

KFORCE

by

KINVENT

An objective measurement enables the visualization of the progress in time. Those measurements are indispensable to the therapist and the patient. Furthermore, the quantification enables the patient motivation, and his active participation in the process of rehabilitation.





Grip strength dynamometer for the evaluation of the grip strength.

Technical characteristics of the KFORCE Grip

Minimum Requirements	Android 5.0+ and iOS 10.0+, Bluetooth Low Energy
Weight	200 grams
Dimensions (H x W x D)	141 x 47 x 61 mm
Wireless Range	Up to 20 meters
Max Force	90 kgs
Battery	5h00 of autonomy, 2h00 for charging
Precision	100 grams
Acquisition frequency	75 Hz
Wireless transmission Frequency	2.4 GHz band (Bluetooth Low Energy)



Assessment of the grip strength



MUSCLE controller

Hand-held dynamometer for the force measurement of various muscular groups. It's the ideal tool for muscle testing.



Assessment of external rotators and hamstrings strength

Technical characteristics of the KFORCE Muscle Controller

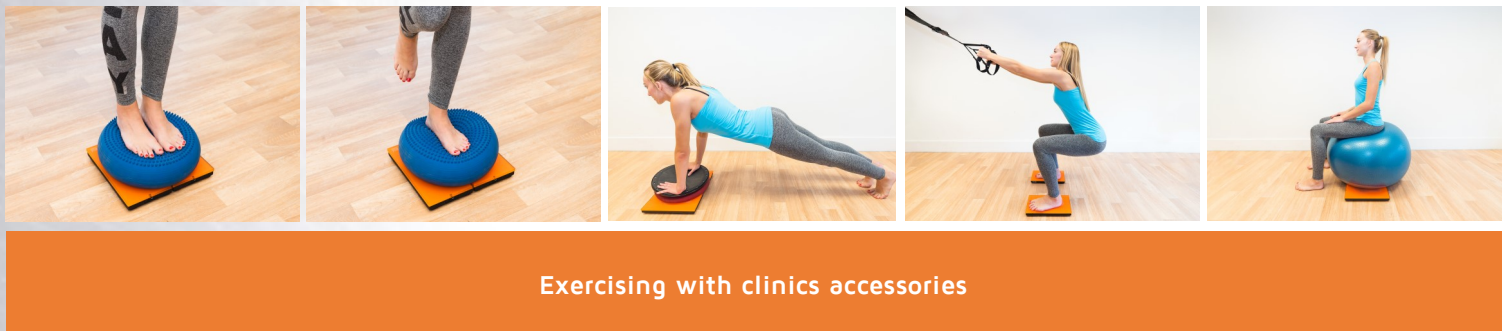
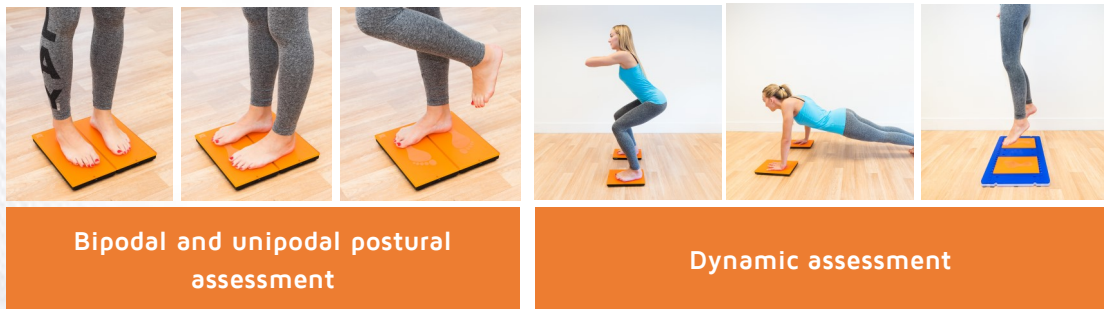
Minimum Requirements	Android 5.0+ and iOS 10.0+, Bluetooth Low Energy
Weight	300 grams
Dimensions (H x W x D)	60 x 140 x 80 mm
Wireless Range	Up to 20 meters
Max Force	90 kgs
Battery	5h00 of autonomy, 2h00 for charging
Precision	100 grams
Acquisition frequency	75 Hz
Wireless transmission Frequency	2.4 GHz band (Bluetooth Low Energy)





PLATES

Force Plates enabling measurement of static and dynamic balance on a big number of movements. Resistant and lightweight, ideal for the assessment and training in proprioception.



Technical characteristics of KFORCE Plates

Minimum requirements	Android 5.0+ and iOS 10.0+, Bluetooth Low Energy
Weight	1600 grams
Dimensions (L x W x H)	330 x 175 x 30 mm / Plate
Wireless range	Up to 20 meters
Max force	300 kgs for each plate, 600 kgs for both
Battery	12h00 of autonomy, 6h00 charging / Plate
Precision	500 grams
Acquisition frequency	Up to 75 Hz
Wireless transmission Frequency	2.4 GHz band (Bluetooth Low Energy)



Connected goniometer enabling joint movement amplitude measurements against an initial reference position.
 Sens is the ideal tool for joint assessment or biofeedback exercising.



