

# Effect of carbon dioxide stunning on animal welfare in lambs

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## CONCLUSIONS

Lambs react aversively to exposure to high concentrations of carbon dioxide.

## INTRODUCTION

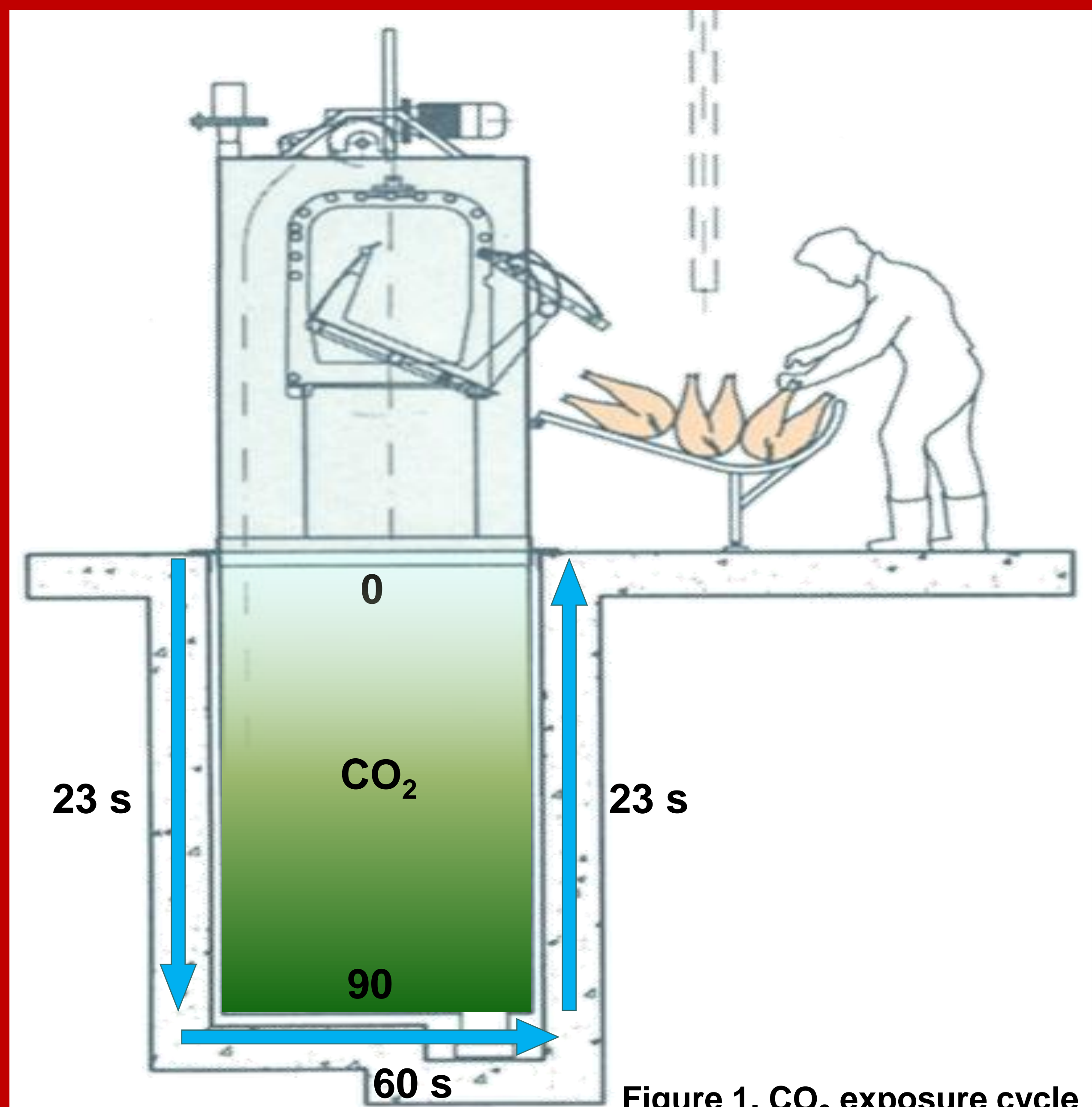
Electrical stunning is the most widely used method in lambs. In this system the animals are individually restrained, provoking stress prior to slaughter. The exposure to CO<sub>2</sub> is widely used in pigs and poultry. Animals are stunned in groups with the minimum amount of restraint and handling stress. However, in these species the inhalation of CO<sub>2</sub> at high concentrations causes irritation of the nasal mucosal membranes and breathlessness prior to loss of consciousness.

