Myophosphorylase

What is it?

In the Charolais breed some animals carry a gene identified as Myophosphorylase Deficiency. Myophosphorylase is an enzyme that releases glucose from glycogens stored in muscle. In the absence of Myophosphorylase activity cattle are unable to rapidly mobilise glucose and muscles lose function, resulting in exercise intolerance. Affected calves tire easily and when driven may collapse, but recover after a period of rest.

How does it work?

Myophosphorylase deficiency is inherited as an autosomal recessive condition. Affected calves are those that inherit a mutant Myophosphorylase gene (m) from each parent. The parents are clinically normal, but they carry one copy of the mutant gene (m) as well as one copy of the normal gene (M). These animals are known as carriers or heterozygotes (Mm). Fifty percent of the progeny of a heterozygote will be heterozygous (Mm). When two heterozygotes are mated, 25% of calves will be affected(mm), 50% will be heterozygote (Mm); and 25% normal (MM).
Testing in Australia indicates a low incidence of the condition and a DNA Test is available to identify carriers.