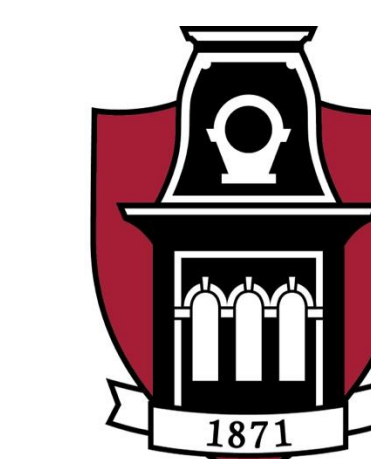




# COMPARISON OF WALKING PERFORMANCE MEASURES AMONG ADULTS AT-RISK FOR ALZHEIMER'S DISEASE: DIGITAL HEALTH COACHING VS HEALTH EDUCATION

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## INTRODUCTION

Declines in functional fitness can significantly affect an individual's quality of life and physical capacity, leading to increased dependency and a higher risk of chronic conditions such as cardiovascular disease, diabetes, and mobility impairments (Anderson et al., 2019). Maintaining functional fitness is especially important for aging adults, as it is associated with better health outcomes and greater independence (Musich et al., 2017). Given the challenges in accessing traditional in-person interventions, digital health coaching (HC) offers a promising alternative to promote physical activity and functional fitness among at-risk populations. This type of intervention can provide personalized guidance, motivation, and support through remote platforms, making them accessible and scalable for older adults, including those at risk for Alzheimer's disease and related dementias (ADRD) (Campitelli et al., 2023; Di Pumpo et al., 2025; Glatt et al., 2024). Implementing such interventions may help mitigate age-related declines in physical function and support healthier aging trajectories in this vulnerable population. Therefore, the purpose of this study was to examine the effect of a 12-month health coaching intervention on selected measures of functional fitness.

## METHODS

Adults (N = 215, Table 1) between the ages of 45-75 years were randomly assigned to either a HC or health education (HE) group. Participants completed the following assessments at baseline and again at 12 months: 6-Minute Walk Test (6MWT), habitual walking speed test (HWS), and maximal walking speed test (MWS, Figure 1). Both ADRD interventions focused on nutrition, physical activity, stress management, sleep, cognitive activity, and social engagement. The HE participants received bi-weekly emails containing material related to one of these topics, whereas HC participants engaged with a personal health coach. Data were analyzed using descriptive statistics (M±SD) and two-way ANOVA with repeated measures (p ≤ .05). Due to attrition and missing data, 195 participants were included in the data analysis (HC = 100 and HE = 95). This dataset was extrapolated from a larger clinical trial (Gray et al., 2022).

## RESULTS

There were no significant interactions between the two groups on 6MWT (p = .43), HWS (p = .52), or MWS (p = .41) (Table 2). However, there was a significant main effect for time on the 6MWT (p = .04) and MWS (p < .01). The distance covered during the 6MWT increased and the MWS decreased from baseline.