## OBJECTIVES

The aim of this study was to assess the aversion to 90% of CO<sub>2</sub> inhalation.

## METHODS

Sixteen male lambs of 22.38±0.525 kg live weight were loaded in pairs into a crate and descended into a well with 90% CO<sub>2</sub> on the bottom position. The CO<sub>2</sub> exposure total cycle lasted 106s (descent for 23s, stationary at the bottom for 60s and 23s for ascent). During the exposure to the CO<sub>2</sub> the behavioural parameters scored were: retreat attempts, headshaking and sneezing, vocalization, gasping, loss of posture and hyperventilation.



## RESULTS

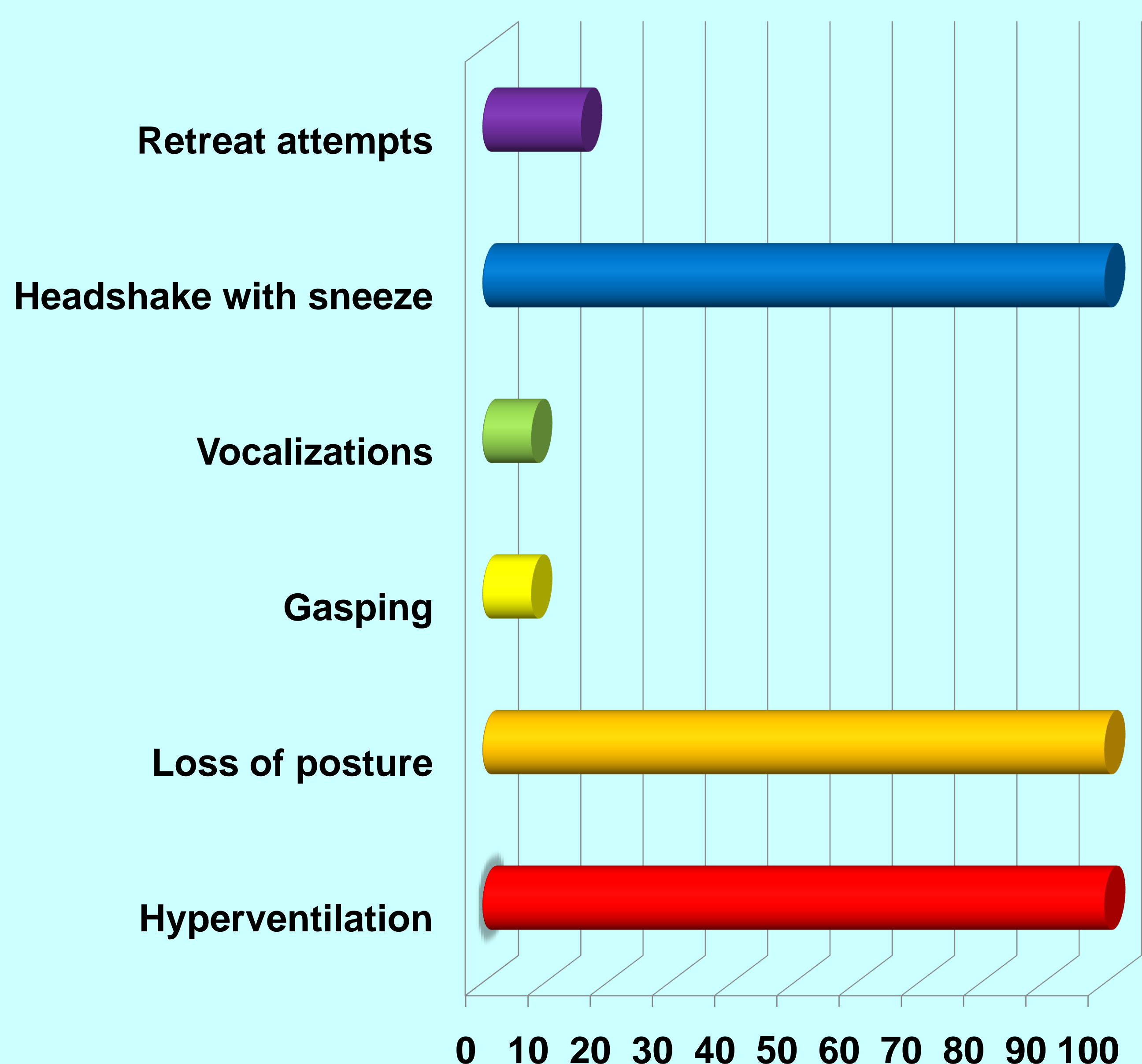


Figure 2. Percentage of lambs showing retreat attempts, headshake and sneezing, vocalisations, gasping, loss of posture, hyperventilation and time to appear these behaviours during the exposure to 90% of CO<sub>2</sub>

