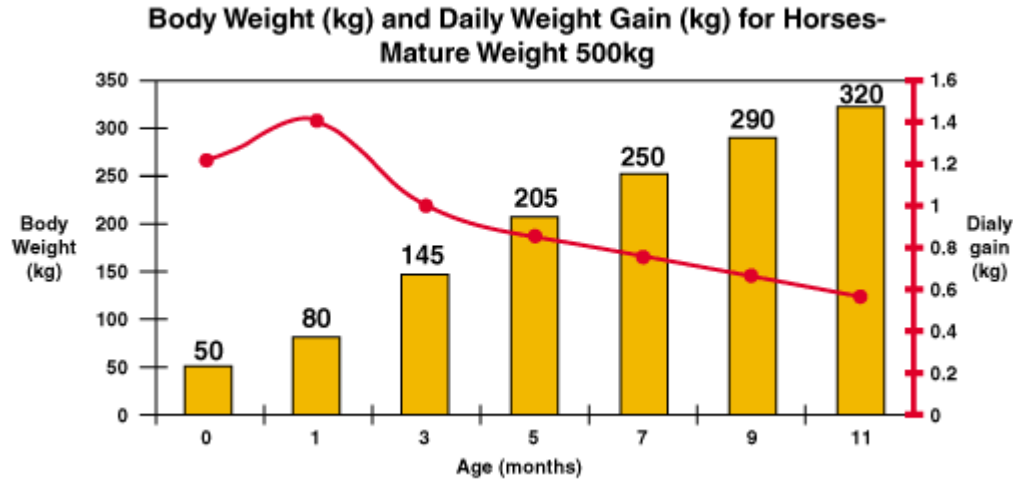


# Guiding the Growth and Development of Thoroughbred Foals

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Although mystery and controversy surround the feeding of young horses, we are producing an athlete, so soundness and proper bone development must be of paramount importance. The potential to develop chronic and debilitating bone diseases occurs early in life. **Incorrect nutrition** is as important as **poor conformation** in the development of **unsoundness**. But, unlike conformation faults, incorrect nutrition is **'the hidden handicapper'**. Weaknesses developing in bones and joints due to unbalanced nutrition, are often not obvious until they are so far advanced as to cause lameness and breakdowns, sometimes not for months or years - not until the horse is under the pressure of training. The correct nutrition of foals, weanlings and yearlings is essential for their productivity and longevity as racehorses and at no other stage in a horse's life have we greater opportunity to guide growth and development than through correct nutrition at weaning.

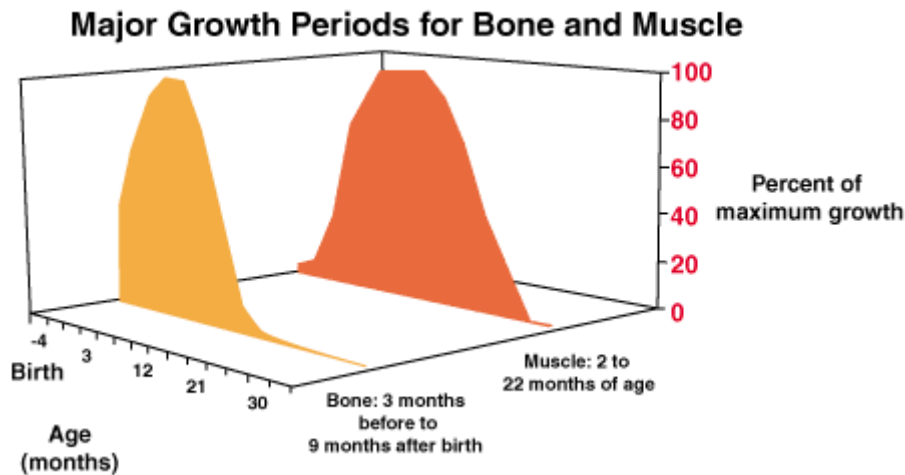
Due to increases in the feeding of young horses, growth rate is highest in the first 12 months and a greater percentage of mature weight is attained early.