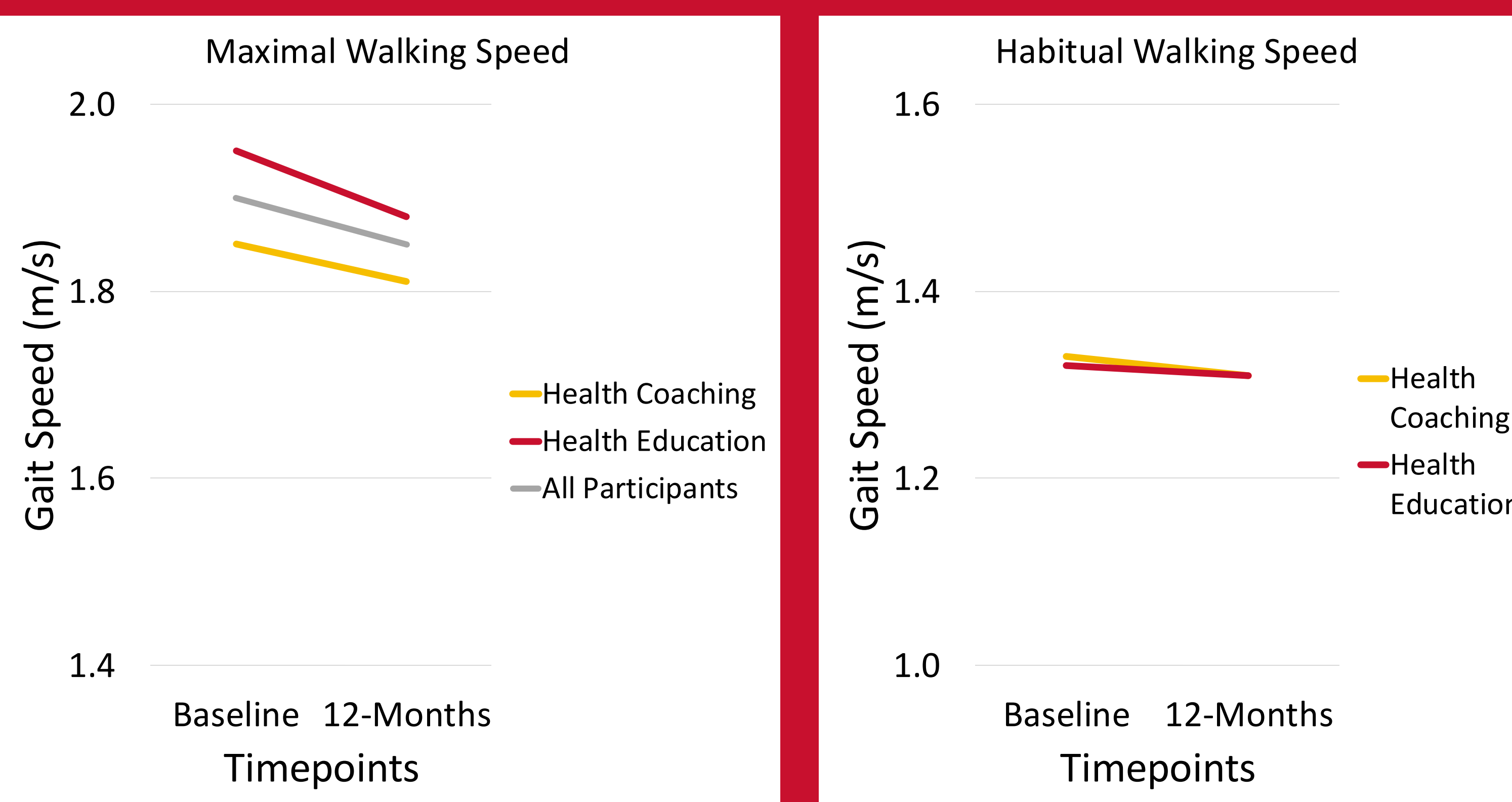
## CONCLUSION

There was a slight improvement in the 6MWT and a decline in MWS, while HWS remained unchanged. Interestingly, the HE group showed a larger reduction in MWS (3.7%) as compared to the HC group (2.2%). However, additional research is needed to examine underlying relationship between the type of intervention and maximal walking speed.

## PRACTICAL APPLICATION

These findings support the use of a health education or health coaching intervention for adults aged 45-75 at risk of ADRD, to help maintain habitual walking speed and potentially increase walking distance.

**Maximal walking speed (MWS) decreased during the 12-month intervention. The Health Education group showed a larger decline in MWS (3.7%) compared to the Health Coaching group, which declined by 2.2%. Both groups maintained their habitual walking speed (HWS).**



