

## **EFFECT OF WEANING AT DIFFERENT AGE INTERVALS ON THE BEHAVIOURAL PATTERNS IN LARGE WHITE YORKSHIRE PIGLETS**

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**Abstract:** An experimental trial was conducted to assess the effect of weaning at different age intervals on post weaning behaviour of Large White Yorkshire (LWY) piglets. Thirty piglets of comparable body weights were randomly and equally divided into Three groups (Group-I, II and III). The piglets were weaned at the age of 28, 42 and 56 days. During experimental period and post weaning behaviour were recorded and the data were analyzed by one way ANOVA. behavioural study was recorded over a period of seven days in all the three groups, in Group I playing and huddling behaviour were significantly observed, whereas in Group II standing behaviour and frequency of feed intake were significantly observed, whereas in Group III lying behaviour, frequency of water intake, defecation and urination were significantly observed than other two groups.

**Keywords:** LWY, weaning age, playing, lying, huddling, standing, behaviour.

### **INTRODUCTION**

Pig is one of the most efficient feed converter (FCR 1:3) and most potential sources of meat production among domesticated animals after broiler (Prasanna et al., 2016). They are prolific breeders with litter size of 8-12 in number and short gestation period of 112-116 days. They are known for high fertility, good meat yield with high protein content and highest dressing percentage of 65-80% (Bhat et al., 2010). They give an assured income to the farmer round the year. Weaning is a substantial stressor caused by the loss of the maternal experience (milk, pheromones, touching/comforting), and abrupt social, nutritional and environmental changes (Niekamp et al., 2007). Weaning can affect the behavior, physiology and performance of pigs (Jarvis et al., 2008). Therefore, the present study was aimed to know the effect of early weaning at different age intervals on the behavioural patterns in Large White Yorkshire (LWY) piglets.

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## MATERIALS AND METHODS

The present study was carried out at the piggery unit of Department of Instructional Livestock Farm Complex, Veterinary College, Bengaluru, KVAFSU, Bidar, to observe the behavioural patterns of Large White Yorkshire piglets weaned at different age intervals. The experimental study was conducted from birth to sixteen weeks (112 days) of age, thirty piglets of comparable body weights obtained from sows of Large White Yorkshire were randomly selected and equally divided into Three groups (Group-I, II and III). The piglets were weaned at the age of 28 days (Group-I), 42 days (Group-II) and 56 days (Group-III).

Behavioural patterns of piglets was studied immediately after weaning in all the three groups two hours in the morning (7.00 to 9.00 AM), two hours in the afternoon (1.00 to 3.00 PM) and two hours at night (7.00 to 9.00 PM) and the observations were recorded for a period of one week (Seven days). The activities recorded include frequency of feed and water intake, frequency of urination and defecation, playing, standing, lying, belly nosing, tendency to huddle together, biting of tails and ears. The experimental data was subjected to statistical analysis by using the Graph pad prism version 5.01 (2007), a computerized software. One-way ANOVA with Tukey's post test was employed as described by Snedecor and Cochran (1994) to know the differences between various groups. The values were expressed as Mean $\pm$  SE and the level of significance or non-significance was determined at P value of 0.05.

## RESULTS

The following behavioural activities of the piglets were recorded for a period of one week (Seven days) during the experimental period.

**Frequency of feed intake:** Frequency of piglets spent on voluntary oral ingestion of feed offered.

**Frequency of water intake:** Frequency of piglets spent on voluntary oral ingestion of water offered.

**Frequency of urination:** Frequency of piglets spent on voiding urine.

**Frequency of defecation:** Frequency of piglets spent on voiding faeces.

**Playing:** The behaviour was observed by biting and suckling littermates, scratching their own bodies, scampering and pushing etc.

**Standing:** Standing posture without exhibiting any other behaviour.

**Lying:** The time spent by piglets on lying, either on lateral or ventral recumbency or huddling among piglets were observed.

**Belly nosing:** A distinctive sequence in which one piglet rubs a pen-mate's belly with rhythmic up and down movements of its snout.

