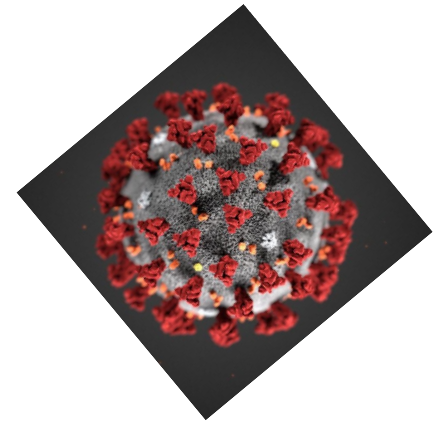


Kommer Covid-19 att stärka vetenskapsjournalisternas ställning?

Dan Larhammar
2022-03-22



Science journalists under pressure amid COVID-19

“COVID-19 has thrown science and
science journalism into the spotlight
like never before.”

SciDevNet 211021



ALLEA Discussion Paper

Three focus areas

- Climate change
- Vaccines
- Covid-19 pandemic

Prof Dan Larhammar

President of the Royal Swedish Academy of Sciences

Chair of the ALLEA Project Committee on Science Disinformation

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Academies

ALLEA Discussion Paper #5

Fact or Fake? Tackling Science Disinformation

May 2021





Almanacksprivilegiet
Vetenskapen säger



Tredje uppgiften



Bemöta desinformation

Bristande faktakontroll

Fråga doktorn i SVT: reklam för akupunktur mm
Puls på fler än 20 olika sätt på tre djup

Kaliber i P1 sände anti-vaxx-reportage om Gardasil.

TV4 Nyheterna 220114

Anti-vaxxaren Cecilia Strandevall (frisör, 27 år)
Medgrundare av antivaccin-partiet MoD

Falsk balans

SVT Debatt 2015 med anti-vaxxaren Linda Karlström

Karlström avslöjades i SVT:s Vaccinkrigarna:

Anna Nordbeck & Malin Olofsson

Research: Johanna Torshall Svensson & Jakob Larsson

TT-Spektra flera grovt pseudovetenskapliga artiklar.

Suzanne Schönström, SvD Idag 2006:

Fyra långa artiklar om energimedicin, kvantfystik mm.

Otaliga varningsklockor ignorerades.

Bristande faktakontroll

VLT 2018 debattartikel Börje Peratt m fl
Richard Appelbom, debattredaktör

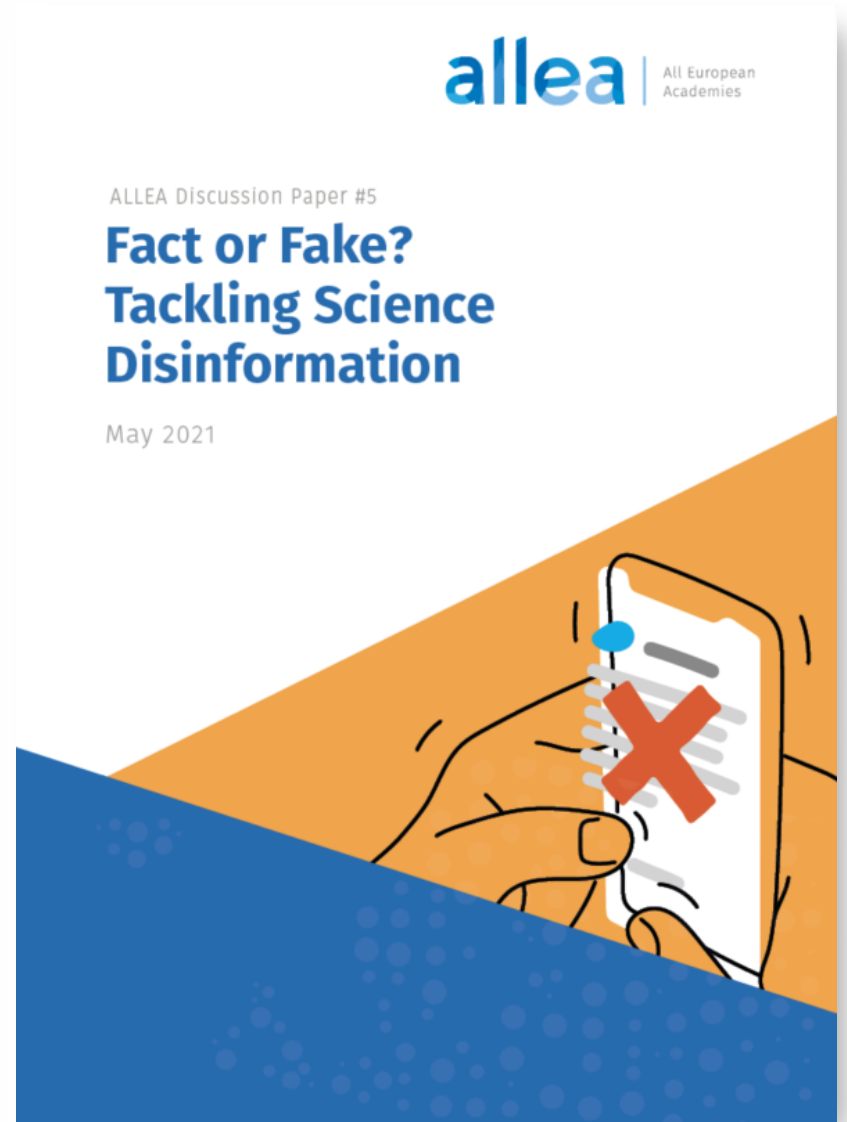
“Han har i ett tioårigt mediedrev förföljt Göteborgsläkaren Dr Erik Enby som framgångsrikt behandlat kring 30 000 patienter med en metod som fått stöd i en rad studier, senast en publicerad i British Medical Journal (2017).”

