Development of innovative training solutions in the field of functional evaluation aimed at updating of the curricula of health sciences schools

MODULE BIOMECHANICS OF SPINE

Didactic Unit C: HOW DO I ASSESS SPINE?

C.3. What are the advantages of the use of instrumental techniques versus scales and physical examination in spine?

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1. Objectives

- To know the utility, advantages and disadvantages of using clinical scales for functional evaluation.

- To know the utility, advantages and disadvantages of instrumented analysis for functional evaluation.

- To know the difference among functional evaluation methodologies, including clinical scales, instrumented analysis and biomechanical systems in order to select those for appropriate depending on the case.

2. Tools to perform a functional evaluation: advantages and disadvantages

Functional evaluation is the study of human capacity during the development of activities of daily living (work, sport, leisure, ...) in order to analyze people's skills, abilities and residual capacities.

In the clinical practice, it may imply certain difficulties, mainly related to the of the information available and the complexity of the evaluation of certain features like pain. In this context, it is important to count on objective and reliable assessment techniques.

The most widespread tools when performing functional evaluations, are the clinical scales, followed by the used of instrumented analysis systems. The main advantages and disadvantages of each option are presented in the following picture, as well as in the video associated to this session.

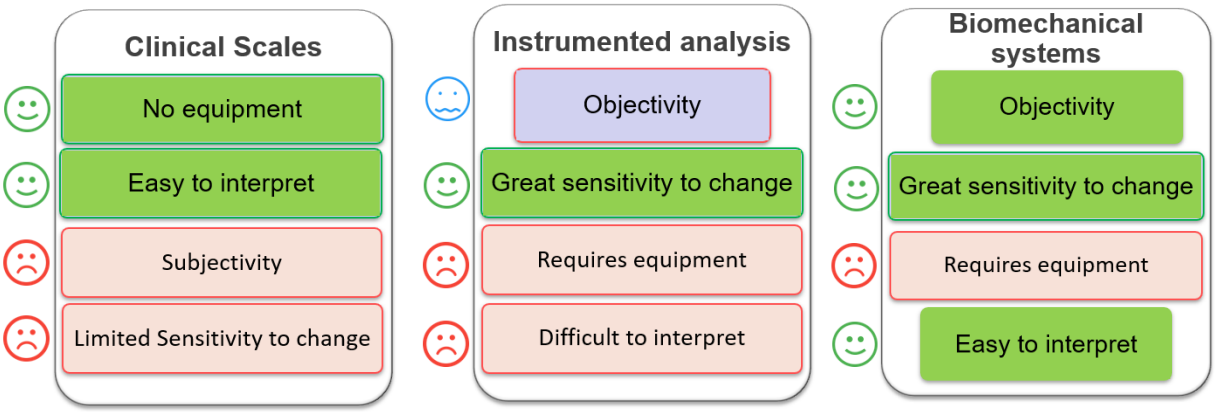

Figure 1 – Advantages and disadvantages of clinical scales, instrumented analysis and biomechanical systems.

3. Evidence on the use of clinical scales and instrumented analysis

In many scientific studies that evaluate a medical intervention, the results are presented using both clinical and biomechanical variables and clinical scales. In some of these cases, the relationship between the results obtained through clinical scales and biomechanical assessment has been studied, proving that biomechanical variables were more sensitive to quantify the functional status of the patient than clinical scales[1].

To deepen this issue, two scientific articles have been attached to the present teaching unit. In these studies, the usefulness of biomechanical assessment tests in different contexts and in relation to the use of clinical scales is explored. In order to complete the theoretical training of this topic, it is important to make a critical reading of the following proposed articles[2,3] and to reflect on the usefulness of each assessment tool analyzed. You can find the articles in the following locations:

URL artículo 1

URL artículo 2

4. References

[1] Vivas-Broseta, MJ. (2014). Desarrollo de una metodología de valoración objetiva de la recuperación de la marcha de personas con ictus basada en escalas clínicas y análisis cinético (tesis doctoral). Universitat de València, España.

[2] Lafuente, R., Belda, J.M., Sánchez Lacuesta, J., Soler, C., Poveda, R., Prat, J. Quantitative assessment of gait deviation: contribution to the objective mesurement of disability. Gait and Posture, 2000; 11(3): 191 – 198

[3] De Rosario, H., Vivas, M.J., Sinovas, I., Page, A. Relationship between neck motion and self-reported pain in patients with whiplash-associated disorders during the acute phase. Musculoeskeletal Science and Practice, 2018; 38: 23 – 29