BLACKDOG
biomechanics

1 January 2020
Penwith Farm

Rider Biomechanics Report
Bethanne

Trot (#1)

This report details your position during the video *"trot_right1"*.

It contains a numerical quantification of how far you pitch forwards or backwards, how much you hunch your shoulders, to what extent you lean to the left or right, whether you drop a shoulder and whether you twist your shoulders or body. Also provided are graphs of each of these measures throughout the video as well as a diagramatic representation of the numbers.

Summary

The following table summarizes your performance, giving the average pose for each key position metric as well as the range of motion for each. The scores are colour coded for quick reference; green for great performance, yellow for satisfactory and red to highlight key areas for improvement.

Position	Average angle (direction)	Range of Motion
Pitching (tipping)	8° (forwards) - satisfactory	2°
Hunching	17° (forwards)- needs improvement	9°
Rolling (leaning)	0° (straight)- perfect!	2°
Dropping shoulder	0° (straight)- perfect!	2°
Twisting shoulders	-3° (left)- good	3°
Twisting body	-1° (left)- great!	4°

Any questions or queries about the results, don't hesitate to get in touch via email (info@blackdogbiomech.com) or phone (07510379196).

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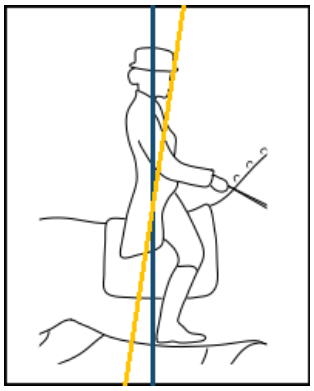
Pitch - satisfactory

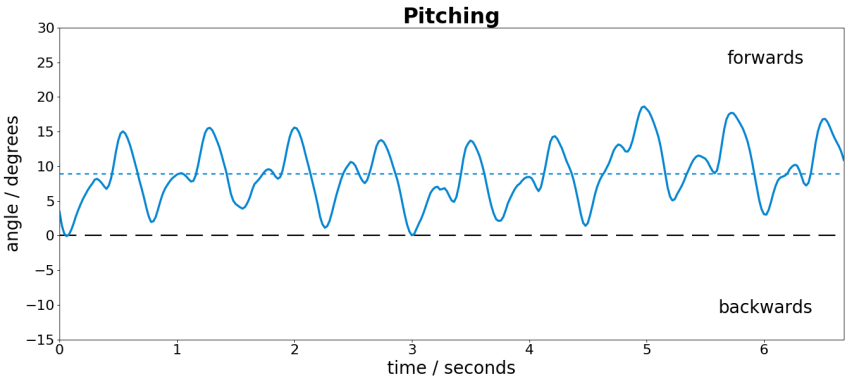
On average, you are tipping your body **forwards** by 8°. As you move with the horse, your average range of movement is 7°.

$$\textit{Average} : 8°$$
$$\textit{Range} : 7$$

In the image below on the left (a), the blue line shows your average upper body pitch position relative to the ideal position (pitch=0, shown by the red line). The thinner black lines show the range of pitch movement throughout the video. The graph on the right (b) shows the variation in the pitch of your upper body (blue line) throughout the video. The ideal position, where the rider is perfectly upright (pitch=0) is shown by the dashed red line. Your average pitch position is indicated by the dotted blue line.



(a) Average pitch.



(b) Pitch throughout the video.

Hunching - needs improvement

On average, you are hunching your shoulders **forwards** by 17°. As you move with the horse, the range of hunching is 9°.

$$\textit{Average} : 17°$$
$$\textit{Range} : 9°$$

In the image below on the left (a), the blue line shows the average amount that you are either hunching or hollowing your back relative to the ideal position (pitch=0, shown by the red line). The thinner black lines show the range of hunch throughout the video. The graph on the right (b) shows the variation in hunch (blue line) throughout the video. The ideal position, where the rider is perfectly upright (pitch=0) is shown by the dashed red line. Your average hunch position is indicated by the dotted blue line.

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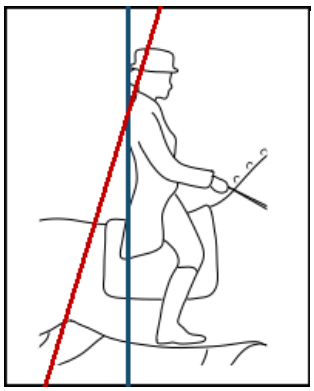
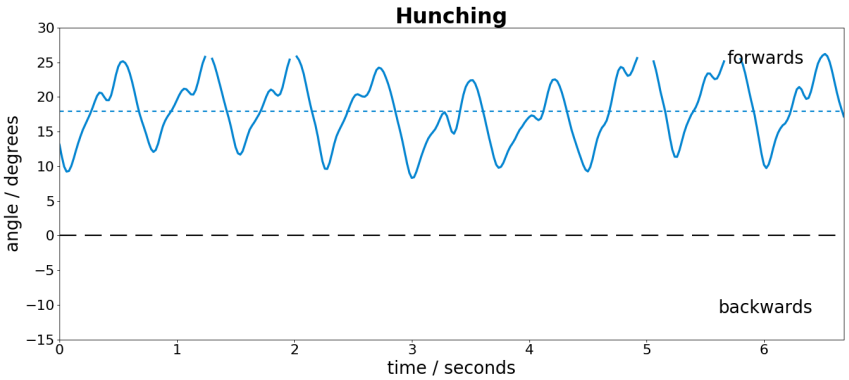


