Article Two

Equine-Assisted Rehabilitation for Breast Cancer Survivors

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ABSTRACT

Breast cancer is one of the most common malignancies that affect women. Greater awareness, early detection, and swift intervention have reduced mortality rates. Up to 80% of breast cancer survivors attain a full life expectancy (Fisher & Howell, 2010). Breast cancer treatments, however, often negatively impact upper extremity function and the overall perceived quality of an individual's daily life. Furthermore, cancer survivors may suffer diminished self-efficacy and functional deficits, along with stress-related symptoms such as post traumatic stress disorder. It is globally recognized that post-intervention physical and functional rehabilitation has been inadequate. The benefits of equine-assisted therapy (EAT) for people who cope with physical and neurological impairments have been well documented. However, most medical professionals are unaware of the potential benefits of EAT for breast cancer survivors. This paper introduces a three-phase EAT programme for breast cancer survivors and reports on its application with three clients between 2009 and 2014. Finally, a research proposal is introduced with the following research question: how does EAT impact the range of motion (ROM) and self-efficacy of breast cancer survivors.

KEYWORDS

Breast cancer, Equine-assisted Therapy, Quality of life, Range of motion, Rehabilitation

Background

Equine-Assisted Rehabilitation for Breast Cancer Survivors

Breast cancer is one of the most common malignancies affecting women. Awareness, early detection, and swift intervention have significantly reduced mortality rates (World Health Organization, 2012). Schmitz et al. (2012) noted: “for most women in developed countries, breast cancer has become a survivable chronic disease" (p. 2191).

Israel ranks fifth worldwide in the incidence of breast cancer (Israel Cancer Association, 2012). One in eight women are at risk. The disease is on the rise among Jewish Israeli women, but mortality rates have declined. At present, 90% of all cases can be cured if the disease is detected early. In Israel, breast cancer age and standardized mortality rates have dropped from 22.6% in 1998 to 17.4% in 2009 (Israel Cancer Association, 2012).

Breast Cancer Treatment and the Need for Rehabilitation

Breast cancer treatments typically involve surgery, chemotherapy, and radiation therapy. These therapies have physiological effects on body function and structure, such as overall fatigue, pain, lymphedema, restricted range of motion (ROM), peripheral neuropathy, and osteoporosis (Rock & DeMichelle, 2003), along with stress-related symptoms and low self-efficacy, all of which lead to limitations and restrictions in the performance of daily activities (Fisher & Howell, 2010).

Impairments related to breast cancer often go unrecognized. Untreated, they negatively impact function, leading to decreased tolerance to activity, and limitations and restrictions in activities of daily living (ADL), that is, the routine activities of eating, bathing, dressing, toileting, walking, and continence (Schmitz et al., 2012). Physical and functional recovery has been relatively neglected.

Osteopenia and osteoporosis significantly affect quality of life (QOL) (National Institute of Arthritis, Musculoskeletal and Skin Diseases, 2012) and contribute to reduced ADL and ROM, limit independence, raise anxiety, and lower self-image. These sequalae fit in the models of International Classification of Functioning (ICF) and Rehabilitation Empowerment presented later. Al Amri and Sadat-Ali (2009) confirmed that "there is a high prevalence of osteopenia and osteoporosis in patients who were younger than 50 years" (p. 331). Ramaswamy and Shapiro (2003) asserted that since "many women with breast cancer will be long-term survivors, increasing recognition of maintaining skeletal health is important" (p. 763).

The natural emphasis on survival somewhat overshadows the long-term treatment-related medical and psychological sequelae. Today, nearly 80% of breast cancer survivors can attain full life expectancy and they should do so with full functional capacity (Fisher & Howell, 2010).

EQUINE-ASSISTED REHABILITATION FOR BREAST CANCER SURVIVORS

Coleman (2006) suggested that appropriate rehabilitation can maximize the functional status of breast cancer patients, reduce the occurrence of intrusive thoughts, and address psychological and vocational problems, leading to improved ADL and QOL. In a lecture presented at Rush University Medical Center, Professor Sheila A. Dugan (2010) described the role of rehabilitation in breast cancer treatment and recovery as "the gift and opportunity to ‘re-build’ the posture, trunk, pelvic floor, shoulder, lower back, fitness level, and self awareness, in order to enable survivors to become thrivers” (slide 33). She further emphasized that “no other body part is amputated or reconstructed without physical therapy as the first line of the rehabilitation process, except the breast" (slide 10).

Breast Cancer and Post Traumatic Stress Disorder

The emotional impact of a cancer diagnosis, symptoms, treatment, and related issues can be severe. Breast cancer survivors may develop a distorted body image or self-concept, change in family relations, and/or intrusive thoughts about recurrence or death, all of which can be relevant factors in decreased QOL, self-efficacy, belief in one's ability to overcome hardships, and empowerment, a process by which individuals attain power through access to various resources that give them control of their lives (Fisher & Howell, 2010). In June 2010, The US Cancer Institute reported that stress and trauma-related symptoms were being seen in breast cancer survivors, resembling those who experienced traumatic events (Cordova et al., 2000).

Women diagnosed with breast cancer should be evaluated and considered at risk of developing post traumatic stress disorder (PTSD). Under the diagnostic criteria for PTSD in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-V*; American Psychiatric Association, 2013), an example of a traumatic event is being diagnosed with a life-threatening disease.

Diagnostic Criteria and Characteristics

PTSD was initially characterized as an anxiety disorder that developed in response to a severe trauma in which an individual experienced, witnessed, or was confronted by actual or threatened death, injury, or loss of physical integrity of self or others. The *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994) added that diagnosis for a life-threatening illness qualifies as a stressful event.

The first known study of the prevalence of PTSD among breast cancer survivors using the *DSM-IV* criteria included 27 patients, each with a minimum of three years of post-cancer treatment. The results indicated a prevalence rate of 40% for acute PTSD and 22% for chronic PTSD (symptoms lasting more than three months) (Andrykowski & Cordova, 1998). More recent research revealed that two to three months after diagnosis, 23% of breast cancer survivors met the criteria for acute PTSD (Vin-Raviv et al., 2013)..

