

Step It Up: Increasing Physical Activity for Adults with ASD and ID using Supported Self-Management and



Fitbit Technology

Melissa N. Savage¹, PhD; Brianne Tomaszewski², PhD; & Kara Hume², PhD
University of North Texas¹ & University of North Carolina at Chapel-Hill²



BACKGROUND

Individuals with autism spectrum disorder (ASD) and intellectual disability (ID) often do not engage in recommended levels of physical activity. Levels of physical activity engagement continue to drop as individuals with ASD and ID move into adulthood (Garcia-Pastor, Salinero, Theirs, & Ruliz-Vicente, 2019).

- Barriers often include:
- Transportation
 - Lack of peer support
 - Lack of energy
 - Need for explicit, systematic support

"Sweat and lots of people"
-Step it Up Athlete

"[I don't like] how hard it is"
-Step it Up Athlete

"He spends a large amount of time on his computer"
-Step it Up Parent

RESEARCH QUESTIONS

1. When compared to having access to a Fitbit and Fitbit resources (control), does implementation of the Step It Up program result in increased engagement in physical activity, improved health measures, and an increase in perceived quality of life?
2. Is the Step It Up program a feasible and acceptable intervention for adults with ASD and ID?

METHODS

Participants: 34 adults with ASD and ID
Study design: Randomized control trial; 1:1 ratio
Control and Intervention Procedures

- Participants received a Fitbit Flex 2™, training on how to use the device, and visual supports for using and wearing
- 7-day baseline measure (also determined acceptability for Fitbit)
- Participants wore Fitbit Flex 2™ for 12 weeks post baseline

Additional Intervention Procedures

- Step It Up Program

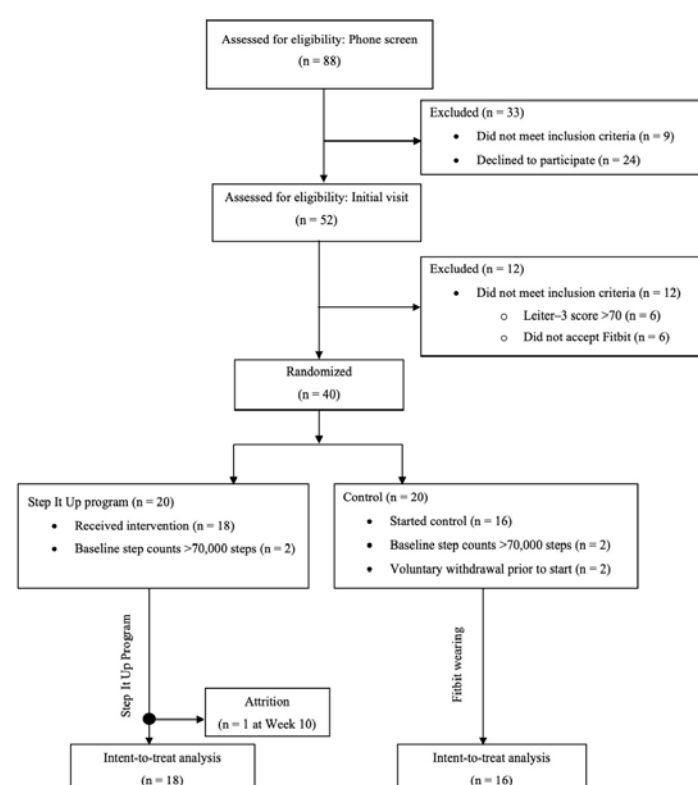
Measures

Control and Intervention

- Pre/Post: Weekly step count, BMI, Perceived quality of life
- Post: Fitbit feasibility

Additional Intervention Measures

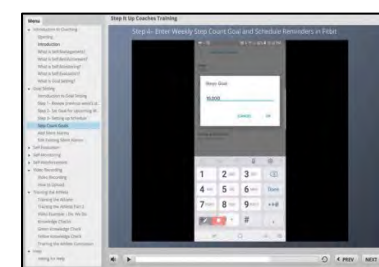
- Adults with ASD & ID: Adapted usage rating profile
- Coaches: Adapted usage rating profile; Intervention feasibility questionnaire; Interview



STEP IT UP PROGRAM

Step It Up Component	Behavior Change Strategies
Coach web-based training 1. Watch training 2. Watch video demonstrations	Presentation of new material Demonstrations of target skills
Participant training 1. Program overview 2. Intro to Fitbit resources 3. Intro to goal setting meetings 4. Opportunities to practice 5. Identify potential reinforcers	Presentation of new material Modeling Guided practice Independent practice Feedback Behavior specific praise
Weekly goal setting meetings 1. Review previous week's step counts 2. Set goal for upcoming week 3. Set exercise schedule for upcoming week 4. Set up Fitbit app with new goal and reminders 5. Send goal and data collection sheets to research team	Self-monitoring Self-evaluation Self-reinforcement Goal setting Pictorial task analyses Least-to-most prompting Feedback Fitbit technology
Individualized exercise sessions 1. Follow schedule 2. Engage in exercises that increase step counts 3. Adjust schedule as needed to meet goal	Self-monitoring Fitbit technology

