



MYOLEX
mScan

User Manual



“Caution – Investigational Device. Limited by United States Law to Investigational Use.”

IMPORTANT NOTE:

THE MYOLEX MSCAN™ IS AN INVESTIGATIONAL DEVICE INTENDED FOR USE BY A TRAINED OPERATOR ACCORDING TO PROTOCOLS APPROVED BY INSTITUTIONAL REVIEW BOARDS. THE MSCAN™ SHOULD NOT BE USED FOR ANY OTHER PURPOSE.

This preliminary App User Manual is prepared with the objective of providing the user all of the information necessary to operate the investigational Myolex mScan™ according to study protocols approved by an Institutional Review Board. The Study Protocol should be read carefully before using the investigational system for the first time, and should be strictly followed.

User Assistance Information

For information and/or issues regarding usage of the Myolex mScan™, please call Myolex at 888.382.8824 x10 or email support@myolex.com

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1. Myolex mScan™ System Overview

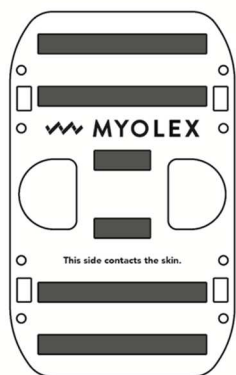
What's included



1. Apple iPad and charging cable



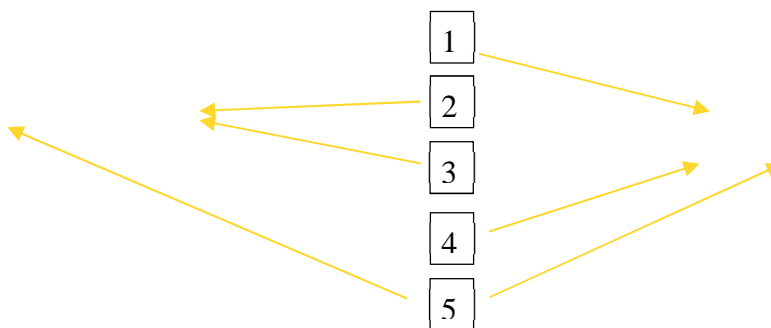
2. Myolex mScan™ device, carrying case, and charging cable.



3. Myolex mScan™ foam electrodes sensor



mScan™ Device



- 1 LED light indicator: used to indicate device operating status while device is on. It will change color depending on operating status. It will blink or display a steady light for depending on the specific operation.
- 2 Charge indication LED light: used to indicate device charging status while device is in sleep mode (not turned on). When it blinks red slowly, it means the device is being charged. When it blinks green slowly, it means the device is at least 80% charged and ready for use.
- 3 Charge port: used to connect to a charge source via USB C cable for charging the device.
- 4 Electrode sensor ejection button. Pushing the button will eject the electrode sensor.
- 5 Power on/off buttons: Press both buttons together to turn on the device; press both buttons again to turn off the device.

mScan™ foam electrodes sensor

The sensor has two sides, one side is be placed against the metal contacts on mScan™ device and the other side contacts the subject's skin. The Myolex label should face out (ie be readable) when being inserted into the device.

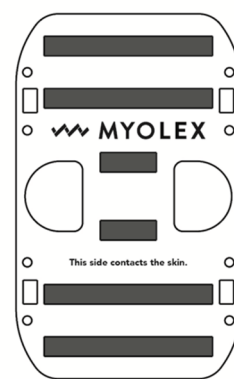
Power up

iPad

1. Charge your iPad with the cable provided
2. Press the Home button to enter the iPad
3. Enter the passcode provided
4. Ensure your iPad is connected to a WiFi network

mScan™

1. Charge the device with the cable provided
2. When the charger is plugged in, the device LED lights blinks red slowly if battery is not fully charged. The LED light will change to flashing green when it is charged.
3. Once the device is charged, press and hold the left button to turn on the device until the LED light indicator turns steady green.



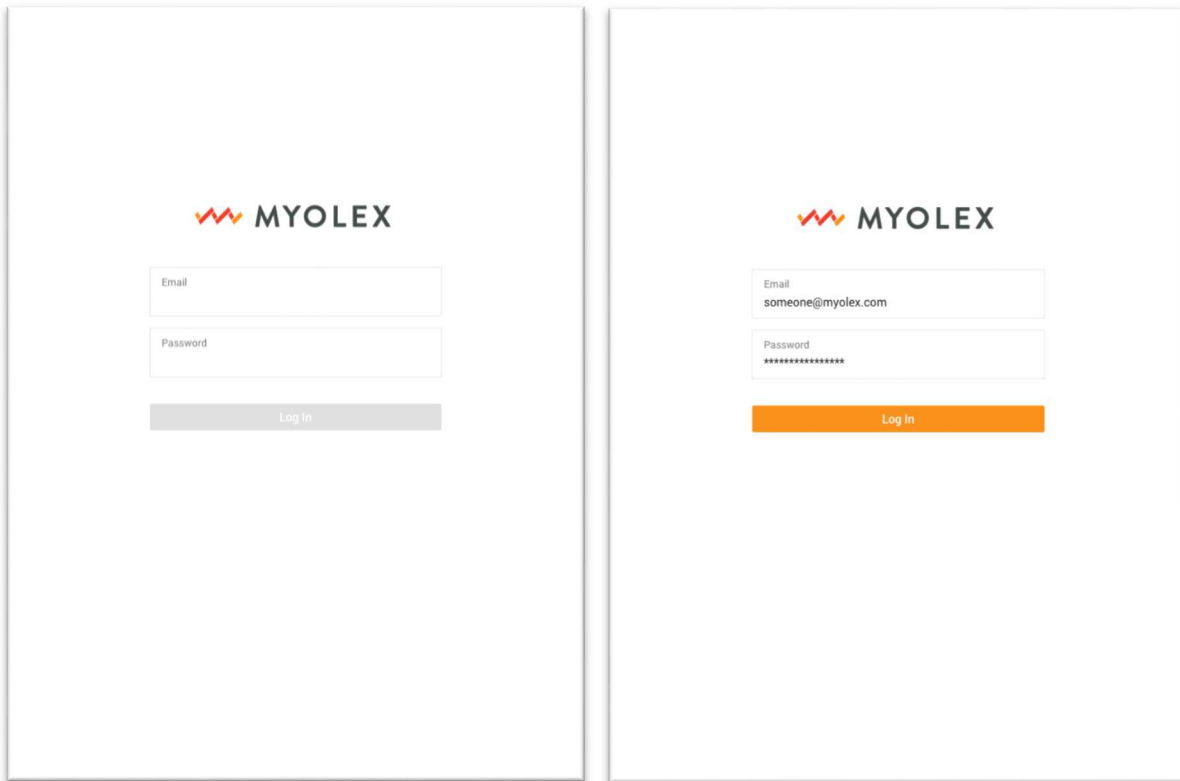
2. Primary App Actions


Logging in

1. Launch the Myolex mScan™ app on your iPad.



2. Enter your email address and password provided for your log in.

The image shows two side-by-side screenshots of the Myolex login screen. The left screenshot shows the login form with empty input fields for 'Email' and 'Password', and a grey 'Log In' button. The right screenshot shows the same form with the 'Email' field filled with 'someone@myolex.com' and the 'Password' field filled with '*****', and an orange 'Log In' button.

