

## Comparison of dynamic plantar pressure in Type 2 diabetic patients between China and Czech Republic

Luming Yang<sup>1</sup>, Radim Kocourek<sup>1</sup>, Petr Hlaváček<sup>1</sup>, Jin Zhou<sup>2</sup>, Wuyong Chen<sup>2</sup>

<sup>1</sup> Faculty of Technology, Tomas Bata University, Zlin 760 01, Czech Republic;

<sup>2</sup>The Key Labry of Leather Chemistry and Engineering of Ministry of Education, Sichuan University, Chengdu 610065, Sichuan, China

**Background and aims:** Hawes (1994) has suggested that the characteristics of foot are typical of ethnic or racial populations. However, seldom research (Veves et al., 1995; Abbott et al., 2005) has focused on plantar pressures of diabetic patients in different ethnicities, and more investigations are needed in this research field. Therefore, the aim of this study is to identify differences of dynamic plantar pressures in type 2 diabetic patients between China and Czech Republic. Czech Republic is a country with a high occurrence of type 2 diabetics, even comparing with the rest of EU. On the other hand, China is a burdened country by the "civilizing disease". **Patients and methods:** A total of 31 (15♀+16♂) type 2 diabetic patients without neuropathy (aged 65.7±9.2 years; BMI 28.9±5.8; duration of diabetes 13.3±8.3 years) in Czech Republic and 31 (15♀+16♂) type 2 diabetic patients without neuropathy (aged 65.4±1.7 years; BMI 25.6±2.8; duration of diabetes 14.4±5.2 years) in China were recruited. Plantar pressures were collected by EMED system (Novel, Germany). All participants were required to walk barefoot at a self-selected speed, the parameters of peak pressure and contact areas were collected. During analysis ten plantar regions were identified: hind foot, mid-foot, the first (MH1), second (MH2), third (MH3), fourth (MH4), fifth (MH5) metatarsals, big toe, second toe and toes 345. Only data from the right foot was analyzed, independent samples *t*-tests were used to compare dynamic variables between two groups. **Results:** The contact area was significant bigger in Czech group (133.2±16.4 vs. 115.4±13.9 cm<sup>2</sup>, *p*<0.001). No significant differences of peak pressures were found between two groups except for the MH5 regions, in which China group is higher than Czech group (282.8±156.7 vs. 214.4±96.0kp, *p*<0.05). Pearson correlations were performed between BMI and peak pressures for the foot across both groups. A poor significant correlation was found between BMI and peak pressure (TO) (*r*=0.36, *p* < 0.01). **Conclusion:** No significant differences of peak pressures were found in type 2 diabetic patients between two countries. It was not correspond with the previous research (Veves et al., 1995). Enlarged samples are needed in further studies, and also feet geometry should be compared in the further studies.