Feasibility of Group Delivery of the Alexander Technique on Balance in the Community-Dwelling Elderly: Preliminary Findings

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ABSTRACT. The Alexander Technique (AT) is a task-based approach to perceptuomotor learning that purports to improve coordination. This study examined the feasibility of a 2-week intensive program of AT for improving balance and balance confidence in a group of ambulatory elderly. Nineteen subjects with fall history (average age 78.8) participated. Balance outcomes included the Timed "Up and Go" (TUG) and the Fullerton Advanced Balance Scale (FAB), with the Modified Falls Efficacy Scale (MFES) for balance confidence. Compliance approached 100%. Analyses on 18 subjects were significant for the TUG ($p = .006$) and FAB for the group as a whole ($Z = 1.946$, $p = .05$); MFES scores were insignificant. A brief, intensive, group-delivered trial of exploratory perceptual learning appears feasible to incorporate into balance training and results in improved scores on balance outcomes. Further research of balance confidence is warranted to analyze discrepancies between self-reported and observed changes in confidence.

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Professional Development Awards (2007) from the University of South Carolina, College of Arts and Sciences and Winston-Salem State University.

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Activities, Adaptation & Aging, Vol. 32(2) 2008
Available online at http://aaa.haworthpress.com

doi:10.1080/01924780802073005

KEYWORDS. Alexander technique, balance, balance confidence

BACKGROUND AND PURPOSE

The elderly depend on good balance to function independently, efficiently, and safely (Tinetti, Speechley, & Ginter, 1988). Balance in turn depends on good postural control, the flexible and adaptive control of bodily orientation within changing environments and task-demands (Woollacott & Shumway-Cook, 2002). Training balance in the elderly is challenging because balance depends on the ongoing interaction of many physiological mechanisms within changing task environments (Rose, Lucchese, Wiersma, 2006). Fall prevention programs generally incorporate flexibility range of motion (ROM) and strengthening exercises (Cerny et al., 1998), spontaneous perturbations (e.g., obstacle courses) to train automatic anticipatory and reactive postural adjustments (Rose et al., 2006), or complementary disciplines such as Tai Chi (Wolf et al., 1997). Few cognitive–behavioral approaches also exist, advocating education alone (Ryan & Spellbring, 1996) or home adaptations (Pardessus et al., 2002). Only one study combined a cognitive component with exercise (Reinsch, MacRae, Lachenbruch, & Tobis, 1992) and one with Tai Chi (Norwalk, Pendergast, Bayles, D'Amico, & Colvin, 2001). No single (or combined) approach has emerged as the most effective in preventing fall-related injuries, and evidence-based practice guidelines are still evolving (Gillespie et al., 2001).

The Alexander Technique (AT) is a method of movement education that purports to improve postural control through augmented perceptual and cognitive strategies applied to task-based activities. Actor Frederick Matthias Alexander (1869–1955), developed his method of movement reeducation in response to recalcitrant laryngitis, the origins of which lay in his own maladaptive habits of postural support and breathing. Evolving an approach to self-organization outside of contemporary scientific investigation (Cacciatore, 2002), Alexander (1932) developed a method of improved postural control that he called the "use of the Self." Habitual postural support, he maintained, is perceived as familiar and therefore "correct." Over time, the persistence of these inaccurate perceptions of tensional relationships (what Alexander [1932] called "debauched kinesthesia"), results in dysfunctional patterns of postural support that negatively affect automatic postural responses and tonic muscular activity. These can be influenced, he claimed, by attending to sensory awareness of interfering motor commands during daily activity and consciously redirecting toward improved coordination (Alexander, 1923; Cacciatore, Horak, & Henry, 2005; Jones, 1965). Alexander developed a top-down model (Massion, Alexandrov, & Frolov, 2004) of postural control. His step-wise perceptuomotor progression of improvement included (1) the "means whereby," that is, the unity of perception and action (Alexander, 1932); (2) "primary control," that is, proprioceptive guidance for balanced use of tonic and phasic spinal musculature (Alexander, 1923); and (3) cognitive strategies to redirect the body toward improved support and force application in moment-by-moment negotiation of daily activities ("inhibition" and "direction"; Alexander, 1932). Alexander's method appears commensurate with current science of balance where moment-by-moment sensory processing combines with flexible negotiation of environmental and task affordances (Gibson, 1979; Riccio, Martin, & Stoffregen, 1992; Rose & Clark, 2000). Further, support exists for consciously altering automatic postural control and tonic muscular activity (Jacobs & Horak, 2007). While the importance of adaptive sensory input and conscious processes undeniably are important in maintaining balance, the impact of conscious use of body awareness in maintaining balance remains unknown.