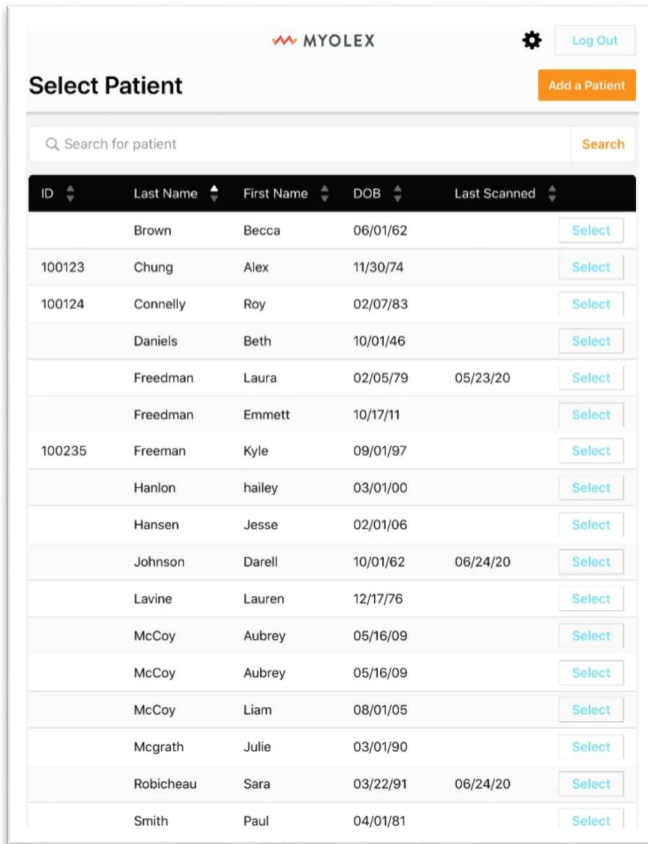
 **MYOLEX**

Email

Password

Log In

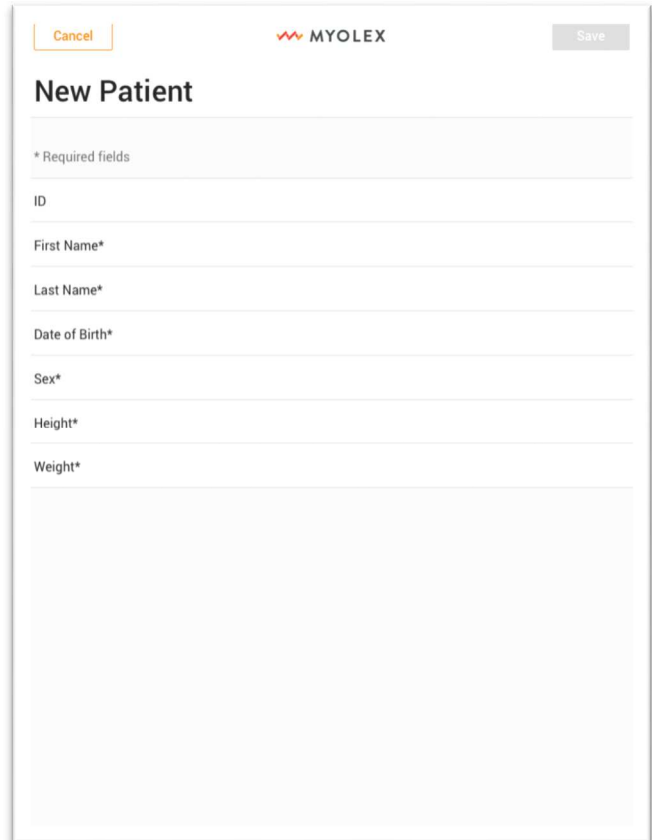
Adding a new patient



Select Patient

Search for patient

ID	Last Name	First Name	DOB	Last Scanned	Select
	Brown	Becca	06/01/62		Select
100123	Chung	Alex	11/30/74		Select
100124	Connelly	Roy	02/07/83		Select
	Daniels	Beth	10/01/46		Select
	Freedman	Laura	02/05/79	05/23/20	Select
	Freedman	Emmett	10/17/11		Select
100235	Freeman	Kyle	09/01/97		Select
	Hanlon	hailey	03/01/00		Select
	Hansen	Jesse	02/01/06		Select
	Johnson	Darell	10/01/62	06/24/20	Select
	Lavine	Lauren	12/17/76		Select
	McCoy	Aubrey	05/16/09		Select
	McCoy	Aubrey	05/16/09		Select
	McCoy	Liam	08/01/05		Select
	Mcgrath	Julie	03/01/90		Select
	Robicheau	Sara	03/22/91	06/24/20	Select
	Smith	Paul	04/01/81		Select



New Patient

* Required fields

ID

First Name*

Last Name*

Date of Birth*

Sex*

Height*

Weight*

1. The first screen that appears after logging in will look like this.

2. To begin, tap the Add a Patient button on the top right corner of the screen.

3. The Save button will become enabled once all the required fields are completed.

Search for a patient

Left Screenshot: Select Patient

Search for patient: Search

ID	Last Name	First Name	DOB	Last Scanned	Select
	Brown	Becca	06/01/62		Select
100123	Chung	Alex	11/30/74		Select
100124	Connelly	Roy	02/07/83		Select
	Daniels	Beth	10/01/46		Select
	Freedman	Laura	02/05/79	05/23/20	Select
	Freedman	Emmett	10/17/11		Select
100235	Freeman	Kyle	09/01/97		Select
	Hanlon	hailey	03/01/00		Select
	Hansen	Jesse	02/01/06		Select
	Johnson	Darell	10/01/62	06/24/20	Select
	Lavine	Lauren	12/17/76		Select
	McCoy	Aubrey	05/16/09		Select
	McCoy	Aubrey	05/16/09		Select
	McCoy	Liam	08/01/05		Select
	Mcgrath	Julie	03/01/90		Select
	Robicheau	Sara	03/22/91	06/24/20	Select
	Smith	Paul	04/01/81		Select

Right Screenshot: Select Patient

Search: Search

Showing results for: **Jackson** Clear search

ID	Last Name	First Name	DOB	Last Scanned	Select
1079	Jackson	Garrison	12/13/69	04/22/19	Select
2034	Jackson	Amelia	12/13/69	04/22/19	Select
2035	Ellison	Jackson	12/13/69	04/22/19	Select
2066	Jackson	Allison	12/13/69	04/22/19	Select
	Jackson	Peter	12/13/69	04/22/19	Select
	Jackson	Howard	12/13/69	04/22/19	Select

1. Use the search bar at the top to search for a patient by either their name or ID. Tap on Search.

2. Patients will be filtered to show results for your search.

Select a patient

Select Patient

Search for patient

ID	Last Name	First Name	DOB	Last Scanned	Select
	Brown	Becca	06/01/62		Select
100123	Chung	Alex	11/30/74		Select
100124	Connelly	Roy	02/07/83		Select
	Daniels	Beth	10/01/46		Select
	Freedman	Laura	02/05/79	05/23/20	Select
	Freedman	Emmett	10/17/11		Select
100235	Freeman	Kyle	09/01/97		Select
	Hanlon	hailey	03/01/00		Select
	Hansen	Jesse	02/01/06		Select
	Johnson	Darell	10/01/62	06/24/20	Select
	Lavine	Lauren	12/17/76		Select
	McCoy	Aubrey	05/16/09		Select
	McCoy	Aubrey	05/16/09		Select
	McCoy	Liam	08/01/05		Select
	Mcgrath	Julie	03/01/90		Select
	Robicheau	Sara	03/22/91	06/24/20	Select
	Smith	Paul	04/01/81		Select

Review Patient

ID: 1001 Name: Rodrigo Alvarez

Last Scanned: Apr 22, 2019 DOB: 12/13/69 Height: 6 ft 2 in Weight: 184 lbs Sex: Male

Scan History

Session	Muscles	Select
Apr 22, 2019 14:55	Right lateral deltoid	Select
Apr 22, 2019 10:29	Right lateral deltoid, left lateral deltoid, right pectoralis major, left chest	Select
Apr 17, 2019 14:37	Right lateral deltoid	Select
Apr 15, 2019 14:55	Right lateral deltoid	Select
Apr 15, 2019 12:08	Left forearm flexors	Select
Apr 10, 2019 14:55	Right lateral deltoid	Select
Apr 9, 2019 13:22	Right lateral deltoid, left lateral deltoid	Select

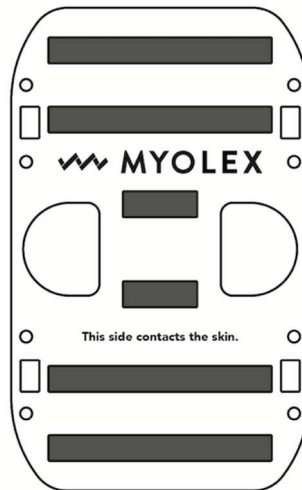
1. Tap on the Select button to view patient information.

