

## Lecture Series “Riron”: C7 Restorative Medicine

Subject Code  
(Elective: 2 credits)

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### 【Objectives】

The objectives of this course are for you to understand the following: (1) basic knowledge regarding emergency medical care; (2) factors required to improve the resuscitation rate, the mechanisms by which irreversible loss of whole-brain function occurs, and risk factors for coronary syndrome; (3) the latest knowledge regarding cardiovascular diseases and their surgical treatment; (4) the mechanisms of skin wound healing, differences in body surface blood flow distribution between anatomical locations, and plastic surgery procedures and regenerative medical techniques; (5) disorders of bone and joint function and the reconstruction thereof; and (6) basic knowledge required to plan out and implement clinical studies.

### 【Content Description】

In this class, the current situation and problems of restorative medicine are explained in terms of both life support and vital function.

With continued progress in the field of medicine, critical care medicine has produced a steady flow of successful results and its functional prognosis has also improved dramatically. We will explain the basics of emergency and intensive medical care, and in order to contribute the international guideline for the resuscitation techniques and also further improvement of the rate ROSC (return of spontaneous circulation), we will provide lectures regard to the basics of understanding risks for cerebral ischemia during resuscitation, as well as the processes by which induces brain death and results in death even when the heartbeat is restarted to scientifically examine the methods of prevention. Moreover, we will provide lectures regarding risk factors for acute coronary syndrome, which needs urgent therapy, and the progress of surgical treatments for heart failure, ischemic heart diseases, and vascular heart diseases.

Although disorders of the skin, bones, and joints are rarely directly life-threatening conditions, they greatly affect a patient's vital functions. We will explain the theory of skin wound healing and the latest molecular biological knowledge, and we will also provide lectures regarding the progress made in the area of skin flaps through studies of blood flow in human skin and discuss reconstructive medicine for the blood vessels, lymph vessels, and nerves in terms of the development of microsurgery. In addition, we will discuss reconstructive methods for collapsed joint function, pseudoarthrosis, and bone defects, and we will also describe attempts at cartilage regeneration and bone regeneration by including recent study results.

Moreover, in this course, we will provide instruction regarding methods of establishing a study hypothesis, which is essential in conducting a clinical study, as well as the selection of study designs, the handling of clinical data, and methods of statistical analysis.

**【Keywords】** cardiopulmonary resuscitation, disaster medicine, cardiopulmonary arrest, acute coronary syndrome, ututine template, guideline for resuscitation, defibrillation, brain ischemia, brain death, multi organ failure, core body temperature, life style, gender, surgery for heart failure, ischemic heart disease, intravascular therapy, wound healing, growth factors, fibroblast, matrix, angiogenesis, vasculogenesis, regenerative medicine, skin flap, angiosomes, microsurgery, ligament, articular cartilage, bone defect, callotasis, EBM, biostatistics, epidemic research

**【Class Style】** PowerPoint and/or OHP will be used in the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures are considered for those who are regularly absent for unavoidable reasons.

**【Textbooks】** Textbooks are not specified, and handouts will be distributed.

**【Recommended Readings】** Will be introduced throughout the course.

**【Office Hour】** If you have any questions on topics or schedule of the classes, please contact the instructors listed above.

**【Evaluation for Grades and Credits】** Grading will be based on active class participation, paper summaries, and the final report.

**【Lecture Schedule】** Please also refer to the timetable shown in the Section 5.

The sessions marked with “e” are under preparation of e-learning contents. In some cases, the session that is not marked with “e” will be done by utilizing e-learning system, as soon as the e-learning contents are ready for use. Therefore, you must check the updated syllabus cited on the home page of the Graduate School of Medical Sciences, Kumamoto University to check the current status of the session before you take a session. If you cannot obtain enough information from the home page, please make contact with the instructors of the sessions.

There are six types of e-learning, those marked with “eE0”, “eEL”, “eJ0”, “eJL”, “eEJ-0” and “eEJ-L”. To know the meanings of these six markings and to learn how to use e-learning system, please see the section explaining about the e-learning system in this syllabus.

Session	Date & time	Instructors	Topics
1 . eE-O	Oct. 14 (Wed) 4th period	Hironobu Ihn	Wound healing
2 .	Oct. 21 (Wed) 4th period	Junji Ide	Joint reconstruction
3 .eJ-O	Oct. 28 (Wed) 4th period	Tsuyoshi Ishihara	Flap
4 .eJ-O	Nov. 4 (Wed) 4th period	Tsuyoshi Ishihara	Microsurgery
5 .	Nov. 11 (Wed) 4th period	Hiroshi Mizuta	Repair and regeneration of articular cartilage
6 .	Nov. 18 (Wed) 4th period	Eiichi Nakamura	Reconstruction of bone
7 .eJ-O	Nov. 25 (Wed) 4th period	Takeshi Takahashi	Emergency and Critical Care Medicine
8 .	Dec. 2 (Wed) 4th period	Yoshihiro Kinoshita	Important factors in the success for resuscitation
9 .eJ-O	Dec. 9 (Wed) 4th period	Yoshihiro Kinoshita	Diagnosis of brain death and the denervated organs
1 0 .	Dec. 16 (Wed) 4th period	Michio Kawasuji	Surgical treatment of heart failure
1 1 .	Dec. 24 (Thu) 6th period	Hiroaki Kawano	Risk factors for acute coronary syndrome and gender difference
1 2 .	Jan. 6 (Wed) 4th period	Michio Kawasuji	Surgical treatment of ischemic heart disease
1 3 .	Jan. 13 (Wed) 4th period	Ryuji Kunitomo	Surgery of vascular disease
1 4 .eJ-L	Jan. 20 (Wed) 4th period	Yoshio Haga	Establishment of hypothesis and study design
1 5 .eJ-L	Jan. 27(Wed) 4th period	Yoshio Haga	How to analyze clinical data