



Using an excel spreadsheet to convert Snellen visual acuity to LogMAR visual acuity

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To the Editor:

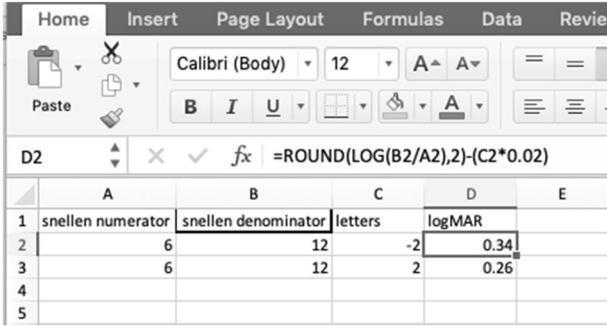
Visual acuity is a vital outcome measure in determining efficacy of treatments and interventions in ophthalmology. In the clinical setting, there is still a mixed use of Snellen acuity charts and ETDRS acuity charts. Visual acuity data must be standardized in a logMAR format to allow for statistical analysis [1]. Conversion tables and calculators exist online which allows for whole Snellen fractions to be converted into logMAR equivalents. However, additional letters read or missed letters are not accounted for. This can compromise data quality and accuracy of outcomes.

Ferris proposed a method termed letter scoring to incorporate gained or missed letters [2]. Rosser et al. proposed the line scoring method [3].

Kaiser [4] described how he prepared for statistical analysis by converting the Snellen fraction to logMAR. The score was further modified by adding/subtracting 0.02 logMAR to converted values for letters correctly/incorrectly identified on previous/next line.

In the era of big data, there needs to be an efficient way of tidying up data to facilitate analysis. We present an excel spreadsheet formula to convert Snellen visual acuity to logMAR acuity.

Our data set consists of 100 patients who underwent corneal collagen cross linking. We measured their vision pre and post cross linking. We converted all the Snellen visual acuities to logMAR visual acuities. These conversions were done via our excel spreadsheet formula taking into account methods from our literature searches. The formula is subsequently validated with manual conversion by two independent clinicians (CL and TS).



| | A | B | C | D | E |
|---|-------------------|---------------------|---------|--------|---|
| 1 | snellen numerator | snellen denominator | letters | logMAR | |
| 2 | 6 | 12 | -2 | 0.34 | |
| 3 | 6 | 12 | 2 | 0.26 | |
| 4 | | | | | |
| 5 | | | | | |

Fig. 1 Excel spreadsheet picture depicting an example of Snellen VA 6/12 – 2 and 6/12 + 2 with their respective logMAR equivalents.

There was complete correlation between the manual conversion and excel spreadsheet formula. Therefore, we recommend the following for data entry in excel. See Fig. 1 for an example of our spreadsheet.

Column A: snellen numerator

Column B: snellen denominator

Column C: letters gained (+) or missed (–)

Column D: logMAR acuity

ENTER INTO FORMULA BAR FOR CELL: =
ROUND(LOG(B2/A2),2)–(C2*0.02)

The formula can be copied and paste into the subsequent cells in the logMAR column (column D) to facilitate bulk analysis of data.

We successfully present an excel spreadsheet method to easily and efficiently convert Snellen visual acuity to LogMAR visual acuity.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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