

## Background

The Heart-Wise program for individuals with, or at risk for, cardiovascular disease (CVD) will include a combination of interventions designed to address the fitness and nutritional states of its participants. It will consist of combined aerobic and strength training while also offering nutritional advice from registered dietitians while employing the principles of the Health Belief Model (HBM). The progress of these participants will be monitored through various outcome measures designed to review different facets of their overall health and wellbeing.

Aerobic exercise, strength training and a combination of both have been found to be effective in targeting CVD risk factors and improving the health of those already diagnosed with CVD. The primary modifiable risk factors for CVD include hypertension (HTN), hypercholesterolemia, smoking, diabetes, obesity, poor diet, physical inactivity and excessive alcohol use.<sup>1,2</sup> The primary effects of aerobic exercise are related to decreasing blood pressure (BP) and percentage of adipose tissue along with an improvement in lean body mass and cardiorespiratory fitness.<sup>2,3,4</sup> In terms of progressive strength training, similar effects are seen along with an improvement in lower extremity strength and functional mobility.<sup>4,7</sup> However, when these two interventions are combined, the beneficial effects on blood pressure, cardiorespiratory fitness, strength, blood glucose, and cholesterol levels are significantly increased.<sup>4,5,6</sup>

A recent systematic review looked into the effects of progressive resistance training on aerobic fitness and strength in individuals already diagnosed with CVD.<sup>6</sup> Because of the variety of studies included in the review, the duration and the types of exercise regimens varied widely. Interventions that included either machine-based and

whole-body strengthening exercises or those with moderate intensity cycling, walking or jogging for a minimum of 20 minutes were shown to have similar effects on overall cardiorespiratory fitness (CRF) which was measured via max heart rate (HRmax) and VO2 max.<sup>6</sup> The separate progressive strengthening interventions produced an overall greater increase in peak torque values and maximal voluntary contractions when compared to the aerobic only exercise group.<sup>6</sup> However, in groups that combined both the progressive resistance training and aerobic exercise, there were even greater improvements in VO2max, HRmax, peak torque and voluntary contraction strength than either of the two separately.<sup>6</sup> Therefore, this article provides the foundation for why including both aerobic and strength training can be beneficial to include in a cardiovascular disease program as it appears to improve overall cardiorespiratory fitness, strength and targets those who are physically inactive.<sup>6</sup>

A separate randomized controlled trial (RCT) consisting of aerobic, resistance and combined training programs all lasted a total of 8 weeks in which participants' BP, HR reserve, body mass index (BMI), cardiorespiratory fitness (CRF) and max contractile strength were monitored.<sup>3</sup> The aerobic group's intervention consisted of 60 minutes on the treadmill or bike beginning at 40% HR reserve which was then progressed to 70% HR reserve.<sup>3</sup> The resistance group's intervention was again 60 minutes in which 12 exercises such as leg press, leg curl, hip abduction and chest press were performed beginning with 2 sets of 18-20 repetitions and ended with 3 sets of 10-14 repetitions.<sup>3</sup> The combined training group had 30 minutes of aerobic activity followed by 30 minutes of resistance training following similar parameters but with only 8 exercises total.<sup>3</sup> It was found that all groups showed improvements in CVD risk factors but that the combined

training group results were more effective at reducing diastolic blood pressure, increasing lean body mass, and cardiorespiratory fitness.<sup>3</sup> Knowing this, the program should be at least 8 weeks and contain similar exercises and aerobic activities so as to achieve the same beneficial results.

Not only do combined aerobic and resistance programs improve cardiorespiratory health, strength and decrease blood pressure, but they can also help improve glycemic control, body composition and cholesterol levels.<sup>4,5</sup> Because diabetes and obesity can severely affect an individual's risk for CVD and overall mortality rates, two studies supported the necessity for these individuals to be involved in an exercise program. A 12 week High Intensity Interval Training (HIIT) program was adopted and was shown to reduce mean 24hour glucose, glycemic variability, HbA1C, and abdominal obesity, which is related to increased mortality rates, thereby successfully targeting other risk factors related to CVD.<sup>4,5</sup> By including HIIT as an option, this may be more attractive to individuals pressed for time but still have the desire to participate in a group setting which helps to facilitate social interactions.

