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Effect of kisspeptin-10 on serum testosterone levels in stallion, donkey and mule

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This study was conducted to determine the response of serum testosterone in male equines following bolus doses of Kisspeptin, hCG and LH. Male animals of each equine species (stallions, donkeys and mules) were divided into four groups. Kisspeptin -10 was administered intravenously into the jugular vein of all animals. Group-1: Treated with 3 ml (0.95% saline); Group-2: Treated with 50 µg Kisspeptin; Group-3: Treated with 2500 IU hCG and, Group-4 treated with 400 µg LH. Serum testosterone levels among different treatment groups were compared through one way ANOVA, $P<0.05$ was taken as significant difference. Administration of Kisspeptin to all the three species i.e., stallions, donkeys and mules led to significant ($P<0.001$) increase in testosterone concentration at 240 min post dose as compared to the saline treated group. Upon LH administration a highly significant increase ($P<0.001$) in serum testosterone concentrations was noticeable at 240 min in stallions, donkeys and mules as compared to pre dose testosterone concentrations. In case of hCG treatment, the concentration of serum testosterone was also found significantly greater in stallions ($P<0.05$), in donkeys ($P<0.01$) and in mules ($P<0.001$) at 240 min post dose as compared to the pre-dose concentration. Administration of Kisspeptin and other reproduction related hormones to male equines causes significant increase in serum testosterone concentration demonstrating similar effect of all the peptides.

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Activation of AMPK/Nrf2 signalling by Manuka honey protects human dermal fibroblasts against oxidative damage by improving antioxidant response and mitochondrial function promoting wound healing

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Excessive amounts of free radicals are deleterious for cells, resulting in cell damage, affecting the wound healing process and causing premature ageing or even neoplastic transformation. Here the capacity of Manuka honey (MH) to protect against oxidative damage and improve the process of skin wound healing was investigated. Up to 16 compounds were identified in MH with leptosin derivatives and methyl syringate as the major ones. MH protected against apoptosis, intracellular ROS production and lipid and protein oxidative damage. MH also protected mitochondrial functionality, promoted cell proliferation and activated the AMPK/Nrf2/ARE signaling pathway, as well as the expression of the antioxidant enzymes such as SOD and CAT. Here we describe for the first time that one of the possible mechanisms by which MH exhibits its ability to promote wound healing could be due to its capacity to improve the antioxidant response by activating AMPK phosphorylation and the ARE response.

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