



DANU

SMART SOCKS
USER MANUAL



AUGUST 2024

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1. Quick Start Guide

1.1. Abstract User Manual

- 1.1.1. Download the **DANU Sports** iOS Application from the App Store.
- 1.1.2. Log in using your DANU Analytics platform account details (email and password).
- 1.1.3. Create an athlete by pressing the button in the top-right corner on the **Training** tab.
- 1.1.4. Ensure the athlete has correctly equipped the DANU Socks.
- 1.1.5. Press the new athlete card to calibrate them. Enter the athlete's weight, then connect to their pods.
- 1.1.6. Ensure the IMU pods are not turned on until they are in the sock and you are ready to pair.
- 1.1.7. Press the pod icon to begin connection. Connect the left icon to the left sock and right icon to the right sock.
- 1.1.8. After the pods are connected, but before pressing Calibrate, ensure the athlete is seated with both feet in the air. The athlete's feet must remain in the air until calibration is finalised.
- 1.1.9. Select an activity to record.
- 1.1.10. Press Start Training once ready.
- 1.1.11. Press Stop Recording once finished.
- 1.1.12. Save the session.
- 1.1.13. View the session report in the **Report** tab.

NOTE: For a detailed guide, see chapter 5. *Product Operation*.

2. Product Care

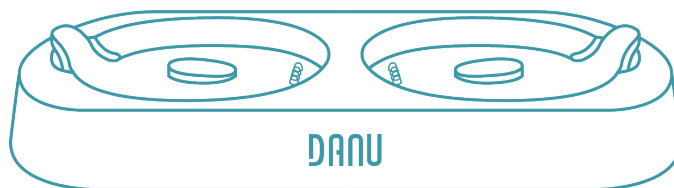
2.1. Sock Care

- 2.1.1. The DANU smart socks can be machine washed at 30°, on a low speed, short wash cycle. Try to avoid excess use of detergents when washing.
- 2.1.2. Allow the socks to fully dry before subsequent use to ensure accuracy of the sensor readings.

NOTE: The socks are not suitable to be used in a dryer as the heat can damage the sensors.

2.2. IMU Pod Charging

- 2.2.1. The pods can be charged using the charging dock that is supplied with the DANU kit. Connect the pod charger to a USB port on your computer or a wall outlet USB charger.
- 2.2.2. Place the pods into the charger, making sure to line up the metal pins on the pod & socket. It typically takes around two hours to fully charge both pods.

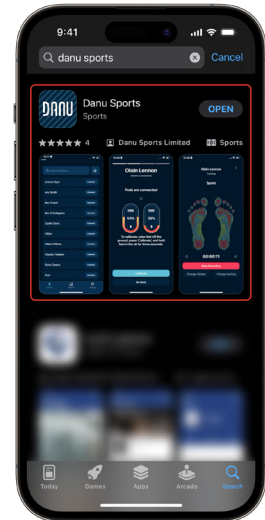


- 2.2.3. When connected to a computer, the blue LED on the charger indicates a USB data connection has been made between the pods and the computer.

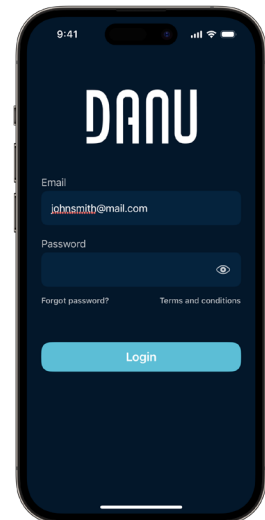
3. DANU Sports iOS Application

3.1. First Time Set Up

- 3.1.1. Download the **DANU Sports** iOS Application from the App Store.



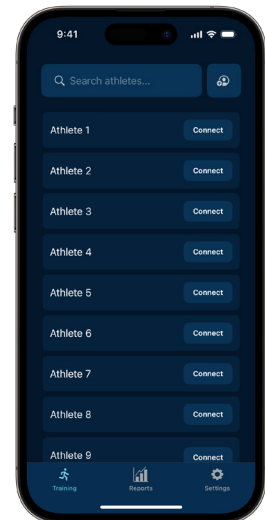
- 3.1.2. Log in using the same account details (email and password) you used when signing up to the DANU Analytics platform.



3.2. Application Overview

- 3.2.1. The **Training** tab is where you will carry out all your activity recording.

