



**Quintic Automatic**

**Cycling Report**

**Tutorial**

**[www.quintic.com](http://www.quintic.com)**

## **Introduction**

The Quintic Automatic Cycling Report is designed to work as an add on to our premier Quintic Biomechanics analysis software. Auto track cycling technique using the digitisation templates provided, export the Excel data file and load it through the Quintic Automatic Cycling Report program. This will then produce a PDF report, containing variables such as:

- Head Kinematics
- Shoulder Kinematics
- Lower Limb Kinematics
- Pelvis/Spine Intersection Angles

This tutorial will lead you through the simple process in order to create these reports.

To access tutorials on Quintic Biomechanics v26 that are referred to throughout this tutorial please download them from [http://www.quintic.com/tutorials\\_v26.htm](http://www.quintic.com/tutorials_v26.htm).

## **Installing the Quintic Automatic Cycling Report**

Please follow the below instructions carefully in order to successfully install the Quintic Automatic Cycling Report.

1. Download the Quintic License Key Generator, and run the 'setup.exe' application (NOT 'QuinticKeyGeneratorSetup').
2. In this application window, press on the 'Get System Code' button.
3. Copy the System Code generated into an email, along with the following information
  - a. Company Name
  - b. Contact Name
  - c. Contact Email Address
  - d. Report Name (cycling)
  - e. Address
  - f. Phone Number
  - g. System Code (generated in the above step)
4. Please email to [info@quintic.com](mailto:info@quintic.com).
5. After receipt of your email, Quintic will send you a unique Licence Key.

## Loading the Report Software

Download the Quintic Automatic Cycling Report program and open the zip file.

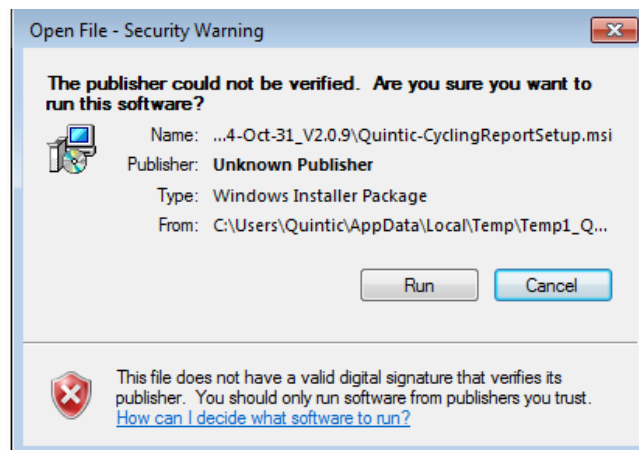
Select 'Quintic-CyclingReportSetup' as shown in the image below.

Name	Date modified	Type	Size
CR32BitOnly	05/03/2015 15:57	File folder	
DotNetFX40	05/03/2015 15:58	File folder	
mdac28	05/03/2015 15:58	File folder	
WindowsInstaller3_1	05/03/2015 15:58	File folder	
QuinticCyclingReport	05/03/2015 15:57	Windows Installer ...	13,080 KB
QuinticCyclingReportsetup	05/03/2015 15:57	Application	452 KB

Follow the instructions, and when prompted, enter the Licence Key issued to you by Quintic.

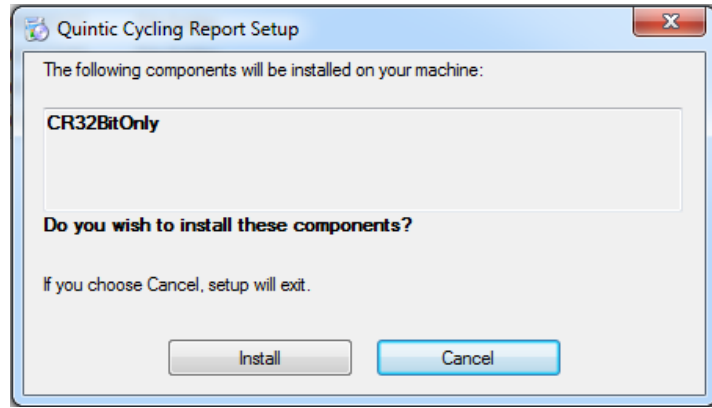
### Step One

Once you have selected 'Quintic-CyclingReportSetup' the window shown in the image below will appear



