

I-MAN

Portable Arm Rehabilitation Robot

Personalizing
Recovery



**“Tell me and I forget,
Teach me and I remember,
Involve me and I learn”**

Chinese proverb



ARTICARES

ARTICARES understands the unique needs of patients and medical experts. By interweaving human touch with leading technology to personalize your recovery, we develop interactive state-of-the-art user-friendly solutions for assessment and sessions of rehabilitation in hospital, community care center and home-based settings.

Our solutions are results of intensive and collaborative research work between experts in medical and engineering fields. ARTICARES products have been validated by clinical studies and made available to you by a team whose main objective is to make every step of your recovery process a rewarding journey.

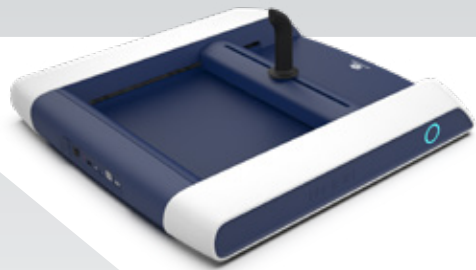
Content

H-MAN	6
Rehabilitation with H-Man	9
Clinical Validation	10
H-MAN Features	
Compact and Portable	12
Easy to Setup and Use	13
Ergonomic Handle	14
Haptics Switch	15
Care Platform	18
Patient Training Planner	19
Engaging Games	20
Progress Monitoring with Feedback Reports	21
Patient Independence in Training	22
Smart Intensive Therapy	22
Improved Productivity	23
Continuum of Rehabilitation	24
Benefit for All	26
Device Specifications	28
Device Components	29
H-Man Haptic Platform for Research	31



H-MAN

First truly portable clinically validated arm rehabilitation robot for minimally supervised assessment and personalized rehabilitation throughout the continuum of care - from hospital to patients' homes.





Visually engaging games to stimulate the patient's motivation during the training sessions and promoting faster recovery

Easy interaction between patient and H-Man through ergonomically designed handles

H-MAN analyzes the patient's arm movements and tailors the patient training session accordingly

Haptic feedback switch for easy and safe use

Rehabilitation with H-Man

The H-Man is used for rehabilitation of patients suffering from functional impairments in the upper arm.

To start the training, a patient grasps the handle and selects a game suited for the training needs.

During training, the H-Man assesses patient arm movement, automatically modifies training and adapts applied forces to ensure optimal re-learning in each session.

Post training, the patient can view recovery progress report from H-Man.

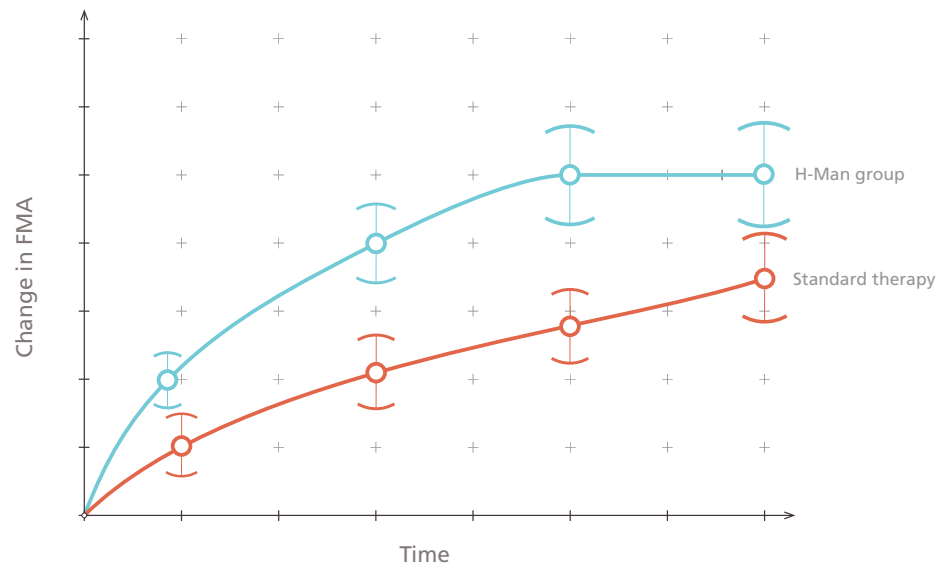
The patient may train under minimal supervision of a caregiver and therefore effectively reduce therapist workload.

