Supplementary Figure 2: Useful statistical formulas

*Difference in means (SD) = $Mean_2 - Mean_1 \left(\frac{SD_1 + SD_2}{2} \right)$

$Mean_1 (SD_1)$ = Mean (SD) at baseline

$Mean_2 (SD_2)$ = Mean (SD) at follow up

* Not the same as mean difference (MD), which is the mean value of the combined differences in means

$$\textbf{SD}_{\textbf{pooled}} = \sqrt{ \frac{[SD_1^2(n_1-1)] + [SD_2^2(n_2-1)] + \ldots + [SD_k^2(n_k-1)]}{(n_1 + n_2 + \ldots + n_k - k)} }$$

SD_1 = SD from study 1, SD_2 = SD from study 2 etc

n_1 = sample size from study 1, n_2 = sample size from study 2 etc

k=number of samples/studies

Optimal Information Size (OIS)

$$N = \frac{2(a + b)^2 SD^2}{(x_1 - x_2)}$$

N=the sample size required in each of the groups

$x_1 - x_2$ = minimal clinically relevant difference (defined by authors)

SD^2 = population variance (SD_{pooled} can be used)

a = 1.96 (for 5% type I error)

b = 0.842 (for 80% power)

Required statistic	Available statistic	Conversion
SD	SEM	$SD = SEM \times \sqrt{n}$
	IQR	$SD = IQR / 1.35$
	Range	$SD = $ length of range $/ 4$
	CI	(length of CI $/ 3.92) \times \sqrt{n}$
95% CI	Mean$_1$ (SD$_1$) and mean$_2$ (SD$_2$)	$CI = mean_2 - mean_1 \pm 1.96(SD_{pooled} / n)$
Mean	Median	Mean = Median

Useful statistical conversions. CI, confidence interval; IQR, interquartile range; n, sample size; SD, standard deviation; SEM, standard error of mean.