

## Developmental Study of Golfwear using Bio Far Infrared

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As sports has become an important part of today's lifestyle, interest upon sports has changed in accordance with the cultural changes. Recently, private sports with recreational and entertainment characteristics have become popular and golf is one of the most representative field among different sport activities. Nowadays, golf is no longer a symbol of a high class and conservative sports for rich population, but it is a sport which can be enjoyed easily by the mass population. The purpose of this research is to enhance the comfort and function of golfwear and this was carried out by attaching far-infrared material on the surface of golfwear and analyzing its effect upon the wearer's body.

The research method included both the consumer survey, and the wearing experiment. The consumer survey included items on the recognition of far-infrared apparel, degree of fatigue after wearing the far-infrared apparel. And the subjects were asked to record the change of endurance and perspiration order once every week for a month. Wearing experiment was conducted by measuring physiological reactions such as skin temperature, within clothes temperature, blood pressure, heart beat, and amount of blood flow.

The experiment was conducted to the next sequential steps i) entering the laboratory, resting for 30 minutes. ii) after taking off the unfinished shirts, measure the physiological reactions. iii) wearing the finished T-shirt for 20 minutes. iv) after taking off the finished T-shirt, measure the physiological change immediately, 1 minute, 3 minutes, and 5 minutes. The experimental clothing included i) unfinished cotton T-shirt, unfinished pants, unfinished socks, ii) finished T-shirt, finished pants, finished socks, iii) unfinished polyester T-shirt, unfinished pants, unfinished socks, iv) finished polyester T-shirt, finished pants, finished socks. The lab environment was 25°C, humidity 50%.

The results are as follows:

1. According to the consumer survey, perspiration order was reduced significantly and clothing comfort was increased.
2. In the case of the subject with the ache in shoulder was disappeared. And this suggests that

far-infrared material not only has anti-bacterial effect but also accelerates blood flow, and consequently reduces pain.

3. The amount of blood flow compared between the first 3 minutes after wearing and taking off 3 minutes, there was an increase of 6.7% in the finished T-shirt, whereas an increase of 50% showed in the unfinished T-shirt.
4. There was little change in the blood pressure and heart beat.
5. Within clothes temperature tend to increase as time passed whereas within clothes humidity tend to decrease.