Testing Adaptive Interventions to Improve Physical Activity for Sedentary Women
Study Protocol

I. Purpose & Overview

The purpose of this study is to determine the most effective adaptive intervention combining four efficacious treatments (enhanced physical activity monitor, motivational text messaging, motivational personal calls, group meetings) to increase physical activity (step counts per day, minutes moderate/vigorous physical activity/week) and improve cardiovascular health (aerobic fitness, body composition) among sedentary women. This study with 312 women aged 18 to 70 will also assess treatment effects on intervention targets (benefits, barriers, self-efficacy, and social support). The four adaptive interventions compared in this study consist of an initial treatment component (*physical activity monitor* or *physical activity monitor+text messaging*) followed by an augmented treatment component (personal calls or group meetings) for those who do not respond to the initial treatment component. For ease of management, the research team will limit the augmented treatments to only two of the four factorial combinations of personal calls and group meetings. The research team will focus on personal calls only (least expensive) and group meetings (current standard) and accept inherent limitations. It is well-established that without intervention physical activity remains unchanged.

The combination of the two initial treatment components and the two augmented treatment components delivered to non-responders yields four adaptive interventions that will be evaluated in this study:

1. Start with enhanced *physical activity monitor,* augment with motivational personal calls for non-responders, and continue enhanced *physical activity monitor* for responders;
2. Start with enhanced *physical activity monitor*, augment with motivational group meetings for non-responders, and continue enhanced *physical activity monitor* for responders;
3. Start with enhanced *physical activity monitor+text messaging*, augment with motivational personal calls for non-responders and continue enhanced *physical activity monitor+text messaging* for responders; and
4. Start with enhanced *physical activity monitor+text messaging* augment with motivational group meetings for non-responders and continue enhanced *physical activity monitor+text messaging* for responders.

A methodologically rigorous SMART design will be used to test these adaptive interventions. Participants will be randomly assigned to one of the two initial treatment components: a) enhanced *physical activity monitor* only (physical activity monitor with goal setting and a physical activity prescription) treatment, or b) enhanced *physical activity monitor*+ motivational *text messaging* treatment for 8 weeks (early adoption phase). Week 8 has been set as the decision point for women who have not met their physical activity step goal (i.e., non-responders). Non-responders will be those who a) fail to have valid wear time (i.e., wear a minimum of 3 days with 10 hours of wear time OR exceeding baseline step average), and b) average steps exceed the short-term goal of 600 steps above baseline average for two of the three weeks in weeks 6 to 8.. Non-responders to initial treatments will be randomly assigned to one of two augmented treatments: a) personal calls, or b) group meetings for Weeks 9-34 (later adoption phase). Responders will continue with their original treatment for Weeks 9-34 (later adoption). During Weeks 35-50 (maintenance), all women will receive enhanced physical activity monitors only. Data collection will occur at baseline and at Weeks 9-10 (end of early

adoption), 35-36 (end of later adoption), and 51-52 (end of maintenance). Data collection from the physical activity monitor (Fitbit Charge 2 or 3, hereafter referred to as Fitbit) will be ongoing and take place throughout the study.

II. Inclusion & Exclusion Criteria

Participants will be recruited from Rush University Medical Center in Chicago, Illinois.

Inclusion criteria are:

1) Female employee at study site
2) Aged 18 to 70
3) Able to speak/read English
4) Owns a smartphone with text messaging capability
5) Willing to receive text messages at the proposed pace
6) We will include all participants who desire to be more physically active. However, we will also obtain present level of physical activity to assess if they meet or do not meet per self-report recommended moderate- or vigorous-intensity physical activity guidelines (moderate-intensity physical activity, ≥150 minutes/week; vigorous-intensity physical activity, ≥75 minutes/week).
7) We will include participants who have Type 1 diabetes, or Type 2 diabetes with an A1C ≥ 9.0%, or have an A1C of ≥ 6.5% without a prior diabetes diagnosis, only if they have been given clearance by their health care provider
8) Without a disability that inhibits walking as determined by the PAR-Q & You (Physical Activity Readiness Questionnaire)

The sample is limited to women due to the substantive findings, including our own, suggesting that women have a more favorable response when interventions are specifically designed for women. The second round of randomization includes the group meeting, which requires ≥ 6 participants, and we cannot guarantee adequate numbers of same-language participants unless we limit the sample to English. Due to wide use of smartphones and text messages, participants' own smartphones will be used.

Exclusion criteria are:

1) Major signs/symptoms of pulmonary or cardiovascular disease
2) Systolic BP ≥ 160 and/or diastolic BP ≥ 100
3) Sufficiently active, as determined by a physical activity monitor worn for one week, indicating averaging ≥7,500 steps per day (“somewhat active”)

III. Recruitment & Setting

Researchers will use reactive strategies to recruit participants (i.e., women will be informed about the program, and those interested in participation will be able to initiate contact with the researchers). The strategies will include e-mail communication from the employer human resource department, flyers, and using recruitment posters on electronic and paper employee bulletin boards located near work areas. All strategies will include a brief description of the program, provide a phone number to call for further information, program website URL, and program email address.

Because of changes related to COVID-19, the researchers had to take the study online and virtual. Now the researchers are reopening the study for in-person contact when needed. They have minimized the amount of in-person contact needed going forward, through the remainder of the study by doing the following. During this time, no in-person recruitment will be done on-line only through Rush advertising and using Rush flyers. A Webinar format may be used as part of the recruitment efforts. When it is safe to do so, the research team may return to limited in-person recruiting.

The recruitment setting for this study is the Rush University Medical Center, a large urban academic medical center located in the Midwest, which delivers state-of-the-science health care to its patients. The institution employs approximately 7,577 females from diverse ethnic backgrounds: African American (24%), Asian (10%), Hispanic (14%), White (47%), and other ethnicities (5%). The mean age of employees is 39.97 years (standard deviation = 19.22). Assuming that employed women fail to meet aerobic physical activity guidelines at a rate that is half the rate of the general population of women, we estimate that we will have a pool of approximately 1,900 women for targeted recruitment. However, we expect the actual rate of physically inactive women to be much higher.

Because the majority of women spend one-third or more of their waking time at work, the worksite presents an ideal setting from which to recruit for participation in physical activity interventions. Low levels of physical activity are exacerbated by the large amount of sedentary behavior imposed in many worksites (defined as the physical environment in which people perform the majority of their vocational duties). The increase in sedentary occupational activity in the U.S. over the past 50 years has contributed significantly to the increase in body weight for adults. Women now comprise almost half of the U.S. work force. In addition to their work activities, 47% of employed women have children younger than 18 years, and 20% have other caregiving responsibilities, both of which serve as barriers to leisure-time physical activity.