(a) Average shoulder hunching.



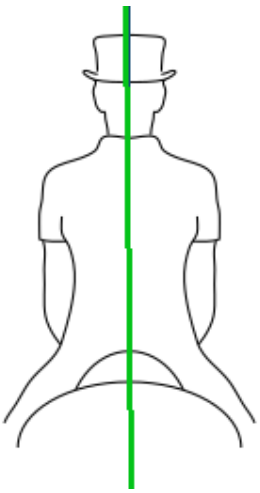
(b) Shoulder hunching throughout the video.

Roll (leaning) - perfect performance!

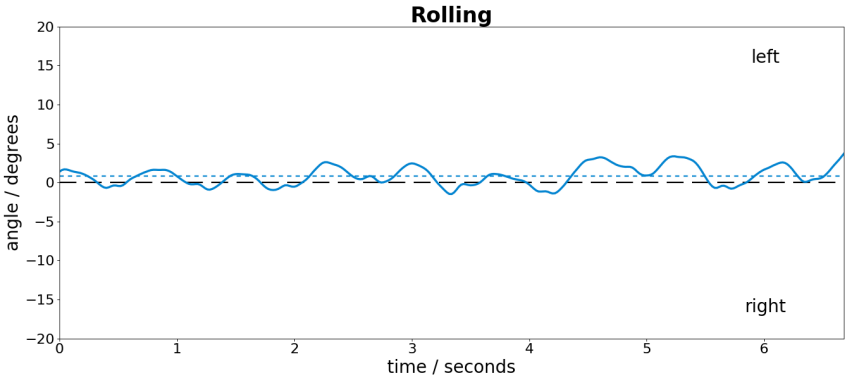
On average, you are sitting perfectly straight : 0°. As you move with the horse, the range of roll is 2°.

$$\textit{Average} : 0^\circ$$
$$\textit{Range} : 2^\circ$$

In the image below on the left (a), the blue line shows by how much on average your upper body is leaning to the left or right relative to the ideal position (roll=0, shown by the red line). The thinner black lines show the range of roll movement of your upper body throughout the video. The graph on the right (b) shows the variation in the roll of your upper body (blue line) throughout the video. The ideal position, where the rider is perfectly level (roll=0) is shown by the dashed red line. Your average roll position is indicated by the dotted blue line.



(a) Average body lean..



(b) Body leaning throughout the video.

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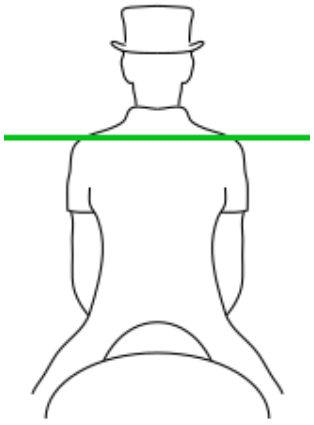
Dropping Shoulders - perfect!

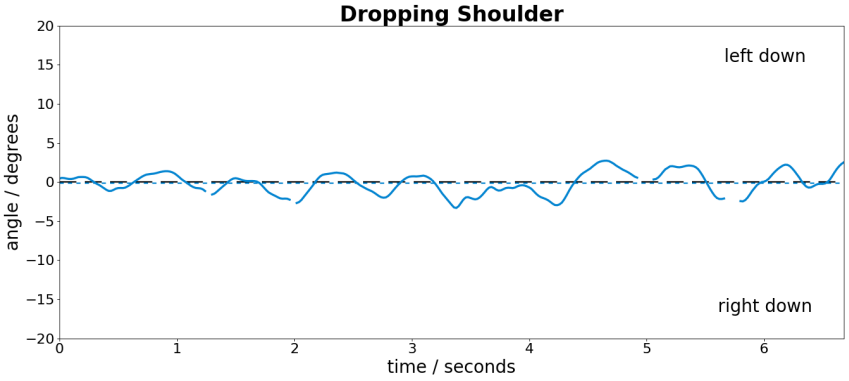
On average, you are sitting perfectly straight : 0°.

$$\textit{Average} : 0^\circ$$
$$\textit{Range} : 2^\circ$$

In the image below on the left (a), the blue line shows the average amount you're dropping your shoulders by relative to the ideal position (dropping=0, shown by the red line). The thinner black lines shows the range through which you're dropping your shoulders throughout the video. The graph on the right (b) shows the variation your shoulder position (blue line) throughout the video. The ideal position, where both shoulders are perfectly level (dropping=0) is shown by the dashed red line. Your average position is indicated by the dotted blue line.



