Barrier-free Design of Shifting Machine for the Physically disabled
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\textbf{Abstract:}  The physically disabled who have mobility impairments in lower limbs or lumbar due to congenital or acquired injuries, hypofunction or spinal injury hope to move without help. The shifting machines can achieve the goal by holding those people up to move. The existing shifting machines have some inconvenience such as occupying large space, difficulties in moving and operating. Taking one hundred and twelve physical disabled people as the research objects in some cities such as Nanjing, Zhenjiang, Changzhou and Shanghai in China, via the Chinese ministry of civil affairs and the local civil affairs bureau, the questionnaires were sent to the target groups and the feedbacks of using the shifting machine as well as the factors influencing buying the machine were collected. The scientific research methods, such as measurement, behavioral observation and interview were employed to study the relationship between the physical disabled and the shifting machine. The author analyzed the impact of the user's behavioral and physical features on the function and size of the shifting machine. The study shows the results of body size and activity of the physically disabled. Based on the principles of safety, accessibility and comfort, the shifting machine was designed from a new perspective in function, structure, and the form size to the new design enhances the harmonious relationship between the physically disabled and the shifting machine, and meet the individualized demands of the physically disabled.

\textbf{Keywords:}  ergonomics; the physically disabled; the shifting machine; barrier-free design; behavior

\textbf{References}


