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## Bowenwork for symptom management of women breast cancer survivors with lymphedema: A pilot study

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## ABSTRACT

**Purpose:** The objectives of this pilot study for women breast cancer survivors with lymphedema was 1) to evaluate recruitment rates, retention rates, adherence to Bowenwork (a noninvasive complementary therapy involving gentle muscle movements), home exercises, safety and comfort; 2) determine the effect of Bowenwork on quality of life (QOL), functional status, perceived pain, range of motion (ROM), arm/ankle circumference (to assess for localized and systemic changes).

**Methods:** Participants received 4 Bowenwork sessions with home exercises. Initial and post assessments included QOL, functional status, and pain. ROM, arm/ankle circumference and pain measures were recorded before each session.

**Results:** Twenty-one women enrolled in the study; 95% completion; adherence 100%; home exercises 95%; no adverse events. The intervention improved mental health (SF-36-MCS); breast cancer-related functional (FACT-B); increased ROM; reduced arm circumferences. P value set at <0.05.

**Conclusions:** The Bowenwork intervention was safe and acceptable for women breast cancer survivors with lymphedema.

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### 1. Introduction

Survival for women diagnosed with breast cancer in the United States continues to show promise with a survival rate of 89% at 5 years after diagnosis [3]. Survivorship duration is closely related to the type of breast cancer and the degree of cancer invasiveness [3]. Survivorship encompasses physical, emotional and psychological sequelae of diagnosis and treatment. Breast cancer-related lymphedema continues to be a troublesome outcome with occurrence ranging from 3% to 87% depending on type of treatment and time post treatment [4,6,7,21,35]. All women who are diagnosed and treated for breast cancer are at risk of lymphedema; an average of 40% of survivors will be diagnosed with lymphedema [7].

Lymphedema is characterized by the chronic swelling of an extremity and inadequate transfer of lymphatic fluid that results from mechanical dysfunction or injury to the lymphatic system [23]. Lymphedema has identifiable stages, it is not curable, and the goal of management is to prevent lymphedema from progressing into irreversible stages. The lymphatic system is a complex system

that is composed of intertwining mesh-like lymphatic vessels throughout the body to remove waste, support the immune system and maintain fluid balance. Under normal conditions, fluid moves throughout this low pressure system reaching the lymphatic ducts that release waste into the general circulation. The movement of fluid relies on muscle movement rather than a pumping system such as the circulatory system. Lymphedema develops when the system is stressed, and the trapped fluid begins to accumulate. The primary objective of treatment is to prevent lymphedema from progressing into further stages that are eventually irreversible.

The most common treatment for lymphedema management is complete decongestive therapy (CDT), which includes compression therapies (bandages, garments and pneumatic devices), manual lymph drainage, and specific lymphedema exercises [1,8,11,27,33,35]. With the emergence of nontraditional therapies, treating the adverse effects of lymphedema is gaining recognition in the United States [1,17,33,34,44,45].

A complementary therapy—Bowenwork (also known as Bowen technique or Bowen)—is evolving as a possible treatment option for lymphedema. Bowenwork is a gentle form of manual hands-on therapy that is noninvasive and presents with a very low risk for harm. Bowenwork is comprised of foundational sequences of

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moves and many other alternating moves to treat specific health conditions. Each Bowenwork movement involves gently touching the epidermal layer of skin over the side of a muscle, lifting the muscle slightly and rolling across the muscle with intentional direction toward a specific area of the body. The moves are followed by periods of pauses to allow for integration of the movement by the body. A typical treatment is comprised of either isolated physical manual movements or a series of movements over specific muscles and anatomical areas. Bowenwork also requires simple exercises that can be performed easily and independently at home. A Bowenwork treatment, like many complementary type therapies, is tailored to individual needs.

The theory behind Bowenwork posits that during, and even after a generated movement, the impulse communicates with the central nervous system to realign muscle, connective tissue, and redistributes abnormal fluid accumulation [2,19,39,49]. Additionally, the vibrational wave that travels from the point of impact throughout the body will pass through internal organs and structures. By altering lymphatic fluid and the impairment in muscle movement that is associated with lymphedema, Bowenwork theoretically promotes normal functioning of the lymphatic system allowing fluid to be released back into the systemic circulation.

Bowenwork therapy is performed in sessions by a trained and certified Bowenworker. To obtain certification from the American Bowen Academy, the Bowenworker must 1) complete a series of instructional workshops consisting of seven modules that include anatomy, physiology and ethics, and 2) demonstrate proficiency in the movements. This training takes about nine months to complete. A basic Bowenwork session lasts from 45 min to 90 min and cost is estimated to be \$75.00 US dollars. Optimally, each session begins with the individual comfortably positioned in prone position, then finishes with the individual in supine position. Sitting comfortably in a chair is an option if lying down is not possible. A Bowenwork session is guided by the individual's current and past health conditions.

