

The Need for Speed: Monitoring Gait

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Geriatric Function

Older patients have a need for speed, as we showed in our previous article. In that article (Geriatric Function, *ADVANCE*, March 18, 2013), we reviewed the 4-meter Walk as a way of testing gait speed. We showed all the negative consequences that can occur with the slowing of gait speed with age.

The treatment for this extremely important and prophetic problem is not just to walk faster, but to investigate the causes of the slow gait speed and focus on those.

As our patients improve in their underlying impairments (e.g., strength deficits), we can then begin to challenge their gait by increasing their speed and increasing the complexity of the tasks and environment. What follows are articles that support this approach.

We will defer from addressing fear of falling and self-efficacy, which are both strong contributing factors to a slow gait pattern and should be addressed if deficits are found. We addressed these factors in the April 2006 and September 2011 columns in *ADVANCE*.

Gardner stated that the programs we need to provide to improve gait and balance must be individually tailored and have a home-based training component.¹ Therefore, our initial assessment is crucial to examine the causes (impairments) leading to the gait problem.

Once we have identified the causes we can create a meaningful and successful program. But first we need to ask, "What are the most common impairments and successful treatments for those impairments?" From reviewing the literature it is fairly clear that the most common problems are weakness and motor planning.

Testing Options

Most of the programs are similar in their approach to the well-known Otago program. Below is Hauer's protocol with all the components of ones that are similar and have been published since then.²

The Training Program for Gait and Balance is a 10-minute warm-up; progressive resistive exercise (3x/week to 80 percent 1RM); hip abduction; knee extension; plantarflexion; balance retraining; stepping forward and backward; standing challenges with a ball throw; t'ai chi; sit-to-stands from a chair; and practicing standing on one leg.

The important part of Hauer's protocol is that the patients exercised at 80 percent of their one repetition maximum (1RM). If we are truly using the patient's 1RM, then both patients and therapists may find using cuff weights cumbersome. To address this, Schiller used exercise bands to improve TUG scores.³

Schiller did a 12-week, once-per-week program of progressive resistive exercise and improved strength, gait velocity and TUG scores: exercise bands to lower extremity (hip abduction, extension, knee extension, ankle plantar and dorsiflexion) for eight reps, three sets; increasing resistance when full ROM and no tiredness or slight tiredness was noted.

Speed Testing

We will highlight three more suggestions for improving gait speed. A Cochrane Database Review showed that observation and cueing of patients' walking pattern does show improvement of walking speed as measured by the Timed Up and Go (TUG) and Six-Minute Walk Test (6MWT),⁴ which is why it is so important that we continue to give feedback to our patients to improve their gait.

The second treatment idea revolves around therapeutic activities that have been shown to improve gait.⁵ VanSwearingen looked at two forms of therapeutic activity to improve walking and found that in older adults with slow and variable gait, timing and coordination training was better than walking, balance training and endurance exercises. The program is twice a week for 12 weeks - walking ovals and spirals; crossing path of others; treadmill at different speeds; step across step; forward and backward stepping; and stepping patterns (e.g., clock stepping).

The final treatment area involves specificity of exercise. Shimada found that exercises for gait tended to improve gait and exercises for balance worked more on balance.⁶ His sessions were 40 minutes, 2-3 times per week for 12 weeks. The components of the balance and gait treatments are: Balance - 30 forward reaches, 10 minutes on the balance board, 5 minutes of one-legged standing, 5 minutes of tandem standing; and Gait - 10 minutes walking, 10 minutes stair climb, 5 minutes tandem walks, 5 minutes sideway walks.

Yes, our older patients need speed, but they also need us to provide the best rehabilitation programs that will get them up to speed.

References

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