

Tracing Persistent Citations of a Retracted Clinical Trial with Faked Data

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Introduction

Retraction formally removes a paper from the scientific literature. Papers may be retracted due to error, plagiarism, falsification and fabrication of data, etc.

- Retraction may take 22-28 months (Chen, 2013).
- Papers may continue to be cited for years after the retraction.
- About 1/3 of papers cited in federal misconduct cases are never retracted (Resnik et al., 2013).

Research Questions

- Does faked data contaminate further research?
- How are databases contributing to the spread of retracted research?

Case Study

Retracted Paper: Clinical trial with Faked Data (2005)

Effects of Omega-3 Polyunsaturated Fatty Acids on Inflammatory Markers in COPD*

Wataru Matsuyama, MD, PhD; Hideo Mitsuyama, MD; Masaki Watanabe, MD, PhD; Ken-ichi Onokahara, MD; Ikou Higashimoto, MD, PhD; Mitsuhiro Otsue, MD, PhD; and Kinuyuki Arimura, MD, PhD

Background: COPD, the fifth-leading cause of death worldwide, is characterized by chronic inflammation. However, no available agent can effectively cure this inflammation. A dietary supplement containing omega-3 polyunsaturated fatty acids (PUFAs) has anti-inflammatory effects. In this study, we hypothesized that nutritional support with omega-3 PUFAs-rich diets may be useful for treating COPD, and we compared the clinical features and inflammatory mediator levels between the COPD patients who received an omega-3 PUFAs-rich supplement and those who received a nonrich supplement.

Methods: Sixty-four COPD patients received 400 kilocalories per day of an omega-3 PUFAs-rich supplement (n=3 group) or an omega-3 PUFAs-poor supplement (n=6 group) for 2 years. We prospectively investigated the clinical features of these patients and measured the levels of inflammatory mediators.

Results: In 6-min walk testing, the dyspnea Borg scale and decrease of arterial oxygen saturation measured by pulse oximetry significantly improved in the n=3 group. Leukotriene B₄ levels in serum and sputum and tumor necrosis factor- α and interleukin-8 levels in sputum decreased significantly in the n=3 group, while there was no significant change in the n=6 group. Two patients in the n=3 group and three patients in the n=6 group had mild diarrhea, and three patients in the n=3 group and three patients in the n=6 group had nausea; however, their symptoms were controllable and they improved with treatment. With multiple regression analysis, it was proved that the omega-3 PUFAs-rich diet significantly contributed to the change in cytokine levels in this study.

Conclusion: We suggest nutritional support with an omega-3 PUFAs-rich diet as a safe and practical method for treating COPD. (CHEST 2005; 128:3817-3827)

Its Retraction Notice (2008)

- Retracted papers should not be removed but should have a notice of retraction included.
- Retraction notices should be clearly indicated in the abstract, full text and PDF.

RETRACTION

The article "Effects of Omega-3 Polyunsaturated Fatty Acids on Inflammatory Markers in COPD" (Matsuyama W, Mitsuyama H, Watanabe M, et al; Chest 2005; 128:3817-3827) in the December 2005 issue is being retracted by CHEST because the university that employs the authors determined that one of the authors, Wataru Matsuyama (now deceased), falsified data.

Incorporate and update previous study: Fulton et al. 2015

Article

Persistent Citation of the Only Published Randomised Controlled Trial of Omega-3 Supplementation in Chronic Obstructive Pulmonary Disease Six Years after Its Retraction

Ashley S. Fulton^{1,2,*}, Alison M. Coates^{1,2,*}, Marie T. Williams^{1,2,*}, Peter R.C. Howe^{1,2,*} and Alison M. Hill^{1,2,3,*}

were classified as either "retraction acknowledged" or "retraction not acknowledged". The search was conducted on 6 August 2013 and updated on 25 March 2014. Results: The search

In our study, we focus on annotating 28 post-2014 first-generation articles.

Methods

Collect and annotate articles citing Matsuyama et al., 2005

Collect all the first- and second-generation citing articles. Extract citing sentences.

Annotate citing sentences:
1) Do they mention the retraction?
2) Positive or negative
3) Specific or in passing

Construct network of citing articles

Each paper is represented by a node.