The AT usually is taught one-on-one by a certified teacher (American Society for the Alexander Technique, 2007) who asks clients to attend to (and refine) their own sensations and perceptions as they execute everyday activities, such as standing, sitting, and walking. The teacher's "good use" (embodiment of the AT principles) and use of light-touch physical guidance are tools for motor learning. Special attention is paid to the client's habits of movement execution in the earliest moments of initiation and especially to noticing the automatic muscular reactions resulting in motor commands. Because most of the teaching of AT has been limited to private lessons by teachers trained in movement education (and not medical personnel), previous research on the efficacy of AT (Ernst & Canter, 2003) on balance has been limited to two studies: The effects of AT on functional reach in a group of nine elderly women (Dennis, 1999) and one case study on posturography in a subject with low back pain (Cacciatore, Horak, & Henry, 2005). This is the first controlled study examining the feasibility of group delivery of the AT on balance in a group of 20 elderly. The investigators aimed to provide an intensive, group-learning environment sufficient to train balance. AT-specific verbal and physical instruction and restricting the use of touch guidance during task-specific activities were key elements in designing a program to foster autonomous learning. The investigators speculated that this method of group delivery of the AT would be feasible in balance training and would result in improvement in gait speed and in select items of balance. Secondarily, subject improvements in balance tasks would reflect in enhanced balance confidence.

METHOD

Subjects

A quasiexperimental, single group, pretest–posttest design was selected to evaluate the variables and to establish a baseline for future studies involving controls. A single, relatively large group of elderly individuals was selected to extract the elements of AT that are different from more traditional methods of balance training. The study was approved by the Institutional Review Board at the University of South Carolina Office of Research Compliance. Nineteen subjects (sample of convenience) were recruited from local geriatric residences and community centers. Eligibility criteria included the ability to ambulate at least 50 feet with or without an assistive device and with minimal assistance in transfers. Further exclusionary criteria included cognitive deficits (less than a score of 23 on the Folstein Mini Mental State Exam [MMSE]; Folstein, Folstein, & McHugh, 1975), or hearing and speech deficits (assessed by interview) that would interfere with the ability to listen to and follow directions in a group setting. Of 22 subjects screened, 19 signed informed consent documents. All subjects were independent ambulators with two using straight canes for most ambulation. At intake, subjects were asked to provide a 5-year fall history and to rate their fear of falling on a global 3-point scale (slight, moderate, or severe). This scale provided composite self-reported information on balance confidence to supplement the Modified Falls Efficacy Scale (MFES; Hill, Schwarz, Kalogeropoulos, & Gibson, 1996), an itemized, task-specific outcome measure of balance confidence. Only 2 of the 19 subjects reported no falls. Variable responses to global fear of falling appeared independent of the number of falls at intake (Table 1).

