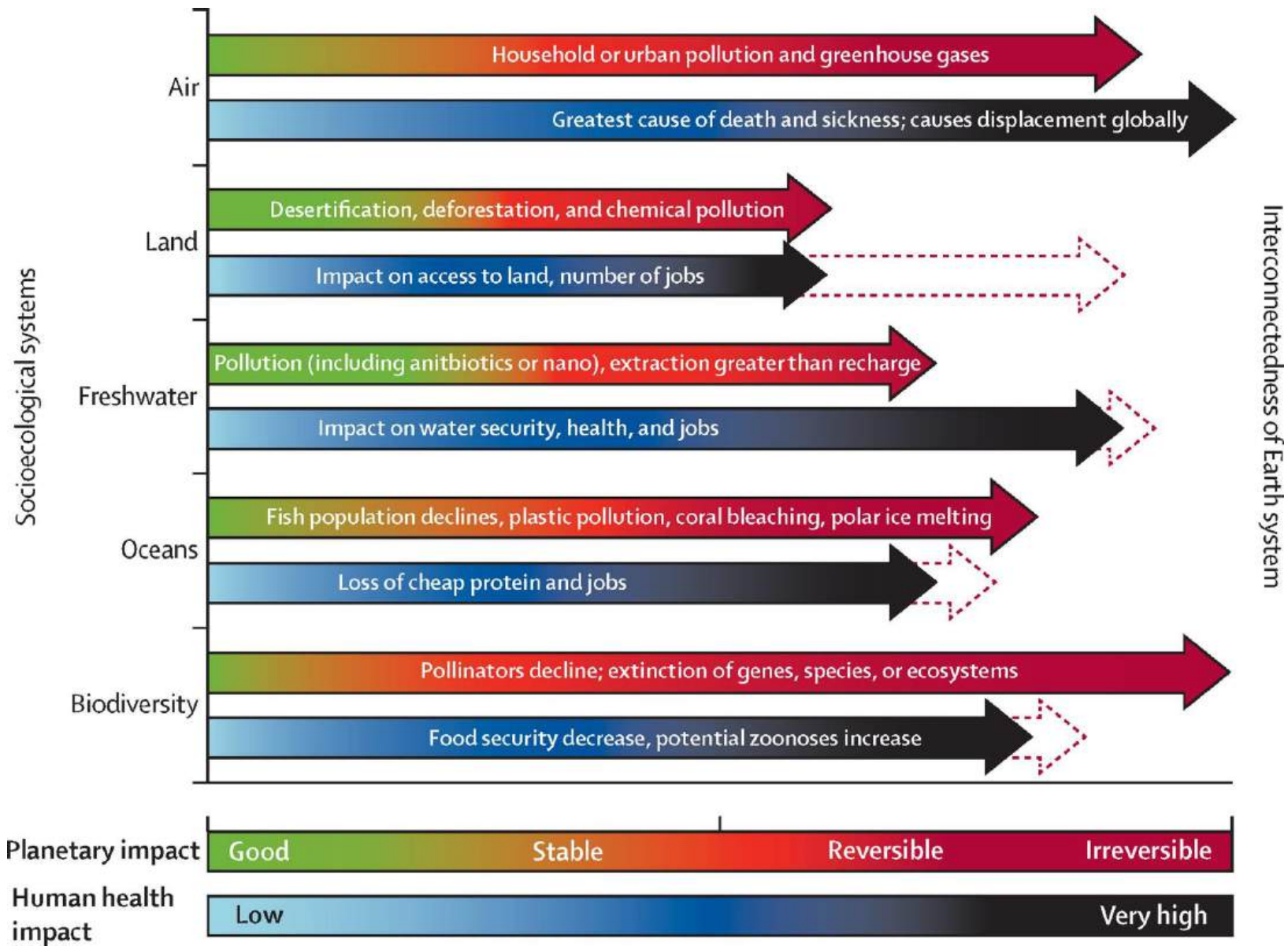
Lancet Planet Health 2022

One of the pre-eminent **causes of the planet's destruction is the collective loss of awareness of the interconnectedness that exists within Nature.**

Indigenous Peoples' **ontology** (ie, way of being) and **epistemology** (ie, way of knowing) are intricately connected with Land and Country...

Human-centric (ie, anthropocentric) hierarchies are most often absent in Indigenous languages and lifeways with a profound and deep respect given for all human and non-human entities...



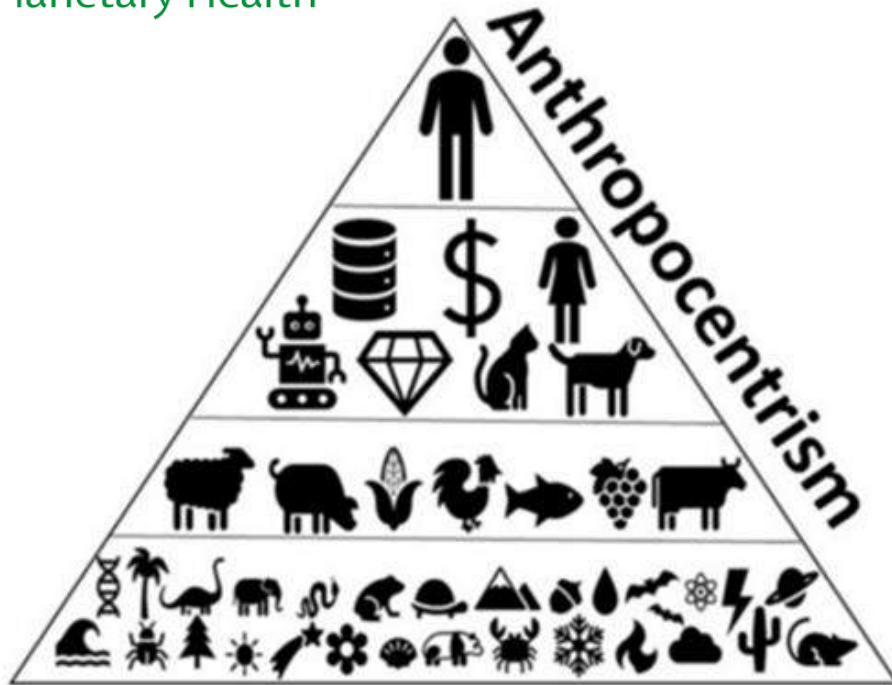


Communicating the health of the planet and its links to human health. May 2019 - *The Lancet*

# From the right to a healthy planet to the planetary right to health

THE LANCET  
Planetary Health

Comment  
2023



Anthropocentric vs eco-/ cosmo-centric view of life (in the context of Classic Mayan society) (Lisa J. Lucero and Jesann Gonzalez Cruz, "Reconceptualizing Urbanism: Insights from Maya Cosmology," Front Sust Cities, 2020)



