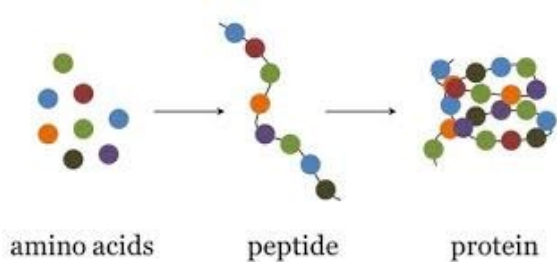




## INCREASING MUSCLE MASS IN HORSES

Loss of muscle mass is a common problem as horses begin to age due to poor activity, weak teeth and a decrease in their ability to digest protein.

Therefore, this increases the protein requirement of the old horse. However, increasing the amount of crude protein in the diet may have some metabolic disadvantages. As a safer alternative, the "quality" of the protein can be improved.



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Protein is the basic structural component of muscles, blood and many other tissues. Different types of proteins are made up of different combinations and number of amino acids. Proteins that consist of a high percentage of "essential amino acids" are called high-quality proteins. By improving the protein quality of the horse's diet, the horse is better able to maintain muscle mass, regardless of age.

So how do you improve protein quality? Some protein feeds carry higher "protein quality" than others, as shown in the table below

	alfalfa	Soybean meal	Kopra	Linseed meal	Lupin	Sunflower meal	Canola
Arginine	7.1	32.3	23.8	42.6	33.8	23.8	22.1
Histidine	3.7	11.7	3.9	11.1	7.7	6.6	9.6
Isoleucine	6.8	19.9	7.5	12.9	14.0	12.9	14.3
Leucine	12.1	34.2	13.6	24.5	24.3	18.6	25.8
Lysine	7.4	28.3	5.8	16.5	15.4	10.1	20.8
Methionine	2.5	6.1	3.5	6.7	2.7	5.9	7.4
Phenylalanine	8.4	21.8	8.4	19.7	12.2	12.3	14.3
Threonine	7.0	17.3	6.7	13.4	12.0	10.4	15.9
Tryptophan	2.4	6.1	1.9	5.4	2.6	3.8	4.5
Valine	8.6	20.6	10.7	17.6	12.9	14.9	18.2

As shown in the table above, the protein source containing the highest levels of essential amino acids is soybean meal, but with lower levels of arginine. Copra and sunflower contain relatively low levels of essential amino acids and are therefore not suitable as sole protein sources in growing foal and some adult horse rations.

To optimize animal growth and preserve muscle mass in horses, it may be beneficial to use protein supplements from one of the many feed manufacturers. These supplements are usually based on one of the above sources of protein but fortified with amino acids that might normally be missing. Each supplement varies in amino acid profile, vitamin and mineral levels, and cost.



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