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1. Multicenter Phase II Study of FOLFOX/XELOX and Cetuximab as a First-line Therapy in Patients with Wild-type KRAS/BRAF Metastatic Colorectal Cancer: The FLEET Study
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Background
The combination of oxaliplatin and capecitabine (XELOX) is an active regimen for metastatic colorectal cancer (mCRC). However, XELOX + cetuximab is not recommended as a first-line therapy for patients with mCRC. This study evaluated the efficacy and safety of a first-line biweekly XELOX + cetuximab regimen for KRAS/BRAF wild-type mCRC.

Patients and methods
A total of 62 patients (median age = 66 years) with untreated wild-type KRAS/BRAF mCRC were enrolled in this trial. Patients received cetuximab (500 mg/m² every 2 weeks) plus mFOLFOX6 (oxaliplatin: 85 mg/m², folinic acid: 400 mg/m², 5-FU: 400 mg/m² bolus then 2,400 mg/m² over 46 h every 14 days; n = 37) or biweekly XELOX (oxaliplatin: 85 mg/m² on day 1, plus capecitabine: 1,000 mg/m² twice daily on days 1–7, every 2 weeks; n = 25). Regimens were selected according to the investigators' preference. Treatment was repeated every 2 weeks and continued until progression or intolerable toxicity was observed. The primary endpoint was the response rate. Secondary endpoints were safety, Progression Free Survival (PFS), Overall Survival (OS), Disease Control Rate (DCR), Dose Intensity (DI) and resection rate.

Results
Major grade 3/4 toxicities in the mFOLFOX6 and XELOX arms included neutropenia (48% and 8%, respectively), hand-foot syndrome (0% and 8%, respectively), rash acneiform (10% and 12%, respectively) and paronychia/fissure (10% and 12%, respectively). The response rates for mFOLFOX6 and XELOX were 64.9% and 72.0%, respectively. Median PFS following treatment with FOLFOX and XELOX were 10.9 months (95% CI: 7.7–13.8) and 15.2 months (95% CI: 9.5–19.8), respectively.

Conclusion
Bi-weekly cetuximab + XELOX was administered safely and effectively. This light XELOX regimen might be a promising partner for cetuximab when used as a first-line therapy in patients with mCRC.

Key words: cetuximab, FOLFOX, XELOX, KRAS, BRAF

2. Improved Exercise Capacity Is Not Associated with Self-reported Health-related Quality of Life Following Cardiac Rehabilitation in Patients with Acute Coronary Syndrome
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Purpose
The aim of the present study was to clarify the effects of cardiac rehabilitation on physical capacity and quality of life (QOL) in patients with acute coronary syndrome (ACS).

Methods
This study enrolled 15 male patients (mean age 64.7 years) with ACS who participated in a 5-month outpatient cardiac rehabilitation program. Cardiopulmonary exercise capacity was measured by cardiopulmonary exercise tests, and subjective health values were evaluated using the SF-36v2 before and after the cardiac rehabilitation program.

Results
The patient background in the present study was similar to that in the registry study of patients with
coronary artery disease in Japan. Age-adjusted predicted values of exercise capacity significantly increased and low-density lipoprotein cholesterol levels reached control targets. Although physical components of QOL (PCS) increased significantly, social components (RCS) decreased significantly, and each correlation was not observed. In the group with highly improved age-adjusted exercise capacity, the expiratory minute volume (VE) versus volume CO₂ (VCO₂) slope was significantly decreased compared with the group showing low improvements in exercise capacity. The PCS of the group with a low improvement in exercise capacity increased significantly, with the mental components (MCS) being significantly higher in this group both before and after cardiac rehabilitation. RCS decreased significantly after cardiac rehabilitation in both groups. The proportion of unemployed people at the onset of ACS tended to be higher in the RCS declining group.

**Conclusion**

The change in the exercise capacity of patients with cardiac rehabilitation after ACS was not related to changes in subjective health views.

**Key words**: cardiac rehabilitation, SF-36v2, QOL, exercise tolerance

**3. Relationship between Rehabilitation, Nutritional Status, and Activities of Daily Living**

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Improvements in activities of daily living (ADL) by stepped-up rehabilitation for patients with malnutrition who show low autonomy in ADL is very important for early discharge from acute care hospitals. In the present study, we examined the relationship between rehabilitation, nutritional status, and ADL to determine the characteristics of patients who exhibit difficulties improving nutritional status and ADL. Fifty-one patients who were hospitalized and underwent rehabilitation in the Neurosurgical Department and Cranial Neurology Department of Showa University Fujigaoka Hospital were investigated. Patients were divided into three groups according to serum albumin concentrations before and after rehabilitation: Group 1, patients with malnutrition; Group 2, those with improved nutrition; and Group 3, those with good nutrition. The mean (±SD) age of patients was significantly higher in Group 1 than in Groups 2 and 3 (80±10 vs 61±18 and 65±10 years, respectively). Group 1 patients did not show increases in either serum albumin concentrations (from 2.8 to 2.7 g/dl) or Functional Independence Measure (FIM) scores (from 46.8 to 34.8) after rehabilitation. However, patients in Groups 2 and 3 exhibited significant improvements in FIM scores (from 38.9 to 57.0 and from 56.5 to 79.1, respectively). Although none of the seven patients in Group 1 were able to start taking food orally, three patients did show improvements in nutritional status and ADL, and were able to start oral intake after discharge. In conclusion, improving nutritional status and ADL is difficult in aged patients (>80 years) who have low nutritional status and low ADL scores before starting rehabilitation. Based on the findings of the present study, evaluation of a patient’s condition is important for the start of oral intake.