Outcome Measures

Two outcome measures were selected for balance: The Timed "Up and Go" (TUG; Podsiadlo & Richardson, 1991) and the Fullerton Advanced

TABLE 1. Demographic profile and global change in fear-of-falling

Subjects	Sex	Age	MMSE[a]	Falls	Intake fear	Post-fear	Fear change
101	F	83	29	1	mod	mod	no
102	F	79	28	4	mod	mod	no
103	F	86	28	5	mod	mod	no
104	M	84	30	1	none	none	no
105	F	78	28	1	extreme	mod	decreased
106	F	81	30	1	slight	none	decreased
—[b]							
108	F	67	28	2	slight	slight	no
109	F	88	29	2	none	slight	increased
110	M	60	29	1	mod	slight	decreased
111	M	67	30	1	none	none	no
112	F	71	29	3	extreme	slight	decreased
113	M	77	30	0	slight	slight	no
114	F	74	28	0	none	slight	increased
115	F	88	29	1	none	slight	increased
116	F	77	30	2	extreme	slight	decreased
117	F	86	29	2	slight	slight	no
118	F	73	29	10	slight	slight	no
119	F	89	28	4	slight	mod	increased
Averages		78.05	28.9	2.28			

[a]MMSE = Mini Mental State Exam. [b]Subject 107 dropped at day 2.

Balance Scale (FAB; Rose et al., 2006). Both are well-validated on elderly populations and also were chosen for their clinical utility, ease of administration, and advancement in balance challenges over other commonly employed clinical tests of balance. The FAB consists of 10 items combining elements from the Berg Balance Scale (Berg, Wood-Dauphinee, Williams, & Maki, 1992) (e.g., reaching forward to grasp a pencil), the Dynamic Gait Index (Whitney, Hudak, & Marchetti, 2000) (e.g., walking with head turning), and Foam-and-Dome (Shumway-Cook & Woollacott, 2006) (e.g., standing on Airex® pads with arms crossed and eyes closed). Items include static-to-dynamic tasks of varying difficulty (e.g., "standing with feet together, eyes closed" to "two-footed jump," tandem walking, and spontaneous perturbations of postural reaction). The FAB avoids ceiling effects commonly encountered when testing balance in a population of highly functioning elderly subjects (Berg, Alessio, Mills, & Tong, 1997), challenging this population with greater internal and external perturbations to balance (Rose et al., 2006). Convergent validity was established by comparing scores of the FAB with the Berg of 31 elderly with varying balance deficits. Additionally, the FAB showed excellent test-retest reliability for the total balance scale (p = .96), with interrater reliability ranging from .94 to .97. Internal consistency of rater score further was confirmed by calculating homogeneity (H) coefficient values at .75 across all 10 items (2 rating sessions), and greater than .90 for 6 of the 10 test items (Rose et al., 2006). The TUG (Podsiadlo & Richardson, 1991) measures timed performance (average of 2 trials) of rising from a chair, walking 10 feet (3 meters), turning, and coming to sit back down. The TUG has been validated as a useful predictor of falls in the elderly (Okumiya et al., 1998). Data from 4,395 subjects from 21 studies show homogeneity in scoring (Bohannon, 2006). Mean TUG times vary by age: 60–69 year olds = 8.1–9.0 seconds; 70–79 year olds = 9.2–10.2 seconds; and 80–99 year olds = 11.3–12.7 seconds. Probability of falling has been estimated at 69% for subjects needing more than 13 seconds and 83% for those needing more than 14 seconds (Shumway-Cook, Brauer, & Woollacott, 2000). At pretest, subject speeds generally were slower than normal (Table 2). The TUG has been validated on 30 elderly community-dwelling individuals with varied balance deficits to assess risk for falling. Sensitivity was measured at 87% (13 of 15 fallers) and specificity at 87% (13 of 15 nonfallers) (Shumway-Cook et al., 2000). Variability of measurement error overall appears to increase with time to perform the TUG, lower levels of cognitive ability, and verbal cueing during testing (Nordin, Rosendahl, & Lundin-Olsson, 2006).