What is Science Disinformation?

‘Science disinformation’ can be understood as factually incorrect information regarding claims that concern scientific matters and that is fabricated or deliberately manipulated with the intention to deceive.

It also includes claims that deliberately look and sound scientific although they are not.

| | |
|------|--------------------------------------|
| mis- | felaktig information |
| dis- | desinformation, avsedd att vilseleda |
| mal- | avsedd att orsaka skada |



Target groups:

- Scientists
- Science communicators
- Policy makers

ALLEA Discussion Paper #5

**Fact or Fake?
Tackling Science
Disinformation**

May 2021



Some recent and ongoing activities to tackle science misinformation



- Sceptic organizations: CSI 1976 (Vereniging tegen de Kwakzalverij 1881)
- Sense about science 2002
- The Debunking Handbook – John Cook & Stephan Lewandowsky, 2011
- The Computational Propaganda Project, 2012
- EU vs Disinfo, 2015
- First Draft, 2015
- Knowledge Resistance and How to Cure It. Wennergren Symposium: Arne Jarrick, Åsa Wikforss and Dan Larhammar. Sept. 2017
- Enlightenment 2.0 – Research programme launched by the EU Joint Research Centre 2018
- ALLEA – #1 Loss of trust, May 2018; Science in times of challenged trust and expertise.
- EUNOMIA – European Commission since Dec 2018
- SOMA - Social Observatory for Disinformation and Social Media Analysis, EU, EC
- WeVerify
- "Knowledge Resistance: Causes, Consequences and Cures", Åsa Wikforss, Research grant ~5 M€ 2019-2023
- ALLEA – #2 Trust within science, Jan. 2019
- ALLEA – #3 Trust in science and changing landscapes of communication, Jan. 2019
- RETHINK – to improve science communication. Feb. 2019 (funded by EU Horizon 2020)
- Covid-19 debunking : Numerous websites
WHO, Retraction Watch, Mayo Clinic, Nature, Nautilus, GWUP etc.
- ALLEA PERITIA – Policy, Expertise and Trust (funded by EU Horizon 2020), March 2020
- ALLEA Fact or Fake Committee, June 2020
- EU Digital Influence Report by Stephan Lewandowsky & Laura Smillie, Aug. 2020
- IAP statement and call to action against falsified medical products, Sep. 2020
- EU DisinfoLab's Virtual Conference 2020, 28 Sept – 2 Oct
- Stephan Lewandowsky: Climate change, disinformation, and how to combat it. Annu Rev. Public Health 2021

Fact or Fake? Tackling Science Disinformation

May 2021



Characteristics & Mechanisms of Science Disinformation

- ‘Stickiness’ of false information
- Knowledge Resistance
- Science-like jargon in pseudoscientific claims
- Confirmation bias
- The Dunning-Kruger effect
- Filter bubbles, echo chambers
- Conspiracy theories

Unskilled and Unaware of It - How Difficulties in Recognizing One's Own Incompetence Lead to Inflated Self-Assessments

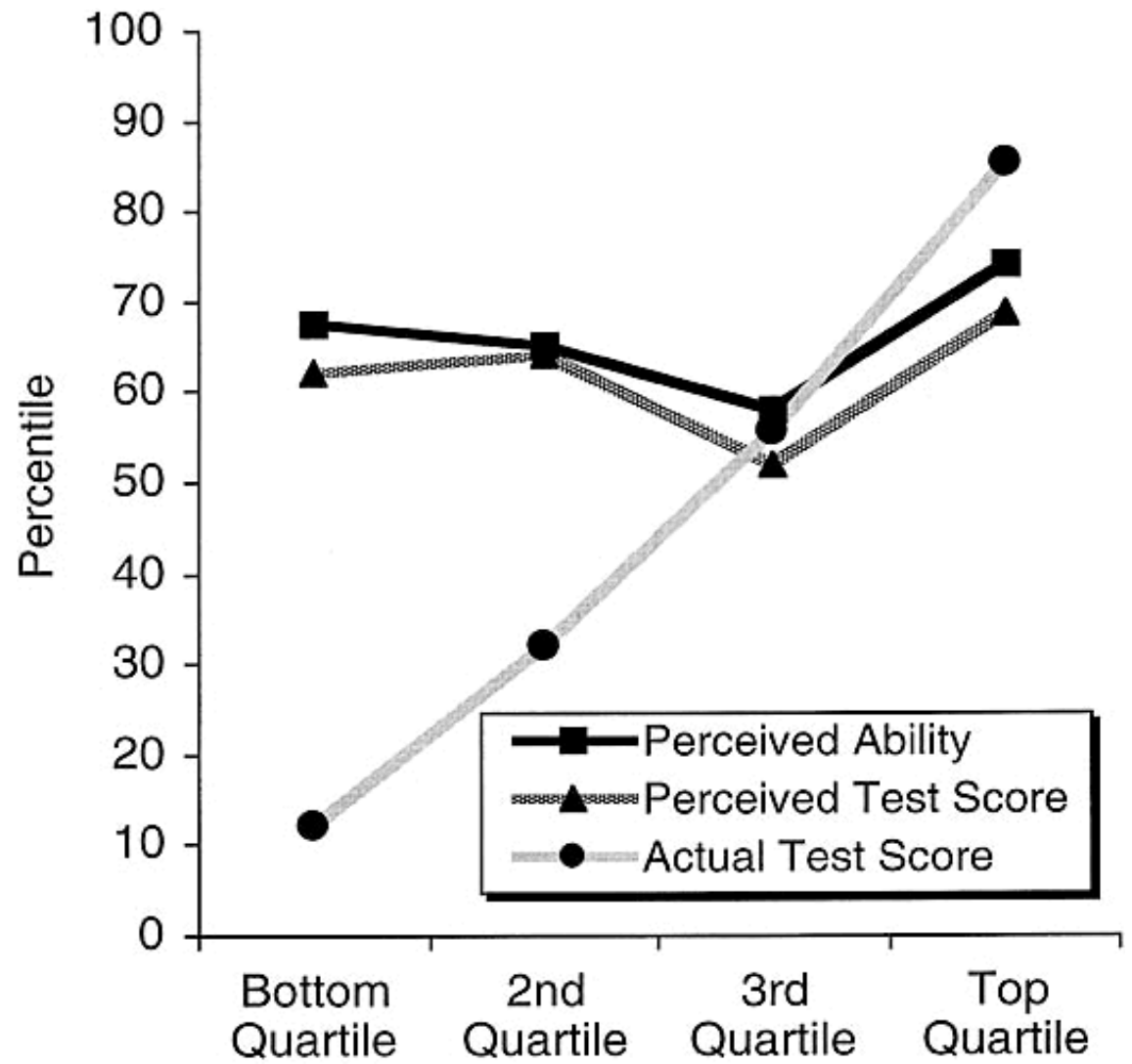
Justin Kruger and David Dunning
Journal of Personality and Social Psychology
December 1999 Vol. 77(6) 1121-1134