Breast Cancer and Self-Efficacy

Breast cancer treatments negatively impact QOL and upper body function. Survivors may experience diminished self-efficacy related to functional deficits that result from their physical limitations. The International Classification of Functioning (ICF) provides a framework for rehabilitation practitioners to address physical and psychological impairments, activity limitations, and participation restrictions, thus shifting the focus from diagnosis to function (see Figure 1).

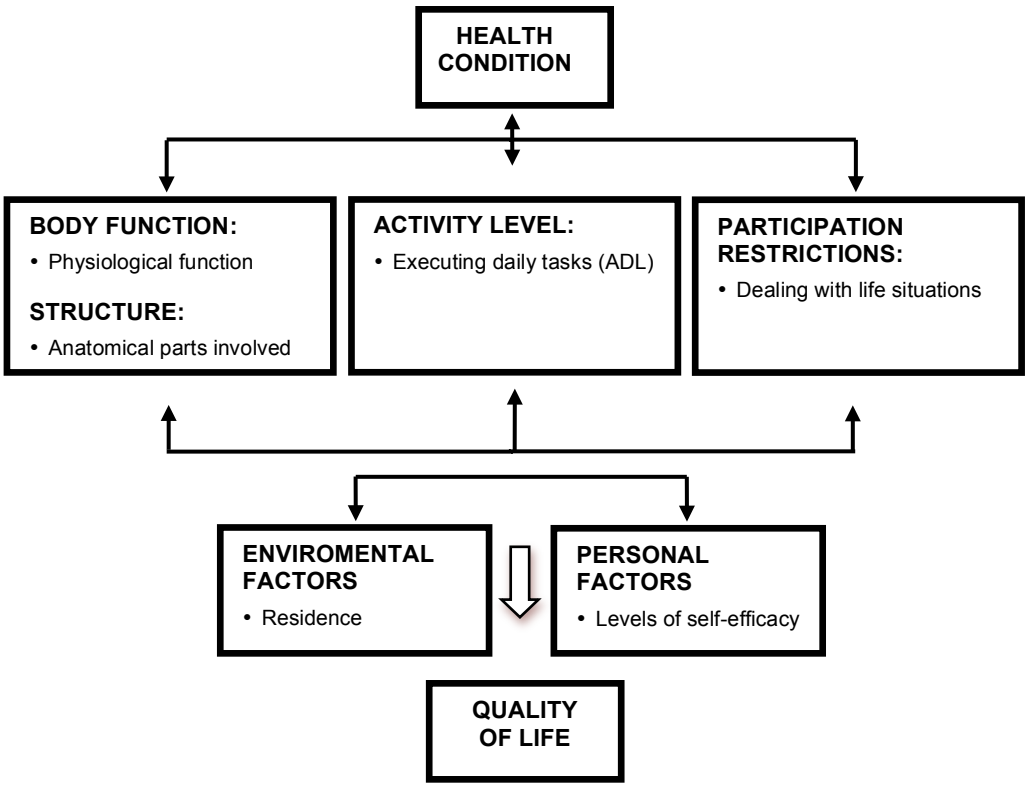

Figure 1. The International Classification of Functioning (ICF) Model

Swisher et al. (2010) concluded that upper extremity impairments were seen up to 30 years following breast cancer treatment, resulting in activity limitation and participation restrictions. This relationship between impairments, activity limitations, and subsequent participation restrictions for breast cancer survivors is illustrated in Figure 2.

