

H-T. Fan, T-L. Lee, K-C. Weng, M-L. Liao. *A step machine for the elderly with osteoarthritis. Gerontechnology 2008; 7(2):100.* A step machine has been designed for the elderly with advanced osteoarthritis of their knees that has resulted in difficult knee joint movement and leg muscle weakness. We built a special step machine that strengthened the leg muscles with only a small range of motion required of the knee; hence improving the range of the motion of the knee joint¹. The structure used a footboard with forcing on the gear to the unidirectional bearing and the connecting rod, and finally leading to wheel revolution. The athletic situation was recorded by a torsion sensory element and a revolution sensory element to pass the messages processed by the microprocessor system, and then finally displayed on the liquid-crystal²⁻³. Moreover, utilizing a touch panel, the fitness user could easily adjust the strength of the foot pedal on his or her demand. The user obtained the condition of the movement information and the physical ability, so s/he got the best advantages from the fitness. **Results and discussion** (i) A step machine for the elderly with osteoarthritis has been designed. (ii) A solid model mechanical design was finished and a real prototype has been completed (*Figure 1*). (iii) A finished prototype has been used by a simulation of elderly (*Figure 2*). (iv) A complete LCD touch panel.

References

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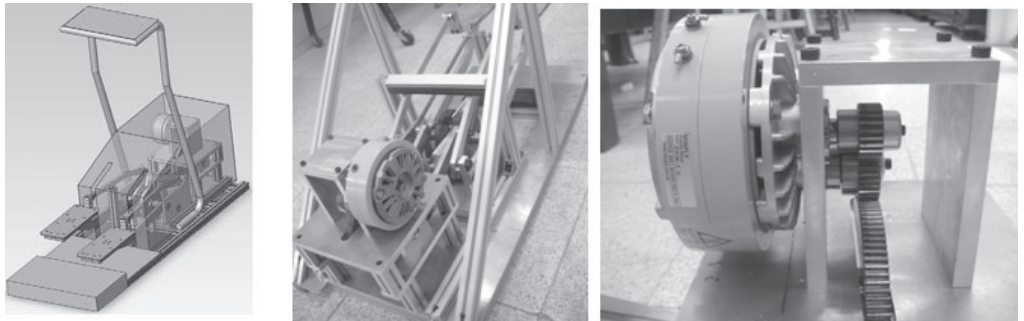


Figure 1 The solid model mechanical design and a real prototype of the step machine



Figure 2 A finished prototype of the step machine was using by the simulation of elderly