2. The Review Patient page is displayed. From here, you can edit patient information, select prior scans, or start a new scan.

3. Scanning

Load foam electrode to mScan™ device

1. Remove a sensor from sealed bag.
2. Load the sensor into the mScan™ device. Make sure the correct marked side is placed against the device in order for it to click in properly. See image below. The word “Myolex” should face out and should be positioned so that it is in proximity to the on/off buttons.



Select muscles to scan

The interface consists of three panels, each showing a human figure with muscle outlines. The top-left panel shows the 'Anterior' view with no muscles selected. The top-right panel shows the 'Posterior' view with no muscles selected. The bottom panel shows the 'Posterior' view with 'Triceps brachii' selected on the left side. The 'Start Scanning' button is orange in the bottom panel, indicating that at least one muscle is selected.

Panel 1 (Top Left): Anterior View

0 Selected Start Scanning

RIGHT

- ☐ Lateral deltoid
- ☐ Pectoralis major
- ☐ Biceps brachii
- ☐ Rectus abdominis
- ☐ Wrist flexors
- ☐ Rectus femoris
- ☐ Tibialis anterior
- ☐ General muscle

LEFT

- ☐ Lateral deltoid
- ☐ Pectoralis major
- ☐ Biceps brachii
- ☐ Rectus abdominis
- ☐ Wrist flexors
- ☐ Rectus femoris
- ☐ Tibialis anterior
- ☐ General muscle

☐ Select All (Full Body)

Panel 2 (Top Right): Posterior View

0 Selected Start Scanning

LEFT

- ☐ Trapezius
- ☐ Triceps brachii
- ☐ Wrist extensors
- ☐ Lumbar paraspinals
- ☐ Gluteus medius
- ☐ Biceps femoris
- ☐ Medial gastrocnemius
- ☐ General muscle

RIGHT

- ☐ Trapezius
- ☐ Triceps brachii
- ☐ Wrist extensors
- ☐ Lumbar paraspinals
- ☐ Gluteus medius
- ☐ Biceps femoris
- ☐ Medial gastrocnemius
- ☐ General muscle

☐ Select All (Full Body)

Panel 3 (Bottom): Posterior View

2 Selected Start Scanning

LEFT

- ☐ Trapezius
- ☒ Triceps brachii
- ☐ Wrist extensors
- ☐ Lumbar paraspinals
- ☐ Gluteus medius
- ☐ Biceps femoris
- ☐ Medial gastrocnemius
- ☐ General muscle

RIGHT

- ☐ Trapezius
- ☐ Triceps brachii
- ☐ Wrist extensors
- ☐ Lumbar paraspinals
- ☐ Gluteus medius
- ☐ Biceps femoris
- ☐ Medial gastrocnemius
- ☐ General muscle

☐ Select All (Full Body)

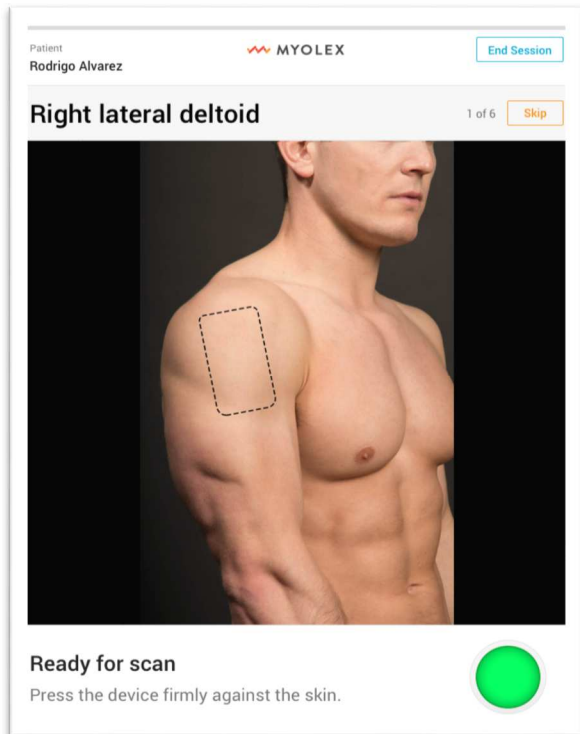
1. Switch between Anterior and Posterior views to select the muscles you want to measure.

2. Tap the muscle or checkbox next to the muscle name to select. Start Scanning button is enabled once at least one muscle is selected.

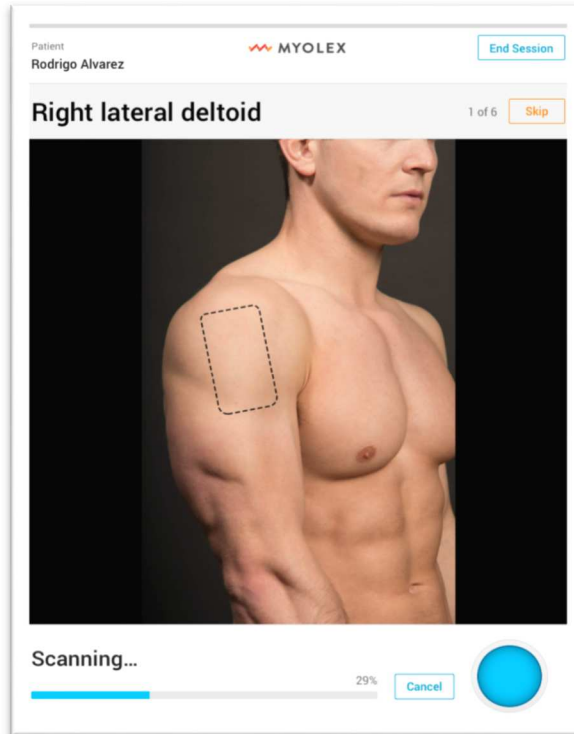
3. Tap Start Scanning to start the scan.

Note: Left and right switch sides depending on which view you are using (anterior/posterior).

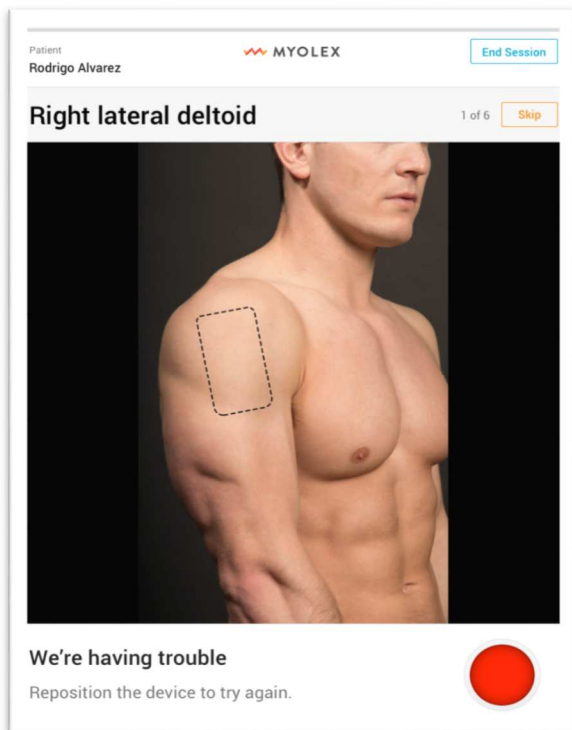
Scan muscles



1. View instructions for scanning the muscle. The mScan™ device LEDs change from green to blinking blue when you Start Scan.