For the proposed study, all research-related visits will be offered at the Rush University Medical Center worksite on both daytime and evening shifts. Data collection appointment assessments will be split over several days. Participants will be given Appointment Reminder forms with the date, time and location of their appointment. Participants will also receive reminder phone calls and/or text messages regarding appointments, and to wear and sync their Fitbit, as well as to wear their Actigraph. Participants will also have the option for research-related visits to be at a convenient location of their choosing (e.g., their home). Participants assigned to group meetings may use their phones for audio conferencing or Webex videoconferencing if they are unable to attend the group meeting in-person. Participants will be provided healthy snacks at the group meetings. Participants will be given $40 gift card after completing each of the four data collections (total received will be $160 in gift cards). Researchers will identify multiple means of remaining in contact with participants including: work, home, and cell phone numbers (including text messages); home and email addresses; and contact information of three people.

Participants who are randomly assigned to receive the augmented group meeting component, will receive two reminder telephone calls, text messages, or e-mails one week before and one day before data collection and group meetings. If the participant misses the first session, they will be asked to meet individually with the interventionist, prior to the second group meeting

session. Group meeting participants who miss a session after the first one, will be contacted by the interventionist and given a link to the Webex of the missed group meeting. The woman will be asked to view the Webex video within a week.. The number of regular and make-up sessions attended will be included in the analyses.

University of Illinois at Chicago (UIC) will participate in this study as a performance site under the guidance of Dr. Spyros Kitsiou (site- PI) and will be responsible for the following:

1) Remote collection of physical activity data generated from the wearable activity monitors (Fitbit) that will be provided to enrolled study participants; and
2) Delivery of the text-messaging intervention that has been developed by Dr. Buchholz at Rush.

UIC has developed a secure research application (iCardia) that allows researchers to remotely collect different physical activity properties (e.g. steps, intensity of activity, and sedentary minutes) from registered Fitbit wearable devices, and send personalized, short-messages service (SMS) text-messages participants' cell phones through the Twilio communications platform. iCardia is password-protected and hosted in a HIPAA compliant environment at UIC. It will only be accessible by authorized personnel associated with this study. Exportation of Fitbit data from iCardia is done using de-identified codes only. Text-messages send from iCardia will utilize the Twilio communications platform, which is also HIPAA compliant. Text-messages will be scheduled/programmed in iCardia by key research personnel based on the incoming Fitbit data. UIC will NOT serve as a recruitment site or be involved in the recruitment process.

IV. Procedures

Recruitment Strategies

- As already noted, potential participants will be recruited using different strategies
- Potential participants who are identified during an in-person recruitment session will be invited to schedule an initial eligibility screening over the phone, or if preferred and available, in-person in a private office in the College of Nursing
- It is expected that most potential participants will self-refer by either leaving a voice mail message or sending an email to the research team who will reach out by phone for a brief explanation of the study
- If interested, participants will be invited to take part in an initial eligibility screening conducted over the phone or, if preferred and available, in-person in a private office in the College of Nursing

Initial Eligibility Screening

- Interested participants will be asked to provide verbal consent to be screened for inclusion criteria (listed again below)
    - Rush University Medical Center female employee
    - Age 18 to 70
    - Speak and read English language
    - Have a Smartphone with a text messaging plan and assess if potentially compatible with a Fitbit
    - Provide information about their current physical activity

- Interested participants will be requested to provide the research team with information about how they heard about the study
- Those who meet these criteria will be scheduled for their next visit where they will be consented and further screened
- Those who need to supply additional information regarding their smartphone will be contacted within one week to determine the compatibility of their device with study procedures
- Those who do not meet these criteria will be thanked for their time and considered ineligible for participation

Consent and Health Screening Appointment

- Because of changes related to COVID-19, participants will be asked to review an emailed consent ahead of time, prior to signing the consent at the in-person visit.
- The consent process will be completed in a private room in the Rush University Medical Center, and will include the Study Consent and the consent for Photographing and Videotaping
- Following the consent process, should a participant choose to continue their participation they will be entitled to continue directly into the screening visit, or schedule an additional appointment for those such procedures
- Screening includes:
    - Completing the Physical Activity Readiness Questionnaire (PAR-Q & You)
    - Completing the Health History questionnaire
        - Includes questions about health history, health problems, gynecological health, and psychosocial health
    - Undergoing height, weight and waist measurements
    - Undergoing three blood pressure (B/P) readings
    - Being asked for A1C results done within the past 30 days
        - If they do not remember or do not have test results, they will be provided with A1C testing using self-monitoring kits to determine their A1C level for screening, at no cost to them (using a A1CNow + monitor which is approved by the FDA for self-monitoring of A1C)
        - It is possible that a participant will have had an A1C done for a specific wave, but did not complete enrollment for that wave, and asks to be part of the next wave. In that case only participants who had an A1C $\geq$ 6.5% and/or have a diagnosis of diabetes will need to have a new A1C test.
    - A Physical Measures handout will be given to the participant that records the findings of the height, weight, waist measurements, blood pressure, pulse and A1C testing.
- Participants are considered screen failures if they have any of the following, prompting a requirement for further review by their healthcare provider:
    - 'Yes' response to any question on the PAR-Q & You, OR
    - B/P $\geq$ 160 systolic or $\geq$ 100 diastolic, OR
    - Type 1 diabetes diagnosis, OR
    - Type 2 diabetes diagnosis and have an A1C $\geq$ 9.0%, OR
    - No prior diagnosis of diabetes and during the study screening are identified to have an A1C $\geq$ 6.5%

- If a participant is deemed a screen failure, the participant's healthcare provider will need to determine if it is safe for her to participate
    - The participant will be given a Clearance Letter for the healthcare provider that describes the study, as well as a PARmed-X form that will need to be completed and returned to the research team, providing a recommendation regarding physical activity
    - If it is safe for her to participate, she will then be deemed eligible to continue further screening into the study
- Participants are considered eligible if they meet all of the following criteria:
    - 'No' response to the PAR-Q & You questions
    - B/P < 160 systolic and < 100 diastolic
    - No need for a referral for a B/P or diabetes evaluation, OR
        - Have been deemed safe to participate following a visit with their healthcare provider and have a completed PARmed-X form with sign-off from their healthcare provider
- Participants that are eligible will complete a fitness assessment – Step Test
- Eligible participants will be given two physical activity monitors:
    - A Fitbit with the display monitor temporarily taped or settings adjusted so that the participant cannot see the display and so that their physical activity is not influenced by their ability to observe their step count data
        - The Fitbit program application will be installed onto each participant's smartphone, in order to sync Fitbit data
        - Participants will need to wear the Fitbit for a minimum of four 10-hour days, one of which is a weekend day
    - An Actigraph GT3X-BT (hereafter referred to as an Actigraph)
        - The Actigraph accelerometer is to be worn during all waking hours on the right hip, in line with the right armpit
        - Participants will need to wear the Actigraph for a minimum of four 10-hour days, one of which is a weekend day
        - Participants will complete an Actigraph Log when they are wearing an Actigraph during study assessments.
- Participants will be given instructions on how to wear their two physical activity monitors, manage daily usage of their devices, and return to verify sedentary step criteria
    - The research team will stress the importance of wearing both monitors at the same time, when the participant is awake
    - The research team will also emphasize with the participant it is very important that they do not change their typical physical activity behavior while wearing their Fitbit and Actigraph during this screening assessment
    - An appointment will be given for participants to bring their two physical activity monitors one week later, to the Physical Activity Lab housed in the Armour Academic Center, in order to obtain physical activity data from the monitors
    - Because of changes related to COVID-19, participants that are eligible for the study will be asked to keep their Fitbit physical activity monitor (the Fitbit will be reintroduced at an on-line Program Orientation appointment) and will be given a Physical Activity manual.

