

Dance and traditional Strength and Balance group intervention for older adults – are they equally effective? (ID 1784)

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Introduction

The Older Person's Assessment Unit (OPAU) Physiotherapy team has been collaborating with Breathe Arts Health Research (BAHR) to provide *Dance for Strength and Balance* (DSAB) as an alternative to the traditional, long-established Otago-based *Strength and Balance Group* (SABG), with the same goal of reducing falls risk in older people.

Previous preliminary data established DSAB to be safe and effective ⁽¹⁾.

This further review of outcomes is necessary to ensure non-inferiority, and to ascertain if DSAB is suitable as part of the long term rehabilitation offer for the local older adult community.

Aims

To determine if DSAB is at least as effective as SABG for improving outcomes and reducing falls risk for OPAU patients.

To add to the evidence base for dance as a form of strength and balance training for older adults at risk of falls.

Methods

DSAB and SABG participants over a 3 year period were assessed for differences using independent sample student's t-tests for continuous data (age, pre-intervention Timed Up And Go), and chi-squared tests for homogeneity as a test of proportions for nominal data (gender and ethnicity)

The effect of the intervention over time, intervention type and their interaction was assessed using 2-way mixed ANOVA tests for performance of outcome measures including:

- Timed Up and Go (TUAG)
- Sit to Stands in 1 min (STS60)
- 6m Gait speed 6m (GaitVel)
- 180° Turn (Turn180)
- Falls Efficacy Scale International (FESI)

Outcomes were assessed pre- and post-intervention, and inclusion criteria for the between group comparison of change in outcome measure performance was participants with full data sets and at least 80% face to face class attendance.

For all statistical tests (SPSSv25, IBM Corp, Armonk, NY, UAS) significance was assumed if $p < 0.05$

Safety was monitored using normal adverse event reporting protocols.

Results

46 of a possible 58 participants from DSAB met the data and class adherence inclusion criteria, and were cross-matched to 46 SABG participants. Median age of participants was 79.5 years (48-95). 89% of participants were female.

DSAB and SABG were both beneficial to participants, with falls risk reduction demonstrated across the range of outcome measures. No adverse events were reported during the intervention period.

There was no significant difference between groups for changes in TUAG, GaitVel, Turn 180 and FES-I, with p -values > 0.05 for all. (see Figure 1)

There was a significant between group difference in STS60 (DSAB 0.63, SD 5.17; SABG 7, SD 6.72); $t = -5.1$, $p = 0.00$, with more improvement in the SABG model.