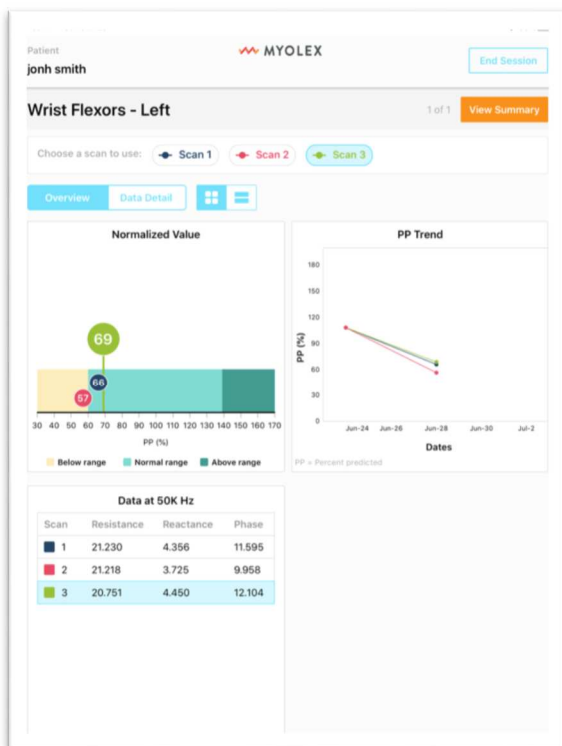
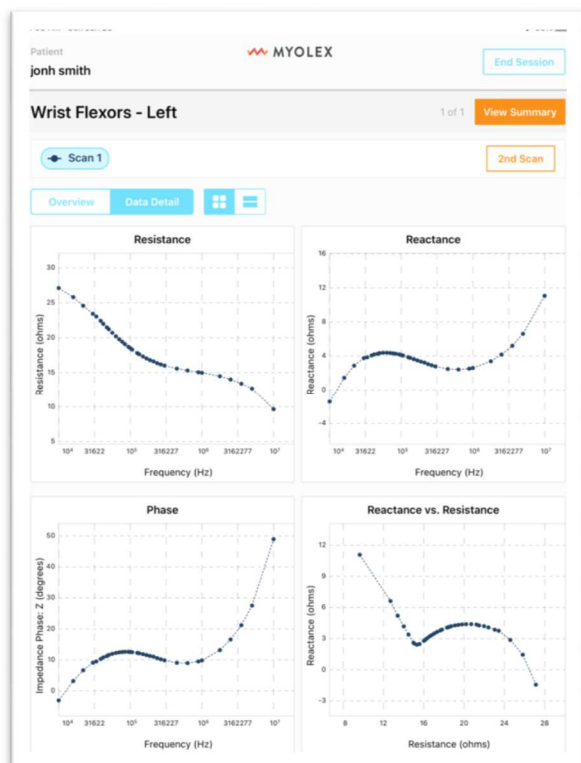
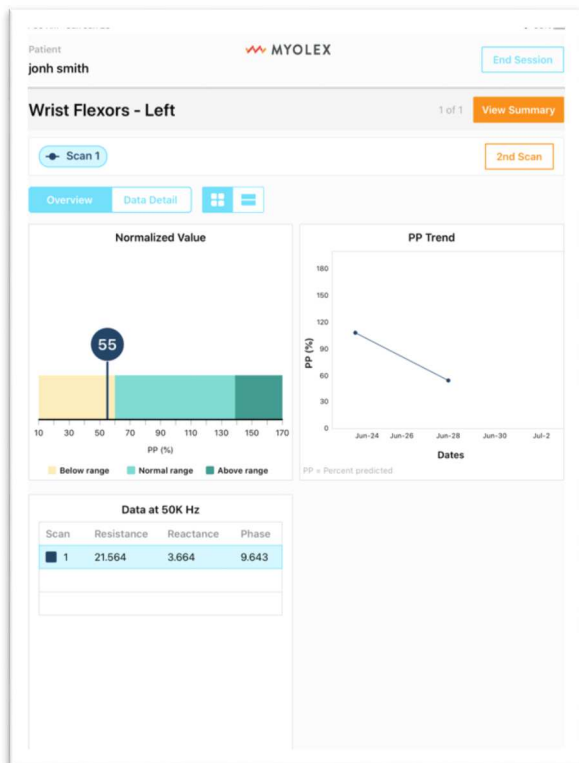
2. The mScan™ device LEDs change to a steady blue light when scanning begins and during the scanning process. The iPad will display a Blue circle signifying scanning. The mScan™ app will ping a noise and the mScan™ LED will change to a green light when the scan is complete.



3. An error message will be displayed if the mScan™ is unable to connect to the app or scan the muscle properly. Simply reposition the mScan™ on the muscle and attempt scanning again.

4. Review Scans

Review results

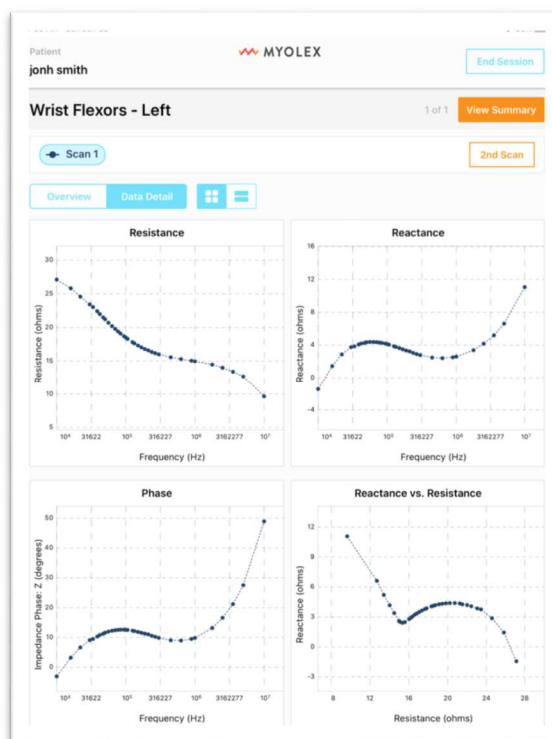
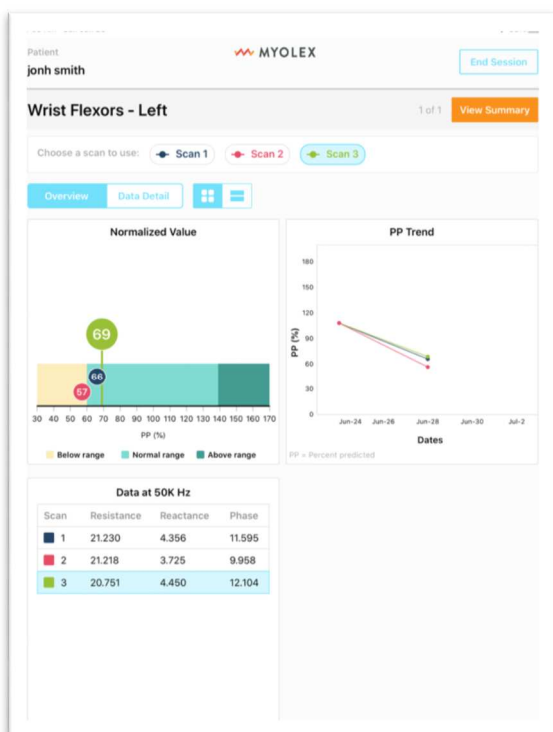


1. After your scan is complete on a single muscle, review your results. Toggle between Overview and Data Detail to view different charts.

2. Choose to either perform another scan on the same muscle by tapping 2nd Scan, or move on by tapping Next Muscle. If it is the last muscle to be measured, tap View Summary.