- Participants will be asked to sign a Physical Activity Monitors Loan Agreement form

Participants will be given a handout regarding Actigraph Instructions and a handout regarding Fitbit Screening Use Instructions.

Returning Physical Activity Monitors and Determination of Final Eligibility

- Participants will drop off their physical activity monitors.
- The research team will assure that the most recent steps from the Fitbit are synced to the participant's phone.
- Research team staff members will analyze the data from the Actigraph to determine final eligibility for participation in the study
    - Participants that are deemed to be too active for the study ($\geq$ 7,500 steps per day on average) will be contacted and told that they are ineligible for continuation and provided an electronic copy of the *Step it Up!* informational booklet from the Surgeon General's office
    - Participants that are identified to have had issues with the monitors (e.g. they were not using them as instructed) will be asked to wear them for an additional week of wear time to re-evaluate their eligibility
    - Participants that are screened eligible based on their step count data will be contacted for scheduling their Baseline Interview

Baseline Interview and Randomization (D1)

- Because of changes related to COVID-19, participants will complete the D1 questionnaire online using a secure REDCap survey link
- D1 data collection will include the following:
    - Questionnaire completion:
        - Demographics (age, ethnicity, marital status, children, caregiver status, education, income/hardship, job, shift)
        - Neighborhood Environment Walkability Scale (NEWS)
            - 28 items assessing respondent's perceptions of characteristics in their neighborhood that are conducive to walking
        - Exercise Benefits/Barriers Scale (Revised for PA)
            - 43 items about statements that relate to positive/negative PA ideas
        - McAuley's Self-Efficacy for Overcoming Barriers to PA
            - 17 items reflecting beliefs in ability to continue to be physically active in the face of barriers
        - Social Support and Exercise (Revised for PA)
            - 13 items assessing scale of family and friend support
        - Outcome expectations
            - 11 items measuring expected change due to becoming more physically active
        - International Physical Activity Questionnaire (IPAQ) long-form
            - 27 items assessing days per week and hours/minutes per day of sitting, occupational, light, moderate, and vigorous leisure-time PA
        - Sedentary Behavior:
            - Time spent sitting participating in 9 sitting behaviors in past 7 days resulting in total minutes per week of sedentary behavior

        - Emotional Distress-Depression Short Form 8b
            - 8 items measuring depressive symptoms over the past 7 days
        - PROMIS Scale v 1.2
            - 10 items assessing general health, PA, emotional problems, and fatigue
        - PROMIS Sleep Impact Short Form
            - 10 items, assessing past 7 days of sleep
- Participants will be asked to sign an Oath of Confidentiality agreement that notes that they will not discuss their experience with the physical activity program with anyone else in their workplace until after the participation in the study ends.
- Participants will be thanked for their time, and will schedule their program orientation appointment to occur within a target two-week window.
- Participants will be randomly assigned to one of the first two initial treatments (physical activity monitor, or physical activity monitor+text message)
    - See section **IX. Randomization** for further details on the randomization process

Program Orientation Appointment

- Because of changes related to COVID-19, the Program Orientation Appointment will now be done using Zoom or Webex
- All participants will be asked to have their Fitbit available for this appointment, and will be provided guidance on general device usage throughout the study
    - Participants will be asked to refer to their Physical Activity Manual for information about the Fitbit and about walking
    - Participants will be asked to wear their Fitbit when they are awake, preferably all of the time they are awake
    - Participants will be instructed on how to review their daily and weekly steps on their Fitbit
- Participants will be provided guidance on setting their physical activity goal (See Section **V. Physical Activity Goal** for more details)
- All participants will be shown an instructional video related to walking, proper stretching, and using a Fitbit
    - All participants will be reminded that they can contact research team members during the study with any questions or concerns
- A research team member will complete a Behavioral Competencies Checklist, documenting that the participant can demonstrate skills correctly regarding the Fitbit Charge 2 and setting their Step Goal
- Participants who have been assigned to the physical activity monitor+text message initial treatment will also receive the following:
    - Instructions on what to expect regarding receiving text messages
    - A brief motivational interviewing session to identify motivational text messaging strategies to overcome their perceived barriers to increasing their daily steps
        - During this session, participants will suggest their own text messages and have the opportunity to select from an existing physical activity text messaging database
- Monitoring of physical activity will start immediately after completion of the program orientation. Evaluation of response/non-response for each participant will take place 8 weeks after the orientation date.

    - Participants will be reminded that the research team will remotely monitor their progress to ensure the following:
        - Adequate wear-time of the device
        - Proper syncing of data between Fitbit and iCardia
- All participants will be thanked for their time, and will schedule their appointment for the next study visit in 9-10 weeks

Decision Point 1: Week 8

- This aspect of protocol procedures does not entail an in-person visit with the research team
- At week 8, the research team will remotely determine if participants are deemed responders or non-responders to their initial treatment assignment based on their daily Fitbit step count synced to iCardia at UIC. A participant is considered a *Responder* to the initial treatment if she meets both of the following criteria for two of the three weeks during weeks 6-8 of the initial intervention phase:
    1) Have 3 or more valid days, defined as either 10 hours of wear time or steps greater than baseline average steps, and
    2) Average at least 600 steps above baseline steps for the valid days.
- If she is deemed a responder, she will continue her initial treatment (physical activity monitor or physical activity monitor+text messages)
- If she is deemed a non-responder, she will continue her initial treatment (physical activity monitor or physical activity monitor+text messages) and, in addition, be randomly assigned to receive either of the two augmented treatment conditions
    - Personal calls
    - Group meetings
        - See section **IX. Randomization** for further details on the randomization process

Data Collection Weeks 9-10 and Augmented Treatment Appointment (D2)

- Participants will be notified of whether they have been deemed a responder or non-responder to their initial treatment, and, if deemed a non-responder, will receive the results of their second randomization
- Because of changes related to COVID-19, participants will complete the D questionnaire online using a secure REDCap survey link
- D2 data collection will include the following:
    - Questionnaires:
        - Exercise Benefits/Barriers Scale (Revised for PA)
        - McAuley's Self-Efficacy for Overcoming Barriers to PA
        - Social Support and Exercise (Revised for PA)
        - International Physical Activity Questionnaire (IPAQ) long-form
        - Sedentary Behavior
        - Emotional Distress-Depression Short Form 8b
        - PROMIS Scale v 1.2
        - PROMIS Sleep Impact Short Form
        - Outcome Realizations
            - 11 items measuring realized change due to becoming more physically active