Coach Web-Based Training

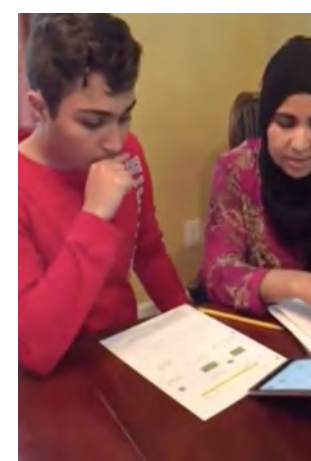


Participant Training



Weekly Goal Setting Meeting

Week	Step Count Goal
Week 1	35,000
Week 2	38,500
Week 3	50,000



Individualized Exercise Sessions



"I like it. I will keep it going."
-Step it Up Athlete

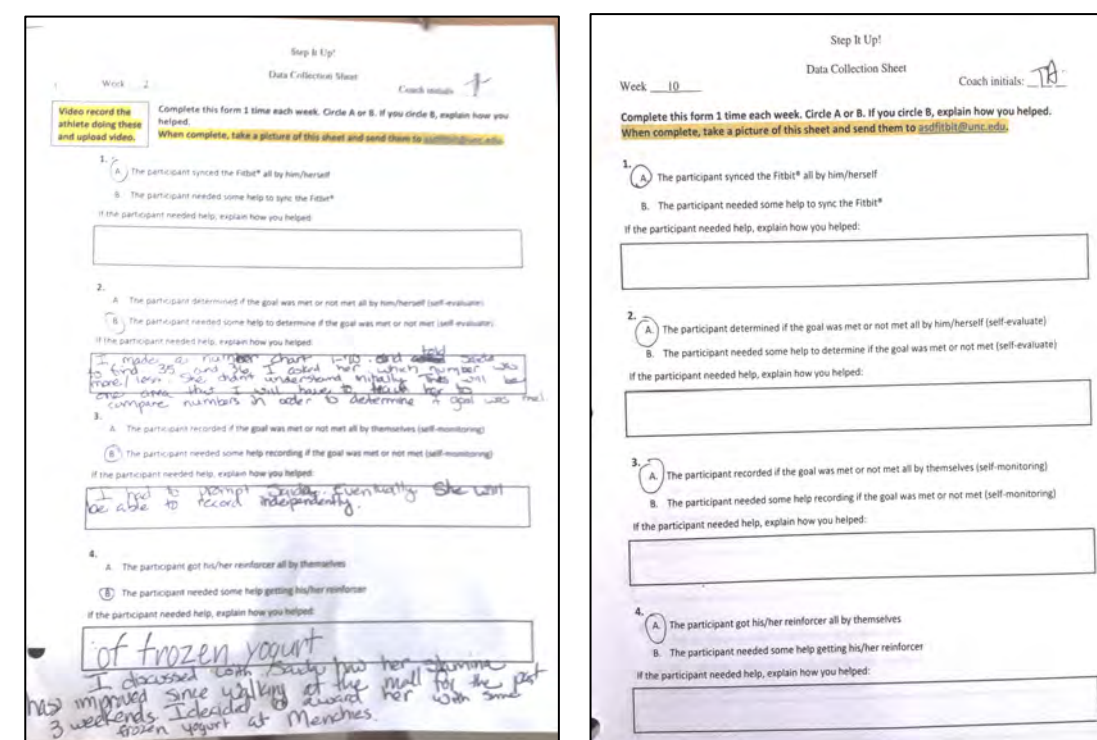
RESULTS

- There was a statistically significant interaction on step counts between time and intervention group, $F(1,32) = 5.10, p = 0.031$.
- There was a statistically significant Time X Group interaction for participants' weight, $F(1, 30.4) = 4.74, p = 0.04$.
- Feasibility and acceptability rated high for the Fitbit and Fitbit app for both groups (84% and 94%).
- The average procedural fidelity was 90.9%.
- Coaches reported high feasibility (Max=5.0) for the coach training ($M=4.40, SD=.28$), athlete training ($M=4.08, SD=.55$), and overall project ($M=4.36, SD=.36$) as well as high ratings on the usage rating profile ($M= 5.02, SD=.30, Max=6.0$).
- Participant usage rating profile was also high ($M=3.65, SD=.33, max=4.0$).
- Majority of coaches indicated intent to support participants in continued physical activity engagement after study completion.

"I got out more to get my steps. I started to like that."
-Step It Up Athlete

"I said less and he started doing more on his own! Thank you Step It Up Team for the reminder to help him use his resources instead of relying on me to tell him what to do."
-Step It Up Coach

Growth! Week 2 vs. Week 10



DISCUSSION

- Participants with ASD and ID in the Step It Up program demonstrated significant gains in step counts throughout the program.
- While participants in both groups gave high feasibility ratings for the Fitbit and Fitbit app, results indicate that it takes more than access to an accepted fitness tracker and tracker resources to promote behavior change for adults with ASD and ID.
- Some participants began to run their weekly meetings more independently (e.g., decreased the number of prompts needed from their coach) and self-faded use of visual supports such as the pictorial task analyses as weeks progressed, but most continued to utilize supports.

"We felt accountable with this project. I have a hard time sticking to my goal so I'm probably not the best teacher for ____, but the project was set up in a way that helped us stay on track with smaller weekly changes."
-Step It Up Coach

"His energy level is up and it's contagious to those around him at LA Fitness."
-Step It Up Coach

LIMITATIONS & FUTURE RESEARCH

- While the sample size reflects the preliminary nature of a pilot study, the small sample size resulted in inadequate power to detect small between group differences and reduces the generalizability of the current study.
- The frequency of contact between coaches and participants during the program was not measured. While we did not measure coach frequency, changes from pre to post for intervention were positive for participants who had a coach living outside of the home and for those whose coach was a parent. While this suggests the frequency of coach contact may not significantly impact the program, it could influence results.
- While results are promising, there were a handful of participants who did not accept the Fitbit that could have benefited from the Step It Up program. Future research should investigate additional supports and acceptable tools for measuring physical activity.
- Future researchers should expand the Step It Up program and investigate the impact of supported self-management on meeting physical activity guidelines for adults with ASD and ID.



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