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An Occupation-Based Protocol Designed for Women with Cardiac Conditions

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AN OCCUPATION-BASED PROTOCOL DESIGNED FOR WOMEN WITH CARDIAC CONDITIONS

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ABSTRACT

Coronary heart disease is the leading cause of death in women worldwide as well as the number one cause of death in the United States (American Heart Association [AHA], 2010). Women are not adequately represented when entering phase II of cardiac rehabilitation due to the numerous barriers that they may experience. The purpose of this scholarly project is to help meet women's unique needs and facilitate their return to meaningful life roles and occupations after experiencing a cardiac event. This protocol provides guidelines for occupational therapists to use during phase II of cardiac rehabilitation and addresses the implementation of occupation-based treatment. Elements of the protocol include: evidence-based occupational therapy assessments, a home evaluation, as well as group-based intervention sessions and individual reflective assignments on stress and anxiety management, assertive communication with others, activity MET-level modification, and home environment adaptation. Analysis of findings from the literature review revealed several factors that are important to the process of cardiac rehabilitation for women including: quality of life, psychosocial, physical, and social aspects as well as consideration of barriers. The literature review highlighted certain barriers that women experienced when entering cardiac rehabilitation such as: lack of physician referrals, availability of services, and transportation (Rolfe, Sutton, Landry, Sternberg, & Price, 2010). The social context was found to be highly important for women with cardiac conditions and who attend cardiac rehabilitation. Peer,

professional and family support also helped encourage and motivate women to continue participating in a cardiac rehabilitation program. The Ecology of Human Performance (EHP) (Dunn, Brown, & McGuigan, 1994) was utilized in development of the protocol because it places emphasis on environment and varying contexts that play an important role in the lives of women with cardiac conditions. Social contexts and home environments were the leading contextual considerations for occupation-based activities suggested in the protocol. Occupational therapists have the potential to play a significant role in Phase II of cardiac rehabilitation.

CHAPTER I

INTRODUCTION

According to the American Heart Association in 2010, over 81 million people have some form of cardiovascular disease (CVD) in the United States which includes: high blood pressure, coronary heart disease, myocardial infarction, angina pectoris, stroke, and heart failure (American Heart Association [AHA], 2010a). Coronary heart disease (CHD) is the leading cause of death in both men and women worldwide as well as the number one cause of death in the United States (AHA, 2010a; Pullen, Povey & Grogan, 2009). In particular, women experience different symptoms than men and more comorbidities (Shirato & Swan, 2010). Shirato & Swan, (2010) stated that "compared with men, women's chest pain is associated more often with abdominal pain, dyspnea, nausea, and fatigue" (p. 282). Women living with coronary artery disease (CAD), a result of atherosclerosis or arteriosclerosis (Squires, 2006) may not be diagnosed accurately due to complications such as arthritis or osteoporosis (Shirato & Swan, 2010). CVD is a debilitating condition which can decrease quality of life, impact family members and other social support systems, impede one's health status and hinder individuals continued participation in their desired occupations.

Women who have experienced a heart attack or myocardial infarction, undergone heart surgery such as a coronary artery bypass graft (CABG), percutaneous coronary intervention (PCI) such as an angioplasty, valve replacements or stenting, coronary heart disease (CHD), coronary artery disease (CAD) or congestive heart failure (CHF), may

improve health outcomes and quality of life by participating in a cardiac rehabilitation program (AHA, 2011b). The American Heart Association reported, "In the United States in 2007, all cardiovascular diseases combined claimed the lives of 421,918 females while all forms of cancer combined to kill 270,018 females"(AHA, 2011c). Women have a high mortality rate and receive fewer opportunities to enroll in a cardiac rehabilitation program (AHA, 2010c; Rolfe, Sutton, Landry, Sternberg & Price, 2010). It is imperative that women receive the opportunity to enter cardiac rehabilitation programs in order to improve their overall health status.

Women in particular experience numerous barriers when entering cardiac rehabilitation programs (Beckie & Beckstead, 2009). For example, women and older adults are less likely to receive physician referrals and attend cardiac rehabilitation programs (Beswick, Rees, & Greibsch et al., 2004). Physician referrals, availability of services, and personal volition may impact persons' decisions to attend a cardiac rehabilitation program; therefore, support and encouragement from health professionals are essential for promoting participation in a program (Clark, Barbour, White & MacIntyre, 2004). Additionally, depression, anxiety, constant fear and sense of loss are common among cardiac patients and are more prevalent in female populations (Clark et al., 2004; Hildingh & Fridlund, 2001; Rolfe et al., 2010). These psychosocial factors may also hinder females with cardiac conditions from participating in cardiac rehabilitation programs.

After experiencing a cardiac event or being diagnosed with a heart condition, women with cardiac conditions may have to problem solve and work hard to integrate cardiac rehabilitation into their lives. As a cardiac patient, one may be in contact with

several health care disciplines including but not limited to: cardiologists, cardiac nurses, exercise physiologists, occupational therapists and physical therapists. Occupational therapists may be involved at the acute level in hospitals, outpatient rehabilitation or community-based centers (Huntley, 2008).

During Phase I of cardiac rehabilitation the clients are in the acute stage of recovery. Clients in this stage are typically treated in a hospital setting after recently experiencing a cardiac event. Occupational therapists help clients stabilize their conditions prior to discharge and measure their physical tolerance to exercise (Huntley, 2008). Phase II takes place in an outpatient setting and is longer in duration compared to the acute phase. Exercise is highly incorporated into this phase. Interventions revolve around increasing exercise tolerance in order to improve occupational performance and functional capacity. Health professionals provide education for clients to encourage adherence in preventing risk factors (Huntley, 2008). Psychosocial factors may also be addressed because cardiac conditions may directly relate to depressive symptoms. This scholarly project's occupation-based protocol will focus solely on providing women with cardiac conditions occupational therapy services during Phase II of cardiac rehabilitation.

Occupational therapy has the potential to play a significant role in cardiac rehabilitation because of the impact that cardiovascular disease has on the body, well-being and quality of life during the course of recovery. Occupational therapists may address self-care tasks, leisure, work, patient education and instrumental activities of daily living (IADL's) during cardiac rehabilitation (Wilde & Hall, 1995). During Phase II of cardiac rehabilitation, assessments and evaluations are applied to a greater extent in order to determine client-centered goals. The central focus of occupational therapy and

cardiac rehabilitation is to assist clients in resuming daily activities and maintaining a functional and meaningful life after a cardiac event. Occupational therapy emphasizes client-centered practice and views the client as a whole person. The environment, psychosocial components, cognition, and sensorimotor elements are considered when implementing a holistic approach (Cole & Tufano, 2008).

An occupation-based protocol may enhance the effectiveness of Phase II cardiac rehabilitation for women. Engagement in occupations supports health and well-being (American Occupational Therapy Association [AOTA], 2008). Incorporating meaningful occupations into this protocol will allow women to find relevance for participation in Phase II cardiac rehabilitation and have the opportunity to enhance skills necessary for independent living with quality of life. The scope of occupational therapy is integral to helping women with cardiac conditions recover and return back to life roles.

The Ecology of Human Performance (EHP) (Dunn, Brown, & McGuigan, 1994) model guided this protocol in its entirety. This model is preventative in nature and promotes health and wellness. The person, tasks and context and how a person interacts with their tasks and contexts comprises an ecological system (Cole & Tufano, 2008). The environment or context is a key component of the EHP which consists of physical, social and cultural aspects.

The physical environment may include tangible objects in the clinic, at home, or any space in which the client participates. For example, exercise equipment and its placement in an outpatient rehabilitation setting is a component of the physical environment. In this occupation-based protocol, an occupational therapist may conduct a home evaluation and introduce adaptive equipment for patients to utilize at home. Use of

adaptive equipment in the home may change the context as well as the physical environment and physical demands of the person. The physical environment can support or hinder occupational performance. Therefore, as an occupational therapist it is imperative to create greater supports for clients to increase their performance range while engaging in occupations within their context.

Social contexts include, but are not limited to: relationships, support-networks, family structures, and the roles that individuals carry out in their lives. Social support from professionals and peers has been established in literature as an important element for women with cardiac conditions. The social context has been integrated throughout this occupation-based protocol; a major component of group sessions will include social communication as the primary occupation-based activity. Women will have the opportunity to engage in relevant discussions within the social context. Additionally, the therapist will facilitate a supportive environment conducive to their social needs.

Cultural factors of individuals' lives include their beliefs, values and lifestyles. In this occupation-based protocol, the cultural environment will be addressed through educational sessions that may challenge the clients' values and belief systems about their cardiac conditions. The education that is presented to the clients may alter their beliefs in a way that promotes a healthier lifestyle in a supportive context.

According to the EHP, the person is comprised of sensorimotor, cognitive and psychosocial aspects (Cole & Tufano, 2008). All of these components are addressed as clients interact with their contexts and tasks. Individuals are dynamic and comprised of unique skills. The interaction between an individual and their context may impact occupational performance while completing occupations. For example, women with

cardiac conditions may experience a disconnect between their ability to perform occupations and their environment.

