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Autumn
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Faculty of Medicine

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Board Editor

Yatsushiro Rika

Editor in Chief

Steve Cother

Contributing Editors

Nakatani Sumie
Morita Toyoko
Fukutomi Shō

Design & Printing

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KUToday is a biannual publication to present information about Kagoshima University to a wider international audience. Each edition will feature one faculty for prospective overseas students as well as other topics such as educational programmes, research and alumni information. Some articles are translations from the Japanese-language publication, *Kadai Journal*, upon which *KU Today* is loosely based. Any comments or suggestions about *KUToday* will be warmly received.

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A Note on Names

Following convention East Asian names appearing in *KU Today* are written family name followed by given name.

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Educating Health Professionals to Meet the Needs of Regional Communities

— Viewing Regional Communities from an International Perspective



Kawano Yoshifumi, Dean

Kagoshima University's Faculty of Medicine consists of two schools, Medicine and Health Sciences. The School of Health Sciences has a further three courses, Nursing, Physical Therapy and Occupational Therapy. Across our schools and divisions, we strive to provide comprehensive education for

the healthcare professions. In 2018, we will mark two anniversaries: 75 years since the founding of Kagoshima Prefectural Medical Vocational School, our direct institutional predecessor, and 20 years since the developmental reorganisation of Kagoshima University's School of Allied Medical Sciences into our Faculty's School of Health Sciences.

In Kagoshima, the history of western medicine goes back to 1868. In that year, the first of Japan's Meiji Era, the Satsuma Domain requested a British physician named William Willis to treat the injured from the Battle of Toba-Fushimi. The following year, Saigō Takamori, Ōkubo Toshimichi, and other leaders of the Satsuma Domain invited Willis, the then head of the Tokyo Medical School and Hospital, to work in Kagoshima. Willis placed great emphasis on the practice of medicine based on clinical evidence, a characteristic practice in British medical science, and he instituted bedside teaching in front of patients for medical students. He is also famous for teaching people such as Takaki Kanehiro (Takaki became the first Japanese person to hold an MD, achieved global recognition for his research on beriberi, is regarded as the father of modern, medical-perspective-based nursing in Japan, and was the founder of Tokyo's Jikei University School of Medicine). Willis was also involved in public health education: for example, he was instrumental in the imposition of a ban on the consumption of bovine carrion. His Akakura Hospital was also a medical school, and subsequently became the Kagoshima Prefectural Medical School. Even though this school was temporarily closed in 1888, a range of medical centres continued to exist in Kagoshima, before the baton was passed to the Kagoshima Prefectural Medical Vocational School in 1942. The Medical Vocational School is a

direct ancestor of our Faculty's School of Medicine; since it was founded, we have seen a number of reorganisations on the way to becoming today's School of Medicine. Southern Kyūshū has a strong need for a medical education programme, in particular one that can provide doctors and nurses for its many islands and other remote communities. We act to meet that need, and we have fulfilled this consistent mission up to the present, as the sole medical education institution in Kagoshima Prefecture.

Throughout its history, the Faculty of Medicine has performed three major roles: education, research, and medical care. However, since Kagoshima University joined the National University Corporation in 2004, we have concentrated education in the School of Medicine, research in the Graduate School of Medical and Dental Sciences, and medical care in the Kagoshima University Hospital, to meet the needs of society. These three independent bodies maintain a close collaboration as we endeavour to meet the needs of society by educating healthcare professionals.

Today's Japan has a declining birth rate and an ageing population of globally unprecedented proportions, and is thus confronting rapid depopulation. The challenges are accumulating: there are problems with medical and nursing care for the elderly, children are increasingly being mistreated, and emergency response measures are needed for events such as earthquakes. These are issues that Japan must grapple with as a society, and they demand the formulation and implementation of strategies at both the regional and national levels. Healthcare professionals with medical expertise and technical skills should be at the forefront of these efforts; knowledgeable and skilful doctors and nurses are needed in today's generation.

With these organisations, traditions, and social conditions underpinning our principles, Kagoshima University's Faculty of Medicine advances the education of responsible practitioners of medical science and treatment who are imbued with great humanity, who will contribute to their communities, and who possess lively and inquiring minds and a global perspective. Our aim is to cultivate healthcare professionals who can provide holistic care, researchers who can follow creative lines of inquiry, and individuals capable of exceptional leadership. At our campus in the expansive prefecture of Kagoshima (600 kilometres north to south), we are developing the education of healthcare professionals to achieve this aim.

School of Medicine

Knowledge, Heart, and Humanity

Hashiguchi Teruto, Professor

From its elevated position, the Faculty of Medicine commands a view across Kinko Bay to Mt. Sakurajima, the active volcano which erupts on a daily basis. We enrol about 117 students every year. Our students aim to become physicians capable of offering patients medical treatments guided by the most recent advances in the field at the same time as being a close supportive presence for the patient. Our students follow a six-year curriculum that consists of three major stages.

The first stage instills students with a sense of professionalism covering medical ethics and team medicine, and involves basic medical studies across the wide range of human anatomy, biochemistry, and physiology. Professors aim to leave their medical students with a lasting impression that goes beyond study and understanding of the mysteries of life.

The second stage allows students to use their knowledge of basic medicine in learning about clinical disease. This stage also aims to foster further understanding of team medicine; our students review patient scenarios with students in the Faculty of Health Sciences and pharmacy students from other universities. In this way, participants learn to respect the differences between doctors and other health professionals in the way they observe and approach the same patient, and become aware of the importance of sharing information among health professionals. This stage also involves respect for student autonomy; we create ample time for students to engage in research in a laboratory that attracts them. Our aim is for students to identify their own challenges and develop their ability to find solutions.

The third stage involves actual clinical training. Students examine patients and offer their opinions on the

condition, and we foster their capacities for considering treatment and examination plans. This practice is more than hospital observations; we implement training which proactively engages students in treatment and diagnosis. These clinical placements include stints in islands and isolated areas since Kagoshima Prefecture has many such far-flung communities. These placements are a distinct characteristic of the training at Kagoshima University's Faculty of Medicine. Our students thus come to understand the medical needs of communities in islands and remote areas by living in these areas and coming into contact with the local people.

Medical science is continually progressing, and our students will need to continue their learning in this field throughout their lifetimes, a crucial part of studying medicine. In the future, our graduates will be capable of providing their patients with the very best medical care of the day. Physicians give patients the main facts that govern their lives. Accordingly, physicians must take a humane approach when presenting patients with an unpleasant reality. Our hope is for education that instills such an approach in medical students in their university days, and fosters a rich sense of humanity.

