

# How to Read a Scientific Article

## Tips and Suggestions

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# Journal

- Name recognition
  - Science
  - Nature
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- Impact factor
  - Science 28.103
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[The role of neurotrophins in the pathophysiology of allergic rhinitis.](#)

1. Raap U, Braunstahl GJ.  
Curr Opin Allergy Clin Immunol. 2009 Nov 20. [Epub ahead of print]  
PMID: 19935061 [PubMed - as supplied by publisher]

[Preparation and in vivo study of dry powder microspheres for nasal immunization.](#)

2. Tafaghodi M, Rastegar S.  
J Drug Target. 2009 Nov 23. [Epub ahead of print]  
PMID: 19929307 [PubMed - as supplied by publisher]

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[Curr Opin Allergy Clin Immunol.](#) 2009 Nov 20. [Epub ahead of print]

## **The role of neurotrophins in the pathophysiology of allergic rhinitis.**

[Raap U, Braunstahl GJ.](#)

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**PURPOSE OF REVIEW:** Allergic rhinitis is characterized by allergic airway inflammation and a hyperresponsiveness to nonspecific stimuli which is partly neuronally controlled. In this regard, neurotrophins are prime candidates as mediators of neuronal and immunological plasticity and they will be the focus of the current review. **RECENT FINDINGS:** Neurotrophins including nerve growth factor (NGF) and brain-derived neurotrophic factor (BDNF) are expressed in the nasal mucosa. The majority of NGF expression has been found in eosinophil granulocytes, the glandular apparatus and peripheral nerves. As shown recently, nasal allergen provocation upregulates BDNF expression in nasal mucosa and NGF expression on peripheral nerves and nasal lavage in patients with allergic rhinitis. In this regard, increased BDNF expression positively correlates with the maximum increase in total nasal symptom score. The neurotrophin receptors including pan-neurotrophin receptor p75, tyrosine kinase A (trkA) and trkB are expressed in nasal tissue. TrkA is expressed on endothelial, p75 on peripheral nerves and trkB on nasal mucosa mast cells that decreases after allergen provocation. The expression of these neurotrophin receptors is increased on peripheral blood eosinophils in allergic rhinitis compared with nonatopic controls. Further, BDNF and NGF exert immunomodulatory functions on eosinophils of patients with allergic rhinitis. Finally, eosinophils of patients with allergic rhinitis are capable of BDNF and NGF production. **SUMMARY:** Neurotrophins represent prime candidates in upper airway pathophysiology in allergic rhinitis. Research on neurotrophins in allergic rhinitis is thus becoming a progressively more exciting field and may reveal new and promising therapeutic options for the future.

# Author Order

**Piled Higher and Deeper** by *Jorge Cham*

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## THE AUTHOR LIST: GIVING CREDIT WHERE CREDIT IS DUE

**The first author**  
Senior grad student on the project. Made the figures.

**The third author**  
First year student who actually did the experiments, performed the analysis and wrote the whole paper. Thinks being third author is "fair".

**The second-to-last author**  
Ambitious assistant professor or post-doc who instigated the paper.

Michaels, C., Lee, E. F., Sap, P. S., Nichols, S. T., Oliveira, L., Smith, B. S.

**The second author**  
Grad student in the lab that has nothing to do with this project, but was included because he/she hung around the group meetings (usually for the food).

**The middle authors**  
Author names nobody really reads. Reserved for undergrads and technical staff.

**The last author**  
The head honcho. Hasn't even read the paper but, hey, he got the funding, and his famous name will get the paper accepted.

JORGE CHAM © 2005

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# Author Order

Hormones and Behavior 55 (2009) 329–337



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Hormones and Behavior

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Fecal glucocorticoids reflect socio-ecological and anthropogenic stressors in the lives of wild spotted hyenas

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# The Pieces

Abstract

Introduction

Methods & Results

Discussion

References



# Abstract

- SHOULD YOU READ THE WHOLE PAPER?
- Mini paper
  - Background 1-2 sentences
  - Methods 1-2 sentences
  - Results 2-3 sentences, rarely stats
  - Conclusion 1 sentence
  - Ramifications 1 sentence
- Over simplified, uninformative for facts

# Introduction

- Provides context and background
- Sets up aim and goals
- What to look for:
  - Identify the claim/primary argument
  - Assess evidence/background
  - Establish vocabulary and acronyms
    - D.A.F.T. - Dust and Aerosol Measurement Feasibility Test
    - S.N.O.T – Sino-Nasal Outcome Test