The EHP utilizes the following intervention approaches: create, prevent, alter, adapt/modify, establish and restore (Cole & Tufano, 2008). An occupational therapist may help a client establish new skills that increase their performance range or restore skills that have been inhibited or lost due to a disability. Changing or altering a client's context may be introduced as an intervention to support their participation in a given occupation. Therapists may adapt or modify the environment or task in order for the client to be more successful in their valued occupations. Occupational therapists may help women with cardiac conditions prevent the risk of further complications or disabilities. Incorporating all of the clients' psychosocial, cognitive and sensorimotor domains may help reduce and prevent additional health problems. Once a person enters Phase III of cardiac rehabilitation one may integrate the *create* approach more frequently.

Following the introduction, this protocol will include four additional chapters. Chapter II consists of the literature review which captures the need of an occupation-based cardiac rehabilitation program for women. Chapter III includes the methodology of how the authors gathered literature and the steps taken to develop the protocol. The product will be addressed in Chapter IV which will describe the occupational therapy evaluation and intervention guidelines and approaches. Finally, the last chapter, Chapter V, summarizes the protocol in its entirety and provides recommendations for further research implication.

CHAPTER II

REVIEW OF LITERATURE

There is a limited amount of evidence supporting occupational therapy in conjunction with cardiac rehabilitation. Recent articles that have been published regarding occupational therapy and cardiac rehabilitation included: Aronsson, Perk, Norlen, and Hedback, 2000; Foster et al., 2011; Norberg, Boman, and Lofgren, 2010). Older literature included articles by Muraki, Kujime, Kaneko, Su and Ueba, 1991; and Wilde & Hall, 1995) who discussed occupational therapy in connection with cardiac rehabilitation. Findings from the available literature suggest that there is a gap between occupational therapy practice and women in cardiac rehabilitation.

Foster et al., (2011) argued that depression, cognitive factors, and quality of life are not consistently addressed in treatment along with physical components in managing congestive heart failure. The authors asserted that treating congestive heart failure should be approached in a more holistic fashion. This would entail addressing cognition and psychological needs in addition to the physical aspects of the client's care. Foster et al. (2011) found that implementing a holistic approach is essential in providing clients with congestive heart failure the most effective and meaningful treatment that supports engagement and participation in occupations.

Similarly, Hui, Wan, Chan, & Yung (2006), found that incorporating physical exercise and quality of life into a cardiac rehabilitation program may be the most valuable approach. Fifty-nine patients with cardiac diagnoses such as myocardial infarction, valve

replacement, and ischemic heart disease completed phase II of cardiac rehabilitation. Patients were assigned to receive progressive relaxation therapy or Qigong, a Chinese energy exercise. The results indicated that "for the end of treatment reading, patients who received progressive relaxation treatment had significantly lower blood pressures in comparison to those who received qigong" (Hui et al., 2006, p.376). In contrast, qigong improved the quality of life and psychosocial well-being of the patients as well as reducing systolic blood pressure. Both treatment approaches were effective and beneficial in improving the patients' physical, spiritual and psychological health.

After experiencing a major cardiac event, women may encounter challenges while engaging in daily occupations and life roles due to the physical and psychological stressors that are involved within the recovery process. Additionally, disengagement from valued occupations may cause further disability when one doesn't participate in meaningful life roles. Occupation based- activities are important to include when treating women during the rehabilitation process in order to promote meaningful tasks within their own capabilities.

Aronsson et al. (2000) provide evidence that common household tasks may require a great amount of physical effort in women who have experienced a recent myocardial infarction. After the researchers developed a standardized scale with a sample of healthy women, twenty-one female patients post cardiac conditions participated in tasks such as: making a bed, vacuuming, cleaning the bathroom, cleaning the stairs, laundry and shopping. The major findings were that "static-dynamic muscular work, such as carrying heavy goods, wet laundry and shopping tasks, tended to cause higher [heart rate] levels than dynamic work, e.g. vacuuming" (Aronsson et al., 2000, p. 42). In

contrast, Norberg et al. (2010) discovered that males and females with chronic heart failure experienced the most difficulty while performing cleaning tasks. Aronsson et al. (2000) advised that female patients can perform common household tasks after sustaining a myocardial infarction; however, precautions are recommended during the first six weeks after the cardiac event occurred, especially while performing activities such as laundry and shopping. Therefore, occupation-based activities need to be performed within the client's capabilities in order to prevent physical and mental fatigue.

Managing a cardiac condition may cause physical exhaustion and frustration when participating in activities of daily living. Norberg et al. (2010) discovered that older patients with chronic heart failure who were more dependent in activities of daily living presented increased fatigue than those who were independent. Additionally, the patients experienced more physical fatigue than mental fatigue which impacted their performance in activities of daily living.

Norberg et al. (2010) asserted that energy conservation techniques may be beneficial for individuals who experience chronic heart failure and fatigue while participating in activities of daily living. Furthermore, the researchers asserted the use of adaptive devices, community transportation and receiving home help may aid in preventing fatigue. Along with Norberg et al.'s findings, Austin, Williams, Ross, Moseley, and Hutchinson (2005) provided evidence that older populations with heart failure may improve their quality of life, physical performance and prevent hospital re-admissions by participating in a cardiac rehabilitation program.

Physical exercise, occupation-based activities and emotional experiences are not the only aspects to be considered when developing interventions for women in a cardiac

rehabilitation program. Barriers to participation, psychosocial components, quality of life and perceptions of women are also factors that need to be addressed to provide holistic treatment. All of these dynamics may contribute to women's participation levels in cardiac rehabilitation.

Women's decisions to attend a cardiac rehabilitation program may be based on their unique perspectives and life experiences. Pullen, Povey, and Grogan (2009) examined the perspectives of female cardiac patients and their decisions to attend or decline participation in a cardiac rehabilitation program. Women who participated in cardiac rehabilitation were motivated and were able to utilize self-control over their conditions. Family support also encouraged women to participate in cardiac rehabilitation as well as the belief that such a program could increase confidence and self-esteem.

Women who attended a cardiac rehabilitation program exclusively for the female population experienced positive outcomes such as receiving peer and professional support, learning how to manage their cardiac diagnoses and improvements in their overall quality of life (Beckie & Beckstead, 2010; Davidson, Digiacomo, Zecchin, Clarke, Paul, Lamb, Hancock, Chang & Daly, 2008; Rolfe, Sutton, Sternberg & Price, 2010). Among the benefits, women were able to find satisfaction and have the opportunity to provide other participants with ideas for coping and encouragement (Davidson et al., 2008). Quality of life significantly improved when women participated in a program specifically geared towards their needs (Beckie & Beckstead, 2010). Motivation, determination and social support from family also appear to be influential with women who attend cardiac rehabilitation (Pullen et al., 2009). Conversely, women

may choose to decline participation in a program due to their perceptions and barriers that they experience.

Pullen et al. (2009) discovered that women who chose not to attend a cardiac rehabilitation program believed that they had sufficient knowledge about their cardiac conditions because of past cardiac events. Additionally, many of the participants had an independent attitude and did not understand the benefits that a cardiac rehabilitation program offers. Women may also view their illness as another complication to their lives (Medved & Brockmeier, 2010) and view cardiac rehabilitation as an additional stressor.

External barriers may also inhibit participation in cardiac rehabilitation. Grace, Gravely-Witte, Kayaniyil, Brual, Suskin, and Stewart (2009) stated that some women cited reasons for choosing not to participate in cardiac rehabilitation. These included lack of awareness about cardiac rehabilitation, limited transportation options, perceiving exercise as too strenuous and family obligations. Additionally, Rolfe, Sutton, Sternberg, and Price (2010) found that transportation barriers negatively impacted women's participation in cardiac rehabilitation as well as physician referrals.

Implications of coping with a cardiac condition were discussed in interviews with participants of a pilot study by Davidson et al. (2008). Many of the women in this study perceived emotional pain relative to inadequate social support. Medved and Brockmeier (2010) also used qualitative interviews to gather narrative perspectives, coping attitudes and actions of participants with coronary heart disease (CHD). Women participants were more likely to describe emotions such as frustration and anger relative to their cardiac health conditions. In regard to psychosocial aspects, Elliott, Murphy, Oster, Le Grande, Higgins, and Worcester (2010) determined that females were not as likely as males to

experience an improved overall mood even six months after a coronary artery bypass graft (CABG).

Other research has also provided evidence for consideration of psychosocial aspects in determining an appropriate protocol for a cardiac rehabilitation program. Turner, Phillips, Hambridge, Baker, Bowman, and Colyvas (2010), presented evidence that cardiac patients who had severe depression were more likely to be readmitted to the hospital and have longer stays. On the other hand, patients who were married had a correlation of not as many hospital stays. Patients who reported higher scores of depression included individuals who did not speak English as a primary language and patients who identified themselves as smokers. Turner et al. (2010) found that women experienced anxiety significantly more than men. Furthermore, anxiety was significantly associated with being employed or unemployed when compared to retired patients, who demonstrated less anxiety.

Evidence discussed thus far has provided support that women have various and unique needs compared to men. Although women exemplify unique needs for cardiac rehabilitation, several authors showed that enrollment rates did not differ between genders. Regarding enrollment of women in cardiac rehabilitation programs, Weingarten, Salz, Thomas, and Squires (2011), stated “female gender was not a significant predictor of non-enrollment” compared to men (Weingarten et al., 2011, p. 4). Barth et al. (2009) found that upon enrollment, women and men did not demonstrate differences at baseline for psychological measures. However, a limitation of the study was that women in the study were not considered highly distressed which may have impacted the results. The researchers implied that women may have not enrolled because of participation barriers

such as possible lack of encouragement from physicians (Barth et al., 2009). Grace et al. (2009) reported "while women may not have a greater number of CR [cardiac rehabilitation] barriers overall, the nature of their CR barriers may differ from those of men" (p. 213).