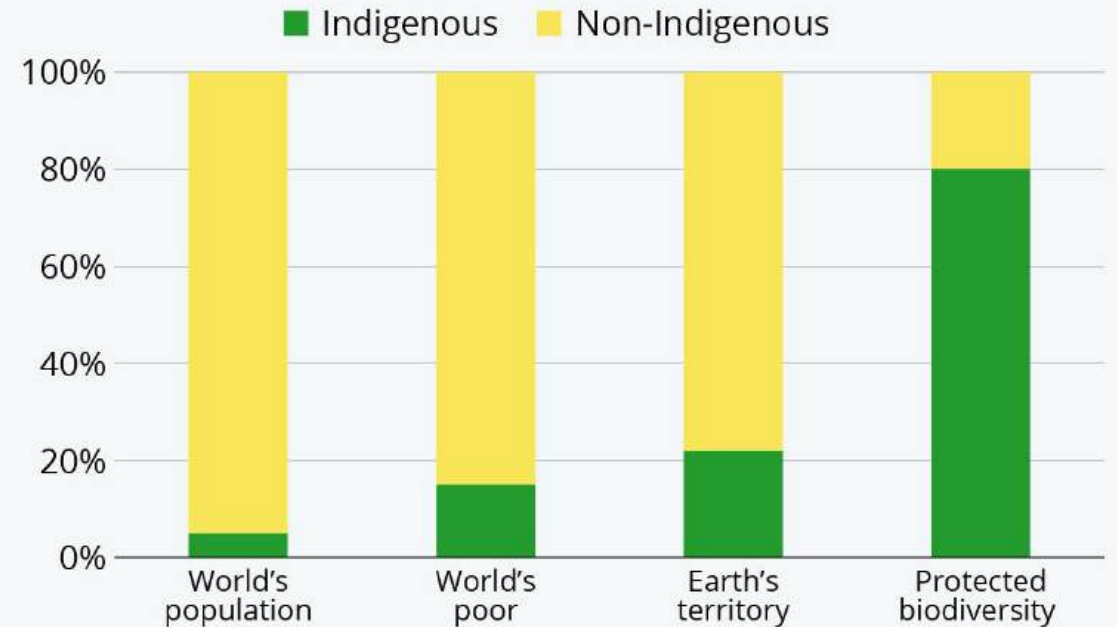


*Sebastião Salgado, Awà people (Brasil)*

**No basis for claim that 80% of biodiversity is found in Indigenous territories - 2024 Sep** nature portfolio

## Indigenous Communities Protect 80% Of All Biodiversity

Share of indigenous and non-indigenous communities by various categories



Source: World Bank via Australia: State of the Environment 2021



# The Importance of Biodiversity

- Promoting soil formation
- Provision of food resources for humans
- Good health of all living beings
- Protecting natural resources



- Fast recovery from natural disasters
- Maintaining food chains
- Maintaining the genetic diversity
- Maintaining ecosystem balance

■ Overall sustainability and growth

© WorldAtlas.com

# Decades of macroscale biodiversity loss reflected in microscale ecology<sup>1-2</sup>



"dysbiotic drift"<sup>3</sup>



© Susan L. Prescott

1. Rampelli, et al. *Curr Biol* 2015; 25, 1682.
2. Segata. *Current Biology* 2015; 25, R600.
3. Logan. *J Physiol Anthropol* 2015; 34, 23.

**Ecological extinction: disappearing microbes in westernized populations**  
Direct implications for human health: physical and mental well-being

MAPPED

# The World's Indigenous Peoples



While Indigenous Peoples comprise 8% of the world's population, their lands and territories constitute at least 25% of the global land surface including unique ecosystems and vital biodiversity.

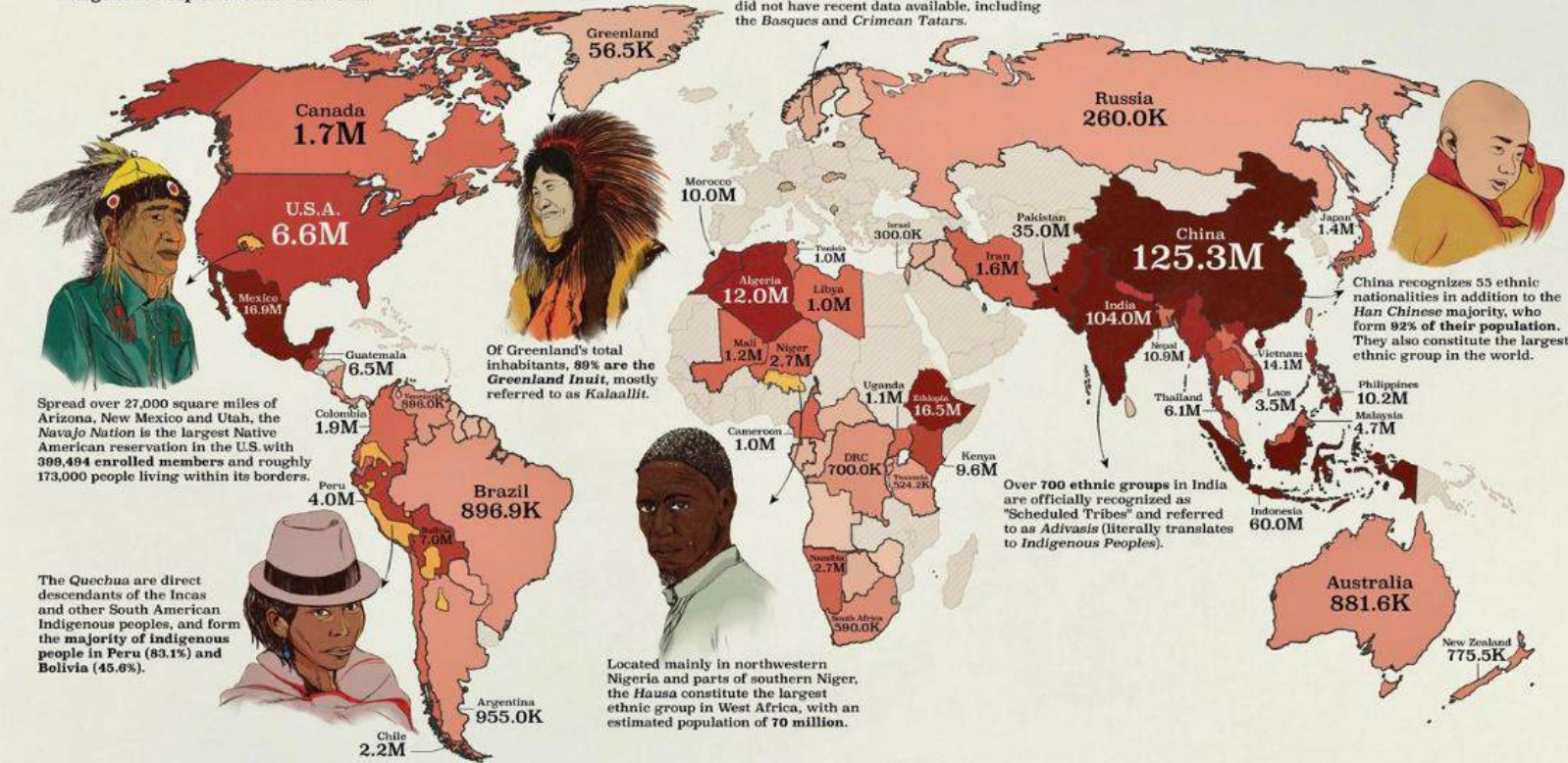
① "Indigenous Peoples" has no official definition by the UN due to diverse identities and histories. Instead, organizations utilize a modern understanding of traits including *self-identification, historical continuity with pre-settler societies, distinct systems and culture, and a commitment to preserve heritage and environments.*

