INTRODUCTION

• High-heeled shoes are being worn for fashion and societal purposes. High heeled shoes cause irregular foot pressure distribution and alters lower extremity kinetic and kinematics.

• However, heel insoles (Figure 1) are used for therapeutic purpose.

• Purpose of the study is to compare the ground reaction force, and lower extremity kinetic and kinematics of gait with and without height increasing heel insoles.

EXPERIMENTAL METHODS

• 2 healthy male (mean age: 29, height: 173cm, weight: 73kg, shoe size: 270cm)

• Level walking; 2 trials without insole and 2 trials with height increasing heel insoles. 1 minute of practice walking to be habituated to the heel height before the 4 trials. The kinetic and kinematic data during the stance phase of the right foot was used for data analysis.

CONCLUSIONS

• More plantarflexed ankle angle shortened gastrocnemius and soleus muscles.

• Limited concentric contraction of the plantar flexor muscles means a loss of work required for propulsion.

• The reduced plantar flexor moment limited the power output.

• Because the insoles were cushioned and the trials were conducted without fatigue, the ankle could compensate the altered mechanics, and similar patterns of the knee and hip kinetic and kinematics were present.

• Future studies need to assess the effects of long-term use of height increasing heel insoles to figure out the lower extremity fatigue rates.

• The alteration of ankle kinetics and kinematics may increase the ankle instability and the risk of lower extremity injuries.

• Proper height of insoles are needed to improve the gait pattern and prevent potential lower extremity injuries.

REFERENCES