Previously discussed evidence for cardiac rehabilitation protocols reviewed the significance of considering interventions to promote physical and psychosocial well-being. For example, Blanchard et al. (2010) studied the amount of moderate to vigorous physical activity that participants performed during twelve weeks of cardiac rehabilitation. Participants tracked their activity to reflect their progress regarding exercise performance. In this manner, the participants took ownership in implementing their own exercise program. This resulted in individuals participating in physical activity more often within their home environment.

Exercise should not be the only component included in a cardiac rehabilitation program. The authors of this scholarly project did not locate literature focusing on the implementation of occupation-based treatment for women in cardiac rehabilitation. Incorporating meaningful occupations into a cardiac rehabilitation program for women may support optimal performance in activities of daily living. Additionally, an occupation-based protocol specifically designed for women with cardiac conditions may facilitate engagement in valued life roles and improve quality of life. In turn, women may gain self-worth and confidence in being able to perform and return to desired occupations within their own capabilities after participating in a cardiac rehabilitation program.

After reviewing the literature, it is imperative that an occupation-based cardiac rehabilitation program is geared towards women's needs in a holistic fashion. The

following chapters will introduce guidelines to implement a program specially designed for women with cardiac conditions. These guidelines take into consideration areas of occupation that are not consistently addressed in Phase II of cardiac rehabilitation. Specifically, Chapter IV introduces the product which includes how an occupational therapist could implement occupation-based interventions.

CHAPTER III

METHODOLOGY

Currently, the authors found no occupation-based based protocols available for women in cardiac rehabilitation programs. The authors' aim was to develop an occupation-based protocol that would be relevant to women and their unique cardiac needs. The protocol is intended for use by occupational therapists to provide intervention to clients post cardiac illnesses. Primary considerations for developing this protocol included: contexts, social support, barriers, quality of life, and both physical and psychosocial components. The protocol was intended to meet the clients' occupational needs at an outpatient cardiac rehabilitation setting, which is typically Phase II of cardiac rehabilitation. These considerations influenced the development of the protocol and how the research was conducted.

Designing an occupation-based cardiac rehabilitation protocol for women began with an in-depth review of the literature. The authors sought to find peer-reviewed journal articles that discussed both the evidence base and need for an occupation-based protocol for women attending cardiac rehabilitation. Finding literature that supported an occupation-based approach to cardiac rehabilitation or that provided treatment methods consistent with an occupation-based approach were within the scope of the research conducted.

Searches for literature were conducted via online databases available to the authors at no cost. Many of such databases were available through the Harley E. French

Library of the University of North Dakota online website. Databases searched at this website included: PubMed, CINAHL, Medline Plus, PsychiatryOnline, and PsychInfo. Other online databases utilized for the purpose of gathering pertinent literature included OTSeeker and OTsearch. In addition to free sources, the authors both used their American Occupational Therapy Association memberships to access the American Journal of Occupational Therapy and search for literature in its archives as well.

Key words and phrases entered to elicit appropriate search results included: "occupational therapy and cardiac rehabilitation," "cardiovascular health and occupational therapy," "occupation-based cardiac rehabilitation," "occupation and cardiac rehabilitation," "psychosocial, cardiac rehabilitation" "quality of life and cardiac rehabilitation," "women, cardiac rehabilitation," and a variance of other such phrases. The authors filtered results of searches based on inclusion criteria of literature that discussed occupational, psychosocial, physical, and quality of life factors in conjunction with cardiac rehabilitation.

Twenty articles, ten per author, were summarized for later inception into the literature review for the protocol. Content of the summaries included American Psychological Association (APA) citations of the respective literature. The research purpose or the research question presented in the articles as well as the design and sample characteristics were summarized.

In addition, the summaries discussed the outcome variables, procedures or interventions, and results as described in the within the article itself. Each summary included the authors' perception of the relevance of the literature as it pertained to the envisioned occupation-based protocol.

The authors analyzed the articles and article summaries in order to facilitate an understanding of the concepts found in the literature. A collaborative process ensued in which the authors projected ideas of their main findings into a written review of the literature. To ensure accuracy and organization of the information that the authors compiled in the review of literature, the authors determined themes among similar articles. These themes included: psychosocial, quality of life, cognitive, and physical topics that emerged from the literature base. The result of the themed pattern of the literature review provided the authors with a foundational base from which to structure an occupation-based cardiac rehabilitation protocol that would meet women's needs.

Of the twenty articles, two were qualitative in design and provided rich detail for examples of ideal settings or contexts in which women participated in cardiac rehabilitation. Findings presented by Rolfe, Sutton, Sternberg, and Price (2010) conveyed that group interventions were beneficial to women in cardiac rehabilitation. Medved and Brockmeier (2010) found that women perceived the restrictions imposed on them by their cardiovascular condition as an added source of stress. This information guided the authors in developing activities within the product that female cardiac rehabilitation participants could take home and fit into their lifestyle.

Consistent with the themes of the literature and context in which occupational therapy could take place as proposed by the developing protocol, the authors chose to use the Ecology of Human Performance (EHP) occupational behavior model to guide the structuring and concepts of the occupation-based protocol. The EHP model emphasizes context as an integral part of occupational performance in conjunction with the individual. The authors primarily considered the context of groups in developing a

protocol that coincided with the social and physical context needs of women as discussed previously in the literature review.

The protocol begins with a recommended evaluation process which includes several assessments that may be utilized. Preparatory, purposeful, and occupation-based interventions comprise the remainder of the product and provide treatment ideas for occupational therapists. To support the protocol, literature from additional sources such as the *American College of Sports Medicine's Resource Manual for Guidelines for Exercise Testing and Prescription* (2006) were used. An additional resource for occupational therapists to use was a handout based on terminology for cardiac conditions from this text. In addition, metabolic equivalent (MET) levels corresponding to occupation-based activities were presented in the protocol. Guidelines for projecting activity goals and their intensity, or MET level were gleaned from Radomski and Trombly's *Occupational Therapy for Physical Dysfunction* (2008) and Pedretti's *Occupational Therapy: Practice Skills for Physical Dysfunction* (2006).

After conducting a literature review it was found that cardiac patients don't receive consistent holistic treatment. The authors aimed to identify a variety of assessment tools that can be used by occupational therapists to develop an in-depth occupational profile of the clients. The assessments that were selected will be discussed further in the product within upcoming Chapter IV. The authors reviewed literature and textbooks to determine relevant and appropriate assessments tools for the product.

The methodology of this protocol included a comprehensive literature review, analysis and critique of articles, and gathering information from relevant textbooks. All

of these methods supported the development of the product. The next chapter, Chapter IV, will take into account all of the literature that was reviewed for the protocol.

CHAPTER IV

PRODUCT

The purpose and intent of this protocol is to provide guidelines for an occupational therapist to implement meaningful occupation-based treatment for women with cardiac conditions. This protocol is designed in its entirety to be addressed during phase II of cardiac rehabilitation. After experiencing a major cardiac event, women may have intense emotions and a limited physical capacity which may impact their ability to carry out their routines and roles. Additionally, since women and men differ in their psychological and physical capabilities, it is imperative that cardiac rehabilitation will be geared towards their unique needs.

Cardiac rehabilitation is typically designed to address individuals' physical requirements; however, occupational needs and quality of life are not always addressed consistently throughout treatment (Foster et al., 2011). This product, however, introduces occupation-based activities that address individuals' physical (sensorimotor), psychosocial and cognitive needs during the course of cardiac rehabilitation. Additionally, the environment and contexts where engagement takes place are important aspects of this program. Occupational therapists will address holistic treatment and client-centered practice to ensure that all aspects of the client's life are taken into account. A semi-structured format will be provided to guide an occupational therapist through the evaluation and intervention process in collaboration with the client.

The title of this protocol is: *An Occupation-Based Protocol Designed for Women with Cardiac Conditions.* This occupation-based protocol will provide the occupational therapist with flexibility and guidelines. This protocol does not provide a rigid structure, so therapists may improvise and schedule sessions that will meet the needs of clients who are enrolled in the program. The evaluation process and a tentative schedule of intervention strategies and group treatments will be included. The following format introduces guidelines that may be implemented during the course of occupational therapy. Treatment procedures may vary depending on the clientele. Therefore, an occupational therapist may have to use their own judgment and clinical reasoning to modify the protocol to address the needs of the clients.

Preparatory and purposeful activities will be addressed in conjunction with advancing to occupation-based activities. The recommended duration for this program is 4-8 weeks. Moreover, sessions may be offered three times a week for approximately one hour. Group size may vary among each setting. However, it is recommended that group sizes be structured to accommodate seven to ten people. Schwartzberg, Howe, and Barnes (2008) suggested that group size should not be too large so that all participants can receive the benefits of the group therapy. The following protocol will address the evaluation process and intervention ideas to guide the therapist through the program.

Occupation-based and purposeful interventions which require physical activity will be addressed at the clinic. Prior to engaging in occupation-based activities, it is highly recommended that the clients have received a medical stress test. A medical-based referral for occupation-based activity is also imperative. Clients' heart rates and blood pressures need to be monitored and stabilized before beginning the interventions. The

protocol will include guidelines for group treatment sessions which will address client-centered practice through occupation-based activities. Interventions selected will be based on group and individual goals as well as physical, cognitive and emotional capacities.

