SELECTED PAPERS FROM THE JAPANESE CONFERENCE ON THE ADVANCEMENT OF ASSISTIVE AND REHABILITATION TECHNOLOGY
The Assistive Technology Research Series (ATR) aims to disseminate and archive assistive technology research summaries widely through publishing proceedings, monographs, and edited collective works. The series aspires to become the primary world-wide source of information in assistive technology research, through publishing state-of-the-science material across all continents. ATR defines assistive technology (AT) as any tool, equipment, system, or service designed to help develop, maintain or improve a person with a disability to function in all aspects of his or her life. Assistive technology helps people of all ages who may have a broad range of disabilities or limitations. The ATR series will accept manuscripts and proposals for a wide range of relevant topics.

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Selected Papers from the Japanese Conference on the Advancement of Assistive and Rehabilitation Technology
23rd JCAART 2008, Niigata

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Foreword

The Rehabilitation Engineering Society of Japan (RESJA) was established in March 1986. RESJA is an organization whose focus is the application of science and technology to the rehabilitation process. The membership of RESJA includes rehabilitation professionals (engineers, medical staff, teachers of handicapped children, etc), providers of equipment and services (manufacturers and suppliers), and consumers (disabled persons).

RESJA aims to promote mutual understanding among these groups so that they can better serve the actual needs of people with disabilities who would benefit from the application of rehabilitation engineering to their special needs. RESJA is growing, and has a current membership of almost 1,000.

The activities of RESJA are as follows:

1. Conference of rehabilitation engineering
2. Special Interest Groups (SIGs): These are 10 SIGs
3. RESJA Journal (Japanese), which is issued four times a year and publishes the work of clinicians in the rehabilitation field
4. Technical Aids competition: since 1989, the society has held an annual contest for the makers of Technical Aids; the RESJA prize is awarded at the annual JCAART or HCR meeting.

Although RESJA has facilitated these activities for some time, up to now they have not issued any publications in English. This publication has been made possible by the hard work of Dr. Hisaichi Ohnabe, acting as the executive committee chairman for the Conference of Rehabilitation Engineering in Niigata (23rd JCAART). The participation of IOS Press in publishing this book is greatly appreciated. We are most grateful to you and we are sure that the book will be widely read.

As to the future: let us continue our cooperation to develop assistive technology for those people who most need it: through the application of rehabilitation engineering.

Kiyomi Matsuo
President, Rehabilitation Engineering and Assistive Society of Japan
Saga University
Preface

Creating the Welfare-Driven City “QOL4ALL”

The welfare-driven city is, and it must be, a city for ALL people. The quality of life (QOL) of the older adults and people with disabilities in our society depends on there being a high quality of life for everybody. Able-bodied younger people must understand that in the future they are also likely to need the welfare services that are now being provided to others – people with disabilities and older adults – because they may also one day develop a disability and – if they are lucky – they too will become older. Rehabilitation engineering and assistive technology is firmly placed to drive such a future; certainly it can contribute through collaboration with older people, those who have special needs and many other specialists: for instance physical therapists, occupational therapists, nurses, policy makers, educators and so on.

I am sure that there are people here at 23rd JCAART who joined us in Niigata in 2008 and who can contribute: together we have laid the strong foundations that will create such a welfare-driven city, providing QOL4ALL.

We take this opportunity to thank Dr. R.A. Cooper (editor-in-chief) for providing the opportunity to publish this book and tell people in the wider world about rehabilitation engineering and assistive technology in Japan; the first super-aged society: a first in RESJA history. I am proud of our contribution from Niigata. We will contribute more in the future in this field, because we are the front runner among super-aged societies.

An international meeting to exchange wheelchair repair technology was held at the same time, contributing to extending the knowledge from the conference to technical high school students and volunteers. We would like to thank all of the authors for their contributions to the conference and to this book. Special thanks go to Dr. Diane M. Collins and also Dr. Don Parkes for proof reading the draft. Finally thank you to IOS press for their encouragement and patience.

At the final stage of this draft, we had the biggest disaster from earthquake, tsunami, and an unexpected radiological emergency in Japan. We hope this publication will encourage the people for the revival of Japan.

Hisaichi Ohnabe, Ph.D.
Associate Editor (RESJA)
Chair, Executive Committee of 23rd JCAART
Niigata University of Health & Welfare
(University of Pittsburgh)
Preface

Interprofessional Education and Rehabilitation Engineering

In the 21st century, Japan became a super-aged society. The mean life expectancy for men is 79 years, for women 86 years; an average of 82 years. Healthy life expectancy is the extent of a capacity for independent living, which is usually several years shorter than the mean life expectancy. A two year extension of independent living is the current official target set by health policy in Japan.

Although we have the cover of some types of medical and long-term insurances, we do have problems in health and social care, such as differences in service and care provision between cities and rural areas. This is due to a shortage of medical professionals in the countryside and the lack of insurance cover to fund services due to loss of employment. The rapid rate of increase in the elderly population has resulted in an increase in medical, health and social care expenditure, but the delivery of more and better seamless services between health and social care, from the hospital or clinic to the community, is nevertheless required.

To meet the many and varied needs of the elderly, a team approach in health and social care is vital in the super-aged society. Interprofessional education and collaborative practice is therefore essential. So what is interprofessional education? According to the definition of CAIPE (the Centre for the Advancement of Interprofessional Education in the UK) it involves members (or students) of two or more professions, associated with health or social care, engaged in learning with, from and about each other.

The Japanese Association for Interprofessional Education (JAIPE) was founded in 2008 to facilitate and spread interprofessional learning. In the annual scientific meeting, professionals from health-related fields report and exchange their experiences and ideas for collaborative practice, and faculty and students from the higher education institutions report the outcomes of their interprofessional learning. As the number of elderly people increases still further it will become even more important for all health-related professionals (and students) to understand rehabilitation engineering and assistive technology, including not only the manufacture of prosthetics, orthotics and other equipment, as well as wheelchairs and robots, but managing and improving users’ quality of life (QOL) and extending their capacity for independent living.

A department of prosthetics & orthotics and assistive technology was founded in our university in 2007. Students and graduates share their knowledge of users’ body function, body structure and impairments with other professionals (students) in health and social care in every academic year from the first to the fourth. They gain a thorough understanding of the background, including environmental and personal factors. Together, they devise strategies to improve the quality of life for patients and clients, actively involving the elderly and other service users, with the objective of becoming excellent supporters of their QOL.
Such interprofessional education and learning opportunities must be included in the professional courses of universities and colleges at both undergraduate and postgraduate level, as well as being integrated into continuing education for all health and social care professions. Upstream implementation of interprofessional education will result in fruitful downstream outcomes during the subsequent professional careers of these students, and the eventual improvement of QOL for service users.

Hideaki E. Takahashi
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