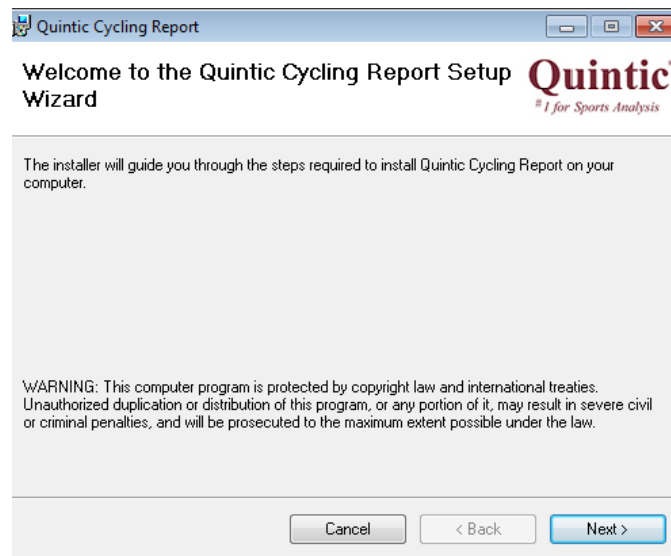
## Step Two

Select 'install' and allow the computer to install the crystal report software.



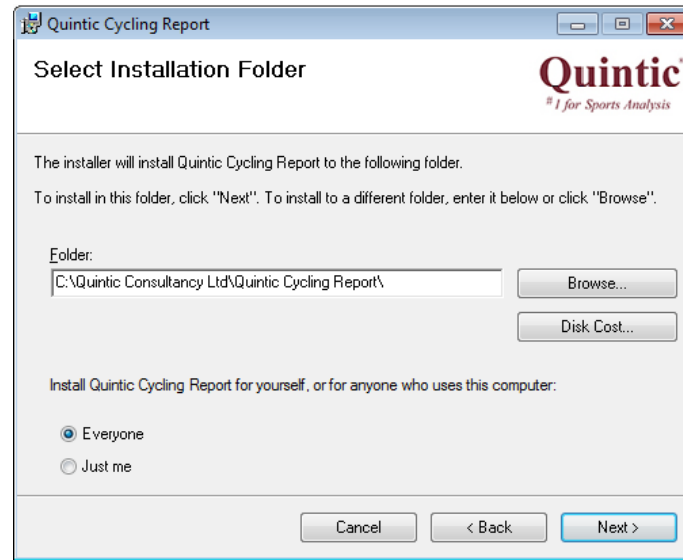
## Step Three

Select 'Run' and the next screen will appear. Select 'Next' to move on in the installation process.



## Step Four

Select 'Everyone' on the section asking who uses the computer, before you select 'Next' and move to the next installation window.



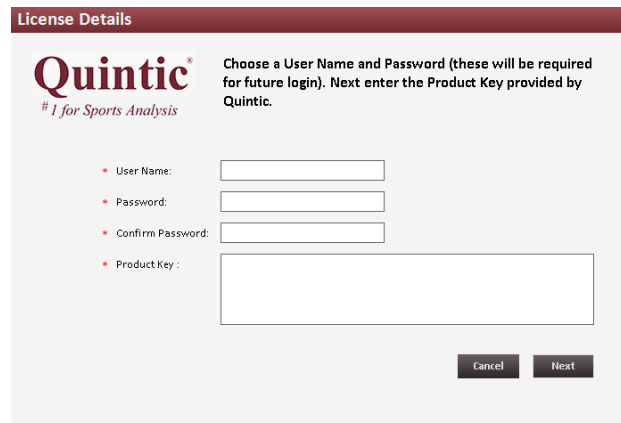
## Step Five

The next window will ask you to confirm the installation which you will agree too by selecting 'Next'.



## Step Six

Once you have confirmed installation the programme will load automatically then the following screen will appear.



The screenshot shows a window titled "License Details" for Quintic software. The Quintic logo and tagline "#1 for Sports Analysis" are on the left. On the right, there is a text prompt: "Choose a User Name and Password (these will be required for future login). Next enter the Product Key provided by Quintic." Below this are four input fields: "User Name:", "Password:", "Confirm Password:", and "Product Key:". At the bottom right are "Cancel" and "Next" buttons.

Once this screen has appeared you need to select your own username and password (select something you will remember easily). You must also enter your product key which was sent to you from 'info@quintic.com' after you sent the first code for the key generator.

