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How to write 'results' in scientific journal article

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'Results' is the shortest section yet important, as whole article depends on findings linked to the objectives, methods used to achieve that, and discussion will depend on the outcome.^{1,2}

It is written in past tense to describe the result already achieved and begins with the most important findings first. "The compulsion to include everything, leaving nothing out, does not prove that one has unlimited information; it proves that one lacks discrimination." (Aaronson 1997) and "The fool collects facts; the wise man selects them." (John Wesley Powell 1888).²

Table and figures are easy to understand. ".....a good illustration can help the scientist to be heard when speaking, to be read when writing. It can help in the sharing of information with other scientists. It can help to convince granting agencies to fund the research. It can help in the teaching of students. It can help to inform the public of the value of the work....." - Mary Helen Briscoe.² The same data must not be duplicated in text, tables and graphs. All tables and figures must be numbered and cited in main text. Do not write, 'Table xx or Figure xx' shows this or that. The explanation should not be verbose and assertive, for e.g. "It is clear from the data that ofloxacin inhibited the growth of E. coli", rather should read "ofloxacin inhibited the growth of E. coli".

The caption (title or legends) are as important as the manuscript title, short yet self explanatory, placed on top of table or below the figure (graph). Use standard abbreviations and capitalise each abbreviation (for e.g. Temp = temperature) and do not use periods (except "no."). Due to space constraint, nonstandard abbreviations are frequently used.

Explain all abbreviations in footnotes below the tables and figures. In the subsequent table, the footnote for abbreviation is not necessary, mention, "abbreviations as in table xx." Table is suitable for presenting exact numbers data without changing trend, whereas graph is better for data with changing trend.

Choosing the right type of graph is important. Bar charts compare relative proportions and amounts showing trends and changes over time. Pie charts illustrate proportions and show changes over time. Line graphs show trends and changes over time. Multi-plot charts display correlations between events by combining line and vertical bar or combining two or more vertical bar graphs, or stacking bar on over other or using a line chart with individual lines representing each data variable or using a scatter plot with two distributions.

Example 1:

Unnecessary table, when there is lots of repetition of '0' or '100' or '+' or '-' in a table, the result could be described easily in few words in text. Design is good, but these are useless tables. Table 2 can be clearly explained in few words-- "The oak seedlings grew at temperatures between 20 and 40°C" and similarly, Table 3 is more clear in text "*S. griseus*, *S. coelicolor*, *S. everycolor*, and *S. rainbowenski* grew under aerobic conditions, whereas *S. nocolor* and *S. greenicus* required anaerobic conditions." (Source¹)

Table 2. Effect of temperature on growth of oak (*Quercus*) seedlings*

Temp (°C)	Growth in 48 h (mm)
-50	0
-40	0
-30	0
-20	0
-10	0
0	0
10	0
20	7
30	8
40	1
50	0
60	0
70	0
80	0
90	0
100	0

Table 3. Oxygen requirements of various species of *Streptomyces*

Organism	Growth under aerobic conditions*	Growth under anaerobic conditions
<i>Streptomyces griseus</i>	+	-
<i>S. coelicolor</i>	+	-
<i>S. nocolor</i>	-	+
<i>S. everycolor</i>	+	-
<i>S. greenicus</i>	-	+
<i>S. rainbowenski</i>	+	-

Example 2:

Numbers include are well presented, title is self explanatory about the study, abbreviations explained in footnotes, and table cited in the main text.... "The overall SSI occurred in 4.8% (15/310) of patients. Six SSI out of 154 (3.9%) occurred in Gr AP and nine out of 156 (5.8%) in Gr APn... The overall SSI occurred in 4.8% (15/310) of patients...This slightly higher incidence of SSI in Gr APn was not significant (chi-square test, $p > 0.05$ or $p = 0.442$; Table 2)." Abbreviations are described in footnotes. (Source: Asian J Surg. 2012;35(4):136-9.) <http://dx.doi.org/10.1016/j.asjsur.2012.06.011>

Table 2 Wound infection among two groups of LC patients with and without prophylactic antibiotic had no significant difference (chi-square test, $p > 0.05$ or $p = 0.442$).

LC patients	Wound infection n%		No wound infection n%	
GrAP, n = 154	6 ^a	3.9	149	96.1
GrAPn, n = 156	9 ^a	5.8	147	94.2
Total, n = 310	15	4.8	295	95.2

GrAP = antibiotic prophylaxis group; GrAPn = no antibiotic prophylaxis group; LC = laparoscopic cholecystectomy.

^a None of these patients were from the subgroup of acute cases.

Example 3:

The title of table explains about the study, "Is Routine Hospital Visit after Day Case Inguinal Hernia Surgery in Children Necessary?" including sample size. The findings are mentioned in clear short messages. Extra explanation is mentioned in footnotes due to constraint of space in table itself. Abbreviation 'IH' is not repeated here because its already explained in pervious table. The horizontal gridline is replaced by shading to differentiate rows and vertical gridline, for column it is removed. (Source: J Nepal Health Res Counc 2013 Jan;11(23):35-9.)

Table 4. Findings of telephone inquiry after day care IH surgery in children (n=30).

Parents response		N
1.	Did you seek medical help locally for pain for wound concern	0
2.	Did you observed wound and found redness swelling discharge	0
3.	Did you have unplanned hospital visit within one week*	1
4.	Were you satisfied, will recommend to others†	29

*One unplanned visit to hospital emergency on 5th day after surgery was due to viral fever and was discharged home after medication.