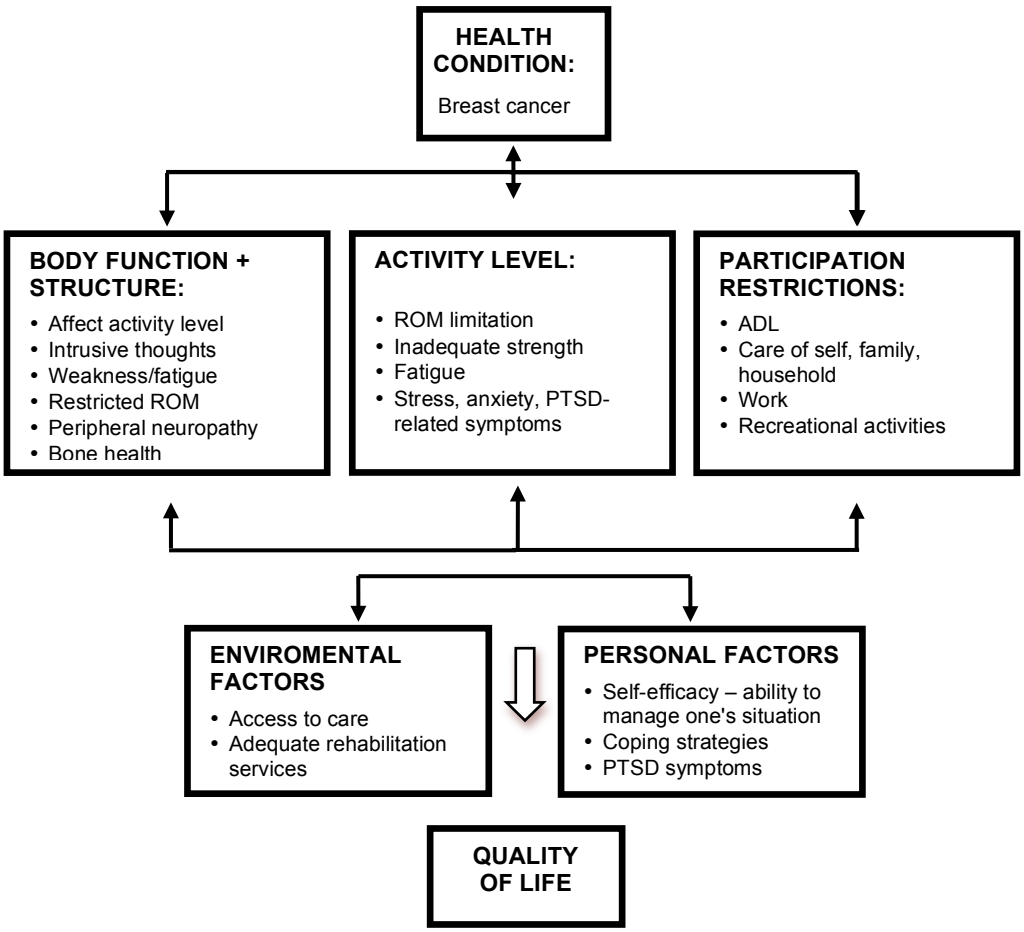

Figure 2. Application of the ICF Model to Breast Cancer

Patient outcomes may be improved by fostering self-efficacy through empowerment, that is, the belief in one's own abilities to exercise influence over the events that affects one's life (Bandura, 1998). Fisher and Howell (2010) theorized that rehabilitation practitioners could employ empowerment theory to help improve the self-efficacy of breast cancer survivors, by increasing the knowledge, skills, and resources that are needed to increase control over social and environmental factors in their life. In their study of how a combination of the ICF model and theories of self-efficacy and empowerment might improve the rehabilitation outcomes for breast cancer survivors, Fisher and Howell (2010) found that “higher levels of self-efficacy among breast cancer survivors may translate into improved functioning and QOL” (p. 19). Their model is presented in Figure 3.

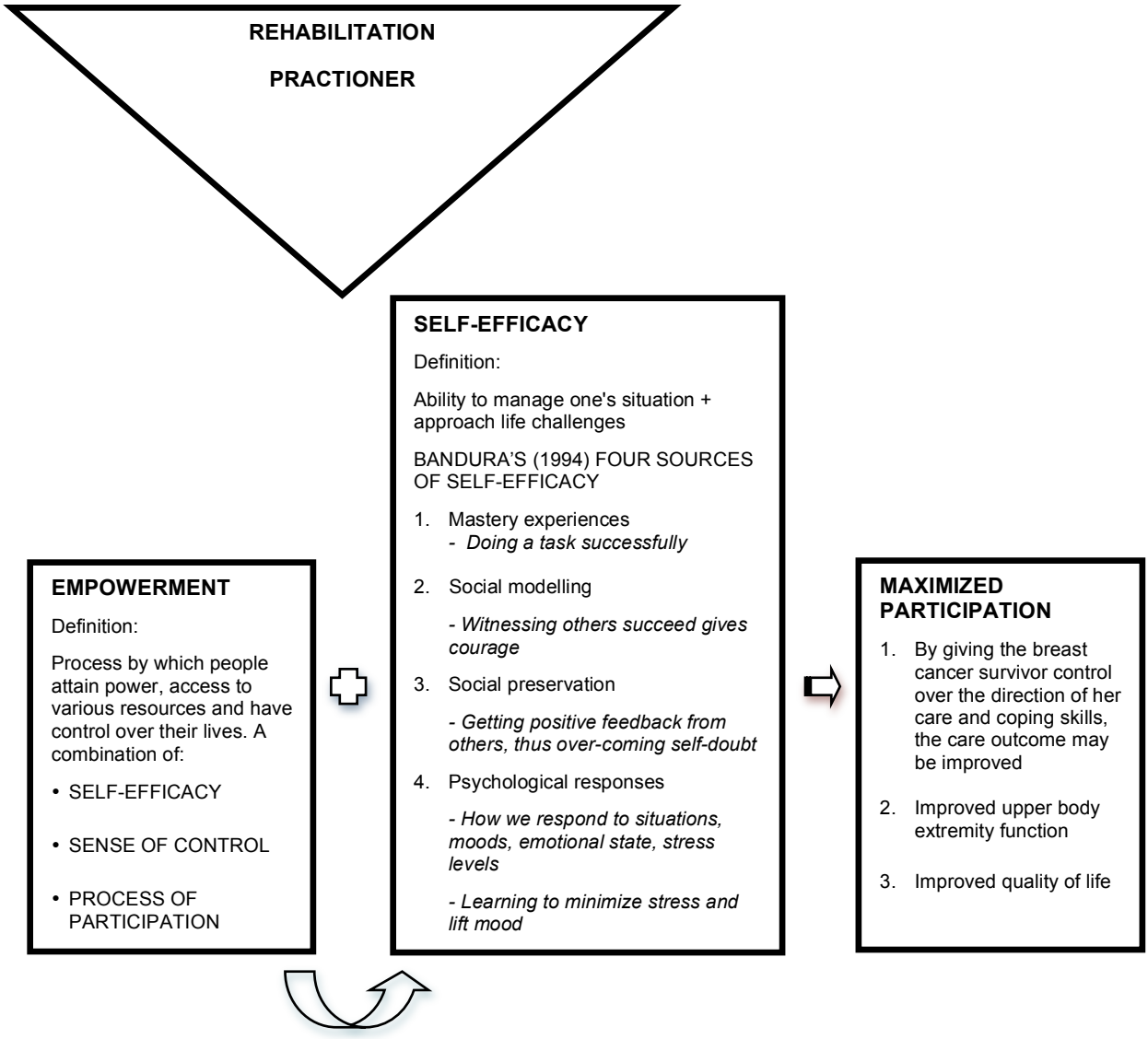

Figure 3. Fisher & Howell's Model for Rehabilitation Through Empowerment

As a basis for creating an equine-assisted therapy program for cancer survivors, I developed a model in which I replaced the "rehabilitation practitioner" with a horse. Thus the aim of the program was to raise the breast cancer survivor's self-efficacy levels using equine-assisted therapy. (Figure 4)