Social participation will serve as the major component of occupation-based practice in this program. Several authors support the idea of incorporating the social context and improving quality of life in cardiac rehabilitation programs exclusively designed for women (Beckie & Beckstead, 2010; Davidson et al., 2008; Rolfe et al., 2010). In this occupation-based guide, the social context will provide women with an opportunity to encourage others and share similar experiences.

The first session will be provided in a structured format with some variability. Clients will have the opportunity to discuss their roles, interests and why they have been referred to occupational therapy. The Role Checklist **(**Oakley, 1984**)** will be administered during the first session which will allow women to discuss what is important to them. Understanding the roles that women participate in will help the therapist determine the activities that may be associated with their identified roles. Further, the clients will begin to hear stories of the other women who are enrolled in the program. Occupation-based activities that are offered will take into account the several roles that women take on in their lives.

Education sessions on topics of stress management and energy conservation may be dispersed throughout the program. The occupational therapist must recognize that these topics may be carried out in several sessions to ensure that the education materials have been learned and applied. Women enrolled in the program will also be supplied with

homework assignments. At the beginning of each week, women will discuss their "Biggest stressors or emotional surprises of the week," and "Biggest accomplishments of the week." Also, it is recommended that the women take part in writing in a daily journal to address their psychological health. An activity log will also be included as an optional method for women to track their physical activity out of the clinic.

If feasible, the therapist may conduct a home evaluation in the client's natural context to determine potential barriers and supports in relation to the client's performance range. The client's home may be adapted or altered with the client's consent in order to help improve occupational performance within the natural context. The environment is a major component of the Ecology Human Performance Model. Therefore, it is highly recommended that a home evaluation is performed in order to increase the client's performance range and abilities within their natural context.

The home environment will also be addressed in group sessions. Clients will have the opportunity to discuss the supports and barriers that are personally interfering with occupational performance within the home environment. They will identify the design or layout of their home and what kinds of activities are performed within this context. The occupational therapist will facilitate discussions and provide suggestions according to the input that is received. This may entail of providing feedback to the clients regarding increasing their performance range. For example, the therapist may discuss the topic of task modification and compensatory strategies.

Preparatory methods will be introduced during sessions provided in this protocol before participating in purposeful or occupation-based activities. Qigong, a Chinese energy exercise and progressive relaxation therapy will address physical activity that is

beneficial for mental and physiological health. Research has provided evidence that qigong and progressive relaxation therapy in conjunction are beneficial in reducing blood pressures and improving quality of life. (Hui et al., 2006). A therapist may contact an instructor certified in qigong to provide sessions for the clients. Progressive relaxation therapy may be conducted by the occupational therapist during sessions and hand-outs may be provided so that clients can perform these exercises safely and effectively within their natural context.

The occupational therapist will also address the topic of self-care tasks, instrumental activities of daily living (IADL's) and leisure activities. Community mobility will also be addressed which was found to be a barrier that women experienced while attending cardiac rehabilitation (Rolfe et al., 2010). As physical tolerance is increasing, clients will have the opportunity to engage in purposeful and occupation-based activities in the clinic. The therapist will also encourage the clients to participate in occupation-based activities within their home and community. The activities and education that the clients learn in occupational therapy may be integrated within the clients' various contexts to improve occupational performance, independence and self-efficacy.

Metabolic equivalent tasks (MET) will be incorporated throughout this protocol in order to determine appropriate occupation-based activities that the client can tolerate. Also, charts will be provided as well as additional resources that an occupational therapist may access to understand MET levels. The occupational therapist will have flexibility when implementing occupation-based treatment. Some of the intervention ideas will

address activities of daily living, home management, community mobility, leisure and social participation.

The occupational therapist may introduce a nutrition cooking group. For this occupational activity, it is advised that the therapist engage a cardiac nutrition specialist for a consultant. Clients will have the opportunity to engage in meal preparation, cooking, and restoring the area. In turn, clients may introduce these tasks into their home environment. The occupational therapist may recommend that clients bring personal items from home into the clinic during activities. This strategy will not only change the context but will integrate occupation-based activities that are meaningful.

Clients may choose the leisure activities that they want to participate in. The therapist will grade activities according to the participants' sensorimotor, psychosocial and cognitive capabilities. For example, at the beginning sessions of the program, clients may participate in more sedentary activities such as playing cards. As physical tolerance increases, clients may engage in activities that require more energy such as gardening or dancing. Community outings may also be suggested if applicable. For example, the occupational therapist and clients may go to the grocery store and shop for healthy foods. This intervention as well as the others listed address cognitive, psychosocial and sensorimotor performance skills.

The Ecology of Human Performance (EHP) is the foundational model that supports the following occupation-based protocol. This product focuses on the person and the unique contexts where occupations are performed, which is consistent with the language and concepts of the model. After conducting an extensive literature review, the authors discovered how environmental and external factors may facilitate or inhibit

occupational performance among women who have experienced cardiac events. The various contexts where engagement takes place include: social, temporal, cultural and physical environments (Cole & Tufano, 2008). All of these environments were considered in developing this product in order to provide client-centered treatment.

After experiencing a cardiac event, women often experience emotional, physical and cognitive limitations due to their conditions (Grace et al., 2009; Pullen et al., 2009) The EHP describes that a person is comprised of sensorimotor, psychosocial and cognitive components. The evaluation and intervention approaches address these components in relation to how clients interact in their environment.

In the language of EHP, the ecology is the balance of interactions between the person, the tasks they perform, and the context where engagement takes place (Cole & Tufano, 2008). This product introduces female clients as their own agent of change. The EHP model addresses five specific interventions that promote stability of the person's interactions within their contexts. These interventions were applied throughout this product which includes*: establish and restore, alter, adapt/modify, create and prevent* (Cole & Tufano, 2008).

Interventions in this protocol address *establishing* new skills or *restoring* skills that were lost due to experiencing a cardiac event. Engagement in purposeful and occupation-based activities was addressed so that clients may increase their independence and *restore* meaningful roles. Since the environment is emphasized in this product and model, the intervention, *alter* was addressed. The context and environment was often *altered* or changed to enhance clients' performance range. The social context and the home environment was *adapted* or *modified* to encourage engagement. Task

modifications and energy conservation are also included in adapting. The intervention approach, *prevent,* is highly incorporated into this product. By addressing all aspects of the client's life, the therapist is helping the client to increase their mental and physical health by preventing further illness or disability. Lastly, the therapist emphasizes that clients *create* healthy patterns of living in their futures and continue engaging in meaningful occupations. In turn, clients may gain more control in their lives.

The EHP supports working in conjunction with other disciplines besides occupational therapy (Cole & Tufano, 2008). Additionally, a highlight of this model is that it can be used in community-based settings which is a benefit of this product. The goal for successful completion of cardiac rehabilitation will be marked by the client's ability to expand and generalize their task performance. In the following pages, the evaluation and assessment process is explained in detail. Afterwards, the guidelines for implementing an occupation-based protocol are introduced.

Evaluation

Occupational therapy practitioners treat clients holistically and develop an understanding of how dysfunction may affect a client's various life subsystems. Personal as well as contextual aspects of the client's life are considered throughout the intervention process and how occupation is related to engagement in daily activities (Boyt-Schell, Cohn, & Crepeau, 2009). Women who have cardiac conditions should be evaluated and assessed by a licensed occupational therapist prior to participating in an occupation-based cardiac rehabilitation program. The occupational therapist will follow procedures from the physician's orders and proceed to the evaluation process. Conducting a thorough evaluation with female clients who attend cardiac rehabilitation

will be valuable in order to provide accurate and client-centered outcome measures. These assessments will take place on a one-to-one basis prior to participating in the group process. An exception is the Role Checklist **(**Oakley, 1984) which is completed during the first session.

The authors have identified and selected several occupational therapy assessment tools to include in this protocol that show both good reliability and validity. The following assessments were selected because all of the client's subsystems (cognitive, psychological and sensorimotor) will be addressed. The language of the Ecology of Human Performance Model (Cole & Tufano, 2008, pp. 117-124) will guide the evaluation process. Semi-structured interviews, a quality of life questionnaire, Role Checklist and occupation-based assessments will allow the therapist to understand the client as a whole person, their various contexts and current level of occupational performance. The EHP has a limited supply of assessment tools (Lee, 2010); therefore, the authors used assessments from other occupation-based models that were applicable to the goals of evaluation process.

The objective of the evaluation process is to identify the dynamical relationship and interaction between the client and their environment (Cole & Tufano, 2008). The person, their contexts and tasks will consist of the primary constructs that will be evaluated and addressed. Moreover, the client may identify and prioritize their wants and needs in relation to their current performance range and abilities. In turn, the client and therapist may work in collaboration to determine goals to address during interventions.

The Canadian Occupational Performance Measure (COPM)

The Canadian Occupational Performance Measure (COPM) is a client-centered semi-structure interview that focuses on the client's perceptions of their functioning level in areas of self-care, productivity and leisure (Henry & Kramer, 2009; Law et al., 2005). The client will have the opportunity to discuss the activities that are important to them and their overall satisfaction in their ability to perform these activities. The COPM will serve as an outcome measure; clients will also be assessed at discharge to determine the client's perceptions and changes that have occurred since the initial evaluation.

