Level 7 Diploma Sessions

HOW TO APPROACH THE CRITICAL APPRAISAL

Dr Emmaline Ashley

Level 7 Clinical Lead

Purpose of today

"How do I get started with the critical appraisal?" - Common question

Formally critically appraising a paper is a skill that you might not have had to exercise is a very long time.

May be the first time you've written a formal critical appraisal

Why are critical appraisals important?

BEING ABLE TO CRITICALLY APPRAISE A SCIENTIFIC STUDY IS A KEY SKILL AS A SCIENTIST.

IT'S IMPORTANT TO BE ABLE TO IDENTIFY HIGH-QUALITY EVIDENCE AND SCIENTIFICALLY RIGOROUS METHODOLOGY WHEN ADDRESSING A RESEARCH QUESTION.

YOUR PATIENTS RELY ON YOU TO GIVE EVIDENCE-BASED RECOMMENDATIONS AND ONLY OFFER TREATMENTS THAT ARE BOTH SAFE AND HAVE GOOD EFFICACY.

AESTHETICS IS AN INDUSTRY THAT IS FULL OF MARKETING – IT'S HARD TO CUT THROUGH THE NOISE!

The Aims of critical appraisal

- reduce information overload by eliminating irrelevant or weak studies
- identify the most relevant papers
- distinguish evidence from opinion, assumptions, misreporting, and belief
- assess the validity of the study
- assess the usefulness and clinical applicability of the study
- recognise any potential for bias.

From The Royal College of Surgeons

How to critically appraise a paper?

- What type of research question is being asked?
  - In medical writing you will have a population of patients, an intervention, and outcomes of interest
- What was the study design?
  - Was it appropriate for the research paper? (RCT, prospective cohort study, retrospective review?)
- Is the methodology rigorous enough to address important sources of bias?
- Did they follow the original protocol?

How to critically appraise a paper?

- Was the statistical analysis done correctly?
  - Was there missing data?
- Does the data support conclusions
  - Were the results statistically significant, are they generalising from very small sample sizes, correlation does not imply causation.
- Does the study add anything new to the field?
- Will it change clinical practice?

Clear as mud?

- I find it helpful to have a very structured approach and to use validated data extraction and analysis tools to organise your thoughts and appraisal.
- It will help with writing up your critical appraisal and show you have a systematic approach to analysing a paper.

Outline of Example Appraisal Structure

Study Aim and Background

- Your study aim is to complete an appraisal of paper X
- Summarise Paper X

Data Extraction and Analysis

- Describe how you extracted the data – include tools as appendices
- Describe bias risks in paper

Discussion of Results

- Talk through each finding, what statistical analysis used, was it significant?

Conclusions

- Limitations
- Strengths
- Final summation

Let’s work through this using example papers

Clinical Trial > Burns. 2017 Sep;43(6):1233-1243. doi: 10.1016/j.burns.2017.02.016. Epub 2017 Mar 28.

Enzymatic debridement of deeply burned faces: Healing and early scarring based on tissue preservation compared to traditional surgical debridement

Alexandra Schulz [1], Paul Christian Fuchs [2], Irene Rothermundt [2], Alexandra Hoffmann [2], Lior Rosenberg [3], Yaron Shoham [3], Henrik Oberländer [2], Jennifer Schiefer [2]

Affiliations + expand

PMID: 28363663 DOI: 10.1016/j.burns.2017.02.016

Full text links Cite

Abstract

Introduction: Facial burns occur frequently and depending on the injured skin layers often heal with scars which may cause permanent functional and cosmetic sequelae. Preservation of the sensitive facial skin layers, especially of the dermis is essential for scarless epithelialisation.

Study Aim and Background

PICO Framework of a Research Question

Population		
Intervention		
Comparison		
Outcomes	Primary	
	Secondary	

Population		**Patients with deep dermal (DD) and full-thickness (FT) burns**
Intervention		Bromelain enzymatic debridement with NexoBrid® (NXB)
Comparison		Current standard of care (SOC)
Outcomes	Primary	Reduced time to complete debridement (Days) Reduced time to wound closure/complete healing (Days) Area of burns excised/eschar removed (Percentage) Area of wounds autografted (Percentage)
	Secondary	Reduced need for further surgical debridement post-intervention (Number of operations to complete debridement) Reduced blood loss (Variable measurements) Scar quality (Modified Vancouver Scar Scale)

Study Aim and Background

The aim of this paper is to conduct a critical appraisal of the paper "Enzymatic debridement of deeply burned faces: Healing and early scarring based on tissue preservation compared to traditional surgical debridement" by Schulz et al, published in 2017 in *Burns*.[1] The plan of critical appraisal was to determine the strength, direction, and size of intervention effect in this study, to find possible sources of bias and limitations to the study design, and finally to analyse the relevance and importance of this study to the field of aesthetic medicine as a whole.

Summary of Schulz et al.

The aim of the study conducted by Schulz et al was to answer the following question: In burn eschar removal of patients with deep dermal and full-thickness burns, is bromelain enzymatic debridement faster, more effective, and more selective when compared to the current standard of care?