Technical characteristics of the KFORCE Sens

Minimum requirements	Android 5.0+ and iOS 10.0+, Bluetooth Low Energy
Weight	40 grams
Dimensions (H x W x D)	15 x 56 x 35 mm
Wireless range	Up to 10 meters
Sensitivity	5°
Accuracy	3°
Battery	5h00 of autonomy, 2h00 for charging
Wireless transmission frequency	2.4 GHz band (Bluetooth Low Energy)





BUBBLE

Pneumatic dynamometer converting pressure variation to a Strength measurement.
It can be adapted to a big number of inflatable cushions.



Technical characteristics of the KFORCE Bubble

Minimum requirements	Android 5.0+ and iOS 10.0+, Bluetooth Low Energy
Weight	100 grams
Dimensions (H x W x D)	25 x 58 x 56 mm
Wireless range	Up to 20 meters
Maximum force	90 Kg
Precision	500 grams
Acquisition frequency	75 Hz
Battery	5h00 of autonomy, 2h00 for charging
Wireless transmission frequency	2.4 GHz band (Bluetooth Low Energy)





LINK

Traction dynamometer for the measurement of isometric strength and biofeedback training.

Link enables independent measurements. It can be fixed on a physiotherapist's table, on the espalier or on pulley machines.

Link is provided with accessories for turnkey use :

- 2 carabiners
- 2 loop fastening accessories allowing attachment to a physiotherapy table or to a wall bar and to the desired limb.
- 2 different resistance elastics for exercise with resistance.
- 1 adjustable rigid strap for the measurement of the maximum isometric force.



Example of use of the Link

Technical characteristics of the KFORCE Link

Exigences requises	Android 5.0+ & iOS 10.0+, Bluetooth Low Energy
Weight	600 gramms
Dimensions (H x W x D)	154 x 68 x 55 mm
Wireless Range	Up to 10 meters
Max Force	300 Kg
Battery	12h00 of autonomy, 6h00 charging
Precision	100 grams
Acquisition frequency	75 Hz
Wireless transmission frequency	2.4 GHz band (Bluetooth Low Energy)



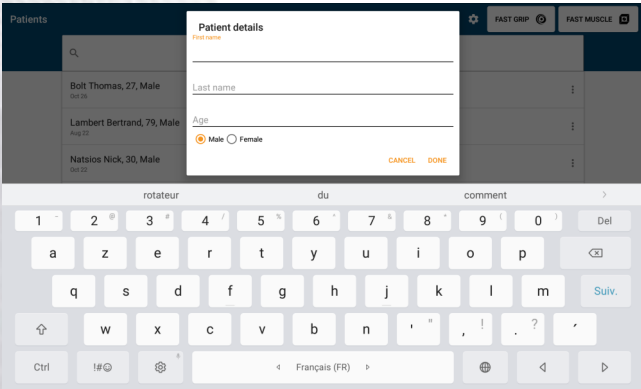
KFORCE App : General use

KFORCE App can be downloaded on Google Play Store  and the I'App Store 

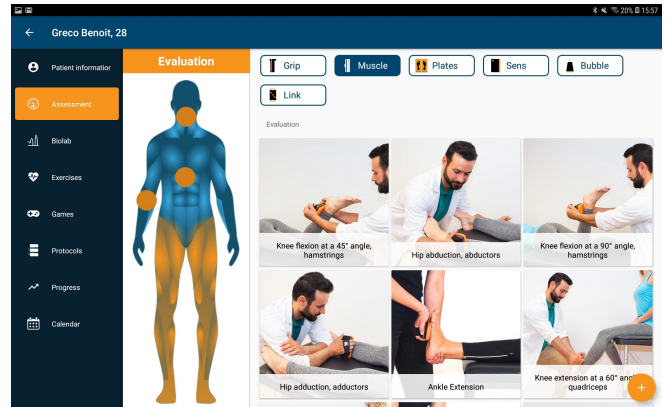
KFORCE is compatible starting at Android 5.0+ and 10.0+.

KFORCE has been especially designed for rehabilitation and sports in order to put in place objective assessment in a few clicks and to individualize rehabilitation and sports assessment in accordance with each patient's capacities.

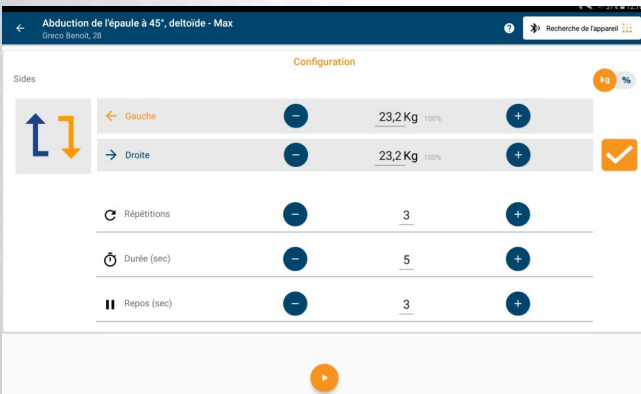
The features are continuously enriched by updates and innovative accessories.