Functional mobility in balance appears associated strongly with balance confidence in community-dwelling elderly (Tinetti, Richman, & Powell, 1990). Fear of falling has been reported as 30% in elderly adults, and twice that in those who have fallen (Tinetti et al., 1988). However, measuring balance confidence is challenging (Hatch, Gill-Body, & Portney, 2003). The two most common self-reported measures are the Activities-Specific Balance Scale (ABC; Powell & Myers, 1991) and the MFES (Hill et al., 1996). The MFES was chosen because of its ease of scoring as well as its applicability to a variety of daily activities commonly performed by elderly. In the MFES, subjects rate themselves on fear of falling in 10 different daily activities (0 = no confidence and 10 = full confidence). A normative score of 9.8 (range 9.2–10.0) has been established in healthy older women (mean age = 74.1, SD = 4.0; Hill et al., 1996). This group fell within the normative range (Table 3). Test–retest reliability is reported as high in an older sample of fallers and nonfallers (intraclass correlation coefficient (ICC) = 0.95; Hill et al., 1996).

TABLE 2. Timed "up and go" test (seconds)

Subjects	Age	Pretest average	Posttest average
101	83	21.97	23.735
102	79	14.065	12.315
103	86	15.69	13.325
104	84	8.765	8.31
105	78	16.67	14.965
106	81	8.14	8.59
107	75	10.91	0
108	67	7.29	6.795
109	88	10.455	9.56
110	60	7.22	5.955
111	67	6.945	4.845
112	71	10.485	9.66
113	77	15.09	11.56
114	74	11.215	9.44
115	88	8.985	10.5
116	77	11.42	8.22
117	86	9.285	8.265
118	73	6.965	7.45
119	89	11.795	7.65
Group Average	78.0526	11.2295	9.53368
Associated p value			.006

Normative values (Bohannon, 2006) : Ages 60–69 (8.1–9.0 sec), 70–79 (9.2–10.2 sec), 80–89 (11.3–12.7).

Protocol

A movement studio at the University of South Carolina Drama Department afforded ample, well-lit space for equipment and subject mobility for the study. All measures were administered according to a pretest–posttest design with all subjects tested within 1 day of the intervention phase. All tests were administered by two licensed physical therapists with 1 and 3 years of experience and no knowledge of the AT. A 1-hour training session preceded pretesting to ensure consistency of technique and environment. The intervention phase began 2 days after pretesting and continued daily (Monday through Friday) for two consecutive weeks. Two certified teachers of the AT (a professor of dramatic arts with 30 years of AT teaching experience and a physical therapist

TABLE 3. Modified falls efficacy scale

Subjects	Age	Falls[a]	Pretest total	Posttest total	Point change	Pretest 9[b]	Posttest 9
101	83	1	120	121	+1	9	9
102	79	4	51	95	+44	5	5
103	86	5	130	125	–5	10	10
104	84	1	128	131	+3	10	10
105	78	1	57	46	–11	5	3
106	81	1	140	140	0	10	10
108	67	2	130	139	+9	10	10
109	88	2	132	112	–20	10	10
110	60	1	123	126	+3	9	9
111	67	1	140	140	0	9	10
112	71	3	110	134	+24	10	10
113	77	0	107	127	+20	7	10
114	74	0	140	140	0	6	10
115	88	1	140	140	0	10	10
116	77	2	123	112	–11	10	9
117	86	2	126	129	+3	8	9
118	73	10	140	140	0	10	10
119	89	4	120	140	+20	10	10
Averages	78.05	2.28	129.33	124.27		8.78	9.11
p value							.04

[a]History of falls, past 5 years. [b]Item 9 = light housework.

with 18 years experience) conducted all sessions. Their overall goal was to help subjects gain experiential knowledge to (1) increase awareness of body locations and relationships; (2) understand their own maladaptive postural habits and misdirected efforts that placed them at greater risk for falling; and (3) develop coordination strategies to improve their sense of safety in ambulation and ease of movement in transfers. Each session lasted approximately 1.5 hours during which subjects were guided through experiential anatomy with augmented proprioceptive awareness of bodily relationships embedded in task-specific practice. All sessions were videotaped for qualitative review of both teacher and subject performance. Each session opened with "body mapping" (Conable & Conable, 1995), a method in AT of locating and clarifying body relationships to help uncover perceptual errors in coordination. A conceptual understanding of skeletal balance combined with an experiential understanding of improved postural support (phasic-tonic muscular balance) was reinforced daily. The AT progression of conscious awareness of whole body orientation and choosing more efficient movement strategies and movement direction was applied to everyday activities (sitting, sit-to-stand, standing weight shift, walking) (see the sample lesson in the Appendix). Frequent rests were embedded during which subjects could ask questions. Lesson content progressed from explorations of the base of support in sitting to weight shifting and reaching in standing and walking in multiple directions with a variable base of support. The progression, while appearing typical of any functional progression, of embedding AT principles of "means whereby," "inhibition," and "direction," was unique.