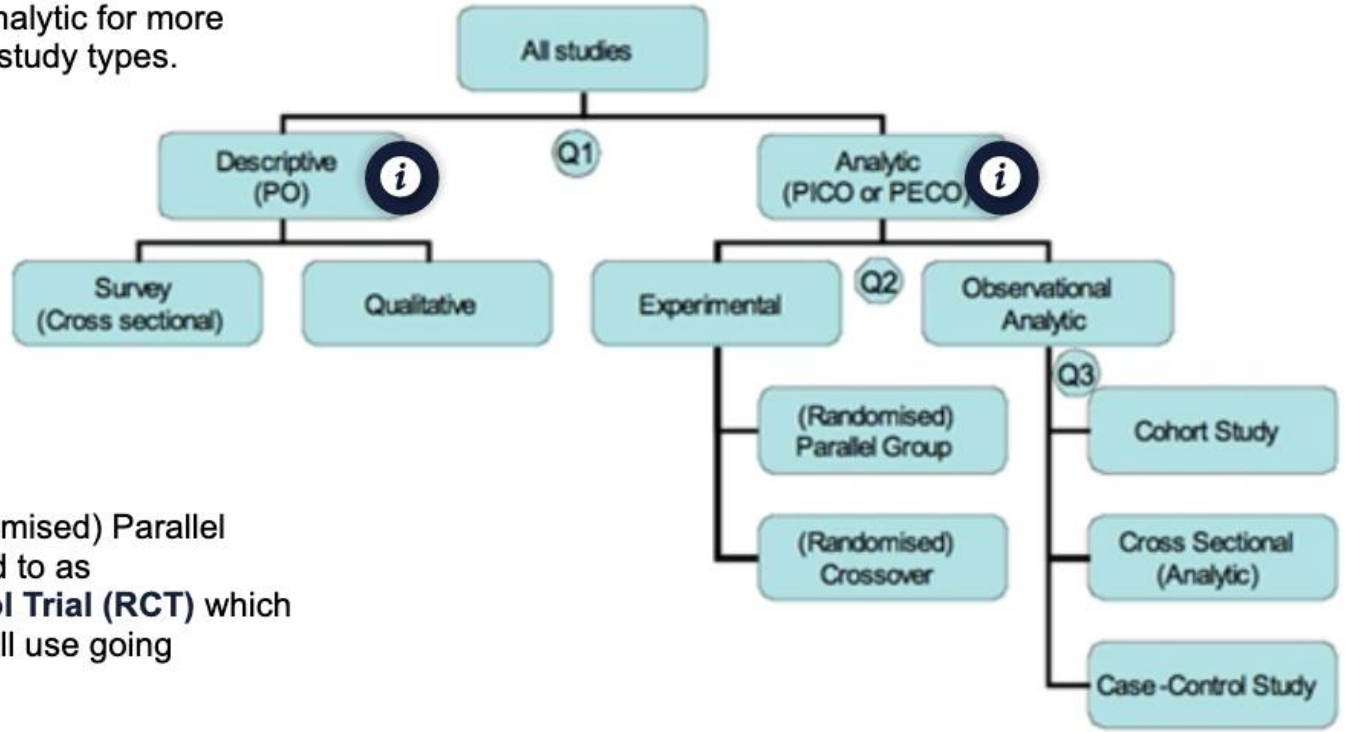
Population		**Patients with deep dermal (DD) and full-thickness (FT) burns**
Intervention		Bromelain enzymatic debridement with NexoBrid® (NXB)
Comparison		Current standard of care (SOC)
Outcomes	Primary	Reduced time to complete debridement (Days) Reduced time to wound closure/complete healing (Days) Area of burns excised/eschar removed (Percentage) Area of wounds autografted (Percentage)
	Secondary	Reduced need for further surgical debridement post-intervention (Number of operations to complete debridement) Reduced blood loss (Variable measurements) Scar quality (Modified Vancouver Scar Scale)

Define the key study characteristics

- Study Design
- Sample Size of analysis
- Participants
  - Exclusion and inclusion criteria
- Statistical Analysis
- Key conclusions

Check your dashboard as a guide to study design

All studies can be categorised by following this flowchart. Click the icons on Descriptive and Analytic for more information on those study types.



Please note: (Randomised) Parallel Group is also referred to as **Randomised Control Trial (RCT)** which is what this course will use going forward.

Your dashboard lays this out very well – won't replicate this here.

Check this out for a description of each study type.

