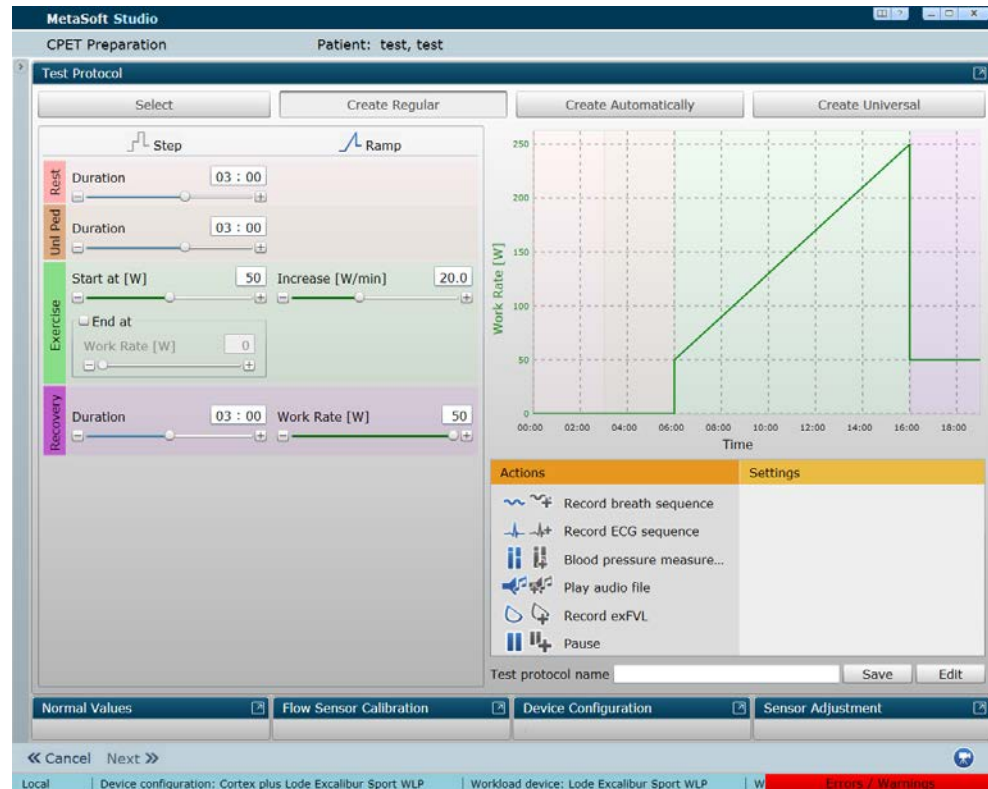


New Cortex Software and Lode Programmer



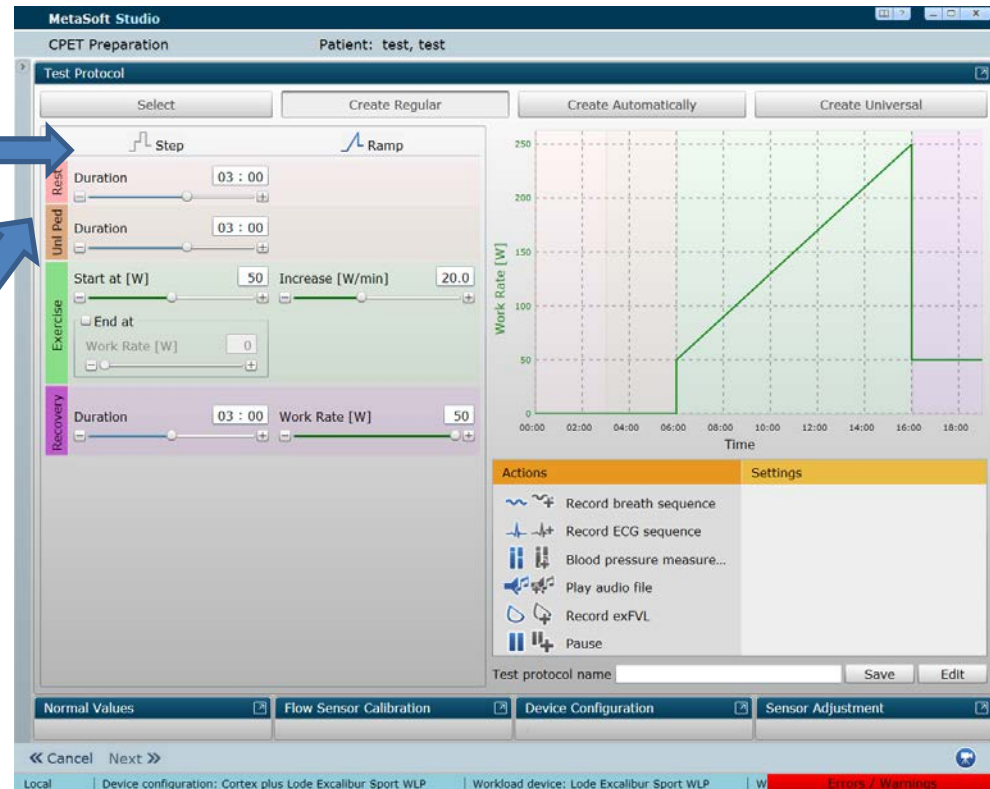
Creating a protocol

- Load Metasoft Studio and input a subject by clicking new on the right hand side of start screen
- Select Testing on the left hand side and click on the subject