Medical treatment inevitably has its limits. However, there are no limits on the spirit of a patient who has come to terms with his or her illness. We will continue in educating physicians with international horizons not limited by borders, who can give heart to their patients.

The faculty's School of Medicine was audited by the Accreditation Council for Medical Education in 2017. We were evaluated based on the standards for Basic Medical Education, and received our accreditation by fulfilling these standards.





Undergraduate courses

Faculty of Medicine

- School of Medicine
- School of Health Sciences
 - Nursing
 - Physical Therapy
 - Occupational Therapy

Faculty of Dentistry*

*To be featured in Spring 2019 issue

Postgraduate courses

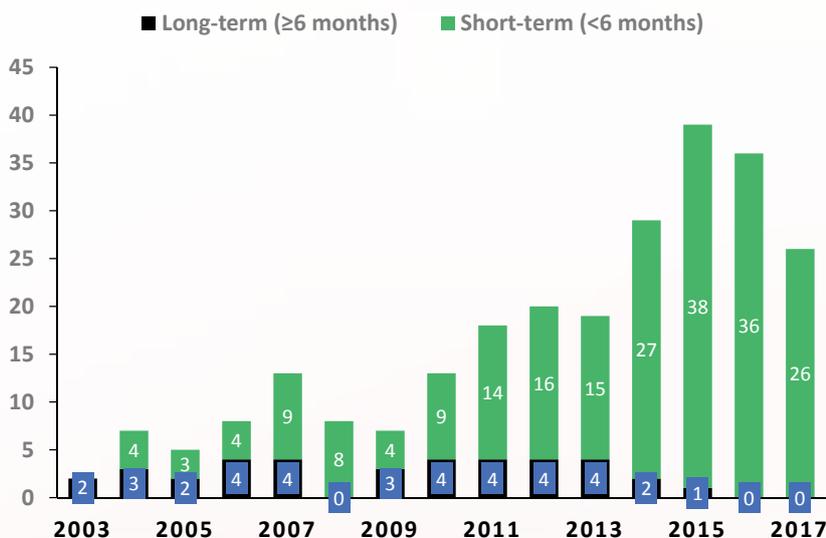
Graduate School of Medical and Dental Sciences*

- Masters in Medical Sciences
 - Doctorate in Health Research
 - Doctorate in Advanced Therapeutics
- *To be featured in Spring 2020 issue

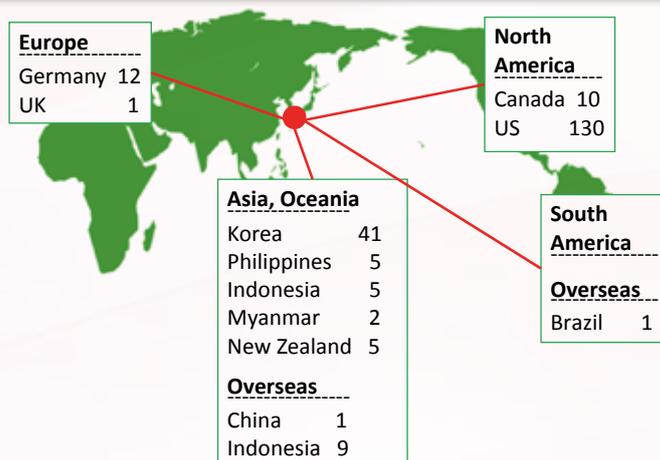
Graduate School of Health Sciences

- Masters of Science in Nursing
 - Radiological Nursing Course
 - Midwifery Course
 - Fundamental and Community Health Nursing
 - Clinical Nursing
- Masters of Health Science
- Doctorate of Philosophy in Health Science

Students studying abroad from Faculty of Medicine by year



Breakdown of students studying abroad and overseas students from 2003 to 2017 by country



School of Health Sciences



Yone Kazunori, Dean

Physical Therapy and Occupational Therapy with a total of 140 students. On graduation, all students are officially certified in their particular area. Through

The School of Health Sciences was opened twenty years ago in October 1998 to foster medical technicians who can respond to advances in medical techniques and the diversification of medicine, health and welfare due to changes in society such as ageing and the declining birthrate. The school has three courses, Nursing,

our education we hope that students will graduate with a well-rounded character, a high level of technical competence, an international outlook, educational leadership and creative research abilities.

The Graduate School in Health Sciences started its master's programme in 2003, followed by its PhD programme in 2005. The master's programme accepts 22 students, while the PhD programme intake is six. The school aims to contribute to society by providing the results of our research and comprehensive information and as well as by cultivating graduates with an advanced level knowledge and skills in health as well as those who can conduct excellent research and education and those who can promote health and medical services internationally or on small islands.

Nursing

Tsutsumi Yumiko, Course Director



The Course of Nursing was established in 1957 as a nursing school affiliated with the Faculty of Medicine. Since that time, we have moved forward with higher education for the training of professional nurses in southern Kyūshū, becoming a School of Allied Medical Sciences as three-year further education courses in 1985, transforming that programme into the current university curriculum in 1998, and establishing a graduate school curriculum in 2003. We have now established a registered nurse and public health nurse course in the undergraduate programme, and a midwifery course in the postgraduate programme. We introduced Radiology Nursing to the postgraduate programme in 2012, and we are also planning to add a course on nursing in islands and remote communities

in 2019.

Nursing science involves both practical and academic research on ways of supporting improvements in people's health, with an approach angled toward the living activities of the client. Accordingly, respect for clients as those living daily lives and a high sense of ethics form the cornerstone of our students' education. We strive to develop nurses with the following competencies: to provide practical nursing which respects client autonomy; to solve their problems with clients for issues confronting clients at any health status, to engage in interdisciplinary Health Care, and to contribute to community-based healthcare (including for island and other remote communities) while maintaining global perspective. We are pushing forward with research geared at high-quality and healthy lives for clients based on the characteristics of the region in which they live.

In April 2018, our course was reorganised merging four division into the following three: Fundamental and Clinical Nursing, Health Care Nursing, and Community-based Comprehensive Nursing. Through this reorganisation, our goal is for a trailblazing course of nursing that can deliver the above-stated research and development in the rapidly changing society of today.