Study characteristics of the paper

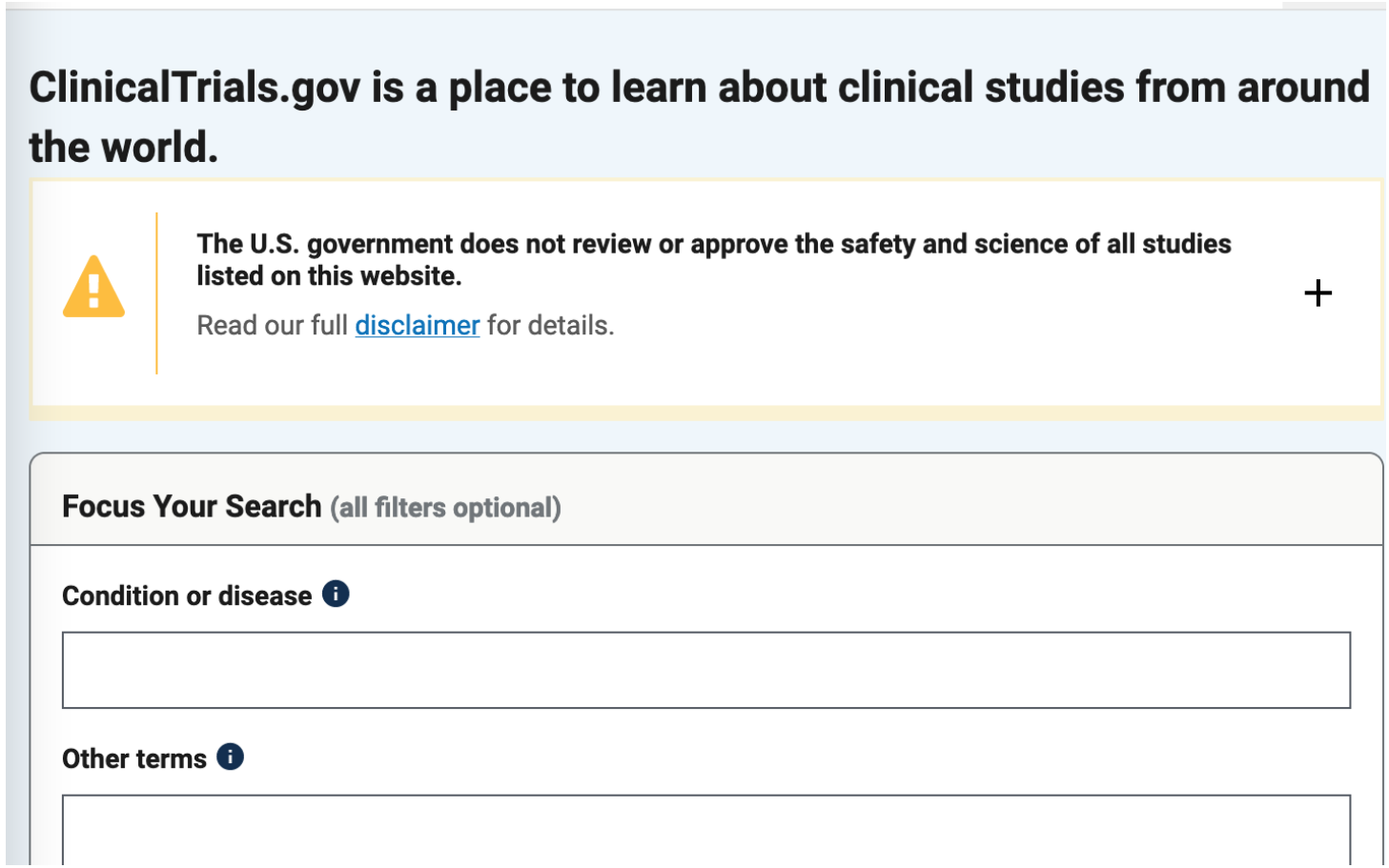
Rosenberg 2015[33] [MW 2002-04-01]	Prospective open label, multicentre, parallel, three-arm randomised trial	140 patients - 70 NXB - 35 gel vehicle - 35 SOC	2003-2005	DD/FT burns, 2-15% TBSA Inclusion: 18-70yrs Exclusion: Other cutaneous trauma, pregnant/nursing, severe comorbidities, facial and hand burns	Efficacy of eschar removal, time to complete debridement, time to wound closure	- ANOVA or pairwise t-tests for continuous data - Fisher's exact test of Chi Squared for binary outcomes	Use of NXB is rapid, safe, selective and effective.

Study characteristics of the paper

2015[33] [MW 2002-04-01]	Prospective …en label, …centre, p… l, th… rm …nised …	140 patients - 70 NXB - 35 gel vehicle - 35 SOC	2003-2005	DD/FT burns, 2-15% TBSA Inclusion: 18-70yrs Exclusion: Other cutaneous trauma, pregnant/nursing, severe comorbidities, facial and hand burns	Efficacy of eschar removal, time to complete debridement, time to wound closure	- ANOVA or pairwise t-tests for continuous data - Fisher's exact test of Chi Squared for binary outcomes	Use of NXB is rapid, safe, selective and effective.

Original Trial Protocol

- Try to find the original protocol
- Trials are required to register their study designs
- Really useful tool in assessing bias – did they change anything from the original design?
- Not always possible to source – just discuss this in your appraisal.



Red flag changes from protocol to published results

- Did the inclusion and exclusion criteria change?
- Did the primary outcomes change?
- Were all results published?

These can all raise questions about validity and reliability of a study's findings.

To answer this question, the study was designed as multicentre, open label, randomised control trial of 200 subjects with midface deficiencies.[1] When studying an intervention, randomised control trials (RCTs) are preferred as the highest standard of evidence, so this is the best study design to address this research question. The study included clear inclusion and exclusion criteria for participants and had a measurable, objective primary outcome measurement using a validated tool.[2] A summary of key study characteristics and results are in *Table 2* and *3*.

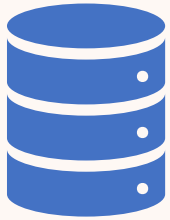
Table 2. *Study characteristics of Weiss et al.*

Study Design	Sample Size of Analysis	Participants	Statistical Analysis	Key Conclusions
Prospective, open label, multicentre, randomised control trial	200 patients - 150 LGP-HAL - 50 no treatment	18-65yrs, seeking midface augmentation *Inclusion:* MMVS 2-4 *Exclusion:* Hx severe allergies, facial surgery/diseases/trauma, prior tissue augmentation, abnormal midface structure/function/sensation, immunosuppressive therapy, connective tissue disease	-Fischer exact tests -Weighted kappa statistics	LGP-HAL treatment is well tolerated and provide significant improvement up to 12 months for correction of midface deficiencies

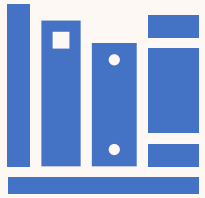
Primary Endpoint			
Medicis Midface Volume Scale (MMVS) improvement of at least one grade by blinded assessor	*At week 8*		
	Right and left midface **LGP-HAL** 89% (n = 133) Vs **No TX** 16% (n = 8) *p < 0.001*	*Right midface* **LGP-HAL** 91% (n = 137) Vs **No TX** 16% (n = 8) *p < 0.001*	*Left midface* **LGP-HAL** 91% (n = 137) Vs **No TX** 20% (n = 10) *p < 0.001*
Secondary Endpoints			

Data Extraction and Analysis

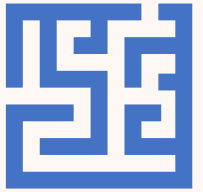
Data Extraction



Use a standardized tool to extract data from the study.