Bowenwork originated in Australia in the mid-20th century with diffusion into over 20 countries, including the United States [19,29]. To date, there are few refereed publications reporting the effects and safety of Bowenwork on health related conditions. Some non-peer reviewed articles have documented anecdotal case studies involving Bowenwork, such as management of symptoms related to pain, musculoskeletal injuries, acute and chronic illnesses [36–38]. The documented results appear promising, but lack rigorous scientific methods. Further, the awareness of Bowenwork as a potential treatment option for lymphedema needs further exploration.

The purpose of this pilot study was to examine the feasibility of using Bowenwork to manage symptoms associated with lymphedema in women breast cancer survivors. The objectives were to evaluate recruitment and retention rates, adherence to the intervention of Bowenwork and home exercises, safety and comfort of the intervention, in addition to determining the effect of Bowenwork on quality of life (QOL), functional status, perceived pain, range of motion (ROM), and arm and ankle circumference to assess for localized and systemic changes in edema.

## 2. Methods

The design for this pilot study was quasi-experimental with repeated measures. All participants received the six-week long intervention of Bowenwork, which consisted of four Bowenwork treatments approximately five to ten days apart, conducted by a certified Bowenworker. The University of Arizona Institutional Review Board approved all study procedures.

### 2.1. Sample and setting

Women breast cancer survivors who were previously diagnosed with unilateral upper extremity lymphedema were enrolled. Exclusion criteria were: currently undergoing radiation, chemotherapy or surgical interventions; currently receiving treatment for other type(s) of cancer; within 6 months of breast cancer treatment completion; bilateral lymphedema of upper extremities; current hospitalization in the acute care setting; physical limitations requiring bed rest or inability to stand independently; and pregnancy. Participants could continue their current traditional treatment for lymphedema, such as compression stocking or manual lymphatic drainage. Participants agreed that during the study, they would refrain from using any other complimentary modalities such as acupuncture, aquatic therapy, relaxation therapy, ice, heat, magnets, electrical stimulation, and Reiki.

Participants were recruited from several sources including four breast cancer support groups (The University of Arizona Cancer Center and Arizona Oncology in Tucson, Flagstaff Medical Center in Flagstaff, and Virginia G. Piper Cancer Center in Scottsdale); the Beat Cancer Boot Camp (Tucson, AZ); and a community cancer survivor resource program internet advertisement. The largest number came from support groups. The study settings, where participants received the intervention, were in private offices in Tucson and Flagstaff and a resource education office in Scottsdale.

### 2.2. Bowenwork intervention

The Bowenwork intervention was delivered by four Bowenworkers who were certified by the American Bowen Academy. They also received additional instruction and training by the study team to assure fidelity of the intervention. This consisted of specialized group instruction on delivery of the Bowenwork intervention procedure and measurement protocols for ROM and arm and ankle circumference measurements (see Table 1), to ensure consistency with the delivery of the intervention and accuracy of data collection for arm and ankle circumference. Many complementary therapies, including Bowenwork, offer individualized treatments based on the health history and clinical presentation. The study procedures and protocols were standardized for this pilot study, and all participants received identical procedures and protocols.

Since Bowenwork is a holistic therapy and it addresses health completely, any alteration in health from one area of the body can adversely affect other areas. For this reason, Bowenwork moves throughout the body were necessary to address the current problem of lymphedema and its adverse effects throughout the body. The basic recommended foundational moves were incorporated into the study protocol to support the potential therapeutic effects of the therapy, as well as moves that addressed the lymphedema specifically. The Bowenworkers executed the movements over an average of 45 min. Each participant received four Bowenwork treatments approximately five to ten days apart, over a six week period. The specific grouping of Bowenwork movements included low back, upper back, kidney, neck, respiratory, upper respiratory, shoulder (while seated), knee moves (1–4) and chest. A complete outline of Bowenwork moves is in Table 1.

The participants were instructed to verbalize any concerns or perceived feelings of discomfort during the intervention. The Bowenworkers entered these comments verbatim into the intervention session log. The log was completed at the end of the study and returned to the PI. In addition, at the beginning of each Bowenwork session, the Bowenworkers queried the participants on follow through for any recommended exercises from the previous session. The exercises were simple arm and shoulder stretches that the participants were able to perform independently.

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