Citation is represented by an edge between two nodes/papers.

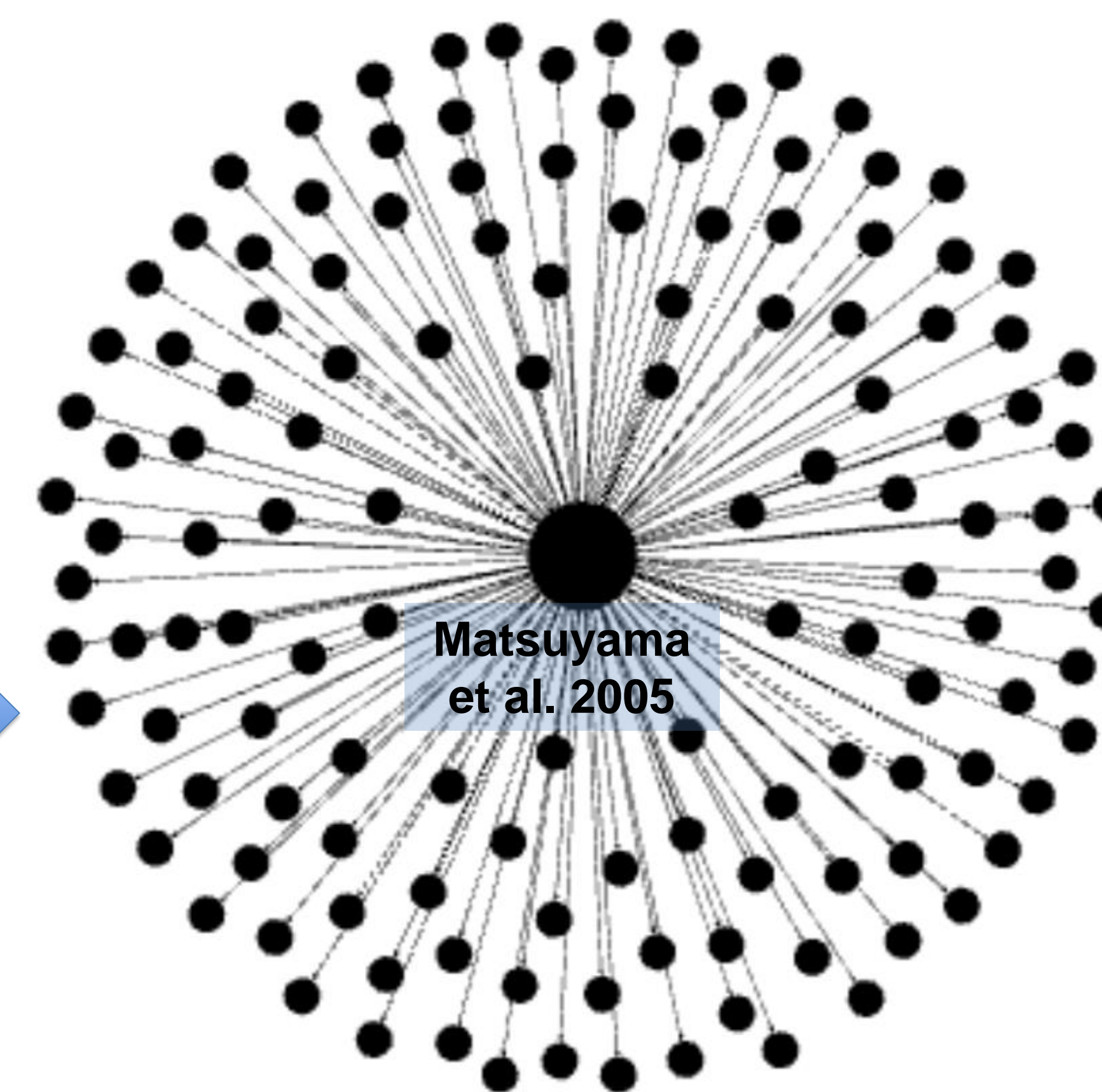
Determine whether databases clearly indicate the retraction

Search for the retracted paper by title in 10 different databases. More \checkmark 's is better. Fewer X's is better. Fewer N/A's is better.