**Key words**: ADL, FIM, rehabilitation

**4. A study Evaluating “Recognition” and “Practice” of Inter-professional Work (IPW) for Nurses**

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**Purpose**

This study aimed to promote effective interprofessional education (IPE) for undergraduate and postgraduate nurses and to encourage interprofessional work (IPW) in clinical practice.

**Methods**

A self-administered questionnaire containing 2 sections: (1) Background and experience of IPE and (2) “Recognition” and “Practice” for “Competency of IPW (38 items)” was distributed to 2,625 nurses. Competency of IPW included the following 4 categories: values/ethics, role/responsibility, communication and team/team work.

**Results**

A total of 1,791 (68.3%) questionnaires were analyzed. Only 27.6% undergraduates and 15.4%
postgraduates had experience with IPE. “Recognition” of IPW (79.5%) was slightly, but significantly, higher than “Practice” of IPW (71.9%; \( p < 0.001 \)), and this result was similar with undergraduate and postgraduate IPE. Undergraduate IPE was effective in all 4 categories for “Recognition”, but effective in only the value/ethics category for “Practice”. Postgraduate IPE was effective in all 4 categories for both “Recognition” and “Practice”.

**Conclusion**

IPE was not widely experienced; however, undergraduates require IPE to gain the knowledge and experience required for IPW. Postgraduates need continuing IPE in individual clinical situations to reinforce the practical ideas and to strengthen the IPW capabilities they learn as undergraduates. Despite some differences between undergraduate and postgraduate IPE in regard to “Practice”, both were effective in “Recognition”, which contributed to further IPW. This indicates that continuing IPE is required to support inadequacies between undergraduate and postgraduate education.

**Key words**: interprofessional education, interprofessional work, undergraduate, postgraduate

5. **The Use of Text-mining Techniques to Evaluate the Effectiveness of a Curriculum from Characteristics Modelled on Student Portfolios**

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In this study, we try to grasp the overall trend of many freely described portfolios using 2 text-mining techniques: text-clustering and latent dirichlet allocation (LDA). Although this proposed method can be widely applied to any freely described text, it proved especially useful to determine the effectiveness of a particular curriculum that requires students to submit their portfolios online. We chose 3 units from a first-year curriculum at the A University: problem-based learning A, problem-based learning B and early exposure. Students were asked to answer the following question in their portfolios: “What do you want to study after experiencing the unit?” Approximately 600 students submitted their portfolios at the end of each unit, and the answers to this question were analyzed using the 2 text-mining methods. The results showed that when the numbers of clusters and topics are fixed at 20, there is reasonable agreement between the meanings of the 20 clusters obtained by the text-clustering method and the 20 topics proposed by the LDA method. This indicates that both techniques can reliably grasp the overall meaning of topics distributed among hundreds of freely described portfolios. Furthermore, the results indicated that these 2 techniques have complementary roles; text-clustering provides a precise ratio of each topic to the total amount of sentences in the text set and LDA offers more appropriate meanings for each topic. Therefore, a combination of the 2 techniques can help us to correctly measure the effectiveness of a particular curriculum.

**Key words**: portfolio, free descriptive document, cluster analysis, topic model, latent dirichlet allocation
6. Effects of a Joint Vital Sign Learning Exercise for 3 Departments: Analysis Using a Text-mining Method

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Objective
Measuring vital signs is a common skill required by medical professionals. In this study, we taught students from 3 combined departments how to measure vital signs. We analyzed the benefits of joint learning using results from a questionnaire distributed to the students following the lessons.

Methods
A total of 34 second-grade students from the nursing, physical therapy and occupational therapy departments were included in this study. Skills required for measuring vital signs were taught to a combined group of students from the 3 departments (Joint Group) and a nursing-only group (Single Group). A questionnaire about the teaching methods was distributed upon completion of the lessons. A text-mining method designed by the Mathematical Systems Corporation was used to analyze the frequencies of words and dependencies, and word networks. Specifically, responses to the questions “What I understood” and “What was good at learning” were analyzed. We received ethical considerations approval for this study (No. 310).

