



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



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Module Functional evaluation: concept and methodology

Didactic Unit E

Importance of cognitive abilities in the performance of motor task and why it is important to include biomechanical analysis in cognitive impairments

Activities

Activity 1

A 45-year-old patient who was diagnosed with bipolar disorder at age 23. It is observed in clinical consultation that it is difficult for him to do tasks at the same time as taking off his jacket and having a conversation at the same time, it takes long time to mention the words he wants to use to refer to an object or activity and during a cognitive screening test he is distracted to report information on the clinical questions previously asked. In addition to this, it is observed that he performs the activities slowly and that when sitting and getting up from the chair he slightly loses his balance.

1) ¿ What cognitive functions could the person evaluated have altered?

Answer:

- If the person has trouble doing tasks at the same time, it implies a deficit in executive cognitive functions.
- If the person takes so much time to mention the words they want to use to refer to an object or activity, it implies an alteration of verbal memory.
- If during the cognitive screening test, the person evaluated is distracted to report information from previously asked clinical questions, it refers to an alteration of focused or sustained attention.

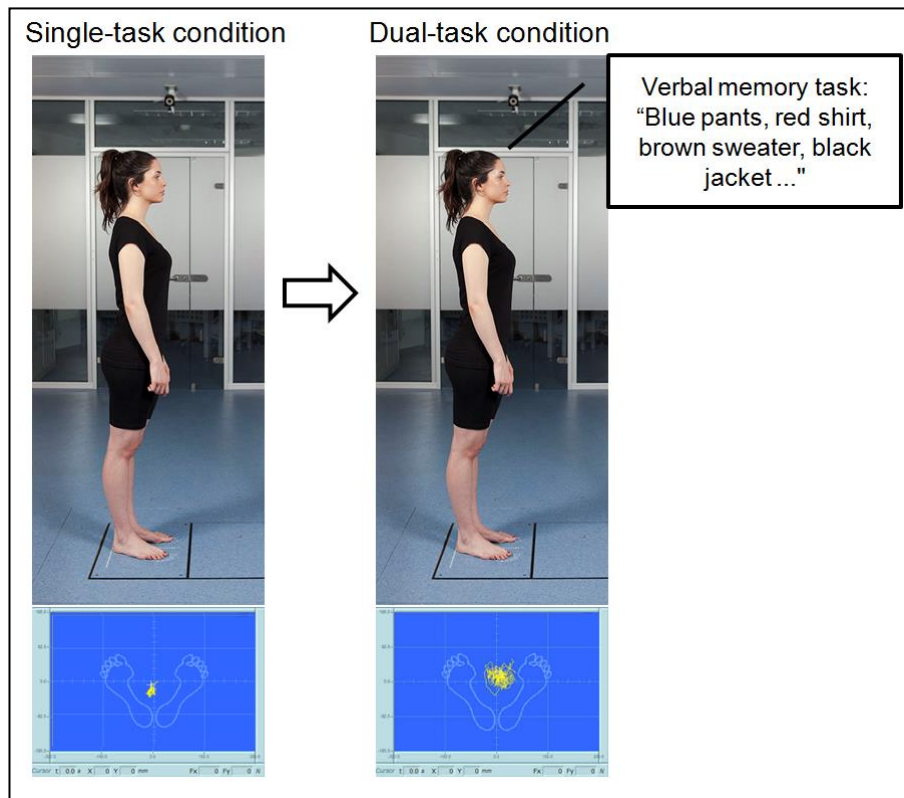
2) Would you do a motor evaluation of this patient? If your answer is yes, what type of evaluation would you perform? Justify your answer.

Answer:

- Patients with mental or cognitive disorders may present motor alterations because the cognitive functions affected may affect the motor procedure or there may be motor circuits affected by the disease itself.
- It would be appropriate to do a motor assessment in single task conditions, that is, only performing the motor task, and then in dual-task conditions, that is, performing another cognitive task at the same time.
- If the patient loses his balance when sitting and getting up from the chair and shows slow movement in the clinical evaluation, it would be appropriate to perform an evaluation of gait and dynamic and static balance.
- A secondary cognitive task feasible to add to the evaluation is the verbal recall of things he did the day before or of clothing that he has in his closet in order to assess the gait and balance with a verbal memory task.

3) You perform an evaluation of balance with a dynamometric platform under a single and dual context. The results show that the patient has more oscillation of his centre of pressure during the static balance test during the dual-task condition, that is, while performing the verbal memory task.

a) What is the percentage of interference that the cognitive task causes in the balance of this patient?



Swept area of centre of pressure during single-task condition: 138.53 mm²

Swept area of centre of pressure during dual-task condition: 773.71 mm²

b) What impact on his daily life can this patient have from the information obtained in this evaluation?

Answer:

a) The cognitive task has an interference in the performance of the balance of 458% (Dual-task cost)

b) In situations of daily life, the patient may have difficulty performing their activities normally due to the loss of the balance proven by the environments with many cognitive stimuli, so it may be necessary to monitor the balance of the evaluated person over time as well as indicate the beginning of physical activity or physical therapy to counteract this deterioration.



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