SA1. Community Advisory Board (CAB). We will engage a CAB of 6-8 Mount Hope Cowboys (MHC) coaches and mothers to partner with us and guide decisions about intervention adaptation and refinement, including content and structure. Information will be solicited to guide the development of the in-person physical activity (PA) sessions (types of fitness activities, duration, etc.) before the intervention begins. Once underway, the CAB will provide input on issues related to intervention implementation and ideas for future refinement. Feedback will be provided via biweekly in-person or virtual meetings facilitated by Dr. von Ash and a bilingual staff member. CAB meetings will be audio-recorded and detailed notes will be taken. CAB members will be incentivized $200 ($25 per meeting) for their time.

SA2. Open Pilot Trial. After modifying the intervention content and structure, we will then test it in an 8-week open pilot with a single group of 45 mothers (all receiving the intervention). The intervention will consist of in-person PA sessions (offered 3 times/week, with participants encouraged to participate at least twice), 2 goal setting sessions, and weekly written materials (e.g., brochures and tip sheets). Participants will complete 4 assessments (baseline, 4-weeks, 8-weeks (i.e., intervention end), and 1-month follow-up), the last of which will include an exit interview; 15 participants, chosen at random, will also be invited to complete an in-depth interview. Pre and post assessments and interviews will allow us to assess feasibility and acceptability (SA2a) and identify the potential impact of the intervention on mothers' PA (SA2b).

Intervention Description. While the final content and structure of the intervention will be informed by Specific Aim 1, participants will receive a culturally adapted, Social Cognitive Theory (SCT) and Transtheoretical Model- (TTM) based PA intervention. The evidence-based, theory guided aerobic PA intervention will systematically builds upon our prior studies and includes the following components: Goal setting. At baseline, participants will complete an in-person or Zoom goal-setting session based on motivational interviewing where they will learn about the benefits of MVPA, key behavior change techniques such as goal-setting and self-monitoring and establish personal PA goals. They will be assisted in developing a plan for gradually building up to 150 minutes of MVPA per week over 8 weeks and will discuss potential barriers and learn problem solving skills. Any participants already meeting the 150 min/week MVPA guideline will be assisted in developing a plan for sustaining their PA and achieving other PA goals. Midway through the intervention, participants will complete a second goal-setting session. In-person PA sessions. Participants will be invited to participate in PA sessions during their child's practice. Sessions will be offered 3 days/week, and participants will be encouraged to attend at least 2 sessions/week during the 8-week intervention. Sessions will last for 50 minutes, with the intention that attending all 3 sessions per week would allow participants to meet the recommended 150 minutes of MVPA per week. The time of the sessions (i.e., whether in the middle, first, or second of hour of practice) will be informed by the CAB, with all sessions including aerobic activities that encourage MVPA (jogging, jumping jacks, etc.). Participants will learn about proper form, movement techniques, safety, and injury prevention, and be given demonstrations on how to properly do each exercise using their own body weight or basic equipment that will be provided (e.g., resistance bands, jump ropes, small weights). Childcare, with age-appropriate movement activities, will provided for mothers with additional children not practicing. The PA equipment will be gifted to the MHC at the end of the intervention for continued use by mothers during practice. Written materials. Participants will be emailed brochures and tip sheets weekly throughout the intervention. Materials include motivation-matched PA manuals (based on baseline and week 4 assessments), tip sheets (on stretching, boredom, places to be active, etc.) and computer expert system-tailored PA feedback reports which draw from a bank of over 330 messages targeting different levels of SCT and TTM constructs (motivational readiness, self-efficacy, self-

regulation, processes of change, social support, outcome expectancies, and enjoyment for PA).

Overview of Procedures. Prior to the intervention, participants will be screened for eligibility, consented, and complete the baseline assessment. A goal-setting session will also be completed prior to beginning the in-person PA sessions and receiving print-based materials. Additional assessments will be conducted at 4-week (including a second goal setting session), 8-week (intervention end), and at 1-month follow-up. The purpose of the 1-month follow-up assessment is to see if the intervention has a sustained impact on parent PA (e.g., they continue to utilize the PA equipment and practice time to be active).

