Alternative Restraint of Göttingen Minipigs for Blood Sampling

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Abstract:
Traditionally, Minipigs are restrained in dorsal recumbency to have access to the blood vessels in the neck. This method can be considerably as well as lifting and turning a larger Minipig on its back could touch some occupational health regulations issues. The sling has been proven to be a valuable restraint for various procedures with the Minipig. This study showed that with slight modification the sling can be used to restrain Minipigs for blood sampling and thus reduce strain on animals and personnel.

Materials and Methods

The aim of this study was to test whether the sling could be used as a restraint in various blood sampling situations. A standard sling was modified and several options explored to find the most satisfying design. As there was a height adjustable table in the facility a frame was custom made to fit this device so an ergonomically suitable working position can be obtained. The height is adjustable with an electric motor, even when the Minipig is in the sling. The actual sling is quite stretched in the frame and a cut out was made at the head end, to such a degree that the manubrium sterni of the Minipig is exposed when it hangs in the sling. Once the Minipig is placed in the sling, the head is supported by an assistant and slightly raised so the neck is nicely stretched. At the same time the table can be raised to give easy access to the vessels. Sitting in a low chair the technician can now obtain a blood sample.

Results, Conclusion and Discussion

One of the goals was to find a method that is practical and works as well in demanding settings like TK/PK sampling. We could come up with a technique and design that work flawlessly in most cases if the Minipigs are properly acclimatized. The Minipigs are calm, don't appear to be stressed and no vocalization was observed. Less manpower than usual was required and we were able to take a sample every 2 minutes with time to spare.

The system was tested on males as well as females ranging from 5 to 25 kg. It proved to be particularly successful in the range >10kg, however after a certain size it is advised that two persons lift and place the Minipig in the sling. Minipigs in the low weight range might be restrained by a sitting technician (picture on the right)

It is imperative to take your time when placing the Minipig in the sling. You need to give this procedure the outmost attention when you do it the first time with the Minipig because the outcome of this first attempt will define the character of all the subsequent sling placements.

The technique of the actual sampling needs to be adapted to the new position. Practice has shown that technicians adapt quickly to the new angle of view and even not so experienced technicians have no problems obtaining a blood sample with this type of restraint.

For more information and help in design of the devices please contact the author at: adz@ellegaard.dk