Cochrane Library is a great resource for this.



Makes it easier to see when data is missing.

Modified Cochrane Data Extraction Tool

Appendix IV: Data Collection Sheet

Study ID *(surname of first author and year first full report of study was published e.g. Smith 2001)*	
Report ID	
Report ID of other reports of this study including errata or retractions	
Notes	

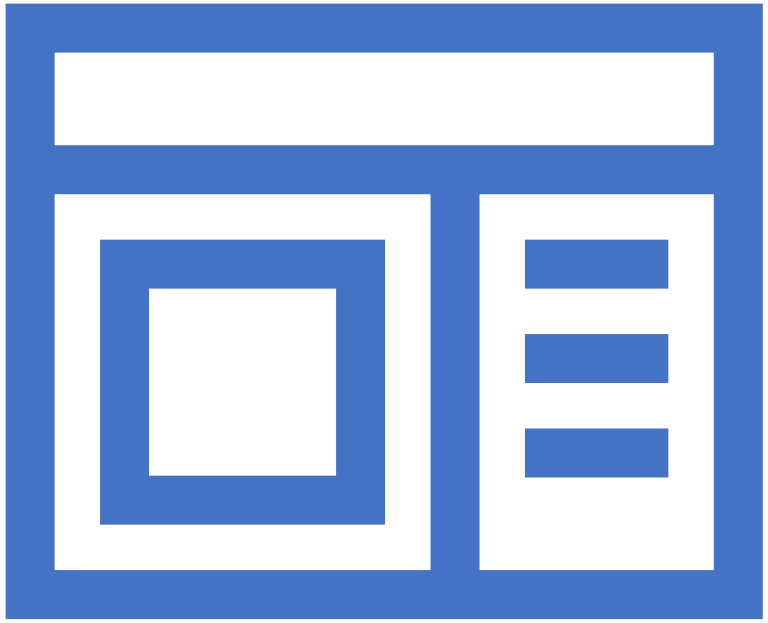
General Information

Date form completed *(dd/mm/yyyy)*	
Name/ID of person extracting data	
Reference citation	
Study author contact details	
Publication type *(e.g. full report, abstract, letter)*	
Notes:	

Characteristics

Methods

	Descriptions as stated in report/paper		Location in text or source *(pg & ¶/fig/table/other)*
Aim of study *(e.g. efficacy, equivalence, pragmatic)*			
Design *(e.g. parallel, crossover, non-RCT)*			
Unit of allocation *(by individuals, cluster/ groups or body parts)*			
Start date			
End date			
Duration of participation *(from recruitment to last follow-up)*			
Ethical approval needed/ obtained for study	☐ Yes ☐ No ☐ Unclear		



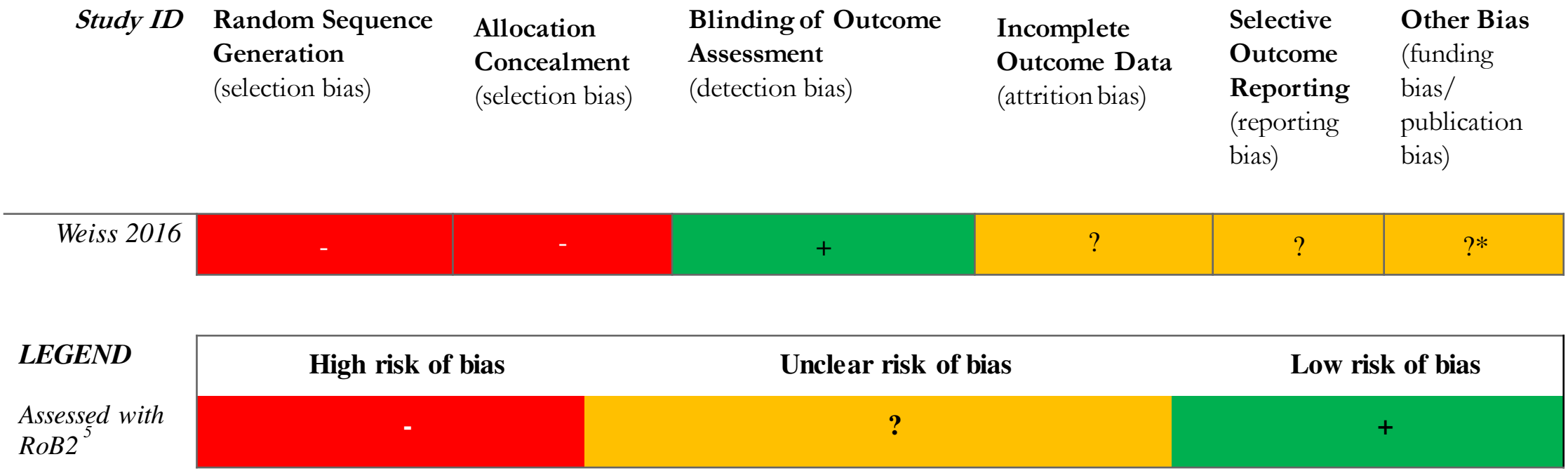
Start Assessing for Risk of Bias

- Vitally important step
- Use a standardized tool (Cochrane library) https://www.riskofbias.info/
  - ROBINS-I tool for observational studies
  - RoB 2 tool for RCTs

riskofbias.info

Welcome to our pages for risk of bias tools for use in systematic reviews.