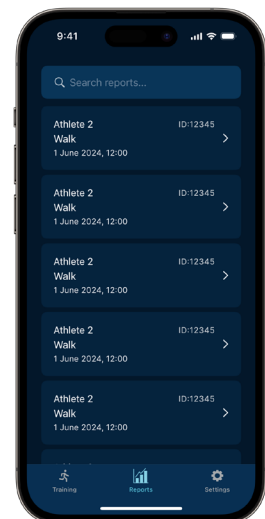
The button in the **top right** will allow you to add a new athlete to the DANU system.



- 3.2.2. The **Reports** tab is where you can view a snapshot of your recorded sessions.

This is also where you will be able to upload sessions recorded in the **Offline** mode.

NOTE: For a more detailed analysis we recommend viewing the session on the DANU Analytics web platform.

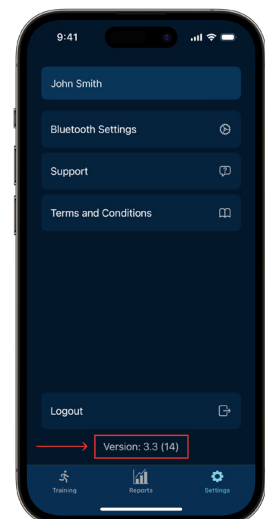


- 3.2.3. The **Settings** tab contains the application's version number (highlighted), along with some useful buttons:

The **Bluetooth Settings** button will bring you to your device's Bluetooth page.

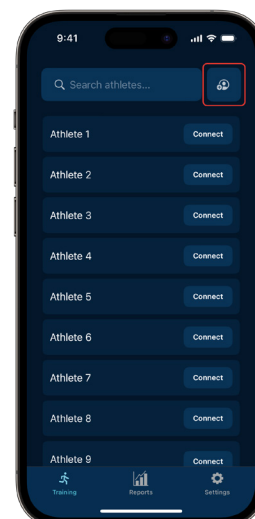
There is a shortcut to the DANU **Support** page, as well as the **Terms & Conditions**.

You can also **Logout** of your account.

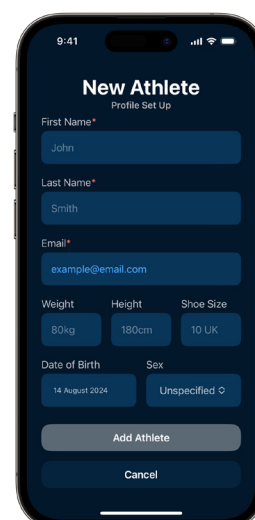


3.3. New Athlete Set Up

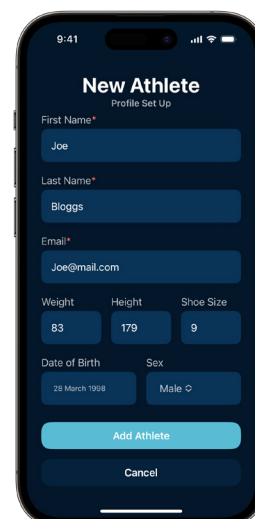
3.3.1. To set up a new athlete on the DANU system, begin by pressing the **New Athlete** button in the top right of the **Training** tab.



3.3.2. Fill in the fields with the new athlete's details. The fields marked with a red asterisk (*) are mandatory and cannot be skipped.



3.3.3. Once you have double checked that the details are correct, simply press **Add Athlete**.



4. IMU Pod Operation

4.1. IMU Pod LED Indicator

- 4.1.1. The DANU IMU pods have two modes of operation – sock mode and IMU mode.

The sock mode is used in conjunction with the smart socks to collect capacitance data along with IMU data from the pods sensors.

IMU mode on the other hand is designed to allow the pods to collect IMU data from the pods sensors independently from the socks.

- 4.1.2. When turning the pod on, the LED will initially flash once in **BLUE**. The pod will then power up and start functioning one of the two operation modes.
- 4.1.3. In either operation mode, the LEDs will flash in one of the colours seen in *4.2 Sock Mode LED Colours* or *4.3 IMU Mode LED Colours*.

NOTE: If the pods are turned on in one mode, it's not possible to switch modes without power cycling the pods.

4.2. Sock Mode LED Colours

- 4.2.1. **GREEN**: Pod is connected to the sock capacitors and is broadcasting, searching for a Bluetooth connection.
- 4.2.2. **BLUE**: Pod is connected to the socks and has established a Bluetooth connection with the user's device.
- 4.2.3. **WHITE**: Pod is connected to the sock and recording a session but is not connected via Bluetooth (memory mode session).



4.3. IMU Mode LED Colours

- 4.3.1. **AMBER**: Pod is broadcasting and looking for a Bluetooth connection when not connected to the socks capacitor sensors.