Here's a look at the latest available population distribution of the estimated 476 million Indigenous Peoples around the world.

## Indigenous Population by Country/Territory



Besides the Sámi of Finland, Sweden and Norway, many of Europe's Indigenous Peoples did not have recent data available, including the Basques and Crimean Tatars.



Spread over 27,000 square miles of Arizona, New Mexico and Utah, the Navajo Nation is the largest Native American reservation in the U.S. with 399,494 enrolled members and roughly 173,000 people living within its borders.

The Quechua are direct descendants of the Incas and other South American Indigenous peoples, and form the majority of indigenous people in Peru (83.1%) and Bolivia (45.6%).

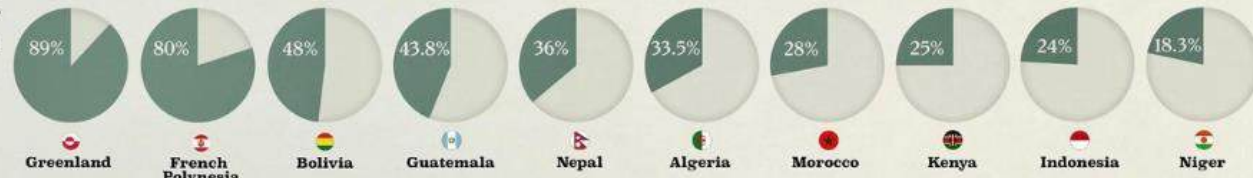
Of Greenland's total inhabitants, 89% are the Greenland Inuit, mostly referred to as Kalaallit.

Located mainly in northwestern Nigeria and parts of southern Niger, the Hausa constitute the largest ethnic group in West Africa, with an estimated population of 70 million.

China recognizes 55 ethnic nationalities in addition to the Han Chinese majority, who form 92% of their population. They also constitute the largest ethnic group in the world.

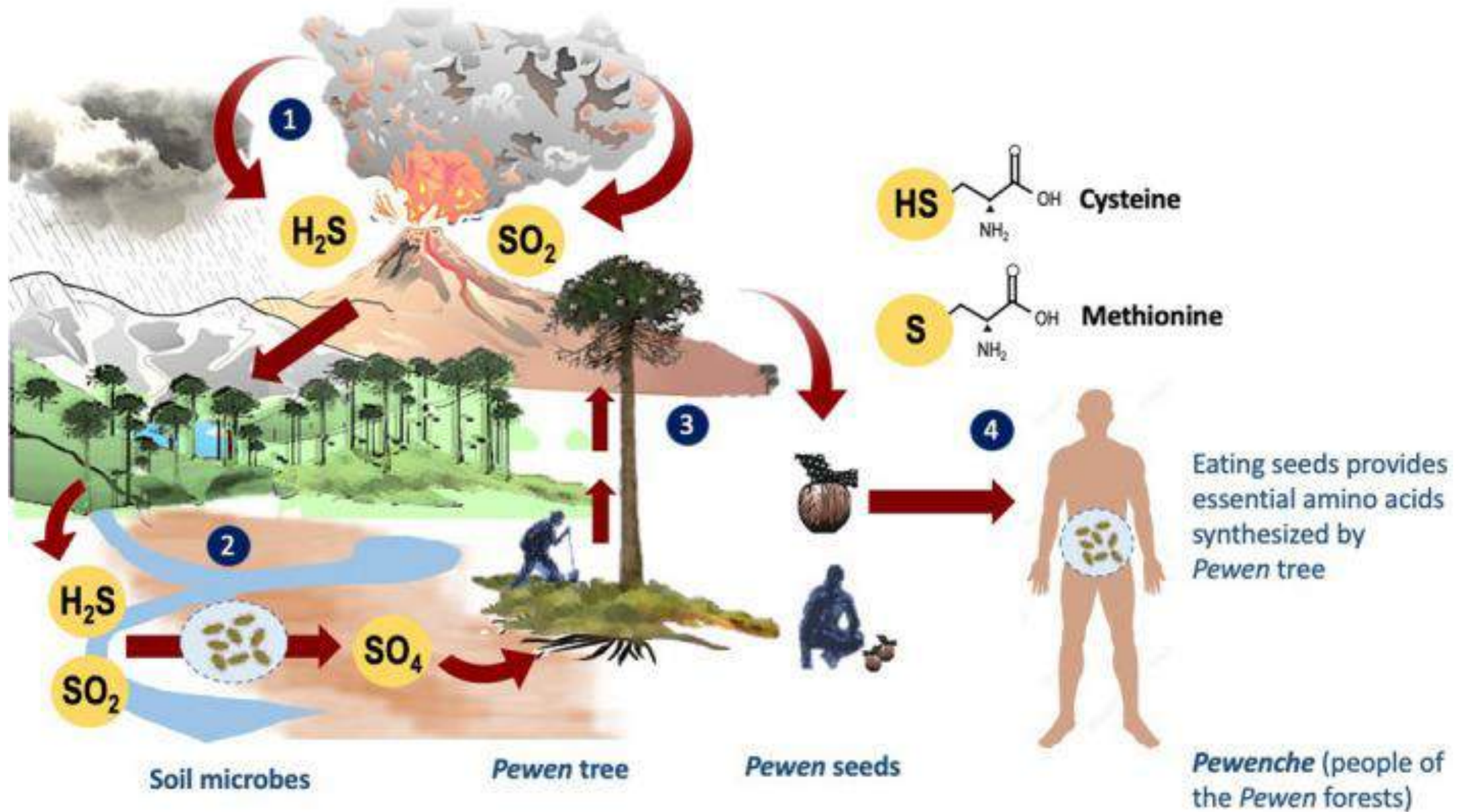
Over 700 ethnic groups in India are officially recognized as "Scheduled Tribes" and referred to as Adivasis (literally translates to Indigenous Peoples).