- Click next



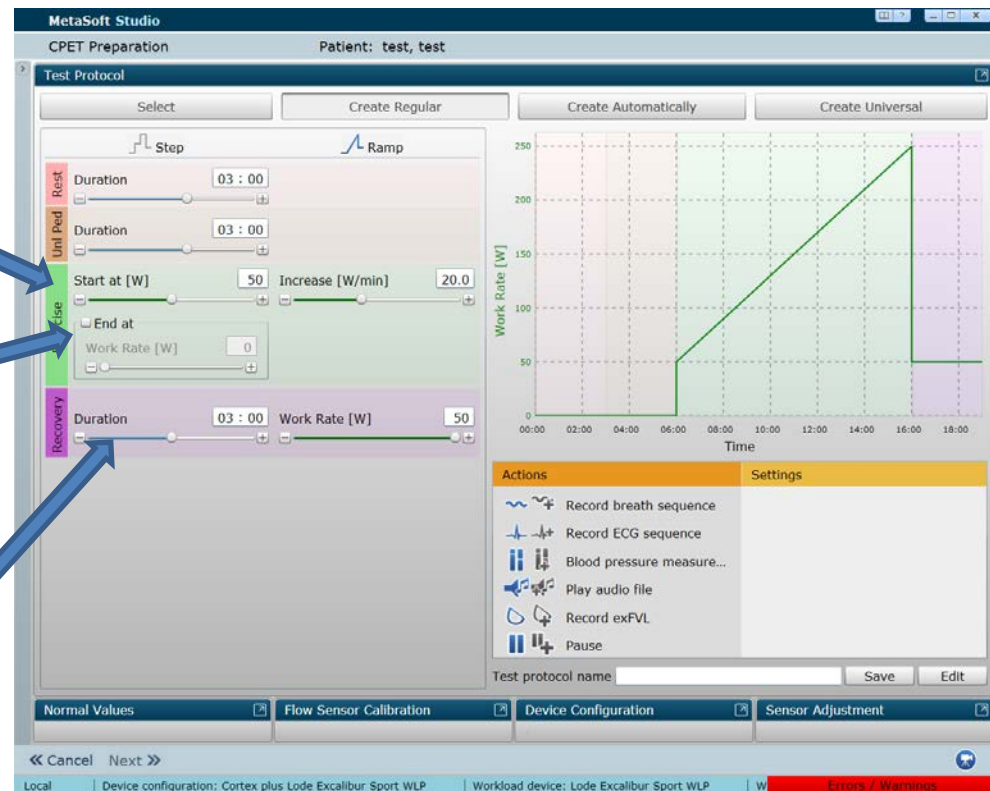
Creating a protocol

- Two types of protocol can be created – step or ramp, simply click the one you wish to create
- Next you can alter the duration of the rest and unloaded pedalling duration phases



