Cochrane Deutschland

LUNCH & LEARN

Cochrane Reviews lesen und verstehen

Referentin: Dr. Birgit Schindler
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(Cochrane Deutschland Stiftung, Institut für Evidenz in der Medizin, Freiburg)

Zuverlässige Evidenz.
Informierte Entscheidungen.
Bessere Gesundheit.

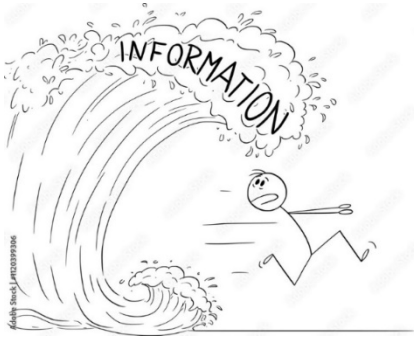
Gefördert durch:
Bundesministerium für Gesundheit
aufgrund eines Beschlusses des Deutschen Bundestages

Interessenkonflikte Birgit Schindler

- Wissenschaftliche Mitarbeiterin in der Cochrane Deutschland Stiftung seit 2022
- Die Referentin versichert, dass in Bezug auf den Inhalt des folgenden Vortrags keine Interessenkonflikte bestehen, die sich aus Beziehungen zu einem Unternehmen ergeben, z. B. einem Beschäftigungsverhältnis, einer Beratertätigkeit, finanziellen Zuwendungen für Forschungsvorhaben, Vorträgen oder anderen Tätigkeiten.

Vorab eine Frage…

Welche Informationen sind verlässlich ?



„Die größte Tragödie unserer Gesellschaft ist, dass wir quantitativ über- und qualitativ unterinformiert sind.“

(Pierre Lévy)

Systematische Reviews als die Antwort auf die Informationsflut in der Medizin

- ⇨ Zusammenfassung von Studien zu gesundheitsrelevanten Fragestellungen
- ⇨ Beurteilung der Vertrauenswürdigkeit der Evidenz
- ⇨ Aktualität

Ein systematischer Review ist ...

- eine wissenschaftliche Arbeit,
- in der die **verfügbare** empirische **Evidenz**
  - zu einer **spezifischen Fragestellung (PICO-Schema)**,
  - unter Anwendung **systematischer Methoden,**
- **identifiziert**,
- **zusammengefasst** und
- **kritisch bewertet** ist.

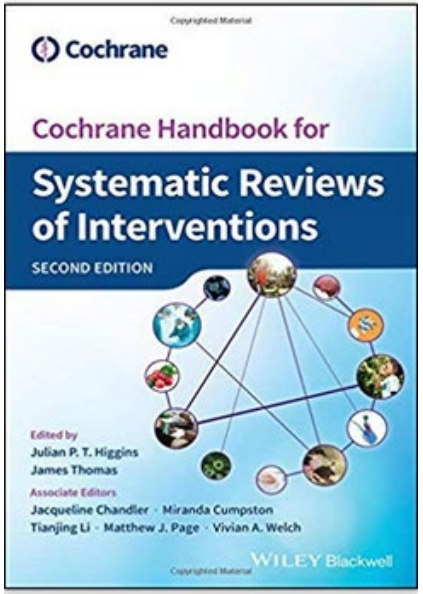
Weitere Ressourcen:

Video: Features and benefits of a systematic review (by Ruth Foxlee & Miranda Cumston)

Was sind Cochrane Reviews ?

- nach den Standards von Cochrane erstellt und
- in der Cochrane Library publiziert

- hohe methodische Qualität
- Transparenz
- einheitliches Format
- regelmäßige Aktualisierungen



Cochrane Handbook Version 6
https://training.cochrane.org/handbook/current

Eine Meta-Analyse ist ...

- kein eigenständiges Evidenzsyntheseformat
- kann Teil eines systematischen Reviews sein
- bezeichnet die Art der Auswertung der Ergebnisse der eingeschlossenen Studien

⇨ **quantitative Zusammenfassung** der Ergebnisse mehrerer Studien **mit statistischen Methoden**

Überblick

1. Wo findet man Cochrane Reviews ?
   - ⇨ Suchmöglichkeiten in der **Cochrane Library**
     siehe unser letztes Webinar (Aufzeichnung)
2. Wie man durch einen Cochrane Review navigiert
3. Die wichtigsten Elemente eines Cochrane Reviews

Beispiel:

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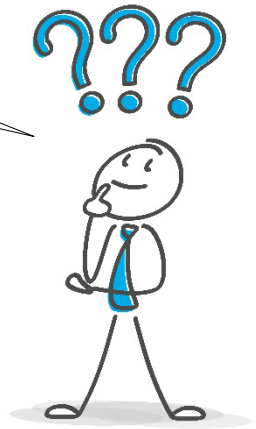
Hilft Zink bei Erkältung?