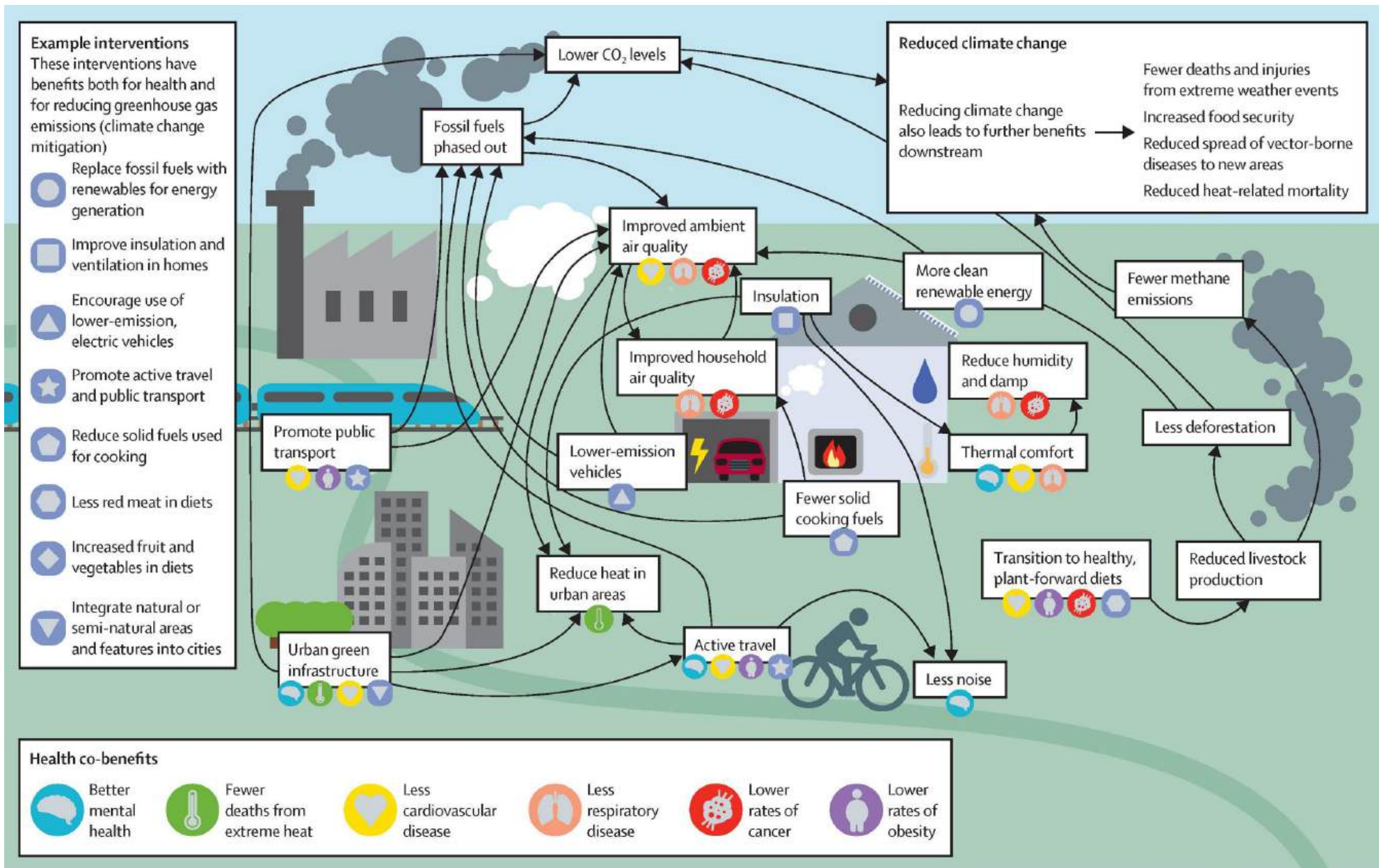
### Country/Territory with the Largest Share of Indigenous Peoples



By Bhabna Banerjee

Source: International Work Group For Indigenous Affairs Report 2010-2022, World Bank





# 68% of the world population projected to live in urban areas by 2050

16 May 2018

United Nations (UN)