- RoB 2 tool (revised tool for Risk of Bias in randomized trials)
- ROBINS-E tool (Risk Of Bias in non-randomized Studies - of Exposures)
- ROB ME (Risk Of Bias due to Missing Evidence in a synthesis)
- ROBINS-I tool (Risk Of Bias in Non-randomized Studies - of Interventions)
- robvis (visualization tool for risk of bias assessments in a systematic review)


Study ID
Random Sequence Generation (selection bias)
Allocation Concealment (selection bias)
Blinding of Outcome Assessment (detection bias)
Incomplete Outcome Data (attrition bias)
Selective Outcome Reporting (reporting bias)
Other Bias (funding bias/ publication bias)
Weiss 2016
-
-
+
?
?
?*
LEGEND
Assessed with RoB2 5
High risk of bias
Unclear risk of bias
Low risk of bias
-
?
+

Domain 1: Risk of bias arising from the randomization process

Signalling questions	Elaboration	Response options
1.1 Was the allocation sequence random?	Answer 'Yes' if a random component was used in the sequence generation process. Examples include computer-generated random numbers; reference to a random number table; coin tossing; shuffling cards or envelopes; throwing dice; or drawing lots. Minimization is generally implemented with a random element (at least when the scores are equal), so an allocation sequence that is generated using minimization should generally be considered to be random. Answer 'No' if no random element was used in generating the allocation sequence or the sequence is predictable. Examples include alternation; methods based on dates (of birth or admission); patient record numbers; allocation decisions made by clinicians or participants; allocation based on the availability of the intervention; or any other systematic or haphazard method. Answer 'No information' if the only information about randomization methods is a statement that the study is randomized. In some situations a judgement may be made to answer 'Probably no' or 'Probably yes'. For example, , in the context of a large trial run by an experienced clinical trials unit, absence of specific information about generation of the randomization sequence, in a paper published in a journal with rigorously enforced word count limits, is likely to result in a response of 'Probably yes' rather than 'No information'. Alternatively, if other (contemporary) trials by the same investigator team have clearly used non-random sequences, it might be reasonable to assume that the current study was done using similar methods.	Y/PY/PN/N/NI
1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions?	Answer 'Yes' if the trial used any form of remote or centrally administered method to allocate interventions to participants, where the process of allocation is controlled by an external unit or organization, independent of the enrolment personnel (e.g. independent central pharmacy, telephone or internet-based randomization service providers). Answer 'Yes' if envelopes or drug containers were used appropriately. Envelopes should be opaque, sequentially numbered, sealed with a tamper-proof seal and opened only after the envelope has been irreversibly assigned to the participant. Drug containers should be sequentially numbered and of identical appearance, and dispensed or administered only after they have been irreversibly assigned to the participant. This level of detail is rarely provided in reports, and a judgement may be required to justify an answer of 'Probably yes' or 'Probably no'. Answer 'No' if there is reason to suspect that the enrolling investigator or the participant had knowledge of the forthcoming allocation.	Y/PY/PN/N/NI

Data Extraction and Analysis for Critical Appraisal

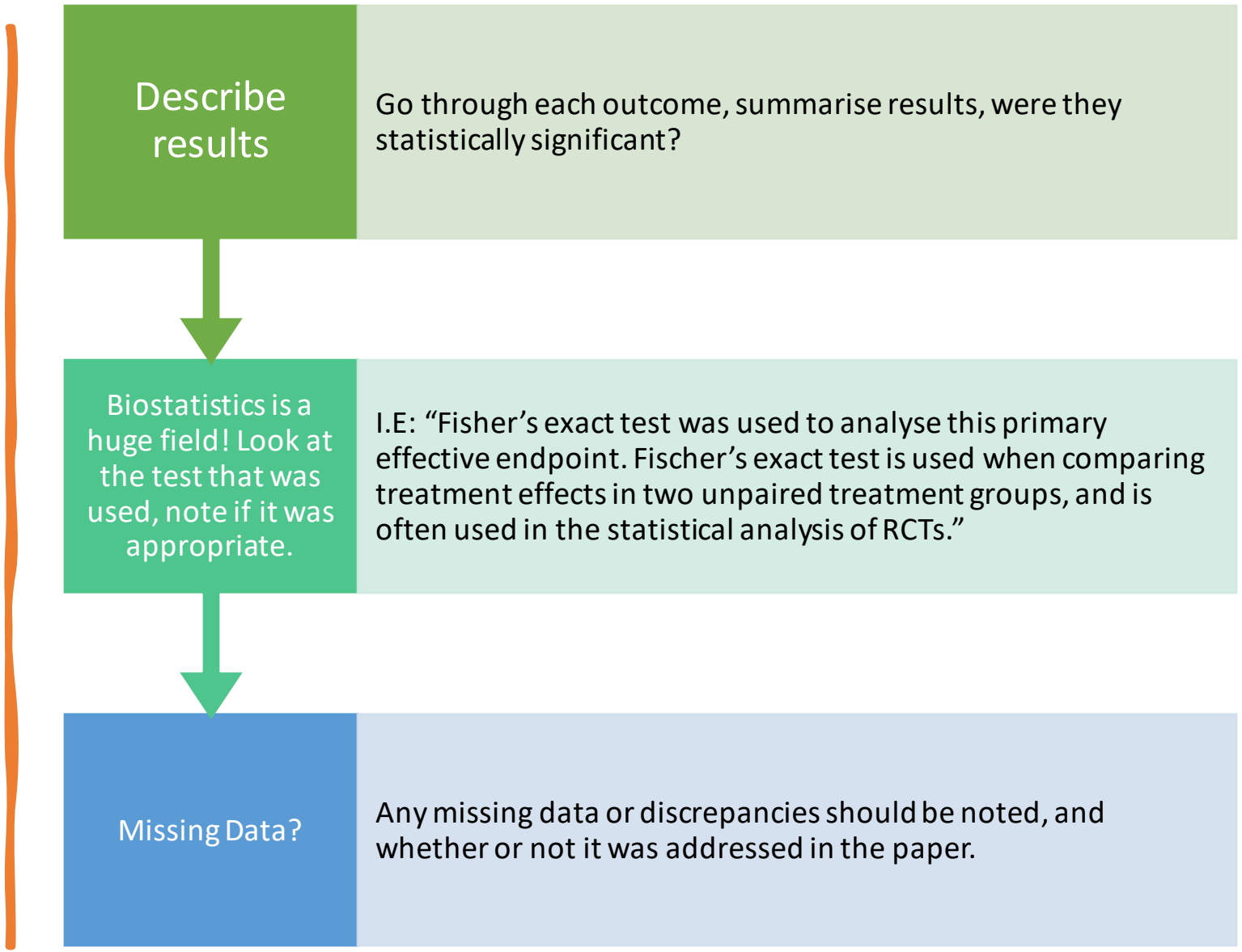
Data extraction from this study was completed with a standardised tool – a modified version of the data extraction sheet compiled by the Cochrane Library (*Appendix I)*. Missing data was dealt with by carefully analysing the reason for its loss and determining what effect, if any, it would have on data analysis.

