

Comparison of Compression Properties of Stretchable Knitted Fabrics and Bi-Stretch Woven Fabrics for Compression Garments

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Abstract : Stretchable fabrics have diverse applications ranging from casual apparel to performance sportswear and compression therapy. Compression therapy is the universally accepted treatment for the management of hypertrophic scarring after severe burns. Mostly stretchable knitted fabrics are used in compression therapy but in the recent past, some studies have also been found on bi-stretch woven fabrics being used as compression garments as they also have been found quite effective in the treatment of oedema. Therefore, the objective of the present study is to compare the compression properties of stretchable knitted and bi-stretch woven fabrics for compression garments. For this purpose four woven structures and four knitted structures were produced having the same areal density and their compression, comfort and mechanical properties were compared before and after 5, 10 and 15 washes. Four knitted structures used were single jersey, single locaste, plain pique and the honeycomb, whereas four woven structures produced were 1/1 plain, 2/1 twill, 3/1 twill and 4/1 twill. The compression properties of the produced samples were tested by using kikuhome pressure sensor and it was found that bi-stretch woven fabrics possessed better compression properties before and after washes and retain their durability after repeated use, whereas knitted stretchable fabrics lost their compression ability after repeated use and the required sub garment pressure of the knitted structures after 15 washes was almost half to that of woven bi-stretch fabrics.

Keywords : compression garments, knitted structures, medical textiles, woven bi-stretch

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