Clinical Validation

Large scale clinical trials were conducted using the H-Man in collaboration with international partners.

The clinical trials showed that when using the H-Man:

- High intensity exercises helped patients learn faster
- Patients retained learning
- Therapist workload decreased significantly – up to 65%
- Patients can train under minimal supervision of a caregiver in community & homes



FMA = Fugl Myer Assessment

The outcomes of clinical trials were observed under specific conditions. Please contact ARTICARES for more details on our scientific publications.

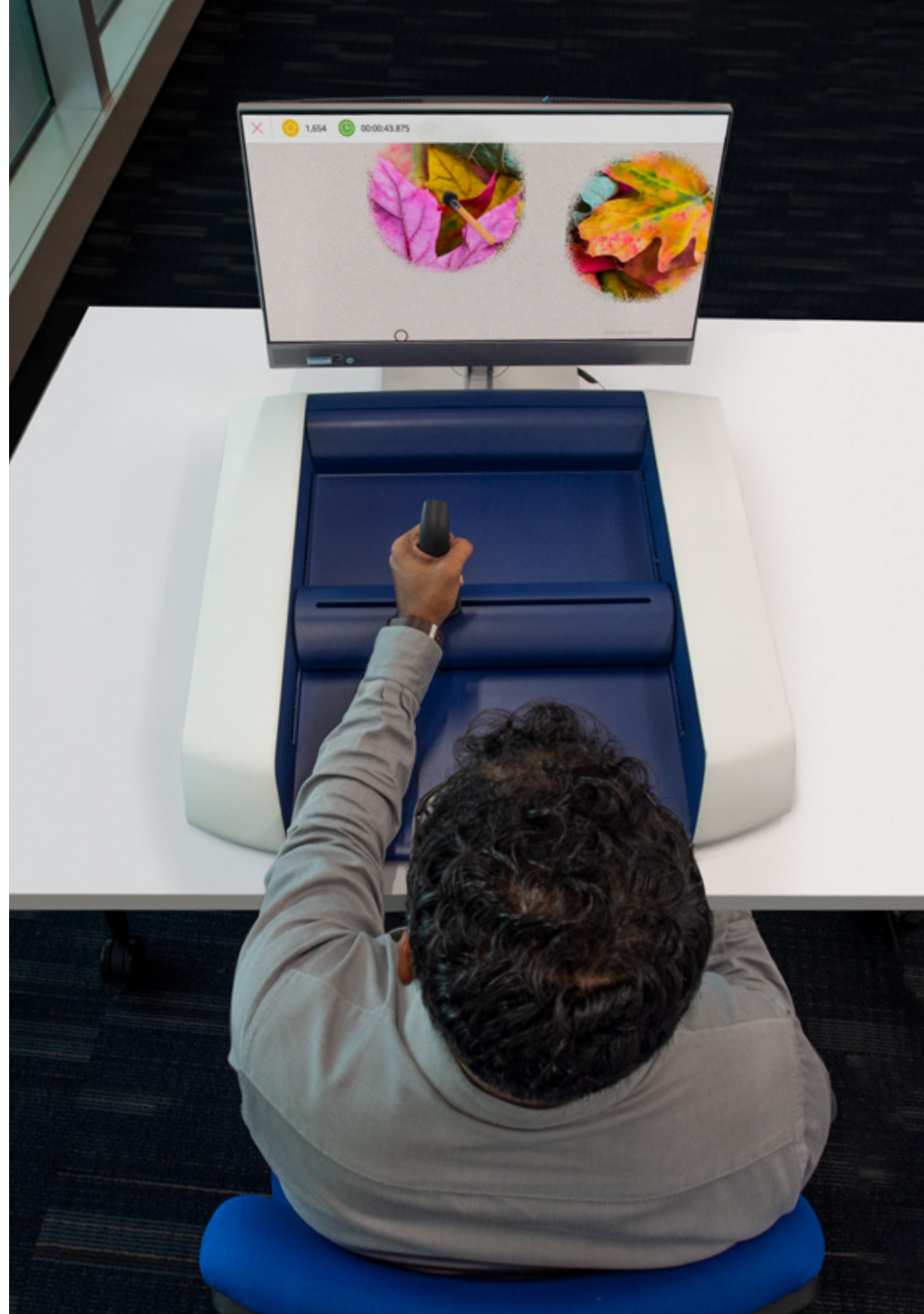
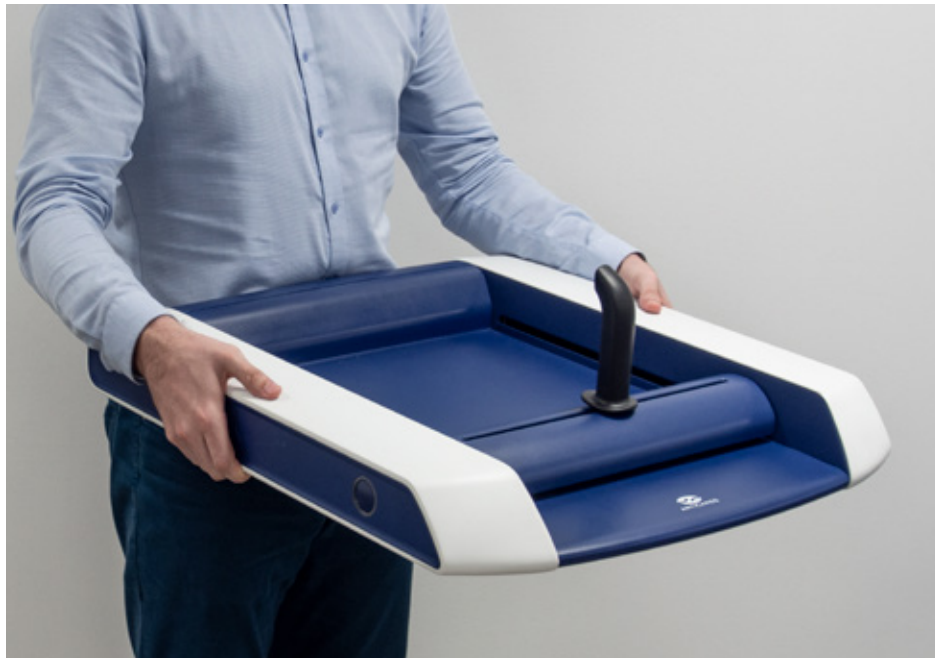