David Dunning
Cornell Univ.

Justin Kruger
New York Univ.

Figure 2.
Perceived logical reasoning
ability and test performance
as a function of actual test
performance (Study 2).



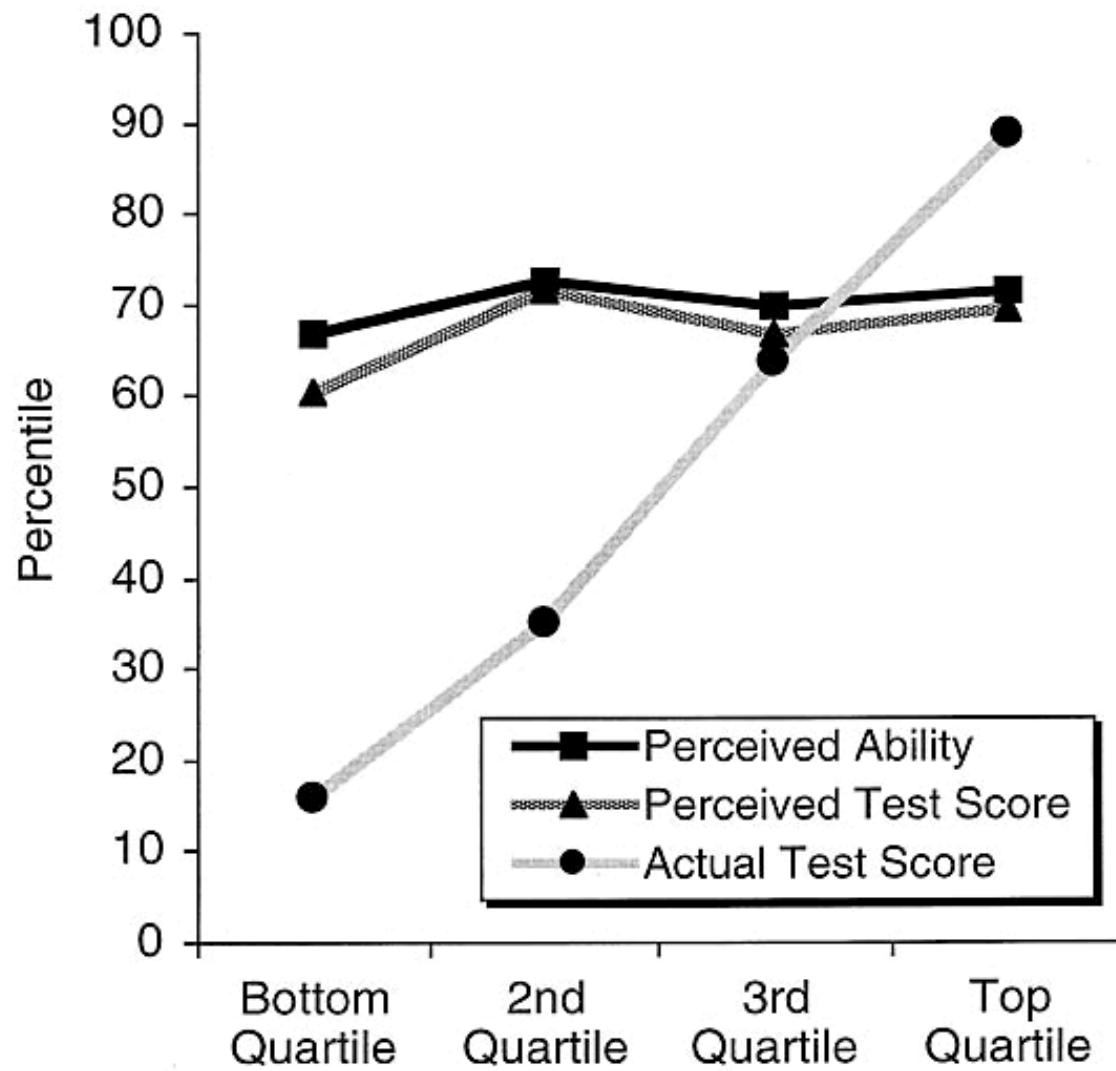


Figure 3.
Perceived grammar
ability and test
performance as a
function of actual test
performance (Study 3).

Hur anser du själv att du är som bilförare?