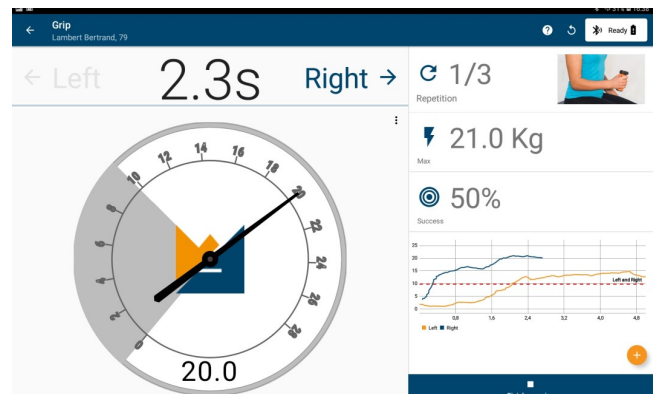
Patient creation in the database



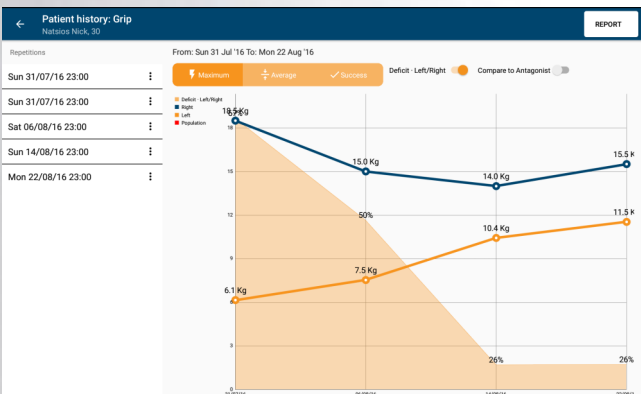
Selection of activity, progress and calendar