The COPM will be a beneficial assessment tool to utilize with female participants of cardiac rehabilitation. The therapist will gain insight into what is important to the client and how to provide the client with meaningful occupations during the course of treatment. Additionally, this assessment is holistic in nature; research has indicated that clients who were enrolled in cardiac rehabilitation programs weren't receiving consistent holistic treatment and important aspects such as quality of life; cognition and depression were not considered significantly (Foster et al., 2011). After discovering who the client is and establishing goals, all of these aspects may be addressed during interventions.

The Role Checklist

The Role Checklist is a self-report measure in which the client identifies their current, past and future roles and the value behind each role (Henry & Kramer, 2009; Oakley, 1984). This assessment tool may be utilized during the first group session in order for the clients and therapist to become acquainted with one another. Clients will then have the opportunity to share and disclose their meaningful life roles and how their

cardiac conditions have impacted their ability to participate in occupations related their unique roles and contexts.

The Performance Assessment of Self-Care Skills (PASS)

The Performance Assessment of Self-Care Skills (PASS) is an occupation-based assessment that may be administered in the client's home or at the clinic. The therapist will observe the client perform 26 tasks which include: functional mobility, self-care and instrumental activities of daily living (Rogers & Holm, 2007). Administering this assessment may vary from 1.5 to 3 hours depending on the client's abilities (Rogers & Holm, 2007). The duration of this assessment may be considered a limitation because it is time consuming.

Preferably, the most beneficial context to administer this assessment would be in the client's natural context, such as their home. "PASS yields three types of summary scores: Independence on each subtask and Safety and Outcome for each of the 26 tasks" (Rogers & Holm, 2007, p. 113). The outcomes will be rated based on the client's abilities and disabilities when performing tasks and how their limitations may impede their "independence, safety, or quality of task outcome" (Rogers & Holm, 2007, p. 113). After completion of the PASS, the therapist may ask for the client's perceptions and interpretation of their occupational performance.

The World Health Organization Quality of Life (WHOQOL) BREF

The World Health Organization Quality of Life (WHOQOL) BREF is an assessment tool that gathers a client's perceptions regarding their quality of life in various contexts (World Health Organization [WHO], 2011). The WHOQOL consists of 26 questions in a Likert scale format based on "physical health, psychological health, social

relationships, and environment" (WHO, 2011). This assessment tool may be utilized as a pre/post measurement to determine how the client's perceptions have altered from baseline to completion of the occupation-based cardiac rehabilitation program.

Clinical Reasoning

This protocol will provide licensed occupational therapists with general guidelines for implementing an occupation-based cardiac rehabilitation program for women. Clinical reasoning and professional judgment are encouraged as the clientele will vary in different contexts and settings. The authors feel that the selected assessments will provide the therapist with a holistic picture of how the client is functioning cognitively, emotionally and physically within their contexts and environments. Other assessments may be substituted or adjoined by the therapist's discretion. All assessments provided here, with the exception of the PASS, may be used as post-intervention measures of the outcome of the following occupation-based protocol.

An Occupation-Based Protocol Designed for Women with Cardiac Conditions

By

Erika Swirzcki and Andrea Young

May, 2012

OT Evaluation and Intervention Planning

Initial Assessments	The Occupational Therapist may administer the following assessments: ❖ The Canadian Occupational Performance Measure ❖ The Role Checklist ❖ The Performance Assessment of Self-Care Skills ❖ The World Health Organization Quality of Life These methods of gathering information will include: ❖ Interviews with client ❖ Interviews with caregiver/spouse/family ❖ Observations on individual occupational performance ❖ Self-report measures ❖ Observation of a client in a group setting Apply clinical reasoning based on setting and clientele when administering assessments
Home Evaluation	If applicable, the occupational therapist will conduct a home evaluation. After analyzing the client's context the therapist will address the following intervention approaches: ❖ Establish/Restore ❖ Alter ❖ Adapt/Modify ❖ Prevent ❖ Create Note: The therapist will utilize the most appropriate intervention approaches based on the individual client's wants and needs.
Interpret Data: Intervention Planning	❖ Interpret the client's evaluation results. ❖ Keep in mind the client's physical, social, temporal and cultural contexts as well as how the client is functioning in areas of sensorimotor, cognitive and psychological functioning ❖ Establish goals with the client based on identified wants and needs. ❖ Use clinical reasoning to determine if the client would benefit more from individual treatment.

Group Introduction

Introduction to Occupation-Based OT

Familiarization (about 12-15 minutes)	❖ Start with introductions. The occupational therapist (OT) may decide to go first, or last, or as part of the group. ❖ Common introductions may start with individuals' names, where they are from, and what brought them to cardiac rehabilitation.
Introduction to Occupational Therapy	❖ The occupational therapist will outline the process of the following cardiac rehabilitation sessions and will provide group members with an idea of what to expect. ❖ Adding a personal definition of occupational therapy and description of an OT's role in cardiac rehabilitation may be very helpful in providing purpose of the group to attendees. An example of a description for OT is: ❖ "Occupational therapy helps individuals perform the activities and occupations they want and need to do in daily life in order to reach the highest level of independence. OT considers all aspects of your lives which include: your emotions, physical abilities, ability to process information and the activities that are personally meaningful to you."

Access to the Role Checklist can be found at the MOHO Clearinghouse website: http://www.uic.edu/depts/moho/mohorelatedrsrcs

Also, the role checklist can be accessed through the primary work developed by Oakley in 1984.

Role Checklist Administration (About 15 minutes)	❖ An ice-breaker is an excellent opportunity for an OT to obtain an overview of participants' roles and routines. The occupational therapist will administer the Role Checklist within a group setting. Clients will be provided with this self-report checklist and a writing utensil to identify their various roles. ❖ Follow the directions provided in the assessment packet
Role Checklist Discussion (About 15 minutes)	❖ After completing the Role Checklist clients will have the opportunity to discuss and share their responses. ❖ The OT will facilitate the discussion by sharing his/her responses first. All clients will be encouraged to participate. ❖ Responses from the clients will be validated and supported by the OT. The clients may identify their specific goals that they want to address in therapy. Moreover, a discussion will take place on how their cardiac conditions have affected their ability to return to their previous roles.
Questions and Answers	❖ OT may offer additional time to answer questions about occupational therapy and cardiac rehabilitation. This may involve the need to further describe occupational therapy's role. If time is limited, the OT may state that more questions can be answered at the next session so that everyone can have a chance to be heard or responded to. ❖ Referrals to a team psychologist may be necessary and discussed discretely with individual clients, as the OT determines necessary.

Homework Assignments

After clients have participated in the first session, the therapist will encourage the clients to complete weekly homework assignments. Women in the program will have the opportunity to reflect on their occupational performance and how the environmental adaptations in the home have improved or inhibited task completion. At the beginning of each week, the clients will discuss their "Biggest stressor or emotional surprise of the week," and the "Biggest accomplishment of the week." Also, the clients will be encouraged to keep an activity log to track the types of activities that they participate in throughout the day. A diary or journal is another method that the clients can use as a form of coping. Individualized OT time will be built in for homework and/or individual activity journaling follow-up and individualized recommendations.

Homework Assignment

Biggest Stressor or emotional surprise of the Week

Biggest Accomplishment of the Week

Activity Journal

Below is a sample of an activity journal that may be provided to clients for use at home on a regular basis. It may be helpful to explain to clients how to monitor their heart rate and Rate of Perceived Exertion (RPE) (Matthews, 2006**)**. The therapist may select an RPE based on their work setting choice or clinical preference. The therapist may explain RPE to a client in this manner: "Your rate of perceived exertion is how much effort you are doing while you are working during an activity. You may rate your level on a scale of one to ten, with one being hardly any effort at all and ten being the hardest you've ever worked before." In the example below, an RPE serves as a medium level of effort perceived by the client. It may help to provide clients with a visual description such as those found at http://www.askthetrainer.com or a similar online website.

Sample Journal:

DATE	ACTIVITY	HEART RATE	RATE OF PERCEIVED EXERTION	THOUGHTS, EMOTIONS, IDEAS, NEW METHODS TRIED…
i.e. 10/5/2011	*Making two lunches*	*84*	*5*	*Not too hard, except bending to reach into the deli drawer of the fridge.*

OT Educational Sessions

Stress and Anxiety Management
Group Skill Building:

Consistent with the review of the literature, women who engaged in cardiac rehabilitation with peers demonstrated a perceived benefit of social support from others (Davidson et al., 2008). Sharing coping strategies for dealing with the stress related to having cardiovascular problems may help group members feel more prepared to deal with daily activities and other areas of life. The following activity provides the therapist with a method to facilitate a group discussion that provides group members with the opportunities for participation in social occupation and peer education of stress management.

In pairs, or teams of 3-5 persons, individuals may brain-storm ways they personally manage stress. Encourage group members to consider stress relievers that are not problematic and that are most appropriate for all individuals. Give two or three examples to get everyone started. Some examples may be: breathing exercises, drawing or doodling, and organizing a room to decrease clutter and give incentive to get started on a project.