The second intervention in the community program will revolve around educating the participants about CVD risk factors, the benefits of exercise, a proper diet and how to best incorporate those two aspects into their daily lives. Information will be given in a variety of ways including information sessions (in person or via zoom), pamphlets, and measures to track activity levels and dietary habits on a weekly basis.<sup>7,8</sup> The information sessions and other educational materials provide evidence that the components of the program create positive change as individuals are less likely to maintain participation if they do not understand the effects of the intervention.<sup>7,8</sup> Some

of these information sessions will also focus on determining the participants perceived barriers and how to overcome them which should help to improve overall adherence.<sup>7,8</sup> To address the nutritional component of the program, a registered dietician will be present in class and provide materials related to diet as that is another important aspect for individuals with CVD.

Obesity is another major risk factor for CVD which can be the result of a sedentary lifestyle and a diet consisting of fats and sugars which can increase percentage of adipose tissue, very-low-density lipoprotein (VLDL), low-density lipoprotein (LDL), triglycerides and BP levels which contribute to poor cardiovascular health.<sup>9,10</sup> Popular diets for those with CVD are the Dietary Approaches to Stop Hypertension (DASH) and Mediterranean style diet which target blood pressure, lipids, and lipoproteins.<sup>7,8</sup> Just a 1% reduction in cholesterol and 5-6mmHG reduction in diastolic blood pressure has been shown to decrease risk of heart disease by three and 20-25% respectively.<sup>11</sup> These diets incorporate more fiber, omega 3-fatty acids, olive oil and reduce intake of saturated fats and alcohol consumption which have been shown to reduce triglycerides, total cholesterol levels and overall blood pressure when contributes to better cardiovascular health.<sup>7,8</sup> Some barriers to eating healthy could be time and money, as fast food allows individuals to quickly and cheaply receive a meal. The educational sessions provided will therefore include creative ideas on how to quickly make, or buy, cheap meals with healthier components.

The key to success in all of these interventions is the long term adherence to the program. Often individuals find themselves challenged with finding time or motivation to exercise or travel to a class. By implementing Health Belief Model ideals within the

program, individuals will hopefully be more willing to participate and maintain their activity levels. The program aims to facilitate long term adherence through its use of educational materials, weekly logs, initial health screen and periodic re-evaluations, and social support via group classes.<sup>8</sup> The initial health screen and subsequent re-evaluations will measure BP, cardiorespiratory fitness, and strength in house as well as using various outcome measures to assess dietary habits and quality of life.

The SF-36 questionnaire is a patient reported outcome measure that looks at the individual's global health situation as well as their quality of life. While this is not specific to CVD, it contains 8 subscales that evaluate "physical functioning, role limitations due to physical problems, general health perceptions, vitality, social functioning, role limitations due to emotional problems, general mental health, and health transition."<sup>12</sup> It is important to take into account the individual's mental health as depression, anxiety, and stress cause physiologic changes such as increase in blood pressure, heightened cortisol levels, and reduced blood flow all of which are contributing factors to CVD.<sup>13</sup> The self-report measure will be given to individuals at the initial health screen and used during re-evaluation and at the end of the program to determine the effect it had on their perceived health status and quality of life.

During the participants first session, a 44 question Food Frequency e-Questionnaire (FFQ) provided by a registered dietician will also be completed. This measure assesses habitual diet and has been adapted to a shorter online version to make it less time consuming and more accessible.<sup>15</sup> A recent study has shown that even though this questionnaire is shorter it has good validity and reliability when compared to the traditional exams abilities to assess food and nutrient intake.<sup>15</sup> By

using this measure, participants will have a better idea of where their nutrition journey should begin, and the subsequent information sessions will provide strategies for incorporating their dietary needs more easily into their daily lives.

To assess patient's initial cardiovascular fitness participants will perform a submaximal treadmill test as it is more similar to exercise prescription and can more accurately assess VO<sub>2</sub> max values.<sup>16</sup> The treadmill testing would follow the Modified Bruce Treadmill protocol where participants walk for "3-min stages of increasing speeds and grades" with heart rate (HR) being collected via HR-monitor and rate of perceived exertion (RPE) collected via Modified Borg scale.<sup>18</sup> Despite better data however, treadmills may not be readily available depending on the location the classes are taking place.<sup>16</sup>