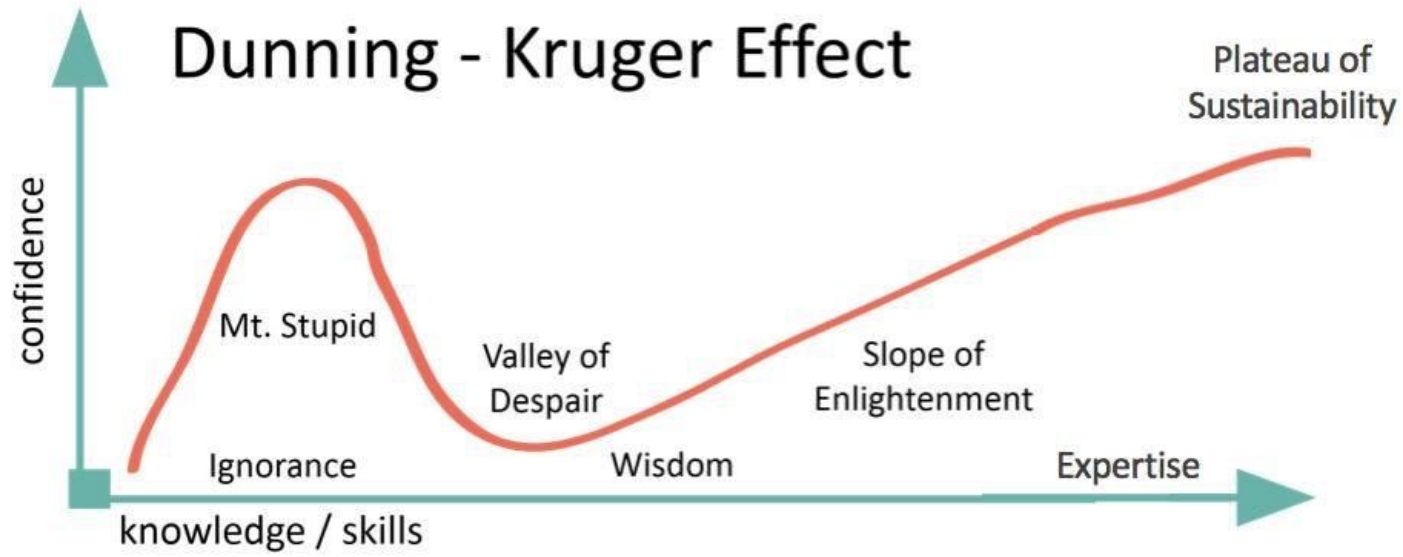
Undersökning utförd av "If Skadeförsäkring"

Antal deltagare: 3133

Plats: Sverige

| | Procent Kvinnor | Procent Män | | |
|----------------|--------------------|----------------|---|-----|
| Mycket dålig | 1 | 1 | } | 4% |
| Sämre än medel | 3 | 3 | | |
| Medelmåttig | 42 | 27 | | |
| Över medel | 35 | 45 | } | 69% |
| Mycket bra | 19 | 24 | | |

Dunning - Kruger Effect



Knowing less but presuming more: Dunning-Kruger effects and the endorsement of anti-vaccine policy attitudes

Matthew Motta et al.

Social Science & Medicine 2018

Survey of 1310 U.S. adults. Results:

More than a third of respondents in our sample thought that they knew as much or more than doctors (36%) and scientists (34%) about the causes of autism.

Our analysis indicates that this overconfidence is highest among those with low levels of knowledge about the causes of autism and those with high levels of misinformation endorsement. Further, our results suggest that this overconfidence is associated with opposition to mandatory vaccination policy.

- 62% of those who performed worst on the autism knowledge test believe that they know as much or more than both doctors and scientists about the causes of autism.
- Only 15% of those who scored best thought they know more than doctors and scientists.
- 71% of those who strongly endorse misinformation felt that they know as much or more than medical doctors. Only 28% of those who reject misinformation think they know more.

Andrew Wakefield: MPR-vaccinet och autism

Född 1957

MPR = mässlingen, påssjuka och röda hund

I februari 1998 hävdade Wakefield i en artikel i The Lancet att mässlingkomponenten i trippelvaccinet MPR förorsakar autism.

8 av 12 barn med autism rapporterades ha fått symptom på autism dagarna efter vaccination.

Efter artikeln sjönk vaccinationsfrekvensen från 92% till under 80% i UK.

2008 konstaterade 1348 bekräftade fall av mässlingen i England och Wales, att jämföra med blott 56 år 1998. Två barn dog av sjukdomen.

Flera stora epidemiologiska studier har konstaterat att inget samband föreligger mellan MPR-vaccinet och autism.

En senare undersökning fann att Wakefields data inte stämde. Endast ett av de åtta barnen hade fått symptom efter vaccinationen.

Källa: The Sunday Times, Feb 8, 2009.



Andrew Wakefield

Studien finansierades av en advokat som anlätts av föräldrar till barn med autism.
Wakefield startade ett företag för att diagnostisera virus.