        - Program Orientation Satisfaction Tool
            - 7 items measuring satisfaction with the Program Orientation Process
        - Fitbit Satisfaction Tool
            - 21 items measuring satisfaction with the Fitbit Process
        - Physical Activity Text Messaging Satisfaction Tool
            - 4 items measuring satisfaction with the text messaging intervention component
    - Participants will be asked to come to the Physical Activity lab for a brief appointment to obtain:
        - Physical measures including:
            - Three blood pressure readings, pulse, weight and waist circumference (a Physical Measures handout will be given to the participant that records these findings)
        - Fitness assessment:
            - Step fitness test
- The research team will give the participant a new step goal, based on their average daily step count (See **V. Physical Activity Goal** for more information about goal adjustment)
- For the second time in the study, participants will be given an Actigraph to wear for one week along with instructions for use
    - Participants will be instructed to continue to wear their Fitbit monitor every day
        - Participants will only be wearing both monitors, the Actigraph and the Fitbit, simultaneously for one week during the prescribed Actigraph wear time
- Arrangements will be made by the research team staff to pick up participants' physical activity monitors one week later, or participants will have the option of returning their monitors to the College of Nursing using a secured metal drop-box on the outside of the main office door
- If a participant has been randomly assigned to receive the augmented Personal Calls Component of the study (See **VII. Personal Calls Component** for more information):
    - The research team will explain to the participant that they will be receiving five brief motivational interviewing telephone calls made by an interventionist
        - The research team will arrange a schedule for the participant to receive personal calls every two to three weeks over the upcoming 24 weeks
- If a participant has been randomly assigned to receive the augmented Group Meeting Component of the study (See **VIII. Group Meeting Component** for more information):
    - The research team will explain to the participant that they will be participating in five, 45-60 minute group meetings held every 4-6 weeks over the next 6 months
        - Participants will be asked about their best available times to meet, and the group leader (trained interventionist) will develop a schedule, based on the participants' collective input of best available times to meet, and will send it out to by Week 11 of the study to better ensure that enough group members are available for the meetings
- Participants will be thanked for their time, and will schedule their Data Collection Weeks 35-36 (D3) appointment

Data Collection Weeks 35-36 Appointment (D3)

- Because of changes related to COVID-19, participants will complete the D3 questionnaire online using a secure REDCap survey link
- D3 data collection will include the following:
    - Questionnaires:
        - Exercise Benefits/Barriers Scale (Revised for PA)
        - McAuley's Self-Efficacy for Overcoming Barriers to PA
        - Social Support and Exercise (Revised for PA)
        - Outcome Realizations
        - International Physical Activity Questionnaire (IPAQ) long-form
        - Sedentary Behavior
        - Emotional Distress-Depression Short Form 8b
        - PROMIS Scale v 1.2
        - PROMIS Sleep Impact Short Form
        - Fitbit Satisfaction Tool
        - Physical Activity Text Messaging Satisfaction Tool
        - For those in the Personal Call Condition only:
            - 13 items measuring satisfaction with receiving personal calls
        - For those in the Group Meetings Condition only:
            - 12 items measuring satisfaction with participating in the Group Visits
            - Social Provisions Scale
                - 24 items, 6 sub-scales each comprised of 4 questions scaled from 1 strongly disagree to 4 strongly agree reflecting:
                    - Social provisions of attachment
                    - Social integration
                    - Reassurance of worth
                    - Reliable alliance
                    - Guidance
                    - Opportunity for nurturance
    - Participants will be asked to come to the Physical Activity lab for a brief appointment to obtain:
        - Physical measures:
            - Three blood pressure readings, pulse, weight and waist circumference (a Physical Measures handout will be given to the participant that records these findings)
        - Fitness assessment:
            - Step fitness test
- The research team will give the participant a new step goal, based on their average daily step count (See **V. Physical Activity Goal** for more information about goal adjustment)
- For the third time in the study, participants will be given an Actigraph to wear for one week to assess their average daily steps
    - Participants will be instructed to continue to wear their Fitbit monitor every day
        - Participants will only be wearing both monitors, the Actigraph and the Fitbit, simultaneously for one week during the prescribed Actigraph wear time

- Arrangements will be made by the research team to pick up participants' physical activity monitors one week later, or participants will have the option of returning their monitors to the College of Nursing using a secured metal drop-box on the outside of the main office door
- All participants will return to using only their Fitbit, and participants who received text messages or personal calls or group visits will be told that they have completed that part of the study
- Participants will be thanked for their time, and will schedule their final study visit, the Data Collection Weeks 51-52 (D4) appointment

Final Data Collection Weeks 51-52 Appointment (D4)

- Because of changes related to COVID-19, participants will complete the D3 questionnaire online using a secure REDCap survey link
- D4 data collection will include the following:
    - Questionnaires:
        - Exercise Benefits/Barriers Scale (Revised for PA)
        - McAuley's Self-Efficacy for Overcoming Barriers to PA
        - Social Support and Exercise (Revised for PA)
        - Outcome Realizations
        - International Physical Activity Questionnaire (IPAQ) long-form
        - Sedentary Behavior
        - Emotional Distress-Depression Short Form 8b
        - PROMIS Scale v 1.2
        - PROMIS Sleep Impact Short Form
        - Fitbit Satisfaction Tool
        - Diffusion Effects Measure
            - 2-part questionnaire that determines the degree to which participation in the program has influenced other Rush employees
        - For those in the Group Meetings Condition only:
            - Social Provisions Scale
        - Participant Satisfaction Tool
            - 12 items, five-point Likert Scale (Strongly agree to Strongly disagree) that asks questions related to satisfaction with the study.
    - Participants will be asked to come to the Physical Activity lab for a brief appointment to obtain:
        - Physical measures:
            - Three blood pressure readings, pulse, weight and waist circumference (a Physical Measures handout will be given to the participant that records these findings)
        - Fitness assessment
            - Step fitness test
- For the fourth time in the study, participants will be given an Actigraph to wear for one week
    - Participants will be instructed to continue to wear their Fitbit monitor every day
        - Participants will only be wearing both monitors, the Actigraph and the Fitbit, simultaneously for one week during the prescribed Actigraph wear time

- Arrangements will be made for research staff to pick up the Actigraph at an agreed upon time at their worksite, or participants will also have the option of returning the Actigraph to the Physical Activity Lab housed in the Armour Academic Center, at an agreed upon time
- After returning their Actigraph, participants will be allowed to keep their Fitbits, and the Fitbit property (formerly owned by Rush University) will be signed over to them. Instructions will be provided on how to use their Fitbit on their own, since they have completed with the study.
- Participants will be thanked for their time and commitment to being part of the research study

V. Physical Activity Goal

All participants will receive an enhanced physical activity monitor treatment, which includes goal setting with a physical activity prescription, and self-monitoring with a physical activity monitor. We will follow the physical activity prescription guidelines that were successfully used in our prior work. First, steps walked per week and per day (step counts) are obtained from the Fitbit, which is distributed during initial eligibility screening and worn for one week prior to the start of the intervention. The baseline step count per day is identified by averaging daily step counts over at least four days of valid data. Based on previously published step count data, counts per day have been classified as: < 5,000 = "sedentary"; 5,000-7,499 steps = “low active”; 7,500-9,999 steps = “somewhat active”; 10,000-12,499 steps = “active”; and ≥ 12,500 steps = “high active”. Adults in the U.S. take an average of 5,117 steps per day. Adding 3,000 steps to 5,117 steps per day would move an individual from the “low active” into the “somewhat active” category. Thus, each participant is given an overall goal to increase her steps above her baseline by a minimum of 3,000 steps per day, an increase that approximates 30 minutes of physical activity at a moderate walking pace.