In the case that the program is being conducted outside a traditional gym facility, the 6 Minute Walk Test (6MWT) could be used to assess cardiovascular fitness instead.<sup>17</sup> Normative data suggests that a difference of 34.4 to 45 meters is considered to be evidence of significant change and a high functioning gait speed is represented by a speed of at least 1.1m/sec yet can vary with increasing age.<sup>19,20,21</sup> To assess VO<sub>2</sub> max from the 6MWT the following equation "VO<sub>2</sub>max (mL x kg<sup>-1</sup> x min<sup>-1</sup>) = 70.161 + (.023 x 6MWT[m]) – (.276 x weight [kg]) – (6.79 x sex, where m= 0, f = 1) – (0.193 x resting HR [bpm]) – (0.191 x age [y])" would be used.<sup>22</sup> These are the parameters that Heart-Wise aims to achieve at the conclusion of its program. This exam requires very little equipment and is less expensive and can easily be done in a large group. The draw backs however are that the 6MWT does not offer the same sensitivity in determining VO<sub>2</sub> max values as the treadmill test.<sup>17</sup>

By creating a program backed by evidence based practice and applied use of the Health Belief Model, the Heart-Wise program for individuals with, or at risk for, CVD will help to improve their global health and wellness by fostering a supportive community and improving the confidence and independence of its participants.

## Program Goals

The primary goal of the Heart-Wise program is to provide individuals who have, or are at risk for, cardiovascular disease an easy access community exercise program with supplemental educational resources on diet and life-long health and wellness. The following are goals the program aims to achieve at the end of the 12 weeks.

1. **Participants** will improve their 6 MWT by 34.4 to 45 meters to meet the minimal clinical important difference for change or will achieve a walking speed of at least 1.1m/sec, or age-related norm by the end of the 12 week Heart-Wise community program to demonstrate improved cardiovascular fitness. <sup>20,21,22</sup>
2. **Participants** will improve, or maintain, their VO<sub>2</sub>max values to be within 1-2 standard deviations of their age, sex, and weight related VO<sub>2</sub>max norm by the end of the 12 week Heart-Wise program to indicate improved cardiorespiratory fitness. <sup>23</sup>
3. **Participants** will be compliant with exercising on their own at least two days a week, for at least 15 minutes, in addition to attending the scheduled classes during the 12 week Heart-Wise program to facilitate independent management of their health and exercise.
4. **Participants** will be compliant with filling out their weekly food logs and attend the biweekly dietary information sessions during the 12 week Heart-Wise program to facilitate healthy dietary habits and improve CVD associated risk factors including hypertension and hyperlipidemia.



# Methods

## Personnel definition of services and requirements:

- **Physical Therapists**
  - At least two physical therapists will be responsible for the safe, efficient delivery of the initial assessment and final assessment, which will take place on the first and last Saturdays of the 12 week program, for participants in the Heart-Wise community program.
  - At least one therapist will be present for each activity session to address that day's work out, questions regarding participant performance, form corrections, and any injury that may happen to occur as a result of the program.
- **Physical Therapy Assistants (PTA) & Athletic Trainers (AT)**
  - There will be at least one PTA and AT present for each activity session to assist the primary physical therapist with the session workout, demonstrate proper form & technique, and manage the flow of participants between stations for HIIT workout sessions.
  - PTA's and AT's will be recruited in addition to physical therapists to assist with the initial and final assessment days of the Heart-Wise community program.

- **Registered Dietitian**

- A registered Dietitian will be responsible for the delivery of the initial and final dietary assessment which will take place on the first and last Saturdays of the 12-week Hear-Wise Community program
- A registered Dietitian will also be responsible for creating and dispensing a weekly food log and helpful dietary information to participants in the form of pamphlets and online resources.
- A registered Dietitian will be responsible for holding either an in-person or online conference biweekly to address topics of diet and health related to cardiovascular disease.



**Location**

- **YMCA Carrboro** : Primary meeting location where initial and final assessments will be conducted as well as the regularly scheduled 1 hour long class sessions. To use the facilities participants will have to select an adult membership which is \$48.89 per month. This facility also houses a play center that participants may take their children to so that they may participate in the program without having to worry about obtaining childcare.
- **Online Zoom Sessions**: The dietary portion of the program will be held via online platform where participants can attend the videoconference or call in for those who do not have access to a computer or internet. Materials for this portion of the program will be emailed or given out at the initial assessment in paper form should participants prefer it.

