

What do we know on the genome of the exercising muscle?

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Over the last few years, researchers have attempted to identify genomic and epigenetic markers underlining the complex physiology of the exercising skeletal muscle. Recently, with the establishment of the Athlome Consortium (www.athlomeconsortium.org), and the Gene SMART (Skeletal Muscle Adaptive Response to Training) study, there has been significant advances in the field of identifying both genetic and epigenetic markers influencing skeletal muscle physiology and performance, primarily using Genome-Wide approaches. Such approaches have already begun to elucidate the genetic and epigenetic basis of other complex traits/diseases. It is believed that incorporating epigenetic and genomic data arising from Genome-Wide studies, with other cost-effective OMIC (*i.e.* transcriptomics, metabolomics and proteomics) techniques, together with detailed individual physiological characterization, will enable the development of individualised health interventions.