The selected study underwent scrutiny for bias with the revised tool for assessing risk of bias in randomised trials (RoB 2) tool *(Appendix I)*.[5] The summary of this quality assessment is highlighted in *Table 4*. This analysis helped to assess the risk of the study in either overestimating or underestimating the true intervention effect due to limitations in design. As advised in the Cochrane Handbook for Systematic Reviews,[6] scales and summary scoring was not used. Instead, each feature of the included studies was assessed and rated as either low risk, high risk, or unclear risk in the following categories: selection bias, detection bias, attrition bias, reporting bias, and funding bias.

Finally, overall critical appraisal was aided with the Critical Appraisal Skills Programme Randomised Controlled Trial Standard Checklist tool *(Appendix II)*.[7]

Discussion of Results

Discussion of results



Conclusions

Conclusions

Conclusions

What are your conclusions?

- Paper shows a generally positive intervention effect for the outlined research questions. However, there were the following issues in the methodology…

Limitations

- Common limitations: sample size, gender, ethnicity (not representative of general population), not accounting for missing data or giving reasons for patient drop outs, exclusions, industry funded

Strengths

- Statistically significant/safe and well-tolerated

Does it change clinical practice?

Outline of Example Appraisal Structure

Study Aim and Background

- Your study aim is to complete an appraisal of paper X
- Summarise Paper X
  - PICO table – describes the research question
  - Study Characteristics table – basics of study design, N number, inclusion/exclusion, outcomes

Data Extraction and Analysis

- Describe how you extracted the data – include tools as appendices
  - Note what data was missing
- Describe bias in paper
  - Risk of bias table

Discussion of Results

- Talk through each finding, what statistical analysis used, was it significant?
- Outcome summary table

Conclusion

- Limitations
- Strength
- Final summation

Resources

01

Royal College of Surgeons Critical Appraisal

- https://www.rcseng.ac.uk/library-and-publications/library/blog/dissecting-the-literature-the-importance-of-critical-appraisal/

02

Cochrane Review - Methods/Tutorials/Toolkits

- https://methods.cochrane.org/

03

Johns Hopkins - Systematic Review Course (Week 4)

- https://www.coursera.org/learn/systematic-review/home/week/1

04

CASP

- https://casp-uk.net/casp-tools-checklists/

05

Systemic Review Toolbox

- http://systematicreviewtools.com/

Other tips

- Include citations and sources – you will need to read around methodology.
- Use a citation manager: Endnote
- Using AI – caution
  - ChatGPT – absolutely not!
  - Elicit (Free) –basic (at present) – but useful to get started
  - SCITE (Paid)
    - Reference check
    - See how this paper has been used in the literature and how it’s been cited
    - AI assistant

New High Dose Pulsed Hyaluronidase Protocol for Hyaluronic Acid Filler Vascular Adverse Events

C. Delorenzi

Aesthetic surgery journal

2017 0 Citations Semantic Scholar DOI

Abstract summary

The risk of vascular embolic events is manageable with careful low pressure, low volume injection technique and adequate preparation for treatment of acute vascular events.

Ask a question about this paper

Ask

The purpose of this article is to update the changes to the author's protocols used to manage acute filler related vascular events from those previously published in this journal. For lack of a better term, this new protocol has bee called the High Dose Pulsed Hyaluronidase (HDPH) protoco for vascular embolic events with hyaluronic acid (HA) fillers The initial protocol used involved many different modalities of treatment. The current protocol is exceedingly simple an involves solely the use of hyaluronidase in repeated high doses. Despite the simplicity of the treatment, it has prover itself to be very successful over the past two years of clinical use. There has been no partial or complete skin loss associated with this protocol since its implementation if the protocol was implemented within 2 days of the ischemic event onset. The protocol involves diagnosis and repeated administration of relatively high doses hyaluronidase (HYAL into the ischemic tissue repeated hourly until resolution (as detected clinically through capillary refill, skin color, and absence of pain). The dosage of HYAL varies as the amoun of ischemic tissue, consistent with the new underlying hypothesis that we must flood the occluded vessels with a sufficient concentration of HYAL for a sufficient period of time in order to dissolve the HA obstruction to the point

What did they test?

High Dose Pulsed Hyaluronidase protocol for vascular embolic events with hyaluronic acid fillers using a hyaluronidase dose.

What outcomes did they measure?

- Resolution Of Ischemic Tissue
- Capillary Refill
- Skin Color
- Absence Of Pain

Copy

Who were the participants?

Can I trust this paper?