Measures. Assessments, conducted at practice, will be used to examine intervention feasibility, acceptability, and satisfaction, and effects, and to provide data for the tailoring expert system to function.<u>Intervention feasibility, acceptability, usability, and satisfaction.</u> Feasibility will be determined based on whether enrollment (i.e., 10-12 participants per week), retention (i.e., $\geq$80% of participants through 8 weeks), and assessment (i.e., obtain usable PA data from $\geq$80% of participants) targets are achieved. Acceptability will be determined based on participant engagement with the intervention during the study period (i.e., $\geq$80% of participants attended at least 2 in-person sessions per week) and by assessing the degree to which participants find the intervention beneficial using Likert-type scales. Satisfaction will be assessed using an adapted version of the Consumer Satisfaction Measure, used by our research team in past trials and adapted for this study, and the Client Satisfaction Questionnaire. The intervention will be deemed satisfactory if $\geq$80% of participants report a "good" acceptability or higher. Participants will complete an exit interview to assess the acceptability of the intervention components, duration, and structure. They will also be asked which components they found most/least helpful, whether they would recommend the intervention to others if offered again, and if they felt the intervention had an impact. <u>Primary outcome for examining intervention effects on PA.</u> Participants will complete a **7-Day PAR Interview** at each assessment (baseline, 4-weeks, at the end of the intervention, and at 1-month follow-up) to assess minutes of MVPA per week. This self-report instrument provides an estimate of total weekly minutes of MVPA and has been used across many studies. It has consistently demonstrated acceptable reliability, internal consistency, and congruent validity with other more objective PA measures along with sensitivity to changes in both moderate and intensive levels of PA. Our team has extensive experience with administering this instrument, which requires annual recertification. <u>Potential moderators and mediators.</u> **Demographics**, assessed at baseline, include age, education, income, race, marital status, employment and occupation, country of birth, and length of residence in U.S. Other potential moderators and mediators include SCT and TTM constructs, which will also be assessed for the purposes of tailoring print materials. **Stages of Change for Physical Activity** measure has successfully been used to stage-match treatment in our trials and has shown acceptable reliability (Kappa = 0.78; intraclass correlation r = 0.84) and concurrent validity with measures of self-efficacy and current PA levels. **Processes of Change for Physical Activity (POC)** measure contains 10 subscales that address a variety of cognitive/behavioral processes related to PA behavior change. Internal consistency of the subscales range from .62 to .96. **Self-Efficacy For Physical Activity (SE)** measures self-efficacy to become physically active across diverse contexts. The internal consistency is acceptable (alpha = .82). **Social Support for Exercise (SSE)** has three subscales (Family, Friends, Rewards/ Punishments) and acceptable internal consistency (alphas .61-.91) and criterion validity. **Physical Activity Enjoyment Scale (PACES)** assesses level of personal satisfaction from PA. The measure has high internal

consistency (alpha = 0.96) and test-retest reliability. **Outcome Expectations Scale** assesses beliefs regarding the consequences of PA participation will be examined by 9 items with internal consistency (alpha=.89) and validity based on confirmatory factor analysis and positive correlations with PA and self-efficacy.

Data Analysis. Dr. Dunsiger, the study biostatistician, will provide guidance and oversee data analysis.

SA 2a. We will descriptively (means, proportions) analyze the post-intervention feasibility, acceptability, and satisfaction data. The qualitative exit interviews with participants will be audio recorded, transcribed, coded, and analyzed to determine how the intervention can be strengthened. The mixed methods findings will be used to refine the intervention content, structure, and assessments for future iterations of the intervention. SA 2b. Consistent with Aim 2b we will first examine within-person changes over time in PA outcomes (self-reported min/week of MVPA and a binary indicator of meeting national PA guidelines). Specifically, a longitudinal mixed effects model will regress min/week MVPA at end of treatment (8 weeks) and 1-month follow-up on baseline MVPA, time, and confounders identified a priori (e.g., age). Contrasts can be used to examine changes from baseline to 8 weeks in PA behavior, as well as changes 8 weeks to 1 month-follow up (to understand potential maintenance of behavior). Models will include a subject specific intercept to account for repeated measures within person over time. Next, a longitudinal model implemented with Generalized Estimating Equations with robust standard errors will be used to examine changes in meeting the national guideline of more than 150 min/week of MVPA over time controlling for baseline value of the indicator and potential confounders. This model will be specified to allow us to estimate whether the odds of meeting guidelines changed over time. In both cases (continuous and binary PA outcomes), interest is in estimating effect sizes rather than strict statistical hypothesis testing. Finally, a similar analytic strategy will be used to examine dose effects on both PA outcomes (by including a predictor in the model which counts the number of sessions attended/week). Models will be run using the fully enrolled sample under various assumptions of missing data and effects compared between models (for example, a multiple imputation approach vs. a likelihood-based approach to estimation).