Creating a protocol

- If you are creating a ramp (shown right) you can choose the starting power (W) and the ramp rate (W/min)
- Choose an end at work rate (W) – N.B. choose a figure above what they are likely to achieve e.g. 600W
- Set the recovery duration and a low power once they complete the test



Saving and naming the protocol

- Once the protocol has been created, go to test protocol name and save
- For a step protocol enter in the number of stages you need and power (W) as required

The screenshot displays the MetaSoft Studio interface for CPET Preparation. The patient name is 'test, test'. The 'Test Protocol' window is open, showing a 'Step' protocol configuration. The protocol consists of four stages: Rest (03:00), Uni Ped (03:00), Exercise (Start at 50 W, Increase 20.0 W/min, End at 0 W), and Recovery (03:00, Work Rate 50 W). A graph on the right shows the Work Rate [W] over Time, with a ramp from 50 W to 250 W between 06:00 and 16:00. The 'Actions' panel includes options like 'Record breath sequence', 'Record ECG sequence', 'Blood pressure measure...', 'Play audio file', 'Record exFVL', and 'Pause'. The 'Test protocol name' field is empty, and the 'Save' and 'Edit' buttons are visible. The bottom status bar shows 'Local', 'Device configuration: Cortex plus Lode Excalibur Sport WLP', 'Workload device: Lode Excalibur Sport WLP', and 'Errors / Warnings'.

Select a protocol

- Alternatively a protocol may already exist, choose the select tab and select the one you want from the list

The screenshot shows the MetaSoft Studio interface for CPET Preparation. The 'Test Protocol' window is active, with the 'Select' tab highlighted by a blue arrow. The list of protocols includes: Hollmann step, Pediatric step, Scandinavian, Standard Ramp, Step protocol of the DGSP (German society for sports medicine), and Step protocol of the WHO. The 'Hollmann step' is selected, and its description is visible: 'Hollmanns protocol is a 3 minute step protocol. The initial workload as well as the step-to-step increase is different for normal subjects, patients and unfit subjects or high-performance persons and athletes (See [1]). MetaSoft Studio completes this with common parameters for rest, unloaded pedaling and recovery.' A graph shows the Work Rate [W] over Time, with a step function increasing from 0 to 140 W. The 'Actions' panel lists: Record breath sequence, Record ECG sequence, Blood pressure measurement, Play audio file, Record exFVL, and Pause. The 'Test protocol name' is 'Hollmann step'. The bottom status bar shows 'Local | Device configuration: Cortex plus Lode Excalibur Sport WLP | Workload device: Lode Excalibur Sport WLP | W | Errors / Warnings'.

Calibration

- Once the protocol is selected you will need to perform a sensor adjustment and flow sensor calibration
- Simply click on the tabs at the bottom to expand these

MetaSoft Studio
CPET Preparation Patient: test, test

Test Protocol

Select Create Regular Create Automatically Create Universal

Hollmann step
Pediatric step
Scandinavian
Standard Ramp
Step protocol of the DGSP (German society for sports medicine)
Step protocol of the WHO

Work Rate [W]

Time

Actions Settings

Record breath sequence
Record ECG sequence
Blood pressure measurement
Play audio file
Record exFVL
Pause