After all individuals, pairs, or teams have shared their stress management strategies, ask the group to volunteer which strategies are their favorites or most beneficial. Encourage individuals to share a strategy that is new to them that they plan to try. Allow individuals time to think of (and write down, if applicable) goals for applying stress management strategies. Provide education on writing effective goals. For example, providing tips that attach a date and a place or particular method for achieving a goal are helpful in people actually following through with their goals.

On this page is a handout with additional tips for coping with anxiety that may be sent home with clients.

ADDITIONAL TIPS for STRESS/ANXIETY MANAGEMENT:

- Keep a journal (weekly or daily) and identify your biggest stressor/best accomplishment of the week.
- Use laughter to ease tension in your mind and body.
- Read a good book. One example is *Tickle your Soul* by A.B. Smollin, Sorin Books, 2008, ISBN: 9781893732001
- Have tea (or preferred healthy beverage) with a good friend.
- Call a loved one.
- Enjoy a favorite activity within your own limits.
- Take 3 minutes to meditate.
- Do something for someone (give anonymously, pack an "I love you" note in your child's lunch) etc.
- Blow bubbles – your respiratory therapist will appreciate that one.

Energy Conservation

- Educate clients that it is important to rest when they feel the need. Address clients concerns about asking others for help.
- Problem-solve compensation strategies with clients who may live alone or who cannot expect help from others who live with them. Some tips to educate clients on conserving their energy are listed on the following page.
- Suggest the client call a meeting with family, or others whom the individual lives with. The client may need to explain the cardiac condition in a way that will help others understand the impact it has (i.e., decreased energy, shortness of breath, difficulty safely lifting heavy objects). Educate the client that answering questions family members have may be part of this. After individuals in the meeting state that they understand these changes and difficulties, the client may describe some of the things they do regularly that they would like help with. Being assertive includes being specific. Educate the client to ask for assistance from the specific person he or she feels will best be able to help with certain activities.
- Develop and maintain a schedule or routine that supports individual energy needs.
- Take frequent breaks throughout all activities.
- Move materials to an easy location. For example, a client may ask their spouse to move produce to a shelf in the fridge that is at waist level or higher to avoid bending.
- Rest an arm on a ledge or grab bar in the shower while applying soap with the other arm. Alternate positions.
- Avoid extreme temperatures and humidity. (It may be necessary for some individuals to find and or purchase a de-humidifier.
- Remove clutter from the environment. Messy desks and path-ways inhibit the motivation and ability to complete tasks.

Huntley, N. (2008). Cardiac and pulmonary diseases. In Vining Radomski, M. & Trombly Latham, C.A. (Eds.), *Occupational Therapy for Physical Dysfunction*, (6th Ed.).(pp. 1215; 1309). Philadelphia, PA: Lippincott Williams & Wilkins.

Some individuals may explain that their family members or spouses do not help, even when asked. Educate clients on ways to assert their needs in a respectful manner to elicit help. An occupational therapist may educate clients how to construct effective "I" statements in order to communicate their needs to family members or significant others. Below is a hand-out that may be provided for clients to utilize in the clinic.

Creating "I" Statements and Applying Assertiveness Skills

- "I feel overwhelmed when I have all these tasks that I need to accomplish because I don't receive any help from you." ("I" statement)
- "I need the most help with carrying in groceries. I would appreciate your help with this." (Assertive statement)

- **"I"**
- **What YOU feel or want**
- **What event caused your feeling(s) or wants (needs to be something you can both agree on)**
- **The effect this event has on YOU**

Combine these pieces to form a sentence as follows: "I feel ____#2____ when ____#3____, because _____#4_____.

You may practice writing "I" statements in the spaces provided below.

1.)

2.)

The above components of an "I" statement were adapted from: Morow, H. (2009, July 19). *Trauma Central* . Retrieved October 31, 2011, from Constructing I Statements: http://www.traumacentral.net/i-statements.htm

Home Environment

Introduction	❖ The OT will introduce the topic of the home environment ❖ The objectives of this discussion/activity include: o Identifying the physical context of the client's home o Identifying barriers and supports of the environment o The social context: ex., lives alone or with spouse o Identifying the details or the layout of the client's home environment
The Home Environment	• The OT will state how there are many different home environments. • What does the social context look like? i.e. who lives in the home? • What kinds of activities are performed in the home? i.e., Parties, family night etc… • Introduce how some of these factors in the environment influence performance in lay person terms: o Climbing up and down stairs o Locations of rooms o Accessibility to items o Items that are in high cabinets o No use of adaptive equipment; i.e., grab bars, raised toilet seats etc. o Area rugs can increase fall risk
Supports and Barriers	• Clients will have the opportunity to discuss how their environment is supportive or not. • Ask how clients feel about their performances in self-care activities, home management, sleeping, etc.

Tips For Adapting the Home	• Inform clients who have experienced a recent heart attack and other clients to be cautious during activities such as laundry and shopping as carrying heavy items such as wet clothes is strenuous. • The therapist will discuss adaptive equipment options such as grab bars, tub benches and other equipment. • The tips will vary.
Identify Your Plan	• Clients take time to write down and discuss a strategy they will use in the upcoming week.

Areas of Occupation

Self-care tasks, community mobility, leisure, and other instrumental activities of daily living will be explored. For example, specific tasks such as laundry, shopping, driving, money management and meal preparation will be addressed. The occupational therapist will promote discussions based on these topics. Clients will discuss what they need and want to accomplish in terms of areas of occupation. The occupational therapist will consider the various contexts where engagement takes place. If time runs out during the home environment session, further discussions on areas of occupation may be explored at the therapists' and clients' discretion.

Other tasks that the clients want to discuss will also be introduced. Clients will have the opportunity to ask the therapist how to perform their valued occupations within their own limits outside of the clinic. The clients will not be limited to the activities that are performed during cardiac rehabilitation. The therapist may state that all of these areas of occupation may be discussed during the cardiac rehabilitation program. Clients will also be provided with the opportunity to practice some of these occupations within the clinic and will be encouraged to try them at home. The therapist will emphasize how important it is to remain involved with meaningful roles, relationships, and occupations within the community within the client's energy capabilities. Further, the occupational therapist may educate the clients to perform activities at a leisurely pace and not exceed their physician's recommendations.

The therapist will validate all of the clients' concerns and emotions that they may be experiencing. The clients' quality of life, goals, physical and cognitive abilities will all

be considered during these discussions. It is up to the therapist to provide the clients with meaningful discussions and opportunities for participating in desired occupations.

Preparatory Activities

Qigong and Progressive Relaxation Therapy

Qigong is a relaxation activity involving the whole body, including a focus on breathing and respirations. Qigong involves smooth, coordinated motions of the whole body. Persons who engage in Qigong may achieve a mind and body connection though the process of meditation and slow physical exercise (American Cancer Society [ACA], 2008). Qigong must be taught by an instructor with the knowledge of the principles of this physical art form. The authors recommend Qigong as an alternative activity cardiac rehabilitation patients may seek outside of their usual cardiac rehabilitation program. An occupational therapist may also contact a Qigong instructor to request a course offering to be conducted in the clinic.

In a review of the literature, Hui et al. (2006) found that Qigong, a Chinese energy exercise, helped patients with cardiac conditions lower their systolic blood pressure. In addition, the individuals who participated in Qigong enhanced their quality of life and psychosocial well-being. The clients participated in a total of eight sessions that lasted twenty minutes (Hui et al., 2006). This exercise may be beneficial for women with cardiac conditions because of its effectiveness for improving quality of life and physiological health.

Occupational therapists may provide information to clients about the evidence and benefits of alternative medicine, such as Qigong. Clients who are interested may be educated on finding resources to further explore such options. For example, reliable online websites may be provided, or information for local Qigong classes.

- http://www.cancer.org/Treatment/TreatmentsandSideEffects/ComplementaryandAlternativeMedicine/MindBodyandSpirit/qigong

- http://www.qigonginstitute.org/html/qigonghealth.php
- http://www.intelihealth.com/IH/ihtIH?d=dmtContent&c=358864

An occupational therapist may also educate clients on how to perform progressive relaxation therapy within their home setting. Progressive relaxation was also found to reduce systolic and diastolic blood pressures in persons with cardiac conditions such as myocardial infarction, post-coronary intervention, valve replacement, and ischemic heart disease (Hui et al., 2006). This preparatory technique involves breathing exercises as well as tightening and relaxing muscle groups. The patients may gain a sense of control through performing these exercises. Qigong in conjunction with progressive relaxation may be beneficial to physical and mental health for clients who attend cardiac rehabilitation. A handout for clients is provided on the following page. Further information on progressive relaxation can be found at: http://helpguide.org/mental/stress_relief_meditation_yoga_relaxation.htm

Progressive Relaxation: A Take Home Guide for Clients with Cardiac Conditions

- Progressive relaxation may help you learn how to listen to your body and explore relaxation techniques

- Progressive relaxation therapy is a process that involves tightening and relaxing your muscles

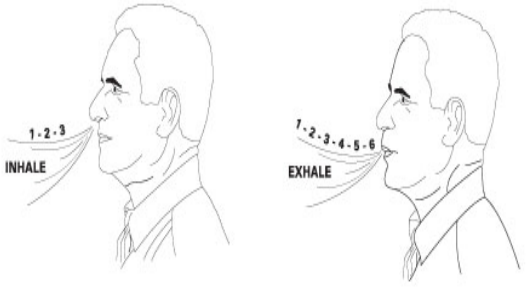
1.) First, find a comfortable position; loosen any tight clothing, take off your shoes and relax.