- 4.3.2. **PURPLE**: Pod has established a Bluetooth connection to the collection device but has not successfully connected to the sock capacitors.



4.4. Power Off LED Colour

- 4.4.1. **RED**: Pod has been turned off – lasts for approximately one second.



NOTE: In the charging unit, the LED should also have a solid red colour to indicate charging.

4.5. Troubleshooting

- 4.5.1. To fix frozen/unresponsive pods, you can reset them by holding the button on the pod for 3 seconds.
- 4.5.2. If the pods are plugged into a sock but not receiving capacitance data, switch the pod off, remove and the pod from the sock receptacle, then finally replace.

If the issue persists, examine the four pins on the underside of the pod – if one appears to be at a lower height than the others, this indicates that the pin has been bent and will most likely not be able to connect to socks in the future.

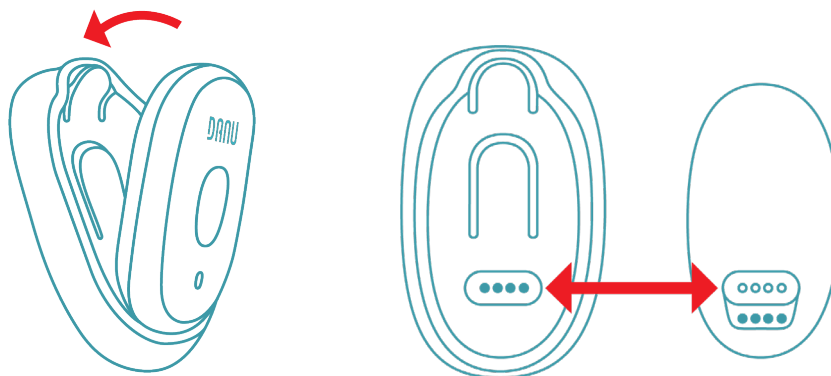
5. Product Operation

5.1. Sock Set Up

- 5.1.1. Choose the correct size of socks for the user based on the following size guide:

	XS	S	M	L	XL	XXL
EU	34 – 36	36 – 39	39 – 42	42 – 44	44 – 46	46 – 49
UK	2 – 4	4 – 6	6 – 8	8 – 10	10 – 12	12 – 14
US Men's	3 – 5	5 – 7	7 – 9	9 – 11	11 – 13	13 – 15
US Women's	4 – 6	6 – 8	8 – 10	10 – 12	12 – 14	14 – 16

- 5.1.2. Put on the socks (users are not required to be barefoot before adorning).
- 5.1.3. Don the appropriate footwear over the socks as normal. Make sure the socks' base sensor layer is flat, has no kinks, and is fully covered by the sole of your foot.
- 5.1.4. Place the pod in the receptacle on the sock, inserting at the pin end first. Ensure that the pod is held securely within the receptacle.

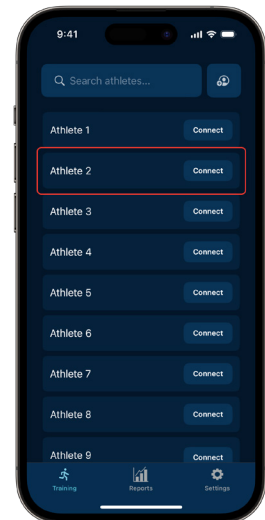


NOTE: Please ensure the pod is in the sock receptacle BEFORE you turn it on, otherwise the socks will NOT capture data.

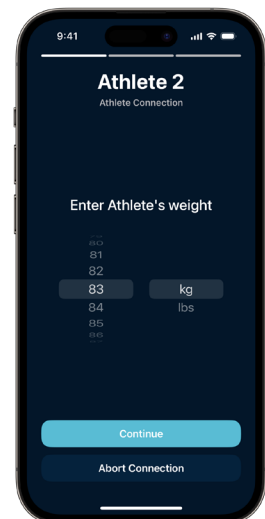
5.2. Athlete Calibration

- 5.2.1. Before starting an activity, you must calibrate the socks to the athlete's footwear to ensure accuracy. To begin calibration, tap on the athlete name you wish to connect to.

NOTE: It is not required to specifically press the Connect button, the whole athlete card will work.

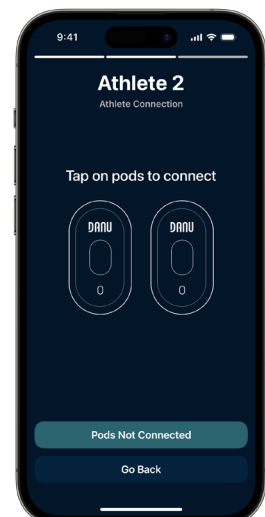


- 5.2.2. Choose the athlete's correct weight by swiping up or down on the scrolling selector.