Cochrane Library

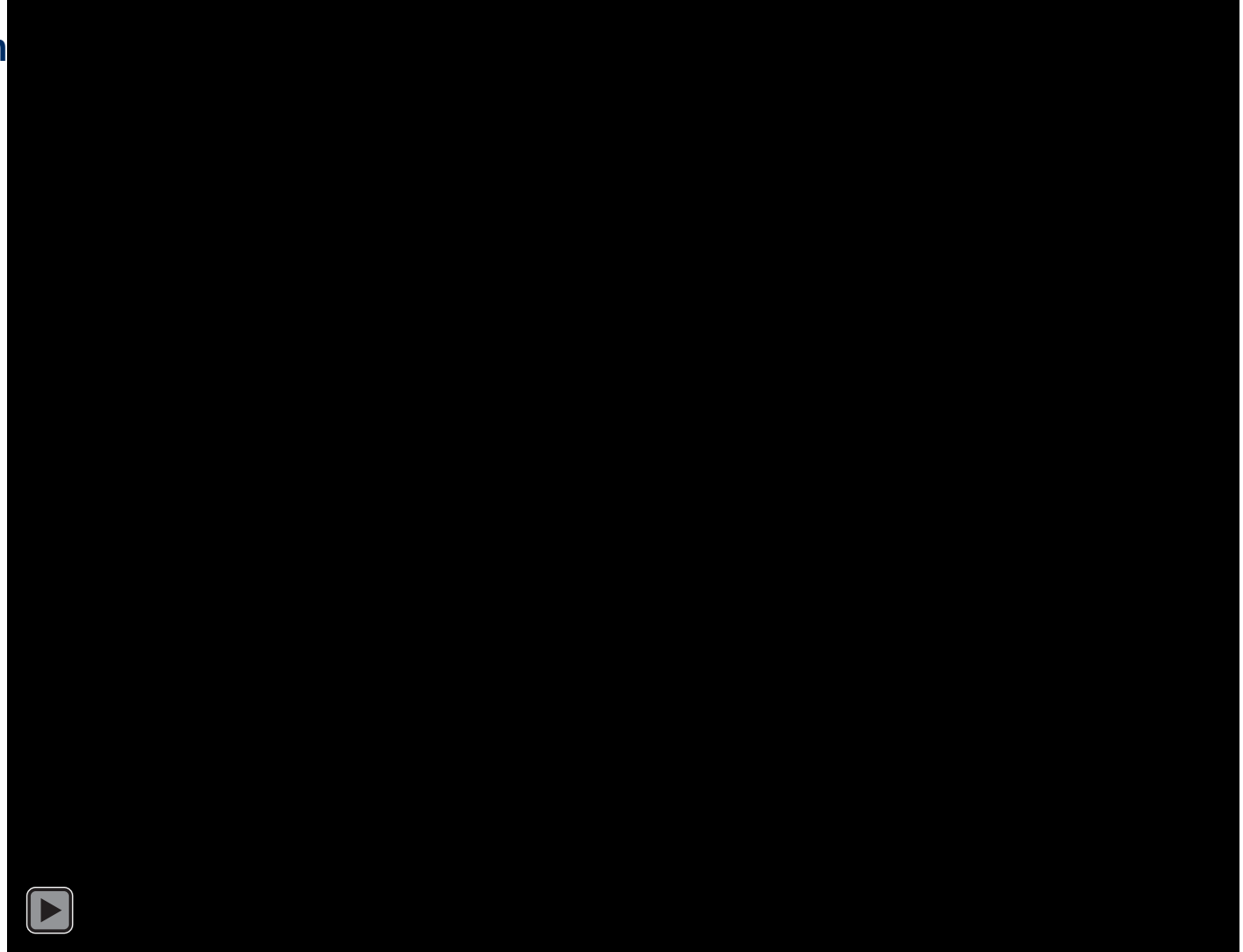
Cochrane Database of Systematic Reviews

Zinc for prevention and treatment of the common cold (Review)

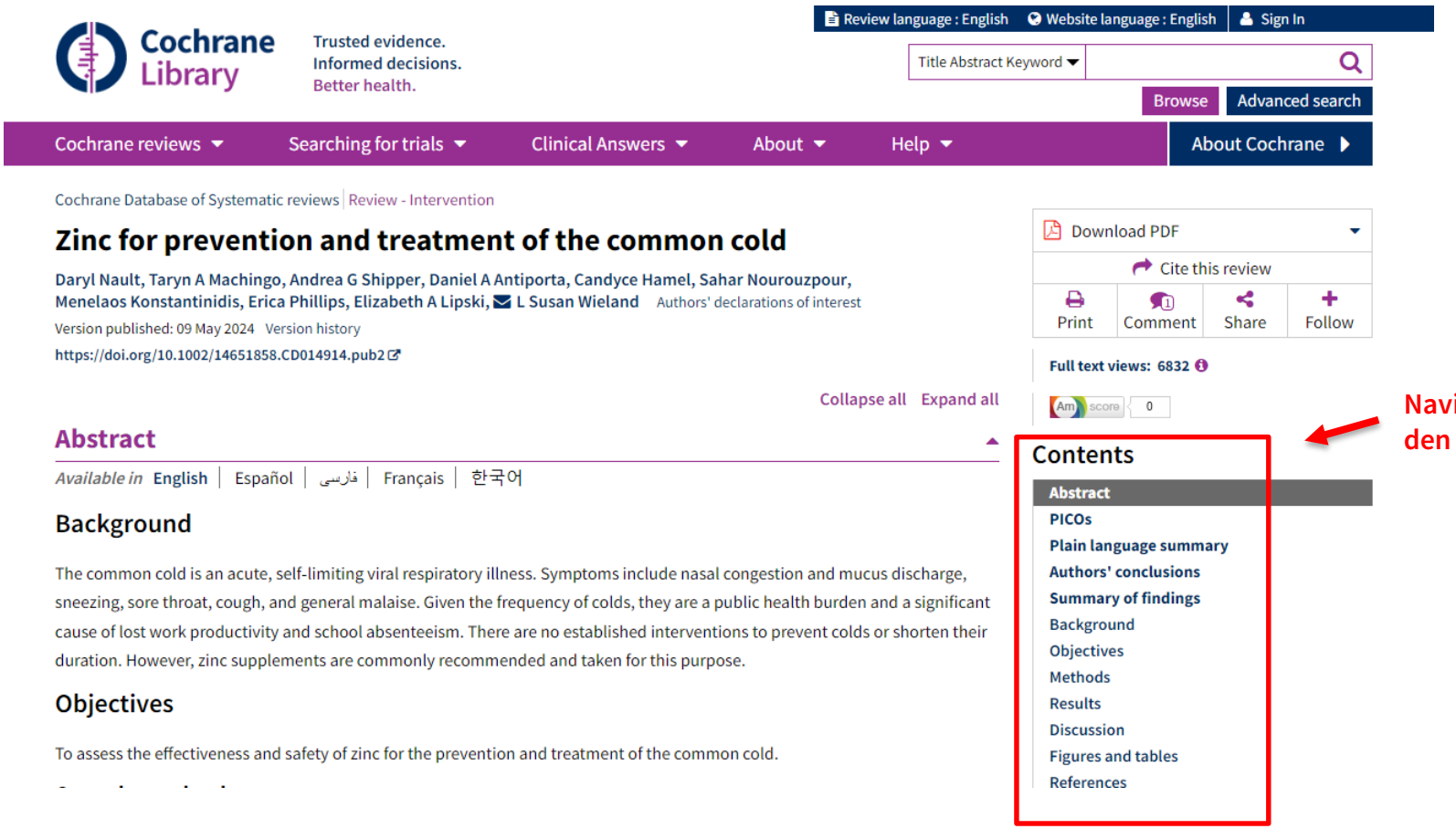
Nault D, Machingo TA, Shipper AG, Antiporta DA, Hamel C, Nourouzpour S, Konstantinidis M, Phillips E, Lipski EA, Wieland LS

