

Learn How to Calculate a Trimmed Mean in Google Sheets

Authored by
Mohammed loot

October 27, 2025

RECOMMENDED CITATION

Mohammed loot (2025). *Learn How to Calculate a Trimmed Mean in Google Sheets*. PSYCHOLOGICAL STATISTICS. Retrieved from <https://statistics.arabpsychology.com/?p=4317>

Understanding the Trimmed Mean and its Statistical Significance

A [trimmed mean](#), often referred to as a truncated mean, is a statistical measure of central tendency that offers a significant advantage over the standard arithmetic mean. It is calculated by determining the mean of a dataset after systematically removing a specific percentage of the smallest and largest values symmetrically from the dataset's extremities. This process is designed to mitigate the disproportionate influence that extreme values or [outliers](#) can have on the overall average, thereby providing a more robust estimate of the typical value.

For instance, calculating a 10% trimmed mean means that the central tendency is derived from the remaining 80% of the data after the lowest 5% and the highest 5% of the observations have been discarded. This methodology is particularly valuable in fields where data integrity may be compromised by measurement errors, natural variability, or rare, high-impact events. By using the [trimmed mean](#), analysts can focus on the core distribution of the data, ensuring the resulting average is representative of the majority of observations rather than being skewed by peripheral data points.

The choice of the exclusion proportion is critical and determines the level of robustness required. While a 0% trim is simply the standard mean, and a 50% trim yields the [median](#), typical proportions range from 5% to 20%. This technique bridges the gap between the arithmetic mean, which is susceptible to every data point, and the median, which discards 50% of the information to achieve maximum robustness. The trimmed mean thus represents a compromise, preserving more information than the median while still offering protection against severe data contamination.

Why Use a Trimmed Mean? Addressing Data Extremes

The primary motivation for employing a trimmed mean arises from the need for robust statistics in real-world data analysis. When datasets contain severe [outliers](#)--observations that lie an abnormal distance from other values--the traditional arithmetic mean often fails to accurately represent the population's center. Consider salary data: one exceptionally high executive salary can inflate the average income for an entire department, misleading stakeholders about the typical employee's earnings. The trimmed mean effectively neutralizes these influential points.

By removing these extreme values, the [trimmed mean](#) stabilizes the measure of central tendency. This makes it an indispensable tool in fields such as psychometrics, where reaction times can be contaminated by lapses in attention (very slow times) or anticipatory responses (very fast times); or in economic analysis, where market fluctuations can produce extraordinary, non-representative peaks and troughs. The trimmed mean ensures that the calculated average is statistically stable and resistant to these non-normal influences, providing a clearer picture of the dataset's typical behavior.

Furthermore, selecting a specific exclusion proportion allows the analyst to tailor the calculation to the known characteristics of the data distribution. If the data is only slightly skewed, a small trim (e.g., 5%) might suffice. If the data is known to be prone to significant contamination, a larger trim (e.g., 20%) may be appropriate. This flexibility highlights the trimmed mean's superiority over simpler measures when dealing with complex or messy distributions, offering a middle ground that provides both accuracy and resistance.

Mastering the TRIMMEAN Function in Google Sheets

Calculating a trimmed mean manually can be tedious, requiring sorting the data, counting observations, and calculating the exact number of values to remove. Fortunately, spreadsheet software like [Google Sheets](#) provides a dedicated function to automate this complex process: the **TRIMMEAN** function. This function simplifies the application of robust estimation techniques, making sophisticated data analysis accessible to all users without requiring advanced statistical programming knowledge.

The **TRIMMEAN** function utilizes a straightforward syntax that requires two essential arguments to operate correctly. Understanding these components is paramount to accurately calculating the desired average. The function is structured as follows:

TRIMMEAN(data, exclude_proportion)

The arguments are defined specifically to manage the dataset and the trimming requirement:

data: This argument requires the cell range containing the entire dataset or population sample for which the trimmed mean is being calculated (e.g., A2:A100).

exclude_proportion: This crucial argument specifies the total proportion of data points to be excluded from the calculation. It must be entered as a decimal value between 0 (no trimming) and 1 (100% trimming, which would yield an error or an indeterminate result). For example, a 10% trim must be entered as **0.1**. Google Sheets automatically handles the symmetrical removal of this proportion from both the low and high ends of the distribution.

It is important to remember that the proportion entered (e.g., 0.1) represents the total percentage of values to be removed. If you specify 0.1 (10%), the spreadsheet will remove 5% of the data points from the smallest values and 5% from the largest values. This symmetrical approach ensures that the central tendency is not biased toward either the high or low end of the data.

