Body Mass Index: A Simple Mental Math

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Body mass index (BMI) is in common use as an indicator of patients' risk for obstructive sleep apnea syndrome.¹

I have been using an estimation of our patients' BMI in clinic, based on their weight in pounds and height in feet and inches, without changing the units of measurement or resorting to a calculator—simple mental math. I would like to share this method with the readers of the *Journal of Clinical Sleep Medicine*.

The height is usually expressed as a pair of feet and inches. Adding the first number of the height pair (feet), to the second number of the pair (inches) divided by 5, will produce a height index. For example the height index for a person 5' 10" tall will be $7 = [5 + (10 / 5)]$. Now dividing the weight in pounds by this index will provide a quick estimate for BMI in kg/m^2 ; for example, if the person weighs 210 pounds, and is 5' 10" tall, BMI can be easily calculated by dividing 210 by 7: about 30 kg/m^2 .

Mathematically it can be shown (Figure 1) that this calculation is reasonably accurate in people 5 feet to 6 feet tall. As about 90% of women and 80% of men in United States fall in this range,² it can provide a quick estimate for the majority of patients in sleep medicine clinics.

CITATION

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Figure 1

Actual BMI-estimate Difference Factor

The vertical axis shows the "difference factor" in m^2 . The horizontal coordinate shows the second number (inches) of the height pair. To find the absolute difference of the estimated and the real BMI in kg/m^2 , the number on vertical coordinate has to be multiplied by the person's weight in pounds.

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