Equine ECG

University of BRISTOL

Equipment list: Equine ECG

Equipment for this station:

- Model horse
- Saddle
- Bridle
- ECG machine
- ECG leads
- ECG pads
- Blue tack

Within black briefcase

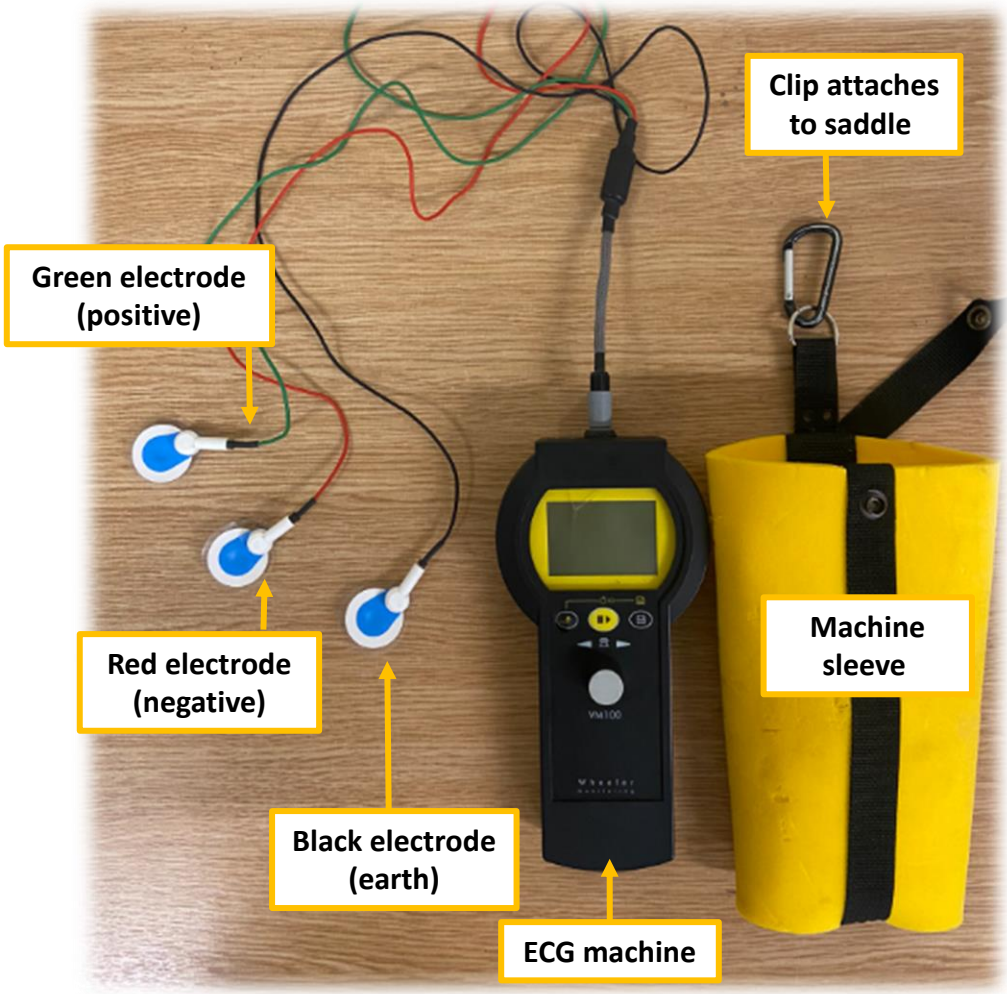
Considerations for this station:

- Refer to the CSL booklets *'CSL_H06 Placing a Bridle on a horse'* and *'CSL_H05 Placing a Saddle on a Horse*' to prepare the horse for exercise, prior to ECG placement.
- N.B. It is convention to initially approach a horse on its left (near) side; never walk behind a horse.

Anyone working in the Clinical Skills Lab must read the 'CSL_I01 Induction' and agree to abide by the 'CSL_I00 House Rules' & 'CSL_I02 Lab Area Rules'

Please inform a member of staff if equipment is damaged or about to run out.

The electrocardiography (ECG) machine



- The positioning of ECG leads on a horse varies depending on the circumstances:
  - Exercising – ideally all leads are on the same side of the horse, so they do not interfere with the saddle/rider.
  - Resting – the leads can be on either side of the horse and are usually contained within a "vest" so the horse can be left unattended e.g. for a 24hr trace.
  - Anaesthesia – depends on patient positioning as to what areas of the horse are accessible.
- To create an ECG trace, two electrodes (one positive and one negative), can be placed anywhere providing the heart sits between them. The potential difference between two electrodes is measured and produces the ECG trace
- There are other types of ECG machines. Familiarise yourself with the one you are going to use.