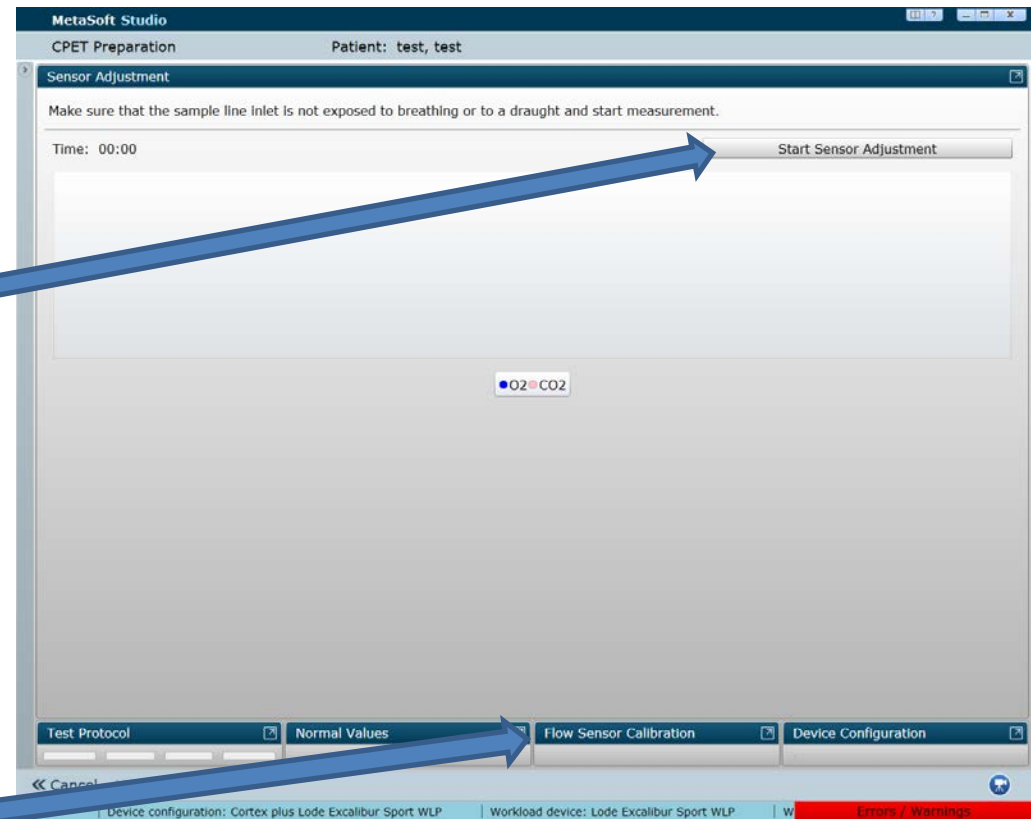
Test protocol name: Hollmann step Save Edit

Normal Values Flow Sensor Calibration Device Configuration Sensor Adjustment

Local | Device configuration: Cortex plus Lode Excalibur Sport WLP | Workload: ... | Errors / Warnings