- No mention found of study type
- Funded by not funded
- No mention found of participant count
- No mention found of multiple comparisons

Ask a question about this paper

Ask

The purpose of this article is to update the changes to the author's protocols used to manage acute filler related vascular events from those previously published in this journal. For lack of a better term, this new protocol has been called the High Dose Pulsed Hyaluronidase (HDPH) protocol for vascular embolic events with hyaluronic acid (HA) fillers. The initial protocol used involved many different modalities of treatment. The current protocol is exceedingly simple and involves solely the use of hyaluronidase in repeated high doses. Despite the simplicity of the treatment, it has proven itself to be very successful over the past two years of clinical use. There has been no partial or complete skin loss associated with this protocol since its implementation if the protocol was implemented within 2 days of the ischemic event onset. The protocol involves diagnosis and repeated administration of relatively high doses hyaluronidase (HYAL) into the ischemic tissue repeated hourly until resolution (as detected clinically through capillary refill, skin color, and absence of pain). The dosage of HYAL varies as the amount of ischemic tissue, consistent with the new underlying hypothesis that we must flood the occluded vessels with a sufficient concentration of HYAL for a sufficient period of time in order to dissolve

Possible critiques

We looked at how this paper, **Delorenzi**, has been cited, but couldn't find any mentions of methodological flaws.

Other citations

Jitaree et al. said:

> As shown by DeLorenzi (2017), although the filler can be broken down into small particles, those particles are still too large to penetrate through the capillary wall.

Lee said:

> Another article used the term "anti-HYAL enzyme," but the existence of such an enzyme has also not been scientifically proven [3].

Landau et al. said:

> Guidelines on how to identify and manage these cases have been repeatedly published.(15) Three unique features challenge the diagnosis and treatment in cases of ischemia, induced by temporal lifting technique:

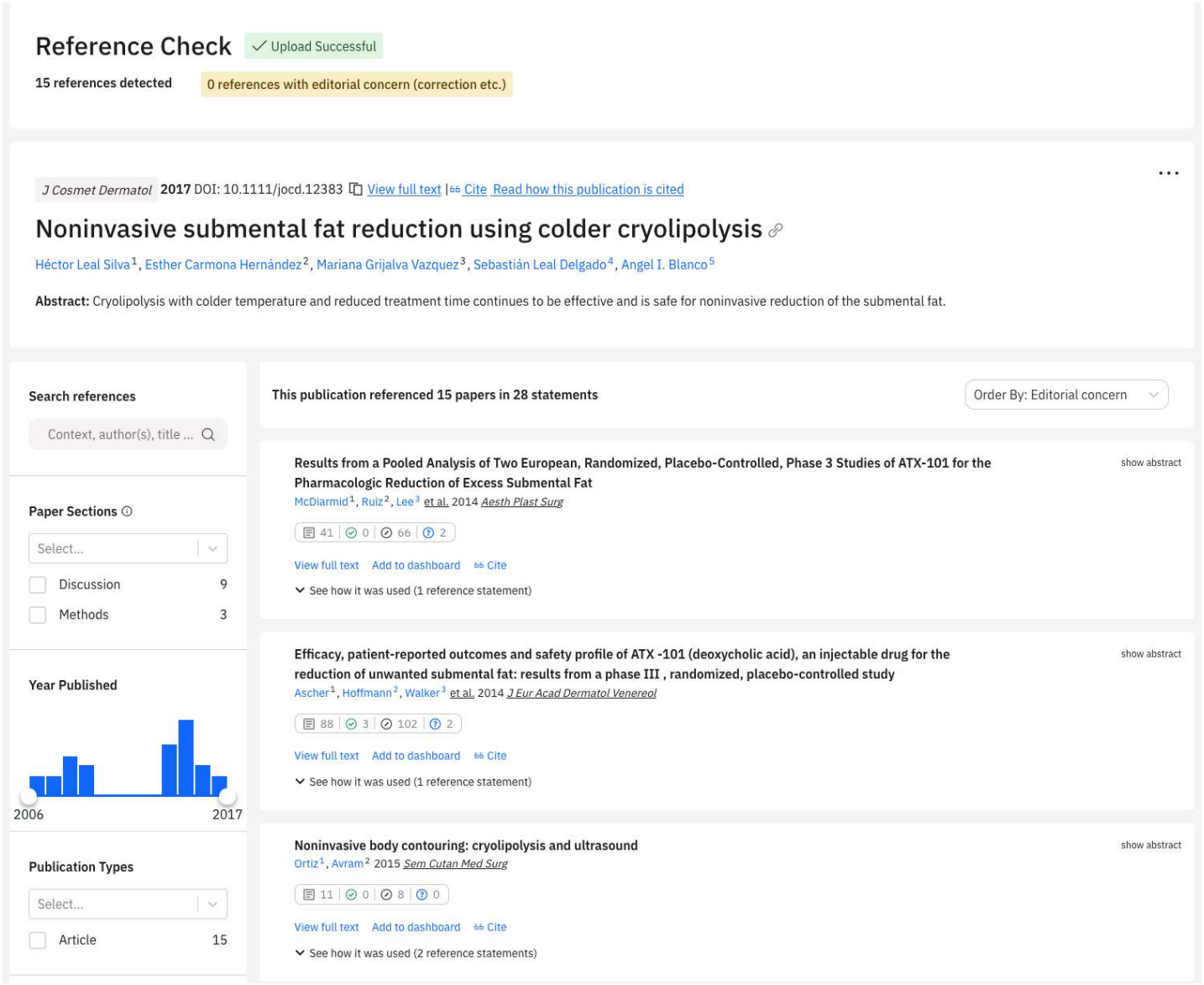
Show more citations

Ask a question about this paper

Ask

The purpose of this article is to update the changes to the author's protocols used to manage acute filler related vascular events from those previously published in this journal. For lack of a better term, this new protocol has been called the High Dose Pulsed Hyaluronidase (HDPH) protocol for vascular embolic events with hyaluronic acid (HA) fillers. The initial protocol used involved many different modalities of treatment. The current protocol is exceedingly simple and involves solely the use of hyaluronidase in repeated high doses. Despite the simplicity of the treatment, it has proven itself to be very successful over the past two years of clinical use. There has been no partial or complete skin loss associated with this protocol since its implementation if the protocol was implemented within 2 days of the ischemic event onset. The protocol involves diagnosis and repeated administration of relatively high doses hyaluronidase (HYAL) into the ischemic tissue repeated hourly until resolution (as detected clinically through capillary refill, skin color, and absence of pain). The dosage of HYAL varies as the amount of ischemic tissue, consistent with the new underlying hypothesis that we must flood the occluded vessels with a sufficient concentration of HYAL for a sufficient period of time in order to dissolve the HA obstruction to the point