Physical Therapy

Ōhshige Tadasu, Course Director



Basic Physical Therapy

Physical therapy (or physiotherapy) utilises exercise to ameliorate physical injuries or disabilities. Physiotherapists must understand human physical activity to provide such treatment. This means that aspiring physiotherapists need to study the fundamentals of anatomy, kinematics, and physiology. They also have to gain an understanding of some of our basic daily actions - how we stand up and how we walk. Such understanding is also crucial to the provision of physiotherapy.

In Basic Physical Therapy, students will investigate rehabilitation strategies for injuries to the nervous system or organs of movement through research with laboratory animals. The students will also analyse

human movements using three-dimensional motion analysers and surface electromyography. They will investigate mechanisms for age-related physical problems, and how to develop interventions to resolve those problems.

Clinical Physical Therapy

Physiotherapy can be indicated for patients with functional impairment. Such impairments can result from a range of causes, and the patient must be assessed to select the appropriate physiotherapy treatment; this requires high levels of knowledge and skill. In Clinical Physical Therapy, students learn about muscle strength, articular ranges of motion, and activities of daily living (ADL). They learn what patient movements signify, and clinically meaningful ways of applying kinetics and physiology. Students acquire proficiency as actual therapists through attending lectures and practical sessions within the university and gaining real-world experience in actual clinical settings.

Research activities involve rehabilitation for elderly people and people with cognitive impairment in the local community. Thermotherapy is the main focus in evaluations of physiotherapy outcomes, and students also investigate biomechanics-based approaches to assessment and treatment.

Occupational Therapy

Kubota Masatomo, Course Director



The Course of Occupational Therapy provides systematic acquisition of knowledge about diseases and disorders necessary for occupational therapy as well as knowledge about activities of daily living and occupation with the purpose to train occupational therapists who can be active in both clinical facilities and local areas.

The course is divided into the Basic Occupational Therapy and Clinical Occupational Therapy. The Basic Occupational Therapy consists of two professors and two assistant professors and focuses its educational and research activities on occupational therapy for physically handicapped and elderly people.

Recent research topics include research on the

daily activities of older people with dementia, studies on utilising IoT services to oversee the establishment of surveillance services, and research on cognitive rehabilitation for patients with brain injury. At the graduate school level, we are engaged in research on depression symptoms and anxiety in dementia patients, and on facilitation of self-determination as well as studies on working memory and learning.

The Clinical Occupational Therapy consists of three professors, one lecturer and one assistant professor, and conducts education and research on occupational therapy for people with mental disorders and children with developmental disabilities.

Recent research topics include occupational therapy techniques and measuring their effect on mentally handicapped patients, psychiatric examination of criminal behaviour by mentally handicapped people, research on sensory and motor functions of children on the autistic spectrum, and research on the influence of socio-cultural background factors on psychiatric occupational therapy. Furthermore, at graduate school level education, we actively work together with mentally challenged people's family members' associations and conduct field work and research aimed at benefitting local communities.

Global Nursing Student Exchange Programme

Exchange with Red Cross College of Nursing, Chung-Ang University, South Korea

Yamaguchi Saori, Assistant Professor

The Faculty of Medicine concluded an academic exchange agreement with the Red Cross College of Nursing, Chung-Ang University (CAU), South Korea in November 2012. We are strengthening the links between our two universities through mutual visits by students and faculty members. Since the initiation of student exchanges which occurred prior to the conclusion of the agreement, Kagoshima University has sent 20 students and 10 professors to CAU, and welcomed 30 students and eight professors from CAU.

Kagoshima University selects exchange participants from among the junior nursing students who have taken designated courses such as International Nursing for the relevant year. The themes of their designated classes provide exchange students with a framework to study nursing education and the healthcare system in

South Korea. CAU and KU students take classes at the university they are visiting, and participate in practical training at the University Hospital there, and visit health centres, clinics and welfare facilities in both countries. These exchange activities allow students from both universities to recognise the similarities and differences between nursing practice and education in Japan and South Korea. Students from both universities deepen their understanding of health care services, and the diversity of human resources and nursing education from a perspective beyond the borders of their own countries.

We are considering new measures for the future development of the exchange programme: for example, the awarding of credits to Kagoshima University students participating in the exchange with CAU.

Midwifery course (Graduate School)

Yoshidome Atsuko, Professor

Our two year postgraduate course aims to educate midwives who can become community leaders. The diploma policy states that graduates will have a fundamental competence to solve problems in mother and child health through the necessary research; that graduates will have a high level of midwifery expertise and skills; and that all graduates will understand the role that midwifery has to play in local communities. First year students have to undergo training at a hospital or clinic on an island which they are expected to plan

before going. In their second year, they will plan their training based on problems that they discovered during their first year. To ensure that they can act independently, all students are responsible for setting up their training positions themselves. This training enables students to understand the actualities of medical services on the islands as well as see the importance of coordination between hospitals and the community. It is hoped that this will lead more students become interested in medical services in the islands.

Island nursing practice

Higashino Yuki and Terada Kanari, students

Amami-Ōshima

I took part in nursing practice for maternal and child health on islands at Setouchi Town Hall, Tatsugo Town Hall, Prefectural Ōshima



Hospital, and Naze Tokushūkai Hospital. The island of Amami-Ōshima was a beautiful with its blue sky and sea, extremely kind people and clean air. During the practice, I could see that the local people and professionals health nurses and midwives worked together to support mothers and babies, and learned that they carry out midwifery calmly surrounded by the warm people and climate in spite of the risks that are special to islands.

Tokunoshima

We did nursing practice at Tokunoshima Tokushūkai Hospital, Amagi Health Centre, Isen Health Centre and Tokunoshima Health Centre. On the island, we enjoyed learning in the relaxed and warm atmosphere. Tokunoshima, the Island of Babies, is well-known for its total fertility rate. We were able to see how everyone watches out for those raising children on the island. Our nursing practice was enriched by the fresh and tasty island food as well as the beautiful sea, sky and flowers.





Education Centre for Nurses in Remote Islands and Rural Areas

Niwa Sayoko, Professor

The Education Centre for Nurses in Remote Islands and Rural Areas (ECNRIRA) represents an initiative to tackle one of Japan's high-priority challenges — the provision of comprehensive health care for isolated communities. The ECNRIRA was established in Kagoshima University as a practical step under the “Remote Region and Island Field Education Programme — Training for Providers of Cradle-to-grave Support to Isolated Communities” launched by the Japanese Ministry of Education, Culture, Sports, Science and Technology, in 2014.