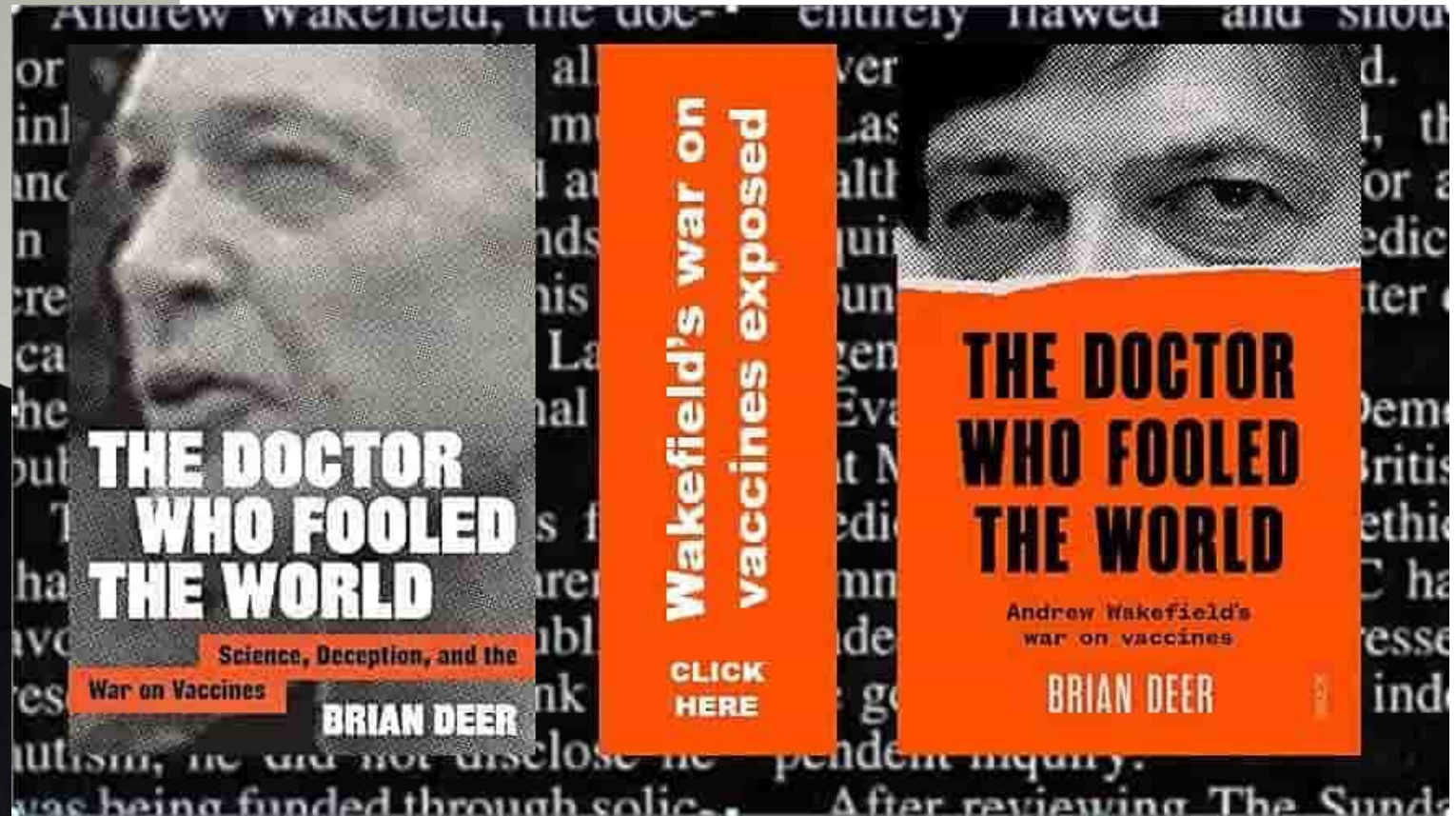
Artikeln i The Lancet drogs tillbaka 2010.
Wakefield förlorade sin läkarlegitimation 2010.

Historien berättas i British Medical Journal 2011:
"How the vaccine crisis was meant to make money"
av journalisten Brian Deer.
<http://www.bmj.com/content/342/bmj.c5258.long>
https://en.wikipedia.org/wiki/Andrew_Wakefield

2011 utsågs Deer till årets fackjournalist i brittisk press.