SCITE


Reference Check
Upload Successful
15 references detected
0 references with editorial concern (correction etc.)
J Cosmet Dermatol 2017 DOI: 10.1111/jocd.12383 View full text | Cite Read how this publication is cited
Noninvasive submental fat reduction using colder cryolipolysis
Héctor Leal Silva[1], Esther Carmona Hernández[2], Mariana Grijalva Vazquez[3], Sebastián Leal Delgado[4], Angel I. Blanco[5]
Abstract: Cryolipolysis with colder temperature and reduced treatment time continues to be effective and is safe for noninvasive reduction of the submental fat.
Search references
Context, author(s), title ...
Paper Sections
Select...
Discussion 9
Methods 3
Year Published
2006
2017
Publication Types
Select...
Article 15
This publication referenced 15 papers in 28 statements
Order By: Editorial concern
Results from a Pooled Analysis of Two European, Randomized, Placebo-Controlled, Phase 3 Studies of ATX-101 for the Pharmacologic Reduction of Excess Submental Fat
show abstract
McDiarmid[1], Ruiz[2], Lee[3] et al. 2014 Aesth Plast Surg
41 0 66 2
View full text Add to dashboard Cite
See how it was used (1 reference statement)
Efficacy, patient-reported outcomes and safety profile of ATX -101 (deoxycholic acid), an injectable drug for the reduction of unwanted submental fat: results from a phase III , randomized, placebo-controlled study
show abstract
Ascher[1], Hoffmann[2], Walker[3] et al. 2014 J Eur Acad Dermatol Venereol
88 3 102 2
View full text Add to dashboard Cite
See how it was used (1 reference statement)
Noninvasive body contouring: cryolipolysis and ultrasound
show abstract
Ortiz[1], Avram[2] 2015 Sem Cutan Med Surg
11 0 8 0
View full text Add to dashboard Cite
See how it was used (2 reference statements)

J Cosmet Dermatol **2017** DOI: 10.1111/jocd.12383 View full text | Cite | Set alert |

Noninvasive submental fat reduction using colder cryolipolysis

Héctor Leal Silva[1], Esther Carmona Hernández[2], Mariana Grijalva Vazquez[3], Sebastián Leal Delgado[4], Angel I. Blanco[5]

Abstract: Cryolipolysis with colder temperature and reduced treatment time continues to be effective and is safe for noninvasive reduction of the submental fat.

Help me understand this report

Search citation statements

Context, author(s), title etc.

Order By: Relevance

Paper Sections

Select...

Discussion 5

Cited by 14 publications (6 citation statements)

References 22 publications (35 reference statements)

"...In submental region, a mean reduction of 31.1% on adipose tissue was observed. The use of cryolipolysis to reduce localized fat in this body part was previously studied by other authors and our findings reinforce its efficacy **11-15** . Lipner et al (2018) reported, in a systematic review, percentages of reduction ranging from 20% to 35.2% 13 ..."

Section: Discussion **supporting** confidence: 85%

Cryolipolysis for local fat reduction in adults from Brazil: A single-arm intervention study

Gusmão[1], Chojniak[2], Gusmão[3] et al. 2020 *J Cosmet Dermatol*

show abstract

5 | 0 | 4 | 0

View full text Add to dashboard Cite

What are potential risks with industry-funded studies?

Industry-funded studies can present potential risks due to various factors. One risk is the potential for bias in the research findings. Several studies have found that industry-sponsored studies are more likely to have favorable conclusions [4,8]. This bias can be attributed to the financial interests of the industry sponsors, as they may have a vested interest in promoting their products or services [5,7]. Industry-funded studies may also be more likely to overestimate the effectiveness of interventions or treatments [1]. This bias can lead to misleading or inaccurate information being disseminated to the public and healthcare professionals [6].

Another risk associated with industry-funded studies is the potential for conflicts of interest. Conflicts of interest occur when researchers have competing interests that may compromise the integrity of their research [5]. In the case of industry-funded studies, researchers may have financial ties to the industry sponsors, which can create a conflict between their financial interests and their commitment to conducting unbiased research [5,7]. These conflicts of interest can

What do you need help with?

References

Reference #1

> "...Or (more plausibly), industry-sponsored studies tend, on average, to overestimate effectiveness through various mechanisms (Lundh et al 2012)- 'industry bias'. A third explanation, 'nonindustry bias', holds that non-industry-sponsored studies tend to underestimate effectiveness; but this explanation is far less plausible than industry bias because mechanisms of industry bias are widely documented **(Sismondo 2008)** , while mechanisms of nonindustry bias are not. So allocating some credence to the two plausible explanations, on net we should lower our confidence in a positive industry-funded study in response to the metaevidence...."

Section: The Right Kind Of Causal Comparability Between Groups (From ...

Meta-Research Evidence for Evaluating Therapies

Jonathan Fuller[1] 2018 *Philos. of Sci.*

8 | 0 | 1 | 0

View full text Add to dashboard Cite

Questions?

level7@acquisitionaesthetics.co.uk

emmaline@acquisitionaesthetics.co.uk