"Shapewear" for women as a postural improvement garment

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Background:

Young women tend to transform their physical appearances to prevent low self-esteem since media portrays the thin body which influences women's body image attitudes (Grabe, Hyde, & Lindberg, 2007). There have been many attempts to develop body shaping products that provide an ideal body shape which is slim and curvy. Jones and Guilbault (2014) stated that shapewear transforms the silhouette and creates the illusion of an hourglass figure. Even though shapewear may have negative effects on health such as gastric reflux, compressed stomach or intestines (Steele, 2001), U.S. sales of shapewear were $697.6 million last year (Jones & Guilbault, 2014). Many women like to wear shapewear to improve body appearance although it may be uncomfortable. However, Steele (2001) emphasized that a corset, which is a type of foundation garment today known as shapewear has a positive effect on health because it can improve body posture and ease back pain.

McRoberts (2008) stated that human posture is an important factor in improving body image with poor posture making a person feel tired, ill, and unattractive. There have been many products designed to improve posture called posture correctors or back supporters. However, these products may be uncomfortable due to rigid materials which stress skin, and limit mobility so everyday use is difficult (McRoberts, 2008). McRoberts found that a soft structural support garment could help postural alignment.

Since there is a possibility of postural improvement by wearing a soft structural garment, it is expected that shapewear, often used for aesthetic purposes only, could also provide positive long-term effects on body posture. The purpose of this pilot study was to begin developing a shapewear prototype which provides back support for effective postural improvement by modifying a commercial product. A research question was posed: Can a simple modification of a shapewear product make the product more effective in improving posture compared to a commercially available shapewear product?

Methods:

The chosen commercial product was a bodysuit by "Self Expressions" with coverage from upper back to mid-thigh featuring an open bust area so that the woman can wear her own bra under the suit. The fabric was described as "firm" and made of 81% nylon and 19% elastane. This product was chosen because it was designed to provide overall definition of the middle part of the body, to lift the hip, flatten the tummy and provide a defined waistline. Another reason was the competitive price. Jones and Guilbault (2014) stated that the lower-priced shapewear lines have contributed to increased sales in the shapewear market. The prototype was developed by modifying the commercial shapewear inserting four flexible bands made of 68% nylon and 32% elastane to the inside back of the garment, spanning from shoulder across the back to the opposite side seam. Three participants volunteered to participate in this pilot study. All

participants were Asian, ages 25 to 28, and wore the smallest size. They were scanned using a 3D Human Solutions body scanner. Participants were each scanned three times: 1. in no shapewear, 2. in the commercial shapewear, and 3. in the modified shapewear. Participants wore their own underwear for all scanning processes. Participants were scanned in 9 postures divided into 3 main themes of standard postures, active postures, and carrying an item. Standard postures included standing (posture 1) and standing wearing a simple sheath (posture 2). Active postures included bending (posture 3), sitting on a chair (posture 4), and walking up a stair (posture 5). Carrying an item included standing with shoulder bag on the right shoulder (posture 6), bag carried cross-body (posture 7), carrying a bag with the right hand (posture 8), and wearing a backpack (posture 9). The same postures were compared among 3 wearing conditions for each participant. The shoulder angles and spine angle were analyzed based on reference lines. Figure 1 is an example of the visual analysis of posture 8.

Results:

Postural improvements were observed for participants wearing the modified shapewear appearing to provide postural improvement compared to the commercial shapewear and no shapewear for each participant and most postures. The angles of spine and shoulder were aligned when wearing the modified shapewar also providing a balanced center of gravity. The effectiveness of the modified shapewear in improving posture indicates that this type of simple design modification might be applied to any shapewear product to prevent or treat poor posture. A larger, comprehensive study will be conducted to further test and refine the design of a prototype that provides desired aesthetic and health effects.
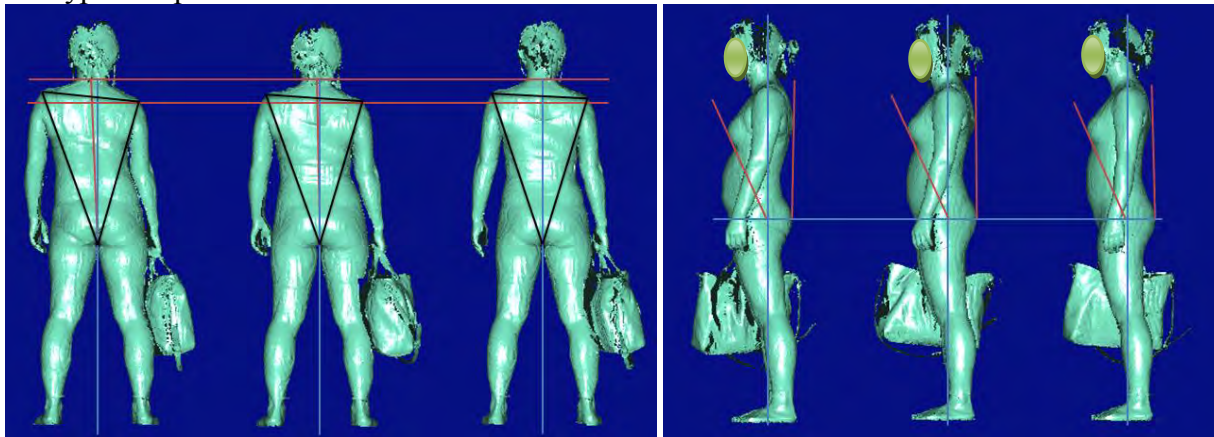

Figure 1. Visual analysis of the back and side view of posture 8 in no shapewear (left), commercial shapewear (middle), and modified shapewear (right).

References:

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