Results

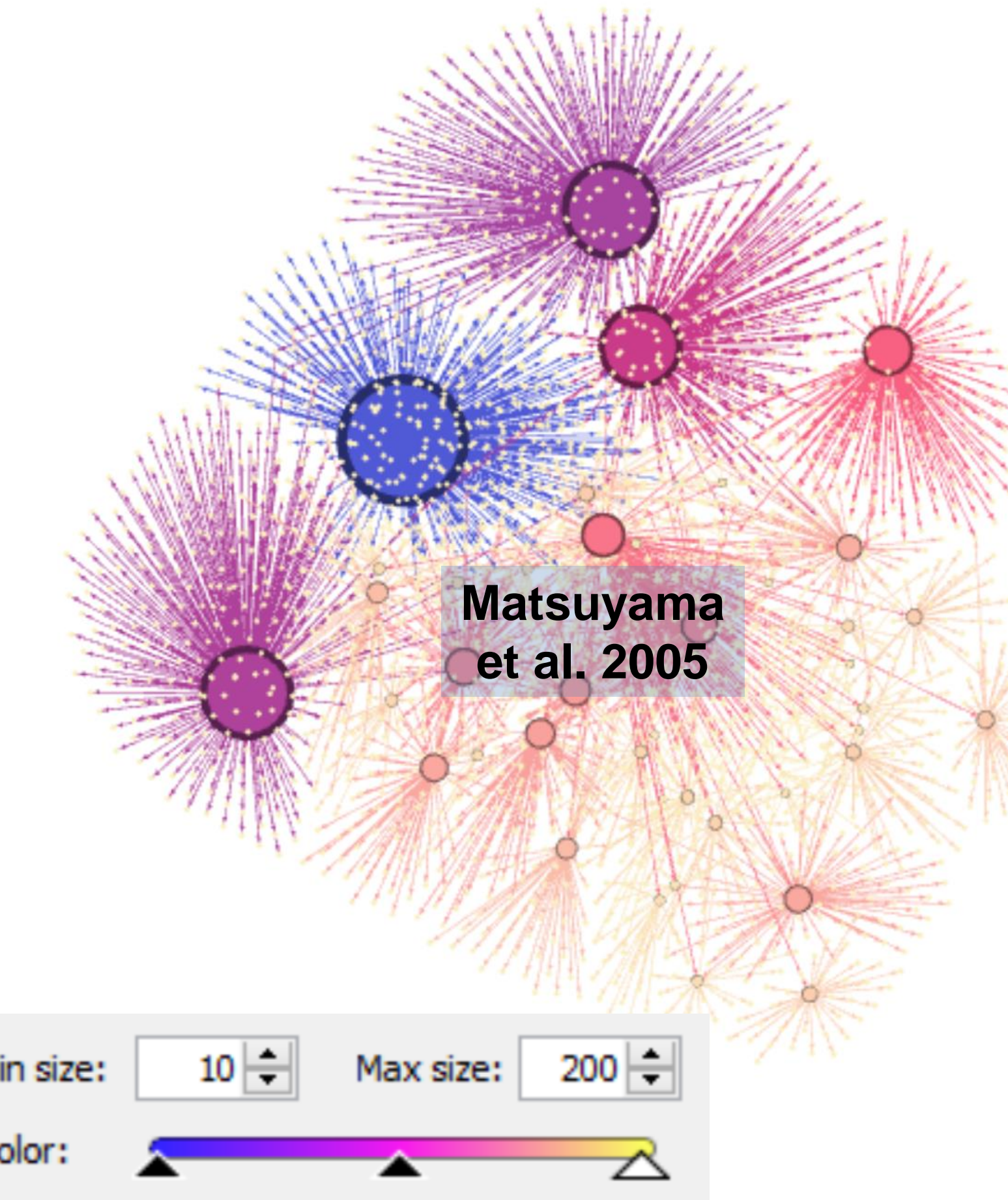
Categorization	Citing sentences
1) Retraction Not Mentioned 2) Positive 3) Specific	(Laudisio et al., 2016) Of notice, the consumption of total polyunsaturated acids was higher in participants with COPD. Indeed, it has been hypothesized that polyunsaturated fatty acids may have beneficial effects in COPD patients, and currently several intervention trials using polyunsaturated fatty acid supplementation in COPD are underway, which will provide substantial new evidence (Matsuyama et al., 2005; Atlantis & Cochrane, 2015). (Sun et al., 2017)
1) Retraction Not Mentioned 2) Positive 3) In Passing	In addition, according to the site of the first double bond in the alkyl chain, PUFAs are usually divided into two categories: omega-3 and omega-6 fatty acids (Fig. 2) [15,16]. (Sun et al., 2017) (Fulton et al., 2015)
1) Retraction Mentioned 2) Negative 3) Specific	This paper was retracted by the journal in 2008 [7], following an institutional investigation that found data had been falsified by the lead author.