Compact and Portable

H-Man is a compact rehabilitation robot that can be easily used in institutions with low space availability providing greater flexibility to hospitals, outpatient centres and private homes.

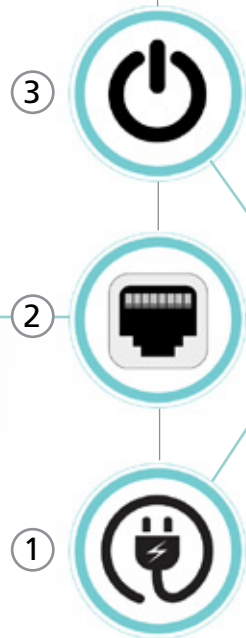
Weighing ~14kg, the H-Man can be ported around by a caregiver enabling him/her to deliver care to patients at locations convenient.



Easy to Setup and Use

Just 3 simple steps to setup:

1. Plug the H-man to a power source
2. Plug H-Man to Workstation
3. Turn on the H-Man



H-Man is designed to begin the training within few mouse-clicks:

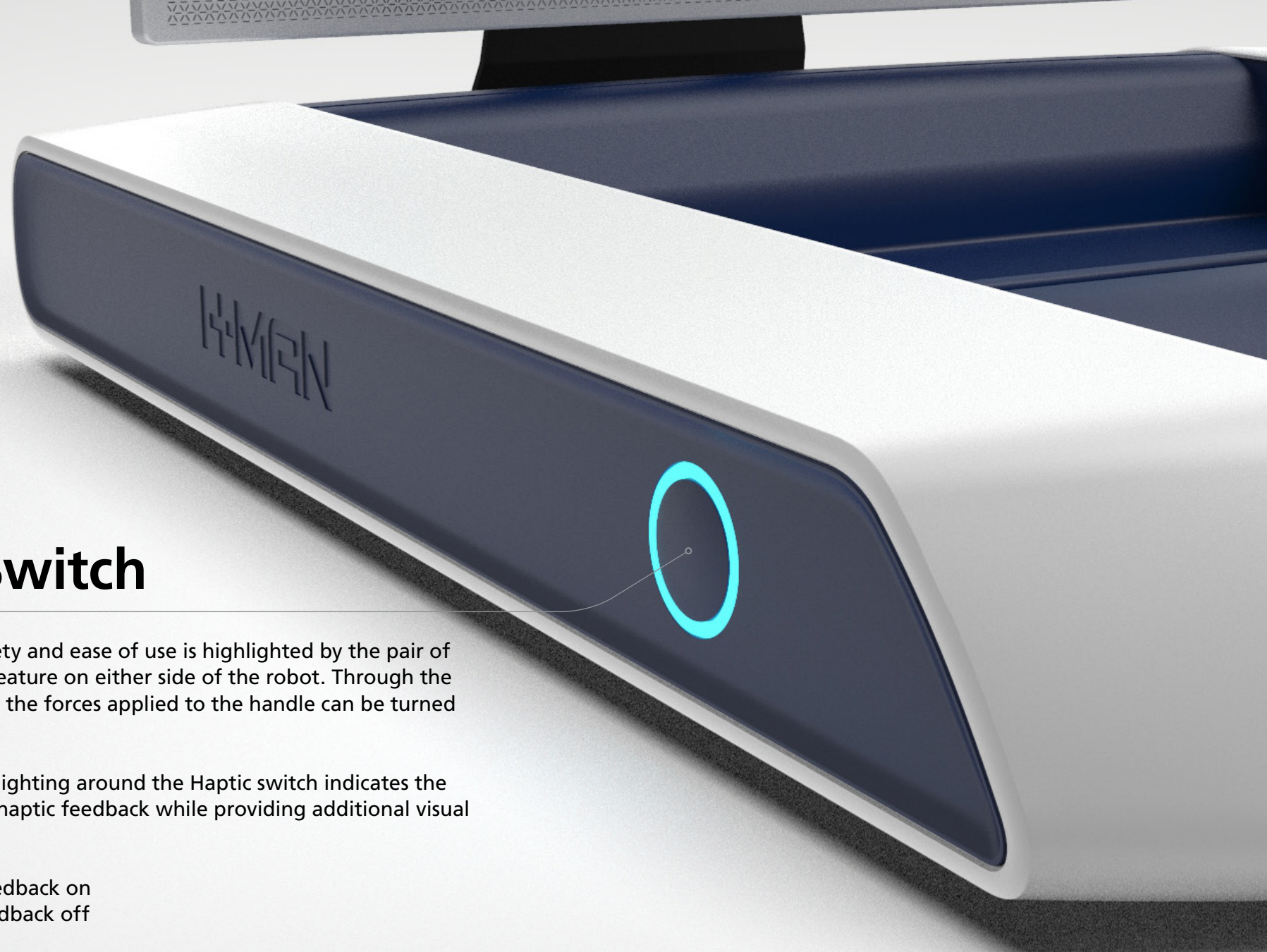
- Therapists and patients log in with their credentials
- Chooses a game that suits the training need of the patient
- Begins training and learning

Minimal steps ensure that patients and therapists have more quality time to engage in rehabilitation exercises.



Ergonomic Handle

- The handles have a non-slip design and the material used to ensure comfortable grip for the patient.
- Patients grasp the handle and train by playing games suited to their training need.
- Simple 'slide-in, slide-out' design ensures that handles can be easily attached to or detached from the H-Man.
- Additionally, H-Man can be offered with variety of handles including sensor-embedded handles to suit the needs of the user and make the training even more engaging.