**WARNING: If re-installing the software onto a PC please make sure you create a copy of your report database BEFORE uninstalling the software from the PC. If you do not do this you will lose any existing athlete details from the database!**

### Creating a Copy of the Report Database

1. First, Go to the following folder location: C: Quintic Consultancy Ltd : Quintic Cycling Report : DB.
2. Make a copy of the file named 'QuinticCyclingSystem.mdb' and save it onto the desktop.
3. Uninstall the report software via the add/remove programs function found within the control panel.
4. Install the new version of the report software onto the PC and complete the licence registration process as above.
5. Now copy the file named 'QuinticCyclingSystem.mdb' from the desktop to the following folder location: C: Quintic Consultancy Ltd : Quintic Cycling Report : DB.

### Microsoft Excel Drivers

A full version of Microsoft Excel is required for the Quintic Automatic Reports to read the required Excel Data Files. If any errors occur during the progress of uploading an Excel File, the following Excel driver may be required.

Please check if your PC is a 32bit or 64 bit version and download the appropriate driver from <http://www.quintic.com/downloads/QuinticCyclingReport.html>

## **Camera Setup**

In order to produce a complete report four Quintic high-speed cameras are required. These cameras should be fully synchronised to record from the anterior, posterior, left lateral and right lateral views, with the cyclist positioned clearly within the centre of the field of view (N.B. Please refer to Quintic Tutorial 7c for instructions on setting up cameras).

In instances where less than four cameras are available, it is still possible to produce a report for several data parameters. **However, please note that to collect data from the anterior and posterior views it is also fundamental that a camera is set up for the right lateral view. This is because the right view camera is used to mark the start of each crank revolution. It is also possible to produce a report for either the right or the left lateral view individually.**

## **Template and Reflective Marker Setup**

In order to generate a complete report, 15 reflective markers need to be positioned on the anatomical landmarks shown in the following diagrams.

These are the only reflective markers that need to be positioned, however please be aware that some markers will be used from multiple camera positions as illustrated.

### Front View (Anterior)

Head (or Helmet)

Right Shoulder (Lateral Deltoid)

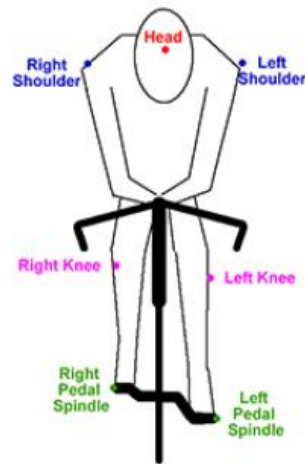
Left Shoulder (Lateral Deltoid)

Right Knee (Lateral Femoral Condyle)

Left Knee (Lateral Femoral Condyle)

Right Pedal Spindle (or 5<sup>th</sup> Metatarsal)

Left Pedal Spindle (or 5<sup>th</sup> Metatarsal)



### Back View (Posterior)

Right Pelvis (Posterior Iliac Crest)

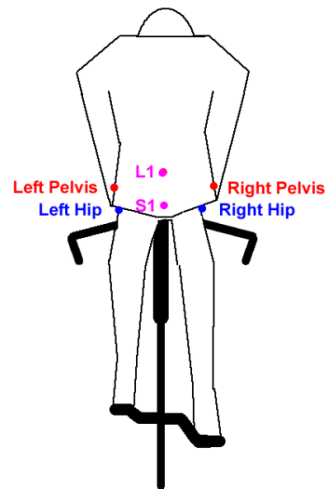
Left Pelvis (Posterior Iliac Crest)

Right Hip (Greater Trochanter)

Left Hip (Greater Trochanter)

1<sup>st</sup> Lumbar Vertebrae

1<sup>st</sup> Sacral Vertebrae



L1: 1st Lumbar Vertebrae  
S1: Sacrum

### Side View (Left/Right Lateral View)

Head (or Helmet)

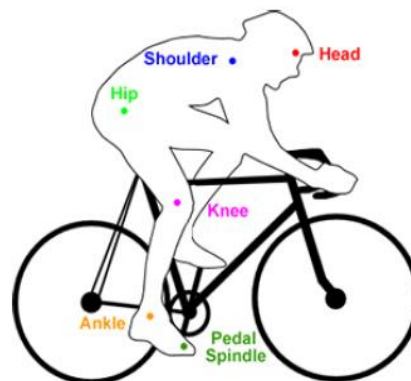
Shoulder (Lateral Deltoid)

Hip (Greater Trochanter)

Knee (Lateral Femoral Condyle)

Ankle (Lateral Malleolus)

Pedal Spindle (or 5<sup>th</sup> Metatarsal)





## **Calibration**

In order to facilitate the calibration process, we would advise that you create a calibration video file for each camera view before collecting any data. For this, you should record the bike set-up within the field of view for a couple of seconds from each camera angle. From this, make a note of the height and width of an object of known length as this will be used later on (NB: calibration is needed for both the vertical and the horizontal axis).