- 5.2.3. To connect to the athlete's pods, tap on either the left or right pod image.

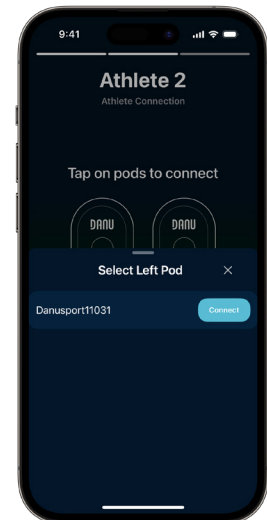
NOTE: The left and right pod images represent the pod on the left and right sock respectively. It is VERY IMPORTANT you connect to the corresponding pod for both socks.



- 5.2.4. At this stage, ensure the pod in the sock is turned on. The LED light should be flashing blue.

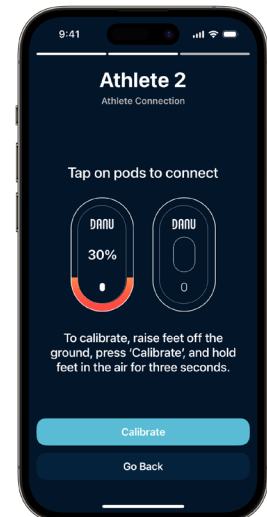
In this scenario the left pod image was chosen first, so the athlete has turned on their left sock's pod.

Connect to the pod by tapping the pod name card.

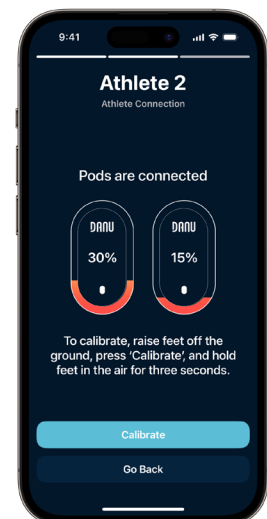


- 5.2.5. The connected pod will now display a battery level reading. Repeat the connection process with the remaining pod.

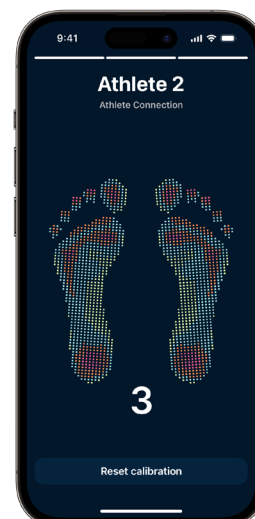
In this scenario the left pod was connected first, so the athlete turns on their right sock's pod next.



- 5.2.6. Once both pods are connected and synched, the athlete is ready for calibration. **Before pressing Calibrate**, the athlete must be seated and have both feet in the air, as shown below.



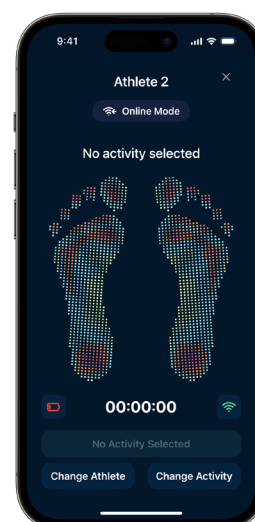
- 5.2.7. Ensure the athlete keeps their feet in the air until the app automatically moves to the next screen and the calibration process is over.



5.3. Training Screen

- 5.3.1. Once calibrated, the app will automatically bring you to the training screen, as seen on the right. Here, you can adjust options before recording a session.

You can adjust or view the:
Connectivity type (see 5.3.2).
Pod battery level (see 5.3.3).
Selected activity (see 5.3.4).
Selected athlete (see 5.3.5).

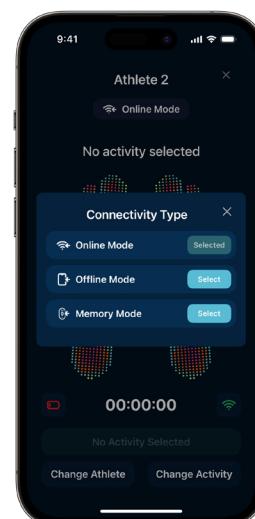


- 5.3.2. The DANU system can record data in three ways; Online, Offline and Memory.

Online: Data is uploaded in real time. Requires an internet connection (see 5.4 for more detail).

Offline: Data is saved on the user's device to be uploaded later. No internet connection required (see 5.5 for more detail).