Results
In the Word Frequency analysis, the words “brachial artery”, “position” and “running” were most frequent in both groups. The Joint Group used more words and sentences than the Single Group. In the Dependency Frequency analysis, the Joint Group shared knowledge with students from other departments and confirmed this within the group. The Word Network analysis results showed the Joint Group was strongly connected with words.

Discussion
Both groups shared knowledge and learned to solve problems. The Joint Group shared the vital sign skills with students from other departments, suggesting that joint learning environments support a deeper learning effect. These results indicate that joint learning programs improve skills and encourage students to share knowledge and also motivate future learning.

Key words: vital signs, text-mining method, joint exercise of departments

7. Understanding the Current Status of Student Anxiety in Maternal Nursing Practice

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Purpose
In maternal nursing there are some high risk cases, and the students undergo clinical training in high risk cases in puerperal and new born babies in the hospital setting. We think students experience some stress and anxiety during clinical training at the hospital. So, based on the results of a survey questionnaire, we aimed to determine the needs of the maternal nursing training practiced by the students.

Methods
We used the Japanese version of the State Trait Anxiety Inventory (STAI) self-report questionnaire as a psychological measurement.

Results and discussion
The results of the STAI were evaluated using the practical STAI-JYZ classification when judging anxiety in the clinical setting. The group ranked from more than 35 standard points to less than 55 points and the majority of students were in the low anxiety group. The survey was conducted during the last course of practical training, and we assume that there was low tension and anxiety among the students because they had a clinical teacher who was familiar with the
practice facilities and who was able to supervise the practical training and instruct the students. Further research is needed before starting an internship at the hospital. The effects of the hospital environment, training guidance, university education, and practical training need to be clarified, in order to reduce the anxiety of students.

Key words: State Trait Anxiety Inventory (STAI), women’s health nursing (maternity nursing), anxiety (unease)

8. Relationship between Dynamic Knee Valgus and Lateral Trunk Lean in the Two-Dimensional Image

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Background
Dynamic knee valgus is considered a risk factor for anterior cruciate ligament injury. The objective of this study was to identify if the knee in distance (KID) and hip out distance (HOD) affect the lateral trunk lean angle, and whether these measurements are reliable.

Methods
Fifteen university female basketball players (30 legs; age, 18.1±0.3 years; height, 156.7±4.5 cm; weight, 50.3 ±5.2 kg) volunteered to participate in this study. The participants performed single-leg squats by bending the knee of the supporting leg to 60°. The trials were recorded using a digital video camera in front of the participants. KID, HOD and lateral trunk lean angle were measured on two-dimensional images of maximal knee valgus using Dartfish software. Pearson’s correlation coefficient was used to examine correlations between dynamic knee valgus (KID and HOD) and lateral trunk lean angle. The reliability of KID, HOD and lateral trunk lean angle was tested using the intraclass correlation coefficient (ICC). Statistical significance was established at a level of $P < 0.05$.

Results
There was a weak negative correlation between KID and lateral trunk lean angle ($r = -0.227; P < 0.05$). The ICC2.1 values were 0.828 for HOD, 0.985 for KID and 0.964 for lateral trunk lean angle. The ICC1.2 values were 0.859 for HOD, 0.830 for KID and 0.850 for lateral trunk lean angle.

Conclusion
Our two-dimensional analysis technique had high reliability. However, dynamic knee valgus was poorly correlated with lateral trunk lean angle during single-leg squats. Therefore, we must also consider hip and ankle function.

Key words: anterior cruciate ligament injury, knee in distance, hip out distance, lateral trunk lean angle, reliability

9. Morphological Characteristics of Japanese Lumbar Vertebrae on 3-Dimensional Morphometry

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To clarify the pathologies of spinal diseases, detailed knowledge of the spine in healthy individuals is necessary. Previous anatomical studies have been performed using autopsied human bodies, but the age of the subjects was biased, i.e., many autopsied bodies are elderly and normal spine alignment may not be present due to age-related vertebral bone deformities, limiting these studies. Moreover, no measurement method has been established for the spine due to the complex shape of the vertebral bones. By measuring digitalized data for each vertebral bone, derived from positional information from computed tomography and magnetic resonance imaging, which are accumulations of tomographic images, problems associated with the age of study subjects may be solved, and highly accurate and reproducible measurements are theoretically possible. This study included 33 participants, aged 23-49 years (18 males and 15 females; mean age, 41.0±5.8 and 41.3 ±79 years, respectively) with no past medical history of lumbar vertebral disease or morbid lumbar vertebral symptoms. A 3-dimensional lumbar vertebral model was prepared in each participant from the computed tomography image data acquired under the conditions for bone, using analysis software, and 3 measurements were performed (vertebral bone volume, minimum spinal canal area, and the aspect ratio of the region with the minimum spinal canal area). The lumbar...
vertebral characteristics were compared in males and females. These findings clarified the presence of sex differences in the morphological characteristics of the lumbar spine, which may influence the severity of morbid symptoms, such as spinal cord compression.

**Key words**: three dimensional morphometry, lumbar vertebrae, computed tomography image