



LAS-Learning

Trainees Instructions

EU Module 5 - Recognition of pain, suffering and distress - Species specific: Rat

Development of interactive e-learning modules on specific areas of the Education & Training framework facilitating implementation of DIR 2010/63/EU

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1. Module Description

1.1 Overview

In this course - Recognition of pain, suffering and distress - Species-specific: Rat -, we will cover how to identify signs of pain, suffering, and distress in rats, methods to alleviate their pain, and ways to optimise handling, procedures, and the environment to minimise their distress and anguish.

This module will cover four topics: Species common lessons - EU module 5 - Recognition of pain, suffering and distress: general aspects, and Species-specific rat.

If you are visiting the site independently, you should consult the EC Training and Education framework [guidance document](#), which provides an overview of training requirements for individuals with different responsibilities under their relevant national legislation. Additional education and training may be necessary to meet national or institutional requirements.

This document offers suggestions for supporting your training. Each module aligns with the learning outcomes specified by the EU Education & Training framework for laboratory animal science. This module was developed by Dolores Bonaparte and Dorte Bratbo Sørensen, recognised for their work in laboratory animal welfare and pain management with extensive experience researching, publishing, and training. In addition, an international Reflection Group panel has further refined the content, while Nuno H. Franco managed overall coordination.

Your collaboration and feedback are greatly appreciated, as the module is currently in the testing phase.

1.2 Topics Covered

- Species common lessons - EU module 5 - Recognition of pain, suffering and distress: general aspects.
- Species-specific rat.

1.3 Learning Objectives

- Develop the ability to identify signs of pain, suffering, and distress across various species, understand their causes, and apply appropriate measures to alleviate them, ensuring ethical standards in animal research.
- Understand the fundamental biology, care, health, and management of rats, including the recognition of pain, suffering, and distress, as well as the application of minimally invasive procedures without anesthesia.

To support your ongoing learning, each module concludes with a curated list of recommended readings and cited references. Whenever possible, these references are linked to facilitate further exploration.



2. Prerequisites and Requirements

No specific prior knowledge is required. However, a basic understanding of searching bibliographic databases and a background in laboratory animal science and/or non-animal methods can be advantageous.

This module is designed to guide you step by step, eliminating the need for prior study.

2.1 Requirements

- Completion of lessons and understanding of learning objectives.
- Participation in knowledge checks and assessments to evaluate understanding.



3. Grading and Completion

Grading will be based on the successful completion of knowledge checks and assessments provided at the end of each module. Upon finishing all parts of the module, students will receive a certificate of completion.



4. Textbooks and Reading Materials

The **“References and Further Reading”** lesson provides most references and readings. They comprise scientific articles, sections of books, websites, and videos. Clicking on any link will open a new window to download or visualise the additional material. Several links to further resources can also be found in the module contents to better guide the reader.

The additional materials provide more information on specific topics, tools, and resources.



5. Course Program

The module is organised into five chapters, with lessons and learning objectives as follows:

Chapter	Lesson	Learning objectives
Introduction	1	Get to know the learning objectives
Species common lessons - EU module 5 - Recognition of pain, suffering and distress: general aspects	2-3	Principles of clinical evaluation Humane Endpoints Principles of Pain Management in Rats and Mice
Species-specific rat	4-5	Recognition of Pain, Suffering and Distress in Rats
Summary and knowledge check	6-8	Module summary List of references and further reading Assess your knowledge

Table 1 - Learning objectives per parts and lessons.

5.1 Progress Tracking

Once you begin working through a module, your progress is tracked, and you can break off and resume your studies at any point. Once the module is completed, the trainee can access any section to refresh their understanding of a topic.

5.2 Module Structure

The module is divided into several parts, and although they were designed to be followed sequentially, they can also be taken iteratively. Please note that a certificate of completion is only issued to learners who complete all module parts.

5.3 In-Depth Explanation Lesson by Lesson

Lesson	Title	LO	Explanation
1	Introduction		Short introduction
2	A1 - Principles of clinical evaluation	5.3	Image and short introduction Animals as patients with 1 image Causes of illness in research animals with 3 tabs How to detect and alleviate the impact of disease with 5-step cards with images Potential signs of discomfort, stress, pain with 3 images Clinical Assessment and Scoring with 3 tabs with images and table, 2 images, 1 list



			<p>Frequent assessment of discomfort, pain, distress with 1 image</p> <p>Involvement of all members of the study team and awareness of their roles and responsibilities with 1 list</p> <p>Image with short summary</p>
3	A2 - Humane Endpoints	5.4	<p>Image and short introduction</p> <p>3 quotes by Russell & Burch</p> <p>Endpoints in Biomedical Research with tabs with images, 1 interactive image and 2 flip-cards</p> <p>Deciding on the humane endpoints for a procedure</p> <p>Defining the actions to be taken with 4 images</p> <p>How to refine the Humane Endpoints with 1 image</p> <p>Conclusions</p>
4	A2 - Humane Endpoints	5.6	<p>Image and short introduction</p> <p>List of session topics</p> <p>Pain - Definition, Modulation and Consequences</p> <p>The importance of pain assessment</p> <p>Quiz: Test yourself: Pain and nociception - the difference</p> <p>Treatment of pain - which drug should we choose? with 1 table, 1 image</p> <p>Analgesia - Pre-emptive and multimodal analgesic regimes tabs</p> <p>Non-pharmacological management of pain with 1 interactive image</p> <p>Summary of key points</p>
5	Recognition of Pain, Suffering and Distress in Rats	5.1 5.2 5.3	<p>Image and short introduction</p> <p>Quote by Greenman & Duhring with image</p> <p>Introduction with image and quote</p> <p>General and model-specific clinical signs of reduced welfare with 1 image, quote and tabs with images</p> <p>Clinical signs of discomfort, distress and pain with quote</p> <p>Clinical Evaluation and Scoring of distress, discomfort and pain with 1 table, 2 interactive images, 2 images, 1 interactive quiz, 2 flip-cards</p> <p>Ways to alleviate discomfort and distress in rats with 4 flash-cards, 1 interactive image</p> <p>Pain assessment in rats with tabs with images</p>
6	Summary		Module summary
7	References and Further Reading		References for additional materials
8	Knowledge-check		Assesses progress and knowledge acquired during the module

Table 2 - Explanation lesson by lesson.



6. Target Audience

This module is intended for (bio)medical researchers, participants in laboratory animal science courses, university students, biology/medical teachers, animal welfare body members, regulators, and anyone interested in learning more about animal research ethics and the principles of Replacement, Reduction, and Refinement of animal use for scientific and educational purposes.