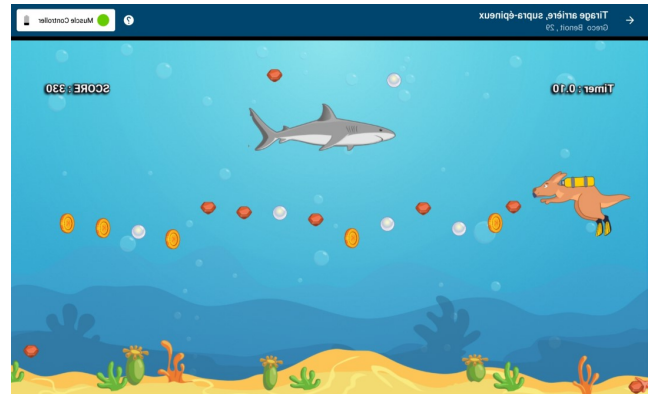
Measurement parameters



Biofeedback



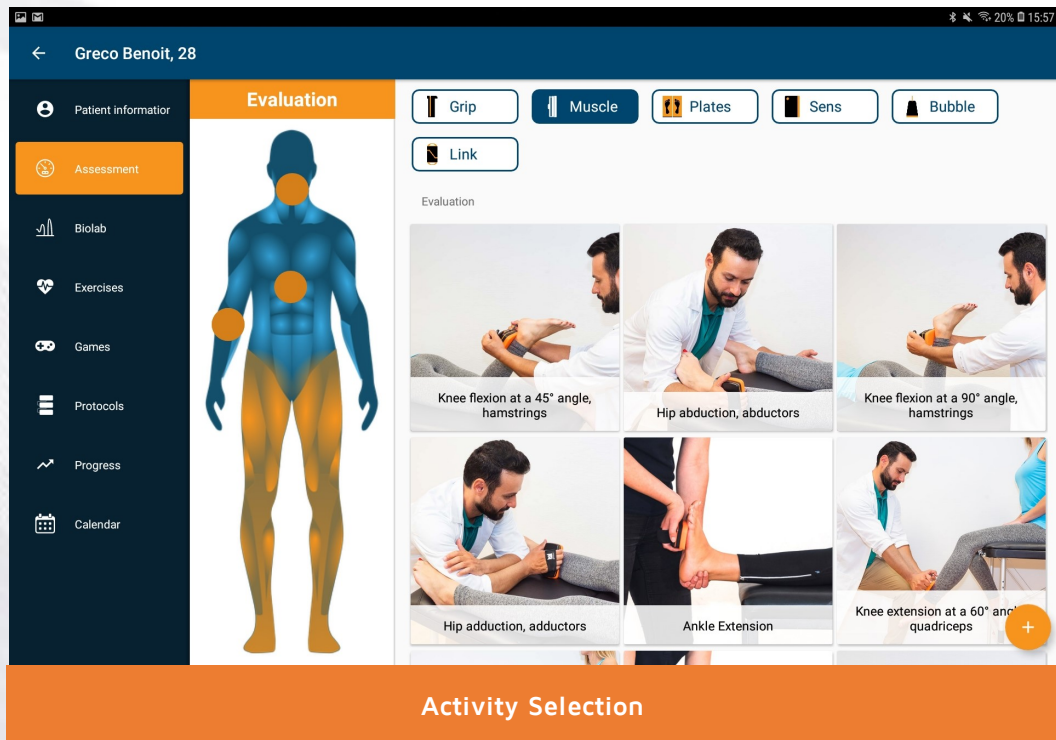
Progress and reporting



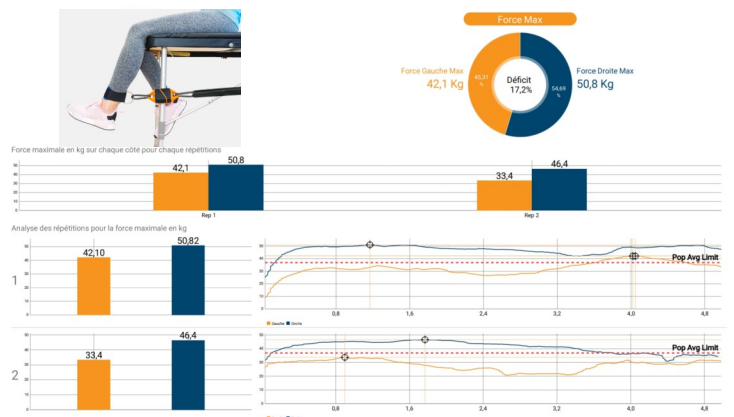
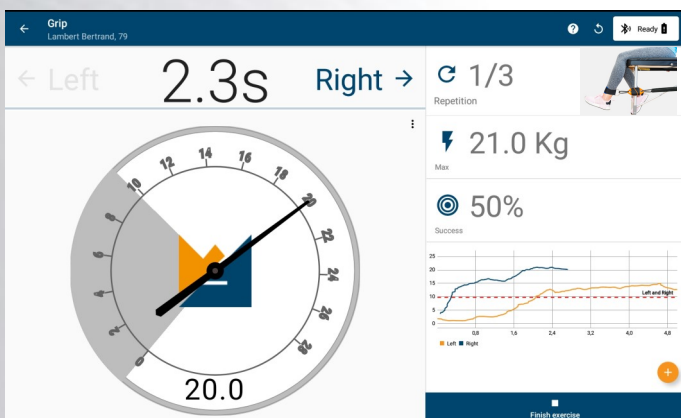
Fun and customisable rehab-gaming

KFORCE App : Assessment

From the assessment selection up to the visualization of results coming through measurement, the K-FORCE app helps you obtain quantifiable measurement and a qualified follow-up.

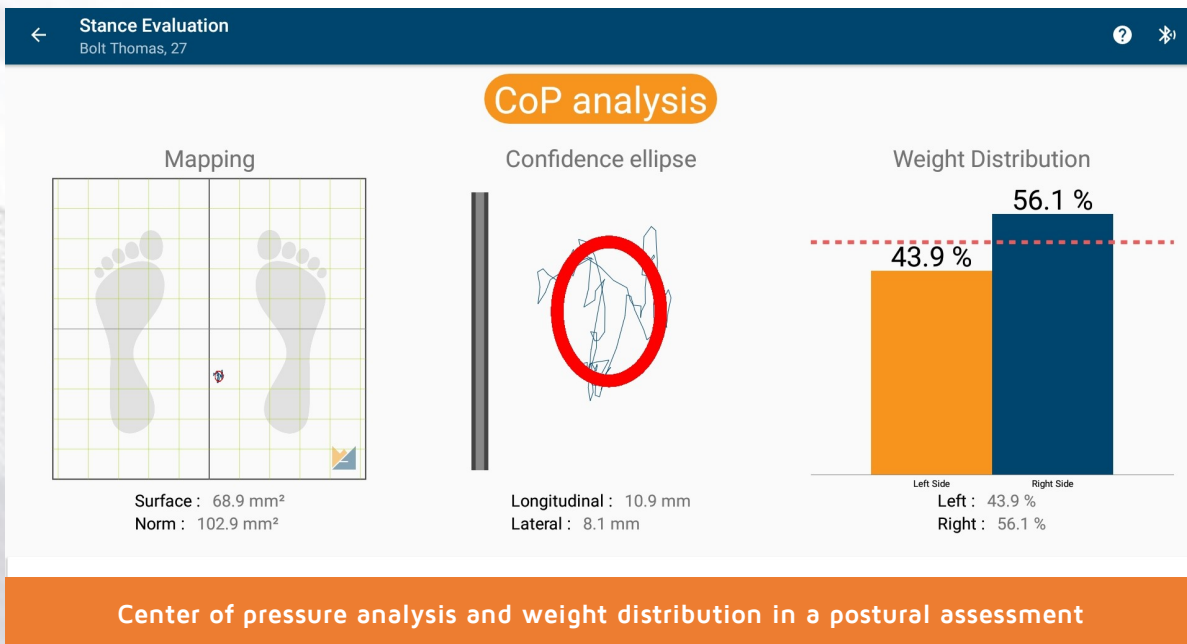


The activities are filtered according to their nature (assessment, gaming, exercising) body part and hardware used.



