Course Specifications
Valid as from the academic year 2018-2019

Specific Physiology related to Internal Diseases (D012118)

Course

Course size (nominal values; actual values may depend on programme)

<table>
<thead>
<tr>
<th>Credits</th>
<th>Study time</th>
<th>Contact hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>90 h</td>
<td>28.0 h</td>
</tr>
</tbody>
</table>

Course offerings and teaching methods in academic year 2019-2020

A (semester 1) Dutch
- seminar 25.0 h
- lecture 2.5 h

Lecturers in academic year 2019-2020

- Derom, Eric GE35 lecturer-in-charge
- Calders, Patrick GE37 co-lecturer
- Celie, Bert GE37 co-lecturer
- De Sutter, Johan GE35 co-lecturer

Offered in the following programmes in 2019-2020

<table>
<thead>
<tr>
<th>Master of Science in Rehabilitation Sciences and Physiotherapy</th>
<th>credits</th>
<th>offering</th>
</tr>
</thead>
<tbody>
<tr>
<td>(main subject Rehabilitation Sciences and Physiotherapy in Elderly)</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>(main subject Rehabilitation Sciences and Physiotherapy with Children)</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>(main subject Rehabilitation Sciences and Physiotherapy with Internal Diseases)</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>(main subject Rehabilitation Sciences and Physiotherapy with Musculoskeletal Afflictions)</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>(main subject Teacher Training in Rehabilitation Sciences and Physiotherapy)</td>
<td>3</td>
<td>A</td>
</tr>
</tbody>
</table>

Teaching languages
Dutch

Keywords
Chronic heart failure, COPD, ageing, obesity diabetes, interpretation of exercise testing, exercise-limiting factors, relevance of exercise, prognosis, treatment, assessment

Position of the course
Starting from a basic knowledge of exercise physiology in healthy subjects, the pathophysiology of exercise is studied in patients with cardiac and respiratory diseases, with obesity and diabetes as well as in geriatric patients.

The aim of the course is:
- To understand the impact of ageing, cardio-respiratory disorders and metabolic diseases on exercise.
- To reach competences in the detecting the exercise-limiting factors and to integrate these findings clinically and prognostically in the elderly subject and the patient with cardio-pulmonary disorders, diabetes or obesity.

Contents
Exercise limitation in patients with cardiac diseases (myocardial infarction, chronic congestive heart failure, heart transplantation).
Interpretation of maximal exercise testing in cardiac patients, including the utilization of gas analysis

(Approved)
COPD: symptoms, diagnosis, etiology, classification, differences with asthma.
Pulmonary function: spirometry, lung volumes, gas exchange, hyperinflation.
Exercise limiting factors in COPD (causes, mechanisms, precipitating factors).
Causes of muscle weakness and - atrophy in the context of the normal ageing process, with special focus on the cellular and integrative level.
Effects of obesity and diabetes on the cardio-pulmonary and peripheral (muscular) system on both cellular and integrated level in terms of mechanical efficiency.

Initial competences
Successfully passed the following courses or acquired the competencies in another way: ‘Exercise physiology’, ‘Rehabilitation and Physiotherapy for the Elderly’, ‘Rehabilitation and Physiotherapy of the Respiratory System’, ‘Rehabilitation and Physiotherapy of the Cardiovascular System’ and ‘Physiotherapy of the Neurological System’.

Final competences
1 The student knows the symptoms, diagnosis, etiology, classification and differential diagnosis of COPD, heart failure, diabetes and obesity
2 The student knows how to interpret the ECG (additions to the course D0122209): basics of ECG interpretation with practical examples, with focus on the most frequent arrhythmias and signs of cardiac ischemia.
3 The student has insight how to interpret of pulmonary function tests.
4 The student knows how to recognize factors and how to understand the mechanisms contributing to exercise limitation in patients with cardiac disorders and COPD.
5 The student has insight how to interpret a maximal symptom-limited exercise test (with gas analysis) in a patient with COPD, heart failure, obesity and diabetes, including the determination of possible exercise limiting factors, the VE/VCO2 slope, the anaerobic threshold, the mechanical efficiency.
6 Basic knowledge of ECG disturbances.

Conditions for credit contract
Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract
This course unit cannot be taken via an exam contract

Teaching methods
Lecture, seminar

Extra information on the teaching methods
Theory is exemplified by means of cases, which are used to underline the relevance of exercise physiology in the clinical assessment of patients with COPD, heart failure, obesity and diabetes. Later on, students are asked to interpret exercise tests, first under strict supervision, thereafter with more autonomy.

Learning materials and price
Hand-outs provided by the Faculty to the students (Dutch). The part “obesity and diabetes” is based on a number of landmark papers, which will be available on Minerva, together with the powerpoint presentations.
Cost: +/- 15 €

References
"Revalidatie bij chronisch obstructieve longziekten“. Gosselink R/Decramer M. Prize 59 €.

Course content-related study coaching
Minerva. After phone or E-mail contact.

Evaluation methods
end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period
Written examination with open questions, oral examination

Examination methods in case of periodic evaluation during the second examination period
Written examination with open questions, oral examination

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation 
not applicable

(Approved)
Extra information on the examination methods

Written exam with 7 open questions and EGC tracings by which both knowledge and insight are assessed.
Oral exam with written preparation, evaluation by a college (at least two persons), about one pulmonary, cardiac or metabolic case. The student presents the case and proposes his interpretation. During or after the presentation, the college may ask questions to evaluate his insights in the domain.

Calculation of the examination mark

- The end result is the average of the theoretical (written) part (60%) and the practical (oral with written preparation) part (40%).
- If the student has < 8/20 for one of the parts, he/she can no longer pass the course. If the mathematical end result would be 10/20 or more, the final result will be reduced to 9/20.
- If the student has 8/20 or 9/20 for one of the parts, he/she can only pass the course if the average is higher or equal to 12/20. If the mathematical end result is higher than or equal to 10/20 and less than 12/20, the final result will be reduced to 9/20.

Facilities for Working Students

No