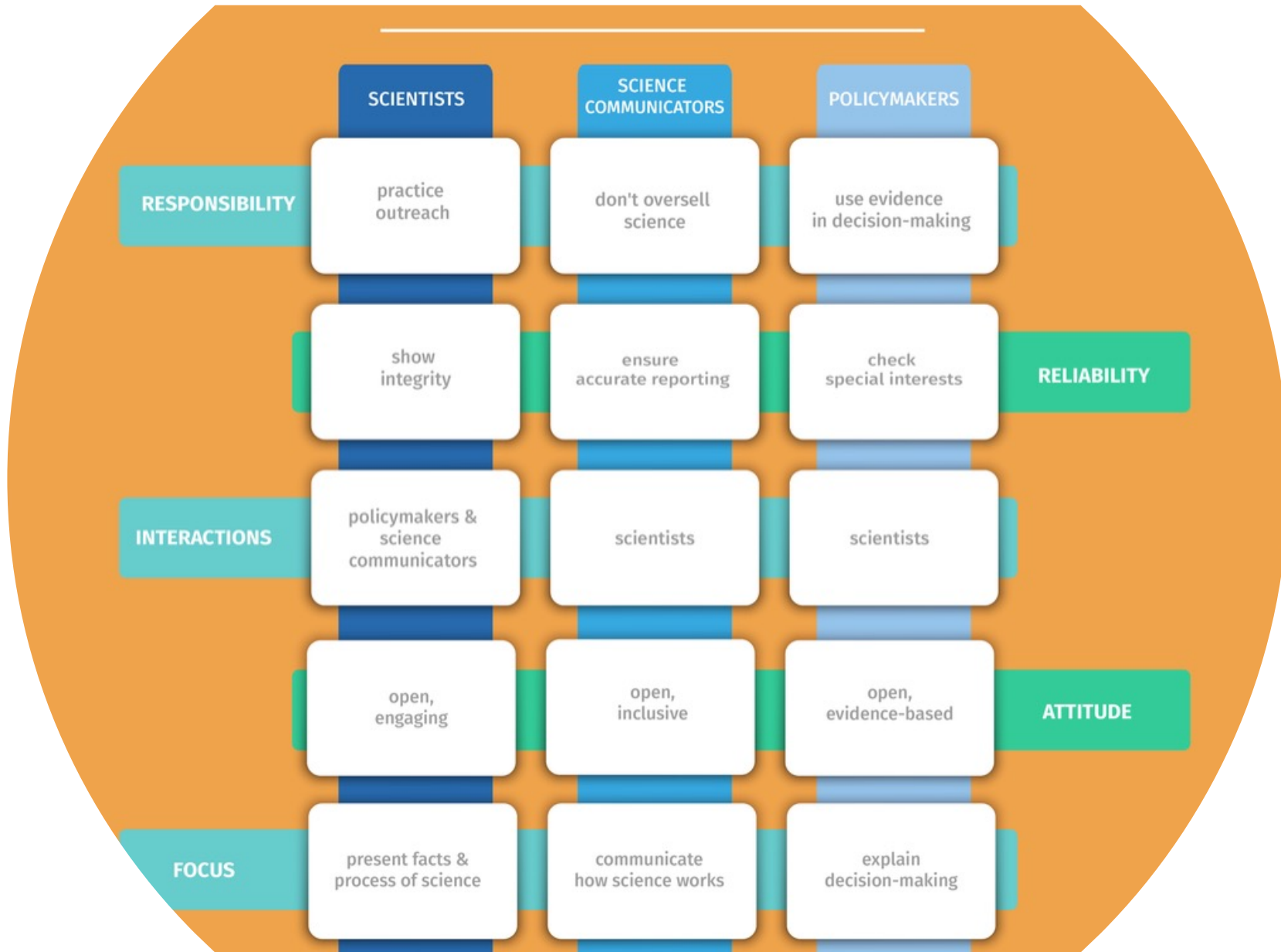


Brian Deer



In May 2021, Brian Deer's book, *The Doctor Who Fooled the World*, won

- the Eric Hoffer Award for nonfiction
- a gold medal in the Independent Publisher Book Awards (IPPYs).



Strategies to Counteract Disinformation

- Raising awareness
- Sense-making descriptions
- Information and education
- Science & Media literacy
- Source / Fact checking
- Inoculation (pre-bunking)
- Debunking
- Recommender Systems
- Regulation
 - Direct
 - Indirect
 - Design Structure / Platforms
 - Incentivise awareness
- Science Communication
- Public Engagement

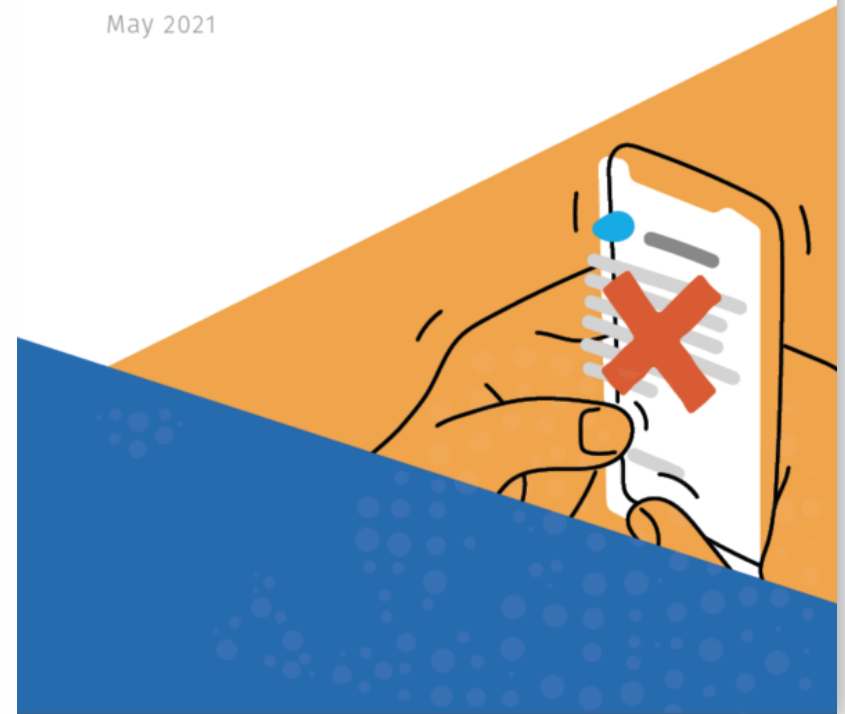
<https://allea.org/wp-content/uploads/2021/04/Fact-or-Fake-Discussion-Paper.pdf>

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ALLEA Discussion Paper #5

Fact or Fake? Tackling Science Disinformation

May 2021



How to spot when news is fake

1. Check the content

A credible media outlet keeps one-sided opinions in op-eds, not in news articles.

2. Check the outlet

Do you know it? Double-check what other (trustworthy) sources say.

3. Check the author

If the author has made up his or her name, the rest is also likely to be fake.

4. Check the sources

If the story uses anonymous (or no) sources, it could be fake.

5. Check the pictures

A reverse image search can show if it has been used before in a different context.

8. Join the myth-busters

Keep on top of the latest tricks used by those who spread disinformation.

7. Question your own biases

Sometimes a story is just too good to be true. Compare with reliable sources.

6. Think before you share

The story could be a distortion. If an event is real, reliable media will cover it.



European Parliament

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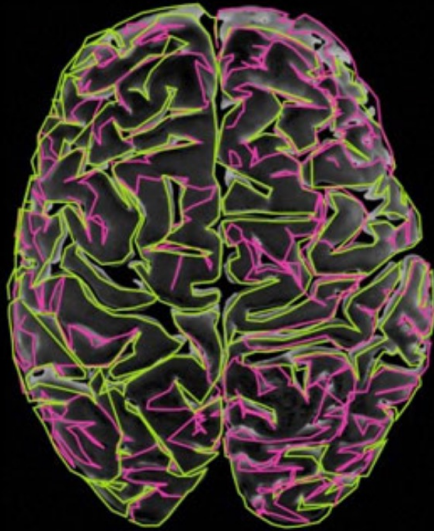
The online information environment

The Royal Society

<https://royalsociety.org/topics-policy/projects/online-information-environment/>