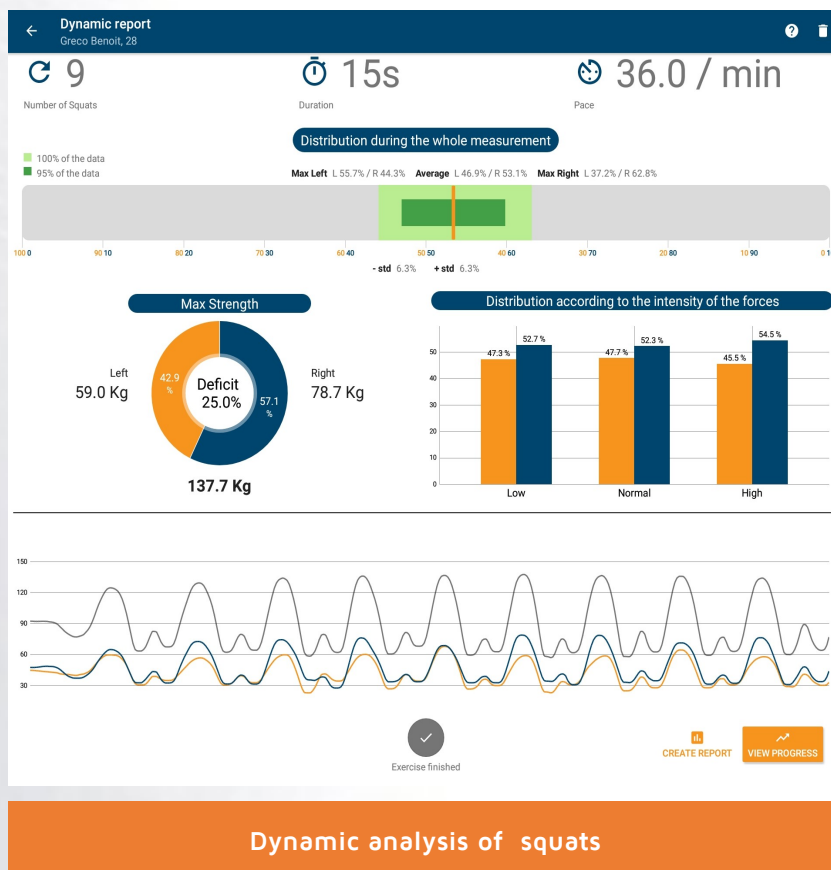
Measurement interface and results for the assessment of Max isometric force of the quadriceps with the Link

Those assessments, obtained by the connected measurement KFORCE instruments, enable muscular strength assessment, balance and movement amplitude.

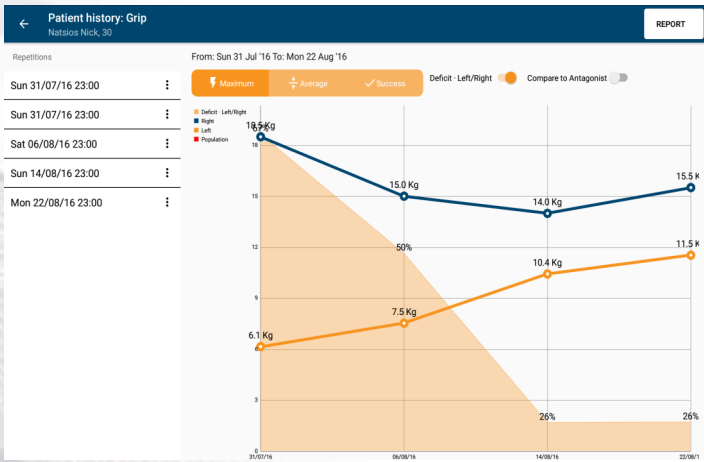


KFORCE Plates enable ground reaction forces, in blue for the right limb and in orange for the left limb. The black curve constitutes the total ground reaction force.

The app enables weight distribution analysis according to ground reaction forces intensity (high, normal, low).



KFORCE App : Advanced progress follow up



Deficit percentage between week and strong limb

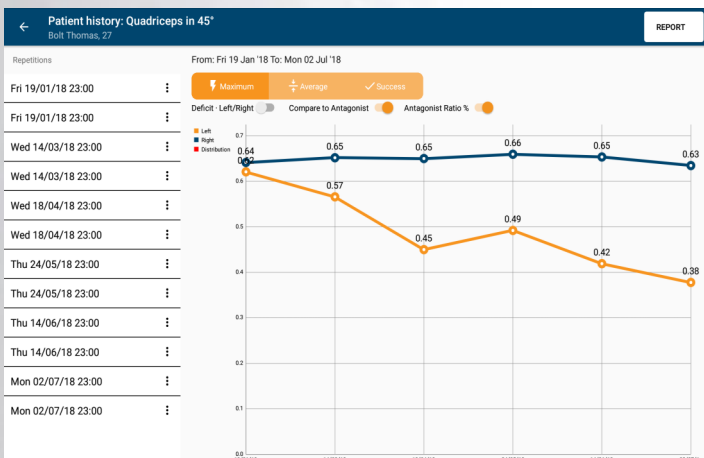
The deficit percentage enables the quantification of the difference between strong and weak limb. You can visualize this percentage on the orange area of this image.

When a muscle group is associated with an antagonist group, you can compare the maximum strength of the one relative to the other directly on the same graph. In the opposite image, the muscular group consulted are the quadriceps (evolutions of the max force visible in continuous lines), the antagonist group are the hamstrings (evolutions of the max force visible in dashed lines).



Superposition of graphics of antagonist muscle groups

The display of the ratios between antagonistic muscle groups makes it possible to visualize whether the maximal forces between two opposing muscles are considered normal or pathological.



Antagonist ratio screen

KFORCE App : Training and rehab-gaming

Once the assessment is done, offer to patients some fun work with a rehab target.

The screenshot shows the configuration interface for the exercise 'Abduction de l'épaule à 45°, deltoïde - Max' by Greco Benoit, 28. The interface is titled 'Configuration' and includes a 'Sides' section with a visual indicator of left and right sides. The configuration table is as follows:

Parameter	Value	Unit
Gauche (Left)	23,2 Kg	100%
Droite (Right)	23,2 Kg	100%
Répétitions (Repetitions)	3	
Durée (sec) (Duration)	5	
Repos (sec) (Rest)	3	

Below the configuration table, an orange banner states: 'Personnalisation based on a max percentage'.