**There was a slight improvement in the 6-minute walk test (6MWT) over the 12-month intervention.**

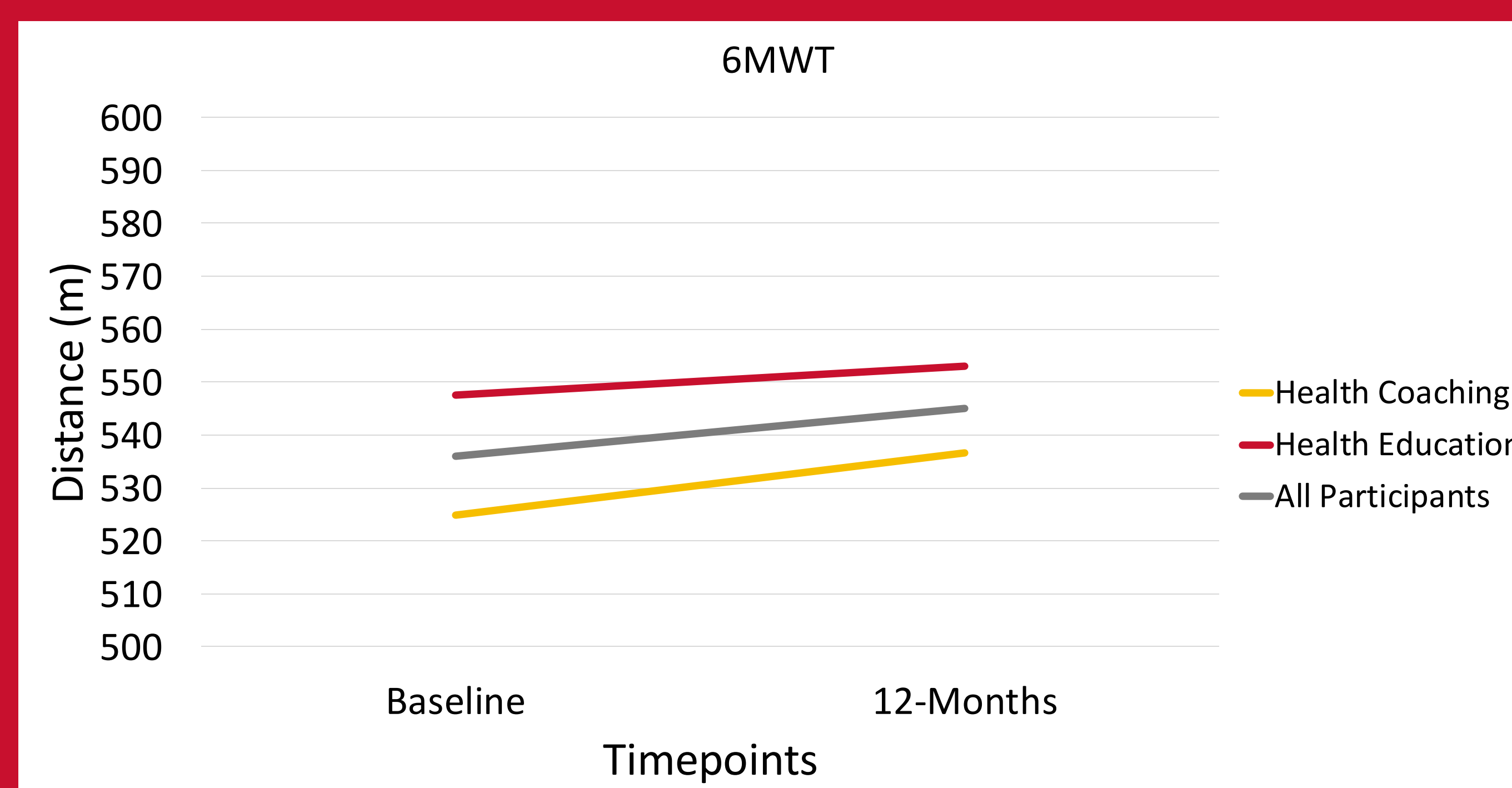


Table 1. Descriptive Characteristics of Health Coaching and Health Education Groups

Variable	Health Coaching (n = 112)	Older Adults (n = 103)
Female (% , N)	69.6 (78)	75.7 (78)
Age (years)	62.4 ± 7.7	61.6 ± 8.6
Mass (kg)	86.2 ± 20.1	83.5 ± 16.1
Height (cm)	167.5 ± 9.3	167.5 ± 9.1
BMI (kg/m <sup>2</sup> )	30.5 ± 5.7	29.7 ± 4.7

Table 2. Walking Performance Metrics for Health Coaching and Health Education Groups