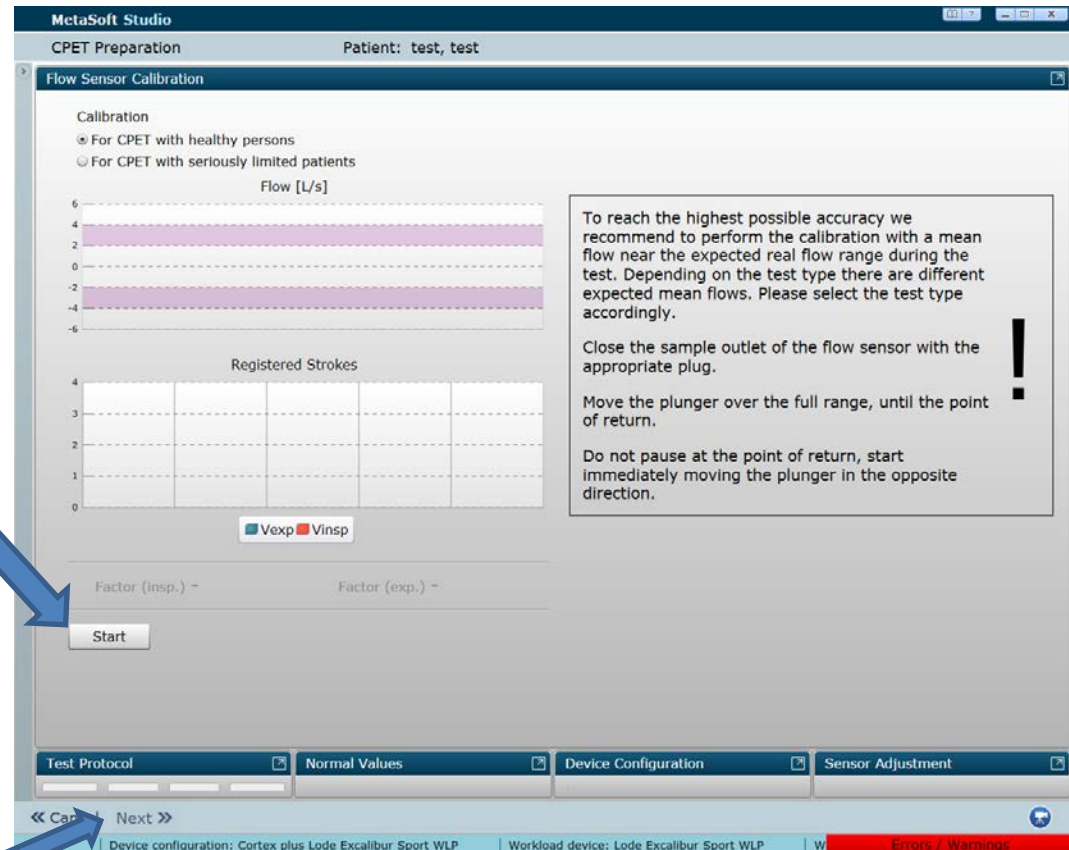
Sensor adjustment

- Ensure that the sample line is clear and not plugged in and click start sensor adjustment
- Allow to run through until it says calibration successful
- Then click flow sensor calibration