To enhance self-efficacy, the research team will work with each woman to set an initial physical activity goal to gradually increase walking frequency, duration, and intensity. Gradually increasing frequency, duration, and intensity of physical activity promotes physical activity adherence and reduces risks of musculoskeletal injury and adverse cardiac events. Participants may elect to only increase frequency without moving to increased duration and intensity. Thus, for activity progression, the research team will first emphasize frequency (walking more times throughout the day), then duration (walking for longer periods of time), and finally intensity (walking at a faster pace). Walking is initiated by beginning with incremental increases in routine/unplanned physical activity throughout the day. Participants will be given an initial goal of walking 600 steps/day over their baseline mean, by 8 weeks, to increase their frequency of walking.

Depending on participant preferences, for participants who reach the “somewhat active” classification through their routine physical activity, they may begin structured physical activity (e.g., leisure-time walking), continue to increase their routine physical activity with a focus on walking for longer periods of time, or combine both strategies as additional sources of steps. The “somewhat active” classification was selected as the point to introduce structured/planned leisure physical activity because the “active” classification is associated with intentional (structured) activities. Thus, participants in the “somewhat active” classification who choose to add structured bouts of walking may gradually increase over four weeks structured activity to a

duration of 30 minutes, frequency of three to four times per week, consistent with American College of Sports Medicine. Participants who are able to reach the "active" classification should have the conditioning to assume moderate-intensity walking, per American College of Sports Medicine recommendations, either during 30 minutes of planned walking or physical activity bouts of ≥ 10 minutes. Participants at this level are encouraged to walk faster.

The initial step count goal will be entered electronically into a Fitbit, a slim wristband physical activity monitor to be worn at all times except during bathing and swimming, through a Fitbit application on a mobile device using the Fitbit.com website. The physical activity monitor allows participants to self-monitor their walking steps, distance, and intensity. Participants automatically receive notifications in relation to their PA as follows: The Fitbit PA monitor gently vibrates to notify the participant when she has achieved 100% of her daily step goals. Also, the Fitbit mobile app generates an automatic notification in the form of a friendly message, when a participant has achieved 75%, 100% or 125% of her daily step goal provided that the Fitbit mobile app is on or actively running in the background.

Fitbit data will be collected using the iCardia application and be presented on a virtual dashboard. The dashboard will show the research team real time participant physical activity data. These data will be used to provide suggested physical activity step goals at the end of the early adoption (Week 8) and late adoption (Week 34) phases. The iCardia application will be used to send text-messages based on the incoming physical activity data.

Text message reminders are sent to all of the participants every Monday to remind them to sync their Fitbit. If the participant has not synced their Fitbit in 7 days, they receive a phone call. Participants will receive another phone call two days after that if they still have not synced their Fitbit. For the participants in the text message group, in addition to the Monday sync message, they receive an additional message later on Monday to sync if they have not already done so, and receive an additional text message to sync on Tuesday morning, if they still have not synced their Fitbit. The text message group is then given a step classification text message on Monday for those that have synced, and Tuesday afternoon for all remaining participants in this group, irrespective if they have synced or not. During Weeks 35-50 (maintenance), all participants will only be sent one text message weekly, and that will be a reminder every Monday to remind them to sync their Fitbit.

The research team will create anonymous email and Fitbit accounts for all participants enrolled in the study. To ensure privacy and confidentiality, we will use unique Subject ID codes for the creation of online accounts. No personal or private identifiers will be stored in the Fitbit servers at any point in time. This account will be used only for the purpose of this study, where the email address will be used to communicate information about Fitbit data to the research team.

All participants will have a program orientation, which will include guidance on setting a physical activity goal and using their physical activity monitor, as well as viewing a video that will give information related to self-monitoring their steps, and proper walking and stretching techniques.

VI. Text Message Component

In addition to the enhanced *physical activity monitor* half of the participants will also receive motivational TMs. Participants who receive an enhanced *physical activity monitor + motivational text message* treatment from Week 1 through Week 34 will participate in an initial brief motivational interviewing session to identify motivational text message strategies to overcome barriers. Motivational Interviewing is a client-centered counseling style that elicits behavior change by helping participants explore and resolve ambivalence. Motivational Interviewing will be used to elicit self-motivational statements that address the intervention targets of perceived benefits, perceived barriers, self-efficacy, and social support. This is accomplished by prompting participants to explore and resolve their own barriers to physical activity. After this step, permission will be asked to suggest and have participants select additional motivational text messages from a database of over 250 text messages previously generated with focus groups and tested in the worksite setting. A two-step process will be used to send text messages out. First, participants will choose motivational physical activity text messages that they want to receive three times a week over the course of the next 8 months. They will provide the three days of the week they want to receive those text messages, along with the time of day they want to receive them. Second, at the beginning of each week, the research team will review the physical activity data to determine a woman's daily mean steps the previous week. Based on their steps, they will be informed of their step classification the past week, using these published step count data: < 5,000 = "sedentary"; 5,000-7,499 steps = "low active"; 7,500-9,999 steps = "somewhat active"; 10,000-12,499 steps = "active"; and ≥ 12,500 steps = "high active".

VII. Personal Call Component

Motivational personal calls will be based on the model consisting of five brief (approximately 10 minute) Motivational Interviewing telephone calls, made by an interventionist, every two weeks during the first 10 weeks of late adoption, and five calls every three weeks for the following 14 weeks (total 10 personal calls in late adoption Weeks 11-34). Participants will be given feedback based on their step counts in the prior week in relation to their goal (obtained from iCardia). The interventionist, who will be trained in Motivational Interviewing methods/techniques, will explore the participant's feelings toward behavior change, assist in articulating self-efficacy in overcoming problems/barriers to physical activity, identify benefits of physical activity, and assist in developing a plan to increase physical activity. Using Motivational Interviewing, the interventionist will tailor the discussion to match the participant's needs, experiences, barriers, motivation, and confidence. Suggestions for addressing problems will only be provided after the participant has explored options and agreed to receive feedback. The interventionist will follow a semi-structured protocol that provides the basic flow of each call, allowing for discussion and reflective listening. The calls will emphasize how the participant can overcome barriers to obtain goal steps.

VIII. Group Meeting Component

The group meeting treatment consists of five 45-60 minute group meetings held every four to six weeks during late adoption (Weeks 9-34). Due to the time needed to schedule, group meetings will start at Week 12. Group meetings will be led by a trained interventionist, held in a private conference room on the worksite property, and scheduled between the day and evening shift times. Participants will be able to attend in person or by using their own phones for

audioconferencing or Adobe Connect videoconferencing to interact and view group meeting materials. Technical support will be available to help navigate Webex.