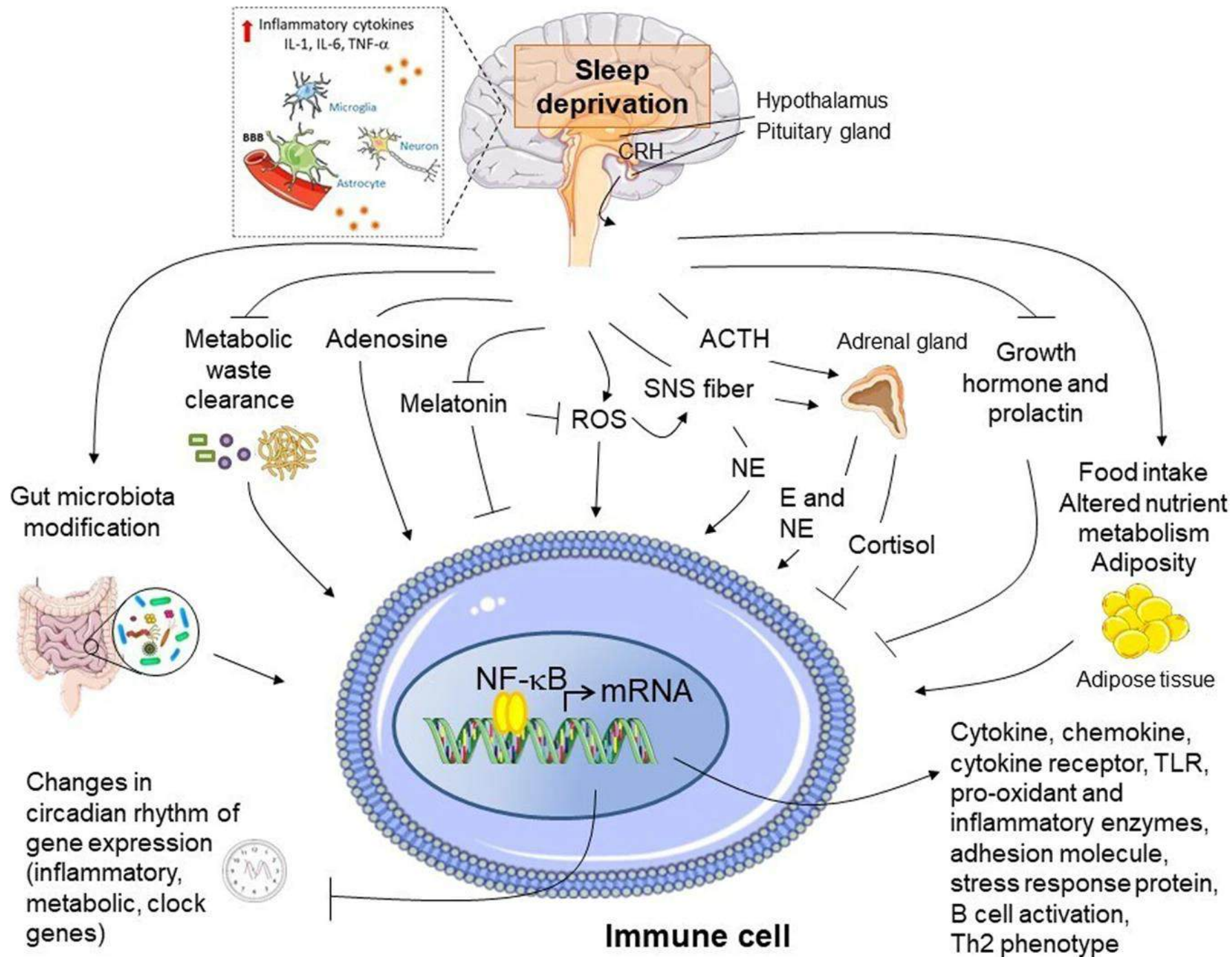


*NASA Earth Observatory, 2016*

# Role of sleep deprivation in immune-related disease risk and outcomes

nature

COMMUNICATIONS BIOLOGY 2021 REVIEW ARTICLE

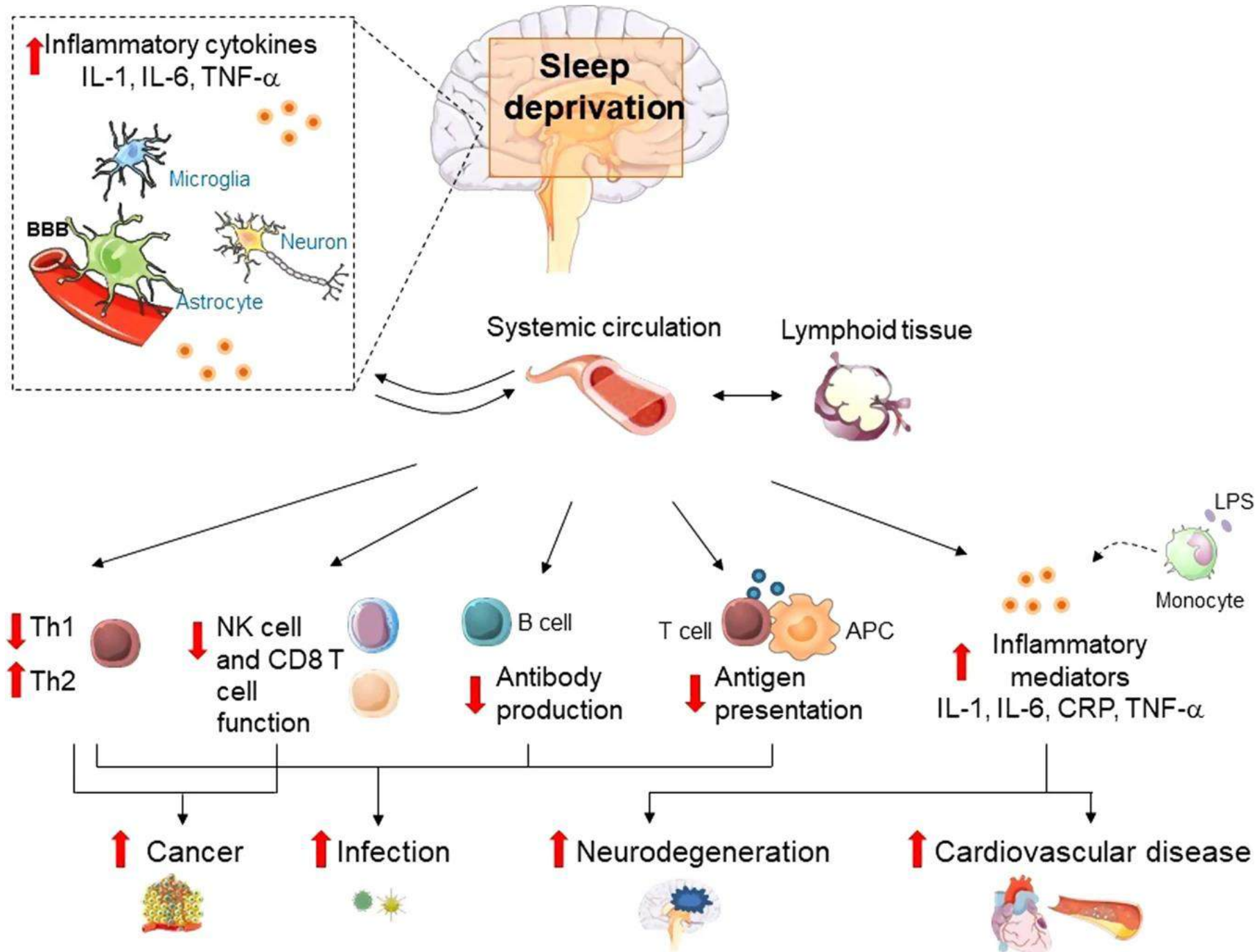




# Role of sleep deprivation in immune-related disease risk and outcomes



COMMUNICATIONS BIOLOGY 2021 REVIEW ARTICLE



# Brighter nights and darker days predict higher mortality risk: A prospective analysis of personal light exposure in >88,000 individuals

October 15, 2024

Circadian rhythm disruption accompanies a wide range of adverse health outcomes that contribute to premature mortality

**While night light disrupts circadian rhythms**

**...higher risk of premature mortality was predicted by brighter nights, darker days, suppressed circadian amplitude, and early or late circadian phase.**



*Tellas*

# Artificial light at night as a new threat to pollination

*“Here we show that artificial light at night disrupts nocturnal pollination networks and has negative consequences for plant reproductive success.*