Variable	Health Coaching (n = 100)		Health Education (n = 95)	
	Baseline	12 Months	Baseline	12 Months
6-Minute Walk (m)	524.4 ± 79.9	536.6 ± 81.8	547.6 ± 74.5	553.1 ± 82.2
Habitual Walking Speed (m/s)	1.33 ± 0.20	1.31 ± 0.22	1.32 ± 0.17	1.31 ± 0.17
Maximal Walking Speed (m/s)	1.85 ± 0.31	1.81 ± 0.29	1.95 ± 0.34	1.88 ± 0.33

## Health Coaching Intervention

Health coaching involved personalized support from a trained coach who worked with participants throughout the study. After an initial visit, participants had a video or phone call to discuss the coaching process, identify lifestyle areas they'd like to change, and set goals focused on improving cognitive health. The coach tailored interventions targeting nutrition, physical activity, sleep, stress, social engagement, and cognitive activities, based on participant preferences and recommendations. Participants and coaches communicated via monthly calls and weekly asynchronous chats providing personalized guidance. (Gray et al., 2022).

## Health Education Intervention

Health education participants received biweekly, engaging emails with tips on improving cognitive health through lifestyle changes. They were encouraged to read each message, which covered the same lifestyle topics as the health coaching group to ensure consistency. Aside from scheduled visits and basic communication, health education participants had limited interaction with study staff, mainly during on-site testing appointments (Gray et al., 2022).

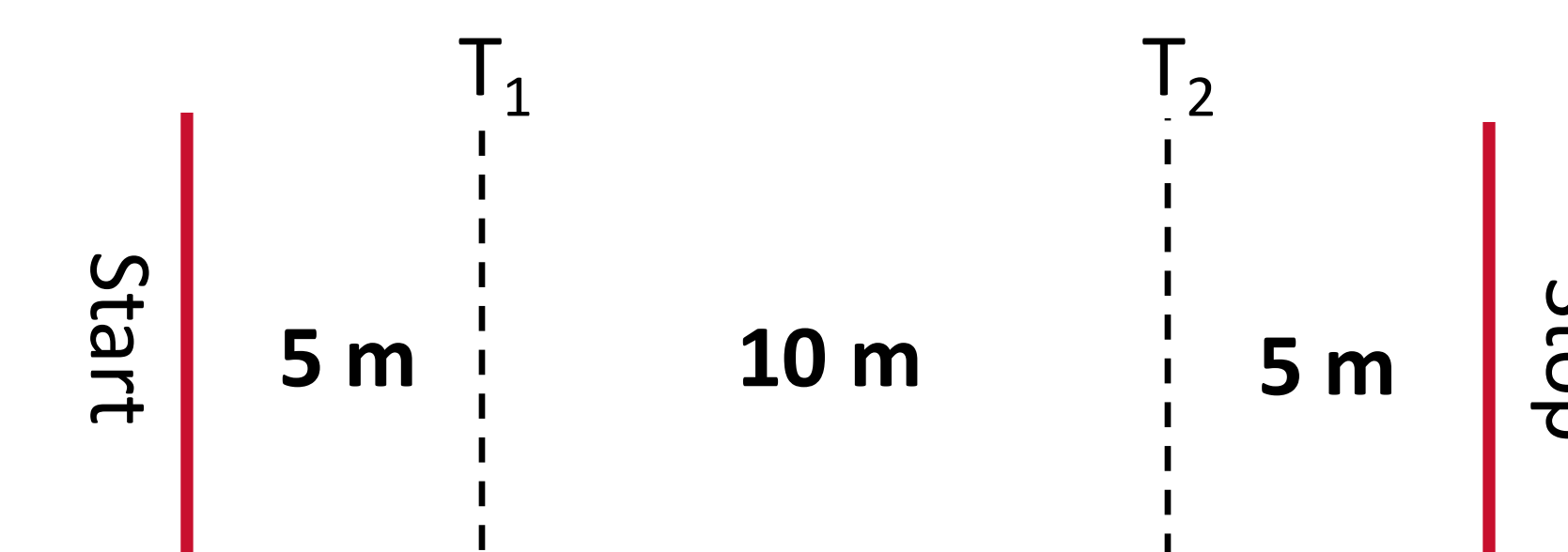


Figure 1. Habitual and maximal walking course with 5-m acceleration/deceleration zones before and after a 10-m timed zone.

## FINANCIAL DISCLOSURE

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