Memory: Data is stored on the pod's memory and has to be manually retrieved and uploaded. Can run multiple sessions at once (see 5.6 for more detail).



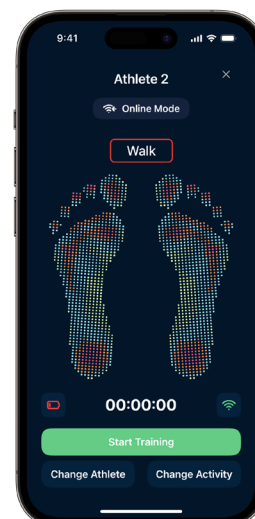
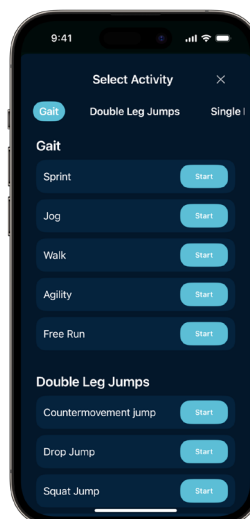
- 5.3.3. By pressing the battery icon to the left of the timer, you can view the battery level of the pods.

The icon will also change colour, reflecting the battery level of the pods.



- 5.3.4. The currently selected activity can be seen below the connectivity mode button (highlighted). By default, no activity is selected.

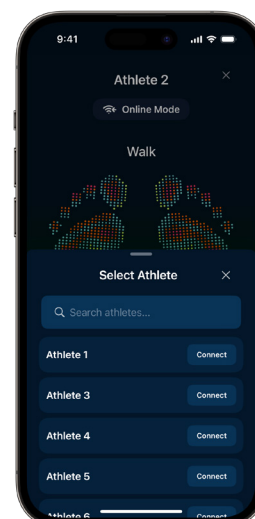
To select an activity, simply press the **Change Activity** button located in the bottom right. You will be presented with a list of activities supported by the DANU system.



- 5.3.5. Before starting an activity, it is also possible to switch the currently selected athlete. By pressing **Change Athlete** you will be presented with a list of available athletes.

If you have not calibrated any other athlete, you must press **Connect** and go through the calibration stage with the new athlete. This will NOT disconnect your already calibrated athletes.

If you have already calibrated another athlete, you can easily switch by simply selecting them. Ensure that the athlete's pods have not turned off (to conserve battery life) before recording.

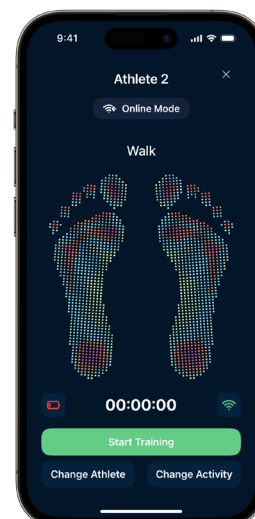


5.4. Online Mode Session

- 5.4.1. During Online mode, data recorded by the socks is sent to the user's device in real time through Bluetooth. This data is then directly uploaded to the DANU system.

To begin a session, make sure you have the correct athlete selected, the correct activity type selected, and that you have a connection to the athlete's socks (the feet icons must both be showing colour).

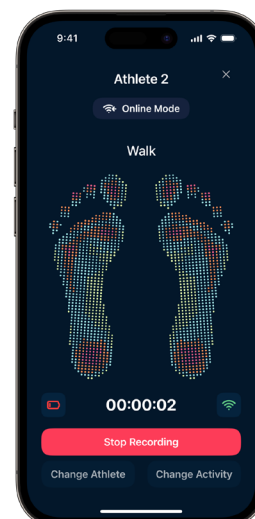
Simply press **Start Training** to begin recording.



- 5.4.2. Once recording has begun, you don't have to do anything until you are ready to stop the session.

During an Online mode session you are able to view the progress of the live data transfer by pressing the signal icon to the right of the timer.

To end the session, simply press **Stop Recording**.



- 5.4.3. Once all the data is received and uploaded to the DANU system, a session snapshot will be generated.

You are able to add a note to the session for easier identification on the DANU Analytics platform.

You can return to the training screen by either saving the session, or discarding it. You can view the full report by visiting the **Reports** tab (see 5.6).

NOTE: All data from the recorded session will be lost **permanently** if you choose **Discard Session**.



5.5. Offline Mode Session

- 5.5.1. During Offline mode, data recorded by the socks is sent to the user's device in real time through Bluetooth. This data is stored on the device and can be uploaded once an internet connection is established. Offline mode is automatically activated if the device is not connected to the internet.