Haptic Switch

The H-Man's user safety and ease of use is highlighted by the pair of haptic switches that feature on either side of the robot. Through the pressing of the switch the forces applied to the handle can be turned on or off.

The halo-like circular lighting around the Haptic switch indicates the nature of the H-Man haptic feedback while providing additional visual information:

- Blue for haptic feedback on
- Red for haptic feedback off

It is designed to be responsive to a light press of the patient or caregiver providing increased safety and confidence in the use of the H-Man.





CARE

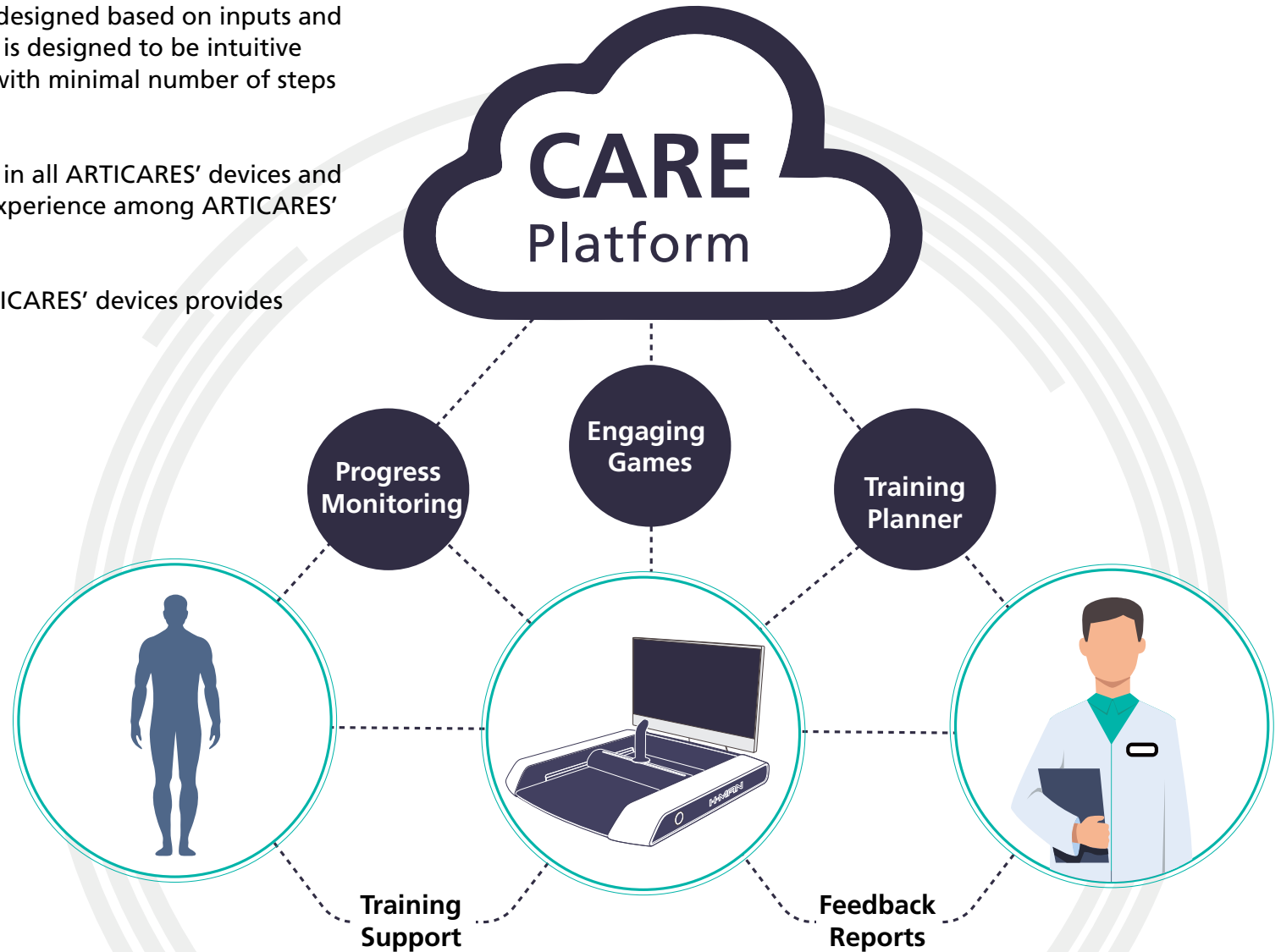
Platform

CARE Platform

ARTICARES' digital platform has been designed based on inputs and feedback from clinicians. The platform is designed to be intuitive and allows easy and quick navigation with minimal number of steps to the desired action.

The digital platform can be integrated in all ARTICARES' devices and therefore provides the user seamless experience among ARTICARES' solutions.

Having a common platform across ARTICARES' devices provides familiarity and ease of use.



Patient Training Planner

For a busy therapist, patient schedule management is a powerful tool to boost operational efficiency of each day.

- The training planner enables clinicians to set up a customized training plan such as total duration of training, frequency and types of training that a patient must perform.
- The Training Planner enables the therapist to achieve a more organized agenda for each day.
- The training plan enables patients to continue training exercises at their own homes based on a therapy plan provided by their therapist.



Engaging Games

- Immersive and motivating games developed to promote learning.
- Games were specifically designed to make them visually engaging and interactive to the patients.
- Each game is tailored to provide specific training types such as coordination control, agility and strength training.
- Patients can access large selection of games to suit their rehabilitation plan and training needs.
- From exploring different cultures around the world or going to fish, patients can choose different games which were designed to make the learning an enjoyable experience without compromising on the quality of training.





Progress Monitoring with Feedback Reports

- After each session, the H-Man provides a report.
- These reports are designed to be easy to interpret and share.
- Patients can instantly see their progress on the screen.
- Clinicians can view reports that track recovery of the patient, remotely.