## **Data Collection**

In order for the software to produce reliable data, you will need to digitise exactly 10 crank revolutions. To do this, we recommend that you initially record 12 to 15 crank revolutions, and then after the recording, trim the file to begin just a few frames before the first revolution, and a few frames after the tenth revolution. Please make sure that you trim each file at the same video frame number to ensure that they remain fully in sync. When recording the video trials it is important that a consistent cycling velocity is maintained throughout each crank revolution.

## **Digitising the Video Files**

Once you have collected data for 10 crank revolutions, they are now ready to be digitised. **You should start digitising 1 frame before the start of the first crank (top dead centre) and 1 frame after the final (10th) crank revolution (top dead centre) for smoothing purposes.** If reflective markers are used, the Automatic Digitisation feature of Quintic Biomechanics can be utilised (N.B. Please refer to Quintic Tutorials 8a/8b for information on how to digitise).

During this digitisation process, the calibration needed is that of both the vertical and the horizontal axis. This will need to be done independently for each camera angle, such that a unique calibration file is saved for each. These files should be named appropriately so that it is easy to distinguish which camera angle they relate to when it comes to digitising. It is important to note that the accuracy of this calibration procedure will affect the results produced.

Once calibrated, you will need to digitise each video file independently using the corresponding digitisation template.

These digitisation templates can be downloaded from...

<http://www.quintic.com/downloads/QuinticCyclingReport.html>

**Please ensure that when digitising you start exactly one frame before the beginning of the first crank revolution (top dead centre) and end one frame after the end of the tenth crank revolution (top dead centre).**

## Digitisation View Summary

Left lateral side - This view can be loaded independently of the other view to create a report for just this view.

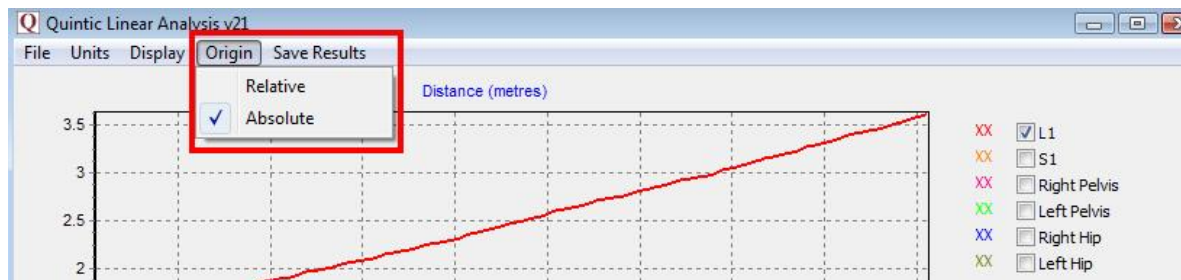
Right Lateral side - This view can be loaded independently of the other views to make a report. However if the front or back views are to be loaded then the right is necessary and a report for the anterior and posterior will not be created without.

Front view (anterior) - For the front view to load the right lateral side view must also be loaded.

Back view (posterior) - For the back view to load the right lateral side view must also be loaded.

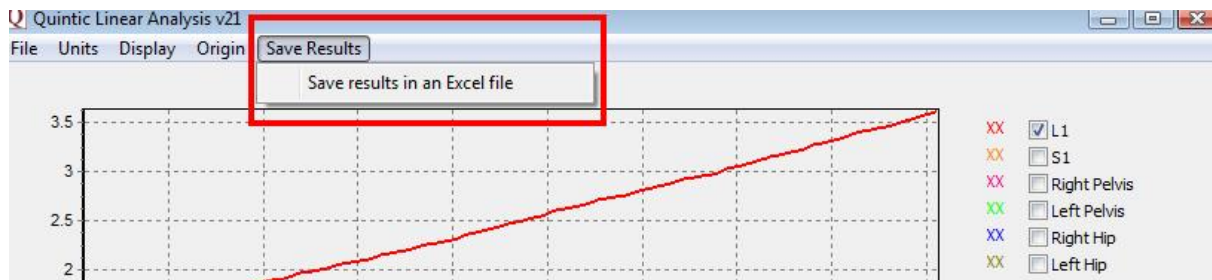
## Creating the Excel Files

Once digitised, open the Linear Analysis Window (for help on this, please refer to the Quintic Tutorial 9).



