

A white, scalloped-edged shape, resembling a stylized flower or a decorative frame, is centered on a bright yellow background. The shape has multiple rounded, wavy edges. Inside this shape, the title of the book is written in a bold, black, sans-serif font.

**ACADEMIC WRITING-
THE ART OF SCIENCE**

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THE WRITING AS AN ACTIVITY – PREREQUISITES.....

- You can only write if you like writing – so what to do if you don't ?
- Writing takes place as text messages, small notes, emails and even post cards
 - Use everyday writing as textboard for your academic writing
- Diary, notes during meetings, responsibility for minutes, agenda increase your skills
 - English or German – considerations
 - Academic or everyday language
- Love letters showing affection versus technical language – and the mixture
 - Not a specific science – only to some extent

THE WRITING AS AN ACTIVITY – PREREQUISITES.....

- Obstacles for writing, the constant postponement does not work
 - Daily activity, not wait until study is finished
- The sequential scientist versus the scientist working on parallel parts of science
 - Knausgaard: 'I write because I am going to die'

THE WRITING AS A DAILY ACTIVITY

- The scientific protocol is a dynamic document
- The minutes from all meetings with collaborators such as mentors, colleagues, people from other disciplines and authorities
 - Parts of a scientific paper is ready from the beginning of a study
 - Preparations for a paper involves the 'review table'
 - Contains columns of:

First author name, year of publication, journal, design of study, number of cases/cohort size/x, main results, exposure assessment method, comments

Here you write short summaries of each study

THE WRITING AS A DAILY ACTIVITY

- One of the rooms for the scientific presentation compared to a poster or an oral presentation or in communication with/in media
 - The scientific truth is not your data only
- It is the bulk of data in combination with the quality of each study which determines the level of evidence we have at hand when we read your paper
 - The design determines the language
- Causality defined by Bradford Hill of importance for understanding of each of your texts

CAUSALITY

- **Strength** ([effect size](#)): A small association does not mean that there is not a causal effect, though the larger the association, the more likely that it is causal.
- **Consistency** ([reproducibility](#)): Consistent findings observed by different persons in different places with different samples strengthens the likelihood of an effect.
- **Specificity**: Causation is likely if there is a very specific population at a specific site and disease with no other likely explanation. The more specific an association between a factor and an effect is, the bigger the probability of a causal relationship. [\[1\]](#)

CAUSALITY

- **Coherence:** Coherence between epidemiological and laboratory findings increases the likelihood of an effect. However, Hill noted that "... lack of such [laboratory] evidence cannot nullify the epidemiological effect on associations".
- **Experiment:** "Occasionally it is possible to appeal to experimental evidence".
- **Analogy:** The effect of similar factors may be considered.

CAUSALITY

Temporality: The effect has to occur after the cause (and if there is an expected delay between the cause and expected effect, then the effect must occur after that delay).

Biological gradient: Greater exposure should generally lead to greater incidence of the effect. However, in some cases, the mere presence of the factor can trigger the effect. In other cases, an inverse proportion is observed: greater exposure leads to lower incidence. [1]

Plausibility: A plausible mechanism between cause and effect is helpful (but Hill noted that knowledge of the mechanism is limited by current knowledge).

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE

- Today most papers are authored by groups, become a member of a group
- Follow the first author in all stages of writing a paper including counselling by senior author
 - Discuss the product of the first author
 - Go into the subject and potentially become a coauthor of a publication
 - Writing groups
- Types of communication includes: Letter to the Editor, Casuistic data, Review and Meta-analysis, Original study (RCT, Retrospective Cohort data, Prospective cohort data, Single arm study, Historical comparison study – and Primary data, Secondary data, First follow-up, Second follow-up, Revisiting old data sets, Revisiting old ideas/hypothesis

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE

- The first piece takes into account your stage in career – so being young do not write a review or meta – analysis which requires years of experience – go for other options
- The paper has a model, the IMRAD (Introduction, Method & Material, Results and Discussion)
 - Let's visit each of these aspects of a paper and come to some eye opening
- There are types of scientific reports, which do not follow IMRAD like 'Letter to the Editor'

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE -THE INTRODUCTION

- As in all aspects of writing, the first sentence has impact – look at journalism
 - The contents could be:
- What do we know (three studies of high quality, which has been around the subject)
 - What we don't know (aspects of the field which would be important to know)
 - How we addressed these limitations or missing links
 - Our contribution and/or hypothesis

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE -THE METHOD & MATERIAL

- Logic sequence of data organization giving important aspects of each source (validity, completeness, degree of misclassification, content, degree of details)
- Could be: first we did this, then added this information, in the third stage we handled this problem and finally we put it all together and established this data set
 - Don't enter results if not needed
- The material could be a patient group, geographical area, age, gender, strata of any kind, in total it is about precision and determination of the cases (and controls) included
- How did we analyze this data? Explain all statistical analysis included and the reasons for doing this analysis, and include an explanation for the stratifications and different populations in each of the analysis. This always requiring an expert in the field to ensure no mistakes or limited/flawed explanations

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE -RESULTS

- Only give the results needed to bring the message of the data forward – leave all other results to the new digital world as appendices – online accessible
 - Comparisons with ‘other group’
 - For each paragraph address data in one table or one figure or in a combination
- Never give a first sentence in a para, such as: “In table 2 we show the number of Hamburgers swimming every morning in the harbor”
- Write: “Most of the swimmers in the harbor were men aged 64, living in a marital relationship and having a history of swimming as well as a BMI more than 25 (Table 2)”
- Limit this section, although you find everything interesting, no one else have this experience...

