

# Behaviour in piglets vaccinated with two different vaccines based on different adjuvants



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## INTRODUCTION

Every day, millions of piglets are vaccinated throughout the world. The vaccinations are carried out to protect the piglets against infectious diseases, but due to side effects, some vaccinations might actually by themselves provide a challenge to the piglets' wellbeing, especially the vaccines that have an oily adjuvant. The present study examines the impact of two different vaccines against PCV2 and M hyo on the behavior of the piglets after vaccination.

## MATERIALS AND METHODS

The experiment was carried out in a commercial pig herd. At 4 weeks of age, the piglets were weaned and transported to a sectioned nursery, where they were distributed in pens according to size. Piglets of the same size were sharing one feeder.

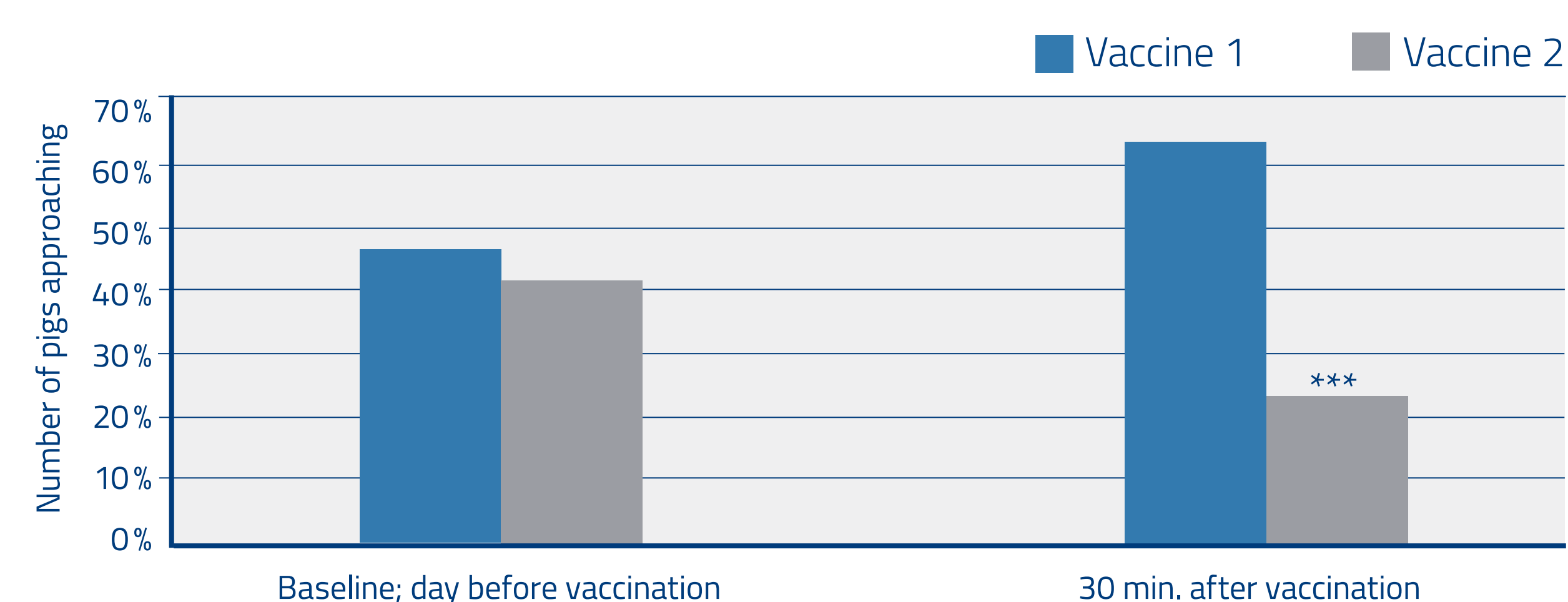
In the morning on the day after weaning, all piglets were vaccinated against PCV2 and M hyo. Piglets on the right side of each feeder were vaccinated with vaccine A with a aqueous polymer as adjuvant (FLEXcombo®, Boehringer Ingelheim), and piglets on the left side of the feeders were vaccinated with vaccine B with an oil-in-water adjuvant (Porcilis PCV M Hyo, MSD Animal Health). Vaccinations were done according to label, including warming of vaccine B before injection. 2x2 pens around 2 feeders were recorded on video cameras after vaccination (Garmin VIB HD action camera), with 83 pigs/group in total. 30 minutes after vaccination, an approachability test was made, counting the number of pigs approaching a human observer as described by (1). The observer was the same on the day before and the day of vaccination.

From the video recordings, the number of piglets visiting the feeder and the drinker was counted. The activity level of the piglets was summed up as number of piglets not lying down with a 5 minutes interval. The counting started after the approachability test had been carried out. Statistical analysis was made with Fishers Exact test, with  $p=0.05$  as level of significance

## RESULTS

Pigs vaccinated with vaccine 2 were significantly less willing to approach a human observer in the pen after vaccination than pigs vaccinated with vaccine 1 ( $p < 0.001$ ). Before vaccination there was no difference in the willingness to approach ( $p = 0.534$ ) (fig. 1).

Figure 1: Results from approachability test<sup>1</sup>



No. of pigs approaching an observer in the pen within 15 sec. (83 piglets per vaccine). On the day of vaccination, the observer was known to the piglets. \*marks statistically significant differences (\*\*\*)  $p < 0.001$ .

Vaccination with vaccine 2 resulted in 48% reduction of the number of visits to the feeder and 73% reduction in the number of visits to the drinking nipple (table 1).

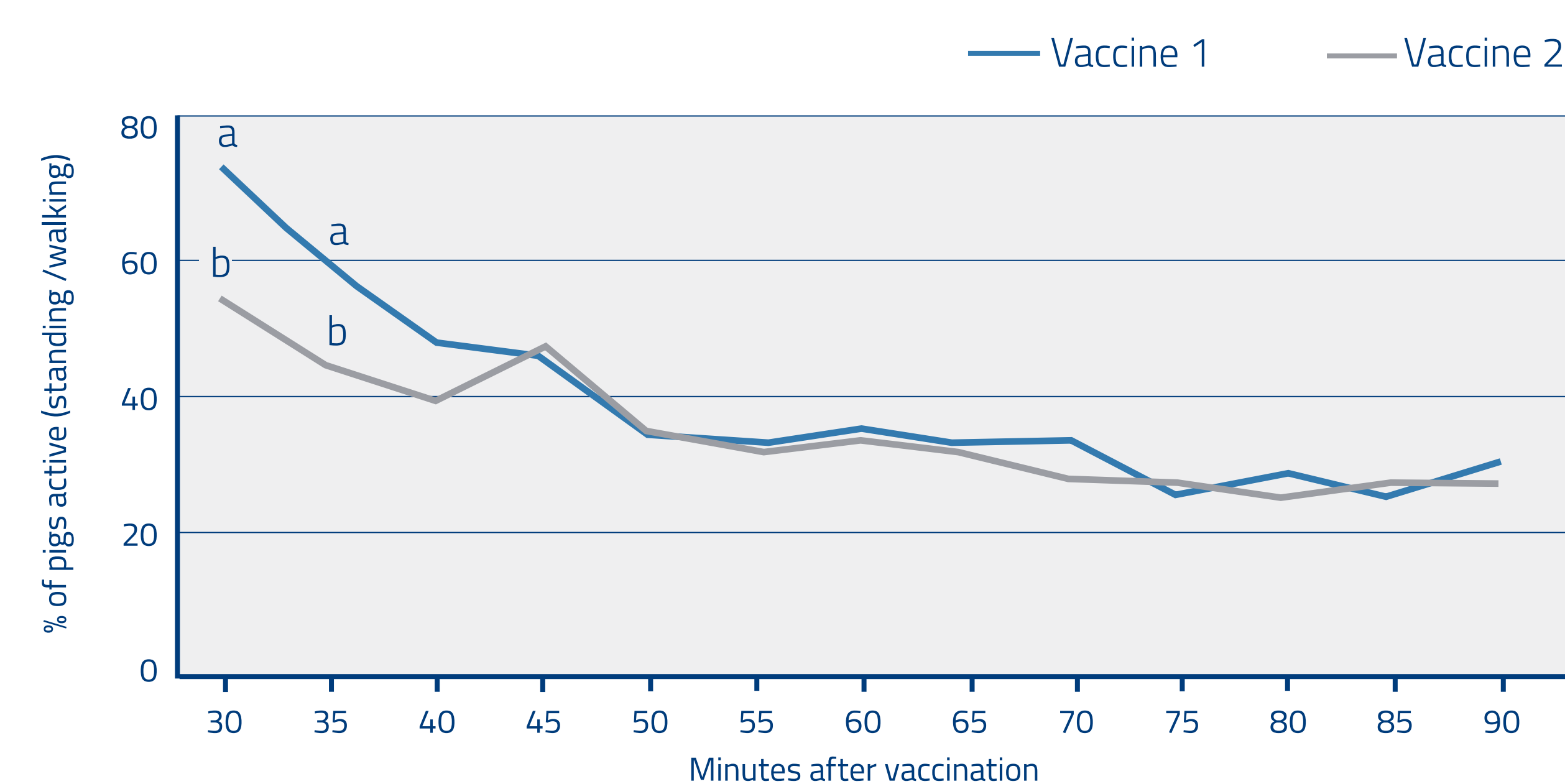
Table 1: Visits to feeder and drinking nipple.

	Mean number of visits per pig	
	Feeder	Drinker
Vaccine 1	1,9	1,1
Vaccine 2	1,0	0,3

Video recording 30-120 minutes after vaccination.

The overall activity level was significantly different in periods, where people were present in the barn (30 – 35 min.;  $p < 0.001/0.03$ ), with pigs vaccinated with vaccine 1 being more active. When left alone, pigs in both groups settled down (fig. 2).

Figure 2: Activity level in pigs after vaccination.



a,b show time points with a significant difference between vaccine 1 and 2.

## DISCUSSION AND CONCLUSION

This study shows that the adjuvant has a significant impact on the behavior of piglets after vaccination. Vaccinations with an oily adjuvant lead to a reduced level of activity and reduced intake of feed and water. This might give the piglets a drawback in growth rate compared to piglets vaccinated with a milder adjuvant.

Hence, if two vaccines have a comparable efficacy, a vaccine with a aqueous polymer as adjuvant should be chosen over a vaccine with an oily adjuvant due to the risk of growth retardation induced by side effects.

## REFERENCES

1. Fangman et al. J Swine Health Prod. 2011;19(1):19 – 25.
2. Seate J et al. 2015 ESPHM Conf. Proc. 025
3. Payne B et al. 2015 ISERPD Conf. Proc.221