Wie man durch einen Cochrane Review navigiert

Zusammenfassungen in einfacher Sprache auf Deutsch



Wie man durch einen Cochrane Review navigiert



Navigation durch den Content

Wie man durch einen Cochrane Review navigiert

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PICOs

Population (8)	Intervention (1)	Comparison (1)	Outcome (3)
Child, Preschool 2-5 years	Zinc	Placebo	Serious Adverse Event
Aged 80 and over 80+ years			Common Cold
Adult 19-44 years			Adverse Event
Child 6-12 years			
Middle Aged 45-64 years			
Young Adult 19-24 years			
Aged 65-79 years			
Adolescent 13-18 years			

Contents

Wie man durch einen Cochrane Review navigiert

Authors' conclusions

Implications for practice

This Cochrane review found varied evidence to support the effectiveness of zinc in the prevention or treatment of the common cold. Zinc supplementation may provide some limited benefits for people with the common cold. On the basis of this review, the current evidence is insufficient to provide firm conclusions or recommend zinc supplementation for the prevention or treatment of the common cold.

Implications for research

Zinc supplementation for the prevention of the common cold or as an effective treatment has been widely studied. However, the certainty of evidence was mostly low to very low, and was insufficient to draw firm conclusions. Future researchers should note the need for standardised methods when providing zinc supplementation for the prevention or treatment of the common cold. More research is needed to determine the exact zinc type, dose, and duration of supplementation appropriate for the prevention or treatment of the common cold. Future directions for research might be to consider exploring the subjective experience or quality of life of participants while taking zinc, increasing the diversity of characteristics in the participants recruited (varied race/ethnicity, age, gender, health status), and further examining factors that may interfere with the bioavailability of zinc.

Contents

Wie man durch einen Cochrane Review navigiert

Bin ich hier richtig ?

Summary of findings 2. Zinc compared to placebo for treatment of the common cold

Patient or population: adults and children with colds and/or upper respiratory infections
Setting: community, schools, outpatient and private health centre/clinics
Intervention: zinc
Comparison: placebo

Outcomes	Illustrative comparative risks* (95% CI)		Effect (95% CI)	No. of participants (studies)	GRADE certainty of evidence	Comments
	Assumed risk Placebo	Corresponding risk Zinc				
Mean duration of colds in days Duration of follow-up: 8 to 21 days	Mean duration of colds in control groups ranged from 5.1 to 9 days	The mean duration of colds in days in the intervention groups was on average **2.37 lower** (95% CI -4.21 to -0.53)	—	972 (8 studies)	⨁⨁◯◯ Low[a]	There may be a reduction in the duration of colds treated with zinc.

[a]Downgraded one level due to risk of bias and one level due to inconsistency ($I^2 > 50\%$).

Contents

Supplementary materials

- Search strategies
- Characteristics of studies
- Analyses
- Download data

Related

- Cochrane Clinical Answers(1)
- Editorials
- Podcasts(1)
- Special Collections

About this review

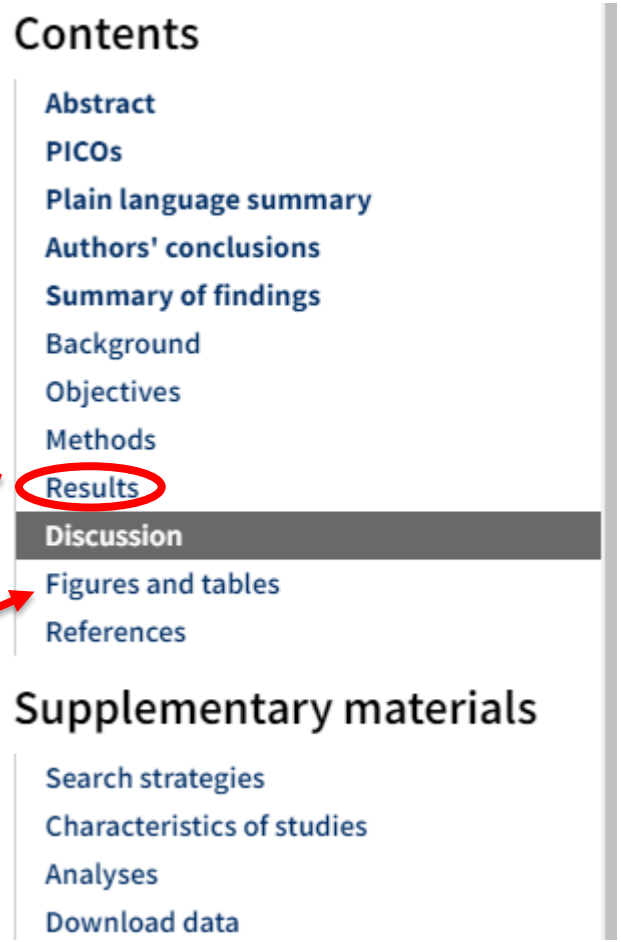
- Information
- Authors
- Version history
- Keywords (MeSH, PICOs)
- Related content
- Translation notes