For the first week, all lessons were delivered with verbal instruction and visual demonstration only, restraining touch guidance until the group showed signs of integration of the principles. Indicators of autonomous learning of these principles were: (1) substituting notions of "good" (fixed and rigid) posture with balanced support; (2) identifying habitual postural reactions that resulted in malcoordinated, effortful ways of initiating movement leading to greater risk for falling ("means-whereby"); (3) stopping these reactive patterns ("inhibition"); and (4) redirecting themselves in activity with increased ease and clarified goals ("direction"). Subjects were given 15–25 minutes each day of random practice time (Schmidt & Lee, 2005) to practice tasks of their own choosing. Choices gravitated toward rising from a chair with urgency and walking as fast as possible (TUG) and tandem walking (or other FAB items). The group pursued this period of exploration playfully making a game of task achievement. In the second week, light touch guidance was added to augment proprioceptive awareness of postural support.

Data Analysis

The *t* test and the Wilcoxon Signed-Ranks Test (SPSS, Version 15) were used to analyze the ranked differences between matched pairs for the pretest and immediate posttest scores on the TUG, FAB, and MFSE. Results were considered significant at the level of .05 (Portney & Watkins, 2009). Spearman rank correlation coefficients (Spearman's rho) were used to test for associations between pretest–posttest differences in balance scores and age, and scores and number of falls. Video observation of pretest–posttest performance comparisons was withheld by investigators until observation was conducted by objective viewers and subsequently discussed.

RESULTS

Of the subjects, 18 out of 19 completed the study (compliance nearly 100%). Results on the TUG were significant (p = .006), with the group approaching a 2-second posttest decrease (Table 2). Posttest FAB results also were significant for the group as a whole ($Z = 1.946$, $p = .05$). Item 5 (Tandem Walk) was significant ($Z = 2.699$, $p = .007$) and Item 4 (Step Up and Over) approached significance ($Z = 1.841$, $p = .066$) (Table 4). Results for the MFES were insignificant across all tasks except one, Item 9 (Light Housework) ($Z = 2.042$, $p = .04$) (Table 3). No significant correlations were found between pretest–posttest scores and age, or scores and falls.

DISCUSSION

The purpose of this study was to examine the feasibility of an awareness-based perceptuomotor learning program on balance and balance confidence

TABLE 4. Select items on the fullerton advanced balance scale (FAB)

Subjects	Gender	Age	Pre 5	Post 5	Pre 4	Post 4	Pre total	Post total
101	F	83	3	3	1	2	26	26
102	F	79	3	3	0	4	22	30
103	F	86	0	0	0	3	18	21
104	M	84	1	4	4	4	32	32
105	F	78	0	4	0	0	16	27
106	F	81	3	3	4	4	33	30
108	F	67	3	4	4	4	32	36
109	F	88	3	3	1	4	30	31
110	M	60	4	4	4	4	38	38
111	M	67	2	4	4	4	36	38
112	F	71	2	4	4	4	30	33
113	M	77	3	4	4	4	28	30
114	F	74	3	3	4	4	29	31
115	F	88	4	4	4	4	34	37
116	F	77	2	4	4	4	33	33
117	F	86	1	2	4	4	31	28
118	F	73	3	4	4	4	36	39
119	F	89	4	4	4	4	24	33
101	F	83	3	3	1	2	26	26
Averages		78.05	2.421	3.389	3.053	3.611	29.474	30.158
p values				.007		.066		.052