*In artificially illuminated plant–pollinator communities, nocturnal visits to plants were reduced by 62% compared to dark areas”*

**nature** 548, 206–209 (2017)

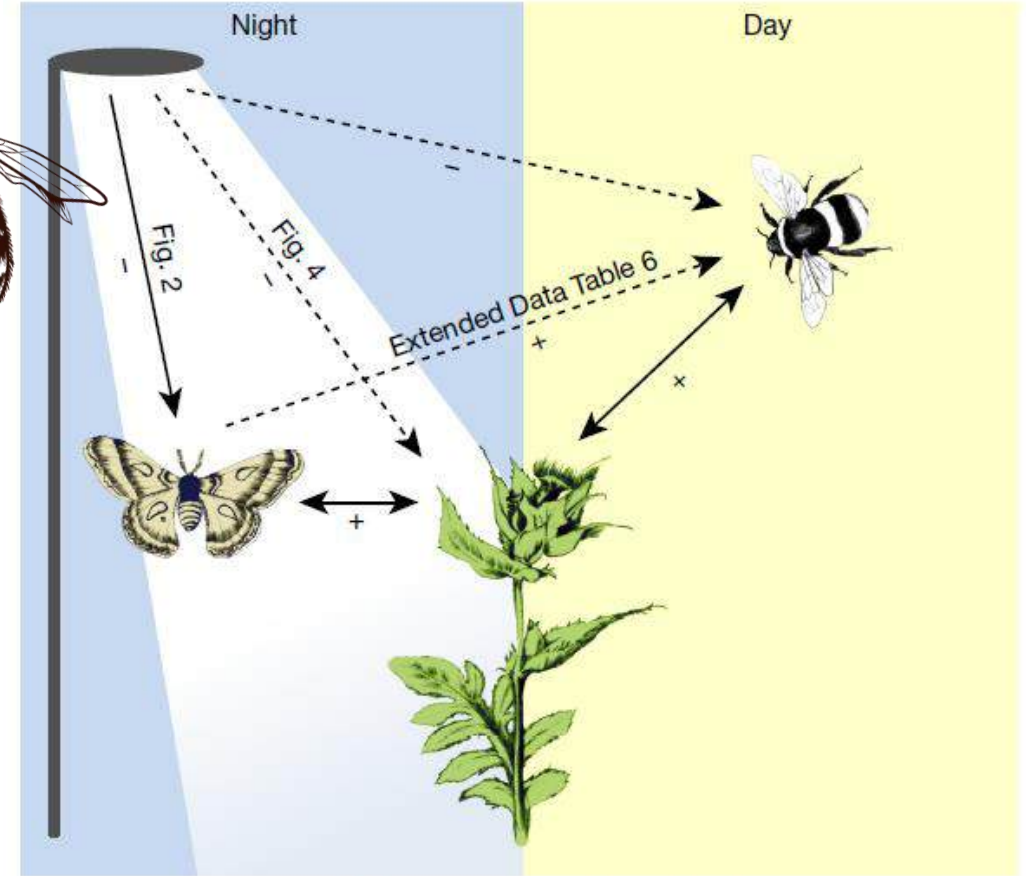


Figure 1 | Interaction web showing the pathway by which artificial light at night affects plant reproduction and diurnal pollinator communities.

# Light Pollution

## What is it?



Artificial light at night...

... which lights up the environment + creates 'sky glow'



## Why is it a problem?

Affects feeding, navigation, migration



Direct light + sky glow affects wildlife



Animals use moon + star light to navigate



Obscures moon and stars



Wastes energy



## What can we do?

Only use outdoor lights when needed



Choose warmer colours

For functional lighting: keep it directional



Produced by Exeter Science Centre for Dark Skies Week 2022

Visit our website for references + more information:



THE EXETER SCIENCE CENTRE





## Effect of nature prescriptions on cardiometabolic and mental health, and physical activity: a systematic review

Phi-Yen Nguyen, Thomas Astell-Burt, Hania Rahimi-Ardabili, Xiaoqi Feng



Nature prescriptions are gaining popularity as a form of social prescribing in support of sustainable health care. This systematic review and meta-analysis aims to synthesise evidence on the effectiveness of nature prescriptions and determine the factors important for their success. We searched five databases from inception up to July 25, 2021. Randomised and non-randomised controlled studies featuring a nature prescription (ie, a referral or an organised programme, by a health or social professional, to encourage spending time in nature) were included. Two reviewers independently conducted all steps of study selection; one reviewer collected summary data from published reports and conducted the risk of bias assessment. Random-effect DerSimonian-Laird meta-analyses were conducted for five key outcomes. We identified 92 unique studies (122 reports), of which 28 studies contributed data to meta-analyses. Compared with control conditions, nature prescription programmes resulted in a greater reduction in systolic blood pressure (mean difference  $-4.82$  mm Hg [ $-8.92$  to  $-0.72$ ]) and diastolic blood pressure (mean difference  $-3.82$  mm Hg [ $-6.47$  to  $-1.16$ ]). Nature prescriptions also had a moderate to large effect on depression scores (post-intervention standardised mean difference  $-0.50$  [ $-0.84$  to  $-0.16$ ]; change from baseline standardised mean difference  $-0.42$  [ $-0.82$  to  $-0.03$ ]) and anxiety scores (post-intervention standardised mean difference  $-0.57$  [ $-1.12$  to  $-0.03$ ]; change from baseline standardised mean difference  $-1.27$  [ $-2.20$  to  $-0.33$ ]). Nature prescriptions resulted in a greater increase in daily step counts than control conditions (mean difference 900 steps [790 to 1010]) but did not improve weekly time of moderate physical activity (mean difference 25.90 min [ $-10.26$  to 62.06]). A subgroup analysis restricted to studies featuring a referring institution showed stronger effects on depression scores, daily step counts, and weekly time of moderate physical activity than the general analysis. Beneficial effects on anxiety and depression scores were mainly provided by interventions involving social professionals whereas beneficial effects on blood pressures and daily step counts were provided mainly by interventions involving health professionals. Most studies have a moderate to high risk of bias. Nature prescription programmes showed evidence of cardiometabolic and mental health benefits and increases in walking. Effective nature prescription programmes can involve a range of natural settings and activities and can be implemented via social and community channels, in addition to health professionals.

