

# **Special track : IQOL**

## **Improving Quality of Life**



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# “WHO” definition of QOL

## ■ Health

- ◆ A state of complete physical, mental, and social well-being not merely the absence of disease...

## ■ QOL

- ◆ An individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns.



## ■ Research related to QOL has covered a very wide area.

- ◆ Treating or curing disabilities:
- ◆ Making the lives of people with disabilities more comfortable

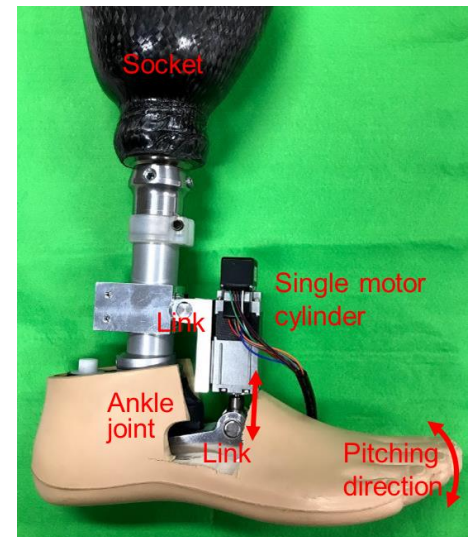


# **Researches in this special rack**

- Developing technologies that will help the disabled and/or the late elderly to move freely will be presented.
- Two contributions are related to improving the walking ability of the disabled and/or the late elderly.
- Two contributions are related to patients in a hospital.

# 48005: Proposal of Powered Foot Prosthesis Emulating Motion of Healthy Foot (PEHF)

- Several million people around the world live with limb loss.
- Foot prosthesis is useful to improve their quality of life.
- Existing ones are too expensive for most amputees.
- Developing and providing a low price and high performance foot prosthetic.
  - ◆ It emulates the motion of a healthy foot with a half cycle delay.
  - ◆ PEHF uses an industrial cylinder motor to push and pull the foot part of prosthesis.



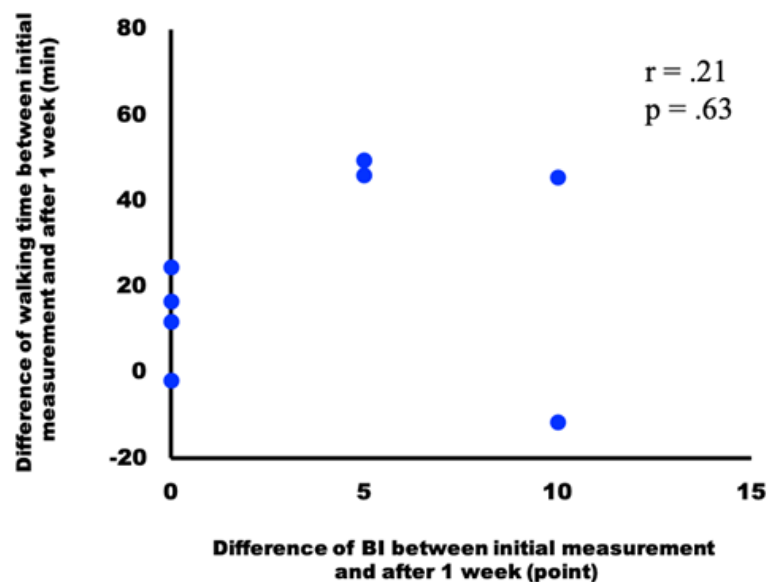
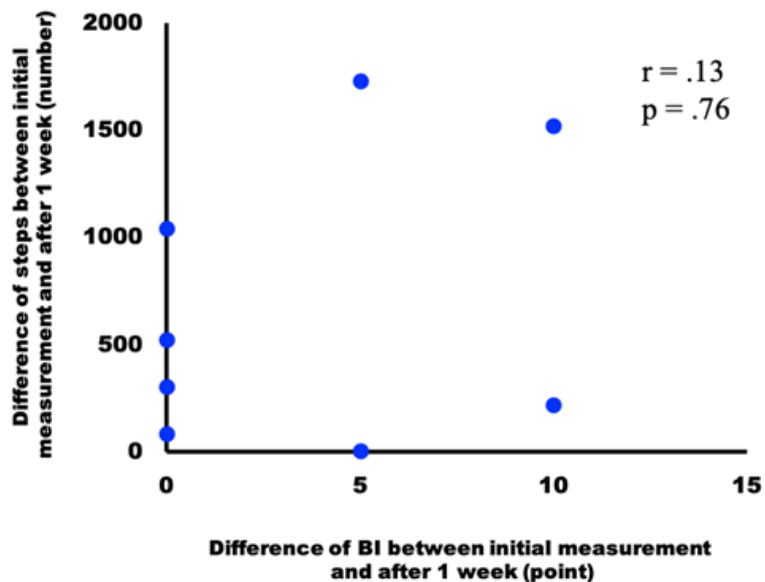
# 48006: Proposal of Spring Assist Unit for Walking Disabilities

- Proposed the spring assist unit for walking disability to easily raise their heel and smoothly walk.
- The iEMG values for every spring stiffness are lower than those without the spring assist unit.
- The magnitude of the spring stiffness at the lowest iEMG is linearly bigger and the body weight was greater.
- Measured the position of the head and mid-hip with and without the spring assist unit for each spring stiffnesses.
- The spring assist unit does not affect walking posture.



# 48003: Short-term Changes in Activities of Daily Living and Physical Activity Level of Inpatients Undergoing Rehabilitation Treatment

- One week of inpatient intensive rehabilitation treatment increased both steps and walking time.
- However, BI variability and variability in steps and walking time were not correlated.



# 48010: Multi-action Detection System Using Infrared Omnidirectional Cameras

- A novel patient monitoring system using an infrared omnidirectional camera for healthcare facilities is proposed.
- It enables detection and classification of various actions that can be dangerous for patients.
- It can accurately estimate the locations of multiple patients enabling each patient action to be identified in a wide area.
- It can be applicable not only to healthcare facilities but also to facilities that have wide areas.

