

عنوان مقاله:

An Experimental Comparative Study on the Commercial Sports bras Combined with an Electromechanical Modeling

محل انتشار:

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خلاصه مقاله:

One of the main points when exercising is the use of proper sportswear to minimize injuries and improve athlete performance. This study aimed to investigate the effects of the design, the number of components and seams, and the presence of pads on the movement comfort of sports bras. Two popular sports bras were considered: one containing some components and sewn seam and the other is a seamless bra without pads. To measure the bra tension during sports activity, a metal thread sensor was implemented for recording motion changes. To simulate the simple movements of sports activities, three movements of the hand and body were performed. The stretch changes of the bra were recorded in the form of voltage changes. The results showed that the seamless sports bra in the shoulder straps put more stress on the body; however, this sample in the bottom of the gore and the bottom of the wing-back had fewer voltage changes than those of the other type. The racing back bra offers better support than other types due to its special design and covering more areas of the athlete's back with elastic fabric. The Increased number of bra components and seams and the presence of pads increase tension, resulting in reduced comfort at the gore and the bottom of the wing-back. An equivalent electromechanical model presented in the research for theoretical modeling of the sensor behavior, also confirms the experimental results and shows a high correlation coefficient (۷۵% and more) between the experimental results and the model.

کلمات کلیدی:

Commercial sports bra, Breast movement, Movement comfort, Metal yarn sensor, Electromechanical model

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