Wie man durch einen Cochrane Review navigiert

- Results of the search (Fig. 1: Flowchart)
- Risk of Bias in included studies (Fig. 2 und 3)
- Effects of interventions (Prävention, Behandlung) für die einzelnen Endpunkte

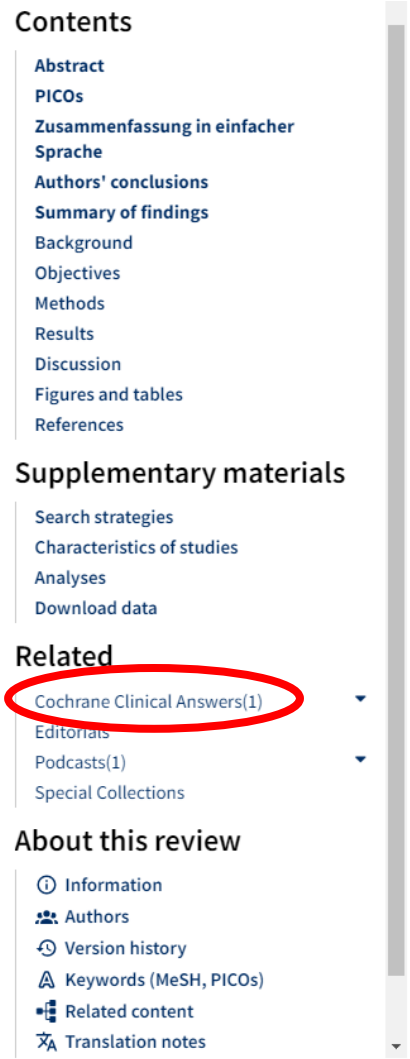
Primäre Endpunkte:

Entwicklung einer Erkältung (Prävention), Dauer der Erkältung (Behandlung)



Alle Analysen im Text verlinkt, auch hier über Schnellzugriff abrufbar

Wie man durch einen Cochrane Review navigiert



Question:

What are the effects of zinc for the prevention and treatment of the common cold or upper respiratory tract infections (URIs)?

Amin Sharifan
26 November 2024
https://doi.org/10.1002/cca.4493

Clinical Answer:

For infants, children, and adults without colds or URIs, taking prophylactic zinc may make little or no difference to the proportion of people who develop a cold or URI at up to seven months follow-up compared with placebo, or to the mean number of colds or URIs people develop at 5 to 18 months (low-certainty evidence). Children may miss slightly less school when taking prophylactic zinc (by around half a day); however, this difference may be of minimal importance (low-certainty evidence). Prophylactic zinc probably makes little to no difference to the mean duration of any colds or URIs (moderate-certainty evidence) and may make little to no difference to overall symptom severity, the proportion of children missing days from school, or the occurrence of serious adverse events (low-certainty evidence); however, the analysis was likely underpowered and suggests a possible increased risk of serious adverse events. The evidence on adverse events is very uncertain. No studies assessed days missed from work.

In children and adults with colds or URIs, low-certainty evidence suggests that treatment with zinc may reduce the average duration of colds or URIs by around 2.5 days; however, there may have been little to no difference between groups when studies at high or unclear risk of selection bias were excluded. Moderate-certainty evidence shows that zinc probably results in more adverse events compared with placebo (on average, 339 vs 254 per 1000 people). The most commonly reported adverse events were unspecified, followed by some form of taste aberration or gastrointestinal discomfort. The evidence about the effect of zinc on the risk of ongoing colds or URIs at the end of the study periods, overall severity of the cold, and days missed from school is very uncertain. No studies assessed days missed from work or serious adverse events.

Comparisons

1. Zinc versus placebo for the prevention of colds	Expand All »
2. Zinc versus placebo for the treatment of colds	Expand All »

Überblick

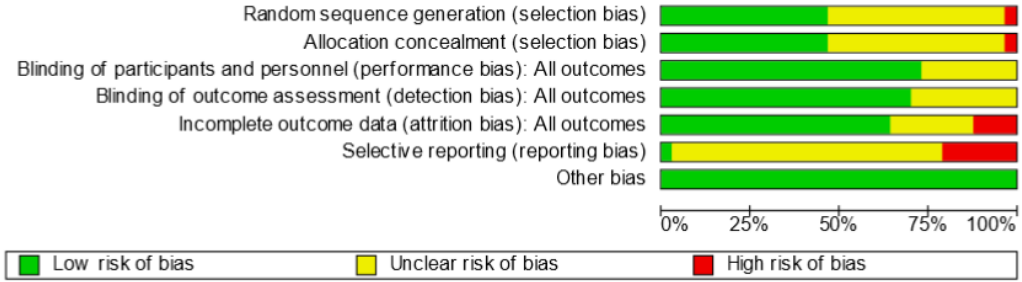
1. Wo findet man Cochrane Reviews ?
   - ⇨ Suchmöglichkeiten in der Cochrane Library siehe unser letztes Webinar (Aufzeichnung)
2. Wie man durch einen Cochrane Review navigiert
3. **Die wichtigsten Elemente eines Cochrane Reviews:**
   - **Risk of Bias Tabellen**
   - **Forest Plots**
   - **Summary of Findings Tabellen**

Wichtige Elemente in Cochrane Reviews

Risk of bias in included studies

Almost all studies were at unclear or high risk of bias in at least one domain. Detailed information about the risk of bias in the included studies is presented in the table for each study and overviews are provided in Figure 2 and Figure 3.