Click on 'Origin', and click on 'ABSOLUTE' (see above screenshot). This is very important in order to produce a correct report.

Next, in order to produce the Excel file, click on 'Save Results', 'Save results in an Excel file' (as shown below), making note of the folder location of this saved file.

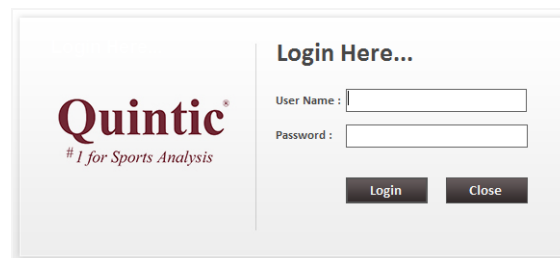


Repeat the steps above for each digitised video file. Please check that for each digitisation trace exactly ten crank cycles have been measured.

## Using the Quintic Automatic Cycling Report

### Adding Athletes

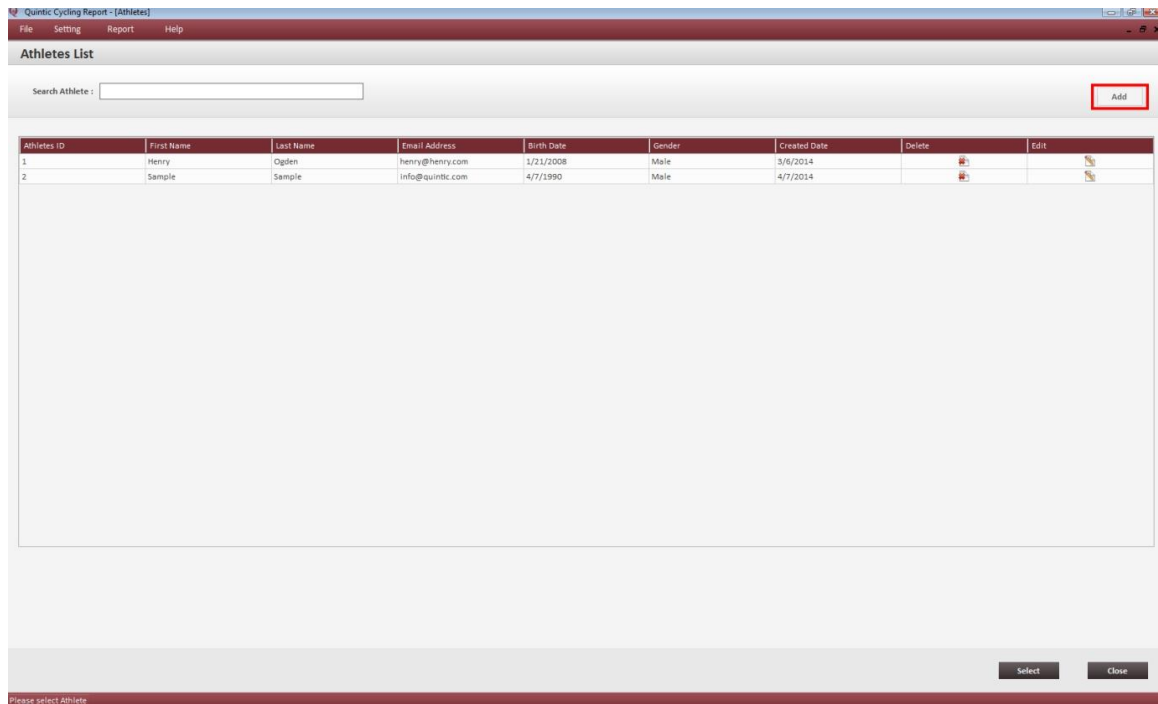
Open the Quintic Automatic Cycling Report program from the desktop icon created during the installation. Please ensure the licence code sent to you by Quintic has been installed correctly, and your login details are correct.