3. Up to 3 scans can be completed for a single muscle. All scans will be plotted. **You will be required to select one scan to keep and the others will be automatically discarded.** It will default to keeping the last scan performed (e.g. second scan if you scanning twice and third scan if you scanned three times). You will have an opportunity to return to this muscle and obtain more data after you have completed scanning all muscles.

Explanation of Results



The Overview Tab

1. Normalized Value Provides an image of showing the expected *normal range* of the muscle for the 50 kHz phase (light green) as a percent predicted of normal values for the subject's sex, height, and weight. Dark green color represents *above normal*. Maize color shows values *below normal*. The larger circle represents the most recent measurement during the session; small circles represent the earlier measurements of the session.

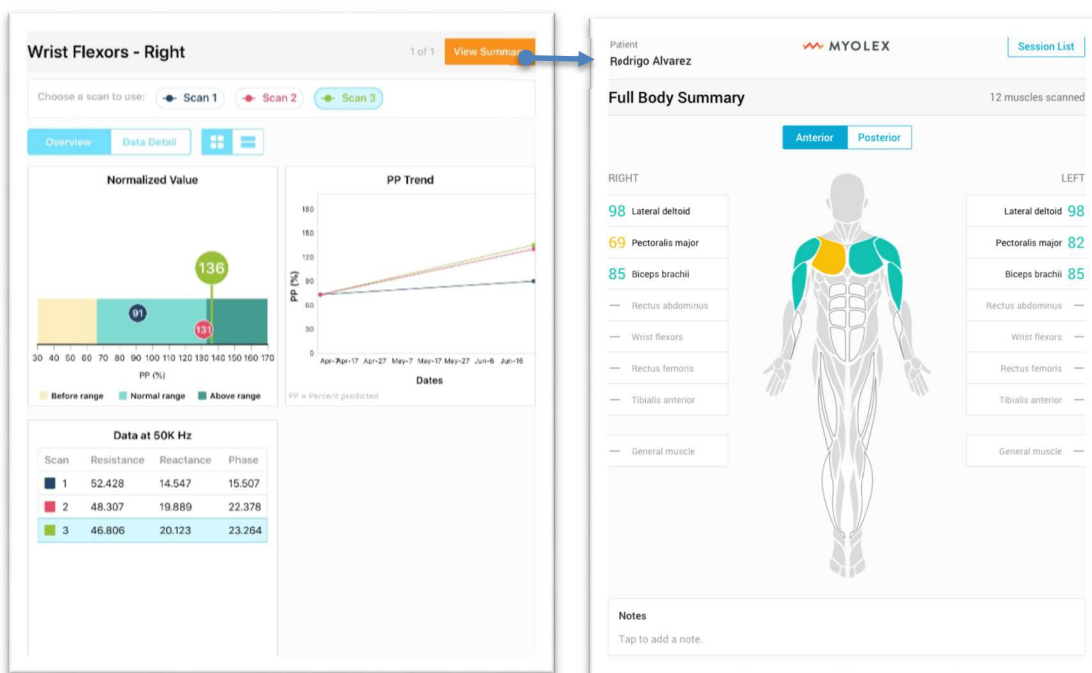
2. Data at 50 kHz displays the raw impedance values at 50 kHz for each of the measurements, color coded to match the figure above.

3. Percent predicted (PP) trend shows the percent predicted values comparing the current measurement results to previous measurements.

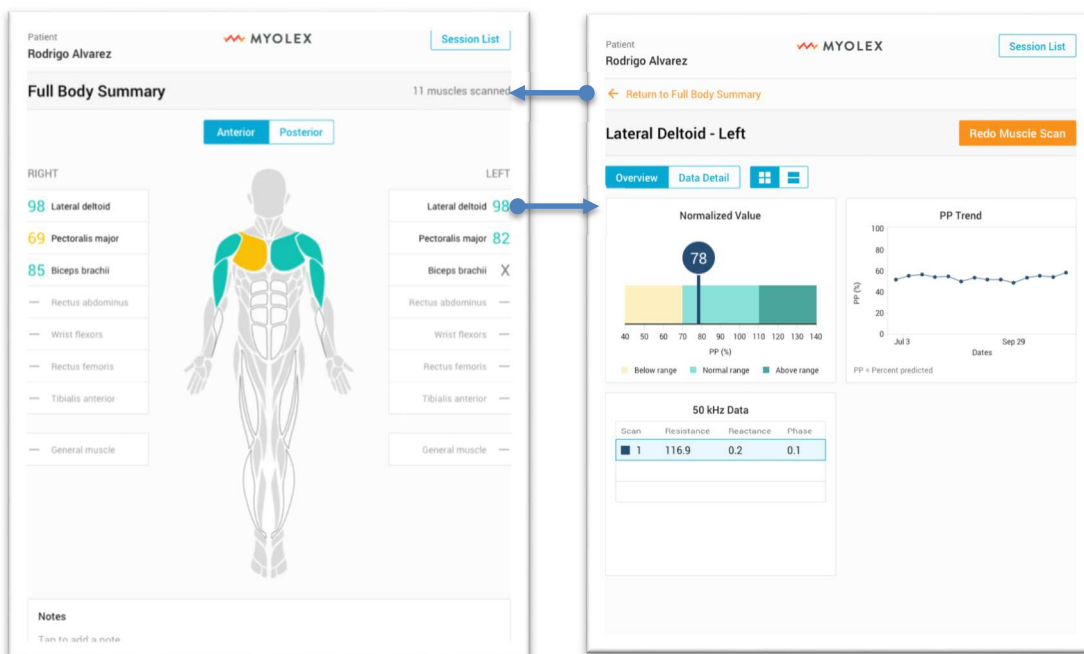
The Data Detail Tab

1. Four graphs portray the multifrequency values of each of the main impedance parameters between 10 kHz and 10 MHz versus frequency and the Reactance versus Resistance Plot in the lower right (Cole-Cole Plot).

Summary Page



1. After all muscles are scanned, tap on View Summary to see a summary of all muscles scanned.



2. Tap on individual muscles to view details in a new page. If user ends a session without performing all scans, unfinished scans appear as an X.

3. Return to patient screen by tapping Session List at the top. (**Note:** since only one of the three measurements had been selected earlier, the other measurements are no longer visible.) Or tap Redo Muscle Scan to scan the selected muscle again and replace the data you previously collected.

Past scans

1. After selecting a patient, select a past session and muscles you would like to review.

Review Patient

ID: 1001 Name: Rodrigo Alvarez

Last Scanned: Apr 22, 2019 DOB: 12/13/69 Height: 6 ft 2 in Weight: 184 lbs Sex: Male

Scan History

Session	Muscles	Select
Apr 22, 2019 14:55	Right lateral deltoid	Select
Apr 22, 2019 10:29	Right lateral deltoid, left lateral deltoid, right pectoralis major, left chest	Select
Apr 17, 2019 14:37	Right lateral deltoid	Select
Apr 15, 2019 14:55	Right lateral deltoid	Select
Apr 15, 2019 12:08	Left forearm flexors	Select
Apr 10, 2019 14:55	Right lateral deltoid	Select
Apr 9, 2019 13:22	Right lateral deltoid, left lateral deltoid	Select

Full Body Summary (Apr 5, 2020 20:05)

26 muscles scanned

ANTERIOR POSTERIOR

LEFT RIGHT

Muscle	Value
Trapezius	76
Triceps brachii	85
Wrist extensors	--
Lumbar paraspinals	103
Gluteus medius	90
Biceps femoris	90
Medial gastrocnemius	90
General muscle	--

Full Body Summary (Apr 22, 2019 13:45)

26 muscles scanned

ANTERIOR POSTERIOR

RIGHT LEFT

Muscle	Value
Lateral deltoid	76
Pectoralis major	76
Biceps brachii	67
Rectus abdominis	103
Wrist flexors	65
Rectus femoris	69
Tibialis anterior	77
General muscle	--