Figure 2 **Open in figure viewer**



Shortcut

Supplementary materials

Was ist Bias?

- Systematische Fehler oder Verzerrungen bei der Durchführung und Analyse von Studien
- kann zu Über- oder Unterschätzung von Effekten in Studien führen

- Deshalb: Verzerrungsrisiko für jede Studie bewerten
  - Cochrane-Risk-of-Bias-Tool (ROB-1 oder ROB-2)

Mindestens zwei Beurteilende

Wo lauert bei einer Studie Bias ?

− High risk

? Unclear risk

\+ Low risk

Randomisiert ?

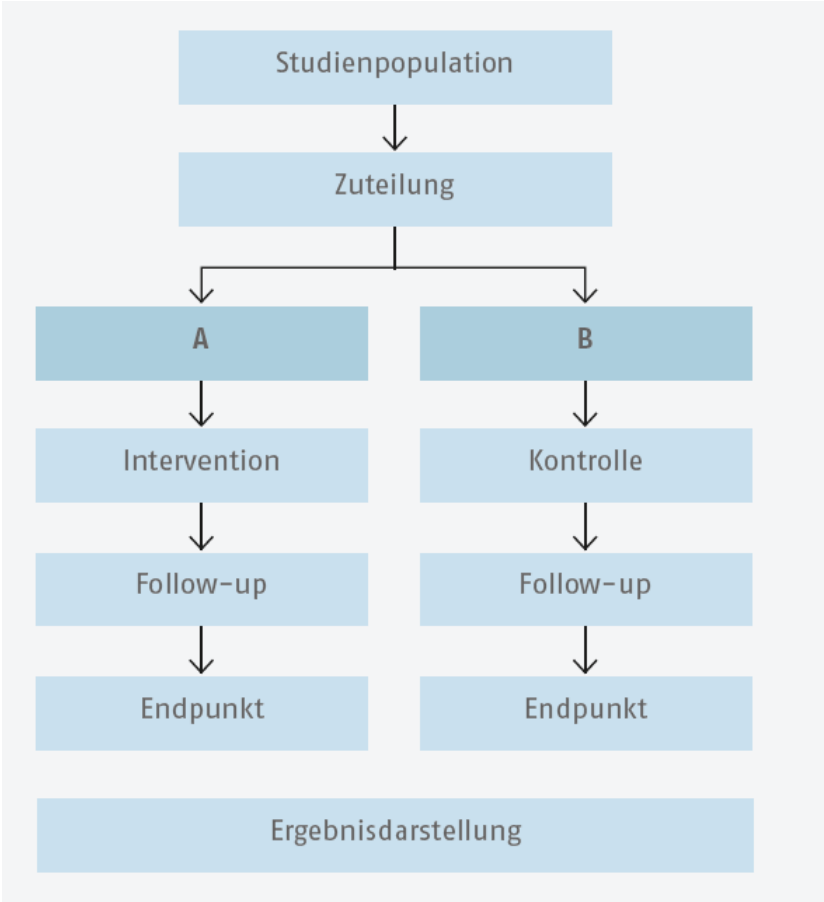
Verdeckte Zuteilung ?

Verblindet ?

Studienabbrecher ?

Endpunktmessung verblindet ?

Wie geplant ?



Übung am Beispiel von Hirt et al. (2000)

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Hirt 2000

Study characteristics

Methods	**Study design:** parallel randomised controlled trial
	Prevention or treatment trial: treatment
	Concomitant treatments explicitly allowed or forbidden: "Participants were instructed not to take any other cold remedies or any drugs that might affect symptom scores."
	Investigation of ability to distinguish between zinc and placebo: NR
	Duration of follow-up: "Subjects were asked to return to their study site within 24 hours of symptom resolution for verification and followup." 24 h?
	Duration of intervention: "The primary endpoint was the complete resolution of symptoms, which was determined when the total symptom score fell to zero. Subjects were instructed to spray one dose into each nostril every 4 hours (9 a.m. , l p.m. , 5 p.m. , and 9 p.m .) for as long as they experienced symptoms." Max appears to be ~16 days.
	Duration of run-in or washout period: NR
	Describe how participants were identified as having colds/URTI at baseline (treatment trial): "Only subjects whose cold symptoms had been manifest for 24 hours or less were enroled in the study. Subjects were required to have had at least three of the following symptoms: cough, headache, hoarseness, muscle ache, nasal drainage, nasal congestion, scratchy throat, sore throat, or sneezing."
	Outcomes measured: duration of cold, global severity of cold (NR in results), severity of individual cold symptoms (NR in results), adverse events

Am score 0

Contents

Supplementary materials

Related

Risk of bias

Bias	Authors' judgement	Support for judgement

Übung am Beispiel von Hirt et al. (2000)

Erfolgte die Zuteilung auf die Behandlungsgruppen nach dem Zufallsprinzip?

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	?	Quote: "The study population consisted of 213 subjects; they were randomly assigned to receive either zinc nasal gel (n = 108) or placebo (n = 105)."

Was würden Sie vergeben?

High risk ?

Unclear risk ?

Low risk ?

Übung am Beispiel von Hirt et al. (2000)

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Erfolgte die Zuteilung auf die Behandlungsgruppen nach dem Zufallsprinzip ?

Hirt 2000

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Quote: "The study population consisted of 213 subjects; they were randomly assigned to receive either zinc nasal gel (n = 108) or placebo (n = 105)." Judgement comment: no description of method of sequence generation.

Wie wird Risk of Bias in Cochrane Reviews dargestellt ?