To begin a session, make sure you have the correct athlete selected, the correct activity type selected, and that you have a connection to the athlete's socks (the feet icons must both be showing colour).

Simply press **Start Training** to begin recording.

- 5.5.2. Once recording has begun, you don't have to do anything until you are ready to stop the session.

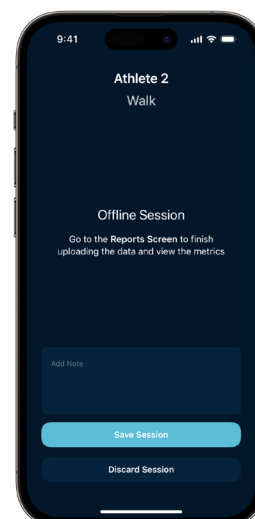
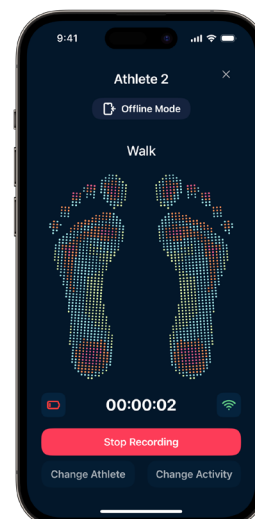
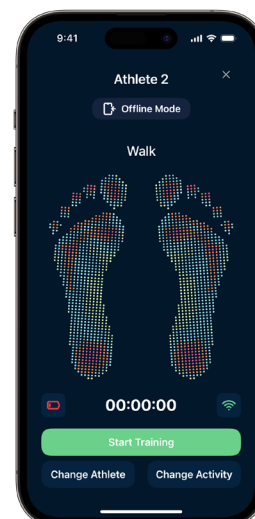
During an Offline mode session you are able to view the progress of the live data transfer to your device by pressing the signal icon to the right of the timer.

To end the session, simply press **Stop Recording**.

- 5.5.3. In Offline mode, a session snapshot cannot be generated. You are still able to add a note to the session for easier identification on the DANU Analytics platform.

You can return to the training screen by either saving the session, or discarding it. You can upload the session by visiting the **Reports** tab (see 5.6).

NOTE: All data from the recorded session will be lost **permanently** if you choose **Discard Session**.

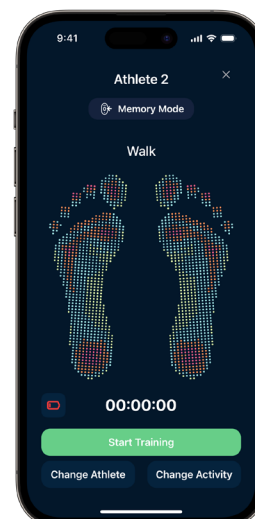


5.6. Memory Mode Session

- 5.6.1. During Memory mode, data recorded by the socks is stored on the pod's internal memory. This data can be manually retrieved and uploaded by connecting the pods to a computer (see 5.9).

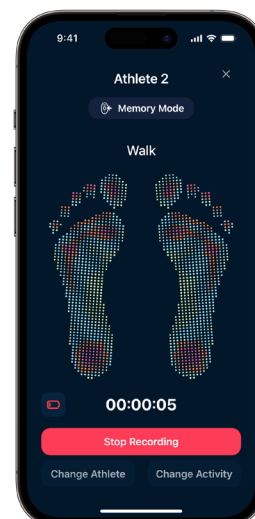
To begin a session, make sure you have the correct athlete selected, the correct activity type selected, and that you have a connection to the athlete's socks (the feet icons must both be showing colour).

Simply press **Start Training** to begin recording.



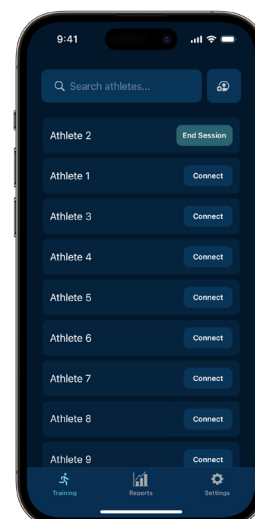
- 5.6.2. During a Memory mode session you are able to record a session on multiple athletes simultaneously. To do this, press the x in the top right to return to the main page of the Training tab.

To end the session as normal, simply press **Stop Recording**.



