# Beneficial Effects of Whey Protein Concentrate in Venous Thrombosis

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**Abstract :** Whey is a by-product generated mainly in the production of cheese and casein. Powder forms of whey are used widely in the food industry as well as a high-protein food for infants, for convalescents, by athletes and especially by bodybuilders to increase muscle mass during exercise. Whey protein concentrate-80 (WPC-80) is a source of bioactive peptides with beneficial effects on the cardiovascular system. It is known that whey proteins health beneficial properties include antidiabetic, blood pressure lowering, improving cardiovascular system function, antibacterial, antiviral and other effects. To study its influence on the development of thrombosis, venous thrombosis model was performed according to the protocol featured by Reyers with modification by Chabielska and Gromotowicz. Male Wistar-Crl: WI (Han) rats from researched groups were supplemented with two doses of WPC-80 (0.3 or 0.5 g/kg) for 7, 14 or 21 days and after these periods, one-hour venous thrombosis model was performed. Control group received 0.9 % NaCl solution and was sham operated. The statistical significance of results was computed by Mann – Whitney's test. We observed that thrombus weight was decreased in animals obtaining WPC-8080 and that was statistically significant in 14 and 21-day supplemented groups. Blood count parameters did not differ significantly in rats with and without thrombosis induction whether they were fed with WPC-80 or not. Moreover, the number of platelets (PLT) was within the normal range in each group. The examined coagulation parameters in rats of the control groups were within normal limits. After WPC-80 supplementation there was the tendency to prolonged activated partial thromboplastin time (aPTT), but in comparison, the results did not turn out significant. In animals that received WPC-80 0.3 g·kg-1 for 21 days with and without induced thrombosis, prothrombin time (PT) and an international normalized ratio (INR) was somewhat decreased, remaining within the normal range, but the nature and significance of this observation are beyond the framework of the current study. Additionally, fibrinogen and thrombin time (TT) did not differ significantly between groups. Therefore the exact effect of WPC-80 on coagulation system is still elusive and requires further thorough research including mechanisms of action. Determining the potential clinical application of WPC-80 requires the selection of the optimal dose and duration of supplementation.

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