Hirt 2000

? Random sequence generation (selection bias)

Allocation concealment (selection bias)

Blinding of participants and personnel (performance bias): All outcomes

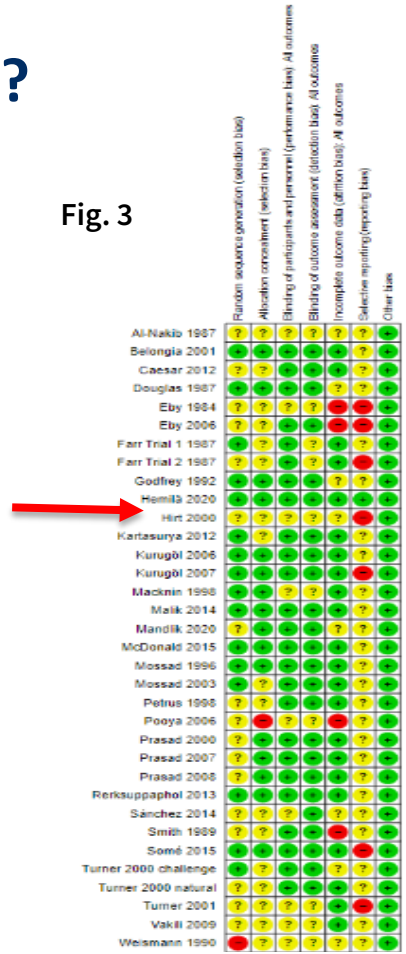
Blinding of outcome assessment (detection bias): All outcomes

Incomplete outcome data (attrition bias): All outcomes

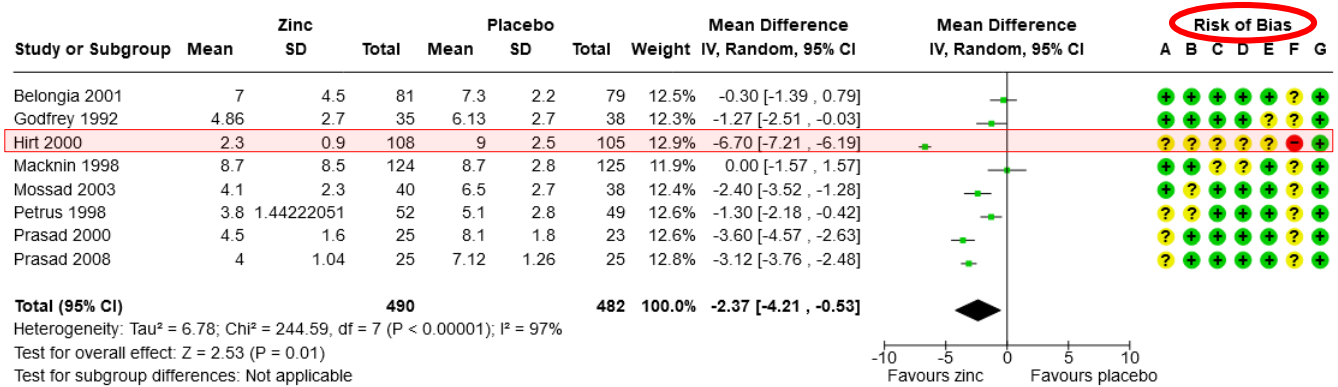
Selective reporting (reporting bias)

Other bias

Fig. 3



Risk of Bias – auch im Forest Plot



Study or Subgroup	Zinc Mean	Zinc SD	Zinc Total	Placebo Mean	Placebo SD	Placebo Total	Weight	Mean Difference IV, Random, 95% CI
Belongia 2001	7	4.5	81	7.3	2.2	79	12.5%	-0.30 [-1.39 , 0.79]
Godfrey 1992	4.86	2.7	35	6.13	2.7	38	12.3%	-1.27 [-2.51 , -0.03]
Hirt 2000	2.3	0.9	108	9	2.5	105	12.9%	-6.70 [-7.21 , -6.19]
Macknin 1998	8.7	8.5	124	8.7	2.8	125	11.9%	0.00 [-1.57 , 1.57]
Mossad 2003	4.1	2.3	40	6.5	2.7	38	12.4%	-2.40 [-3.52 , -1.28]
Petrus 1998	3.8	1.44222051	52	5.1	2.8	49	12.6%	-1.30 [-2.18 , -0.42]
Prasad 2000	4.5	1.6	25	8.1	1.8	23	12.6%	-3.60 [-4.57 , -2.63]
Prasad 2008	4	1.04	25	7.12	1.26	25	12.8%	-3.12 [-3.76 , -2.48]
Total (95% CI)			**490**			**482**	**100.0%**	**-2.37 [-4.21 , -0.53]**

Heterogeneity: Tau² = 6.78; Chi² = 244.59, df = 7 (P < 0.00001); I² = 97%
Test for overall effect: Z = 2.53 (P = 0.01)
Test for subgroup differences: Not applicable