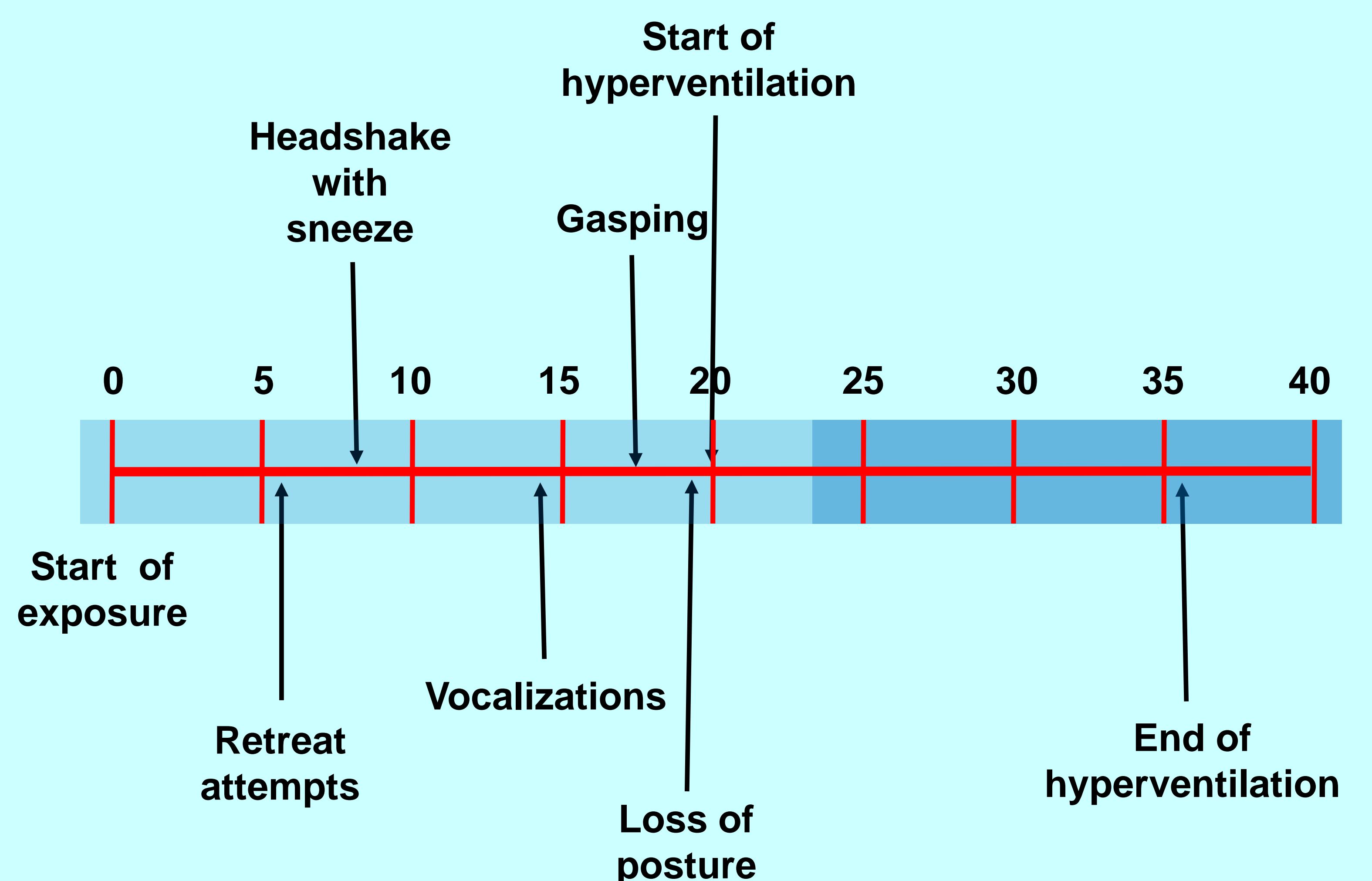


Figure 3. Time to perform retreat attempts, headshake and sneezing, vocalisations, gasping, loss of posture, hyperventilation and time to disappear the hyperventilation during the exposure to 90% of CO<sub>2</sub>