

Jorrit Gerritsen

Beatrix Childrens' Hospital University of Groningen, The Netherlands

How to write an english abstract

Pic. 1.

Outline

- nobody is born as a writer, depends on the person, but it is a learning process
- writing an abstract takes time: start early and be organized
- the main author is in principle the first author, the principle investigators (PI's) are mostly situated on the second and last place. Discuss this before starting writing
- the deadline is as a rule the latest moment you can submit an abstract

Pic. 2.

Function abstract

- an abstract is an appetizer, it makes scientists or clinicians curious to what follows
- it is as a rule the first step in presenting the challenging research you did
- if accepted it can open new areas and relationships in the scientific field
- unfortunately it does often not lead to a publication

Pic. 3.

Realize

- that in human studies the project has to be reviewed by a Medical Ethics Committee and that they approved
- that a clinical trial has to be registered before the study starts
- that the methods are proper especially in retrospective studies
- that there is no conflict of interest in your study

Pic. 4.

Before writing

If you want to include a figure in the long term: right from the beginning of your project, think about experiments in terms of future papers and abstracts, especially the FIGURES.

For example, if you are doing immunoprecipitation studies imagine a **future figure** as you load your samples on the gel. Arrange the control, experimental and marker samples in the optimal sequence for a future figure so you don't have to go back and redo it.

For photomicrographs, think about the best magnifications and orientations to show the important features. Keep consistent backgrounds. Record the magnifications for the scale bars!

Pic. 5.

It is easier to assemble all the data **BEFORE** writing an abstract or a paper, than during the process

Pic. 6.

Short term

- produce and assemble draft **FIGURES** both for an article and an abstract and lay them out in order on a table or desk
- decide what are the key points that you need to make, and write them out. Focus on hypotheses that you tested
- resolve **authorship** issues.
- corresponding author is usually a senior author.
- have printed copies of key references at hand and not only the abstracts.
- start a **database for references** e.g. ENDNOTE, REFERENCE MANAGER, etc. will format references for different journals

Pic. 7.

Writing an abstract

- in many ways this is the hardest kind of paper to write, but good to start with, even though it is the shortest
- the abstract has to be concise and engaging, right from the opening sentence.
- the quality is decisive many times whether you go or not go to a congress
- the reviewers are very critical and the top experts in the field of your study
- it is very rewarding when an abstract is accepted

Pic. 8.

Starting out

- know your working style. For example, pencil and paper versus computer
- set a deadline and have a reward system!
- faced with a blank piece of paper, or an empty screen, it is best to just put something down and edit it afterwards rather than to expect to write a perfect sentence straight away
- In general it is easiest to start writing **RESULTS** and **MATERIALS and METHODS**
- just start writing the data as if you were describing them to your colleagues. Lay out general arguments and then go into details so that you prepare the readers for what follows and the logic you are going to use

Pic. 9.

Let us start

- the first sentence of an abstract should clearly introduce the topic of the paper and the problem to be solved
- to help the reader, relate the paper to other work they are familiar with
- recent studies of abstract writing indicate that it is important to summarize what has been achieved on this problem already, which suggests that the second sentence is the appropriate place to do this. But such studies don't tell you what to write next, and so most authors don't realize the third sentence should summarize the deficiencies of this existing research
- to solve this problem, we describe a technique that structures the entire abstract around a set of six sentences, each of which has a specific role, so that by the end of the first four sentences you have introduced the idea fully
- this structure then allows you to use the fifth sentence to elaborate a little on the research, explain how it works, and talk about the various ways that you have applied it, for example to teach generations of new graduate students how to write clearly
- this technique is helpful because it clarifies your thinking and leads to a final sentence that summarizes why your research matters

Pic. 10.

Title

- title must be short
 - a. example: Prognosis of asthma: multicenter study
 - b. example: Follow-up of children with asthma on prognosis: multi center study
 - c. example: long term follow-up of children aged 6 to 15 years for 25 years on the prognosis of asthma: multicenter study
- it is impossible to put your whole study in the title

Pic. 11.

Authors & affiliations

- the order of the authors has been mentioned
- it is important that all authors had a role in the study and try to omit authors who did not have a role at all. Sometimes very difficult to achieve
- discuss the author always with your PI
- Be sure whether titles of the persons have to be added for example MD, PHD
- the institutions should be mentioned in order of the authors

Pic. 12.

Introduction

- **general topic:** The first part of the abstract introduces the study. It should describe the goals, significance and background for the study. This is usually accomplished in one or two sentences that describe the general topic to be investigated and why it is important. Sometimes this is most easily done by relating something about the state of the field and why you did the experiments
- **specific question or relationship:** write one or two sentences describing the specific question you are addressing or relationship you are investigating with this investigation

Pic. 13.

Methods

- **method:** The second section of the abstract summarizes the methods used: how the study was designed and carried out
- this usually takes about two sentences, but may be shorter or longer depending on the complexity of the study
- do not attempt to write a detailed procedure, just give a general idea of how you did it

Pic. 14.

Results

- **results:** write one or two sentences explaining what you found out
- be as specific as possible
- state only your major findings of the study. These should relate to the objectives that you described in the introductory section of your abstract
- this section is variable in length, depending on the number and complexity of the findings, but is typically two to three sentences long

Pic. 15.

Conclusions

- **conclusions:** the final part of the abstract consists of one or two sentences giving your interpretation of the results and the overall significance of the study
- the conclusions must be answer(s) on the aims of the study
- the conclusions must be firm and not weak, like: further studies are necessary to find a relationship, etc.

Pic. 16.

Future directions

- the study can provide information which can be a suggestion for future research
- references are as a rule not necessary and if they are needed than only one or two
- figures can be informative but take a lot of space
- tables are most times a disaster in abstracts and should be omitted when possible

Pic. 17.

Additional guidelines

- verb tenses: the common practice is to express the work being described in the past tense: «The average concentration of E2 in surface waters was 35 ng/L,» and previously reported work is expressed in either the present or past tense: «E2 is known to increase the number of feminized fish in surface water.»
- the abstract should be one paragraph, single-spaced, with no indent to start the paragraph
- each professional journal or meeting will have its own guidelines for abstract preparation. Be sure to follow them carefully
- keep sentences short. 15–20 words is about right but shorter ones can be used for impact or emphasis. Check that each sentence makes sense and is not ambiguous

Pic. 18.

An example of a sentence that is too long:

- «Genes A, B, C and D and their antagonists are expressed at high levels in the thymus of the wild type embryos but in the heterozygous mutants they are lower and in the null mutant they are absent except in a small region where the latter are expressed at low levels»

Pic. 19.

Better is

«Genes A, B, C and D, and their antagonists, are expressed at high levels in the thymus of wild type embryos. Transcription of all genes is lower in heterozygous mutants. By contrast, in homozygous null mutants no expression of any gene could be detected, except in a small region in which the genes encoding the antagonists are still fully active»