A major feature of this programme is that all the training is conducted in remote regions and islands. We have a Basic Course, for students still attending the Faculty of Medicine's School of Health Sciences, and an Advanced Course, for nurses already working at a hospital or clinic. Last year, 13 trainees were enrolled in the Advanced Course and completed it successfully; this year 25 and 13 trainees are set to complete the Advanced and Basic Courses, respectively.

Course trainees have gone on to become island residents, work as district nurses, or play active hospital leadership roles in designing post-discharge patient support and providing staff training. In this way, they can make a major contribution as trained providers of cradle-to-grave support to communities in isolated islands and regions.

In 2019, we will build on the ECNRIRA's educational achievements, and establish a “Course on Nursing in Isolated Islands and Regions” in the Graduate School of Health Sciences.



Student Voice **Liu Lulu (China)**

I am currently working as a nurse on the neurosurgical ward of the Yao Tokushūkai General Hospital in Ōsaka.

While carrying out acute phase treatment, the ward promotes maximising the potential of the patient's daily activities, early rehabilitation, and helping them to get mobile as quickly as possible. Strong emphasis is put on the patients' quality of life, and care is given based on the individual needs of each one. My colleagues are all close at hand and are eager to help me out and I can feel that I am becoming a better nurse.

In the beginning, I found it difficult to communicate with the patients and their families, but with the practical advice of the other nurses I now feel that I have the confidence of the patients.

The hospital has two staffing systems: rotation and fixed. The rotating staff spend three months on either the internal medicine wards or surgical wards before moving on. This is much better than other hospitals where staff are moved on after two weeks, allowing us to gain more experiences on each ward. This kind of education system is refreshing.

There are also schemes where you can go and experience other departments in the hospital, or even go to hospitals on small islands. I will be spending eight months at a hospital on Okinoerabujima in

Kagoshima Prefecture, which will give me chance to put into practice what I studied on the

island nursing course at Kagoshima University, and also what I experienced when I did training at the clinic on the island of Takarajima.

Yamamoto Maki, ward head nurse

Lulu has managed to overcome her initial setbacks and is now working very hard. She is particularly good at trying to find ways to get over any obstacles she encounters.

Spending time at an island hospital will be extremely beneficial for her future and I hope that she will continue to blossom as a nurse.

Sakiyama Masayo, director of nursing services

Tokushūkai Hospital Group's island support scheme, provides doctors and nurses the chance to experience a work environment different to that in the large cities. This gives them an ideal opportunity to think about nursing conditions and patient ethics. The scheme brings about changes in those who have participated on it, which they can put to use when they return.



Physical therapy and para-sports

Matsuda Fumiyo, Assistant Professor

The Olympic and Paralympic Games will be held in Tokyo in 2020. They will provide a good opportunity for physical therapists and students of physical therapy, whose role is to support those involved in sports. In the same year, the National Sports Festival for People with/without Disabilities will also be held. On our course, we specifically support para-sports, which are those sports played by people with impairment, including physical, visual and hearing impairments, intellectual impairments and mental illness. We mainly take part in athletic tournaments that are held in Kagoshima, official/private practice meets and cultural events. From 2014 to 2016, we had the opportunity to participate in a project to support para-sport in Peru run by the Japan International Cooperation Agency (JICA) as short-term volunteer staff at the Peru National Disability Rehabilitation Centre (INR), which was built with funds from Japanese aid. We stayed in Peru for one month, joining in clinical practices and workshop for para-sports (boccia, flying desk, soft volleyball, sitting volleyball, wheelchair basketball, amputee soccer, port-ball, rope jumping, table tennis, and recreational activities) almost every day. Regardless of any linguistic barriers, we were able to help INR staff learn about their role and the methods of how to use para-sports for patients as a part of rehabilitation.



Community-based approach for frailty and disability prevention

Makizako Hyūma, Professor

Population age is rapidly increasing around the world. Japan has the highest proportion of older adults in the world. By 2030, one in every three people will be 65+ years and one in five people 75+ years (Matsumoto N, et al. 2011).

Geriatric syndromes, such as frailty, cognitive impairment, falls, functional decline, chronic pain, weight loss, anorexia, depression, and multi-morbidity, increase the risk of adverse outcomes such as disability, hospitalisation, and mortality. Geriatric syndrome prevention strategies are important to realise if we are to have a society of health and longevity. Community-based approaches for frailty and disability prevention would be useful to implement those strategies.

In the city of Tatumizu (population around 15,000; ageing rate 40%+), located in the eastern part of

Kagoshima Prefecture, we conduct a community-based health-check survey, which is designed to identify individuals



Community-based health check



Community-based interventions for frailty and disability prevention

at greater risk of disabilities including frailty and mild cognitive impairment. The health check survey includes the measurement of features such as physical and cognitive function,

body composition, and daily activities. In 2018, a database from more than one thousand seniors will be established.

Through the health checks, participants could recognise their health status including physical, cognitive, and mental health, and have an opportunity to promote their health. Participants who have an increased risk of disability, such as poor physical and cognitive function, are invited to join community-based intervention approaches, such as exercise classes.

Nonpharmacological, community-based interventions for frail older adults could be useful for disability prevention. Increasing various activities including physical, cognitive, and social activities may have a positive impact on dementia and disability prevention.



Occupational therapy education (developmental disability field)

Inoue Kazuhiro, Assistant Professor

Developmental disorder occupational therapy provides care to children suffering from developmental disorders, image disorders as well as motor disorders, children mental disorders, multiple handicaps and so on.

In recent years, the number of children diagnosed with autistic spectrum disorders, ADHD and the like is increasing; therefore, local support for their rehabilitation and everyday life is an urgent issue. In our lectures and practicums, we provide a comprehensive range of subjects such as Developmental Disorder Occupational Therapy and Development Disorder Assessment. In these classes, we incorporate active learning techniques focused on understanding image disorders, child development, various rehabilitation theories and practices as well as local lifestyle. In addition, while students have a high interest in children, there are few opportunities for actual contact with them. For that reason, from an early stage, we organise practical training at facilities for children with developmental disabilities in order to create opportunities to develop interpersonal skills and communication skills necessary for occupational therapy. Furthermore, while it is very difficult

nationwide to secure clinical practical training in the developmental disability area for 4th year students nearing graduation, 60% of our students (13 people) are currently under training at seven different facilities.

Our department aims to train excellent occupational therapists who can deal with patients of various ages and disabilities.