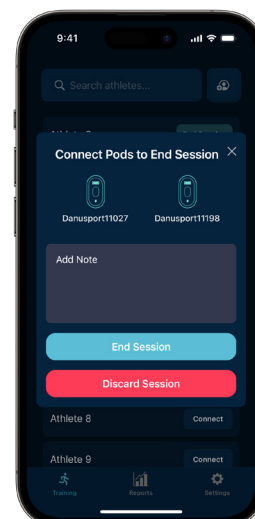
- 5.6.3. To record another session with a different athlete, connect to another athlete. If they are calibrated already, you are able to start recording as normal.

You can also end a Memory session from the main page by pressing **End Session**.



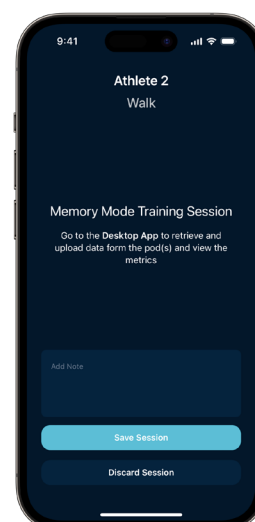
- 5.6.4. To end the session, your device must connect to the athlete's pods. This will occur automatically if the athlete is in range.

NOTE: All data from the recorded session will be lost **permanently** if you choose **Discard Session**.



- 5.6.5. If the session is ended on the Training screen, the user will be shown the usual activity end screen. Like an Offline session, a snapshot cannot be generated and you are still able to add a note to the session for easier identification on the DANU Analytics platform.

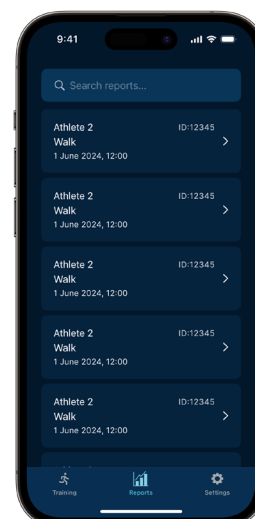
Remember, you must manually retrieve the data from the pods to upload it to the DANU Analytics platform (see 5.9).



5.7. Session Report

- 5.7.1. All saved sessions will generate a session report once uploaded to the DANU system. To view these sessions, navigate to the **Reports** tab.

Press a session card to open it.

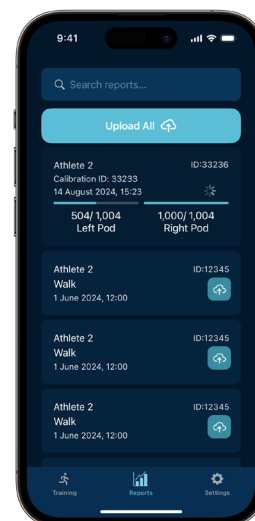


- 5.7.2. While the full session report can be viewed in the DANU Sports iOS Application, we recommend viewing the session on the DANU Analytics web platform for a better experience.



- 5.7.3. If the user has recorded any sessions in Offline mode, they will appear in the **Reports** tab ready to be uploaded.

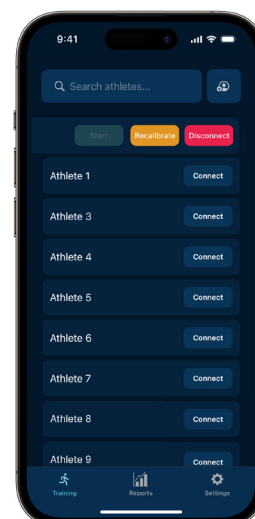
To upload, simply press the **cloud icon** or the **Upload All** button. Once uploaded, you can press the session to open the report.



5.8. Disconnect Athlete

- 5.8.1. To disconnect the user's device from the athlete's socks, return to the main page of the **Training** tab. Simply swipe the connected athlete card to the left, then press **Disconnect**.

Make sure to turn off the pods in the athlete's socks.