The group meetings provide social support. The content for the first group meeting focuses on identifying realistic outcome expectations regarding the effects of physical activity, to ensure realistic short- and long-term goals. The second and third meetings address personal and environmental problems that can interfere with increasing physical activity. The fourth group meeting focuses on anticipating disincentives for physical activity and handling relapses. These group meetings are targeted to address participant's common barriers to physical activity, and identify benefits of physical activity. At the final group meeting, participants will share their experiences.

The group begins with a seven minute video of women role modeling (vicarious experience) by demonstrating skills, sharing experiences, and sharing approaches to problem solving and overcoming challenges pertinent to each group meeting. Following the video, each group meeting will include a 30-minute group discussion facilitated by the interventionist to role model, provide guidance, and encourage participants to solve problems together. A customized manual, including content for each group meeting, will be used to guide the discussion. At the conclusion of each discussion, participants will examine their step counts from the prior week in relation to their goal, identify a strategy for meeting the goal, and rate their self-efficacy (confidence) to meet the goal on a scale of 0-10. If their confidence is <8, the interventionist will recommend that participants reset their goal to one in which they have higher confidence. At the End of each group meeting, participants will complete a Group Meeting Satisfaction Tool (4 items assessing satisfaction with group meetings).

IX. Study Timeline and Compensation

Participants can expect to be involved in the study for 52 weeks from start to finish. At each visit except the final visit, participants will receive a $40 gift card as compensation. At the last visit, participants will receive a $20 gift card upon completion of the questionnaires, and a $20 gift card when they return their Actigraph. Successful completion of all 4 in-person study visits would therefore entail a total possible compensation of $160 in gift cards for each participant that completes every required study visit. Participants will be given a receipt for the gift cards, using the Receipt for Working Women Walking Study form.

Research staff will stagger this study over 48 months. During the first 6 months, study preparation will occur. From Months 7 to 47, five waves of 51-66 participants each will be recruited, with a new wave beginning every 6 months. Data analysis and dissemination will be ongoing. The final 3 months will be dedicated to study completion.

X. Data Management

Several electronic resources will be used for data management. The Microsoft Access system will be used to manage participant recruitment, scheduling, consort report building, randomization, and tracking. The REDCap database will be used for data collection. iCardia will be used under the guidance of Dr. Kitsiou at University of Illinois at Chicago to remotely collect all Fitbit data generated by study participants, and to manage the delivery of TMs. iCardia is password-protected and hosted in a HIPAA-compliant server. iCardia provides researchers with a user-friendly dashboard that allows them to view each study participant's physical activity data

in the form of graphs, including battery level and time of last sync, and send personalized text-messages based on the incoming data. All Fitbit data pertaining to steps and intensity of physical activity are exportable to SPSS in a de-identified fashion (i.e. using random ID codes) for further statistical analysis. Training of research assistants and familiarization with the iCardia application will be coordinated by Dr. Kitsiou.

XI. Randomization

At the conclusion of the baseline interview, participants will be randomized to one of two initial treatments (physical activity monitor, or physical activity monitor+text message) in a 1:1 fashion. The random allocation table will be integrated into the Baseline interview programmed in REDCap, allowing both participant and interviewer to be blind to initial treatment condition until the end of the consent process and baseline interview.

At the end of the 8-week initial treatment phase, non-responders (i.e., those with an average increases of <600 steps per day above baseline) will continue their initial treatment assignment (physical activity monitor, or physical activity monitor+text message) and be randomized to one of two augmented treatments (personal calls or group meetings) in a 1:1 fashion stratified by initial condition using a random allocation table integrated into the Access database. Research staff will be blind to augmented treatment assignment until responder status has been entered into the Access database at the Decision Point 1 Week 8 time point. After their Week 9-10 (D2) follow-up appointment and after they return their ActiGraph, the participant will be notified if they are receiving an augmented treatment.

XII. Hypotheses and Data Analysis

Under the direction of Dr. Schoeny, SAS (v9.3) and R will be used for statistical analysis. Dr. Nahum-Shani is a methodological expert with a focus on developing innovating experimental designs, including the Sequential Multiple Assignment Randomized Trial (SMART) and will consult with Dr. Schoeny and members of the research team on use of the SMART design during the study. Because multiple outcomes are being evaluated in the primary aim, a two-tailed .01 significance level will be used for the statistical tests of these hypotheses. Secondary and exploratory aims will employ a standard two-tailed significance level of .05 for all statistical tests. All analyses will be performed on an intent-to-treat basis. A one-way analysis of variance will be conducted to look for potential diffusion effects. If significant differences are found, the estimated mean levels of diffusion will be used as weights in the efficacy analyses and cost analysis. Hypothesis testing will address four study aims.

Aim 1. Aim 1 is to compare the two augmented treatments used for non-responders, personal calls and group meetings, in improving physical activity and cardiovascular health after 35 and 50 weeks.

Hypothesis: Group meetings will be more effective than personal calls in improving physical activity and cardiovascular health after 34 and 50 weeks, among non-responders to the initial treatment.

This hypothesis will be tested using a multilevel analysis with time nested within participant (i.e., non-responders only). The hypothesis of the study is that the non-responders

who receive group meetings will demonstrate greater improvement in physical activity (self-report life-style and occupational physical activity: minutes of moderate/vigorous physical activity/weeks; device: number of steps/day, minutes of moderate/vigorous physical activity/ week) compared to those who receive personal calls.

Aim 2a. Aim 2a is to compare enhanced physical activity monitor with and without text messaging for improving the level of physical activity from baseline to 8 weeks. These analyses will parallel those used for Aim 1, but consider only two time points (baseline and 8 weeks) and include all participants.

Hypothesis: Participants who receive enhanced physical activity monitor+text messaging as compared to those who receive enhanced physical activity monitor alone will show greater improvement on physical activity at the end of 8 weeks**.**

Aim 2b. Aim 2b is to compare the four adaptive interventions in improving physical activity and cardiovascular health from baseline to 8, 34, and 50 weeks. The analysis is parallel to that described in Aim 1, except that the participants are not assigned to treatment based on simple randomization. Instead, they are screened on the basis of response status, and, once it has been ascertained that they did not respond to the initial treatment, they are randomly assigned to a treatment condition. Due to this design, the contrasts used to estimate the efficacy of these effects are nonorthogonal. The weights associated with the four interventions are then scored as a 4 for non-responder subgroups and 2 for responder subgroups. This is because responder subgroups are used twice in the design matrix (e.g., subgroup A is used in adaptive interventions 1 and 2; Figures 2 and 3). The estimation of these models is then based on a weighted multilevel linear regression model that has terms for change over time, the initial treatment, the augmented treatment, the interaction between the two treatments, and the effects of baseline and time-varying characteristics. The critical effect in this model is the time-by-adaptive-intervention interaction term. The null hypothesis is that there will be no interaction effect at all, while the alternative hypothesis is that adaptive intervention 4 (enhanced physical activity monitor+text messaging [initial] and enhanced physical activity monitor+text messaging with group meetings [augmented for non-responders]) will produce the largest improvement rates.