2.) Close your eyes and be aware of any body tightness. Relax your body and mind. When you breathe deeply, think of this saying: "smell the coffee; blow out the candles."

3.) To warm up, begin by breathing deeply.

- Slowly, breathe in through your nose for three seconds. Rest your hand on your belly as it expands.
- Exhale (breathe out) for 6 seconds and feel your belly go inward

- Repeat 3-5 times



4.) Begin Progressive Relaxation

- You will follow a sequence and draw attention to different muscle groups of your body

- When you feel relaxed draw attention to your right foot. Start by slowly tightening your right foot as tight as you can for 10 seconds and then relax

- Remember to breathe slowly and deeply throughout this whole process

- Now shift your attention to your left foot. Repeat the same sequence and contraction for 10 seconds.

- You will now follow the muscle tightening sequence as you start moving up the body

- Follow the sequence that is provided in the chart. You will end with tightening and relaxing your face.

1. Right Foot	**8. Stomach**
2. Left Foot	**9. Chest**
3. Right Calf	**10. Back**
4. Left Calf	**11. Right arm and hand**
5. Right Thigh	**12. Left arm and hand**
6. Left Thigh	**13. Neck and shoulders**
7. Hips and buttocks	**14. Face**

Date: _____
Occupational Therapist:
_____
Contact Information:
_____

- Research has provided evidence that progressive relaxation therapy can help in reducing blood pressures among clients in cardiac rehabilitation.

- Always remember to take time for yourself and relax during your recovery

References:

http://helpguide.org/mental/stress_relief_meditation_yoga_relaxation.htm

http://www.upmc.com/HealthAtoZ/patienteducation/S/Pages/deepbreathing%28smokingcessation%29.aspx

Hui, P.N., Wan, M., Chan, W.K., &Yung, P.B. (2006). An evaluation of two behavioral rehabilitation programs, Qigong versus progressive relaxation, in improving the quality life in cardiac patients. *The Journal of Alternative and Complementary Medicine, 12,* 373-378.

Occupation-Based Activities

Ideally, occupational therapy sessions may be scheduled to occur after the individual has worked with a physical therapist so that individuals are physically warmed up. Otherwise, the occupational therapist may find it beneficial to incorporate stretching and light warm-up exercises to ensure appropriate adaptation to a moderately increased heart-rate during therapeutic activities.

Appropriateness of metabolic equivalent (MET) levels for individuals should be available from the clients' physician and recommendations from the exercise physiologist. A general approach to activities includes monitoring of the heart rate and rate of perceived exertion (RPE) while performing activities. The University of Wisconsin (2009), suggests that maintaining levels of activity during cardiac rehabilitation that are between 12 and 15 on the Borg RPE scale (Whaley,2006) is a good indicator of reaching target levels of physical activity without over-exertion. Guidelines for appropriate monitoring of heart rate during cardiac rehabilitation activities may be found in Appendix C in accordance with the American College of Sports Medicine, *Guidelines for Exercise Testing and Prescription* (O'Hare, 2006). The OT may refer to the heart rate an individual is at, their RPE, and appropriate prescribed MET level, if available to determine suitable activities for individuals to perform during the therapy process.

Group occupation-based physical activities for cardiac rehabilitation ensure that individuals monitor their personal level of fatigue. Frequently ask all group members their rate of perceived exertion (RPE). Provide the clients with a Borg Rating of Perceived Exertion (Matthews, 2006) that depicts facial expressions congruent with each rating level to assist them in accurately indicating their RPE.

According to Huntley, (2008, p. 1303), activities that fall within a range of two to four metabolic equivalents (METS) are considered safe for most cardiac rehabilitation participation. Other excellent resource information on MET level activity may be found in the latest editions of Radomski & Trombly's *Occupational Therapy for Physical Dysfunction* (2008) and McHugh, Pendleton and Schultz-Krohn's *Occupational Therapy: Practice Skills for Physical Dysfunction* (6th ed.). (2006). Please refer to the heart rate monitoring quick reference page in Appendix C for more information to guide careful selection of appropriate activities for groups and individuals. Challenging group members to participate in activities that correspond to higher metabolic equivalents will be important for increased strength, endurance, and occupational well-being. For example, individuals may become bored with simple, light activities. A moderate increase in the energy required to participate in activities will enable individuals to increase their activity tolerance. However, it is important to educate clients to not over exert themselves during physical activity.

Many home activities fall within the group of these moderate metabolic equivalent levels. Once individuals are able to safely participate in activities at these levels, they may be able to safely complete activities at similar levels while home, and thus, participate in the occupations that are meaningful to them.

After receiving medical release from the clients' cardiologist or physician, individuals may engage in these occupation-based physical activities during Phase II of cardiac rehabilitation. The activities have been arranged in accordance with areas of occupation within the scope of interventions encompassed by the Ecology of Human

Performance (EHP) occupational behavior model. These activities may be used by the therapist in the clinic, or assigned as part of an individuals' home exercise program.

The activities on the following charts may be incorporated as part of group sessions within the occupational therapy setting to meet individuals' psychosocial, cognitive and sensorimotor needs. Some of these activities may be enjoyed at home as well. These charts provide examples of activities that could be performed at the clinic; however, not all possible activities will be listed. Certain activities may appear twice on the tables as they may fit varying areas of occupation. For example, walking is an activity that may be part of social, leisure, or health maintenance areas of occupation.

Area of Occupation	Occupation-Based Activities: 1-2 METs
ADL - General	Walking 1 mph; Sitting or standing
	Transferring from bed to a chair
ADL - Self Care	Grooming hair; washing face and hands
Social Participation	Sitting as a spectator at a sporting event
	Playing cards
	Cleaning up after a group meal
	Serving food to a small group
Meal Preparation & Clean-Up	Light meal preparation
IADL-General	Filling out the Role Checklist while seated at a table
Leisure Participation	Drawing
	Sitting to do arts or crafts
	Playing cards
	Sewing by hand; knitting
	Sweeping floors
IADL - Community Mobility	Riding in a vehicle
	Driving an automatic car
	Slow walk - 1mph

*** It is recommended that these activities last only 20 to 30 minutes, at a leisurely pace, without stress and in mild environmental temperatures (not too hot or cold or inclement weather). Also, clients should have a bench or chair to sit on, when needed to rest.

Reference: Charts were adapted from Table 44-5 of Matthews, M.M. (2006) Cardiac and pulmonary disease. In H. McHugh Pendleton & W. Schultz-Krohn (Eds.), *Pedretti's occupational therapy: Practice skills for physical dysfunction* (6th ed.). (p.1153). St Louis, MO: Mosby Elsevier.

Moderate Occupation-Based Activities

Challenging group members to participate in activities that correspond to higher metabolic equivalents will be important for increased strength, endurance, and occupational well-being. For example, individuals may become bored with simple, light activities. A moderate increase in the energy required to participate in activities will enable individuals to increase their activity tolerance. In addition, many home activities fall within the moderate metabolic equivalent levels (i.e., METS 3 to 5). Once individuals are able to safely participate in activities at these levels, they will be able to safely complete activities at similar levels while home, and thus, participate in the occupations that are meaningful to them.

The following activities may be incorporated as part of group sessions within the occupational therapy setting to meet individuals' psychosocial, cognitive and sensorimotor needs. Some of these activities may be enjoyed at home as well. Certain activities may appear twice on the tables as they may fit varying areas of occupation. For example, walking is an activity that may be part of social, leisure, or health maintenance areas of occupation.

Area of Occupation	Occupation-Based Activities: 2-4 METS
ADL - Self Care	Walking 2-3 mph
	Bowel movement while seated on toilet
	Dressing, sitting in a shower; drying off
ADL - Sexuality	* Individuals may want to know when it will be safe to have sexual intercourse again. Less vigorous sexual intercourse is listed between 4 and 5 METs.
Social Participation	Miniature golf; golf with friends
	Walking: 2-3 mph ("conversational pace")
	Preparing a group meal; cleaning up after a group meal
Leisure Participation	Walking for pleasure
	General woodworking (i.e., assembling a bird house)
	Planting seeds in a garden; gardening
IADL - Home Management	Making a bed
	Vacuuming
	Dusting; Sweeping the front porch
	Washing dishes
	Gardening
Health Maintenance	Climbing stairs (24 feet per minute)
	Walking: 3.5 mph ("conversational pace")

*** It is recommended that these activities last only 20 to 30 minutes, at a leisurely pace, without stress and in mild environmental temperatures (not too hot or cold or inclement weather). Also, clients should have a bench or chair to sit on, when needed to rest.

Reference: Charts were adapted from Table 44-5 of Matthews, M.M. (2006) Cardiac and pulmonary disease. In H. McHugh Pendleton & W. Schultz-Krohn (Eds.), *Pedretti's occupational therapy: Practice skills for physical dysfunction* (6th ed.). (p.1153). St Louis, MO: Mosby Elsevier.

As stated before, the recommended metabolic equivalent(s) (MET/s) range is approximately 2-4 METs during cardiac rehabilitation. However, some individuals' physicians or cardiologists may encourage participation at a higher MET level during certain activities. Considering this possibility, the authors have included some occupation-based activities and their corresponding MET levels that range from approximately four to seven-and-a-half METs on tables within the appendix.