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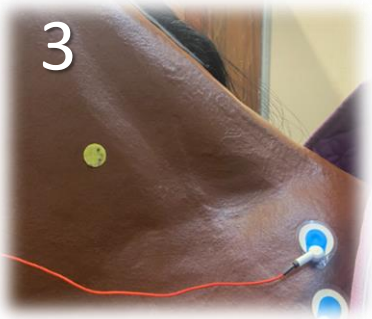
Clinical Skills:
Equine ECG

Start by gathering the equipment for an exercising ECG:

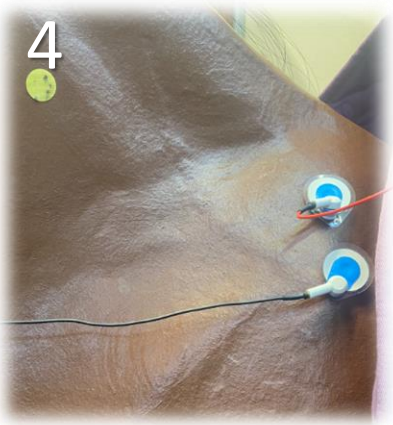
- ECG machine with three electrodes (red, green and black)
- Three ECG pads
- Blue tack
- A bridle and a saddle.

Assume that the horse is already restrained with a headcollar and tied up with a quick release knot. Place the bridle and saddle on the horse to prepare the horse for exercise. Refer to the CSL booklets *'CSL_H06 Placing a Bridle on a Horse'* and *'CSL_05 Placing a Saddle on a Horse*' for how to do this.



For an exercising ECG, start by attaching the red electrode to the left shoulder of the horse, cranial to the saddle and ventral to the withers.

Note: You will ll be using blue tack to attach the ECG pads to the model horse, but on a live horse the pads are self-adhesive.



Next, attach the black electrode to the left shoulder, directly ventral to where the red electrode was placed.

Attach the green electrode behind the girth on the left side.

Note: For an exercising ECG, all leads are on the left side, so that they do not interfere with the saddle and reins.

Clip the ECG machine to the D ring on the saddle on the left side.

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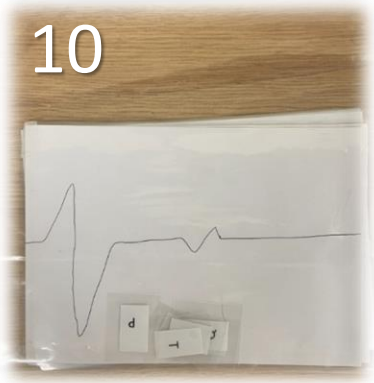
Clinical Skills: Equine ECG

You are now ready to start recording your exercising ECG.

For a resting ECG, position the black and green electrodes as for the exercising ECG, but pass the red electrode over to the right side of the horse.

Attach the red electrode to the right shoulder, cranial to the saddle and ventral to the withers.

Note: for a resting ECG in the live horse, the machine would be held in place with a vest, roller band or surcingle, rather than being attached to the saddle.



Label the laminated ECG trace with each phase of the ECG. Have a go at matching these to the related stages of the cardiac cycle and heart sounds.

Answers are on the 'I wish I'd known' page later in this booklet.

Resetting the station: Equine ECG

1. Remove all ECG leads and detach the ECG machine from the saddle
2. Place all ECG equipment back in the black case
3. Remove the saddle and place back on the saddle rack
4. Remove the bridle and place back on the bridle rack

Station ready for the next person:

Please inform a member of staff if equipment is damaged or about to run out.

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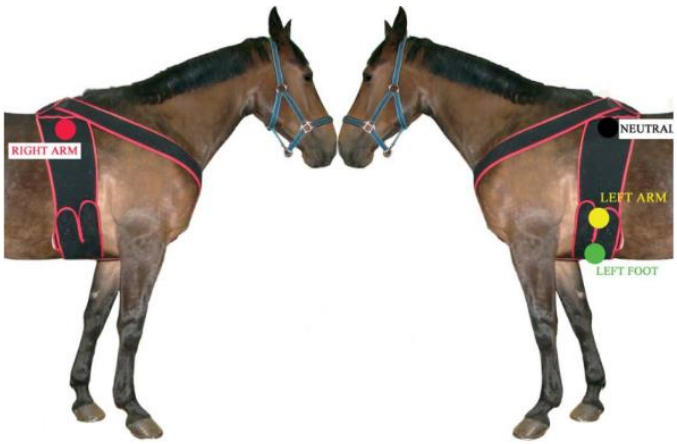
I wish I'd known: Equine ECG

- There are limitations to a resting ECG in horses due to their large cardiac reserve. Performance limiting cardiac disease and exercising arrhythmia rarely present at rest.
- There are various systems for resting ECGs. Vests or purpose-built straps are commonly used for 24-hour recordings. An additional yellow lead is often used in certain ECG models.



- It is helpful to relate the ECG trace to the stages of the cardiac cycle and the heart sounds that can be auscultated in a live horse. Remember, the ECG trace relates to the electrical activity of the heart. This will not directly correlate with the volume / type of sound that can be auscultated e.g., loud sound does not equal large peak on the ECG trace.