**Tendency to huddle together:** The time spent on hurdle together for.

**Biting of tails and ears;** Aggressive behaviour

The mean  $\pm$  SE different behavioural patterns that were exhibited by the piglets due to the influence of weaning age at 28 days (Group-I), 42 days (Group-II) and 56 days (Group- III) are presented in Table 1 and Table 2. Statistical analysis revealed that the time spent for playing behavior was more pronounced for Group I piglets than Group II Piglets and least by Group III. The Standing behavior was more in Group II compared to Group I and Group III. The piglets in Group III spent more time in Lying than Group II and Group II. Belly nosing was more noticed in Group I, compared to Group II and Group III, The overall mean huddling time spent by piglets was slightly more in Group I, compared to Group II and Group III. The piglets in Group II were spent more time for fighting (biting of tails and ears) compared to Group I and Group III.

Frequency of feed intake was observed more in Group II compared to Group III and less in Group I. Frequency of water intake was observed more in Group III, compared to Group II and less in Group I. Frequency of urination was observed more in Group III, compared to Group I and less in Group II. Frequency of urination was observed more in Group III, compared to Group II and less in Group I.

By mean comparison, it was found that Group I showed significantly ( $P < 0.05$ ) higher playing, huddling and belly nosing behaviour compared to Group II and Group III. Group II showed significantly ( $P < 0.05$ ) higher standing and biting of tails and ears behaviour compared to Group III and Group I. Group III showed significantly ( $P < 0.05$ ) higher lying behavior compared to Group III and Group II.

## DISCUSSION

The mean  $\pm$  SE different behavioural patterns that were exhibited by the piglets due to the influence of weaning age at 28 days (Group-I), 42 days (Group-II) and 56 days (Group- III) were presented in Table 1 Table 2 and depicted graphically in Fig 1 and Fig 2.

The playing behavior was in accordance with Hohenshell *et al.* (2000), Davis *et.al.* (2006), Suryanarayana *et al.* ( 2011) and Sravanthi *et al.* (2016) their findings revealed that the piglets weaned earlier than the conventional weaning period of 56 days were more active and healthy.

Standing behavior was in accordance with Sravanthi *et al.* (2016) but the present study findings were in contrast to Hohenshell *et al.*, (2000) who reported that no significant difference ( $P > 0.13$ ) between early and late weaned crossbred pigs.

Lying behaviour was in accordance with Sravanthi *et al.* (2016) but the present study findings were in contrast to Hohenshell *et al.* (2000) and Suryanarayana *et al.* (2011), lying were more pronounced at cool hours of the day. Breed and climate might be the reason for this conflicting result.

Belly nosing in the present study was observed more in early weaned piglets than conventional weaning at 56 days of age and these findings were in accordance with Worobec *et al.* (1999) and they concluded that the early weaned piglets exhibited re-directed nursing behaviour (belly-nosing), decreased social contact, less interest in their surrounding environment.

Huddling behaviour was in accordance with Sravanthi *et al.* (2016) but the present study findings were in contrast to Hohenshell *et al.* (2000) and Suryanarayana *et al.* (2011). The huddling behavior was an indication of chilling temperatures, Breed and climate might be the reason for this conflicting result.

Biting of Tails and ears in the present study findings were correlating the observations of Suryanarayana *et al.* (2011) and Sravanthi *et al.* (2016)

In addition to the above behavioural observations other four activities were also recorded during the study period in terms of number of frequencies.

Frequency of feed intake was observed more in Group II compared to Group III and less in Group I. Frequency of water intake was observed more in Group III, compared to Group II and less in Group I. Frequency of urination was observed more in Group III, compared to Group I and less in Group II.

The change in behavioural patterns may be due to maternal instinct in early weaned piglets. It may also mainly due to weaning stress and change in environmental variations.

## **CONCLUSION**

From the findings of the present study it may be concluded that majority of the early weaned piglets at 28 days and 42 days spent more time in playing, belly nosing and biting of tails and ears than lying, and standing compared to conventional weaning at 56 days of age, during post weaning period of one week. It was also observed that lying was more pronounced at cool hours of the day and huddling behavior was an indication of chilling temperatures.

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**Table 1. Post weaning behavioural patterns of piglets weaned at different age intervals**