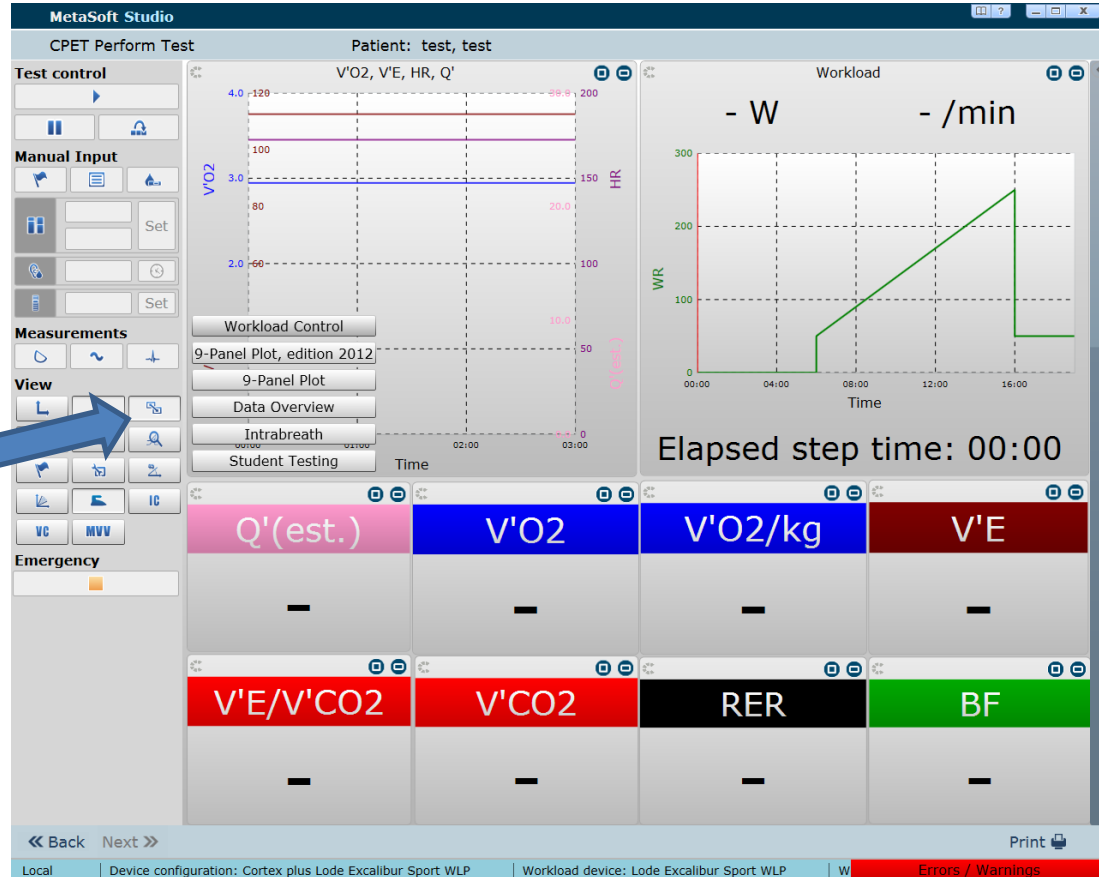
Flow sensor calibration

- Connect the turbine to the volume sensor and put the plug in the hole
- Then put the whole assembly into the syringe (shown bottom right)
- Click start. 5 registered strokes will need to show on the graph before calibration is complete. Note: you will need to keep within the purple boundaries for the in stroke and outstroke
- Once complete, click next