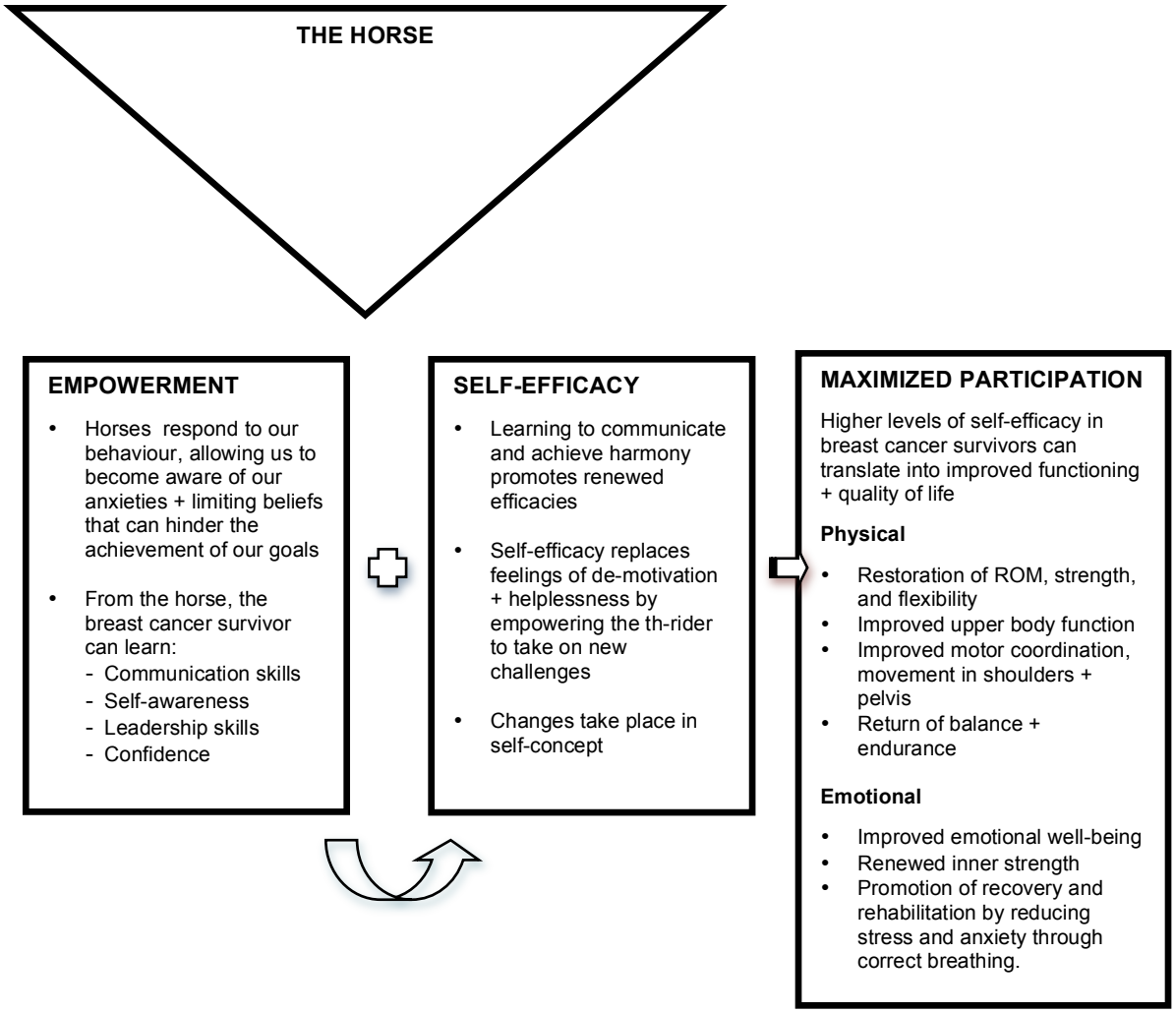

Figure 4. The Israeli Model for EAT Rehabilitation of Breast Cancer Survivors

Therapeutic Riding In Israel

The Therapeutic Riding Centre of Israel (TRCI), a therapeutic riding center and training center for therapeutic riding teachers, including internship, was founded in 1986. It cooperates with the EU Pegasus educational program and the Animal Assisted Therapies (AAT) department of Hogeschool in Ghent, Belgium.

The Israeli Ministry of Sport requires that therapeutic riding teachers hold two certifications: that of riding instructor (English or Western style) and that of therapeutic riding instructor. The riding

instructor's certificate is awarded after a nine-month program, covering equine management, horsemanship, stable management, equine behaviour, equine health, instruction, and teaching methodology. The English-style course is based on the British Horse Society's Stage 2 and Preliminary Teaching Test; the Western style course is based on the basic program of the American Riding Instructors Association. All instructors and coaches are trained at an international level and are members of the Israeli Equestrian Federation.

The therapeutic riding instructor's certificate is awarded after a two-year program that includes studies in human anatomy, physiology, neurology, psychology, child development and disabilities, reading evaluations, therapy, and lesson planning. The final year is devoted to internship at a recognized ranch in Israel, working with a high-level instructor and social worker. Students are required to work with three physically and three emotionally challenged riders over a course of ten months, including design of individual therapy plans. At the end of their studies, they present these six cases to the examination board for review.

Equine-Assisted Therapy in Breast Cancer Rehabilitation

Equine-assisted therapy (EAT) incorporates equine activities and/or the equine environment. The rehabilitative goals are designed to meet the individual client's needs and the medical professional's standards of practice (PATH International, 2014).

Physically, the horse's movement at a walk creates three-dimensional movement in the rider's torso, similar to that produced when a human walks. This movement creates physical and sensory input that is variable, rhythmic, and repetitive (Uchiyama, Ohtani, & Ohta, 2011). Interaction with the horse creates opportunities for collaboration and feedback both from the facilitator and the horse, experiences of task-completion, and a motivational space to practice acceptance and awareness (Gergely, 2012). This promotes self-efficacy.

In light of these features, EAT can help breast cancer survivors in numerous ways.

- The constant repetition of the horse's stride and absorption of this rhythm into the rider's pelvis causes ligaments to relax and become suppler. It improves vertical and horizontal balance and muscle tone, as well as hip and shoulder flexibility, promoting healthy walking (Borzo, 2002).
- Exercise on horseback improves circulation and endurance (Borzo, 2002).
- Development of correct nasal diaphragmatic breathing restores mobility in the thoracic area, thus reducing stress and restoring upright posture. This is promoted by the horse's breathing, as it is a nasal breather, anatomically unable to breathe through the mouth (Riegel & Hakola, 2000).
- Equine-assisted therapy may help improve neurological functioning and sensory processing (American Hippotherapy Association, n.d), which can be generalized to a wide range of daily activities

- Through learning to communicate with the horse, the rider may develop a sense of self-efficacy and well being.

In Israel, EAT has been offered for many years to wounded veterans and terror victims (Shkedi, 2012). However, most professionals in the relevant fields are unaware of the potential benefits of EAT for breast cancer survivors.

A Three-Phase Equine-Assisted Therapy Program for Breast Cancer Survivors

In light of the indications of its potential, I developed and implemented a three-phase EAT rehabilitation program for breast cancer survivors. In the description of the program and the cases, I refer to the breast cancer survivor as a therapeutic rider.