Step-by-Step Practical Example: Calculating a 10% Trimmed Mean

To solidify the understanding of the **TRIMMEAN** function, let us walk through a practical example using a typical dataset within [Google Sheets](#). Suppose we have collected 20 data points

representing scores from a recent test, located in cells A2 through A21. We suspect that some scores might be unusually high or low due to external factors, and we wish to calculate a 10% trimmed mean to achieve a more reliable measure of the class's performance.

The dataset is displayed below, illustrating the raw scores:

	A	B	C	D
1	Data			
2	2			
3	2			
4	3			
5	3			
6	4			
7	5			
8	6			
9	7			
10	7			
11	7			
12	7			
13	8			
14	8			
15	9			
16	10			
17	11			
18	12			
19	14			
20	14			
21	15			
22				
23				
24				
25				

To calculate the 10% trimmed mean, we simply input the data range (A2:A21) and the exclusion proportion (0.1) into the **TRIMMEAN** function. This calculation will instruct Google Sheets to identify and exclude the top 5% and bottom 5% of the scores before averaging the remaining 90%. The resulting formula is concise and powerful:

TRIMMEAN(A2:A21, 0.1)

Executing this formula within a cell in Google Sheets yields the result almost instantaneously. The visual representation of this input and output confirms the efficiency of the calculation:

D1				
		=TRIMMEAN(A2:A21, 0.1)		
	A	B	C	D
1	Data		10% Trimmed Mean	7.611111111
2	2			
3	2			
4	3			
5	3			
6	4			
7	5			
8	6			
9	7			
10	7			
11	7			
12	7			
13	8			
14	8			
15	9			
16	10			
17	11			
18	12			
19	14			
20	14			
21	15			
22				
23				
24				

Upon execution, the 10% trimmed mean of this 20-value dataset is determined to be exactly **7.61**. This value represents the average of the central 90% of the scores, successfully filtering out the most extreme values that might otherwise distort the true central tendency of the test performance.

Verifying the Calculation: Manual Confirmation

While the **TRIMMEAN** function is reliable, understanding the underlying mechanism is essential for proper statistical interpretation. In this specific example, the dataset contains 20 total values. Since we specified an exclusion proportion of 0.1 (10%), we must calculate the number of observations to be removed: 20 multiplied by 0.1 equals 2. The spreadsheet must therefore remove two values symmetrically from the dataset--one value from the lowest end and one value from the highest end.

If the initial 20 values were sorted, the two values corresponding to the extreme low and extreme high ends would be identified and excluded, leaving 18 values remaining for the calculation. This exclusion process ensures that the average is calculated only on the core segment of the data

distribution. The remaining 18 values are then summed and divided by 18, which is the count of the observations retained.

We can confirm the accuracy of the **TRIMMEAN** function by manually performing this average calculation on the remaining 18 values, assuming the two most extreme [outliers](#) have been successfully removed:

10% Trimmed Mean: $(2+3+3+4+5+6+7+7+7+7+8+8+9+10+11+12+14+14) / 18 = 7.61$.

The result confirms that the automated calculation performed by [Google Sheets](#) precisely matches the manual calculation derived from the 18 central data points. It is noteworthy that even if the removed values in this particular set were not dramatic [outliers](#), the methodology still applies, demonstrating how the trimmed mean generally provides a more conservative and representative average than the standard mean when dealing with any degree of data spread or asymmetry.

Advanced Considerations and Alternative Measures

The utility of the trimmed mean extends beyond simply dealing with obvious outliers. It is fundamentally a tool of robust estimation, meaning it provides reliable estimates even when the underlying data distribution deviates significantly from the idealized normal distribution. While the standard arithmetic mean relies heavily on the assumption of normality, the trimmed mean maintains its integrity across a wider range of data shapes, including skewed distributions.

For analysts facing data integrity challenges, the trimmed mean is often compared with other robust measures. One notable alternative is the [Winsorized mean](#). Unlike the trimmed mean, which removes the extreme values, the Winsorized mean replaces the extreme values with the nearest retained value. For example, in a 10% Winsorization, the smallest 5% of values would all be set equal to the 5th percentile value, and the largest 5% would be set equal to the 95th percentile value. This method retains the sample size (N), which can be advantageous in certain statistical tests, though the interpretation differs slightly.

Ultimately, selecting the appropriate measure--be it the standard mean, the [median](#), the trimmed mean, or the [Winsorized mean](#)--depends entirely on the analytical goals and the known properties of the data. For general purpose reporting where protection against influence is needed without complex imputation, the **TRIMMEAN** function in [Google Sheets](#) offers the most accessible and intuitive method for deriving a statistically reliable measure of central tendency.

Additional Resources

The following tutorials provide additional information about robust statistics and specific applications of trimmed means: