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Different solutions have been investigated in order to reduce pain associated with piglet castration. Four treatments were compared in a first experiment: sham castration (S), castration without analgesia or anaesthesia (V), castration with local anaesthesia (1ml lidocaïne 2% /testis, L) and castration with anti-inflammatory treatment (0.75 ml ketoprofene 1% / piglet, K). Considering that anaesthesia is time consuming, labour demand has been compared between V and L treatments in order to evaluate the cost of this technique.

## MATERIALS AND METHODS

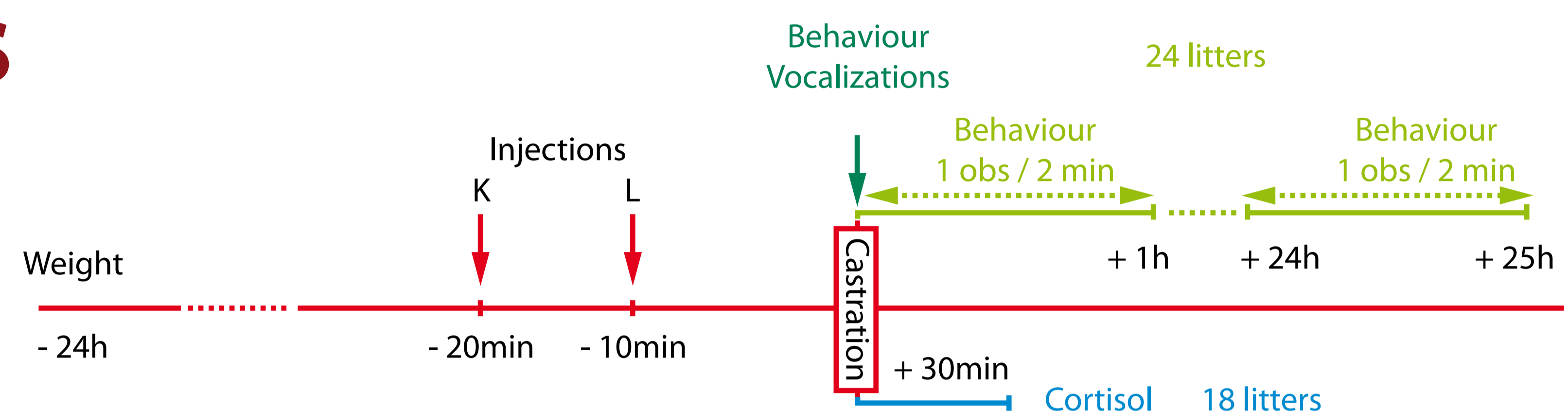
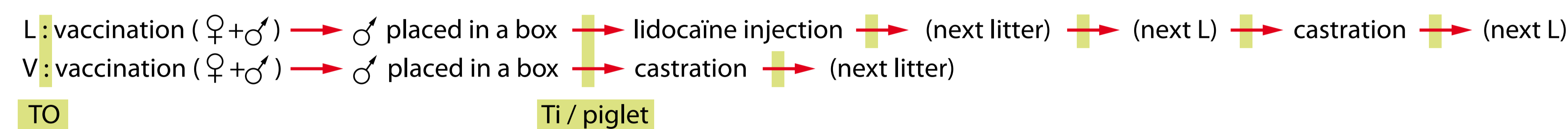
### Experiment 1

4 males were allocated within litters to 4 treatments (48 litters = 48 blocs)

- V: castration without analgesia or anaesthesia
- S: sham castration
- L: castration with local anaesthesia (1ml lidocaïne 2% / testis)
- K: castration with anti-inflammatory treatment (0.75 ml ketoprofene 1% / piglet)

### Experiment 2

2 persons  
 2\*6 litters / person / treatment



## RESULTS

### Experiment 1

#### Behaviour during castration (Table 1)

- call intensity and number of piglets trying to escape during castration were reduced under local anaesthesia.
- no effect of ketoprofene on these parameters.

Table 1 : Treatment effects on behaviour, vocalization, castration duration and cortisol level (mean ± SEM)

	K	L	S	V	Stat.
Body movements <sup>(1)</sup> , % piglets	79 <sup>a</sup>	38 <sup>b</sup>	8 <sup>c</sup>	96 <sup>a</sup>	P<10 <sup>-4</sup>
Vocalizations <sup>(2)</sup> , dB	113 <sup>a</sup> ± 4	103 <sup>b</sup> ± 11	99 <sup>b</sup> ± 16	113 <sup>a</sup> ± 4	P<10 <sup>-4</sup>
Castration duration <sup>(2)</sup> , sec	22 <sup>ab</sup> ± 5	19 <sup>c</sup> ± 6	20 <sup>bc</sup> ± 2	24 <sup>a</sup> ± 6	P<10 <sup>-2</sup>
Cortisol <sup>(2)</sup> , ng/ml	128 <sup>b</sup> ± 48	177 <sup>c</sup> ± 64	67 <sup>a</sup> ± 58	197 <sup>c</sup> ± 58	P<10 <sup>-4</sup>

(1) : Chi Square test ; (2) : ANOVA

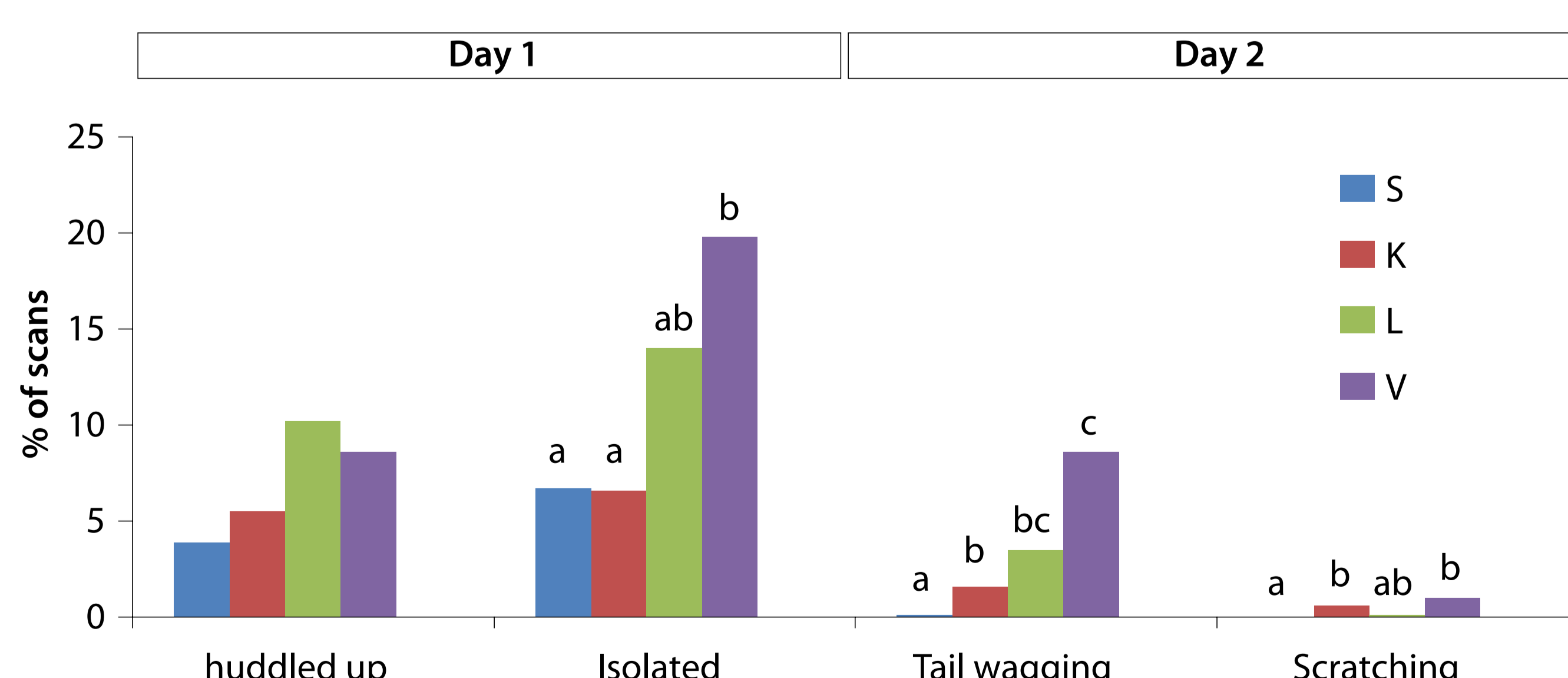
### Cortisol level

- local anaesthesia had no effect on plasma cortisol level whereas AINS induced a reduction of it.