in a group of community-dwelling elderly. Feasible balance programs should be sustainable, cost effective, and task-specific (Schoenfelder & Rubenstein, 2004). The feasibility of group delivery of AT in improving balance is supported by its ease of group administration (low teacher-to-subject ratio), cost effectiveness, compliance (nearly 100% over a 2-week period), low drop-out rate (loss of 1 subject at day 2), as well as quantitative gains in primary outcome measures of balance. Results from a brief, 2-week intensive intervention showed a quantitative increase overall in movement speed (average 2-second decrease on the TUG, $p = .006$) as well as points gained in complex measures of balance on the FAB ($p = .05$). The subject pool reflected independent elderly, intact cognitively (average score 28.9 on MMSE), with few comorbidities. Most entered the study expressing complaints of increasing restricted mobility and a desire to preserve functional independence. At intake, the majority rated their fear of falling on the global 3-point scale as moderate to severe (Table 1), although ratings on specific tasks in the MFES were not necessarily commensurate (Table 3). The group as a whole verbalized perceptual errors about their body image (conscious awareness of location, function, and value of various body parts) as well as demonstrated errors in their body schema (nonconscious motor programming of everyday actions) (Gallagher, 2005). Nonconscious errors were reflected in slow, awkward, and inefficient transitions in transfers (sit to stand), level changes (steps or stairs), and turning (TUG).

Improvements on the FAB were significant for the group as a whole. Those items showing the most improvement were those that the group members chose to practice the most, including tandem stance (Item 5) and step up-and-over (Item 6) (Table 4). Research is robust and undisputed in showing that motivating, repetitive, task-oriented, goal-directed, attention-demanding protocols result in better balance for elderly persons (Kottke et al., 1978; Silsupadol, Siuk, Shumway-Cook, & Woollacott, 2006). Task specificity has been critiqued, however, for the overemphasis on motor performance with a concomitant lack of integration of perceptual and cognitive strategies (Tang et al., 2005). In the AT, cognitive strategies are integrated with perceptual awareness within the context of practicing daily activities. Performance scores alone may be insufficient to explain functional performance (Stratford, Kennedy, Pagura, & Gollish, 2003). Therefore, video observation by objective viewers was discussed with investigators at the study's termination to compare quantitative gains with qualitative changes in transfers and ambulation.

Improvements in movement speed on the TUG may not necessarily imply improved balance but rather increased risk taking without safety (Shumway-Cook et al., 2000). We speculate, however, that the improvements in motor performance overall are related to the AT intervention over and above task-specific practice, and are the result of four components learned in the AT: (1) augmented sensory perception (awareness) of themselves in space, (2) increased knowledge of maladaptive habitual postural and movement strategies, (3) substitution of improved body knowledge and cognitive strategies resulting in reduced effort in movement execution, and (4) clarified movement direction in achieving motor goals. Researchers suggest that changing perceptual and attentional strategies through AT training may lead to a change in the *central set,* the nervous system's mode of higher-level processing as it intersects with intentions and expectations in changing environments (Cacciatore, Horak, & Henry, 2005). The central set shapes automatic postural coordination triggering anticipatory or automatic postural adjustments in preparation for voluntary arm movement (Cordo & Nashner, 1982) or in response to surface translations (Horak, Diener, & Nashner, 1989), and calibrating the degree of tonic muscular activity (Miscio et al., 2001). This assumption of altering the postural set (thereby altering potentially injurious postural reactions) is a relatively new idea needing further research (Jacobs & Horak, 2006).