(a) Average shoulder position



(b) Position of shoulders throughout the video.

Twisting Shoulders - good

On average, you are twisting your shoulders around to the **left** by -3°. As you move with the horse, the range of shoulder twist is 3°.

$$\textit{Average} : -3^\circ$$
$$\textit{Range} : 3^\circ$$

In the image below on the left (a), the blue line shows the average amount you're twisting your shoulders relative to the ideal position (twist=0, shown by the red line). The thinner black lines shows the range through which you're twisting throughout the video. The graph on the right (b) shows the variation in the amount your shoulders twist (blue line) throughout the video. The ideal position, where both shoulders are perfectly even (twist=0) is shown by the dashed red line. Your average position is indicated by the dotted blue line.

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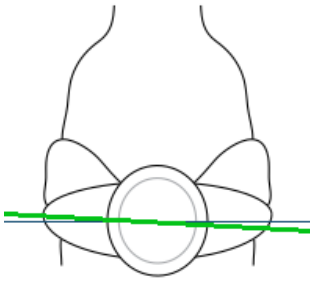
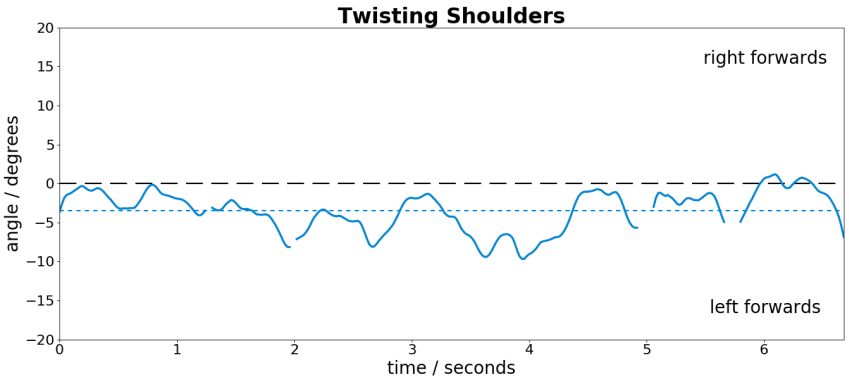


(a) Average shoulder twist.



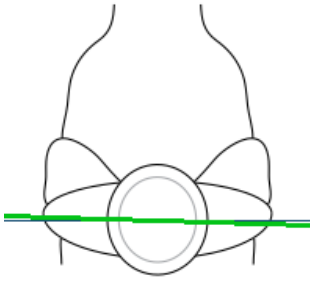
(b) Shoulder twist throughout the video.

Twisting Body - great!

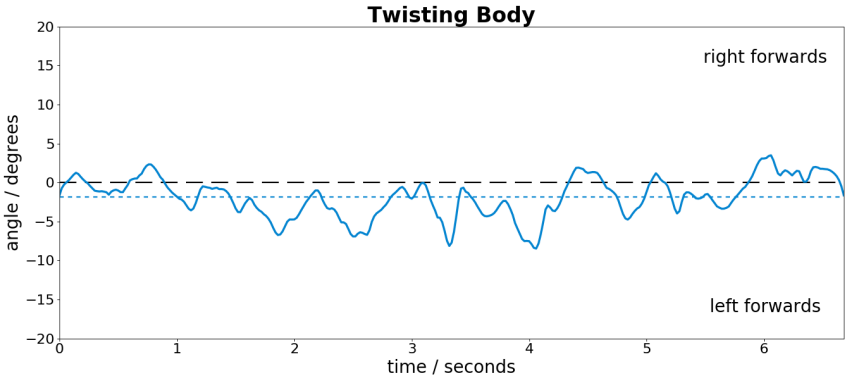
On average, you are twisting your body around to the **left** by -1°. As you move with the horse, the range of body twist is 4°.

$$Average : -1^\circ$$
$$Range : 4^\circ$$

In the image below on the left (a), the blue line shows the average amount you're twisting your body relative to the ideal position (twist=0, shown by the red line). The thinner black lines shows the range through which you're twisting throughout the video. The graph on the right (b) shows the variation in the amount your body is twisting (blue line) throughout the video. The ideal position, where the body is facing forwards (twist=0) is shown by the dashed red line. Your average position is indicated by the dotted blue line.



(a) Average body twist.



(b) Body twist throughout the video.