Occupational therapy for daily living performance in older adults with dementia

Tabira Takayuki, Professor

In our laboratory, in order to verify the effect of rehabilitation intervention on dementia-caused decline of daily living performance, we developed the Process Analysis of Daily Living Performance for Dementia (PADLP-D) through which we analyse everyday actions or abilities older adults with dementia are likely to lose (like seasoning food) as well as skills more likely to be retained (cutting ingredients, for example). We are also working on the development of a system using the Internet of Things and navigation in order to watch over the elderly and predict their activity and movements when out of bed. We also examine the relationship between important activity and cognitive functions and social activities in community-dwelling older adults. In the neurophysiological studies, we examine the effect of attention bias modification for

psychological symptoms such as anxiety, the effect of self-determination of occupational tasks.





Red Cross College of Nursing, Chung-Ang University

Baek Hee-Chong

Professor, Chair of Nursing Department, Red Cross College of Nursing, Chung-Ang University

In 2018, Chung-Ang University is celebrating its centennial. The Department of Nursing started in 1974 and merged with the Red Cross College of Nursing in 2011, integrating their academic excellence and establishing the largest institution for nursing education in South Korea.

In line with the spirit of “Live for Justice, Live in Truth” intrinsic to Chung-Ang University, the purpose of nursing education is to cultivate in our students a global worldview, the ability to contribute to both national and universal prosperity, and the professional knowledge to help lead in the development of the nation and society.

The academic programmes of the graduate school aim to nurture creative, future-oriented nursing experts committed to realising a just and prosperous society. The graduate programme in nursing offers the following degrees: Master of Science in Nursing (MSN) and Doctor of Philosophy (PhD) in Nursing. The graduate programme of Nursing and Health Professions offers the degree of Master of Science in Nursing (MSN) with Global Healthcare, Health Profession Education and Advanced Practice Nurse programmes in Gerontology and Oncology.

Our Simulation Practice in Nursing (SPRING) Centre was designated as the first accredited simulation centre from WISER (USA) and Laerdal Medical. It is a 1,317m² centre which provides an integrated environment for simulation of various “real world” nursing situations, with an ER, OR, ICU, NICU, and delivery room, as well as one bedroom apartment sized unit for home

visiting and disaster unit for health emergency in a large population.

In 2018, 1,260 undergraduate and 198 graduate students (170 MSN, 28 PhD students) were enrolled in the nursing programme. Our 220 faculty members, including 38 professors and a roster of adjunct professors, instructors, and clinical instructors, provide instruction, conduct research, and lead volunteer activities.

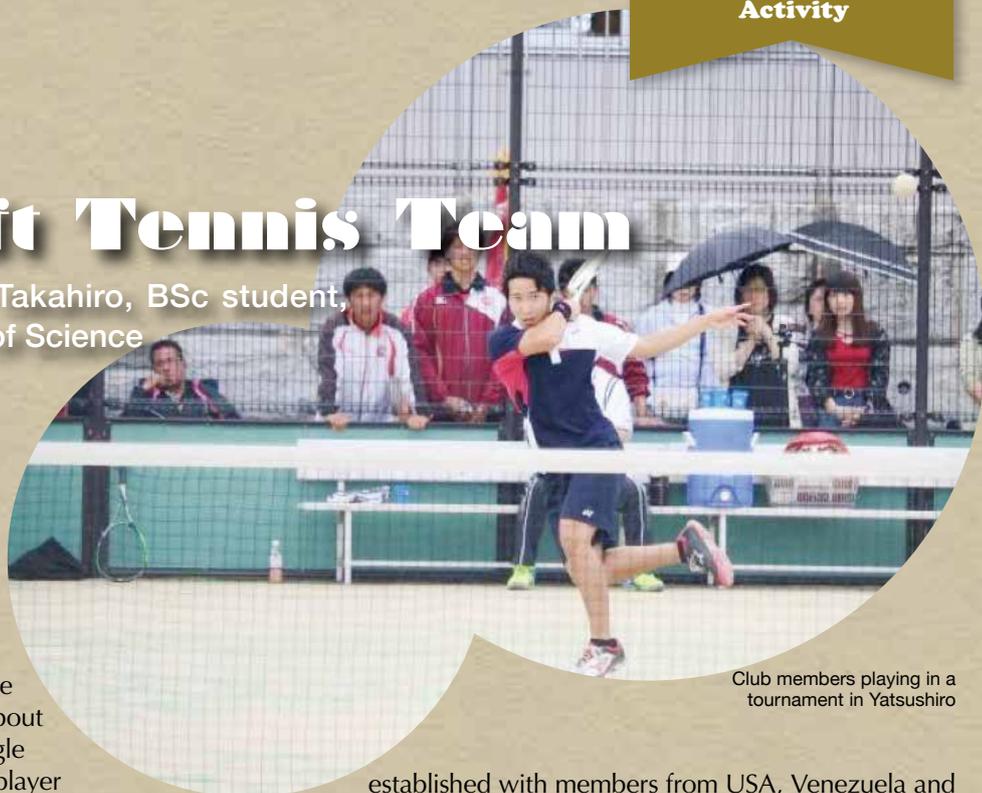
To increase the global leadership capacity of our undergraduates, we exchange over 70 students each year with nursing educational institutions worldwide, including Kagoshima University, through our Global Power Elite Programme.





Soft Tennis Team

Hashiki Takahiro, BSc student,
Faculty of Science



Club members playing in a tournament in Yatsushiro

Outline Soft tennis is a racquet sport originating in Japan that is played by people of all ages. Players on either side of the net hit the ball back and forth in four point games in matches the best of seven games. The ball is soft and light meaning all sorts of rallies take place.

Equipment Racquets and balls are the main equipment. The racquets are about 250g in weight and have either a single or split shaft suitable for any kind of player or playing style. The balls are made from 2mm thick rubber and the internal air pressure, as set by the Japan Soft Tennis Association, should allow a ball dropped from 1.5m to bounce 70-80cm.



The three kinds of racquet used.

Court Soft tennis uses the same courts as normal tennis: 23.77m x 10.97m (8.23m for singles) with a 1.07m high net on hard, concrete or indoor surfaces.

History Tennis was introduced into Japan from the UK in the 1880s. In the beginning, all of the equipment had to be imported, but soon locally made cheap rubber balls began to be used. In this way, soft tennis is a modified version of normal tennis.