Lateral Deltoid - Left

Overview Data Detail

Normalized Value: 78

PP (%)

PP Trend

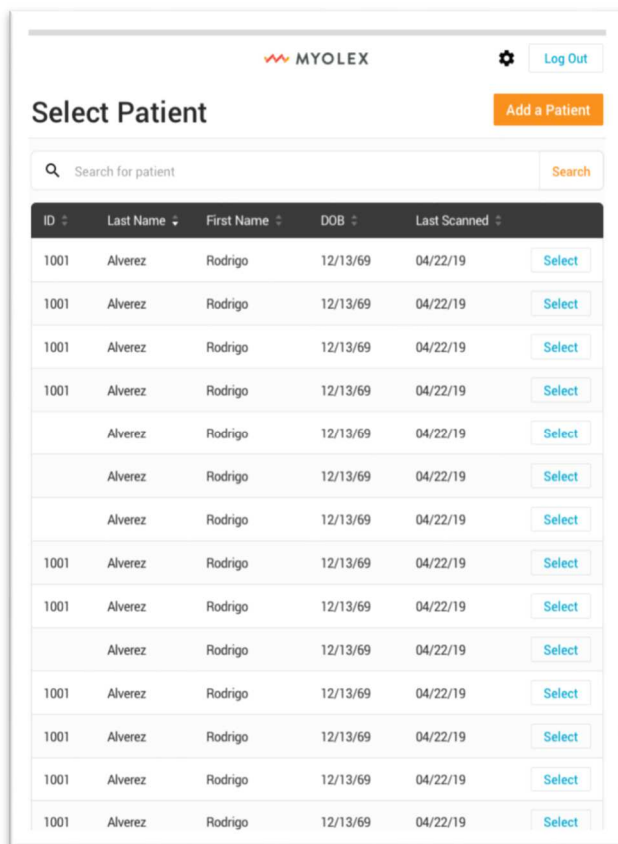
50 kHz Data

Scan	Resistance	Reactance	Phase
1	116.9	0.2	0.1

PP = Percent predicted Scan 1

5. Settings

Settings page

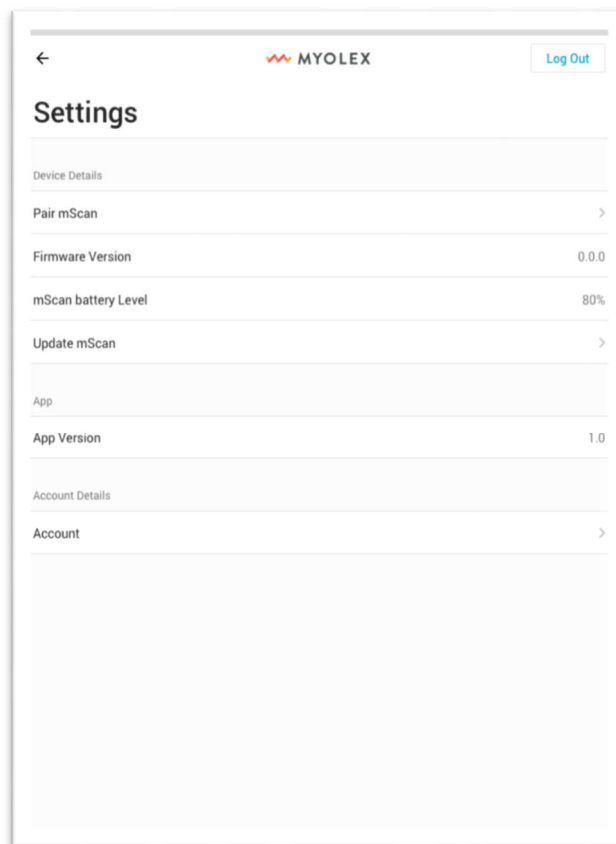


Select Patient

Search for patient

ID	Last Name	First Name	DOB	Last Scanned	Select
1001	Alvarez	Rodrigo	12/13/69	04/22/19	Select
1001	Alvarez	Rodrigo	12/13/69	04/22/19	Select
1001	Alvarez	Rodrigo	12/13/69	04/22/19	Select
1001	Alvarez	Rodrigo	12/13/69	04/22/19	Select
	Alvarez	Rodrigo	12/13/69	04/22/19	Select
	Alvarez	Rodrigo	12/13/69	04/22/19	Select
	Alvarez	Rodrigo	12/13/69	04/22/19	Select
1001	Alvarez	Rodrigo	12/13/69	04/22/19	Select
1001	Alvarez	Rodrigo	12/13/69	04/22/19	Select
	Alvarez	Rodrigo	12/13/69	04/22/19	Select
1001	Alvarez	Rodrigo	12/13/69	04/22/19	Select
1001	Alvarez	Rodrigo	12/13/69	04/22/19	Select
1001	Alvarez	Rodrigo	12/13/69	04/22/19	Select
1001	Alvarez	Rodrigo	12/13/69	04/22/19	Select

