

# Body Composition and Grip Strength Changes (BCGC) after a 12-week Physical Jogging Program for Health Professionals in a Medical Center in southern Taiwan – Pilot Results of the BCGC Program

Wen-Chuan Shen<sup>1</sup>, Nain-Feng Chu<sup>1,3</sup>, Der-Min Wu<sup>2</sup>, Chuan Man Chu<sup>3</sup>, Chen Hua Zhang<sup>3</sup>, Yan-Ru Yin<sup>3</sup>

<sup>1</sup>Division of Occupational Safety and Health, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan

<sup>2</sup>School of Public Health, National Defense Medical Center, Taipei, Taiwan

<sup>3</sup>Department of Occupation Medicine, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan

## Background

Physical inactivity may be associated with obesity and many chronic disorders in adults. This study is to evaluate the effects of physical jogging program on body composition and grip strength changes among health professionals in a medical center in southern Taiwan.

## Methods

The Body Composition and Grip strength Changes (BCGC) program is a program that encourages health professionals to increase their daily activities. The participants were asked to record their daily steps for 12 weeks. If their steps reached more than 7500 steps/day and 5 days/week for 12 weeks, then it counts as goals achieved. Body composition and grips strength are recorded every week. Body composition was obtained using a segmental body composition analyzer (TBF-410, Tanita Corp., Tokyo, Japan). Grip strength was measured using digital dynamometers (TKK5101).

## Results

102 female subjects with a mean age of 42 years (from 26 to 58 ages old) participated in this program. Among them, only 15 subjects fail to achieve the target goals (as 7500 steps/day and 5 days/week for 12 weeks) and the successful rate was about 83.3%. The subjects completed this program had greater weight reduction, decreased BMI and waist circumference, and increased grip strength. For example, the waist circumference reduced from  $88.1 \pm 9.9$  cm to  $85.6 \pm 9.8$  cm ( $p < 0.001$ ) and grip strength increased from  $31.4 \pm 5.7$  kg to  $32.6 \pm 5.1$  kg ( $p < 0.001$ ). However, subjects who failed to complete this program also showed this tendency but with mild attenuated results. Furthermore, BMI is the only factor that can predict those who complete this program with OR 1.75 (95% CI 1.09-2.83) for every increase one unit BMI.

## Conclusions

From this pilot program, we found that physical activity programs such as walking and jogging for more than 12 weeks may be associated with more healthy body composition and increased physical ability (grip strength). It is encouraged to promote physical activity programs in hospital for those with related sedentary working condition.