## Enrollment and Program Schedule

- Participants will primarily learn about the program through resources such as pamphlets, flyers, and website links placed throughout the community such as primary care physician offices, cardiac specialist offices, schools, grocery stores, gyms, and physical therapy offices.
- Enrollment in the program is capped at 25 persons and can be completed online, over the phone, or in person at the primary meeting location mentioned under the location section of the Heart-Wise program proposal.
- The initial assessment will be held at the Carrboro YMCA where participants will check-in and complete any further registration requirements not already completed. The first day will be devoted to completing the SF-36, Food Frequency Questionnaire (FFQ), submax treadmill test or 6 Minute walk test (6MWT). The AT's present will be responsible for conducting the 6MWT and the therapists and PTA's will be responsible for conducting the submax treadmill test as it follows a strict protocol.
- The schedule for the first month of the program is detailed below with. Sessions will all be held at the Carrboro YMCA as it has access to the widest variety of equipment, workout spaces and childcare options.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						★ Initial Assessment Day 10am
		Combined Cardio/Strength Class 6pm	Dietary Zoom Session 7pm	HIIT Class 6pm		Combined Cardio/Strength Class 10am
		Combined Cardio/Strength Class 6pm		HIIT Class 6pm		Combined Cardio/Strength Class 10am
		Combined Cardio/Strength Class 6pm	Dietary Zoom Session 7pm	HIIT Class 6pm		Combined Cardio/Strength Class 10am

## Intervention Specifics

The combined cardio and strength classes will begin with a 10 minute warm up consisting of active stretches and a 3-5 minute walk around the facilities finishing with a discussion and demonstration of the day's strength exercises. One part of the class will be dedicated to aerobic exercise where participants will initially start with 15 minutes on the bike or treadmill. Participants will perform one minute intervals on either machine where for one minute they will achieve a 15-18 rating on the Borg RPE scale followed by one minute between 8-11 on the Borg RPE scale.<sup>4,5</sup> As the program progresses, the length of time dedicated to the aerobic portion will increase to 20 and 25 minutes at weeks 4 and 8 to continue facilitating cardiovascular fitness.<sup>4,24</sup> The second part of the class will be dedicated to a series of 8-10 strengthening exercises relying on machine-based, whole-body and multisegmented movements.<sup>6</sup> The program will start with 2 sets of 15-18 reps and as the program and its participants progress, the frequency will increase to 3 sets of 10-14 reps.<sup>24</sup> Because of the number of participants, the class will

be separated into two groups of 12-13 individuals where one group will begin with cardio and the other group will begin with strength training then switch. The Tuesday strength sessions will focus on upper extremity strength while the Saturday sessions will focus on lower extremity exercises, a sample of which is provided below. The physical therapist will primarily be responsible for working with the strength training group and correcting form with the assistance of either PTA or AT. The aerobic group will be under the jurisdiction of either the PTA or AT where their role is to provide continued encouragement and call out each one minute interval, so participants stay on track. There will be a 5-10 minute cool down consisting of active stretches at the end of each session where the physical therapist will review the purpose behind the exercises and what to do in until the next class.

**Sample Strength Exercise workout**

<b>Tuesday Strength</b>	<b>Saturday Strength</b>
<ul style="list-style-type: none"> <li>• Lat pull-downs</li> <li>• Bicep Curls</li> <li>• Triceps extension</li> <li>• Cable Rows</li> <li>• Chest press (dumbbells)</li> <li>• Push ups</li> <li>• Overhead Press</li> <li>• Reverse Fly's</li> <li>• Front/Lat Raises</li> </ul>	<ul style="list-style-type: none"> <li>• Weighted squats (bar or dumbbells)</li> <li>• Weighted walking lunges</li> <li>• Single Leg RDL's</li> <li>• Leg Press</li> <li>• Weighted Step Ups</li> <li>• Barbell hip thrust</li> <li>• Resisted Standing Hip ABD/Ext</li> <li>• Hip adduction</li> </ul>
<p><i>*Note on progressions: The physical therapist and assisting PTA/AT will be responsible for documenting each participant's starting weight (ex. 10 lb. dumbbells for bicep curls). It is up to the therapist's discretion to increase or decrease the weight depending on participant performance.</i></p>	

The Thursday classes will revolve around high intensity interval training (HIIT) and be roughly 45 minutes as opposed to the hour or so long combined training classes. The session will begin with a five minute warmup where participants walk or

run around the facilities in a group. Following, there will be three 10 minute intervals where individuals will complete five or so exercises at least once. There will be a two minute rest break between each of the 10 minute intervals and will finish with a five minute cool down. <sup>4,5</sup> These sessions will be compiled of full body aerobic and strengthening exercises a sample of which is provided below. The roles of the PT, PTA and AT are to be timekeepers and assess form of participants so that they can be assured they are working safely and effectively.