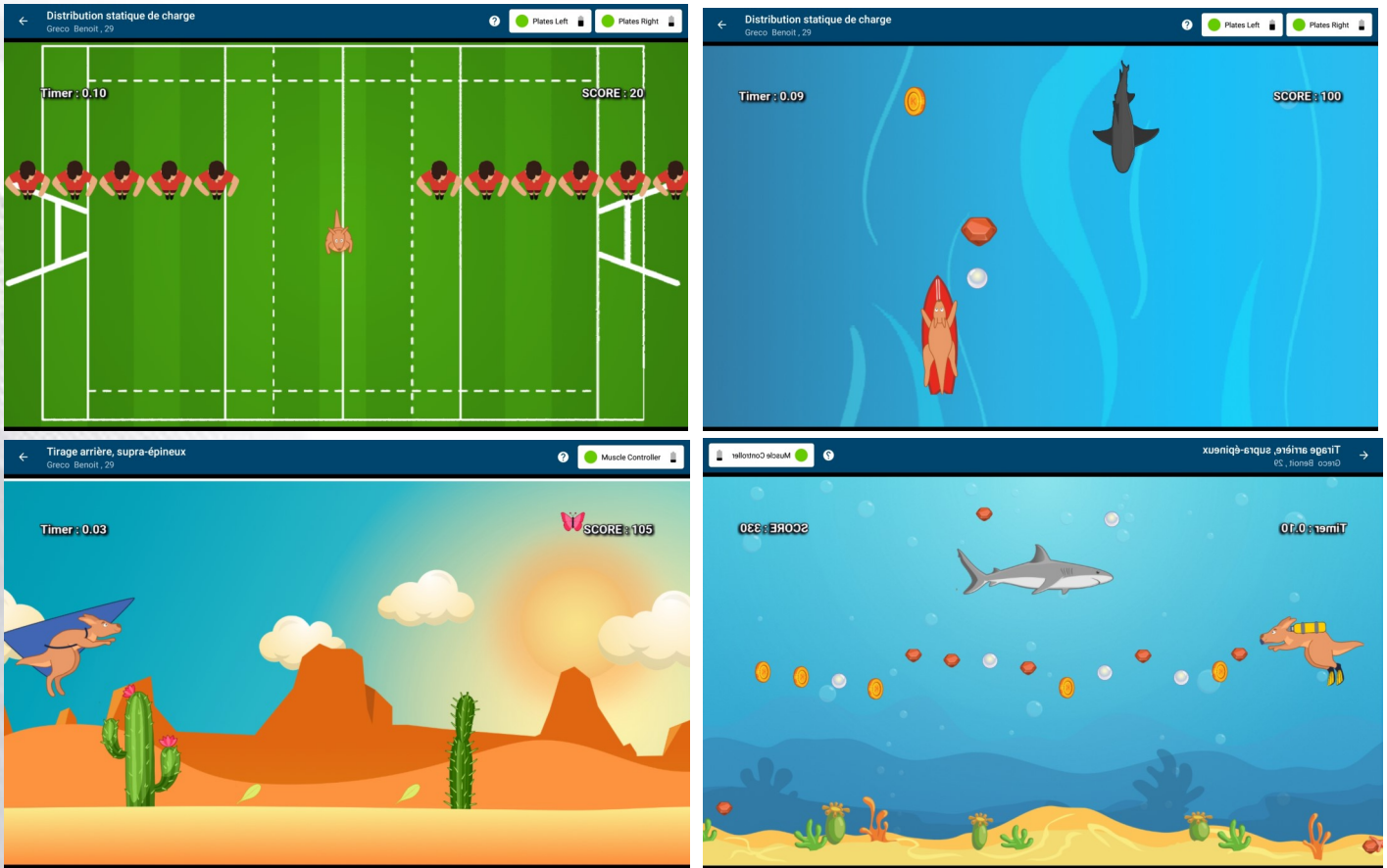
Personalize rehabilitation of patients thanks to different interfaces of work proposed by KFORCE.

The existing interfaces enable training in a rep or isometry format, implying a continuous contraction.



Reps interface on the left and isometry work on the right

Rehab-gaming enables fun and targeted training with a level system targeting 10 sessions.