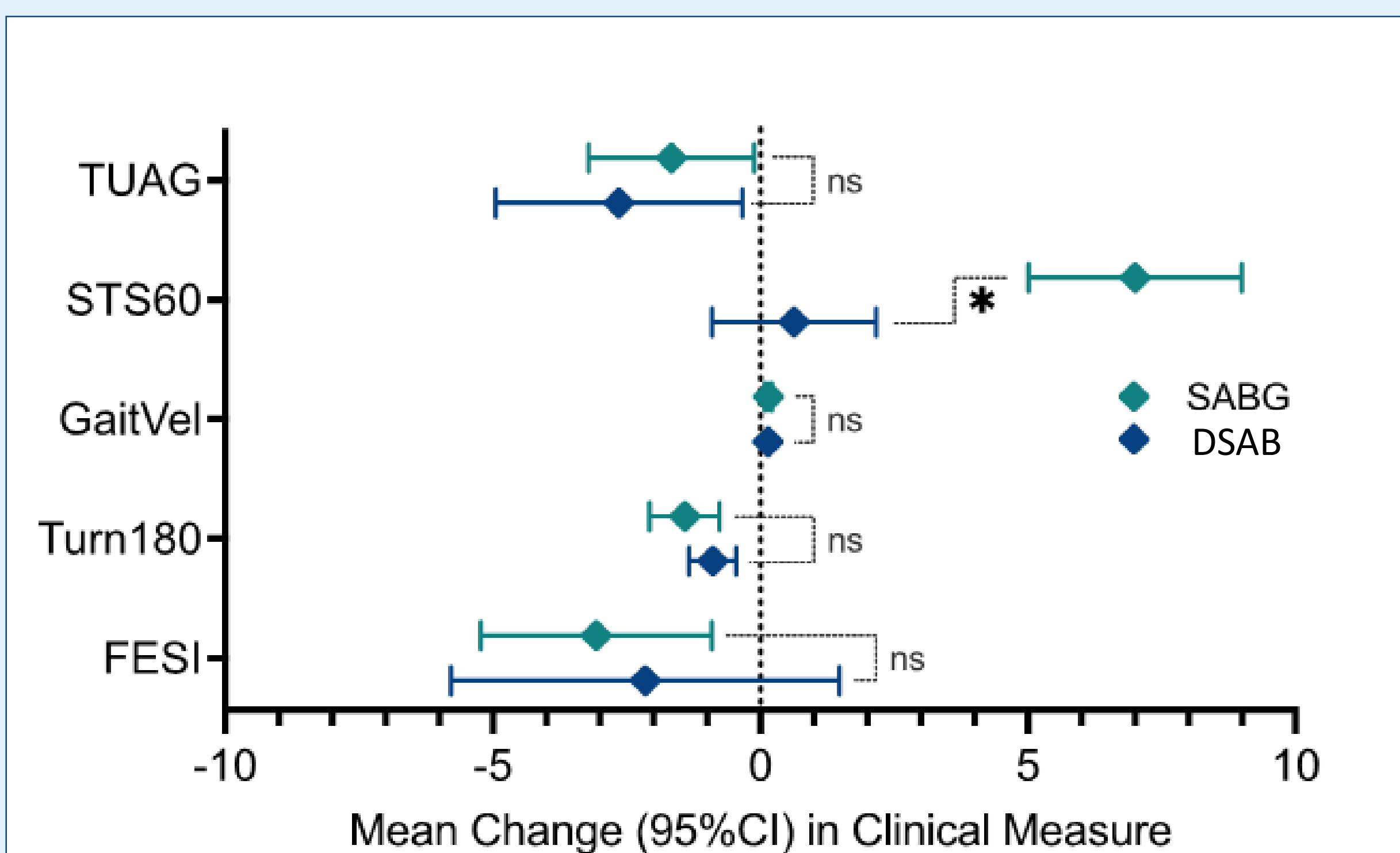


Figure 1:

Mean (95%CI) changes in clinical measures pre & post intervention (SABG & DSAB)
*represents statistical significance at the $p < 0.001$ level; ns – not significant

Discussion

The significant between-group difference in the STS outcome could be accounted for by its use as one of the exercises employed by the SABG class, thus providing specific opportunity to practice in each session. The more varied content of the DSAB has less focus on this type of compound functional movement, and therefore requires further consideration

A recent rapid review ⁽²⁾ showed there to be a lack of sufficient evidence for dance as a form of strength and balance specific intervention. These results can be added to this evidence base to increase knowledge related to dance intervention for older adults at risk of falls.

Patient experience of DSAB has been positive, possibly indicating good longer term adherence through enjoyment ^(3,4). Physical activity needs to be continued once hospital based, instructor-led sessions are concluded in order to maintain gains made ⁽⁵⁾.

Conclusion

DSAB classes were as effective as traditional SABG in targeting outcomes known to impact falls risk. The difference in STS 1min between groups is likely due to repetition of this as an exercise in SABG, and worth incorporating into DSAB.

DSAB should remain an option for older adults aiming to reduce falls risk.

Next Steps

Continued data collection is needed in order to be able to extrapolate these results more widely, and consideration of other possibly confounding factors such as social interaction and cohorted vs rolling recruitment is important.

Longer term adherence date and participant follow up would be interesting to explore, including integration into local physical activity offers.

The science behind dance as a rehabilitation intervention will be described using the Rehab Treatment Specification System ⁽⁶⁾

Contact

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Further reading

Evidently Cochrane Blog: <https://www.evidentlycochrane.net/breathe-dance-for-strength-balance-offering-choice-delivering-benefits/>
Longer overview film of Breathe Dance for Strength & Balance:
<https://www.youtube.com/watch?v=R3ydu-n2Mrg>
Wendla's story: <https://www.youtube.com/watch?v=HHPV5QvgUo>
Alfred's story: <https://www.youtube.com/watch?v=BZ8TdTA4E>

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