Phase I. The program begins with an introductory phase designed to build trust and communication between the therapeutic rider, instructor, and horse on the ground and in the stable. Phase I consists of 8 sessions. The first sessions are dedicated to introducing the program, the building of trust and communication, meeting with the social worker, presenting medical records, and completing questionnaires to help assess the therapeutic rider's functional and emotional state pre-intervention. The therapeutic rider is encouraged to keep a riding journal of personal reflections. At this point, the instructor asks the therapeutic rider to voice her expectations and together they build a joint therapy plan.

The therapeutic rider gets to know the horse in the stables and in the riding arena, where grooming, learning the horse's body language, and overcoming fear of the horse are used to arouse the therapeutic rider's senses and sensory reactions. Emphasis is placed on the instructor's observation of the therapeutic rider's ROM from the ground and building trust between the therapeutic rider, horse, and instructor.

In addition, this phase features an introduction to diaphragmatic breathing, using the horse as a coach. The benefit of diaphragmatic breathing to cancer survivors has been demonstrated by Fialka et al. (2003). As obligate nasal breathers, horses are valuable teachers. At rest, or after minor exertion, the horse breathes only 8-14 breathes per minute. Synchronization of the therapeutic rider's breathing with that of the horse can decrease thoracic shallow breathing, or hypoventilation, which is a symptom of anxiety.

The other sessions in this phase are dedicated to the practice of nasal diaphragmatic breathing while mounted and an introduction to the horse's movement, leading to work on improving core strength and stability.

The overall therapy goals for Phase I are:

- to develop correct nasal diaphragmatic breathing;
- to improve the therapeutic rider's ROM and flexibility; and
- to build self-confidence.

PHASE II. After observation and assessment of the therapeutic rider in Phase I, Phase II begins with the development of an individual therapeutic program based on the therapeutic rider's needs and abilities. The emphasis is physical development, consisting of exercises designed to restore ROM and diaphragmatic breathing.

The horse is chosen to suit the therapeutic rider's build and needs, in terms of size and temperament. The work in this phase is done using a two-handled vaulting surcingle, pad, and sheepskin. This is particularly helpful in the colder months.

Phase II consists of 20-24 sessions, which include a combination of yoga, correct breathing, and physical exercises. In addition, the instructor encourages concentration on the here and now, together with self-awareness and self-acceptance based on sensing acceptance from the horse.

The overall therapy goals for Phase II are:

- to facilitate and improve the therapeutic rider's overall condition and stamina for faster recovery, maximize body strength, and improve and maintain muscle tone and bone density;
- to restore and learn to maintain ROM, with focus on shoulders, chest, upper and lower back, rotator cuff, abdominals, and lower extremities;
- to restore strength and flexibility to the involved area of the body, joints, and muscle groups that have been weakened by surgery and treatments;
- to retrain torso muscles for improved posture;
- to develop correct abdominal breathing to help restore mobility to the thoracic area, reducing stress and anxiety and allowing more freedom of movement in the diaphragm and lungs; and
- to develop self-awareness and self-acceptance.

PHASE III. The third and final phase of the program includes continued improvement of ROM through ground work, grooming, and stable work, and introduction to conventional saddle-riding skills, as well as continued development of the interpersonal and intrapersonal skills discussed earlier.

Pilot Study: Observation of EAT with Three Cancer Survivors

Between 2009 and 2014, three Israeli women aged 35-70 participated in EAT as part of their rehabilitation program following treatment of breast and other cancers. All had undergone radical surgery, chemotherapy, and radiation therapy, and were taking the hormone-therapy drug, Tamoxifen. The HMOs to which the women belonged offered them each three months of physical therapy. Later, they participated in equine-assisted therapy at TRCI, based on the model that I developed. The horses and tack were chosen to suit each participant.

The following descriptions of the three cases, including initial presentation and the results of their EAT, are based on my observations, video recordings of sessions, and the riding journals kept by the participants.

Participant 1

Presentation: A 51-year-old Israeli woman, married. A book restorer by profession, currently working as a therapeutic riding instructor.

Medical presentation:

- 1995 Stage III breast cancer; radical mastectomy (while pregnant), chemotherapy, and radiation therapy.
- 1997 Ovarian cancer; radical hysterectomy and chemotherapy.
- 2005-2007 Cerebral vasculitis; CVA, hemiparesis right side. (The CVA caused damage to frontal, parietal, and cerebellum areas of the brain; the right side of the body was affected: 60% hearing loss in right ear, 45% vision lost in right eye.)
- 2008 Severe osteoporosis.
- 2009 Malignant choroidal melanoma.

Riding history:

- Rode as a child in the UK.
- 2009–present. Still rides twice a week with an advanced dressage instructor.

Questionnaires used:

- TRCI medical questionnaire, completed by every rider at the center.
- Bi-annual bone mineral density (BMD) scans

Treatments offered by HMO:

- Three months of physical therapy, during period of chemotherapy. The EAT treatment of Participant 1 and the results measured are presented in Table 1.

TABLE 1: PARTICIPANT 1, 2009–2014

Therapy goals	Horses used	Results
To rediscover skills related to riding	Shiny, 16 year old Haflinger; exceptional conformation, a true breathing coach	• The client reported feeling pleasure while riding.
To improve ROM for ADL • Improve balance/stability • Strengthen shoulders • Strengthen upper body	Matty, a 15-year-old Appaloosa	• Extensive vaulting work produced excellent results in terms of balance and stability. • ADL functioning reached near-normal level. • Major improvement in ROM, with a flexible upper body in the saddle and in ADL. After two years, she was able to reverse her car into a parking space.
To improve bone density	Ginger, a 9 year old local thoroughbred; a rescued horse.	BMD scores 2007: 0.889; 2014: 1.108 T-Scores 2007: -2.5; 2014: -0.9

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Therapy goals	**Horses used**	**Results**
To promote empowerment and self-efficacy	Black Star, a 14 year old Hanoverian thoroughbred; formerly a police horse	• Anxiety: Through breathing and riding, she acquired tools to calm herself. This was especially apparent before oncological visits and receiving test results. In times of stress, she continued to return to VL. • Self-esteem: She began to pay more attention to how she dressed and wear make-up. She was better able to regulate her emotions, in and out of the arena. She gained self-esteem: "I am not a bad person, I didn't deserve to get cancer." She came to love herself: "Take me as I am."
		• Self-efficacy: She learned to communicate better and achieve inner harmony, which promoted self-efficacy. • Empowerment: A sense of "yes, I can" replaced lack of motivation and helplessness. In 2009, she returned to college and became a therapeutic riding instructor. She realized it was ok to "fail", undertook new challenges, and fulfilled dreams.
To develop correct breathing in order to relieve anxiety, build upper body strength, and develop correct walking habits		• Correct breathing became natural, in and outside of the riding arena, reducing anxiety and helping the work on correct posture.