### Post castration behaviour (Fig 1)

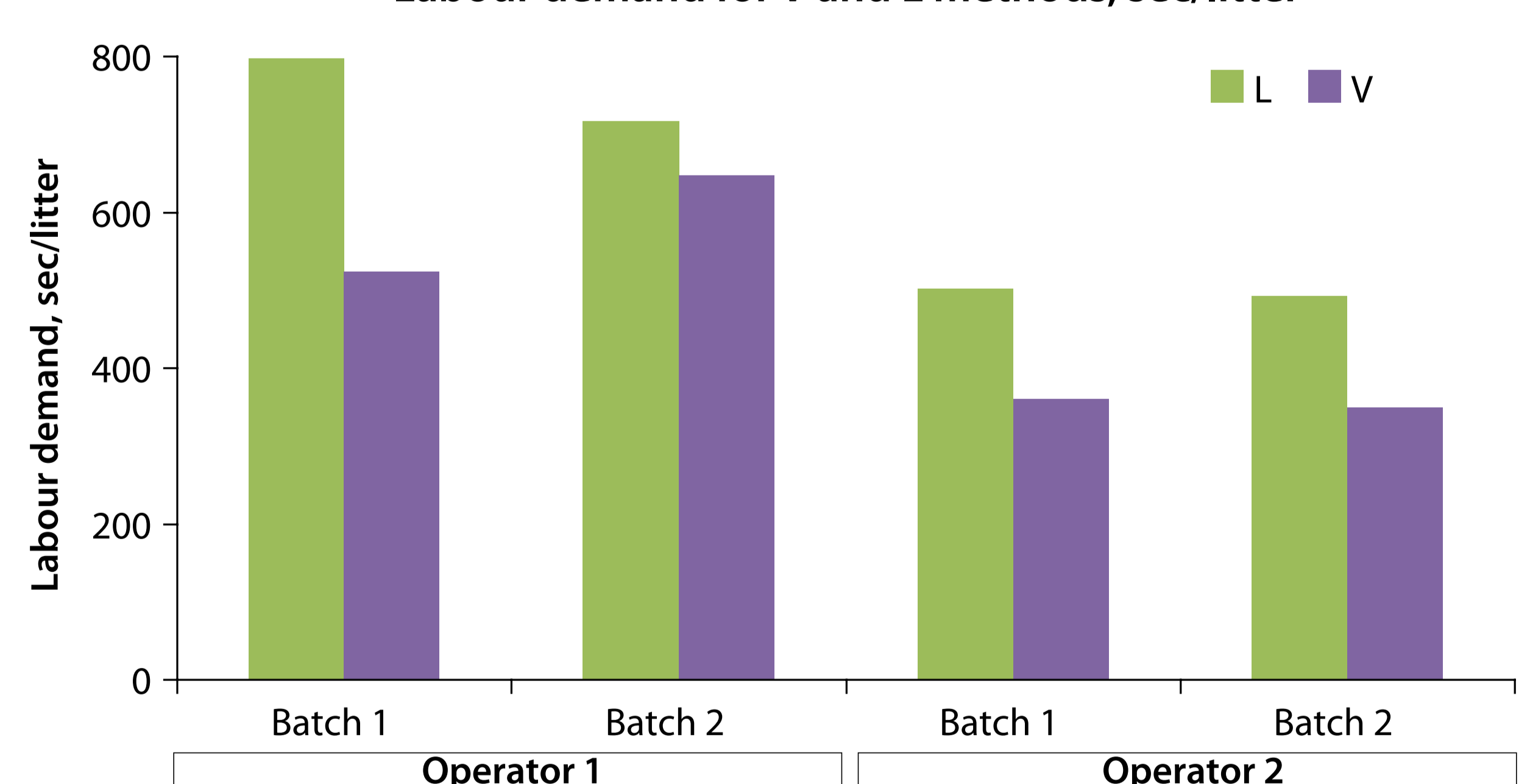
- on D0, K piglets tended to behave like S ones. Exploring and standing were more frequent in K than in L and V piglets.
- on D1, no difference between treatments concerning non-specific behaviours.

Fig1 : Main treatment effects on pain-related behaviour after castration



### Experiment 2

Labour demand for V and L methods, sec/litter



- Treatment, batch of animals and operator had significant effects on labour demand.
- Mean anaesthesia and castration duration per piglet were 30 ± 8 sec and 36 ± 10 sec respectively.
- Local anaesthesia increased labour demand from 11 to 52%.

## Conclusion

Piglets feel pain during and after castration. Ketoprofene had a limited impact during castration but reduced post-operative pain. The main effect of local anaesthesia concerned pain during castration. The cost of this method was estimated at about 0.348 € in this experiment. Some L piglets presented convulsions: further studies should determine more precisely the amount of lidocaïne that should be injected to obtain the maximal pain reduction without negative side-effects.