Do you have a closet full of clothes but nothing to wear? Too many women dealing with lymphedema after breast cancer treatment are needless victims of fashion. Each year, approximately 260,000 North American women are told they have breast cancer (American Cancer Society, 2007; Canadian Cancer Society, 2007). Thankfully, medical innovation screening and treatment have led to increased survival and lower recurrence rates (Passik and McDonald, 1998). As women move beyond the emotional crisis of diagnosis, they want to resume their normal lives. Quality of life issues faced by survivors in their journeys with, through, and beyond cancer are a key part of survivor support and care.

So what is a woman to do if she is one of the 10-50% who develops lymphedema post-surgery and radiation? Breast cancer treatments and late effects, such as LE, dictate that her wardrobe choices must now accommodate possible bust asymmetry due to a lumpectomy or mastectomy, a prosthesis, new bras, as well as extra attention to the depth of garment necklines and armholes. Treatment to reduce fluid volume requires the use of compression bandaging, pneumatic compression pumps and compression garments, thereby eliminating many of the blouses, jackets and dresses in a woman’s prediagnosis wardrobe. Women with LE are entitled to comfortable, attractive clothing that fits their individual bodies and functions for everyday living. Regrettfully, few ready-to-wear styles suit their altered body shapes, impacting both physical and psychosocial well-being.

CLOTHING NEEDS ANALYSIS
Clinical and research staff at Princess Margaret Hospital (PMH) saw the difficulties these women faced. In 2005, a unique partnership was formed when Joyce Nyhof-Young, a research scientist with the Breast Cancer Survivorship Program at Princess Margaret Hospital (PMH) teamed up with professors Sandra Tullio-Pow and Susan Barnwell from Ryerson University, School of Fashion. In the Spring of 2006, the research process began with four focus groups, in which LE patients discussed their concerns.

These women experienced thermal comfort fluctuations due to hot flashes, uncomfortable sleeves that constricted the bicep area, and tight cuffs that would not close around their swollen wrists. Fabric and the bulk of seam allowances irritated their sensitive skin. Buttons could not be easily manipulated. They worried about skin injuries from metal zippers causing a potentially life threatening infection. They spoke with anguish about feeling unattractive and frustrated that they could not find anything to wear to their children’s weddings. Additional
physical changes, decreased range of movement, diminished fine motor skills, appearance anxiety and fear, clothing that did not fit, all became constant reminders of their ordeal with breast cancer. They were passionate about their desire for stylish, comfortable clothing to camouflage their arm, fit their lifestyle, and erase all outward evidence of breast cancer and LE.

CLOTHING SOLUTIONS
In response, the design team researched post-mastectomy clothing preferences, and how the psychology of fashion enhances the relationship between looking good and feeling better. The creative process began with a functional clothing design perspective. Our goal was to engineer garments to meet the wearer’s special needs by prioritizing comfort, mobility and serviceability. Current fashion trends and color palettes were reviewed because, of course, the clothing had to look fashionable without any stigma of being designed for a medical condition. Our research led to an innovative and stylish clothing collection for women with lymphedema.

CAMOUFLAGE
A variety of sleeve styles will accommodate arm asymmetry with lots of ease in the upper arm. These include: a drop shoulder, raglan sleeve and dolman sleeve. With this in mind, a series of dolman style tops were fabricated in a soft cotton/soy/spandex knit. Knitted fabrics provide comfort, are machine washable, dryer friendly and do not require ironing. The dolman silhouette conceals the arm size and profile and the shaped hem across the tummy is slimming. A kangaroo pocket provides a place to rest the arm and carry small objects. These styles can be produced in a variety of colors and fabrics suitable for the season. For a complete casual look, a straight leg pant was designed to coordinate with the dolman tops. It is important to recognize the inherent style versatility. These designs can be dressed up or down, according to fabric selection. Imagine, the basic dolman made up in luxurious stretch velvet, worn with a string of pearls and satin wide-legged pants during the holiday season.

CLASSIC STYLING
The oxford blouse (page 11) is a wardrobe basic suitable for business or daywear. Both tailored and dartless styles were created. In order to accommodate arm asymmetry, key changes made to this classic style included dropping the shoulder to deepen the armhole and adapting the cuff into a looser decorative wrist band. Magnetic button style closures replaced buttons and buttonholes for greater ease in dressing.

THERMAL COMFORT
Warmth and ventilation combine in this relaxed polar fleece Scarf Cape. It is easy to don and doff as well as versatile, remove the scarf to allow for individual color customization. The asymmetric hemline may be worn short in the front, long in the back or short on one side.

HANDS-FREE CARRYING
The Carry All Coat has an attachable bag with lobster claws at the shoulder and waist, as well as pockets. The sleeve on this coat has a dropped shoulder, deep armhole and decorative wrist-band detail. A zip in/zip out Thinsulate® lining provides wear comfort over multiple seasons. Strong magnetic closures allow easy manipulation.

MODULAR BAG & BELT
This was perhaps the most innovative product we developed. The bag has a therapeutic arm sling built into the back of the largest of its three modules, allowing the wearer to unobtrusively rest and protect their arm or carry a newspaper. A wide, adjustable shoulder strap distributes weight evenly over the shoulder unaffected by lymphedema. Large zipper tabs are easier to use for those with stiff or swollen fingers. For flexibility; a woman can carry one, two or all three modules. An LED light is installed inside the largest bag for improved visibility, and the bags come in a variety of colors (classic black and grays, as well as blues and reds). A wrist strap converts the smallest module for those quick trips into the store and to hang keys. The smallest bag also hooks on a contoured body belt for the ultimate in hands-free carrying.

The collection of clothing and
accessories was created and then field-tested with patients, healthcare providers, fashion industry experts and the PMH staff in 2007 (see Patient Comments). Patients kept diaries and provided feedback to the design team allowing us to incorporate improvements into newest design prototypes.

PATIENT COMMENTS

On self esteem

“What I liked about this line is that it took away from the appearance of your arm, and nobody would have known I had lymphedema.”

“…my sense of well being was really improved, and it just felt good. When you feel good, your day is good. It doesn’t change anything I did socially, but it made me feel better doing it. I think appearance, and the way you feel about yourself, has a lot to do with your health and how you enjoy life, and it certainly will help a lot of people if you get this on the market.”

On fashion image

“Actually I got more questions about the bag and “where did I get that”? It looks great. You know it drew attention in a positive way.”

“If you didn’t point it out to people that you were wearing special clothing and accessories...they had no idea, and then when I mentioned what it was, they were intrigued and thought, wow this is great...

We have discovered that clothing solutions are fairly easy to engineer into a garment and can lead to markedly improved quality of life for LE patients. A grant to manufacture and market trial these products was received from the Ontario Partnership for Innovation in Commercialization and the Office of Research Services at Ryerson University. We are currently looking for opportunities to partner with clothing manufacturers to produce the clothing and accessories on a larger scale for all those women who require them!

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REFERENCES