The period of **maximum risk** for the development of **skeletal abnormalities** occurs when weight gain is high. Thus it is critical that we understand and manage this period of rapid growth **because as well as size and weight, we must be concerned about 'soundness'**.

**Maximum growth or optimum growth?** Height and weight are important, but *maximum* growth rate is not compatible with *optimum* skeletal development. Maximum growth rate is not difficult to achieve - just provide free access to high quality nutrition. But, achieving *optimum growth* is more difficult and requires much thought and study - a delicate balance is required between not feeding quite enough to achieve best results, and overfeeding just enough to cause developmental bone diseases.

The evaluation of growth requires a great deal of observation and assessment. Foals do not grow simply in weight and size - they also have specific development at specific times. The tissues and organs of the body grow at different rates.

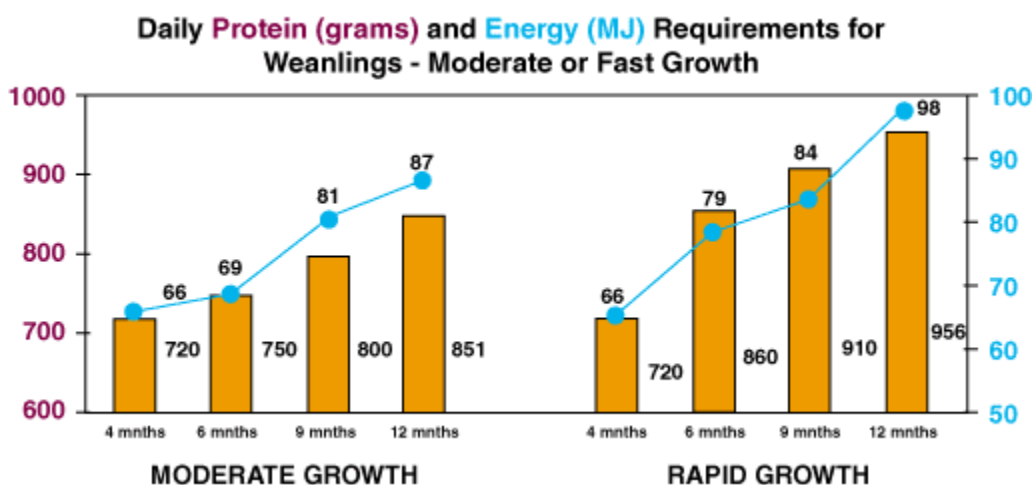


**Developmental Orthopaedic Disease (DOD) = bent and twisted legs, epiphysitis, contracted tendons, wobblers, hocks swellings, club feet and fractured sesamoids.** Both excesses and deficiencies of nutrients during the first 12 months of life can cause abnormalities in bone growth. High energy (28% over recommended levels) and combined high energy-high protein (30% higher than recommended levels) diets have both been shown to cause **bone growth disturbances, cartilage damage and a reduction in the calcium and phosphorus deposited in bone, ie reduced mineralisation.** Large irregular meals produce wide fluctuations in the levels of hormones that control bone growth. Excessive phosphorus, an unbalanced calcium to phosphorus ratio, copper deficiency, sudden growth spurts, rapid growth, trauma and genetics have all been identified as risk factors for DOD.