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE -TABLES

- Tables need to be 'self explanatory' – this implies a headline which locate the study from which the data arise and foot notes that leave out all doubts about the content
 - Don't ever use decimals if not adding information (computer programs are stupid when it comes to decimals and young researchers believe that science arise from decimals....well
- Acronyms, Greek letters, negative numbers or algorithms leads to less readers understanding the content – avoid, if possible
 - Highlight the main finding of each table, not all content, just refer to the table

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE -FIGURES

- Too many lines and a figure is not easy to interpret
- Too many point on the X and Y axis blur the message
- Consider how much a figure is better than a table – you don't read, you look at a piece of art
 - Consider to leave out tables and give figures
 - Look at these examples

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE -LANGUAGE IN THIS SECTION

- How to present a result; is this significant and how do I tell this quite important information? A p – value or an Odds Ratio or Hazard Ratio and what about confidence intervals?
 - Some journals do not like this ‘significance writing’ in the text
- There is no ‘emotional’ language in this section – major, big, large or small – and not something like – to our surprise, un expected or in line with our hypothesis.
 - The direction (if any) of your findings: ‘A leads to B’
 - This section is pure reporting of what and how we observed anything
 - Move from the most important finding to the second and so on
 - Keep the same order as the hypothesis stated in the Introduction section

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE -DISCUSSION

- How to discuss ? Well, you need skills.
- First you make a para which is a summary of your findings and more like a meta summary, not repeating anything already written
- Then you present studies having findings like you and subsequently studies going in other directions – and you provide ideas for why there is such discrepancy; could be methods, how measures were conducted, timing, patient characteristics – you name it.
 - You show that you think (you are able to think as a scientist)

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE -DISCUSSION

- How to show the advantages and limitations of your work is a matter of tradition and style
 - Present the advantage and show you know why your study is cool
- Even more cool it is to show the limitations and never forget to show how you addressed each if these limitations – either completely or partly and evaluate the impact of each limitation
 - What has to be studied next
 - The conclusion; clinical, methodological, analytical or.....?

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE -DISCUSSION

- How to discuss
- A discussion is a process in which you are directing the reader to interpret your data in the light of all other studies conducted so far in your field of study.
- You may divide, as stated before, divide the discussion into a para showing the reasons for the studies having the same results as yours. Now, what did you contribute with? Your number of subjects was higher increasing power and thereby establishing causality with more weight.

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE -DISCUSSION

- How to discuss
- Your measures of (determinant (misclassification), exposure (direct spot measurements), confounders (factors identified as playing a role), outcomes (morbidity, not self reported, objective)) was more precise than hitherto published studies.
 - Your analysis took into account new aspects, which increased precision

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE -CONCLUSION

- How to conclude
- What should be in the conclusion depends on the purpose of the study and the strength of evidence the particular study provides the field
- May contain a methodological component, a scientific component and a clinical component. But also a patient oriented component and even a direction or suggestions for future research

HOW TO START YOUR CAREER AS AN AUTHOR OF SCIENCE -CLINICAL EFFECT

- How to conclude the size of the clinical effect

EXERCISE

Identify three papers on the topic from yesterdays Abstract Exercise

Use them as discussant papers

Discuss the findings in the tables from yesterday

First we work on framing 'our' data in relation to the three studies

Then we work with our advantages and limitations in relation to the three studies

Then we make a clinical conclusion and an epidemiological conclusion and a public health conclusion

Create new groups compared to Day 1, you have 30 minutes for each paragraph = 90 minutes in total. Use Christoffer and Klaus as consultants. These two guys will also assign whiteboard duties

HOW TO SUBMIT

- Letter to the Editor
- The rejection
- The revision letter
- The next journal
- Editing the manuscript
- Prepare for the rejection if shooting high

HOW TO SUBMIT

- Thank you for your submission to Journal of Clinical Oncology. I have read your manuscript in full detail.
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- I am sorry to report that we are unable to accept your manuscript for publication. Many considerations factored into our decision, but we had concern regarding the novelty and clinical impact of the reported finding that second malignancy risk is increased with chemotherapy, especially multiple lines of therapy. This topic has been covered in the recent literature. These concerns lowered the priority for this paper relative to others currently being considered.
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- Journal of Clinical Oncology receives an average of 5,000 submissions per year, of which more than 3,000 are Original Reports, and less than 13% of these are ultimately accepted for publication. In view of the many manuscripts that we receive for consideration, it is sometimes necessary to make an editorial decision as to whether a paper's priority is high enough to warrant full review. Rejection of a manuscript based upon priority considerations should not be taken to imply that the study lacks merit. Rather, the expedited review process is ultimately designed to permit you to more rapidly resubmit the paper to a more appropriate journal.
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HOW TO RE-SUBMIT

- Illustrate agreement with the issues raised by reviewers
- Decide carefully when to disagree
- Do extensive responses and make clear reference to the place in which the text has been edited (page x, paragraph y, line z or sentence number w)
- Use italics/underscore versus normal typography to distinguish reviewer comments from your response
- Admit limitations but show how you addressed these limitations

TO GO PUBLIC WITH YOUR DATA

- Always wait to the date of publication before you go public – see rules in major journals (Example; mobile phone studies)
- You may show data to funding body (public, private, pharmaceutical company, industry) when accepted for publication (Example; Industry partners)
- Never go public before peer reviewed (BMJ, NEJM, JCO, Lancet, JAMA.....)
- Present as a journalist – short conclusion, short sentences, perspective in the society