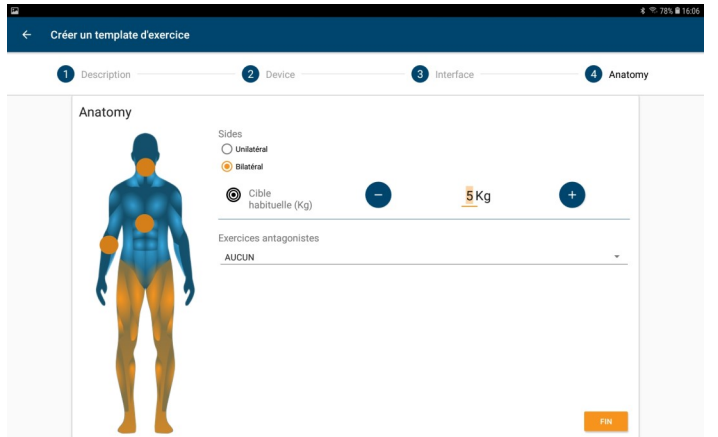
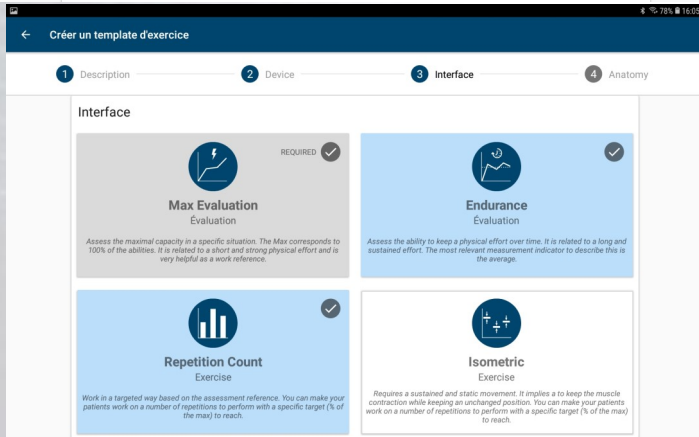
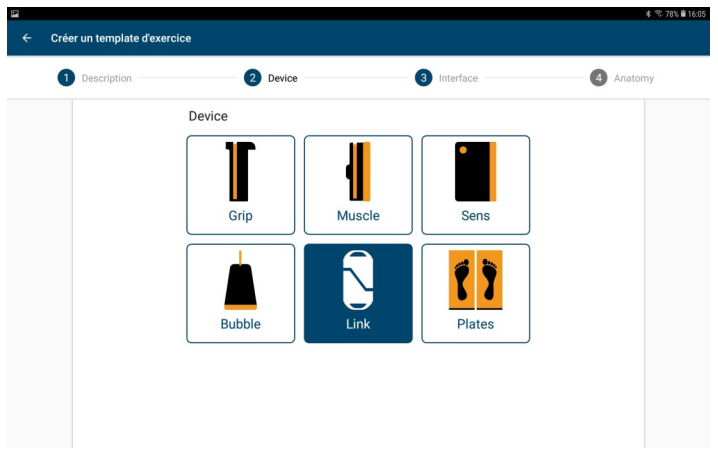
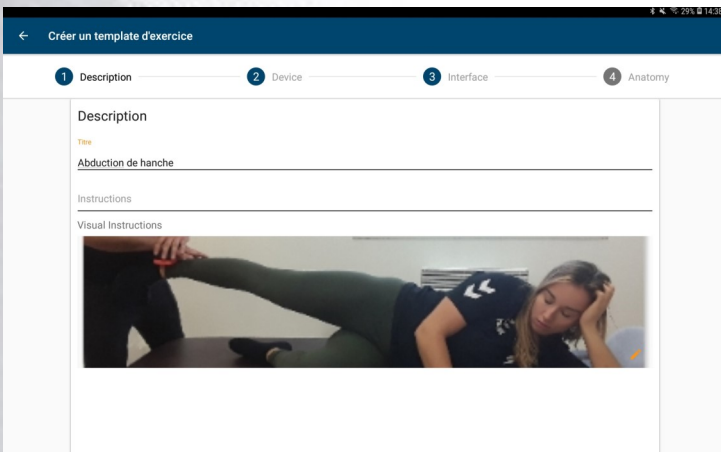
Gaming interface for the Plates and other devices



Fun gaming with the Link

KFORCE App : Activity Creation

Personalize, standardize and express your creativity by creating your own assessments or rehab exercising by filling the template data (Description, device, Interface, Anatomy).



Différentes stages of the template of activity creation

KFORCE App : Protocols

Save time with custom protocols. The protocols allow the automatic succession of preprogrammed activities using different sensors. They can be used as part of a balance sheet or as part of a targeted work with exercises and games.

The "Protocols" feature makes it possible to use turnkey protocols developed by our physiotherapists. The "Create Protocols" feature allows you to create your own fully customized sequence.

As part of a balance sheet, the "Protocols" feature allows you to view results from different sensors (strength, amplitude, balance) on the same reporting sheet.

The screenshot shows the 'Protocoles' menu with options: Informations du pt, Évaluation, Exercices, Games, Protocoles (selected), Progrès, and Calendrier. Below the menu, three protocol cards are visible: 'Knee protocol admission report', 'Knee protocol final report', and 'Shoulder protocol'. The second screen, 'Éditez le protocole', shows three protocol configurations:

- 5 - Knee Flexion - Max**: Cible: Gauche - 45.0°, Droite - 45.0°. Répétitions: 3. Durée: 5s - Rest: 3s.
- 6 - Knee Flexion at 90°, Hamstrings - Max**: Cible: Gauche - 15.0kg, Droite - 15.0kg. Répétitions: 3. Durée: 5s - Rest: 3s.
- 7 - Knee Extension at 60°, Quadriceps - Max**: Cible: Gauche - 15.0kg, Droite - 15.0kg. Répétitions: 3. Durée: 5s - Rest: 3s.

The screenshot shows the 'Rapport' page for patient 'Bolt Thomas, 27' on '16 octobre 2019'. It includes a patient information section and a table of results for five different exercises.

