

Review of “The effect of weaning age on foal growth and radiographic bone density”

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Why was this study done?

Weaning is a stressful event in a foal’s life. Changing from the easily digestible nutrients in milk to the grass and grain diet of a more mature horse almost always leads to **a temporary lag in feed intake, weight gain, and skeletal development**. The immediate negative impact on growth is generally less pronounced when foals are weaned at six months of age or later in comparison to weaning at four and a half months of age. This study examined the **long-term effect of earlier or later weaning on weight gain, withers height, cannon circumference, and bone density**.

How was the study conducted?

Fifteen foals (seven Quarter Horses and eight Thoroughbreds) were placed in two groups. Foals in the first group were **weaned at 140 days of age**, and foals in the second group were **weaned at 182 days of age**. Each group was balanced for breed, gender, and birth month, factors that have been shown to affect growth parameters.

Prior to weaning, mares and foals **grazed** for 22 hours a day. The horses were **stalled** for two hours each morning and mares were given pelleted feed. Foals were not fed separately but had access to the mares’ feed. **After weaning** the foals were **pastured** in groups with an older “baby sitter” horse. They were allowed to graze 22 hours a day and also had free access to **alfalfa hay**. They were **stalled** each morning and given the same pelleted feed the dams had been fed. **Pellets were again offered in mid-afternoon** in individual feeders placed in the pasture. This feeding program was **designed to produce a moderate growth rate**.

The foals were weighed and measured at three-week intervals before weaning, at weaning, a week after weaning, and at 3-week intervals after weaning. **Rate of gain, bone density, and skeletal growth were recorded** and analysis of variance was used to determine the effect of weaning age.

What results were found?

Average daily gain was depressed in both the early-weaned and late-weaned groups, but had **returned to pre-weaning rates six weeks after weaning** for both groups. The amount of depression was **similar for both groups**. A strong positive correlation was found between pre-weaning average daily gain and growth depression in the early-weaned foals, but this correlation was not seen in foals in the late-weaned group.

Quarter Horse foals were heavier and had higher daily gains than Thoroughbred foals before weaning. This trend was not obvious after weaning. Fillies tended to be somewhat heavier than colts before and after weaning, but daily gains were similar between the sexes.

Wither height did not seem to be affected by weaning, either early or late. **Increase in cannon bone circumference was somewhat depressed** by early weaning but not by late weaning. **By the age of seven months, this rate was the same** for both sets of foals. Cannon circumference increase was not influenced by sex or breed in this study.

Bone density did not appear to be influenced by weaning time, breed, or sex. Differences were found in density of the third metacarpal between the left and right legs across treatments, and the authors suggest measurement of both forelimbs in studies to assess the effects of diet or exercise on bone density.

What do the results tell us about management of foals at weaning?

Although this study found slight differences in some measurements immediately after weaning, no significant long-term differences were found between foals weaned at four and a half months or six months of age. These data indicate that **there is no growth advantage for foals allowed to nurse until six months of age, and likewise no growth disadvantage for foals weaned at four and a half months**.

At least one other study has shown that **foals confined to stalls during the weaning period had some loss of bone density**. Foals in the present study were kept on pasture and did not show a similar loss.

From these data it would seem that **late weaning carries no advantage over early weaning in relation to growth and bone density** of foals kept on pasture the majority of the time.

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