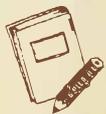
Appeal One of the main appeals of soft tennis is the front and back formation used when playing doubles. The front players will try to volley a return to the shots of the back players of the opposing team or block the line of their opponents with the hits, whilst the back players keep an eye on the opposing front players and hit lob shots whilst trying to break their opponents' formation. This front-back strategy is exciting for spectators. Soft tennis' other appeal is that it can be played by people of any age. Both the ball and racquets are lighter than normal tennis meaning anyone from young children to the elderly can enjoy it.

Competing countries Since soft tennis developed in Japan, it has mostly spread to other Asian countries with sizeable numbers of players in Korea, Taiwan and India. In 1975, the International Soft Tennis Federation was

established with members from USA, Venezuela and Brazil, and this was followed after the millennium with the establishment of the European Soft Tennis Federation that boasts many members from Eastern Europe. At present there are 43 members of the international federation and a world championship is held every four years. The sport is also one of the disciplines in the Asian Games.

Kagoshima University Soft Tennis Club The club was set up 46 years ago and currently has 33 members (26 male, 7 female). The club meets for practice five times a week, and takes part in the Kyūshū Soft Tennis League which is held twice a year. Recent results include the team placing 3rd and one team member reaching the semi-finals of the singles in the 2017 Spring Kyūshū University Soft Tennis Championships as well as wins in both singles and doubles in the 2017 Spring Kyūshū National University Championships. Apart from participating in these championships, our club often meets with other clubs from other universities. Every July, we have a match with the other two universities in Kagoshima, the International University of Kagoshima and Shigakukan University. Every December, we have a match and party with Miyazaki University. We post our schedule and results on Twitter and the club website.





Food Proteins- Discovering their Physiological Role and Developing Medicinal and Dietary Applications

The Faculty of Agriculture's Professor Hisham investigates the functionality of proteins derived from milk and avian egg. He is working on uncovering their therapeutic potentials and functional food applications. His globally acclaimed work is receiving particular attention in the field of pharmaceuticals.

Professor Ibrahim Hisham is a member of the Faculty of Agriculture. His research focusses on proteins found in avian eggs and mammalian milk. Proteins from milk and eggs are a vital source of human nutrients, and they play key roles in regulating our immune systems and the physiological functioning of our bodies.

Professor Hisham is investigating their physiological functions, with the aim of applying his discoveries for the development of therapies and functional foods.

Lysozyme as a Drug Carrier

Lysozyme (LZ) is a protein found in milk and eggs, and has the capacity to bind and specifically recognise sites on the surfaces of pathogenic microbes. It can thus act as a “carrier” and delivery for antibiotics (sequestering the antibiotic to form an LZ-antibiotic complex). Some very strong antibiotics have been developed in recent years; however, they can have adverse effects, attacking healthy cells in the treated patients as well as the pathogenic microbes. This is not the only issue; the antibiotic may never reach or penetrate the pathogenic microbe, and poor solubility in water means that the drug may not be very effective. Accordingly, Professor Hisham's approach is geared to the development of drug targeting systems which harness LZ's capacity for selective binding to pathogenic microbes. Solubility is enhanced when an antibiotic is loaded to LZ molecule to form LZ-antibiotic complex, whereas this complexation enhances drug effectiveness. Furthermore, LZ is known to bind and specifically recognises sites on the surfaces of either gram-positive or gram-negative bacteria, allowing the drug to reach only the target microbe and thereby leaving healthy cells unharmed. Prof. Hisham stresses another advantage of LZ; it is very safe because it is derived from egg, a natural food.

So far, chemically synthesised compounds have been used for drug delivery systems; however, such systems fundamentally are non-specific and differ from a drug targeting system, where a food-derived protein carries the drug only to the target microbe. Conventional drug delivery systems also involve adverse effects on

the kidney as the chemically synthesised drug carrier when excreted from the body; however, there is no such adverse effect with a protein-based drug targeting molecule. Professor Hisham published a number of papers about his findings on drug targeting in world-class journals, and a review article in the specialty journal “Expert Opinion on Drug Delivery”, in 2010. He has given numerous presentations on the subject at international scientific conferences, and received great appreciation from scientific societies for his discoveries.

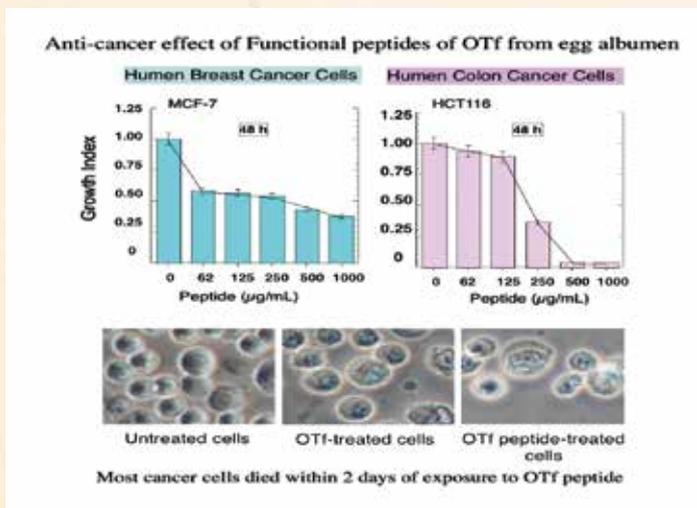
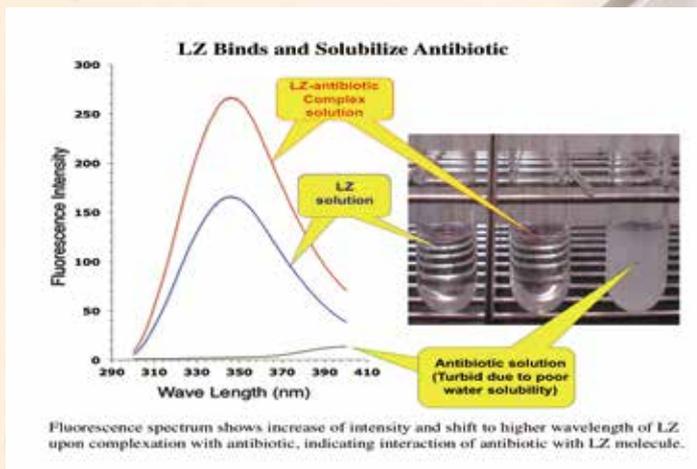
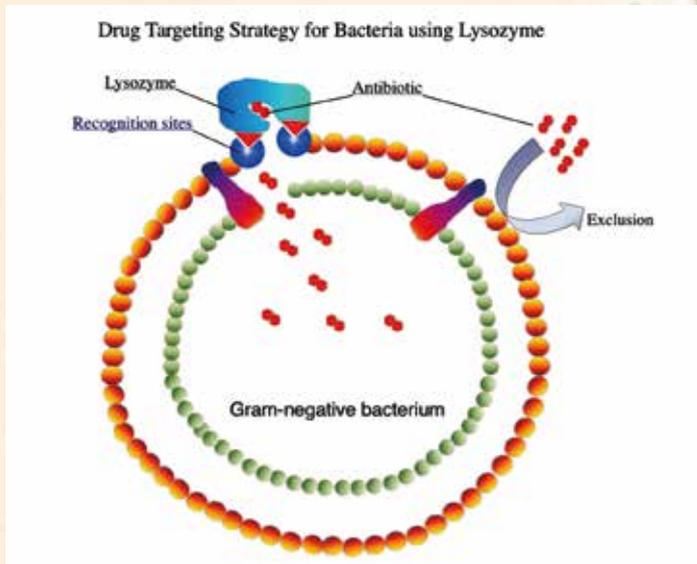
Discovering Functional Peptides

