

OBJECTIVE THERAPY AND AUDIOVISUAL REHABILITATION



Introduction

Rehabilitation is a complex process which unfortunately many people have to face at some point in their lives and it often brings along deep lifestyle changes. This new situation demands a considerable effort by the patient for a long period of time in order to achieve a complete recovery. TOyRA brings rehabilitation into a new era for both patients and the health professionals who support them along the way. TOyRA is a rehabilitation platform incorporating health information, virtual reality, and movement capture technologies for the development of customised interactive exercises

designed by health professionals with high expertise on the field of rehabilitation. TOyRA uses virtual reality technology in order to boost the patient's motivation towards his own therapy, with the subsequent improvement in results. The system uses input from capture movement technology in order to elaborate relevant clinical information, providing an objective framework on the evolution of the patient's rehabilitation process. Furthermore, TOyRA provides an electronic platform for the management of the patient's clinical and rehabilitation records, allowing for individual treatment

of each patient's therapy output. This information contributes to the elaboration of clinical studies and protocols, offering a scientific basis for the ongoing improvement of the rehabilitation process.



Objective Therapy and Audiovisual Rehabilitation

Rehabilitation

The objective is to achieve the maximum degree of independence for patients, considering their capabilities and life aspirations, evolving towards an integral concept focused on granting equal opportunities in a social context, personal development and the introduction of new scenarios of intervention.

Yesterday	Today	Tomorrow
<p>Purely medical procedures.</p> <p>Traditional reductionist model (merely biological). Essentially limited to chirurgical interventions.</p> <p>Medical model.</p>	<p>Medical, psychological and social methods.</p> <p>Biopsychosocial model. Clinical therapies with objective support. Motivation as the fundamental engine.</p> <p>Technical model based on biopsychosocial integration.</p>	<p>Integral procedures by process, context, time and person.</p> <p>Ecological model. Integral rehabilitation model. Ubiquity.</p> <p>Model derived from the analysis of the patient's microsystem, mesosystem and macrosystem.</p>

Toyra vs traditional therapy

	Traditional therapy	Toyra
1. Therapy	Uses tangible physical elements and actual activities.	Uses virtual image - interactive, engaging and motivating.
2. Clinical records	Monitoring of work through electronic medical record.	It complements clinical history information with objective patient data.
3. Therapy plan	Depends on the care of different health actors to ensure exercise execution.	Easily assignable courses, sessions and exercises.
4. Graphics	Not available. The decision on the appropriateness of therapy depends on the perception of the therapist and the assessments made.	Available. Allows health care providers to validate exercise evolution and reaffirm treatment decisions.
5. Flexibility	Low. Difficulty to assign unplanned sessions: dependence on the availability of health staff and/or physical material. Traditional materials aren't ideal to work on the patient's daily life activities.	High. Adaptable to the patient's day-to-day reality, allowing assigning of unplanned sessions at any moment.
6. Reporting	Not possible to generate objective metrics reports to evaluate the performance of the patient.	Generation of additional reports including maximum degrees, trajectories, normal group behavior.
7. Efficiency improvement	Only one patient can be monitored at a time.	Enables simultaneous monitoring of different patients.
8. Management improvement	Costs and capacities linked to staff availability.	Investment returns in a short lapse of time. Important reduction of cost per session and patient depending on cases.
9. Therapy modality	Monotonous, repetitive therapy, hindering the patient's sense of immersion.	Immersive therapies, subjective vision of patient included on virtual environment.
10. Treatment modality	On-site care and treatment.	It provides the basis for future relocation of care and treatment. The architecture facilitates remote mode operation.



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