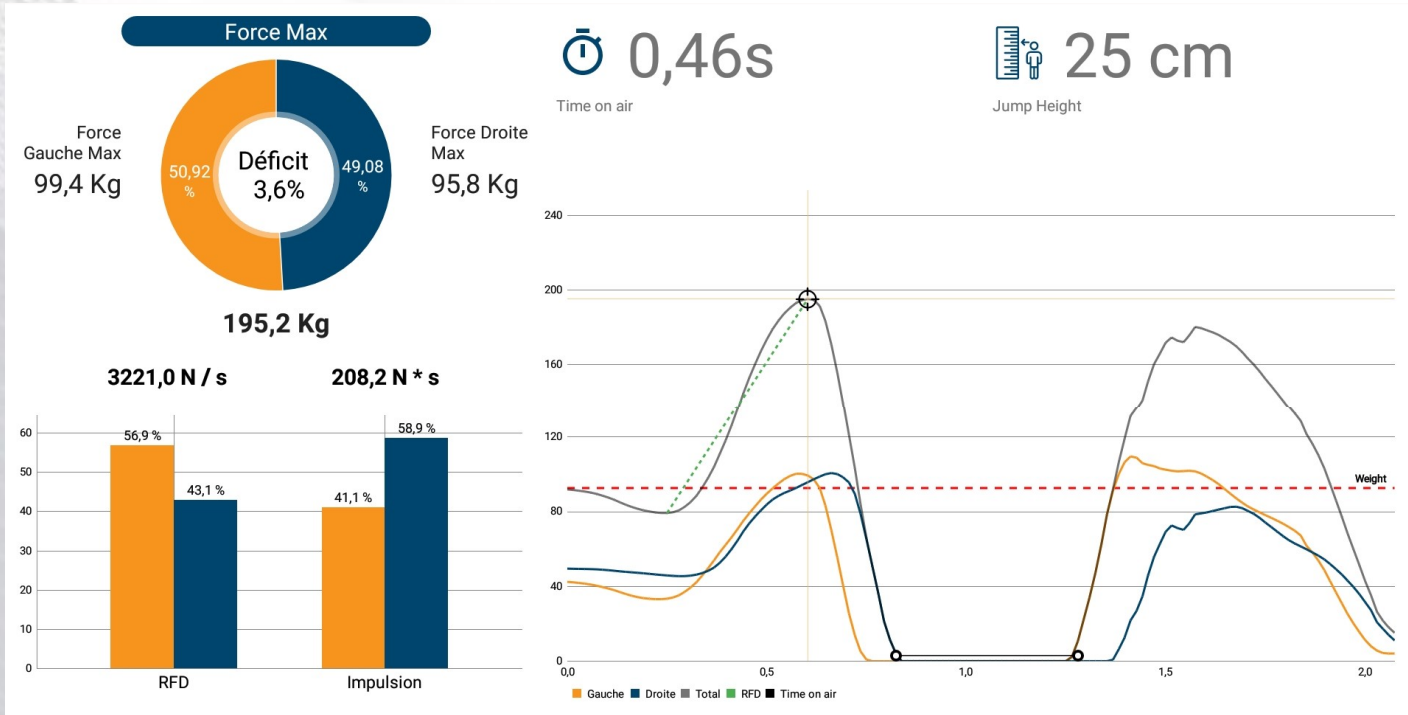
Exercice	Metric	Max	Avg	Deficit
1 Épaule - Max	Angle Gauche Max	113.3°	83.3°	31.2%
	Angle Droit Max	171.5°	145.0°	
2 Shoulder Antepulsion - Max	Angle Gauche Max	167.8°	133.9°	26.7%
	Angle Droit Max	119.5°	85.2°	
3 Abduction de l'épaule à l'horizontale, débilite - Max	Force Gauche Max	23.4 kg	17.8 kg	28.4%
	Force Droite Max	31.3 kg	22 kg	
4 Abduction de l'épaule à 45°, débilite - Max	Force Gauche Max	23.4 kg	14.1 kg	21.1%
	Force Droite Max	29.6 kg	16.9 kg	
5 Antépulsion de l'épaule à l'horizontale, débilite - Max	Force Gauche Max	22.8 kg	6.3 kg	28.1%
	Force Droite Max	16.3 kg	11.3 kg	

Selection, configuration and results in protocol sessions

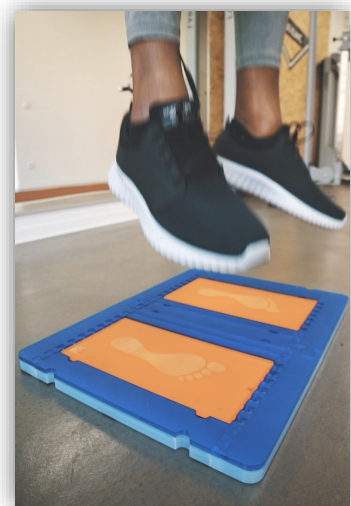
KFORCE App: Jump analysis

Multiply the possibilities of your KFORCE Plates by using them as jumping platforms to analyze the biomechanics of the sporting patient during his impulse and to follow the evolution of his vertical relaxation.

The analysis gives results on the jump height, as well as information on the distribution of the maximum thrust, the explosiveness, the impulse.



For dynamic movements and more particularly for the jump analysis it is strongly discouraged not to use the Jump Frame which allows to create a surface of identical height and to maintain the Plates.



KFORCE App : Nordic Hamstring Test

Evaluate your athletes on the Nordic Hamstring Test to obtain data on the maximum hamstring strength and to quantify the Left / Right deficit.