- working with us
- about us
- publications
- international smcs
- contact us



welcome to the Science Media Centre

an independent press office helping to ensure that the public have access to the best scientific evidence and expertise through the news media when science hits the headlines

[find out more](#)



for journalists

for scientists

for press officers

FIONA FOX

'This is how to talk about science' Justin Webb

BEYOND

THE

*The Inside Story
of Science's
Biggest Media
Controversies*

HYPE



VETENSKAPEN SÄGER



KUNGL.
VETENSKAPS-
AKADEMIEN

THE ROYAL SWEDISH ACADEMY OF SCIENCES

VETENSKAPEN SÄGER • NO 1 X0000X 2021



Utvecklingen och användningen av vacciner för att förebygga många allvarliga, och inte sällan dödliga, infektionssjukdomar räknas till medicinens allra största framsteg. Vaccination har utrotat smittkoppor, snart också polio, och på tur står mässling och kolera. Vaccination framstår som det effektivaste sättet att få bukt med Covid-19-pandemin. De flesta länder har speciella barnvaccinationsprogram, som varje år räddar mellan två och tre miljoner barn från att dö i ofta vanliga infektionssjukdomar.

VAD ÄR ETT VACCIN?

▷ Ett vaccin består av ett försvagat eller avdödat smittämne (bakterie, virus eller parasit) eller del av smittämnet. Det ges till en individ för att stimulera ett immunsvår, framför allt antikroppar, som ger skydd mot senare infektion och/eller sjukdom orsakad av smittämnet.

Ges ut med produktionsstöd från stiftelsen Natur & Kultur

Vetenskapsakademien sammanfattar

Om vaccin



KUNGL.
VETENSKAPS-
AKADEMIEN

THE ROYAL SWEDISH ACADEMY OF SCIENCES

Förkortad och förenklad version
Utgiven september 2021

Så testas vacciner

Alla vacciner genomgår mycket noggrann testning, som sker stegvis. Målet är att slå fast att vaccinet både ger bra skydd mot sjukdom och att det inte ger allvarliga biverkningar.

TESTER PÅ DJUR

1. Först testas om det nya vaccinet ger effektivt immunsvär hos djur, ofta möss, utan att ge biverkningar.

2. Är vaccinet säkert och ger upphov till effektivt immunsvär hos djur tillverkas det under så kallad Good Manufacturing Practice enligt ett ytterst noggrant regelverk.

3. Sedan testas vaccinet igen i större djurstudier, med minst två djurarter.

4. När djurstudier visat goda resultat går det att ansöka om godkännande för tester på människor. Dessa prövningar sker stegvis.

5. Fas I
Vaccinet testas på friska vuxna för att se om det är oskadligt och ger ett immunsvär. Här ingår vanligen 20–100 individer.

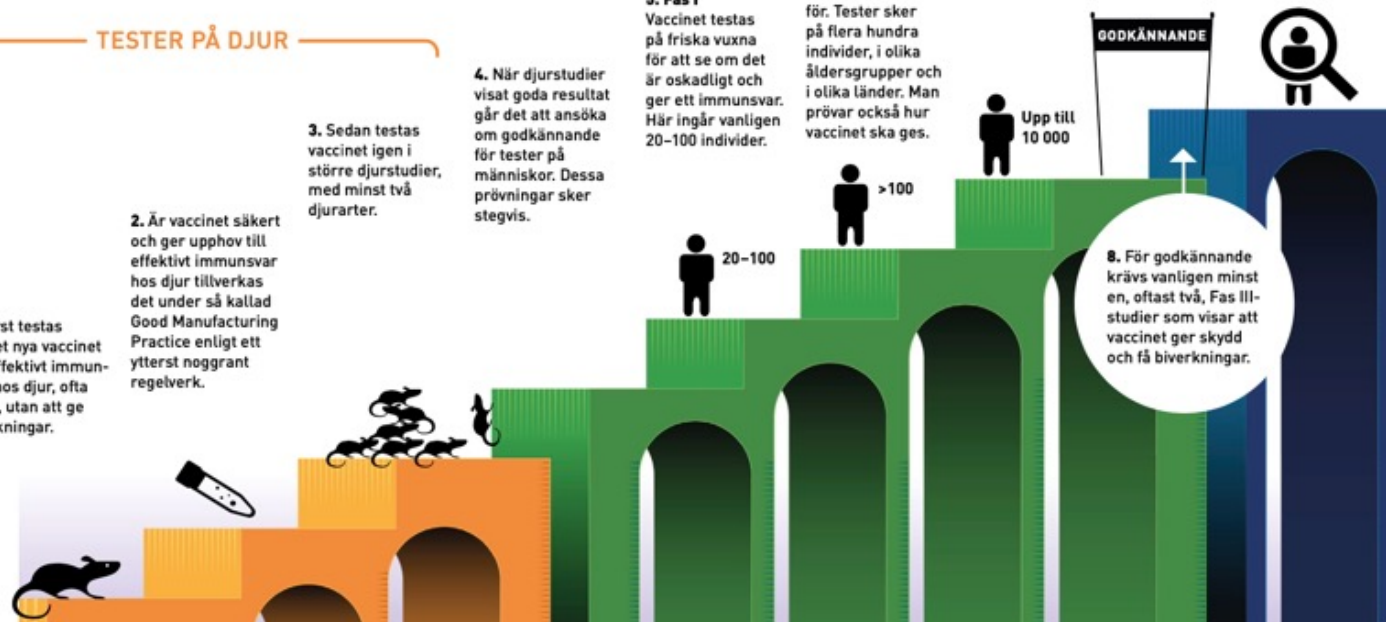
6. Fas II
Tester görs för att visa att vaccinet är säkert och ger immunsvär hos de som vaccinet är tänkt att användas för. Tester sker på flera hundra individer, i olika åldersgrupper och i olika länder. Man provar också hur vaccinet ska ges.