1. The Settings icon is visible on certain screens before scanning begins.



Settings

Device Details

Pair mScan

Firmware Version 0.0.0

mScan battery Level 80%

Update mScan

App

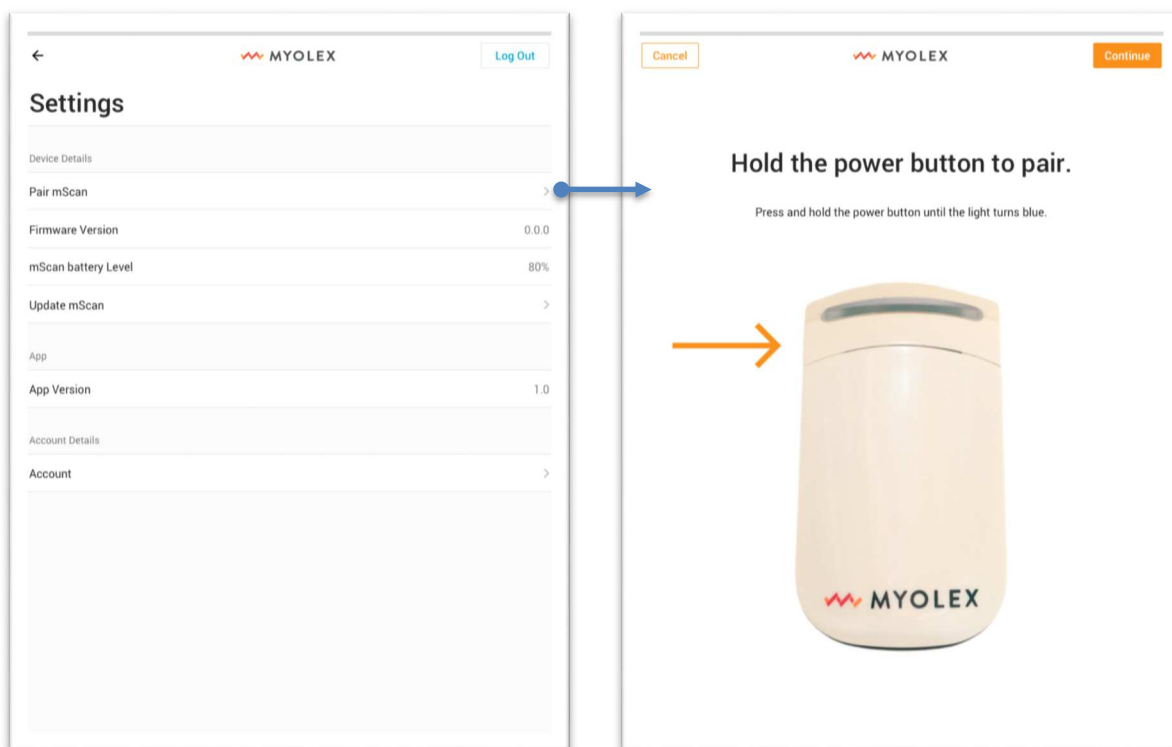
App Version 1.0

Account Details

Account

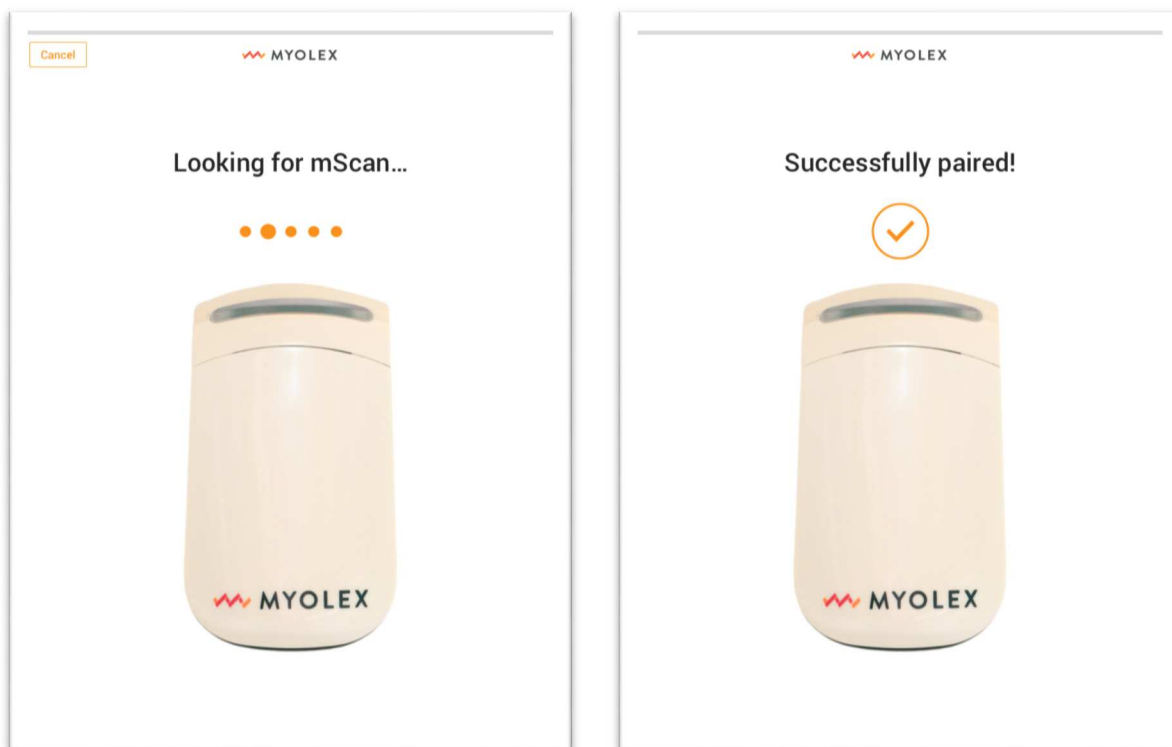
2. Settings is where you can pair mScan™, check mScan™ battery percentage, and update your mScan™ device firmware and account details.

Pair a device



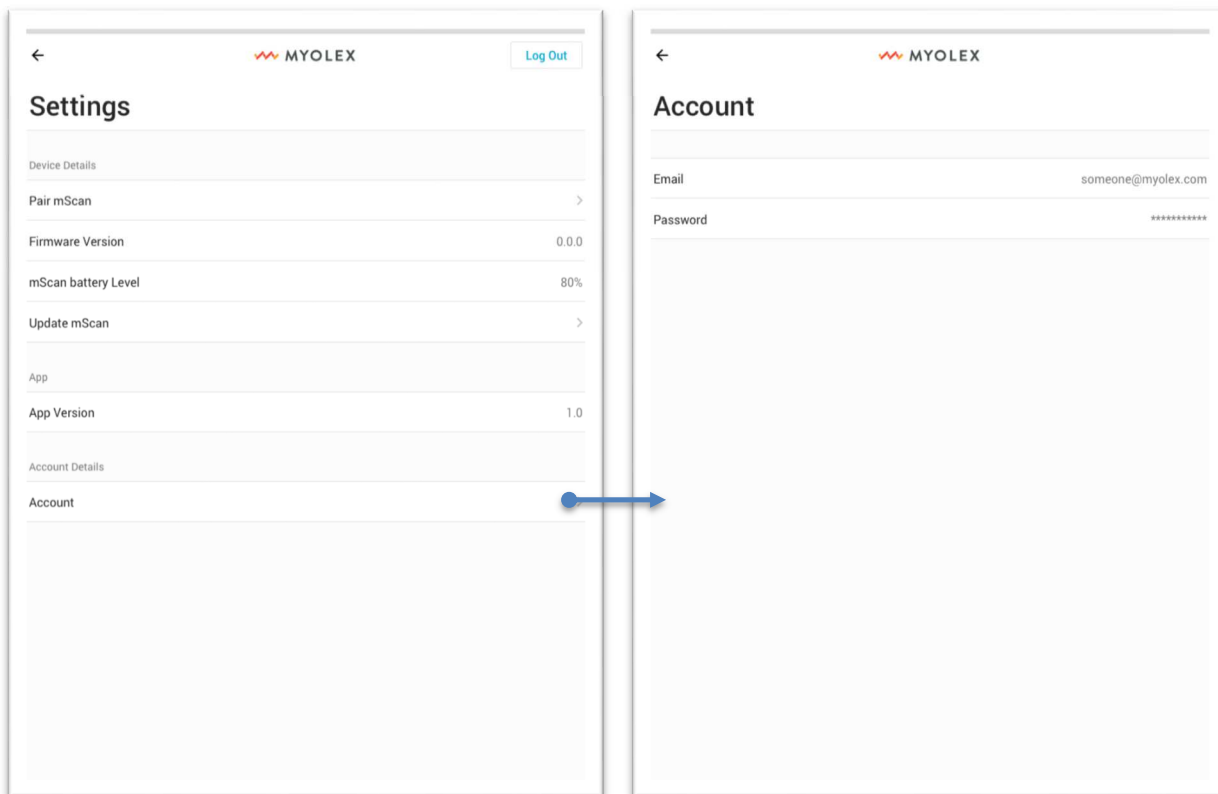
1. To pair the mScan device with the app, go to Settings and tap on Pair mScan.