Therapy goals	Horses used	Results
To relieve peripheral neuropathy in hands		• A major improvement was achieved over time. • She attained the ability to hold reins and maintain contact. By 2014, she was riding first level dressage. • In ADL, she hardly dropped anything anymore, and used breathing to control the symptoms of neuropathy.
Improvement of cognitive skills • Strengthen motor function-right side • Sequencing • Memory		A major cognitive improvement was apparent: • She was able to remember a dressage test. • After 3 years, she was able to ride a 20-meter circle on the right rein. • In ADL, she was able to go shopping and bring everything home

Rider's summation: "For me, the touch, smell, and warmth of the horse are my strength, giving me courage and hope. Where I doubted, he showed me the way, and taught me that I am most certainly capable. Who would have thought that I would become a therapeutic riding instructor? I have been blessed with a second chance, and for that I am so grateful."

PARTICIPANT 2

Presentation: A 41-year-old Israeli woman, married. A social worker by profession.

Medical presentation:

- 2008 Stage III breast cancer; lumpectomy, chemotherapy, and radiation therapy; frozen shoulder on right, resulting from the radiation

Riding history:

- She had never ridden before.

Questionnaires used:

- TRCI medical questionnaire

- Personal riding journal

Treatments offered by HMO:

- Participant 2 received three months physical therapy, which did not help at all and did not relieve her frozen shoulder. Due to funding constraints, her EAT therapy period was very short, consisting of only 6 sessions. Therefore, very clear and specific goals were set. The EAT treatment of Participant 2 and the results measured are presented in Table 2.

TABLE 2: PARTICIPANT 2, NOVEMBER 2011-DECEMBER 2011 (6 SESSIONS)

Therapy goals	Horses used	Results
To give the participant pleasure	Shiny, 16 year old Haflinger.	• The client enjoyed the riding experience.
To improve ROM for ADL • Remove energy blockers so she could allow herself to work on ROM • Strengthen/rebalance right shoulder • Relieve tension in lower back/lumbar area		• ADL functioning: After just 6 sessions, she was able to get in and out of her car, pick up her young daughter for a hug, and close her bra unassisted. • ROM: Energy channels were freed, especially in the right shoulder. • She gained the ability to could lift her right arm after 4 sessions. • The unblocking of energy and release of right shoulder enabled her to lift her head, to look the world head on, and allow herself to feel balanced. This was very significant. • An encouraging improvement in her back: greater ROM and flexibility.
Goals on the emotional level • To deal with anxiety • To booster self-confidence, self-esteem, and confidence in body • To encourage living in the present • To allow acknowledgement		• Anxiety: Although the anxiety was constant, breathing exercises helped relieve it. • After three sessions, she began using the word “cancer”; this was the first time she had discussed her disease outside of the oncology department.

Therapy goals	Horses used	Results
of cancer without fear		
To develop correct breathing in order to • Relieve anxiety • Foster a positive physical self-image		• She learned and adopted the breathing technique. • This was very effective in relieving anxiety and enabling work on ROM.

Rider's summation: "This kind of work [is] very suitable for women recovering from breast cancer. It is so important to increase ROM, to reconnect to the body... It is wonderful to "dump" my worries onto the horse. I was amazed that after such a short time, I could see that Shiny could sense my physical and emotional state, even though I finished my treatments so long ago." (translated from Hebrew by author).

Participant 3

Presentation: A 69-year-old Israeli woman, married. A retired school principal. She was the only participant who had not had breast cancer.

Medical presentation

- 2010 Endometrial cancer. Underwent a hysterectomy (LAVH).
- 2012 Diagnosis of adenocarcinoma; subsequent cholecystectomy. Underwent optimal debulking and chemotherapy.
- 2012 Post-operative hernia repair.
- 2013 Level IV spondylolithesis (displacement of vertebrae), L4-L5.

Riding history

- She had never ridden before.

Questionnaires used

- TRCI medical questionnaire
- Personal riding journal

Treatments offered by HMO

- Participant 3 received no rehabilitation therapy or physical therapy from her HMO. The EAT treatment and the results measured are presented in Table 3.

TABLE 3: PARTICIPANT 3, 2013–PRESENT

Therapy Goals	Horses used	Results
To relieve peripheral neuropathy in feet	Punk, a 15-year-old Norwegian Fjord (with VL + thick blanket)	• After working barefoot for 3 months and then continuing work for another 7 months, she was able to step on her whole foot and walk with more stability. • Self-confidence increased. • Neuropathy was hardly evident.
To give the participant an experience of fun and pleasure	Graham, a 17-year-old Danish Warmblood (with VL + thick blanket)	• The horse provided her with physical and emotional grounding. • She began looking forward to her riding lessons. • She invited her husband to watch. • During vacations, she invited her grandchildren, who also rode with her • She began laughing aloud in response to accomplishments. • She giggled and asked for more time when she trotted. • She allowed the mention of cancer.
To strengthen the participant's upper body. Areas to be worked on: • Body alignment • Lower back • Shoulders	Tomi, a 6-year-old Tinker, with a saddle	• Using a saddle gave the participant a sense of independence. • Body alignment: Major improvement. • Shoulders: She allowed herself to open up physically and emotionally. • Lower back: The tension in her lower back was reduced.
• Abdominals		• After difficulty with diaphragmatic breathing (complaining, "How can I breathe if I don't have a diaphragm?"), she began working on it. Eventually, she realized she did have a diaphragm, she could control her breathing, and it was effective in helping her work; it then became second nature.

