

Issues in Publishing Orthopaedic Research

- Authorship?
- Number of authors?
- Order of authors?
- Acknowledgments?
- Types of contributions?
- Time to publication?
- Abstracts vs. Papers?



...a case study...

Graduate student Alice is conducting a study on the effects of an hallucinogenic derivative of mushrooms on the calcium channel in a CNS neuron of a developing rat.

Alice needs to hire a lab assistant to prepare the mushroom derivative but does not have enough money to pay one. She finds D. Light, an interested undergraduate, and offers him second authorship on the manuscript in lieu of monetary payment.

She would like to know the biochemical composition of the derivative but does not have access to an HPLC. Dr. I. M. Grate in Cellular Biology offers to have her lab technician do the analysis, in return for co-authorship on the manuscript.

Professor B. Lot hears of Alice's work, and sends her samples of new calcium channel blockers. Again, Alice returns the favor by promising co-authorship.

Dr. X. Pert, a renowned scientist in this field, sees her work at a professional meeting and agrees to review her manuscript before it is submitted. She acknowledges this honor by offering to include him as a co-author.

Finally, Alice remembers her advisor, Dr. A. Dios, who has been on sabbatical all of this time, but who provided a little money to get the project going. She also offers to include her as a co-author on the manuscript.

Alice analyzes all the data herself, constructs her own interpretations, and writes the paper, as everyone expected. But when she shows the manuscript (listing 6 co-authors) to Dr. Dios, she is furious about all the other co-authors. Nonetheless, he instructs Alice to add Dr. H. Cheese, the head of Internal Medicine, as a co-author.

Who should be a co-author on Alice's manuscript?

Alice: What do the experts say?

D. Light	Undergraduate Assistant
I. M. Grate	Technician performed biochemical analysis
B. Lot	Provided calcium channel blockers
X. Pert	External expert who edited manuscript
A. Dios	Thesis advisor, provided some funds
H. Cheese	Head of clinical department

How can Alice escape Wonderland??

Colloquium on Scientific Authorship: Rights and Responsibilities

Published in *New England Journal of Medicine* 3:209-217 (1989).

Alan N. Schechter, M.D., President of The Foundation for Advanced Education in the Sciences (Moderator)
 James B. Wyngaarden, M.D., Director of NIH
 John T. Edsall, M.D., Professor of Biochemistry, Harvard University
 John Maddeck, Editor of *Nature*
 Arnold S. Relman, M.D., Editor-in-Chief of the *New England Journal of Medicine*
 Marcia Angell, M.D., Executive Editor of the *New England Journal of Medicine*
 Walter W. Stewart, Research Physicist at NIDDK.

Comments by Dr. Relman
 (Editor-in-Chief of the *New England J. Med.*)

Research involves...

1. Conceiving and designing a work.
2. Generating the data.
3. Analyzing and interpreting (writing).

"...an author, to be considered a legitimate author, ought to contribute in some important way to at least two of those three parts of research...ideally, all three, should be necessary for authorship." (p. 213)

"...an author ought to know enough about the whole study—how it was done and why it was done—and what it means, so that he or she should be willing, publicly, to interpret the work, to defend it..." (p. 213)

"...there are different kinds of authorship. There is full authorship, which means full responsibility. If there's fraud, you're responsible...The second kind of authorship is 'with the assistance of', or 'with the collaboration of', or 'acknowledgments.'" (p. 214)

What options does Alice have for her paper?

1. The High Ground

"Instead of being a means of credit for creative endeavors, it is evident that there is a tendency to degrade authorship into a form of menial patronage..." (Alexander, 1953)

Wonderland, A. I. (2003). Hallucinogenic derivative disrupts the diurnal rhythm of developing rats by blocking calcium channels in CNS neurons.

2. The Politically Correct Strategy

(The study would not have been possible without the assistance and support of several individuals.)

Wonderland, A. I., Light, D., Grate, I. M., Lot, B., Cheese, H. and Dios, A. (2003). Hallucinogenic derivative disrupts the diurnal rhythm of developing rats by blocking calcium channels in CNS neurons.

Recent Recommendations of The Cleveland Clinic Foundation

The Cleveland Clinic Foundation Major Policies For The Professional Staff Guidelines for Manuscripts and Books (pp. 64-65)

Based on a report submitted by the Committee to Establish Guidelines for Manuscripts and Books and approved by the Board of Governors on November 22, 1988.

"All manuscripts should be reviewed by co-authors and a 'co-author sign-off form' should be kept by the primary author as well as by the department and division offices. The Committee endorsed co-author accountability as defined in the 'Guidelines on Authorship of Medical Papers' proposed by Dr. Edward Huth and published in the *Annals of Internal Medicine* 104:269, 1986." (p. 64)

Huth, E. J. Guidelines on Authorship of Medical Papers. *Annals of Internal Medicine* 104:269-274, 1986.

(These guidelines are based on statements issued by the International Committee of Medical Journal Editors)

Principle 1 — Each author should have participated sufficiently in the work represented by the article to take public responsibility for the content.