**Sample HIIT Workout**

Thursday HIIT workout	
<p><b>3 intervals of 10 minutes</b></p> <p>Each exercise should be completed at least once, but participants should strive to complete as many sets as possible within the given time</p>	<p><b>5 Minute Warm up</b> – walk/run outside</p> <p><b>Main Workout</b></p> <ul style="list-style-type: none"> <li>• 25 m weighted sled pushes (2 Laps)</li> <li>• Up and Overs (1 min)*</li> <li>• Weighted Ball Slams (10-15)</li> <li>• Mountain Climbers (1 minute)*</li> <li>• Overhead carries (4 laps)</li> <li>• 2 minute rest break</li> </ul> <p><b>5 Minute Cool-Down</b></p> <p><i>*For exercises with a time requirement, stop watches are provided at the station for individual participants use.</i></p>

The Dietary zoom sessions and associated materials will be the responsibility of the registered dietician (RD). The purpose of this part of the community program is to educate participants on what a healthy diet consists of and identify barriers to compliance and provide solutions to facilitate healthy eating habits. Each session, detailed below, will focus on a specific theme with a total of 6 sessions throughout the 12 week Heart-Wise program.<sup>7,8</sup> Educational materials such as what foods to include and exclude will be provided along with weekly food logs as awareness of one’s habits

is the first step to improving their diet.<sup>7,8</sup> A sample food log is also provided below the session plan table.

Session	Lesson Plan
<b>Session 1</b>	CVD statics and how diet plays a role in CVD <i>This session will be longer as it will also review the DASH and Mediterranean diets and how to incorporate some of the foods each talk bout into the participant's diet.</i>
<b>Session 2</b>	To Include and Exclude That is the Question <i>This session will focus on healthy foods, where to get them and how to prepare or where to get quick cheap health meals.</i>
<b>Session 3</b>	Barriers to a Healthy Diet/Lifestyle choices and Potential Solutions <i>This session will focus on identifying individual barriers to success and perceived notions of health.</i>
<b>Session 4</b>	Check-Ins with participants <i>This session the RD will ask each participant to share one thing they've been doing well and one thing they're still struggling with. Together the class will come up with solutions to implement over the last few weeks of the program which will hopefully carry on after its conclusion.</i>
<b>Session 5</b>	Don't Just Diet, Do it! <i>This session will focus on misconceptions behind the term "dieting" and how to continue eating and drinking your favorites in a more meaningful way.</i>
<b>Session 6</b>	Improving self-efficacy and closing remarks <i>This session will focus on long-term goals and how to maintain healthy habits.</i>

Week of:	Breakfast	Lunch	Dinner	Snacks	Exercise? (Y/N/Time)
<b>Monday</b>					
<i>Why did you eat?</i>					
<b>Tuesday</b>					
<i>Why did you eat?</i>					

Participants should include quantity as well in their food log. This log provides the “why did you eat” option so participants can get a better idea behind their motivation for food. Oftentimes people are not hungry, they are bored or even thirsty and opt to have food instead.<sup>8,9,10</sup> This log also does not require participants to list daily calories or nutritional stats for their meals as the purpose behind the dietary program is just to improve the participants recognition of health foods, recognition of unhealthy habits and

adherence to a healthy diet. This log also provides a column for individuals to indicate if they have exercised that day and for how long. The purpose of this section is to bridge the gap between the nutrition and exercise portions of this program especially as this program encourages participants to exercise for at least 15 minutes two days a week outside of the scheduled workouts.

Participants are encouraged to attend all workout classes and nutrition information sessions over the 12 week program. The classes are scheduled later in the evenings at 6 and 7pm to accommodate work schedules with the HIIT workout also being shorter for individuals pressed for time but who still want to complete a challenging workout. The Saturday session was included as individuals generally have more free time and was a way to motivate individuals to be active on the weekends.

As previously stated, the assessments (SF-36, FFQ, submax treadmill test or 6MWT) will be performed at the initial and final assessment sessions with the 6MWT being performed every 4 weeks following the initial assessments. The 6MWT will be conducted in a group setting where the therapists present will detail the test via the official script and provide a stopwatch to each individual participant. The therapists will measure the distance around the facility with a measuring wheel, so participants only have to keep track of laps walked. In the event the 6 minutes end and an individual has not completed a full lap, distance markings will also be present every 3 meters. The PT's, PTA's and AT's will be located around the walking course for patient safety and to help record participant distances at the end of their test. PTs and PTAs will also help to conduct the submax treadmill test, should a participant opt for this method, which require a treadmill and a script for the Modified Bruce Protocol. For both tests



participants will wear heart monitors and data will be collected on their heart rate and RPE with the Borg scale. With the collected data VO2max will be calculated by the physical therapist with the following equations:

