Appendix. Dual-task gait training with use of a ball and treadmill gait training procedures

This included the task of using the ball to hit a target and performing this task with the addition of a cognitive task. The targets varied in terms of size and distance, and the cognitive tasks were considered depending on the subjects’ reading level and were adjusted accordingly. Each level included 10 minutes of gait training with a 1-minute break between each training process.

The first level involved a soccer ball being placed 3 m from the subject and 5 m from the goal net (93×72×120 cm) with a total distance of 8 m between the goal net and the soccer ball (Figure 1). The subject was instructed to walk up to the ball, kick it with the non-paretic limb, and return to the starting position repeatedly. Level 2 consisted of similar procedures as level 1, except that the target was a cone (cone, 13×13×22 cm) and while the subjects walked towards the ball to kick, the therapist reported numbers between 1 and 10 and the subjects were instructed to report those numbers in reverse order as a cognitive task to increase the level of difficulty (Figure 2). Level 3 had a similar target as level 2. The ball was placed 3 m from the target, and the distance between the ball and the subject was also 3 m. The subjects were instructed to state the numbers between 10 and 100 in reverse order and to jump over an obstacle (36×40×10 cm) while walking towards the ball to kick in order to increase the level of difficulty (Figure 3).

The gait speed of the subjects in the TGT group was obtained during a 10 m walk test without use of any external support or assistance. The training and resting periods were equivalent to the dual task gait training.

Figure 1. Level 1 setting.

Figure 2. Level 2 setting.

Figure 3. Level 3 setting.