The first thing to do is to add an athlete into the database. On the top toolbar, click on 'Setting' and then 'Athletes'.



The following window will appear, listing any athletes previously added into the database.



To add a new athlete, click on the 'Add' button. This will bring up the following form where you can enter all the athlete's details. The fields marked with \* indicate a required field.

**CYCLING ANALYSIS**

\* First Name :

\* Last Name :

\* Date of Birth : 01/04/2008

\* Gender :  Male  Female

\* UOM : English

\* Weight : 0  lbs

Competition Level: Amateur

\* Height : 0  0  feet & inch

\* Email Address :

Contact Email Address :

Contact No. :

Instructor :

Contact Name :

Comment :

Website :

Cadence (RPM) :

**BIKE SET-UP**

Discipline :

Frame Model Size :

Saddle Brand :

Saddle Height : 0  0

Handle Bar Height : 0  0

Saddle-Handlebar Distance: 0  0

Handle Bar Width : 0  0

Crack Length : 0  0

Additional Comment :

\* All Height are in feet & inch

Save

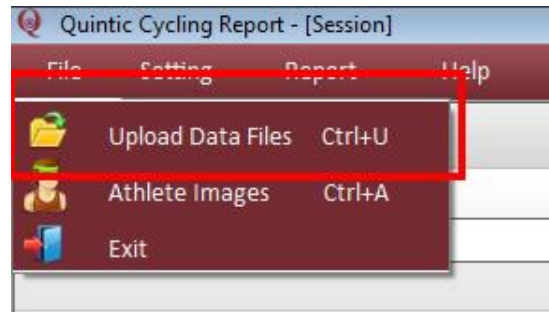
Once saved, the athlete will be added to the athlete list. From here they can be selected and a report can now be created for them.

Here you can also:

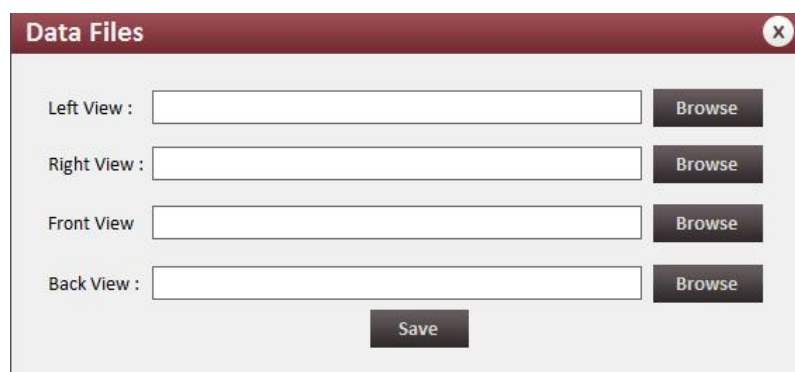
- Select a previously added athlete by clicking on their row in the table, then on 'Select'.
- Search the athlete list for a previous athlete by typing in the top box.
- Order the athlete list by any of the variables in the top red row.
- Edit / delete any current athlete from the list.
- Add a new athlete.

## Loading Data Files

Data files can now be loaded for analysis. Click 'File' and then 'Upload Data Files'.



This will then open a window from which you can select the desired Excel files which you wish to analyse.

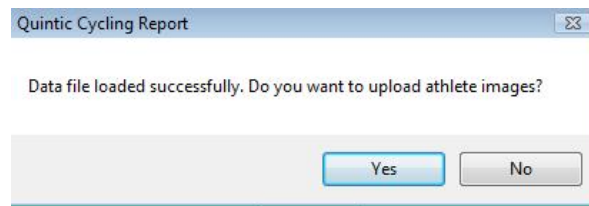


To upload an Excel file, click on 'browse' and then locate the required file and double click to select. The file will then be added to the data files ready to save once all files have been selected. If you select an incorrect file and wish to change this, simply right click on the file to delete and reselect the correct file.

NB: As mentioned previously, the program is able to produce either a report for between one and four camera views. However, it is paramount that a video file is uploaded for the right side view, even if you only require analysis of the front and back views.

Once you have selected all the required files, click 'Save'. An animation of a bike will appear, notifying you that the program is processing the Excel file(s). This may take up to a minute if data for all four camera views is uploaded.

Once complete, the following information box will appear.