Risk of bias legend

(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)
(G) Other bias

Contents

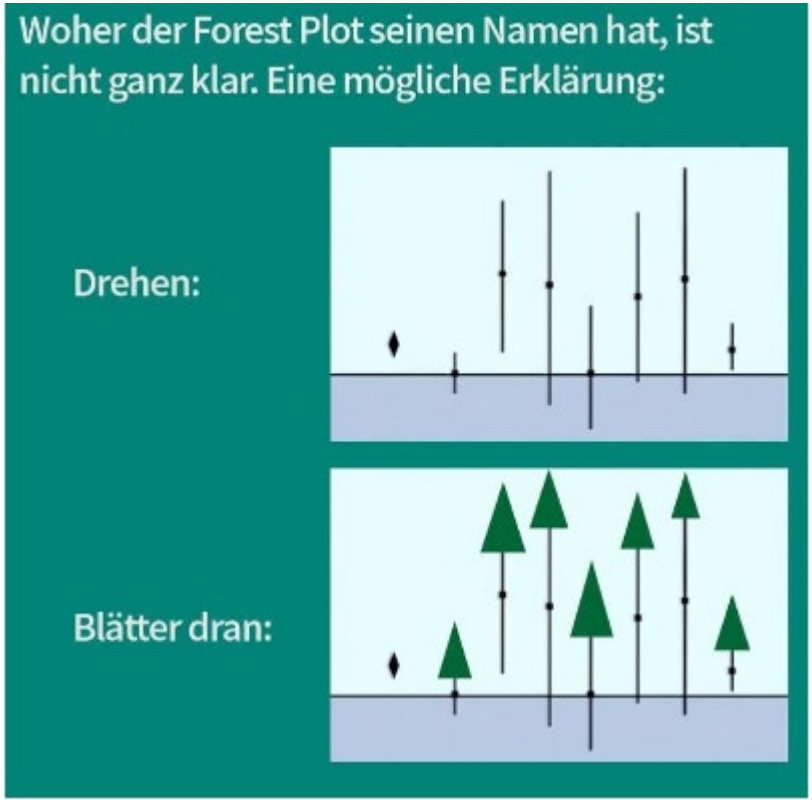
Eine Metaanalyse ist …

- die **quantitative** Zusammenfassung der Ergebnisse mehrerer Studien mit statistischen Methoden.

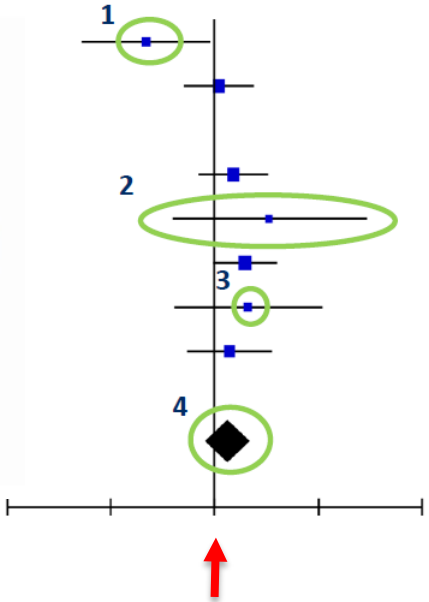
Ein Forest Plot ist …

- die **grafische** Darstellung der Ergebnisse einer Metaanalyse.

→ Ergebnisse auf einen Blick sichtbar



Die typischen Elemente eines Forest Plots



„Nulleffekt“-Linie

1. Therapieeffekt Einzelstudie (Lage)
2. Unsicherheit (Breite des Konfidenzintervalls)
3. Gewicht der Studie (Dicke des Quadrats)
4. Gepoolter Effekt (Raute)

Forest Plot

Effekt von Zink auf die Dauer der Erkältungssymptome im Vergleich zu Placebo

Study or Subgroup	Zinc Mean	Zinc SD	Zinc Total	Placebo Mean	Placebo SD	Placebo Total	Weight	Mean Difference IV, Random, 95% CI
Belongia 2001	7	4.5	81	7.3	2.2	79	12.5%	-0.30 [-1.39 , 0.79]
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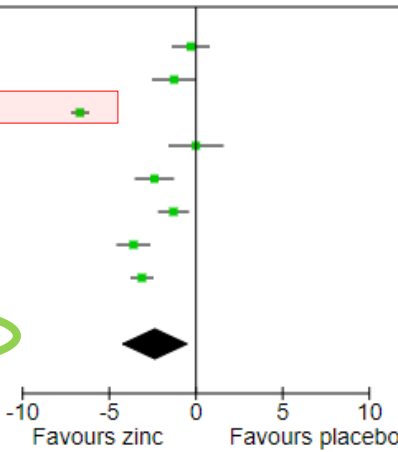
Total (95% CI)			**490**			**482**	**100.0%**	**-2.37 [-4.21 , -0.53]**

Heterogeneity: Tau² = 6.78; Chi² = 244.59, df = 7 (P < 0.00001); I² = 97%

Test for overall effect: Z = 2.53 (P = 0.01)

Test for subgroup differences: Not applicable



Summary of Findings Tabellen in Cochrane Reviews

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Summary of findings 2. Zinc compared to placebo for treatment of the common cold

Patient or population: adults and children with colds and/or upper respiratory infections
Setting: community, schools, outpatient and private health centre/clinics
Intervention: zinc
Comparison: placebo

Outcomes	Illustrative comparative risks* (95% CI)		Effect (95% CI)	No. of participants (studies)	GRADE certainty of evidence	Comments
	Assumed risk Placebo	Corresponding risk Zinc				
Mean duration of colds in days Duration of follow-up: 8 to 21 days	Mean duration of colds in control groups ranged from 5.1 to 9 days	The mean duration of colds in days in the intervention groups was on average **2.37 lower** (95% CI -4.21 to -0.53)	—	972 (8 studies)	⊕⊕◯◯ Low[a]	There may be a reduction in the duration of colds treated with zinc.

[a]Downgraded one level due to risk of bias and one level due to inconsistency ($I^2 > 50\%$).