Professor Hisham is also researching peptides produced through enzymatic cleavage of proteins. He has previously shown that LZ-derived peptides have anti-microbial/anti-inflammatory/anti-cancer effects, in addition to the anti-microbial activity of the intact LZ. He identified five LZ peptides that target pathogenic bacteria where each of these peptides have a unique and strong anti-microbial action. He found that two of the five peptides exert their bactericidal effect in an unusual way — they suppress bacterial respiration.

In another area of research, Professor Hisham is investigating ovotransferrin (OTf), a protein which has been found at high concentrations not only in egg albumen but also in the human brain and breast milk. OTf was found able to cleave itself, to produce specific peptides. He demonstrated that avian OTf mimics human superoxide dismutase (SOD) in its anti-oxidative activity. He also demonstrated that OTf peptides specifically kill colon and breast cancer cells. He considers that OTf could be a candidate antioxidant in functional food applications for patients with high oxidative stress (such as post-operative patients and the elderly) as well as anti-cancer therapy.

Professor Hisham says, “Drug development involves an absolute requirement for clinical trials, and they take a long time and is highly expensive. A university laboratory could not undertake such clinical trials, and collaboration with a pharmaceutical company would therefore be essential. Drug targeting systems

and functional foods based on functional proteins can be developed quickly and would be judged as very safe. That is why I am striving to develop practical applications in this field.”



Professor
Ibrahim Hisham

**Department of Food Science and Biotechnology
Faculty of Agriculture**

Professor Ibrahim Hisham was born in Cairo, Egypt in 1958. He was awarded his PhD in Biotechnology by the Graduate School of Agriculture at Tottori University in 1993, and then became a research team leader at the Taiyo Kagaku Central Research Institute. He became a lecturer in the Faculty of Agriculture at Kagoshima University in 1995 and an associate professor in 2001. He spent one year at the Antimicrobial Research Center of California State Polytech University as an overseas research fellow from March 2000. He has been a full professor since 2012 and his areas of expertise encompass proteins, protein engineering, microbiology, structural biology, and food science. Among his professional affiliations are the Japan Society for Bioscience, Biotechnology and Agrochemistry, the International Society of Food Function, the Japanese Dairy Science Association, and the American Chemical Society.



Support Centre for Students with Disabilities

Imamura Chikako, Assistant Professor

The centre gives advice and support to students with disabilities or those encountering problems in their university life. It also assesses the accessibility of the university and suggests measures for improvement. The centre is staffed by a director, a clinical psychologist, and administrative and support assistants.

In 2016, a law was passed in Japan aimed at eradicating the discrimination of people with disabilities and providing reasonable accommodation. Kagoshima University drew up regulation based on this new law so that students with disabilities do not feel the need to give up their studies due to their disability. Reasonable accommodation is the system of responding to the different and changing needs of those with disabilities. Kagoshima University provides reasonable accommodation to students by consulting with them and acting upon that on an individual basis. Examples include students who have had trouble hearing lectures, who find it difficult to concentrate in the noise of large lecture theatres, who find it difficult to participate in groupwork, and who find it difficult to communicate.

The support centre aims to remove, or at least lower the barriers that students may feel due to disability or illness.

University life also brings about big changes in study style and lifestyle. Students face many new challenges, for example when moving away from home for the first time, joining clubs or taking up part-time jobs. Students often find it hard settling into new rhythms, keeping up with their studies, taking part in tutorials, participating in club activities, or even getting to university. In these cases it can be said that it is best to talk to someone close, but that can be difficult, which is where the support centre provides a place for students to get some help.

The centre is easy to use. Students can drop into the centre if they are worried about where to go at lunchtime or in their free periods and relax before their next class. They can also come for advice, for which they have to make an appointment. Finally, we also provide support for students who are finding difficulty in their studies.





The Spirit of Enterprise Foundation Overseas Student Programme

Wada Reiko, Professor



Erna Siaga and Laily Ilman Widuri from Sriwijaya University (Indonesia), with Professor Sakagami Jun-ichi

The university's Spirit of Enterprise Foundation was set up to strengthen human resources and innovation, promote a high level of research and education and energise contributions to the regional community leading it to become a central part of regional revitalisation and research and education that is open to the world.

Using the fund, top-class students from other countries are invited to Kagoshima University to cultivate human resources who understand Kagoshima well and can act to bring their home country and Kagoshima closer together with a global viewpoint. Students on this programme can complete research as part of their studies towards their graduation dissertations at Kagoshima University funded by the programme.

The participants are not only expected to continue their own studies under the supervision of faculty members at Kagoshima University, but they will also have the opportunity to present their research, form international networks for future joint research, and even act as a stepping stone to further research in Japan. The academic supervisors will be able to choose talented participants from institutions that they have strong ties with, helping to strengthen their own joint research activities and potentially leading to those students becoming postgraduate students at Kagoshima University, and contributing to the training of overseas specialists.