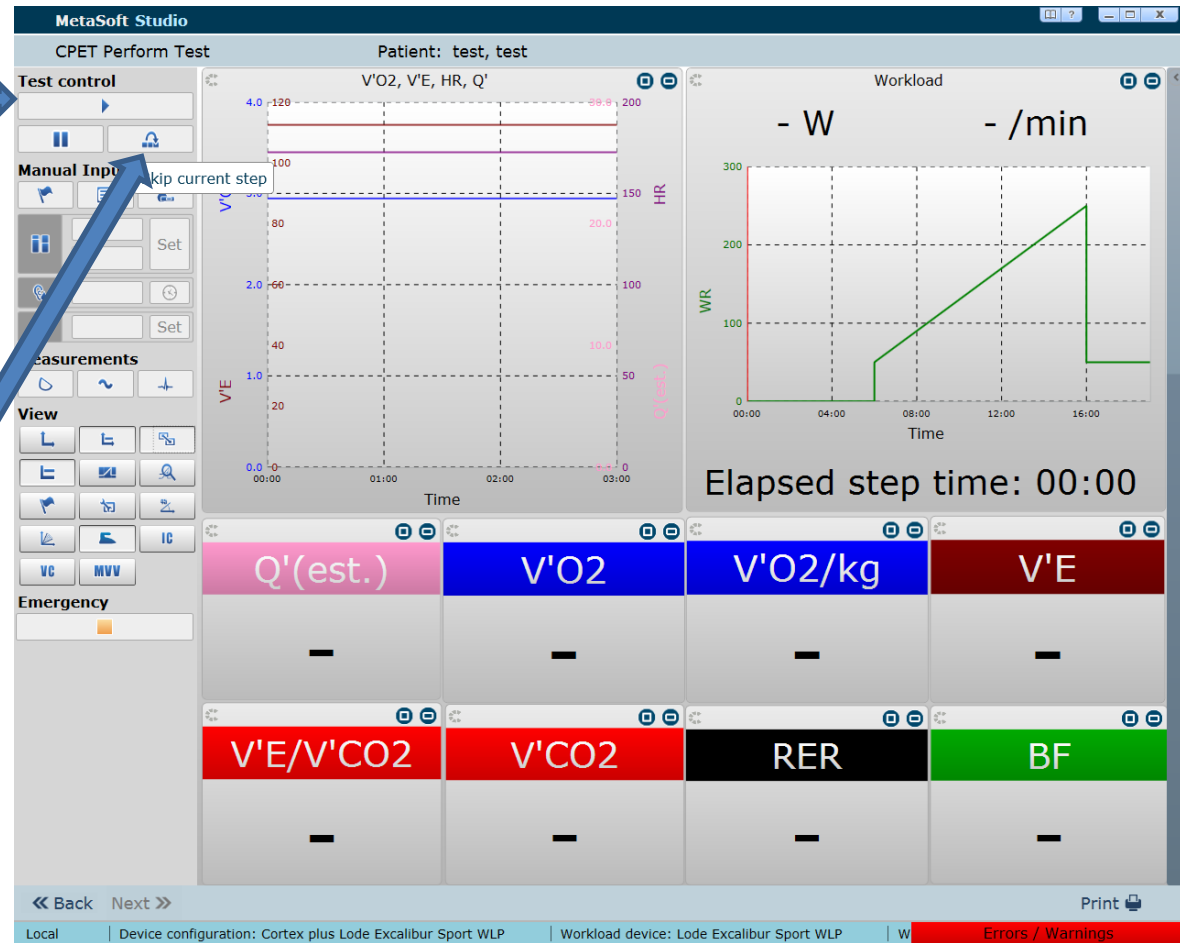
Testing Screen

- You should now be presented with the test screen
- You will need to change to workload control
- Click  and select workload control, the screen will change to look like the screenshot