Aim 3. Aim 3 will identify mediators and moderators of the initial and augmented treatments on physical activity and cardiovascular health. Using analytic models parallel to those for Aims 1 and 2, we will first test impact on intervention targets (benefits, barriers, self-efficacy, social support).

Hypothesis: The intervention targets (benefits, barriers, self-efficacy, and social support) will mediate the effect of the initial and augmented treatments on physical activity (8, 34, and 50 weeks) and cardiovascular health (34 and 50 weeks).

Research Question: Do characteristics of participants (prior physical activity, demographics, BMI, depression) and their environment (walkability, crime) moderate the effects of the initial and augmented treatments on physical activity and cardiovascular health?

Although we will test the impact of each treatment on all potential intervention targets, we anticipate variation in impact by treatment (e.g., initial treatment is less likely to impact social support). For intervention targets that are significantly impacted by treatment condition, we will test whether they serve as mediators of intervention effects on physical activity and health status outcomes using methods described by MacKinnon. Moderation effects will be tested by adding moderator main effects and interactions of the moderators with condition and time. Significant moderator effects (i.e., significant moderator-by-time-by-treatment effects) will then be used to identify optimal decision rules for individual participants. The estimation of optimal decision rules will be achieved using a Q-Learning analysis, which is a modified regression analysis, adapted to address the SMART design. These optimal decision rules can then be cross-validated in future studies.

Aim 4. The cost-effectiveness analysis will be conducted from the societal perspective, including the program and participant costs. For the cost measurement, quantities of resources used and their associated prices will be collected for the program (either amounts paid or the value of the interventionist's time), and participant (i.e., the value of the participant's time to participate in the program). All costs will be valued in 2017 dollars. Program costs and participant costs will be calculated by summing their respective individual cost components, and these costs will be summed to calculate the total cost per participant.

For the effectiveness measurement, effectiveness will be measured using physical activity and cardiovascular health outcomes for a total of six measures (physical activity steps, self-reported light/moderate/vigorous physical activity, occupational physical activity, aerobic fitness, BMI, waist circumference). Cost-effectiveness will be evaluated by combining the mean total cost per participant with effectiveness (physical activity, cardiovascular health). We will calculate the incremental cost-effectiveness ratios (ICERs) for the four adaptive interventions: (1) enhanced physical activity monitor (initial) and enhanced physical activity monitor with personal calls (augmented); (2) enhanced physical activity monitor (initial) and enhanced physical activity monitor with group meetings (augmented); (3) enhanced physical activity monitor+text messaging (initial) and enhanced physical activity monitor+text messaging with personal calls (augmented); or (4) enhanced physical activity monitor+text messaging (initial) and enhanced physical activity monitor+text messaging with group meetings (augmented), such that the ICER = $(Ci - Cj{\neq}i)/(Ei - Ej{\neq}i)$, where C denotes total cost and E denotes effectiveness. Effectiveness will be measured as the change in each outcome between baseline and study completion at 51-52 weeks. Subscript i denotes 1 of the 4 adaptive interventions, and subscript j denotes the comparison intervention group. We will calculate six sets of ICERs, one for each effectiveness measure; 95% confidence intervals will be calculated to evaluate the uncertainty in these results. We will conduct one-way and multi-way sensitivity analyses for the key parameters to evaluate whether the ICERs are sensitive to plausible changes in their values. We will also plot acceptability curves based on varying threshold (willingness to pay) values for adherence and change in physical activity and cardiovascular health outcomes. Separate ICERs will be calculated from the program and participant perspectives.

Appendix I. Text message examples

TM CODE English	TEXT MESSAGE LIST
101	Walk for peace of mind
102	Walk today for peace of mind
103	Get out to walk
104	Get up and start walking
105	Don't sit - walk
106	Take some me time - walk
107	Take care of the caretaker - walk
108	Don't sit still, time doesn't
109	Enjoy nature - walk
110	Enjoy nature - walk today
111	Walk and think about life
112	Open your eyes to life while you walk
113	Connect to your childhood by playing jump rope, hopscotch and tag
114	Revisit your childhood fun - jump rope, hula hoop
115	Let's explore - walk more
116	Activity begins with childhood and never ends
117	Walk around, look around and be safe
118	Walk and explore- ask others to go
119	Encourage others to walk with you by exploring as you walk
120	Get in more steps with hiking at a park
121	Increase steps today - hike at a park
122	Active games matter - play volleyball, basketball and baseball
123	Walk with the family
124	Walk with a buddy
125	Walk with the kids
126	Encourage family walking
127	Take a walking break
128	A nature walk is a great idea
129	Try a nature walk
130	Dancing steps count
131	Get in steps by window shopping
132	Get up. Today is a good day to walk.
133	Relax by walking
134	Walk while enjoying window shopping at your favorite stores.
201	Walk to the shops
202	Eat less. Walk more
203	Let your spiritual light shine by reflecting while you walk

204	Walk and reflect - increase your spiritual light
205	Push away from the table and pull in some activity
206	Don't just sit after eating - take a walk
207	Move after eating by walking
208	Add in movement to your holidays
209	Challenge yourself to walk more
210	Surprise yourself -learn more about your area – walk
211	Learn your area while you walk
212	Walk with a new eye and take in the scenery
213	It's ok to walk during vacations
214	Plan to walk while on vacation
215	While on vacation, take walks
216	Walking can be done before and after eating
217	Get out and move about
218	Warm-up by moving your feet
219	Beach walking can be relaxing
220	Get to know the culture by walking in different areas
221	Culture preview time - walk in new areas
222	Walk the trail
223	Go out and walk today - just do it
224	Just go out and walk
225	Get up and move daily
226	Get up and move – today
227	Park the car and move daily
228	You have to move your feet to stay healthy
229	Plan to increase steps the days BEFORE your hair appointment
230	Don't make a choice between your hair and walking - figure out a way to do both
301	Find your walking groove
302	Inner beauty starts with walking - be healthy on the inside
303	Be healthy on the inside - walk more
304	Beauty is living healthy - walking matters
305	Look better walk more
306	Why not exercise - start with walking
307	Walking is exercise - you can do this!!
308	Walk during your break
309	Stretch before and after you walk
310	Be sure to warm-up and cool down with brisk walks
311	Time to get healthy - why sit - walk instead
312	Time to get healthy - take a walk
313	Enjoy the fresh air - walk
314	Make leisure time a healthy time