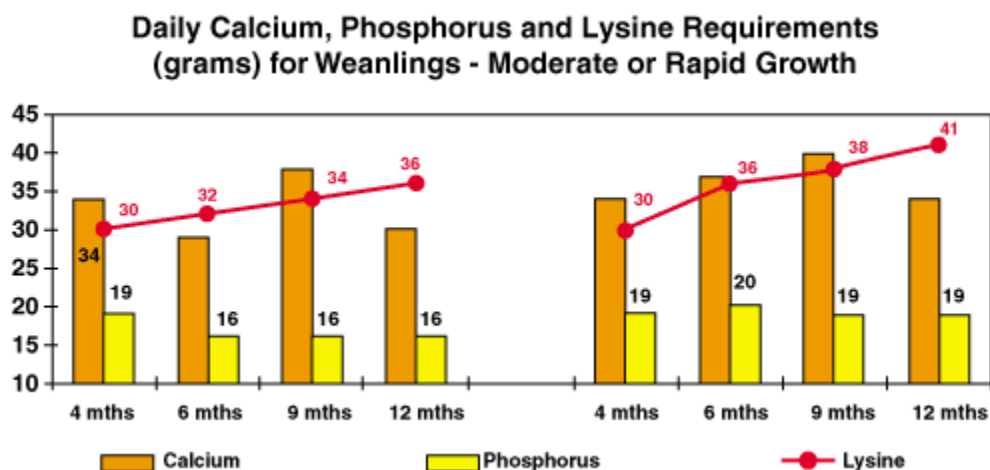
But we **can** do something about these **risk factors.**

**What to Feed:** For most of the 50-60 million year evolution of the horse, stud nutrition has been based on pasture and mares milk. But to produce rapidly growing, early maturing racehorses, requires more minerals and nutrients than are available from average pastures. So, the amount of hard feed required depends firstly on the quality and secondly on the quantity of pasture. Mixed improved, irrigated pastures contain up to 30% protein; mineral composition of grasses and soils differ - when lush, mineral content can be diluted; some grasses contain compounds which reduce calcium and phosphorus availability.

These variables need to be factored into the equation when calculating what to feed your weanlings, because the feed may seem sufficient to the owner, but it may be insufficient for the foal. An improperly fed horse cannot hope to compete with those whose growth has been nurtured and protected. *The higher the level of desired performance, the narrower the optimal range of a nutrient.* Thus, **a compromise is required between the traditional feeding strategies of owners and the evolutionary and nutritional needs of the horse.**



From 10-14 weeks of age the composition of the feed should be changed gradually from the creep feed, to a growing foal diet of 17-18% protein, 7 - 8 % oil and 8 % fibre. Analysis of feeds and pastures allows adjustments to be made according to the types and levels of available nutrients. Minerals and trace elements are critical for the development of strong bones, but excesses are as dangerous as deficiencies



**To supplement or not to supplement?** Supplementation of the average conventional horse diet is required, but the random inclusion of large-dose vitamin and mineral supplements to meet the individual vitamin and mineral requirements can lead to overlap and imbalances. This increases the risk of **excesses** and **subclinical toxicities**.

**Reducing the risk of bone diseases:** Management strategies to minimise risks include:

- controlling the energy, protein, mineral and trace elements in the diet; increasing the number and decreasing the size of feeds and providing constant access to pasture or hay.
- ensuring an even growth curve that avoid periods of rapid 'catch up' growth and growth 'spurts'. Body or condition-scoring of foals enables regular monitoring.
- avoiding excess calcium which can disturb cartilage maturation and interfere with absorption of phosphorus, magnesium, manganese, zinc and copper
- encouraging exercise, which can have a protective effect. Horses have evolved for over 50 million years as wide travellers and, even today, wild horses travel up to 80km per day depending on the availability of food and water.

**A science and an art:** A balancing act between economics, management and nutritional requirements occurs frequently between birth and the time a horse reaches 18 months of age. But there is research information available which tells us how the nutrient requirements vary with age, development, and stage of growth - so it is possible to precisely match the nutrients in the feed with the requirements of the weanling.

The concept of a **complete feed** means that no additives or supplements are required except for roughage. Thus a **complete feed** which is regularly analysed, eliminates many practical problems, such as sifting of feeds, variations in nutrient quality and levels due to seasonal or local farm conditions, and the need for supplements (except on veterinary advice). But, not all so-called **complete feeds** provide all the recommended nutrients at the correct levels and supplementation may still be necessary. It is important to check the bag label or contact the manufacturing company to ascertain whether requirements are being met.

The growth trends of bone and muscle are fundamental to the formulation of **Mitavite Breeda** which encompass the most current international knowledge on equine nutrition and physiology. The young growing racehorse is, perhaps more than any other, acutely sensitive to minor nutritional imbalances.

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