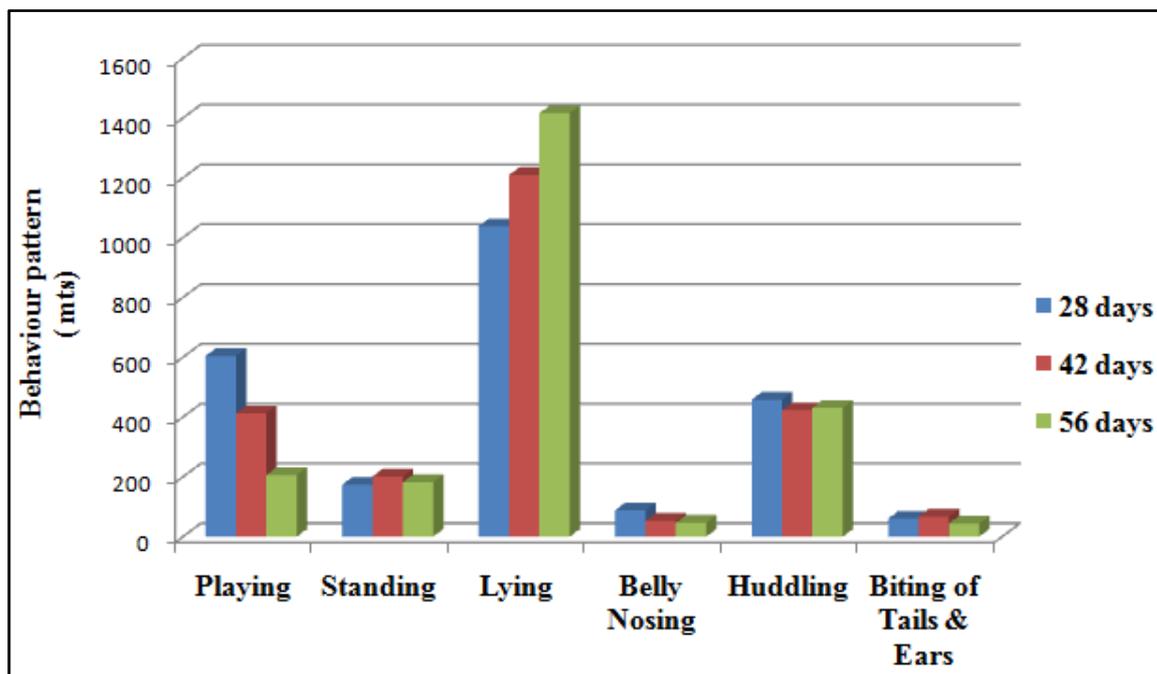
Behaviour pattern(mts)	Weaning Groups					
	Group I		Group II		Group III	
	Mean $\pm$ SE	Percent	Mean $\pm$ SE	Percent	Mean $\pm$ SE	Percent
<b>Playing</b>	604.80 $\pm$ 2.34 <sup>a</sup>	24	412.2 $\pm$ 7.55 <sup>b</sup>	16.36	206.38 $\pm$ 5.00 <sup>c</sup>	8.19
<b>Standing</b>	173.88 $\pm$ 3.91 <sup>a</sup>	6.90	201.60 $\pm$ 3.4 <sup>b</sup>	8.00	182.17 $\pm$ 4.54 <sup>a</sup>	7.29
<b>Lying</b>	1038.00 $\pm$ 6.31 <sup>a</sup>	41.19	1209.60 $\pm$ 5.08 <sup>b</sup>	48	1416.20 $\pm$ 14.00 <sup>c</sup>	56.19
<b>Belly nosing</b>	88.70 $\pm$ 1.05 <sup>a</sup>	3.52	53.42 $\pm$ 0.93 <sup>b</sup>	2.12	46.84 $\pm$ 3.12 <sup>bc</sup>	1.86
<b>Huddling</b>	458.38 $\pm$ 8.53 <sup>a</sup>	18.18	423.36 $\pm$ 7.70 <sup>b</sup>	16.8	430.92 $\pm$ 7.39 <sup>ab</sup>	17.10
<b>Biting of Tails and Ears</b>	60.48 $\pm$ 1.55 <sup>a</sup>	2.40	67.28 $\pm$ 1.21 <sup>b</sup>	2.67	44.35 $\pm$ 2.11 <sup>c</sup>	1.76

**Note:** Means bearing same superscripts are not significantly different at P<0.05.

**Table 2. Frequency of behavioural patterns in post weaned piglets weaned at different age intervals**

Behaviour pattern(No of frequencies)	Group I	Group II	Group III
<b>Frequency of Feed intake</b>	21.00	24.00	22.00
<b>Frequency of Water Intake</b>	56.00	60.00	65.00
<b>Frequency of Urination</b>	20.00	18.00	25.00
<b>Frequency of Defecation</b>	11.00	13.00	14.00

**Fig. 1: Post weaning behavioural patterns of piglets weaned at different age intervals**



**Fig. 2: Frequency of behavioural patterns in post weaned piglets weaned at different age intervals**

