

**Application Title**

The governance research of the construction of a sustainable super-aged society using the device with AI-IoT by overcoming the impairment

**Key words**

Human beings, health, welfare, longevity, increase in disabled elderly, social security expense increase, rehabilitation medical treatment, intervention technique diversification, motivative exercise, overcome disability, development of regulations, burden reduction, sustainable super-aged society

**The necessity for international cooperation**

Aging of the people of both countries who gained longevity becomes a remarkable future increasingly. Both JP and UK have populations which are getting older. In the UK over 18% of the population are over the age of 65 years (Office for National Statistics, 2017, whilst in Japan has over 27% of the population over 65 years (World Bank, 2019) . The free medical service is provided to all British by NHS in UK.

Japanese can receive a preventive service at a maximum of 30-percent charge by the national health insurance.

The increase in the disabled person of advanced age or weak persons is remarkable, and it brings about the increase of a public financial burden of medical and care.

We are apprehensive about to be impossible for the next generation to bear the burden of the increasing social security about medical and nursing care services by the present situation.

The issue which should be solved by this research cancels the doubt about the sustainability of the social security common to both countries, and there is in guaranteeing health and welfare to all people.

Therefore, both applicants have organized an international academy, are dealing with the diversify the rehabilitation (Rehab) medical intervention method by making a motivative exercise [3] into a core, and are promoting the research which can improve "Acceptance of Disability" the core of the current Rehab medicine to "Overcome Disability ".

The Japan side researcher took into Artificial Intelligence (AI) and Internet of Things (IoT) to the device, and developed one which can carry out implementation of the kinetic training for intervention, and a remote superintendence.

We have not carried out the use examination of developed device yet.

And we do a use examination by both-countries cooperation, and make the problem of employment, etc. and the effect determinately.

Moreover, we re-verifies the development of the United Kingdom laws about prevention of the lumbago etc. as an advanced example where the applicant published a paper in 2006.

That is, we contribute to the governance construction for the sustainable super-aged society construction which can realize "Overcome Disability" on the Rehab medicine and the reduction of incidence of social security cost by verification and proposition of the legal system, and can realize a suitable employment of a new method by international cooperation.

**[The summary of a project]**

### ■ Performance goal

We take up the realization of "Health and welfare to all the person" in the Sustainable Development Goals (SDGs), which were adopted at the UN Summit in September 2015 as the main subject.

#### As a goal in the long term,

We show targets for an extended period as shown 1-2 in order to contribute to governance construction of the sustainable super-aged society construction;

1. Reduce the public financial burdens of the social security expense about medical and care by converting the Rehab medicine which made the present "Accept Disability" the core into the medical treatment to "Overcome Disability."
2. In order to enable sustainability of the social security by the reduction of the expense on medicine and care, we propose the development of regulations such as the same one for prevent lumbago and else as UK to JP and to introduce the guideline or regulations of the motivative exercise devices with AI and IoT for expecting as the same effect of the current UK regulations.

#### As a goal in the medium term,

1. We collect user data and do to make a physical condition change clarity by using the motivative exercise device with AI - IoT, and enable diversification of a Rehab medical intervention method by its enforcement.
2. We show the UK regulations change in 2006 and afterward, namely after an antecedence paper, and specify the preventive effectiveness of lumbago and else. And then we define the validity of development of regulations for our all studies.

### ■ The concept outline

Subjects are elderly. We enforce a verification of reduction possibility of the social security cost by maximization of "Overcome Disability" to the disabled elderly by implementation of the motivative exercise by using AI-IoT device and also a governance construction proposal towards its realization and the prevention of disabilities.

A motivative exercise is a Rehab intervention method by the autonomous both side kinetic training to an affected side with the guidance of an unaffected side leg.

Research on this method has been done since 1987 effect has been reported, and also analysis of the current Rehab intervention.

We were asked for and carried out the invitation lecture in the international congress on The 13th International Society of Physical and Rehabilitation Medicine World Congress in 2019.

Moreover, it is due for the randomized controlled trial between the passive exercise versus motivative exercise to sign an enforcement contract with the Latvia government social integrated agency and to be started by the end of this year.

Although the expectation is growing through long term research, we contribute to human beings due to advance co-evolution of the society and technology "Diversification of the intervention method" by AI-IoT mounting.

#### Related Web site;

UKRI-JST Joint Call on Artificial Intelligence and Society

<https://esrc.ukri.org/funding/funding-opportunities/ukri-jst-joint-call-on-artificial-intelligence-and-society/>

<https://esrc.ukri.org/files/funding/funding-opportunities/ukri-jst-call-specification/>

**JST-UKRI wants;**

Impacts on humans and society-Future happiness,  
wellbeing and the individual  
.Economic implications, skills, work and education  
.Transparency, responsibility, governance and ethics

Relevance to the Call

- Originality / Potential Contribution to Knowledge
- Research Design, Work Plan and Research Team
- Value for Money
- Knowledge exchange, Impact and Outputs
- Strength of International Collaboration

"Ultimately, the call aims to contribute towards the development of a platform for effective and sustained dialogue and engagement between a range of researchers and other relevant stakeholders, eventually leading to practical implementation and policy recommendations."