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Therapy Goals	Horses used	Results
To improve ROM for ADL • Stability		• Improvement in centering: she sat beautifully on the horse, maintained stability when walking and at a sitting trot. • ADL: Major improvement in all aspects. • Walking. She began walking on her entire foot and upright. • She was able to get in and out of a car and was able to bring shopping home.
To develop correct breathing in order to • Relieve anxiety, including the fear she would hurt herself • Strengthen upper body • Adopt correct walking habits		• Correct breathing became second nature for her in and outside of the arena. • Her anxiety was reduced and she was able to work on correct posture.
Goals on the emotional level • To develop greater relaxation and trust in the horse • To reduce the occurrence of intrusive thoughts. • To acknowledge and talk about cancer.		• Sixteen months after the riding therapy began, she finally allowed herself to relax. She formed special bonds with each horse she rode. She spoke to Tomi, and allowed herself to feel pleasure. Taking the reins helped her gain a sense of independence, liberation, and the ability to overcome obstacles. • She had a much less morbid outlook. The anxiety she used to express before oncological tests was replaced by a much more philosophical view. • She called cancer by its name and spoke about it. She still feared the disease, but also sometimes allowed herself to feel that she had survived it.

Therapy Goals	Horses used	Results
To develop self-efficacy • Do something on her bucket list; realize a dream. • Believe in yourself: "Yes I can." • Develop positive thinking.		• She could now check an item on her bucket list (riding a horse). • She had restored her positive outlook and began making plans for a vacation. • She renewed her wedding vows.

Rider's summation. "When I ride, [I] am free [of] illness, of worries. Yes, I can. I am capable. . . . It is amazing what a horse can bring out in its rider. Today, I can fly, raise my head, face the world, the doctors, and my disease" (translated from Hebrew by author).

Research Proposal for Equine-Assisted Therapy with Breast Cancer Survivors

The present paper summarizes the implementation of my model by means of observation of three clients who participated in the three-phase EAT program at TRCI between 2009 and 2014. This study was designed as a pilot for future comprehensive research designed to formally assess the effectiveness of the program. The following is a description of the planned research program.

Research Question

The purpose of the research will be to examine how an eight-month equine-assisted therapy program affects range of motion (ROM) and sense of self-efficacy among breast cancer survivors.

Participants and Control Group

The participants will be 20 Israeli female breast cancer survivors (post-medical treatment), between the ages of 25-70 years. The researchers will recruit participants from the breast oncology departments at the four major hospitals in Israel and through the Israel Cancer Association and One-in-Nine Organization. Half of the participants will be assigned to rehabilitation programs offered by the four major HMOs in Israel (control group) and half to the

same rehabilitation programs and, in addition, equine-assisted therapy intervention (experimental group).

Setting

The equine-assisted therapy program will be conducted at the Therapeutic Riding Centre of Israel (TRCI), the largest therapeutic riding center in Israel. TRCI is run by a non-profit organization of the same name, which is dedicated to improving the lives of people with disabilities through interdisciplinary professional therapy. Using unique therapeutic and recreational methods, physical therapists, social workers, speech therapists, and psychologists, and others combine their skills with those of the equine-assisted therapists to achieve these goals. TRCI serves a multicultural population and adheres to nondiscriminatory practice. All the riding teachers that participate in the research will be trained and appropriately credentialed.

Measures

The research will be designed to assess ROM, QOL, ADL and self-efficacy levels prior to the rehabilitation programme, after Phase I (6 weeks), after Phase II (6 months), and after Phase III (8 months). A final assessment will be made three months after the intervention has ended.

A set of questionnaires will be used for this purpose, including:

1. Cancer Rehabilitation Evaluation System for Research (Schag & Heinrich, 1990).
2. General Self Efficacy Scale (GSE), in English (Schwarzer & Jerusalem, 1995) and Hebrew (Zeidner, Schwarzer, & Jerusalem, 1993).
3. European Organization for Research and Treatment of Cancer Care questionnaires and breast module (EORTC-QLQ-C30/BR23), in English (Sprangers et al., 1996) and Hebrew (EORTC Quality of Life Group, 1996).
4. Disabilities of Arm, Shoulder + Hand (DASH), in English (Hudak, Amadio, & Bombardier (1996) and Hebrew (Institute for Work & Health, 2006/2012).
5. Bone mineral density (BMD) scans.

Conclusion

Breast cancer is one of the most widespread types of cancer in women. In developed countries, it has become a survivable chronic disease. The natural emphasis in treatment is on survival, but breast cancer survivors also face many post-treatment challenges and a lengthy rehabilitation period. Nearly 80% of breast cancer survivors will attain full life expectancy and they should do so with full functional capacity (Fisher & Howell, 2010).

Equine assisted therapy is a rehabilitation option that provides both physical and psychological benefits. More research is needed to validate its effectiveness for breast cancer survivors. Another aim of the three-phase program is to inspire others to offer services to this population, and to create a format for future research on interventions of this type.

In addition, to the best of my knowledge, there is no current research on the effect of EAT on bone density. In this respect, the results for Participant 1 in this research warrant further investigation, as they are encouraging.

I hope to present the findings of this future pilot study to the Israel Ministry of Health and Israeli HMOs, showing them that this type of rehabilitation program can be effective. It is my hope that equine assisted therapy will eventually be available to all breast cancer survivors worldwide, and not only a privileged few.

References

Al Amri, A., & Sadat-Ali, M. (2009). Cancer chemotherapy-induced osteoporosis: How common is it among Saudi Arabian cancer survivors. Indian Journal of Cancer, 46(4), 331-334.

American Hippotherapy Association (n.d.). Hippotherapy as a treatment strategy. Retrieved from: http://www.americanhippotherapyassociation.org/hippotherapy/hippotherapy- as-a-treatment-strategy/

American Psychiatric Association (1994). Diagnostic and Statistical Manual of Mental Disorders. (4th ed.). Washington, DC:

American Psychiatric Association (2013). The Diagnostic and Statistical Manual of Mental Disorders. (5th ed.). Washington, DC.

Andrykowski, M. A. & Cordova, M. J. (1998). Factors associated with PTSD symptoms following treatment for breast cancer: Test of the Andersen model. Journal of Traumatic Stress, 11(2), 189-203.