*Lancet Planet Health* 2023;  
7: e313-28

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NSW, Australia

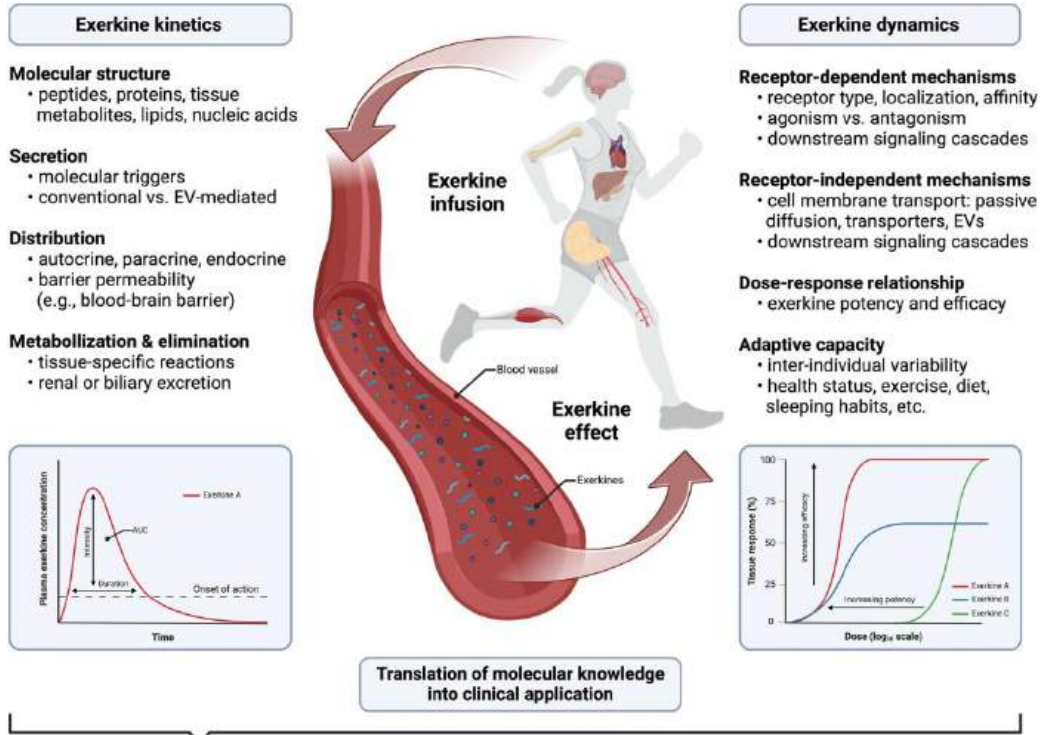
(Prof T Astell-Burt); The George

Institute of Global Health



# Exercise as a Polypill for Chronic Diseases

2015 - Prog Mol Biol Transl Sci



## Clinical applications

### Disease prevention

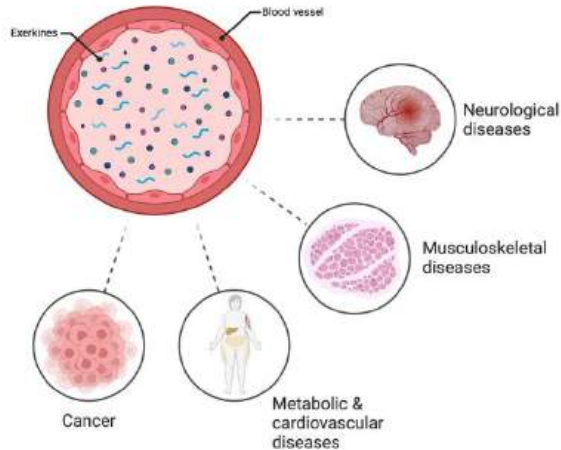
- regular exercise in healthy individuals and at-risk patients

### Disease therapy

- therapeutic effect of exercise in clinical populations (e.g. symptom alleviation, reduced progression, prevention of recurrence)
- tailored exercise programs