# Methods and Results

- Don't get bogged down in the details
- Read them one at a time
- Reread them together

## 2.5. Statistical analysis

Data were log-transformed before analysis if not normally distributed. Procedural covariates (sample collection time and hyena identity) were analyzed with a step-wise regression allowing for each predictor variable to be measured while controlling for reproductive state. Significant predictors were then further investigated using within subjects analyses. Differences among reproductive states (immature, pregnant, and lactating) were evaluated using one-way analysis of variance (ANOVA). Along with test statistics, means and standard errors are presented. For further investigation of significant differences, two-tailed *t*-tests were used except when testing specific directional hypotheses based on expected differences in hormone concentrations between reproductive states, as when comparing reproductively immature and mature females, or pregnant and lactating females; in these cases one-tailed tests were used. To examine differences among trimesters of pregnancy, a post hoc Tukey's analysis was performed for both plasma and fecal samples. When log-transformed data

## 3.4.1. Procedural covariates

To evaluate procedural covariates associated with our sampling technique and to avoid pseudoreplication, a step-wise regression was used to determine how much variation in fE concentrations could be explained by collection time (morning, 06:00–09:00, or evening, 17:00–20:00) and individual identity, after reproductive condition had been controlled. The full model yielded an  $R^2 = 0.07$ ,  $F_{3,536} = 14.09$ ,  $P < 0.001$ . Reproductive state (immature, pregnant, and lactating) explained a significant portion of the variance in fE ( $P < 0.001$ ). Collection time was a significant predictor over and above the variance explained by reproductive state ( $P = 0.009$ ), whereas hyena identity was not ( $P = 0.22$ ). The effect of collection time was further examined by pairing morning and evening samples for 35 individuals. Concentrations of fE were significantly higher in morning than evening samples ( $t_{34} = 4.19$ ,  $P < 0.001$ ). Therefore all subsequent analyses utilized only morning samples.

# Discussion

- Do the concluding statements adequately reflect the results of the study?
- Red flags-Authors spend a lot of time:
  - Explaining why they didn't find what they expected
  - Focusing on a result that was not the original intent of the study
  - Conclusions don't quite match the abstract

# References

- Leads to prior papers from that group
- And on that topic

**BUT!**

- Should cite others' research thoroughly!

# Cited By:

The image shows a screenshot of a web browser displaying a PubMed article. The browser's address bar shows the URL: <http://www.ncbi.nlm.nih.gov.proxy.library.emory.edu/pubmed/12479841?o>. The page title is "Intrauterine position effects. [Neurosci Biobehav Rev. 2002] - PubMed result - Mozilla Firefox".

The PubMed.gov logo is visible at the top left, with the text "U.S. National Library of Medicine National Institutes of Health". A search bar contains the text "PubMed" and a "Search" button. There are also links for "Advanced search" and "Help".

Below the search bar, there are options for "Display Settings" (set to "Abstract") and a "Send to" button. A "Find It @ Emory" button is also present.

The article title is "Intrauterine position effects." by Ryan BC, Vandenberg JG. The journal information is "Neurosci Biobehav Rev. 2002 Oct;26(6):665-78." The authors' affiliation is "Department of Zoology, North Carolina State University, Raleigh, NC 27695, USA. bcryan@unity.ncsu.edu".

The abstract text reads: "A review of the literature suggests that individual variability in sex-related traits may be influenced by variations in hormonal exposure during fetal development. In litter-bearing mammals, fetuses develop in utero and may be subjected to differing hormonal environments based upon the sex of neighboring fetuses. Female fetuses developing between two males tend to show masculinized anatomical, physiological and behavioral traits as adults. Female fetuses developing without adjacent males, on the other hand, tend to show more feminized traits as adults. These traits include permanently altered hormone levels, reproductive organs, aggressive behaviors, secondary sex ratios and susceptibility to endocrine disruption. This intrauterine effect is due to the transfer of testosterone from male fetuses to adjacent fetuses. While these effects have been most clearly demonstrated in mice, other rodents and swine also show intrauterine position (IUP) effects. Some of these effects are similar to the influence of prenatal stress on adult phenotypes. A few reports on human twins suggest that variability in some masculine and feminine traits may be due to intrauterine hormonal signals. IUP effects may impact a number of scientific fields of research such as endocrine disruption, toxicology, population biology, animal production and health."

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# Gerbil Article

## Intrauterine position

- Ratio of male and female fetuses affects development
- 2F females
- 2M females
- Enjoy!

# Links

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