Bandura A. (1998). Self-efficacy. In H. Friedman (Ed.), Encyclopedia of Mental Health. San Diego, CA: Academic Press,

Borzo, G. (2002). Horse power. American Medical News, 45, 24-26.

Coleman, M. (2006). Nursing Patients with Cancer: Principles and Practice. Edinburgh Elsevier Science, 801.

Cordova, M. J., Studts, J. L., Hann, D. M., Jacobsen, P. B., & Andrykowski, M. A. (2000). Symptom structure of PTSD following breast cancer. Journal of Traumatic Stress, 13(2), 301-319.

Dugan, S. A. (2010). Rehabilitation and exercise and breast cancer. Powerpoint presentation accompanying lecture. Retrieved from: http://www.rad.rpslmc.edu/Rush.../EC_0510_ Dugan_BreastCancerRehab.pdf

EORTC Quality of Life Group (1996). QLQ-BR23 [measurement instrument, translated to Hebrew]. Retrieved from: http://site-www.eortc.be/qol/downloads/QLQC30/select.asp

Fialka-Moser, V., Crevenna, R., Korpan, M., & Quittan, M. (2003). Cancer rehabilitation: Particularly with aspects on physical impairments. Journal of Rehabilitation Medicine, 35(4), 153-162.

Fisher, M., & Howell, D. (2010). The power of empowerment: An ICF-based model to improve self-efficacy and upper extremity function of survivors of breast cancer. Rehabilitation Oncology, 28(3), 19-25.

Gergely, E. (2012). Equine-Assisted Psychotherapy: A Descriptive Study (Doctoral dissertation). Retrieved from Western Michigan University Dissertations (http://scholarworks.wmich.edu/dissertations/107).

Hudak, P. L., Amadio, P. C., & Bombardier, C. (1996). Development of an upper extremity outcome measure: the DASH. American Journal of Industrial Medicine, 29, 602-608.

Institute for Work & Health (2006/2012). Disabilities of the Arm, Shoulder and Hand (DASH) [Measurement instrument, translated to Hebrew]. Available from efratziv1@gmail.com

Israel, B. A., Checkoway, B., Schulz, A., & Zimmerman, M. (1994). Health education and community empowerment: Conceptualizing and measuring perceptions of individual, organizational, and community control. Health Education and Behavior, 21(2), 149-70.

Israel Cancer Association (2012). http://www.cancer.org.il

Keinan-Boker, L., Baron-Epel, O., Fishler, Y., Liphshitz, I., Barchana, M., Dichtiar, R., & Goodman, M. (2012). Breast cancer trends in Israeli Jewish and Arab women, 1996-2007. International Journal of Clinical Practice, 66(10), 948-958.

National Institute of Arthritis, Musculoskeletal and Skin Diseases (2012). What breast cancer survivors need to know about osteoporosis. Retrieved from: http://www.niams.nih. gov/Health_Info/Bone/Osteoporosis/Conditions_Behaviors/osteoporosis_breast_cancer.asp

Ogburn, A., & Borton, B. (2009). Therapeutic riding and hippotherapy: What is it and how does it work? Retrieved from: http://www.speechpathology.com/articles/therapeutic-riding-and-hippotherapy-what-1177

PATH International (2014). Learn about EAAT. Retrieved from: http://www.pathintl.org/resources-education/resources/eaat

Ramaswamy, B., & Shapiro, C. L. (2003). Osteopenia and osteoporosis in women with breast cancer. Seminars in Oncology, 30(6), 763-775.

Riegal, R. J., & Hakola, S. J. (2000). Illustrated Atlas of Clinical Equine Anatomy and Common Disorders of the Horse, Volume II. Equistar Publication: Marysville, OH.

Rock, E., & DeMichele, A. (2003). Nutritional approaches to late toxicities of adjuvant chemotherapy in breast cancer survivors. Journal of Nutrition, 133 (11, Suppl 1), 3785S-3793S.

Schag, C. A., & Heinrich, R. L. (1990). Development of a comprehensive quality of life measurement tool: CARES. Oncology (Williston Park, NY), 4(5), 135-138.

Schmitz, K., Stout, N., Andrews, K., Binkley, J., & Smith, R. (2012). Prospective evaluation of physical rehabilitation needs in breast cancer survivors: A call to action. Cancer, 118(8): 2191-2200.

Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy Scale. In J. Weinman, S. Wright, & M. Johnston, Measures in health psychology: A user's portfolio. Causal and control beliefs (pp. 35-37). Windsor, UK: NFER-NELSON. Retrieved from: http://userpage.fu-berlin.de/%7Ehealth/engscal.htm

Shkedi, A. (2012). Traumatic Brain Injury and Therapeutic Riding. Israel: Available from anitashkedi@me.com

Sprangers, M. A., Groenvold, M., Arraras, J. I., Franklin, J., te Velde, A., Muller, M., ... & Aaronson, N. K. (1996). The European Organization for Research and Treatment of Cancer breast cancer-specific quality-of-life questionnaire module: First results from a three-country field study. Journal of Clinical Oncology, 14(10), 2756-2768.

Swisher, A., Davison, C., Aranda, R., Eye, D., & Erikson, M. (2010). Frequency and severity of self-reported upper extremity impairments, activity limitations and participation restrictions following breast cancer treatments. Rehabilitation Oncology, 28(1), 3-9.

Uchiyama, H., Ohtani, H., & Ohta, N. (2011). Three-dimensional analysis of horse and human gaits in therapeutic riding. Applied Animal Behavior Science, 135(4), 271-276.

Vin-Raviv, N., Hillyer, G., Hershman, D., Galea, S., Leoce, N., Bovbjerg, D., … Neugut, A. (2013). Racial disparities in posttraumatic stress after diagnosis of localized breast cancer: The BQUAL study. Journal of the National Cancer Institute, 105(8), 563–572.

World Health Organization. (2012). Breast cancer: Prevention and control. Retrieved from: http://www.who.int/cancer/detection/breastcancer/en/

Zeidner, M., Schwarzer, R., & Jerusalem, M. (1993). Hebrew adaptation of the Generation Self-Efficacy Scale [measurement instrument]. Retrieved from: http://userpage.fu-berlin.de/%7Ehealth/hebrew.htm