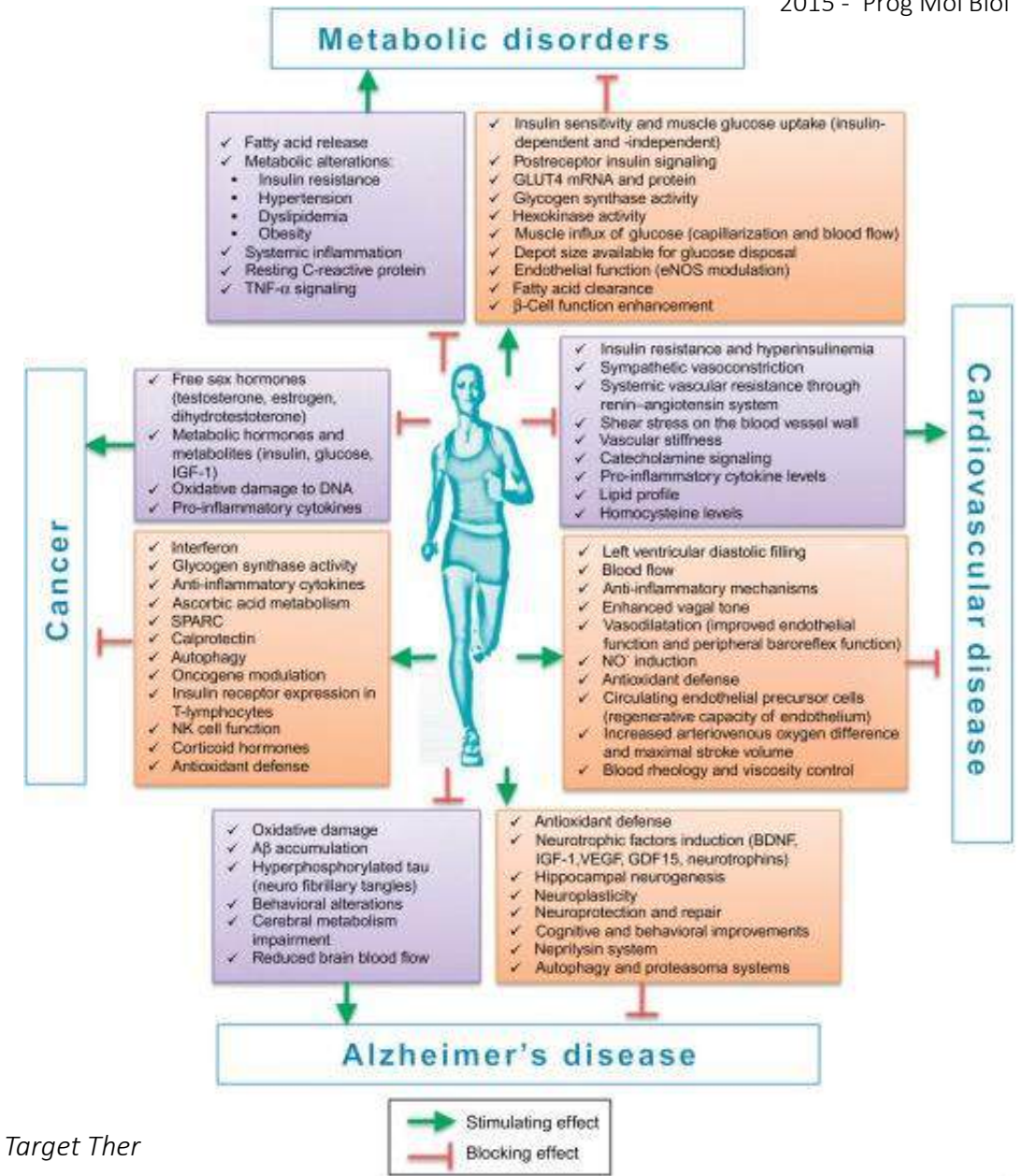
### Exercise mimetics

- pharmacological mimicry of exercise-induced health effects
- identification of new pharmaceuticals and/or pharmaceutical targets

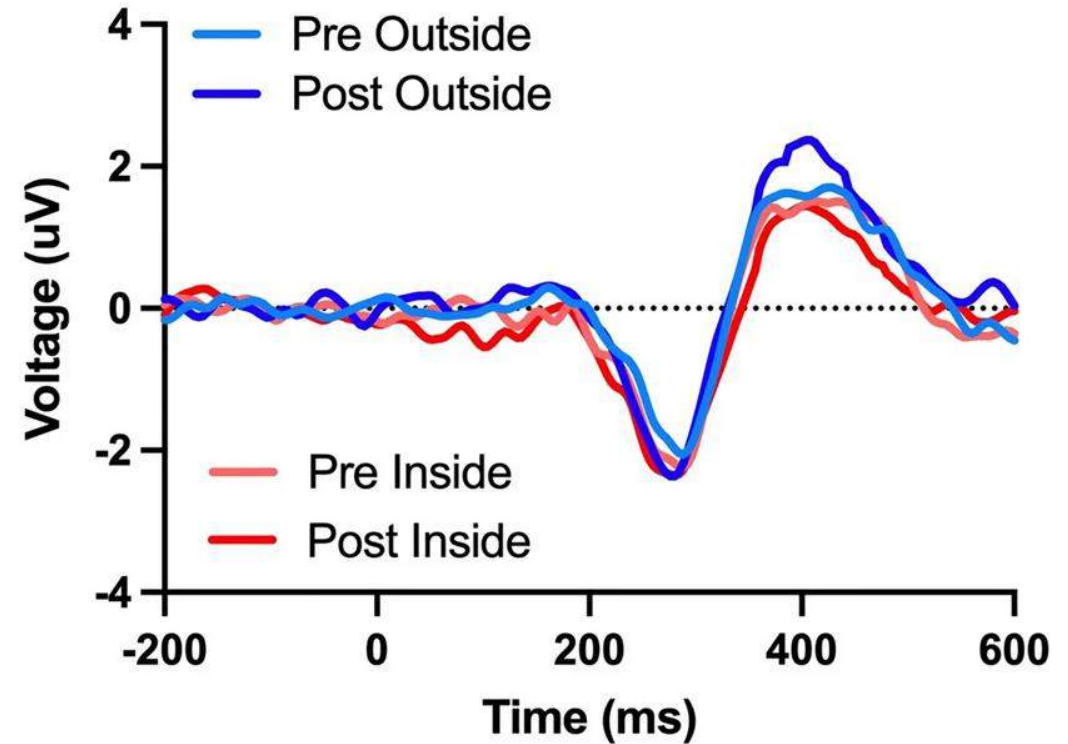
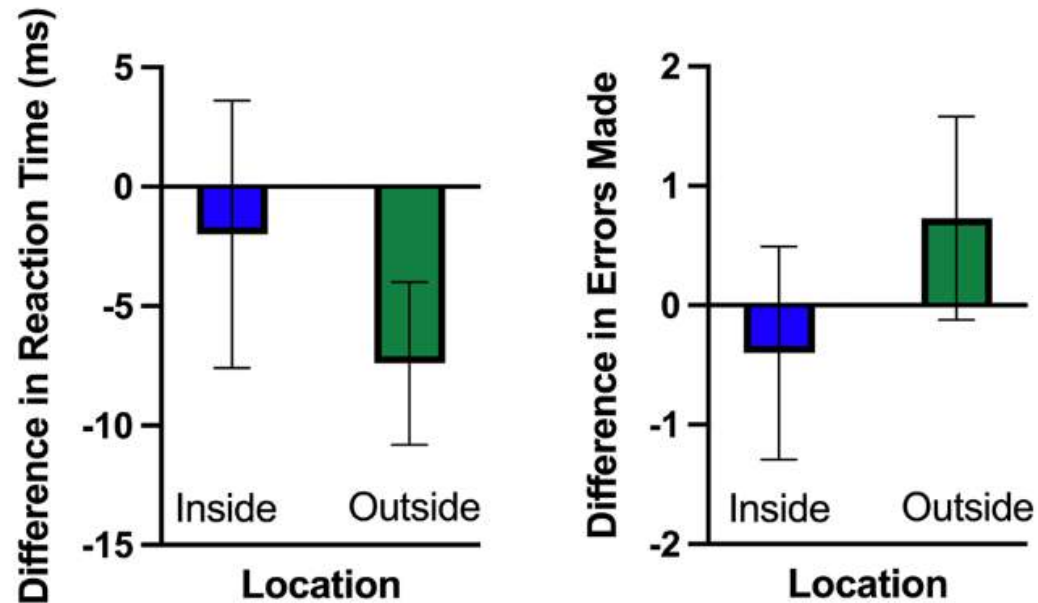


## EXERKINES

Molecular insights of exercise therapy in disease prevention and treatment, 2024 - Sig Transduct Target Ther



# Exercising is good for the brain but exercising outside is potentially better



**Figure 1.** The difference in reaction time and accuracy on the oddball task between pre- and post- indoor and outdoor walk. *Value on plot = post walk score – pre-walk score.* Therefore, negative values indicate improved performance. Error bars reflect 95% within-subject confidence intervals.

Figure 2 ...increase in the amplitude of the P300 (EEG), an event-related neural response commonly associated with attention and working memory



“Perhaps  
**our** greatest distinction  
as a **species** is our capacity,  
unique among animals,  
to **make counter-  
evolutionary choices**”

Jared Diamond

*Why Is Sex Fun?: The Evolution of Human Sexuality (1997)*