- Patients training under minimal supervision of a caregiver, need not worry about regular progress being missed by their therapist.
- Therapists can now manage their workload better and provide more value to their patients' therapy sessions.

Patient Independence in Training

The AI-driven H-Man models the activities of the therapist by enabling patients to train independently or under minimal supervision of a caregiver. Through applied forces, H-Man assists, challenges or perturbs the arm movements to ensure optimal learning and motivation for the patient.

Designed to deliver personalized training to every patient, the H-Man:

- Senses patient arm movement
- Decides suitable training complexity and difficulty
- Identifies coordination issues
- Motivates patients, through applied forces, to perform better
- Provides feedback on performance

Therapists can now have a better management of their daily workload and improve the department productivity while enhancing quality of training.

Smart Intensive Therapy

Patients typically perform ~10x more repetitions per session compared to conventional therapy.*

The high intensity smart repetitions enable the patient to maximize learning in each session.

*Based on clinical studies. Contact ARTICARES for more details.





Improved Productivity

The H-Man is clinically validated to reduce workload of therapists by as much as ~65%. Studies with the H-Man have shown that using the H-Man can lead to reduced departmental costs or enable therapists to increase their daily clinical availability to attending patients on a regular basis thereby increasing revenue. Financial and operational benefits are experienced by the therapist.



Continuum of Rehabilitation

The H-Man is designed for care throughout all the different phases of rehabilitation - hospital, outpatient and patient homes.

Patients can now train anywhere while getting the same quality as that of training given with a therapist.

Therapists can keep track of the recovery progress of the patients at any and every instance of rehabilitation training.



Benefit for All

For healthcare providers

- High Clinical Value
- Help to improve the productivity of therapists
- Reduce departmental costs and/or increase revenue
- Focus on delivering high value to patients
- Potential reduction of length of in-patient stay
- Can remotely monitor recovery progress and training



For patients

- Receive high quality training in the comfort of their own homes or nearby centres
- Reduces mental and financial strain
- Confidence in therapy due to continuous feedback including progress monitoring by therapist