

# Making Steps Count - Using Pedometers for Better Health

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For many of our older clients, focusing on improving or maintaining mobility with age is a primary goal to allow them to continue to live active and independent lives. For most individuals, walking forms the foundation for many functional activities (e.g., working around the house, visiting neighbours, shopping) and also contributes substantially to daily physical activity, which is important for general health. For older adults who are interested in increasing their physical activity, using a pedometer may help them achieve their goal. Pedometers have been shown to be effective behavioural change tools<sup>1</sup> to increase walking, reduce body weight, and lower blood pressure.<sup>2,3,4</sup>

Research suggests that 7,000-10,000 steps per day are recommended for healthy older adults.<sup>5,6</sup> This includes steps accumulated in routine daily activities as well as those logged during intentional physical activity periods (usually at an increased pace). It's important to remember that reaching 10,000 steps per day does not guarantee that an individual has met the physical activity guidelines,<sup>7</sup> which recommend 150 minutes of moderately-vigorous physical activity/week, accumulated in bouts of 10 minutes or more.<sup>8</sup>

Pedometers are relatively inexpensive (\$20-\$50) and unobtrusive (usually clipped onto a waistband directly in line with the knee). Many also have an additional strap to reduce the likelihood of losing the pedometer should the primary clip work its way off clothing. They are designed to be most sensitive to detecting activity in the vertical plane (related to taking steps). However, there is no guarantee that they won't also occasionally pick up unrelated movement (e.g., bumps encountered while travelling in a car). They are not designed to recognize other types of physical activity (e.g., bicycling cross-country skiing or swimming) and they generally do not function well if individuals have a very slow, shuffling type of gait (<0.8 m/s).

Traditional simple pedometers give a running total of the steps accumulated since the pedometer was last zeroed. So, if the pedometer is removed and read each night at bedtime and zeroed each morning then the pedometer reading indicates steps/day. Pedometers can also be used to track steps accumulated in a specific walking bout or therapy session (zeroed before the session and read after the session). The latest pedometers also detect step rate, or cadence (steps/minute), and record the number of steps accumulated in different step rate categories. Step rate can be used as a surrogate measure of activity intensity. Typically, steps recorded at >100 steps/minute are designated as moderate intensity,<sup>9</sup> although this is just a ball-park number that will not be representative of moderate intensity for many individuals (i.e., a lower cadence may represent moderate activity for many older individuals). For this reason,

some pedometers allow for customization of the range of cadences associated with light, moderate and vigorous activity. Therapists may want to evaluate a client's walking using a pedometer and a heart rate monitor in order to determine a step rate target for that individual that corresponds to 50-70% of their predicted maximum heart rate (e.g., for some individuals this threshold for moderate intensity activity may approximate 100 steps/minute but for individuals with mobility limitations, targets < 60 steps/minute may be appropriate). Using a heart rate monitor in conjunction with the pedometer over a few sessions will provide more information about relative physical activity intensities typically encountered during different types of walking (e.g., getting around the house versus walking for exercise) and will make interpreting steps accumulated in different step rate categories more meaningful for both the client and the therapist. In addition, the newest pedometers have a memory feature that allows them to record data (e.g., steps/day, and time and steps accumulated at a moderate cadence/day) over a number of days which permits the individual (and the therapist) to check activity accumulated each day over the past 2 weeks.

Here are some suggestions for using a pedometer as a motivational tool to monitor and/or increase physical activity.

1. Ensure that the average gait speed for your target individual is greater than 0.8 m/s (i.e., they should be able to walk 100m in <125 seconds). If not, then a pedometer will not be a reliable choice for this individual.
2. Choose a reputable pedometer. Steps Count, Yamax, New Lifestyles and Omron are examples of companies that manufacture reliable instruments.
3. Make sure the individual knows how to wear the pedometer (ideally oriented in a vertical position on the waistband over the right knee) and agrees to wear it during waking hours for 7-10 days initially (include some weekdays and weekend days).
4. Provide a log for the client to keep track of steps/day at the end of each day (and steps accumulated in different cadence categories if this is relevant for your client). If the pedometer is able to store data in memory then you can also check this during a follow-up visit, however, it is still valuable to have people record their daily results (e.g., on a wall calendar) as this provides additional feedback and makes it easier to track progress, look for patterns in physical activity habits, etc.
5. Review the baseline step counts and/or time spent walking in different cadence levels and set realistic goals with the client. Remember – any increase is a step in the right direction!

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