

## SCORE SHEET

Resource developed by Dr. Irene Guzmán-Soto at the University of Ottawa Heart Institute.

**Purpose:** To objectively and critically read and evaluate a scientific research article by setting easily identifiable metrics.

**Description:** The structural components of a research article were divided into 8 sections, each containing a list of key considerations. Some of those were grouped for the reader to assign a perceived rate on a scale from 1 to 10 (subsection A) and select the "Yes/No" option (subsection B) to indicate the presence or absence of the listed items. Apart from helping us to read with intention, this tool allows us to set the first steps in our path to learn how to critically evaluate an article by identifying strengths and flaws in each of its sections and by providing overall scores as reference.

### How to use this tool?

After reading each component of the research article:

1. Go to the corresponding section (i.e., 1. Title, 2. Abstract, etc.) on the Score Sheet.
2. Read the list of key considerations.
3. Mark the corresponding cells to rate subsection A items on a scale from 1 to 10, where 10 fully meets or exceeds expectations.
4. Select the "Yes" or "No" cell on subsection B to add or subtract points.
5. Calculate the subsections' and total sums.
6. Use the provided formula to calculate the section score.
7. Repeat steps 1 to 6 for each section.
8. Obtain the article's overall score on the last page.

1. TITLE		1	2	3	4	5	6	7	8	9	10	Sum	
	Compelling: Captures the reader's attention.												
A	Informative: Sufficiently clear, specific, and concise.												
	Accurate: Indicates what the scientific paper is about.												
B	Includes abbreviations and unnecessary information.*	Yes						No					
		-1						+1					
												Total	
												Score = Total/0.31	0

\* Should be avoided. Hence, if found in the article, it will cause a score reduction.

2. ABSTRACT		1	2	3	4	5	6	7	8	9	10	Sum	
	Persuades the reader to read further and learn more.												
A	Presents a clear and brief description of the research outcomes being reported.												
	Understandable by non-specialists.												
	All the information in this section matches that provided throughout the paper.												
B	Includes:	Yes						No					
	• Introductory statement.	+1						-1					
	• Justification of the study.	+1						-1					
	• Objective(s).	+1						-1					
	• Hypothesis.	+1						-1					
	• Overall description of the experimental design and methodological approach.	+1						-1					
	• Main findings.	+1						-1					
	• Brief statement about the study's impact and potential implications.	+1						-1					
												Total	0
												Score = Total/0.47	0

### 3. INTRODUCTION

3. INTRODUCTION					1	2	3	4	5	6	7	8	9	10	Sum	
A	Briefly situates the reader in context and clearly indicates the problem to be addressed and its importance.															
B	Provides:					Yes					No					
	• A rationale: What is the need?					+1					-1					
	• A rationale: What is the importance of the study?					+1					-1					
	• A rationale: Who will be benefited from it?					+1					-1					
	• Up to date background information related to the objective(s) pursued.					+1					-1					
	• A hypothesis.					+1					-1					
	• Research proposal to fill the gap.					+1					-1					
	• The main goal of the research.					+1					-1					
	Helps the reader to understand:					Yes					No					
	• Gap in knowledge.					+1					-1					
• Deficiencies/limitations of previous and current approaches.					+1					-1						
• What is the research question.					+1					-1						
• What is the (potential) relation between the different variables considered.					+1					-1						
						Total										0
						Score = Total/0.21										0

### 4. METHODS

4. METHODS		1	2	3	4	5	6	7	8	9	10	Sum	
A	Describes how the study objectives were approached and data obtained and evaluated.												
B	Clearly indicates:	Yes					No						
	▪ Study design.	+1					-1						
	▪ Analyzed variables.	+1					-1						
	▪ All the assays and experiments conducted for obtaining each of the results.	+1					-1						
	▪ Briefly indicates the purpose of each method and technique used.	+1					-1						
	▪ Presented in a concise way but with sufficient level of detail to allow reproducibility by others.	+1					-1						
	▪ Main experimental conditions are clearly described.	+1					-1						
	▪ Methods and techniques selected are suitable for the type of samples and variables analyzed.	+1					-1						
	▪ Potential sources of bias were avoided or otherwise indicated.	+1					-1						
	▪ Controls and reference groups were considered.	+1					-1						
	▪ A description of their conditions was included.	+1					-1						
	▪ Indicates sample size.	+1					-1						
	▪ Includes the source of drugs, reagents, materials, instruments and animal models.	+1					-1						
	▪ Indicates the statistical methods utilized for data processing.	+1					-1						
	▪ Statistical analysis was appropriate for the type of sample and experiment developed.	+1					-1						
	If animal testing was conducted, the following must be specified:	Yes					No						
	▪ Species.	+1					-1						
	▪ Strain.	+1					-1						
	▪ Age.	+1					-1						
	▪ Weight.	+1					-1						
	▪ Housing conditions.	+1					-1						
	▪ The ethics committee that approved the methodology was indicated.	+1					-1						
			Total										0
			Score = Total/0.30										0

## 5. RESULTS

5. RESULTS		1	2	3	4	5	6	7	8	9	10	Sum
A	Are presented in a clear, concise and unbiased fashion, highlighting the key findings and main differences observed between the groups of study.											
	Narrative and other details:											
	• Follows the same order as in the methods section.											
	• Unexpected results were also described.											
	• Overuse of "Data not shown" legend.*											
	Figures and tables:											
	Are self-explanatory.											
	Clearly and properly labeled, including appropriate units.											
	Concise and with sufficient level of detail.											
	Easily legible.											
	Visually engaging.											
B	Figure legends and table headings clearly describe what is being presented.											
	Include measures of uncertainty (e.g. standard error, confidence interval) and sample size.											
	Figures and tables present the same information.*											
	Total											0
	Score = Total/0.21											0

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## 6. DISCUSSION

6. DISCUSSION		1	2	3	4	5	6	7	8	9	10	Sum
A	Focuses on whether or not the objectives of the study were achieved.											
	Provides an interpretation and potential explanations for the obtained results.											
B	Includes the following points:	Yes			No							
	• Results were further compared to previously reported studies.	+1			-1							
	• Potential explanations to discrepancies and/or similarities with previous reports were provided.	+1			-1							
	• Practical implications of the results obtained are mentioned.	+1			-1							
	• Importance of the findings was appointed but no overstated.	+1			-1							
	• Limitations of the study and methodology were stated.	+1			-1							
	• Potential improvements were proposed.	+1			-1							
	• Indicates what further research questions have been derived from the study.	+1			-1							
		Total										0
		Score = Total/0.27										0

## 7. CONCLUSION

7. CONCLUSION		1	2	3	4	5	6	7	8	9	10	Sum
A	Briefly states the main contributions of the research study.											
	Drawn from the results obtained and discussed in the research study conducted.											
	Indicates relevance and potential future impact in the research field.											
	States implications.											
		Total										0
		Score = Total/0.40										0

### 8. REFERENCES

		Yes	No	Sum
B	▪ Recent and relevant to the study.	+1	-1	
	▪ Original research papers are preferred sources of reference over review papers.	+1	-1	
	▪ Cited where necessary.	+1	-1	
	▪ Includes research from several different groups rather than a few.	+1	-1	
	▪ All references cited in the article were included in the reference list.	+1	-1	
Total				0
Score = Total/0.05				0

**Overall Score = Sum of all sections' scores / 8**

0

**Reference of Scored Paper**