An Objective Assessment of Knee Jerk Reflex Using a Fibre Optic Goniometer in Professional Rugby Players

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Rugby is identified as a high-intensity team sport that is played professionally worldwide. It is a contact and collision game that may result in the sudden application of forces on lower limb muscles which may excessively stretch them unless an immediate reflex contraction of the muscle occurs. This study aimed to assess the knee jerk reflex variables of professional rugby players. Knee jerk variables (latency, peak time, total duration, and angle) of national level rugby players were assessed using a fibre optic goniometer. The angle was measured by a bipolar joint angle sensor in the fibre optic goniometer. An electronic tendon hammer was used to bring about the knee jerk. These instruments were connected to a data acquisition equipment (Power Lab 26T). Data were recorded on LabChart 8 software running on a computer connected to the Power Lab 26T equipment. The mean (SD) of age, height, weight and Body Mass Index (BMI) were 27.4 (3.9) years, 1.72 (0.07) m, 83.4 (14) kg and 27.8 (4.3), respectively (n=59). There is no correlation between BMI and knee jerk reflex parameters ($P > 0.05$ for all parameters, Pearson correlation). Knee jerk parameters from the left and right sides did not show a statistically significant difference ($p > 0.05$, paired t-test or Wilcoxon Ranked Sum). Similarly, there was no statistically significant difference between the data from the dominant side and the non-dominant side. Knee jerk parameters of rugby players can be assessed objectively using a fibre optic electronic goniometer and an electronic tendon hammer coupled with data acquisition hardware and software.

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