Contents

GRADE: Vier Stufen der Vertrauenswürdigkeit

- Bewertung der Vertrauenswürdigkeit des gesamten „Evidenzkörpers“

Vertrauens-würdigkeit	Definition	GRADE
Hoch	Wir sind uns **sehr sicher** dass der wahre Effekt innerhalb der berechneten Spannweite liegt.	⨁⨁⨁⨁
Moderat	Wir sind **einigermaßen sicher:** Der wahre Effekt liegt wahrscheinlich in der berechneten Spannweite, allerdings besteht die Möglichkeit, dass er substanziell unterschiedlich ist.	⨁⨁⨁⊖
Niedrig	Unser **Vertrauen ist begrenzt:** Der wahre Effekt ist vermutlich substanziell verschieden.	⨁⨁⊖⊖
Sehr niedrig	Wir haben **nur sehr geringes Vertrauen.** Der wahre Effekt ist wahrscheinlich substanziell unterschiedlich.	⨁⊖⊖⊖

Qualität der Evidenz: GRADE

- Bewertung anhand dieser Aspekte:

 **Risk of Bias**: Wie ist die methodische Qualität der Studien?

 **Direktheit**: Wie gut passen die Studien zur Fragestellung?

 **Heterogenität/Inkonsistenz**: Wie unterschiedlich sind die Ergebnisse?

 **Präzision**: Wie präzise ist das Ergebnis der Metaanalyse?

 **Publikations-Bias**: Gibt es Hinweise, dass nicht alle Studien veröffentlicht wurden?

Summary of Findings Tabellen in Cochrane Reviews

Cochrane Deutschland

Summary of findings 2. Zinc compared to placebo for treatment of the common cold — **Open in table viewer**

Patient or population: adults and children with colds and/or upper respiratory infections

Setting: community, schools, outpatient and private health centre/clinics

Intervention: zinc

Comparison: placebo

Outcomes	Illustrative comparative risks* (95% CI)		Effect (95%	No. of participants	GRADE certainty	Comments
	Assumed risk Placebo	Corresponding risk Zinc				
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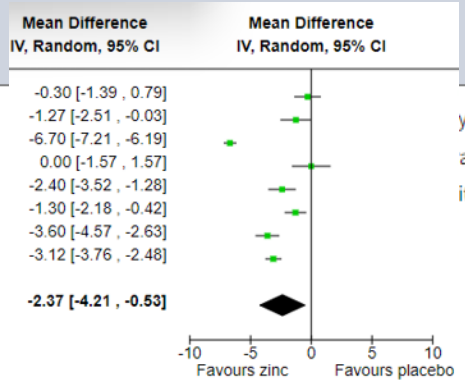
[a]Downgraded one level due to risk of bias and one level due to inconsistency (I^2 > 50%).



Der Heterogenität auf der Spur: Subgruppenanalysen

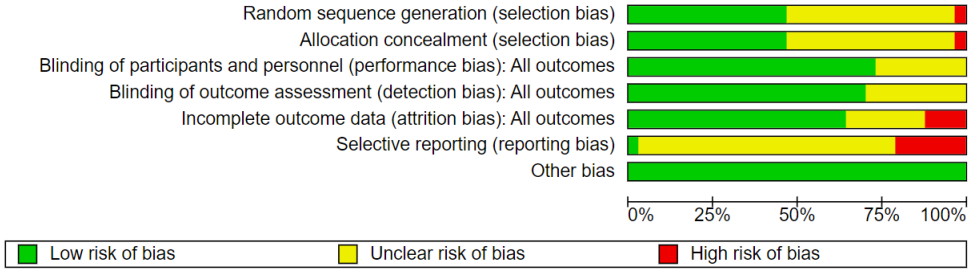
- Lutschtabletten versus intranasales Zink (Analyse 9.2)
- Kinder versus Erwachsene (nicht durchgeführt)
- hohe (≥ 85 mg/Tag) versus niedrige Zinkdosierung (Analyse 9.3)

Der Ergebnisstabilität auf der Spur: Sensitivitätsanalysen

Ausschluss von Studien (Tabelle 4):

- mit hohem oder unklarem Bias-Risiko
- bei denen mehr als 20 % der Teilnehmenden die Studie vorzeitig abgebrochen haben
- mit "*Infektionen der oberen Atemwege*" (statt "*Erkältung*")

Wichtige Elemente in Cochrane Reviews



1. Risk of bias Tabelle

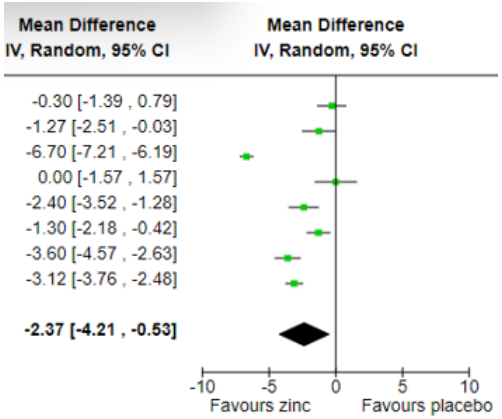
Summary of findings 2. Zinc compared to placebo for treatment of the common cold

Patient or population: adults and children with colds and/or upper respiratory infections
Setting: community, schools, outpatient and private health centre/clinics
Intervention: zinc
Comparison: placebo

Outcomes	Illustrative comparative risks* (95% CI)		Effect (95% CI)	No. of participants (studies)	GRADE certainty of evidence	Comments
	Assumed risk Placebo	Corresponding risk Zinc				
Mean duration of colds in days Duration of follow-up: 8 to 21 days	Mean duration of colds in control groups ranged from 5.1 to 9 days	The mean duration of colds in days in the intervention groups was on average **2.37 lower** (95% CI -4.21 to -0.53)	—	972 (8 studies)	⊕⊕◯◯ Low[a]	There may be a reduction in the duration of colds treated with zinc.

[a]Downgraded one level due to risk of bias and one level due to inconsistency (I^2 > 50%).

2. Summary of Findings Tabellen



3. Forest Plot

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Vielen Dank für Ihre Aufmerksamkeit!

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***02. Juli 2025:** Redundanz von Systematischen Reviews (gemeinsam mit EbM-Netzwerk)*

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Evaluation

https://survey.lamapoll.de/Lunch_and_Learn_Cochrane_Reviews_lesen

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