Activities provided in these tables include areas of self-care, sexuality, and home maintenance. These tables consider individuals' possible roles ranging from spiritual participation to caring for a child. These may be sent home with cardiac rehabilitation clients for their use.

***Please remember that vigorous activities as presented below should only be a part of occupational therapy recommendation upon approval from the client's physician or cardiologist.**

Optional Vigorous Activities

Area of Occupation	**Occupation-Based Activities: 5-7 METs**
ADL - Sexuality	Sexual Intercourse
Social Participation	Playing Basketball
Leisure Participation / Health Maintenance	Leisurely swimming
	Riding a bike on a level surface at 10 mph

Reference: Charts were adapted from Table 44-5 of Matthews, M.M. (2006) Cardiac and pulmonary disease. In H. McHugh Pendleton & W. Schultz-Krohn (Eds.), *Pedretti's occupational therapy: Practice skills for physical dysfunction* (6th ed.). (p.1153). St Louis, MO: Mosby Elsevier.

CHAPTER V

SUMMARY

The amount of literature on programs geared toward women with cardiac conditions is limited. In addition, there is a lack of research on occupational therapy in conjunction with cardiac rehabilitation. This occupation-based protocol may help represent women with cardiac conditions in Phase II of cardiac rehabilitation. The protocol presented in this scholarly project could be implemented by occupational therapists to treat their clients from a holistic perspective. An occupational therapist may follow the guidelines of the product to implement an *Occupation-Based Protocol Designed for Women with Cardiac Conditions*.

The benefits of the protocol are that it is designed to meet women's needs from a holistic perspective and allows women to receive support from peers and an occupational therapist in a social context. The essence of this protocol allows women to engage in meaningful occupations in Phase II of cardiac rehabilitation which may help to facilitate independence within the therapy setting and within their natural environments. This protocol is flexible and allows occupational therapists to use their clinical reasoning skills with each individual client to ensure that all the clients enrolled in Phase II of cardiac rehabilitation are receiving high quality services during the course of their recovery.

This protocol includes some limitations. For example, women participating in cardiac rehabilitation are unique and have various needs that may not be addressed within a social context. Another limitation is that the Ecology of Human Performance model

(EHP) does not have an adequate supply of evaluation tools (Lee, 2010); therefore, the authors deemed it appropriate to utilize assessments from other occupation-based models that matched the goals of the protocol. Finally, another limitation of this protocol is that occupation-based treatment may require therapists to word their documentation carefully to ensure that the occupational therapy services will be reimbursed.

Due to the lack of support for women in cardiac rehabilitation, occupational therapy is integral in helping to address all aspects of womens' lives (Foster et al., 2011) and to increase their quality of life. The strengths of this protocol are that it provides a guide for an in depth evaluation process and the use of occupation-based interventions. The environment where engagement in occupations takes place was also emphasized to improve the clients' occupational performance. Altering or adapting the contexts of a client's natural environment was addressed in this protocol to enhance optimal outcomes.

The authors recommend that this protocol be piloted in Phase II of cardiac rehabilitation by occupational therapists to determine its efficacy and effectiveness in a program exclusively for women with cardiac conditions. Further research is recommended for the use of occupations as the guiding treatment in cardiac rehabilitation. Occupational therapists may also conduct a needs assessment in a facility to identify how a protocol for women with cardiac conditions could be implemented in such a setting. Further research on appropriate assessment tools that address the environment and contexts would be helpful in the development of improving this protocol.

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APPENDICES

Appendix A

Permission for use of Adapted Metabolic Equivalent Charts

Permissions for SP: RE: Correction information RE: Obtain Permission (2 of 5)

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Author(s): McHugh Pendleton, Schultz-Krohn
Volume: Sixth Edition
Issue: This is from a text-book
Year: 2006
Pages: 1153 - 1153
Article title: This is not an article
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Are you the author: No
Author at institute: No
How/where will the requested material be used:
Details:
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Additional Info: Our scholarly project will be reviewed by our advisor and to ensure quality, accuracy, and appropriate citations and credits of the work we present.
- end -

Appendix B

Additional Resources

ADDITIONAL RESOURCES:

Individuals may learn better from looking up additional information about their conditions and methods for successful rehabilitation with those conditions. Some resources to help them get started include:

American Heart Association

http://www.heart.org/HEARTORG/

Mended Hearts

http://mendedhearts.org/

MedlinePlus

http://www.nlm.nih.gov/medlineplus/heartdiseases.html

A local support group for individuals following a major cardiac event may be found in the events page(s) of the local paper, or by contacting the human resource department at a local hospital or cardiac specialty office.

* Keep in mind that an additional session may be necessary to ensure all members of the cardiac rehabilitation group understand how to access provided resources, whether online, at the facility library, or the local library.

Appendix C

Heart Rate Monitoring in Correspondence with Occupation-Based Activities

*Following is information for determining heart rate ranges for individuals after cardiac surgery based on physician's order. This information is intended as a reference for the occupational therapist.

Heart Rate Monitoring in Correspondence with Occupation-Based Activities

Heart Rate Monitoring:

Cardiac rehabilitation participants may conserve energy and simultaneously gather motivation for activities if they monitor their heart rate and perceived rate of exertion during daily activities. For example, the suggested method presented by the American College of Sports Medicine (2006, p. 445) for controlling heart rate for patients with cardiovascular disease is to stay within a range of 50-85% of maximum heart rate while participating in varying activities.

Clients can quickly be taught how to calculate their own heart rate if they do not have a heart rate monitor of their own. They may take their heart rate by simply finding their pulse, and counting the number of beats within 15 seconds. The result of beats should be multiplied by four because there are four 15-second increments in one minute. This provides the heart rate in beats per minute, or BPM.

Example of manual heart rate measurement: 16 beats in 15 seconds (16 X 4 = 64 BPM).

Next, an individual may manually calculate his or her recommended or target heart rate range with just a few pieces of information: the person's age, and recommended heart rate range for physical exertion for the person. As mentioned earlier, it is typically not recommended that an individual exceed 85% of his or her maximum heart rate during physical activity following cardiac surgery.

For example, maximum heart rate is found by using a simple formula in which one subtracts their age from the number two hundred, twenty (Huntley, 2008, p. 1306). Therefore, the formula looks like this: (220-age). Once the result is calculated, an individual may calculate their target heart rate as a recommended 50-85 % of this. The maximum heart rate, then, is multiplied by any percentage within this range. Following is a case example:

A client's physician has cleared her for cardiac rehabilitation in conjunction with occupational therapy. The physician recommended that the client not exceed 65% of her maximum heart rate during physical activity. The client is 52 years old. What is her recommended heart rate range?

Client's maximum heart rate: (220-52) = 168 BPM.
Client's heart rate range: (.50 x 168) to (.65 x 168) = 84-109 BPM.

Perceived Rate of Exertion Monitoring:

Of course, some individuals may feel that they are working beyond their personal capacity at lesser heart rates. Therefore, it is important to incorporate a more flexible measurement to help monitor their perceptions of fatigue and progress. The therapist may refer to websites online for RPE scales. One such website http://www.askthetrainer.com provides visual descriptions of easy-to-use scales.

Appendix D

Terminology for Cardiac Rehabilitation

*****The following terminology may be used for the occupational therapist as a quick reference. Further information may be found on the websites that are provided in Appendix B.

TERMINOLOGY FOR CARDIAC REHABILITATION

Cardiac Conditions within the scope of this project include:

Atherosclerosis: (Arteriosclerosis). A condition in which lipids (fats) build up along the inside lining of arteries. As these deposits thicken, they harden. Eventually, they may block the artery (Squires, 2006, p. 412).

Cardiovascular Disease (CVD): General term for diseases of the heart. Women experience a high rate of deaths (approximately 500,000 per year) from CVD alone. It is a major cause of death in women in most "developed areas in the world and is the "leading cause of death in women in the U.S." (O'Hare, 2006, pp. 427-433).

Chronic Heart Failure: Condition in which the ventricle(s) of the heart is impeded from efficient ejection or re-fill of blood. When this problem is related to atherosclerosis, problem is typically progressive (Squires, 2006, pp. 412; 419).

Congestive Heart Failure (CHF): Synonymous with Chronic Heart Failure

Coronary artery bypass graft (CABG): An intervention for more "complex lesions" of coronary vessels. This treatment method involves attachment of a graft from another vessel (such as the great saphenous vein) to the site of the lesion to promote revascularization and improve flow of the impaired vessel. (O'Hare, 2006, p. 433)

Coronary Artery Disease (CAD): Narrowing of the arteries due to blockage from the build-up of cholesterol or plaque (Schairer & Keteyian, 2006; Medlineplus, 2011). A result of atherosclerosis, or arteriosclerosis (Squires, 2006, p. 411).

Coronary Heart Disease (CHD): Build-up of atherosclerosis (fatty deposits) within arteries that prevents adequate supply of oxygen and blood to the heart (Hoeger & Hoeger, 2002, p. 307).

Myocardial infarction (MI):Defined by Larry and Schall (2006, p. 303) as

> "When a portion of the myocardium receives an inadequate oxygen supply for several minutes or longer and results in the death of myocardial cells in the affected area".

One great resource for individuals to find more information on their own cardiac condition outside the department for cardiac rehabilitation is at the **Center for Disease Control website: http://www.cdc.gov/**heartdisease. At this website, a link to pages and fact sheets about related conditions is also available.