#### **6MWT VO2 Max Calculation**

$$\text{“VO2max (mL x kg}^{-1} \text{ x min}^{-1} \text{) = 70.161 + (.023 x 6MWT[m]) – (.276 x weight [kg]) – (6.79 x sex, where m= 0, f = 1) – (0.193 x resting HR [bpm]) – (0.191 x age [y])”}^{22}$$

#### **Submax Treadmill Test VO2 Max Calculation**

$$\text{“VO2max = [speed (m/min) x 0.1] + [grade (decimal) x speed (m/min) x 1.8] + 3.5”}^{18}$$

The heart rate monitors will be provided by local physician offices and cardiopulmonary physical therapy rehab centers. The FFQ will be provided by the registered dietician working with the program and the SF-36 will be provided by the physical therapists running the program. At the end of the program the participants will receive their initial assessments along with a report by the physical therapist and dietician that highlights their strengths, weakness and overall cardiovascular fitness results after 12 weeks.

## Program Evaluation

The program will perform the assessments for participants at the first and last Saturday sessions with the 6MWT, and associated HR and RPE ratings, being performed every four weeks for a total of four times throughout the 12 week program. These scores, which include max HR, distance walked, RPE and VO<sub>2</sub>max, will be charted to show the participants whether they have shown overall improvement or maintenance of their cardiorespiratory fitness. Baseline SF-36 and FFQ scores will be compared to end scores so the patient may re-assess their quality of life and dietary habits and see which categories still indicate room for improvement. By the end of the 12 week Heart-Wise program participants should expect to improve their 6 MWT by 34.4 to 45 meters and maintain or improve their VO<sub>2</sub> max scores to be within 1-2 SD of their age, weight and sex related norm to indicate meaningful change.<sup>21,22,23</sup>

Participants will also indicate compliance with exercise outside of the program at least two days each week for at least 15 minutes on their food logs. Data will be synthesized by the therapists and dieticians and presented to the participants so they may more fully understand the impact this program has had on their overall health and wellness to facilitate good life-long habits. In the instance where significant or meaningful improvement has not been achieved, program coordinators should look to the feedback given by participants and other personnel involved to make adjustments.

Both participants enrolled in the Hear-Wise community program and personnel involved in its implementation will be asked to complete a satisfaction survey at the conclusion of the 12 weeks. Based off the feedback from these evaluations, the coordinators of Heart-Wise will be able to identify the strengths, weakness and

challenges of the program.<sup>25</sup> The survey will include ratings for overall program satisfaction, workout satisfaction, dietary planning and information satisfaction and instructor satisfaction. In addition to these global topics, the survey will pose questions including likelihood of recommending this program to other people, was the cost of the program worth the amount of specialized training, and any suggestions for improvement.

Participation will be tracked based on sign-in sheets and online log ins at the start of each class and dietary information session. The information gleaned from this will allow coordinators to assess whether or not the time and frequency of courses affect overall individual participation and if any adjustments need to be made.<sup>26</sup> With regards to the nutrition class, this information can be taken at the third session so the RD may change any future dates, times and class durations effective immediately. This program uses the YMCA facilities which require participants to obtain a membership which may be a point of contention despite its availability of resources. However, this program is built to be adapted so the survey should also include an area for suggestions of free local spaces and what individuals would be willing to pay for access to equipment and specialized training by RD's, PT's, PTA's and AT's. With the information gathered from the survey, changes could be made prior to the start of the next 12 week program to address any immediate concerns to provide participants and personnel with a higher quality program.<sup>26</sup>

## Conclusion

The Heart -Wise community program will benefit those individuals who have, or are at risk for, cardiovascular disease (CVD) in the Chapel Hill area through the use of evidence based practice and wellness models to improve their cardiovascular health. Symptoms and risk factors associated with CVD can greatly affect an individual's quality of life and lead to greater risk of mortality. <sup>4,5</sup> This program is designed to educate individuals on CVD and the impact exercising regularly and maintaining a healthy diet has on associated symptoms and cardiovascular health. Not only that but it provides participants with weekly exercise classes and biweekly dietary information sessions run by experts and backed by science. Throughout the program are constructs of the Health Belief Model designed to increase participation and facilitate long-term adherence to a healthy diet and exercise regimen by identifying perceived barriers and providing individualized solutions. This program provides those suffering with CVD a feasible and enjoyable opportunity to take the reins and start living a healthier, happier life.

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