315	Walking more will help
316	Your kid's future depends on you staying healthy - so start walking more
317	Weave in walking today and everyday
318	Let's go - walk more
319	Take time to get healthy - move your feet while sitting
320	Walk today- each step counts toward your health
321	Walking daily helps to maintain walking
322	Walk around instead of sitting down
323	Move with the players
324	Don't just watch the sports - move too
325	Take a walk between the plays at a game
326	Fit in moving every chance you can
327	Look for a chance to move more
328	Go the long way every chance you get
329	When you park, park further away
330	Park far - then walk
331	Halftime can be exercise time so step in place or walk around
332	Get up and move around
333	Don't sit through the whole game - walk and move
334	Fit in moving wherever you can
335	Anytime is a good time to walk
336	Walk around the neighborhood
401	Pick up the pace
402	Take the time to walk
403	Plan to meet your friends for a walk
404	Put some pep in your step
405	Pick up your pace and increase your steps weekly
406	Time to go walking
407	Put walking on the schedule
408	Schedule time to walk
409	Plan to meet your friend for a walk
410	Take a walk and clear your mind
411	Walk - take a break and refresh
412	Clear your schedule for walking
413	Walk during TV commercial breaks
414	Keep 30 minutes open to walk daily
415	You can always choose to walk in the mall
416	Walk in the mall of your choice
417	Try walking in the mall
418	Schedule time to walk by marking it on your calendar
419	Today mark your calendar to walk

420	You can always walk around the house to get in shape
421	Take a short walk - this could improve your sleep
422	Take a short walk and sleep better
423	Don't just think about it - actually go for a walk, even a short one
424	Walk faster
425	Walk faster and increase your steps weekly
426	Include walking in your day
427	Don´t take the elevator, take the stairs!
428	Find time to exercise during your busy day.
501	Don't miss out on walking benefits
502	Take a quick walking break
503	Don't just dream of walking - just do it
504	Just get up and move
505	Why wait - take the stairs
506	Push yourself - not the buttons to go up the stairs
507	Try walking the fairgrounds
508	Walk between laundry loads
509	Walk while you are cleaning
510	Make walking a priority
521	Walk while you mow the lawn
522	Walk with your pet
511	Check out what is going on outside and take a walk
512	Reenergize with a brief walk
513	Reenergize - take a brief walk
514	Walking breaks can reenergize you
515	Daily walks help to keep you healthy
516	Keeps the health provider at bay
517	A walk a day keeps the health care provider away
518	Take steps toward good health - take a walking break
519	Make an effort for yourself and those you love. Keep yourself health by walking
520	All your effort has its reward. Walk today.
601	Take a walking break - your health demands it
602	No excuses - walk more to feel better
603	A little walking goes a long way
604	Let's just get to walking
605	Look before you step and watch where you are going
606	Watch where you are going - but keep going
607	Watch where you tread
608	Give yourself the chance to be healthy. Start to walk.
609	Give our bodies more days to live. Let´s walk
610	Walk. This will bring health to your life.

611	Watch where you tread but keep going. You can do it!
701	Get out and enjoy the day
702	Make your walk exciting
703	Make your walk interesting by adding variety to it
704	Walk with a group
705	Walk with a group - for a change
706	Be aware of your environment when you walk
707	Wear reflective gear as needed when walking
708	Keep variety in your walking plan
709	Challenge yourself and walk a little further
710	Walk and be aware of your surroundings
711	Take the dog for a walk
712	Find reasons to walk more
713	Be prepared for the weather when you walk
714	Be safe when you walk at night - wear bright and reflective clothing
715	You can use a flashlight at night to promote safety
716	If walking alone, be extra observant
802	Treadmill steps DO count as regular steps
803	Steps on the treadmill count just like walking steps do
804	Walking CDs or apps can be used to add steps
805	Walking CDs or apps can make walking fun
806	Indoor walking choices are many such as the mall, field house, big stores and YMCA
807	Dress for the weather when you walk
808	When the weather is cold, layer your clothes
809	Plan ahead for safe walking
810	Identify what it takes for you to be safe when you walk
811	Don't stop being physically active just because of the weather
812	Don't let the weather block your walk - blink and it will change
813	Wear the right clothing for the weather
814	Get your steps in by walking your pet
815	Get your steps in by walking someone else's pet
816	Check out the local school indoor track for getting in your steps
817	A little walking during the day is better than no extra walking
818	Even a little walking each day adds up
819	Appropriate head wear matters when you are walking
820	Head wear matters - especially when walking
821	Dressing for the weather matters - especially when walking
822	Remember to wear proper footwear for walking
823	Update your walking shoes and socks for comfort
824	Be sure to wear the right kind of socks with your tennis shoes when walking
825	If on the running track, take another lap

826	Be prepared to drink water before, during and after walking
827	Music can be used to motivate yourself to walk.
901	Breaks can be part of the walking process if needed
902	Be kind to yourself - add breaks to walk
903	Increase your walking gradually
904	Keep things interesting - find different places to walk
905	Be creative about finding ways to get in more steps throughout the day
906	Get creative about adding more steps to your day
907	Find walking opportunities throughout the day
908	Go ahead and try to keep up with the kids when walking
909	Take your kids for a walk
910	Take your child or grandchild for a walk
911	Walk the children or grandchildren to school
912	Don't just watch - participate when your kids are playing
913	When your kids are moving, move with them
914	Stay active - lead by example for the family
915	Get the whole family moving
916	Make a family plan to walk
917	Make walking dates with your friends
918	Before or after eating - make a walking date with some one
919	Encourage your friends to walk
920	Encourage friends to walk - with or without you
921	Have your business meeting while walking and not just in the office
922	Walk for a cause - sign up for charity walks
923	Walk for another cause - perhaps a charity?
924	Walk further - get healthier
925	Walk a little further each day - taking steps toward health
926	Add steps gradually day-by-day
927	Gradually add steps to your walk this week
928	Make walking appointments for yourself - stay consistent
929	Fit walking into your daily schedule
930	Walking can be a time of refreshment
931	Refresh yourself - walk today
932	Involve kids in your walking plan
933	Walk, skip, jump - all these movements count
934	Pedaling your bike also adds to your daily steps
935	Park far - plan to add to your daily steps
936	Park far - every chance you get to add more steps to your day
937	Let's start walking!
938	Participate in a variety of activities to add more steps to your day

939	Participate in sports that involve lots of movement
940	Alternate between fast and slow walking
941	Keep track of the time and the distance you are walking
942	Music helps when encouraging yourself to walk more
943	Encourage yourself to walk more
944	A simple way to add more steps is to walk twice around your car before you get in it
945	A simple walking plan is to increase daily steps with your activities
946	Count the stairs while you walk
947	Track your walking progress
948	Track your progress every day
949	Don't be still - move up, down and around, and keep moving
950	Take the stairs - step up to build a healthy heart
951	Walk - don't ride the elevator
952	Why wait for the elevator - walk, don't ride
953	Why wait for the elevator - use the stairs
954	Start slow with stair walking and increase as you go
955	Step counting matters - keep track of your progress
956	Step counting matters - share your progress with others
957	Walking is good for your heart
958	Walking is good for your heart and so cheap!!!
959	Walking in the sunshine brings life
960	Walk a little further each day, taking steps to improve your health
961	Walking can be a time for relaxing.
962	Rejuvenate - walk today
963	For your motivation, keep track of the time and distance you walk.
965	Walking is easy, just do it!
966	Take your kids to school by walking.