Although fear of falling allegedly ranks first among other common fears in community-dwelling elderly (Walker & Howland, 1991), using self-reported tools to measure balance confidence is challenging (Hatch et al., 2003). Balance confidence measures, while offering more than dichotomous variables (present-absent or composite scales of minimal, moderate, or severe) and linking to functional tasks, often do not capture the nuances of personal behavior. Fear of falling may or may not exist—with or without behavior modification (e.g., self-imposed limits on mobility). Some speculate that the MFES can be vulnerable to ceiling effects with scores skewed toward the maximum end of the scale (Maki, Holliday, & Topper, 1991). Interpretation of items on the MFES was varied and often confusing because of the lack of customization of items to lifestyle (such as "using public transport," not used by this population). During the two-weeks, a positive group ethic in terms of motor performance began to emerge in which early verbal negativity about the participant's abilities gave way to more spontaneous positive comments reflecting improved performance and confidence. Half of the group (9 subjects) reported improvements in balance confidence on MFES posttest, while 5 stated no change, and 4 reported declines (Table 3). We speculate that enhanced body knowledge can impact either positively or negatively on fear of falling, as improved understanding of one's ability and environmental risk affords a more realistic perspective.

Group-delivered therapeutic education for the elderly has economic and social benefits (Deforche & De Bourdeaudhuij, 2000). Most subjects enrolled in this study with either their partner or a friend, and appeared to enjoy the support of the group as a whole. Several participants reported that they learned not only from practice but also from observing both the teachers and group members. Further, they were able to make optimal use of alternating phases of practice with rest and observation. These concepts are supported in motor learning where combined physical practice with observation leads to increased efficiency of learning (McNevin, Wulf, & Carlson, 2000). The teachers' continual embodiment of the principles ("good use") also played a role in contributing to the incorporation of kinesthetic values (Ericsson, Krampe, & Tesch-Romer, 1993). Although AT teachers are not necessarily medical practitioners, they train movement efficiency through teaching task-appropriate effort and total body coordination. Although 25–30 hands-on private lessons are advocated to learn the AT (American Society for the Alexander Technique, 2007), short-term gains in this group study were seen with as few as 10 lessons with group observation and practice. We speculate that a proprioceptively rich intervention embedded in group-based practice of balance tasks contributed to the positive outcomes.

Given these preliminary results, future controlled studies need to be conducted to compare the results of two groups receiving balance training—one group with additional AT instruction and one without. Working with select populations with more physical impairments is also mandatory to test the validity of the AT. Larger groups, especially if they contain more impaired participants, will demand a higher teacher-to-subject ratio in order to best monitor the pace and adequacy of the learning (Eng et al., 2003). Tracking fall history is also needed to determine whether augmented perceptual and cognitive strategies aid in reducing falls over the long term.

CONCLUSION

In conclusion, preliminary findings show that a brief, intense intervention involving group delivery of the AT resulted in select improvements in dynamic balance tasks. By emphasizing perceptual awareness and cognitive strategies within the context of task-based activities common to daily living, the AT appears to show promise as a feasible self-care approach to improving balance. Beyond the limitations of this study, future research is needed to define the physiological mechanisms underlying the technique, as well as to clarify discrepancies in fear-of-falling outcomes on self-reported measures of balance confidence.

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RECEIVED: 09/07
REVISED: 01/08
ACCEPTED: 02/08

APPENDIX

Sample Lesson Plan in the Alexander Technique

Lesson/task	Physical exploration—Instructional method	Cognitive strategies	Aim
Body awareness	Verbal instruction of skeletal parts; Palpating and moving own head on the upper cervical (O-A and AA) joints; Movingwith different effort qualities.	Think “Allow your neck to be free and the head to balance at the top of the spine.”	Location, clarification, mobility, integration into the whole body image; Recognition of perceptual errors in body image.
Sitting sit-to-stand	Teachers’ own demonstrations; Verbal guidance, self-exploration, and group performance. Finding BOS (Sitz bones),comparing sensory effects head balance in static sitting and sit-to-stand transfer.	Think “fluid spine in motion, buoyant and freely balancing while you sit.”	Distinguishing between rigid postural holding and balanced mobility with minimized effort.
Walking variations	Verbal guidance of walking at a self-selected pace with intermittent pauses. Self-explorations of altering BOS with shifting of different body part alignment.	“Head leads; Body follows.”	Noticing habitual ways of stopping and initiating walking