Participants on the programme from March 2018

Institution	Students	Field	Department	Supervisor
University of the Philippines (Philippines)	1	Ichthyology	Graduate School of Fisheries	Motomura Hiroyuki
Airlangga University (Indonesia)	1	Animal clinical genetics	Joint Faculty of Veterinary Medicine	Yamato Osamu
Sriwijaya University (Indonesia)	2	Tropical crop science	United Graduate School of Agricultural Sciences	Sakagami Jun-ichi
China Medical University (China)	1	Physiology	Graduate School of Medical and Dental Sciences	Kuwaki Tomoyuki
National Cheng Kung University (Taiwan)	1	Sociolinguistics	Graduate School of Humanities and Social Sciences	Udo Satoshi



Chou Chia-Ying from National Cheng Kung University (Taiwan), with Associate Professor Udo Satoshi



MOU signed with King Mongkut's Institute of Technology Ladkrabang (Thailand)

In May, a delegation from KMIT Ladkrabang led by Professor Emeritus, Dr. Piamsak Menasveta, visited Kagoshima University to sign the memorandum of understanding between the two universities.

At the ceremony, President Maeda said that the world today is facing many problems, such as climate change, overpopulation, food and water shortages, the threat of infectious disease, natural disasters, cyber security, that can only be resolved by working across borders. He added that he hoped the cooperation in both research and education between the two institutions would contribute to world peace and welfare. After the signing of the memorandum, Dr Menasveta said that he is hoping that the educational and technical cooperation between the two universities will bring about advances in research in agriculture, fisheries and robotics.



From the left: Dr. Piamsak Menasveta, President Maeda, Vice-President Baba

Situated in the Lat Krabang district of Bangkok, KMIT Ladkrabang is a national university with about 25,000 students. It was founded in 1964. The university has had a departmental MOU with the Graduate School of Science and Engineering since April 2016 which has enabled visits by faculty staff, student exchanges and the holding of international symposia. The success of these, has led to the signing of a full MOU so that other faculties can also benefit from the exchanges.



KMIT Ladkrabang delegation and Kagoshima University faculty members

UCL INAMORI Student agreement signed



Group photograph

Kagoshima University aims to produce graduates with a spirit of enterprise similar to their forefathers from Satsuma Domain (present-day Kagoshima Prefecture) who helped transform Japan into a modern society at the end of the Edo period, to this end the Kagoshima University 21st Century Version Satsuma Students Programme (UCL INAMORI Students) was set up and the agreement was signed with the University College London in June of this year.

The UCL INAMORI students will participate on UCL's affiliate programme and study in their various fields for

one year.

It is hoped that the UCL INAMORI student applicants will be able to represent both the university and Japan as a whole in education and research as well as have great future potential to lead Japan similar to world-renowned entrepreneur, Inamori Kazuo, who holds an honorary doctorate from Kagoshima University.

On the day, the agreement was signed after some friendly exchange between UCL Provost, Professor Michael Arthur, and President Maeda.

The following day, the Kagoshima University delegation in conjunction with Yamaguchi University, held a symposium commemorating the 150th anniversary of the Meiji Restoration at the Japanese Embassy in London.



Professor Michael Arthur, Provost of UCL, and President Maeda



Signing the agreement

Global Initiative Centre Symposium

The Global Initiative Centre held its third symposium in July, where reports were given on the university's three Spirit of Enterprise Support Fund Programmes, which helped send Japanese students and researchers overseas and brought overseas students to Kagoshima University in the previous academic year. The reports were followed by discussion on the programmes' future development.

In the first half of the symposium, students who had received assistance to study abroad talked about their experiences. The first speaker, Jige Tomotaka (Faculty of Education), talked about his teaching experiences in Finland and Cambodia. This was followed by Miyazaki Yūta (Graduate School of Science and Engineering) who spoke about his studies at City College of New York. Finally, Professor Ozaki Takahiro (Law, Economics and Humanities) gave feedback on the study tour he led to Korea. After this, two overseas students who received funding to attend Kagoshima University from Kasetsart University in Thailand, Impitaks Amind and

Khanjantuek Chutiwat talked about their experiences in Kagoshima aided by Ichishima Yukiko, Global Centre Japanese language instructor, who had acted as their academic supervisor. Finally, faculty member, Associate Professor Udo Satoshi (Law, Economics and Humanities) reported on his time spent at National Cheng Kung University in Taiwan.

In the second half, Dr. Baba Masanori, director of the Global Initiative Centre, talked about the university's internationalisation policy and its direction, followed by a report from President Maeda about the concluding of the exchange agreement with UCL. Finally a panel discussion was held with various members of faculty on how producing graduates with a global viewpoint can help invigorate local communities and businesses. The discussion brought many questions and opinions from the audience of 86 students, faculty and administrative staff and members of the local community who have been involved with the support fund programme.



The symposium



President Maeda speaking during the panel discussion



Questions from the audience



Promoting health through thalassotherapy in the Amami Islands

*Takezaki Toshirō, Professor
International Island and Community Medicine,
Graduate School of Medical and Dental Sciences*

The Amami Islands with their beautiful natural surroundings are known for the longevity of their inhabitants. Recently, however, changes in lifestyle have seen the incidences of obesity and lifestyle-related diseases increase, which has led the government to act to improve diets and exercise. Thalassotherapy is one of the practices that is gaining attention.

Thalassotherapy is the broad therapeutic use of seawater, sea products, and the sea air etc.. As part of a prefectural scheme, we are promoting the use of thalassotherapy as a way of improving health. In conjunction with this, the Department of International Island and Community Medicine has been asked by the prefecture and local municipalities to validate the effects of the therapy.

On the island of Yoron, using a hotel pool, we were able to see a reduction of symptoms in different conditions as well as a lowering of blood sugar levels using thalassotherapy. In Wadamari, on Okinoerabujima, a thalassotherapy centre has been built and warm sea water can be used even in the winter. Here we observed lowering in blood pressure and other test results and a stabilising of brain activity levels. A similar centre has been set up on Amami-Ōshima, and a patient with pain in the knees saw an alleviation of the pain as well as strengthening of the lower limb muscles and an increase in the motion range of the joints.

In seawater, buoyancy means the knees are not under as much pressure and it is thought this leads to better mobility and an improvement in peripheral circulation. On the island of Kakeromajima, they have blended the traditional local dance with exercises on the beach and have hand-built a swimming pool especially for thalassotherapy.

The positive results of thalassotherapy on health are of course limited, but using it combined with exercise improves the effects of the exercise and is extremely fun to do which means people are less likely to give up.

Next, we hope to use the data we have collected to analyse the effects of thalassotherapy immunologically and present the findings to the municipalities on the islands.



Traditional dancing on the beach on Kakeromajima



Front Cover: William Willis Hall in the Faculty of Medicine

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