If you would like to upload athlete images please select 'Yes', or alternatively select 'No'.

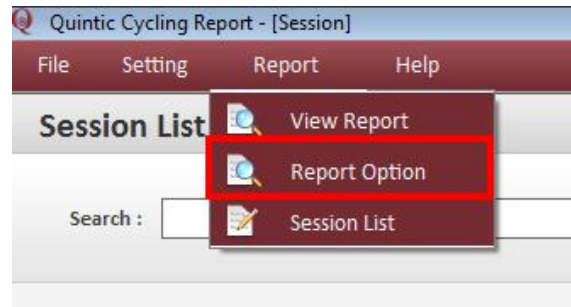
If you select 'Yes' you will be presented the below screen from which you can select the desired images you wish to upload. Please note that images of angles should be exported from 'Quintic Biomechanics' as individual images. However, images for the 'Side Right' 'Side Left' and 'Front' view should be exported as 'Image Capture x4 (L)' to reflect 0, 25, 50 and 75% of the revolution. All images that have been exported from Quintic Biomechanics will be resized automatically to fit into the report, so please do not edit these images prior to uploading.

N.B. Please refer to Quintic Biomechanics v26 Tutorial 3 for information on how to export images.

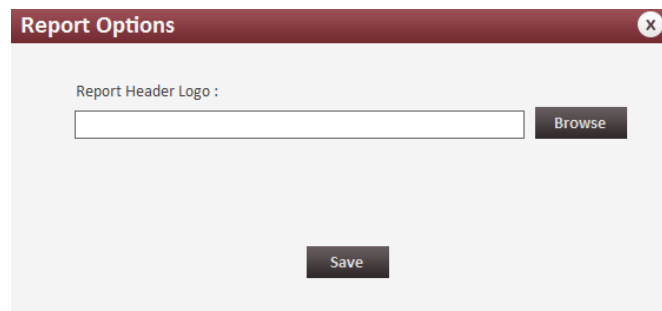


## Add a Logo

Before creating the report, there is a customization option to add your own logo onto the front page. This option is only available before you create the report. If left blank/not changed, there will be no logo at the top left hand corner of the front page. However, if you wish to add a logo, click 'Report', 'Report Option'.



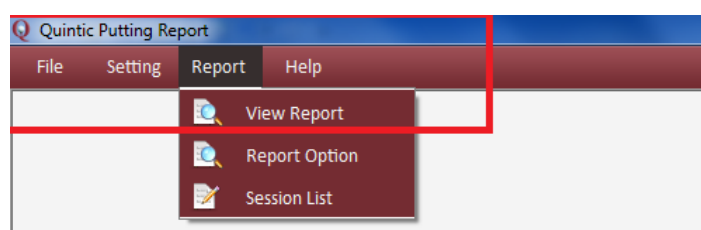
This will open the following window, where you can browse for the desired image and then 'Save' the changes.



N.B. This Logo will remain on all future reports unless you change or remove it.

## Create the Report

The next step is to create a report. Click on 'Report', 'View Report' (as displayed below). An animation of a bike will appear, notifying you that the program is processing the information and creating the report. This may take up to a minute if data for all four camera views is uploaded.





The toolbar below appears above the report, and has the following functions:

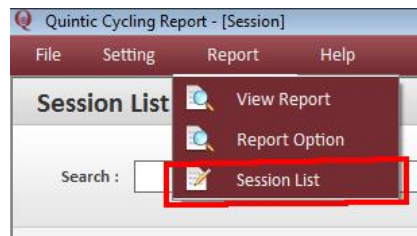


1. **Export Report** – Allows you to export the report as a PDF, Excel or Word Document.
2. **Print Report** – Prints the report straight from the program.
3. **Page Control** – These buttons allow you to navigate through the pages of the report.
4. **Find Text** – Allows you to search the document for a specific piece of text.
5. **Zoom Function** – Change the zoom of the report within the window.
6. **Add Report Summary** – Enables you to add comments / text into the ‘Summary’ box on the front page of the report.
7. **Save Session** – This allows you to save the created PDF into the program memory to load again at a later date.

### **Additional Program Features:**

#### Session List

To view the Session List, click ‘Report’, ‘Session List’



Here, by clicking on the blue file name, you can load previously created reports into the program.

#### Change Login Details

Click ‘Setting’, ‘Reset Password’. Here this will allow you to change your login details (Username and Password).