7. Fas III
Har vaccinet fungerat väl startar storskaliga studier, med upp till tiotusen personer. Uppföljningstiden är ofta två år.

9. Fas IV
När vaccinet är godkänt och har börjat användas i stor skala görs flera uppföljande studier. Här vill man ytterligare säkerställa att vaccinet är säkert och effektivt, samt dess effekter på befolkningen.

8. För godkännande krävs vanligen minst en, oftast två, Fas III-studier som visar att vaccinet ger skydd och få biverkningar.

TESTER PÅ MÄNNISKOR



Länkar till KVA:s vaccintexter:

<https://www.kva.se/sv/nyheter/vetenskapsakademien-ger-ut-skrift-om-vaccin>

<https://www.kva.se/sv/nyheter/vetenskapsakademien-sammanfattar-om-vaccin>

Länkar direkt till pdf-filerna:

https://s3.eu-de.cloud-object-storage.appdomain.cloud/kva-image-pdf/2021/04/VS_210419.pdf

https://s3.eu-de.cloud-object-storage.appdomain.cloud/kva-image-pdf/2021/09/KVA_om-vaccin_210919.pdf

Många vetenskapliga nyheter förmedlas numera via pressmeddelanden och på universitetens nyhetssidor.

Kortfattade notiser och texter riskerar att misstolkas och tenderar att överdriva.

Fast publishing in open access after fast and inadequate peer review
Fast publishing completely without peer review
Over 15,000 predatory journals

Preprint publishing

22 March 2022, search word 'covid':
19,231 articles in medRxiv
7,575 articles in bioRxiv

medRxiv

THE PREPRINT SERVER FOR HEALTH SCIENCES



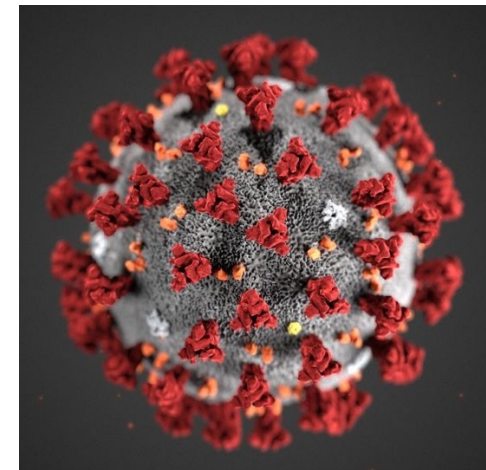
bioRxiv

THE PREPRINT SERVER FOR BIOLOGY

Retraction Watch

<https://retractionwatch.com/retracted-coronavirus-covid-19-papers/>

214 (as of 22 March 2022)
7 articles in the Lancet
1 in NEJM



Numerous pranks to test and challenge the system

Chocolate diet for weight loss

2015

PhD and journalist John Bohannon

I Fooled Millions Into Thinking Chocolate Helps Weight Loss. Here's How.

2015-05-29 09:47

I Fooled Millions Into Thinking Chocolate Helps Weight Loss. Here's How.

<http://io9.com/i-fooled-millions-into-thinking-chocolate-helps-weight-1707251800>

iMedPub Journals
<http://journals.imed.pub>

INTERNATIONAL ARCHIVES OF MEDICINE
SECTION: ENDOCRINOLOGY
ISSN: 1755-7682

2015

Vol. 8 No. 55
doi: 10.3823/1654

Chocolate with high Cocoa content as a weight-loss accelerator

ORIGINAL

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Peter Homm¹,
Alexander Driehaus¹

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Abstract

Background: Although the focus of scientific studies on the beneficial properties of chocolate with a high cocoa content has increased in recent years, studies determining its importance for weight regulation, in particular within the context of a controlled dietary measure, have rarely been conducted.

Methodology: In a study consisting of several weeks, we divided men and women between the ages of 19-67 into three groups. One group was instructed to keep a low-carb diet and to consume an additional daily serving of 42 grams of chocolate with 81% cocoa content (chocolate group). Another group was instructed to follow the same low-carb diet as the chocolate group, but without the chocolate intervention (low-carb group). In addition, we asked a third group to eat at their own discretion, with unrestricted choice of food. At the beginning of the study, all participants received extensive medical advice and were thoroughly briefed on their respective diet. At the beginning and the end of the study, each participant gave a blood sample. Their weight, BMI, and waist-to-hip ratio were determined and noted. In addition to that, we evaluated the Giessen Subjective Complaints List. During the study, participants were encouraged to weigh themselves on a daily basis, assess the quality of their sleep as well as their mental state, and to use urine test strips.

Result: Subjects of the chocolate intervention group experienced the easiest and most successful weight loss. Even though the measurable effect of this diet occurred with a delay, the weight reduction of this group exceeded the results of the low-carb group by 10% after only three weeks ($p = 0.04$). While the weight cycling effect already occurred after a few weeks in the low-carb group, with resulting weight gain in the last fifth of the observation period, the chocolate group experienced a steady increase in weight loss. This is confirmed by the evaluation of the ketone reduction. Initially, ke-

KVA webinar on predatory academic journals and conferences

relating to IAP report:

"Combatting Predatory Academic Journals and Conferences"

Thursday April 7, 15:00-16:30

The report will be presented by Dr. Stefan Eriksson, Uppsala University, who was a member of the IAP expert committee.

Panel discussion with Stefan Eriksson and five other experts on scientific publishing, moderated by Dan Larhammar, president of the Academy

<https://www.kva.se/sv/kalendarium/webinar-predatory-academic-journals-and-conferences>



Kommer Covid-19 att stärka
vetenskapsjournalisternas ställning?

Hur kan allmänjournalisters
källgranskning förbättras?