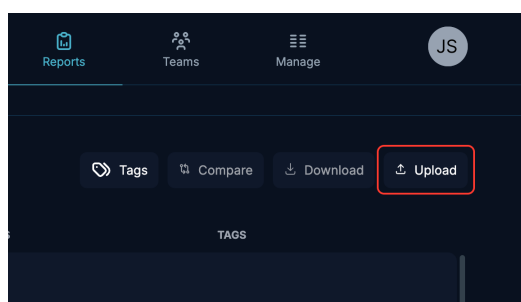


5.9. Memory Mode Data Upload

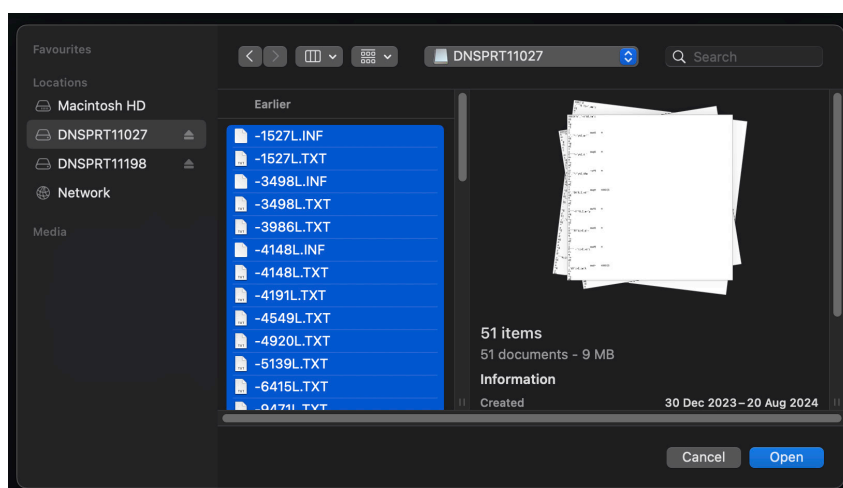
- 5.9.1. To upload the data from a Memory mode session recording, retrieve the pods used for the session and connect them to a computer using a DANU pod charger.



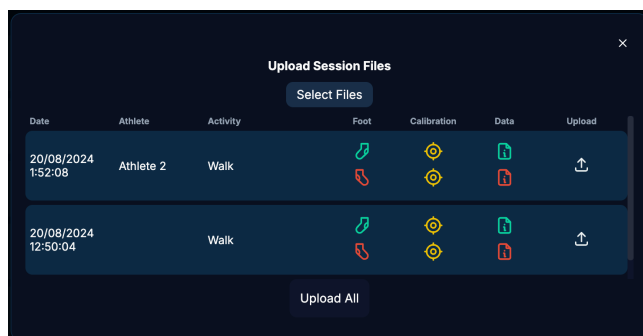
- 5.9.2. Navigate to the **Reports** tab on the DANU Analytics platform. Click the **Upload** button.



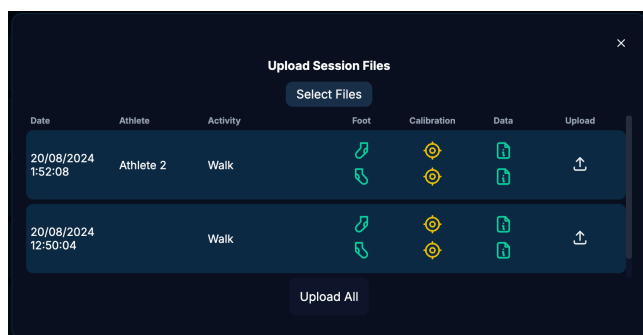
- 5.9.3. Click **Select Files**, then using your computer's file browser locate the pod's directory. Select all files in the directory.



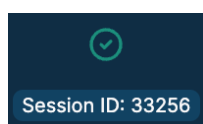
- 5.9.4. The **Upload** modal will now have updated with data from the sessions. To complete the upload, you must now repeat the previous step with the second pod.



- 5.9.5. The system will confirm the data from both pods has been correctly selected by displaying a green icon.

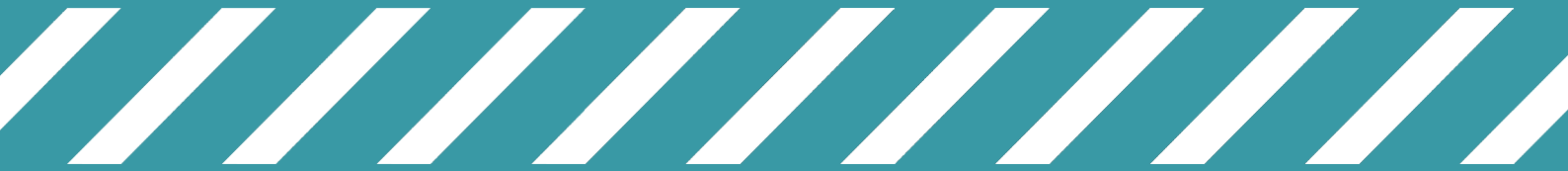


- 5.9.6. You can finalise the upload by pressing the **upload icon** on the right, or by pressing **Upload All**. Once successful, the system will show a green checkmark and provide a link (Session ID underneath the checkmark) to the uploaded session.



- 5.9.7. Due to restrictions, the DANU Analytics platform does not have the capability to delete files from your computer.

Therefore, it is recommended the user deletes the files from the pods manually (after confirming the upload was successful) before removing them from the charger.



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