2. Follow the directions on the next pair to complete the pairing process.



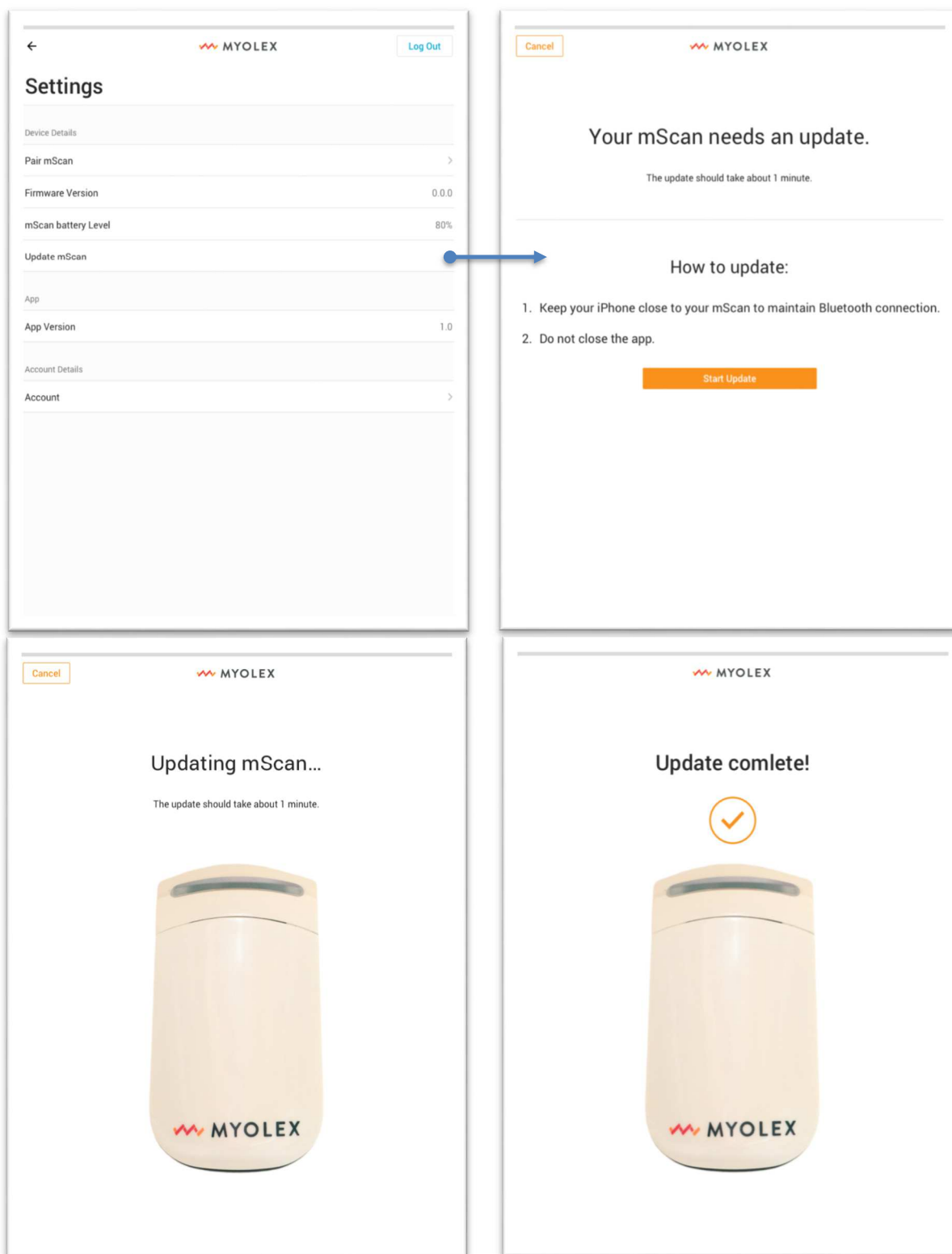
Account details

1. To change your account email or password, go to Settings and tap on Account.



Firmware update

1. To update mScan device, go to Settings and follow the instructions after tapping Update mScan.



6. Technical Specification

Electrical Impedance Myography (EIM)

Electrical Impedance Myography (EIM) is a relatively new technology based on the older concept of bioelectrical impedance analysis.¹ Whereas many standard bioimpedance approaches utilize electrodes spaced across the body (e.g., placed on the hand and foot), in EIM, the electrodes are placed on a specific location over a muscle or muscle group of interest. A weak electrical current is passed through the tissue across a wide range of frequencies through one set of electrodes and the resulting voltages are measured via a second set. Alterations in the health of the muscle are reflected in the measured voltages.

Bluetooth®

Bluetooth® is a type of wireless RF (Radio Frequency) communication. Cell phones use Bluetooth® wireless technology as do many other devices. mScan™ device uses Bluetooth® to pair with the iPad to send results to mScan™ App.

Power Requirements

mScan™ is powered by a rechargeable Lithium-polymer battery with 3.7V, 1.2AH. The battery should be charged with provided battery charger which rated as AC input 110-240V, 50/60Hz; 0.6A, Output USB type C DC3.6-6V, 3A. mScan™ battery takes 2 hours to 80% charged from fully discharged, it takes 4 hours to fully charge the battery.



Warning: Always use the hospital grade, AC power cable delivered with the *mScan™* to connect to an AC power source. DO NOT, under any circumstances, use any other cable than the one provided, notably to provide extra cable length. The use of any other cable may result in increased emissions or decreased immunity of the *mScan™* with regards to electromagnetic interference.



Warning: Do not connect the *mScan™* to an AC outlet that is controlled using a switch or dimmer.



Warning: Do not, under any circumstances, remove the grounding conductor from the power plug.



Warning: Do not use extension cords of any type.



Warning: The power cable, supply, and plug must be intact and undamaged.

Before starting a patient study:

20-10026 Rev 1.0.0

1. Make sure the iPad and *mScan™* device is sufficiently charged (>50%) to conduct the study.
2. Make sure the iPad is connected to a WiFi network with good Internet connection

Electrical Safety and Standards

The *mScan™* device has been tested and found to be appropriate for use at home and clinical setting. In most cases, it should not interfere with other devices if used as instructed. However, the device gives off radio frequency (RF) energy from the Bluetooth feature. If not used correctly, the *mScan™* device may interfere with TV, radio, or other electronic devices that receive or transmit RF signals.

While *mScan™* device is in operation, other electronics wireless devices that are used nearby, such as another mobile device or a wireless network, may prevent or delay the transmission of data between your *mScan™* device and your iPad with *mScan™ App*. Moving away from or turning off these electronic devices may allow communication.

If you experience *mScan™* device interference problems, try moving your *mScan™* device away from the source of the interference. You can also move the electronic device or its antenna to another location to solve the problem. If you continue to experience interference, contact Customer Service.

This *mScan™* device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This *mScan™* device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. However, changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the *mScan™* device.

FCC guidelines help ensure that the *mScan™* device will not affect the operation of other nearby electronic devices. Additionally, other electronic devices should not affect the use of *mScan* system. *mScan™* device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: (1) Reorient or relocate the receiving antenna; (2) Increase the separation between the equipment and receiver; (3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. (4) contact Customer Service for help.

The *mScan™* device comply with IEC 60601-1 and IEC 60601-1-2. The *mScan™* device is tested to meet requirements of IEC 60601-1 and IEC 60601-1-2.

The recommended wireless security measures include AES encryption.

mScan™ device FCC ID is 2AWC6-1301.

Calibration Requirements

No calibration is required for the *mScan™*.

Cleaning



Caution: To avoid transmission of infection, wipe down the *mScan™* between each patient use. The *mScan™* may be wiped down with alcohol wipes. Under no conditions should the *mScan™* be submerged in water or any other fluid. Care should be taken to prevent fluids from coming into contact with any part of the *mScan™*.

Storage, Maintenance and Repairs

The *mScan™* should be stored in a dry, clean, dust-free environment away from harmful chemicals, where the temperature never exceeds 95 degrees Fahrenheit.

If the *mScan™* appears to be malfunctioning, contact Myolex technical support for assistance by calling 888-382-8824 x10 or emailing support@myolex.com. All repairs to the *mScan™* must be carried out by Myolex authorized technicians.

Transport

The *mScan™* should always be transported in the case provided to ensure proper protection. When being shipped, the *mScan™* should be placed inside the case, ensuring a snug fit, and the case should be placed in a shipping box with bubble wrap or shipping Styrofoam to minimize movement within the box. A label should be placed on the outside of the box indicating that its contents are fragile.

Troubleshooting

1. **mScan™ Turns Off:** If the *mScan™* turns off, simply press the button on handheld device to turn it back on. The *mScan™* will turn off automatically if not used for more than 3 minutes.

2. **mScan™ blink red three times rapidly:** If the *mScan™* blinks red rapidly at turn on, plug in charger to charge the device. This shows that the battery is low on charge.
3. **mScan™ does not turn on:** If the *mScan™* does not turn on, plug in charger to charge the device.
4. **Connectivity:** If the iPad does not work, check the internet connection to make sure the iPad has good Internet connection. If this does not work, please contact Myolex at 888-382-8824 x10.

Adverse Reaction Information



Warning: Do not use the *mScan™* on open wounds, rashes, burns, and other dermatological disorders.