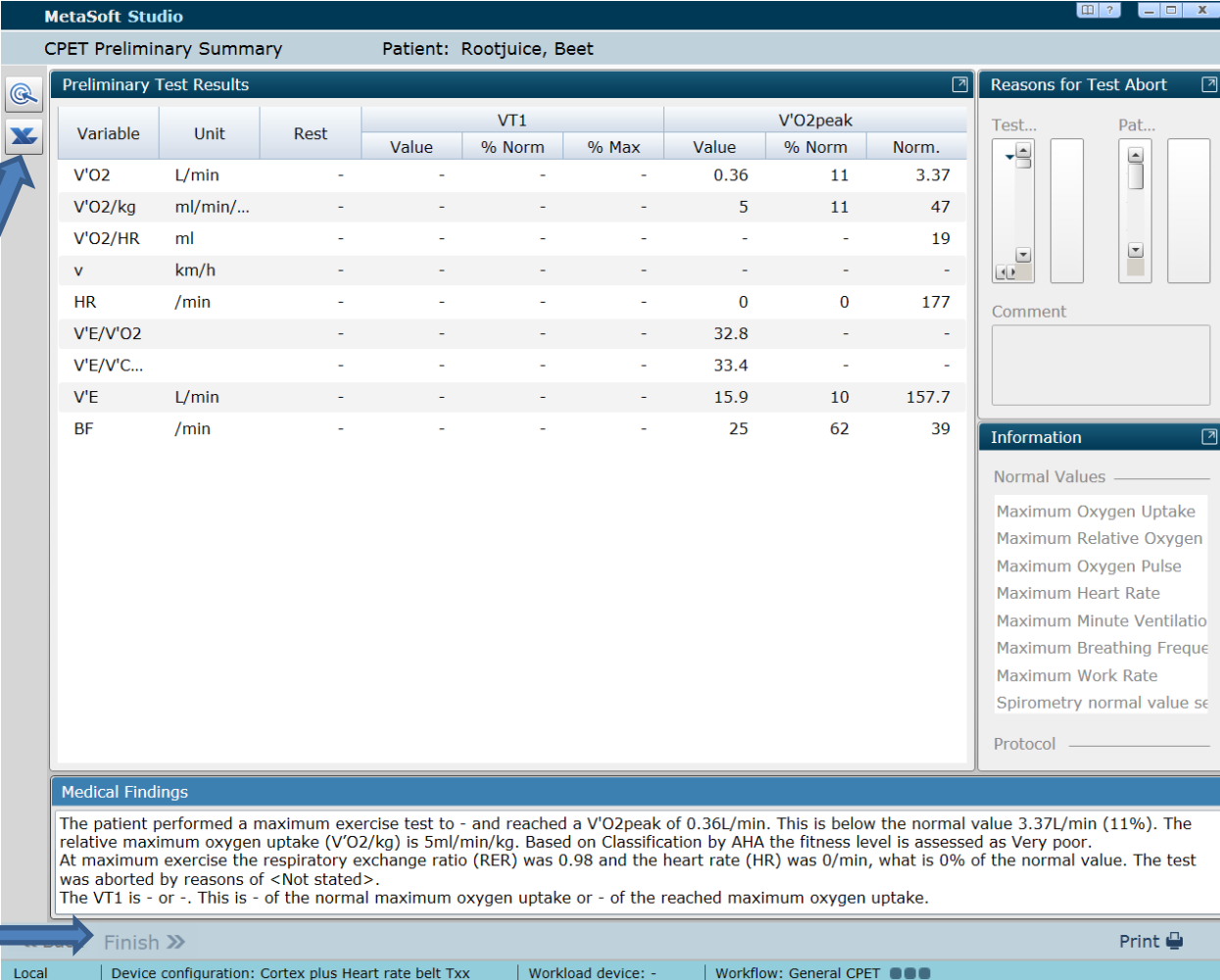
Workload control

- The play button starts the test
- If at any point in the test (e.g. the subject reaches exhaustion) and you need to quickly reduce the workload, click the skip current step button
- This will take you to the next step, usually recovery phase in the protocol
- You can also pause the test



Exporting data to Excel

- At the end of the test, whilst still on the test screen click next
- Then click 
- Excel will open, simply save as you would a normal file
- Click finish to exit or start another test



MetaSoft Studio
CPET Preliminary Summary Patient: Rootjuice, Beet

Preliminary Test Results

Variable	Unit	Rest	VT1			V'O2peak		
			Value	% Norm	% Max	Value	% Norm	Norm.
V'O2	L/min	-	-	-	-	0.36	11	3.37
V'O2/kg	ml/min/...	-	-	-	-	5	11	47
V'O2/HR	ml	-	-	-	-	-	-	19
v	km/h	-	-	-	-	-	-	-
HR	/min	-	-	-	-	0	0	177
V'E/V'O2		-	-	-	-	32.8	-	-
V'E/V'C...		-	-	-	-	33.4	-	-
V'E	L/min	-	-	-	-	15.9	10	157.7
BF	/min	-	-	-	-	25	62	39

Reasons for Test Abort

Test... Pat...

Comment

Information

Normal Values

- Maximum Oxygen Uptake
- Maximum Relative Oxygen
- Maximum Oxygen Pulse
- Maximum Heart Rate
- Maximum Minute Ventilatio
- Maximum Breathing Freque
- Maximum Work Rate
- Spirometry normal value se

Protocol

Medical Findings

The patient performed a maximum exercise test to - and reached a V'O2peak of 0.36L/min. This is below the normal value 3.37L/min (11%). The relative maximum oxygen uptake (V'O2/kg) is 5ml/min/kg. Based on Classification by AHA the fitness level is assessed as Very poor. At maximum exercise the respiratory exchange ratio (RER) was 0.98 and the heart rate (HR) was 0/min, what is 0% of the normal value. The test was aborted by reasons of <Not stated>. The VT1 is - or -. This is - of the normal maximum oxygen uptake or - of the reached maximum oxygen uptake.

Finish >>

Print

Local | Device configuration: Cortex plus Heart rate belt Txx | Workload device: - | Workflow: General CPET