Principle 2 — Participation must include three steps: (1) conception or design of the work represented by the article, or analysis and interpretation of the data, or both; (2) drafting the article or revising it for critically important content; and (3) final approval of the version to be published.

"Authors could not publicly defend the intellectual content of an article unless they understand thoroughly the basis for its origin (conception) and can testify to the validity of its argument (critical analysis of evidence). Authors must also have sufficient involvement in writing the paper...to insure validity of the argument and conclusions." (p. 269)

Principle 3 — Participation solely in the collection of data (or other evidence) does not justify authorship. "Paying" for work does not justify authorship.

Principle 4 — Each part of the content of an article critical to its main conclusions and each step in the work that led to its publication (steps 1, 2, and 3 in Principle 2 above) must be attributable to at least one author.

Principle 5 — Persons who have contributed intellectually to the article but whose contributions do not justify authorship may be named and their contribution described — for example, “advice,” “critical review of study proposal,” “data collection,” “participation in clinical trial.” Such persons must have given their permission to be named. Technical help must be acknowledged in a separate paragraph.

“Contemporary research can involve persons whose contributions are not vital to the argument and conclusions of the article but that have been supportive of the authors.” (p. 270)

So, where does this leave Alice??

Wonderland, A. I. (2003).
Hallucinogenic derivative...

Wonderland, A. I., Light, D., Grate, I. M., Lot, B., Cheese, H. and Dios, A. (2003).
Hallucinogenic derivative...

Wonderland, A. I. and Dios, A. (2003).
Hallucinogenic derivative...

Additional Considerations

1. Time of Decision on Authorship

Tentative decisions should be made at the beginning of the study. The final decision should be made no later than the beginning of the first draft of the article.

2. Responsibilities for Defining Authorship

Agreement should be reached at the time of initial decision on authorship as to who will be responsible for subsequent decisions. Generally, this should be the person who has the most responsibility for Step 1, defined above.

Additional Considerations (cont.)

3. Sequence of Authors

The relative contributions of authors to the intellectually most critical aspects of the work should determine their sequence. Contributions in Step 1 should be given the greatest weight. The first author should have made major contributions in Steps 1 and 2.

4. The Single Author

Single authors must not violate Principle 4; no one who should be taking responsibility for some part of the content of the paper should be omitted from authorship.

Roger Enoka's Top 10 Reasons to Minimize the Number of Authors

10. You will be appear more independent.
9. It is easier to remember the citation.
8. The best-known works all have single authors (*e.g.*, *Macbeth*, *War and Peace*, *Huckleberry Finn*).
7. For abstracts, there is more room for text.
6. Improves perceived productivity.
5. You will appear to be smarter.
4. You won't need equal representation by gender and ethnicity.
3. You won't have to publish with people you don't know.
2. You may be the first author.
1. There are less names to type on your CV!

In Which Journal to Publish?



...impact factors...

ISI—Institute for Scientific Information

Current Contents: 1963-1975

Current Contents II: 1976-present

“The impact factor of a journal is calculated by dividing the number of current year citations to the source items published in that journal during the previous two years.”

Impact Factor Calculation

A = Total citations in 2003

“Great” Impact Factor > 10
 “Not so great” Impact Factor < 0.5

$D = D/C = 2003 \text{ impact factor}$

Sample Impact Factors

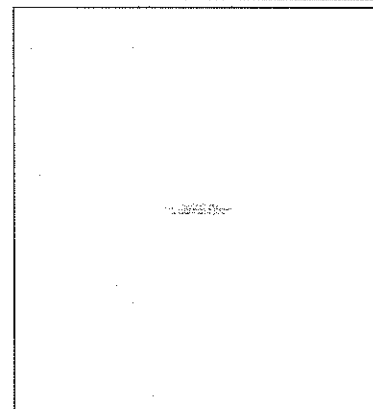
Nature =	30.979
Science =	29.162
New England J Med =	34.833
J Cell Biol =	12.023
J Biol Chem =	6.042
J Physiol (Lond) =	4.352
J Biomech =	2.005

“Orthopaedic” Impact Factors

Spine =	2.676
J Orthop Res =	2.167
Am J Sports Med =	2.063
J Bone Joint Surg (Am) =	2.046
Arthroscopy =	1.616
J Bone Joint Surg (Br) =	1.505
Clin Orthop Rel Res =	1.357
Clin Biomech =	1.176
J Arthroplasty =	0.922
J Shoulder Elbow =	0.876
J Hand Surg (Am) =	0.729
Foot & Ankle Int =	0.687
Knee =	0.583

“Problems” with Impact Factors

- Reviews not counted (if known)
- Broad disciplines (e.g., Biology) overrepresented
- New journals underrepresented
- Two year moving average (editor changes?)
- Disregard article half-life
- Journals with large circulation overrepresented (e.g., *Science*, *Nature*, *Clin Orthop Rel Res*)
- A few widely cited articles can dominate (see graph)



Beware of hidden sharks!

