

# The Smart 4S Ratio – The Sleep, Sit, Stand, and Stride System

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## ABSTRACT

To translate evidence into meaningful outcomes, emphatic, and effective public health messaging is essential. Such messaging must be strong, yet simple, easy to explain, and friendly to follow. With due credit to earlier researchers, we suggest a Smart 4S (Sleep: Sit: Stand: Stride) ratio for smart health. Sleeping for 8 hours (1/3 of the day), sitting for 6 hours (1/4 of the day), standing for 5 hours (1/5 of the day), and being in stride (structured physical activity, sports, strenuous exercise) for 4 hours (1/6 of the day) may be suggested as a mantra for a healthy daily routine.

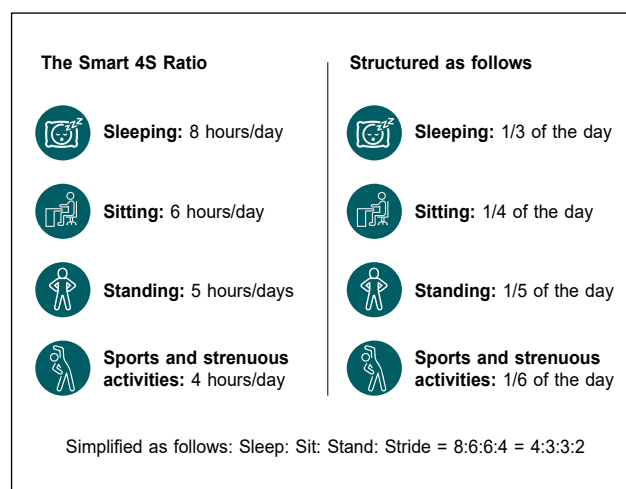
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Physical activity, sleep duration, and sedentary time have all been linked with cardiovascular and metabolic health<sup>1</sup>. Most research in this field is unifocal, and tries to assess the impact of one of these variables on health. Daily life, however, is an amalgam of various activities. Researchers have explored the influence of these on long-term outcomes. Based upon this, Brakenridge et al suggest ideal times for sleeping sitting, standing, and light as well as moderate physical activity<sup>2</sup>.

This important research has significant implications, both for public and clinical care. The necessity for adequate sleep is a “discovery” that has been rediscovered by modern medicine, and rightfully so<sup>3</sup>. The need to ensure regular physical activity, and avoid prolonged, uninterrupted sitting, is also documented<sup>4</sup>. The importance of exercise, or structured physical activity, is also well known, as is the advantage of introducing diversity in physical activity, exercise, and sports<sup>5</sup>.

## 4S MESSAGING

To translate this evidence and information into meaningful benefit for the public, emphatic, and effective



public health messaging is essential. Such messaging must be strong, yet simple, easy to explain, and friendly to follow. With due credit to Brakenridge et al<sup>2</sup>, we take the liberty of crafting a Smart 4S statement, or a smart ratio for smart health (Box). Sleeping for 8 hours (1/3 of the day), sitting for 6 hours (1/4 of the day), standing for 5 hours (1/5 of the day), and being in stride (structured physical activity, sports, strenuous exercise) for 4 hours (1/6 of the day) may be suggested as a mantra for a healthy daily routine.

## STRENGTH IN SMARTNESS

While we acknowledge that these ratios are not exactly accurate, they are a fair approximation of Brakenridge’s findings. The choice of hours/day, or fractions, allows the ratio to be used as per individual choice. The simplicity

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of numbers adds strength to the health message, and ensures robustness and resilience to the conviction.

Similar messaging had led to advantageous dividends in public health, including maternal and child health<sup>6</sup>. Such number-based concepts have been used to guide healthy food choices, and have been incorporated in obesity guidelines as well<sup>7</sup>. Such a proposal lives up to the tenets of quinary prevention<sup>8</sup>. We hope, therefore, that the Smart 4S solution we share will help enhance healthy behaviors and lifestyles, incorporating both rest and recreation, as well as structured activity and sports.

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