†Mother noticed swelling 6 w after surgery. This recurrent hernia was successfully repaired as day care. Mother was unsatisfied due to want of 2nd operation.

Example 4:
Pie charts illustrate proportions and show changes over time. (Source: JNHRC. 2012;10(1):28-31.) Bar charts compare relative proportions and amounts showing trends and changes over time.

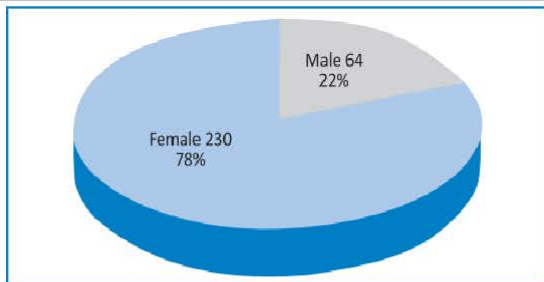


Figure 1. Female (78%) were predominant in this series of 294 laparoscopic cholecystectomy (LC).

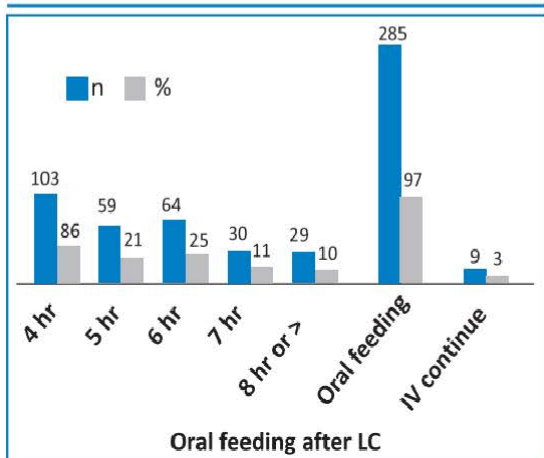


Figure 2. After LC 97% (285/294) patients tolerated early feeding, majority within 6 hr, only 3% required continued IV fluid.

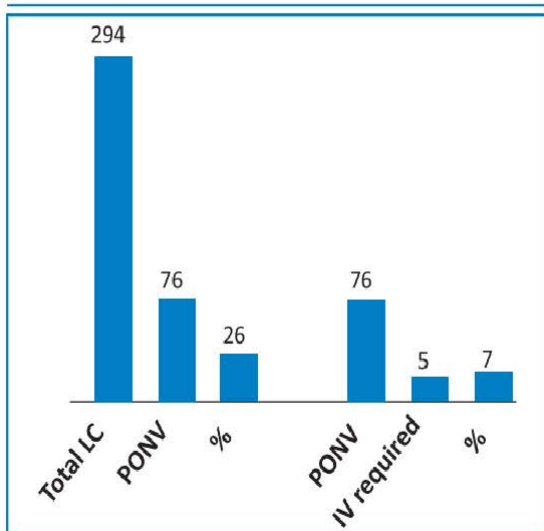


Figure 3. Post operative nausea and vomiting (PONV) was seen in 25.9% (76/294). Among PONV patients 6.6% (5/76) required IV fluid, 1.7% of total LC (294).

Example 5:
Table and Figure both record same data, and are acceptable for publication, yet it is clear and easy to appreciate the synergic action and trend of drug efficacy in graph form. (Source¹)

Table 9. Effect of streptomycin, isoniazid, and streptomycin plus isoniazid on *Mycobacterium tuberculosis**

Treatment ^b	Percentage of negative cultures at:			
	2 wk	4 wk	6 wk	8 wk
Streptomycin	5	10	15	20
Isoniazid	8	12	15	15
Streptomycin + isoniazid	30	60	80	100

^aThe patient population, now somewhat less so, was described in a preceding paper (61).
^bHighest quality available from our supplier (Town Pharmacy, Podunk, IA).

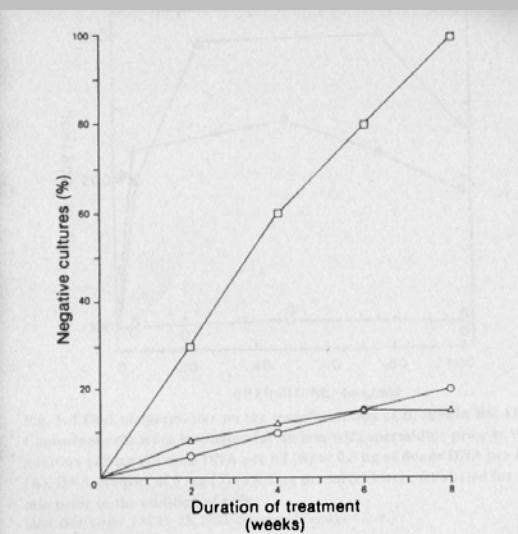


Fig. 2. Effect of streptomycin (○), isoniazid (△), and streptomycin plus isoniazid (◻) on *Mycobacterium tuberculosis*. (Courtesy of Erwin F. Lessel.)

In summary - results are the backbone of the study. Show clearly the findings of what was done. Avoid being fancy! Tables and graphs add spice to it. However, too much spice spoils the taste!

References

1. Robert A Day. How to write and publish a scientific paper. 4th edition. <http://landscape.geo.klte.hu/Kozos/geoinf/par.pdf>
2. <http://www.icmje.org/recommendations/browse/manuscript-preparation/preparing-for-submission.html#e>
3. <http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWsections.html#results>