Network of First-generation Citing Articles



134 First-generation Articles: The articles citing the retracted paper Matsuyama et al. 2005.

Network of First and Second-generation Citing Articles



2715 Second-generation Articles: The articles citing the first-generation articles. (Blue/max size: most cited, Yellow/min size: least cited)

Notifications of retraction and access pathways for databases listing Matsuyama et al. updated on October 17, 2018

Database	Noted in Article Search Record	Noted in Search Record Title	Noted in HTML (full-text)	Link to "Chest" Article (PDF)	Link to "Chest" Retraction	Link to "Chest" Site	Record for the Retraction Notice	Reference to the retraction notice
Medline - Ovid	\checkmark	\checkmark	X	\checkmark	X	X	\checkmark	\checkmark
Medline - Clarivate Analytics	\checkmark	\checkmark	N/A	X	X	\checkmark	\checkmark ¹	\checkmark
Embase	\checkmark	\checkmark	N/A	X	X	\checkmark	\checkmark	\checkmark
CINAHL	X	X	N/A	X	X	\checkmark	X	X
Scopus	\checkmark	\checkmark	N/A	X	X	\checkmark	\checkmark	\checkmark
Web of Science - Core Collection	X	X	N/A	X	X	\checkmark	X	X
Web of Science - All Databases	X	X	N/A	X	X	\checkmark	\checkmark	X
Cochrane CENTRAL	\checkmark	X	N/A	X	X	\checkmark	\checkmark	X
Google Scholar	X	X	N/A	\checkmark ²	X	\checkmark	X	X
Pubmed	\checkmark	X	N/A	X ³	X	\checkmark	\checkmark	\checkmark ⁴

Notes: N/A: Not applicable (HTML full-text only applies when the database itself displays the article text.)

1. Two records for the retraction notice
2. Two cached PDFs are linked from Scholar's "All 13 versions"
3. Links to OVID which has HTML full text
4. Links to the record for the retraction notice

Conclusions

- The retraction was almost never mentioned. Since 2014, only 3/28 first-generation citations mentioned the retraction.
- We found only 3 negative citations, and all mentioned the retraction.
- Specific information unique to this paper is cited in 11 first generation citations.
- 22+ languages are represented in the second-generation citations, including a French nutrition textbook (Pison et al.)!
- There is no indication of the retraction anywhere in:
 - the publisher's page for the article
 - Google Scholar
 - CINAHL
 - Web of Science Core

Future Steps

- Writing a paper aimed at Scientometrics
- Advocating with publishers and database editors

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Source Paper & Its Retraction Notice

Matsuyama W, Mitsuyama H, Watanabe M, Onokahara K, Higashimoto I, Osame M, and Arimura K. Effects of omega-3 polyunsaturated fatty acids on inflammatory markers in COPD. Chest. 2005;128(6):3817-27. doi: 10.1378/chest.128.6.3817 RETRACTED
Chest. 2008 Oct;134(4):893. Retraction. Effects of omega-3 polyunsaturated fatty acids on Retraction of Effects of omega-3 polyunsaturated fatty acids on inflammatory markers in COPD. [Chest. 2005] PMID: 18842931 doi.org/10.1016/S0012-3692(08)60339-6

Additional references for citing sentences results table

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