

THE EFFECT OF INTENSITY MODULATION IN SUCCESSIVE EXERCISES ON THE INCIDENCE OF INJURIES IN PROFESSIONAL FOOTBALL PLAYERS

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Introduction

In professional football, the increase in the number of annual competitions (at least 64 matches a season means a playing time of about 3140 minutes for each player) makes it more difficult to maintain optimum fitness levels throughout the season. As a result, it is necessary to adapt the training programme to fit a schedule that anticipates at least one game each week, with several midweek fixtures throughout the season for teams involved in international competitions.

In this study we present a proposal for a consequent modification of training routines; both with and without the ball, which excludes many exercises that do not correspond to the demands of a real football match. We analyze the effects of these changes on the incidence of muscle injuries in a group of professional footballers.

Materials and Methods

The participants were a group of players at an English professional football club. For each player, the number of training sessions and the number of games played was recorded, as was the number of muscle injuries. Comparisons were made between the first five months of the seasons 2001-02, 2002-03, 2003-04. The workload was similar for all three seasons (9,681±252 minutes), excepting three extra matches in the 2003-2004 season. Under the modified training programme, each training session began with a warm-up phase without the ball: exercises for spinal column mobility, stretching exercises for the major muscle groups used when playing football and exercises for dynamic flexibility involving big movements of the joints. 32% of annual training time was dedicated to these exercises.

The second part of the session comprised warm-up exercises with the ball, followed by alternating jumps; *i.e.* technical-tactical exercises with the ball at medium intensity.

The third part of the session, not conducted on days relatively near to match days, comprised a unique work typology, with or without the ball at high intensity.

At the end of each session further speed coordination exercises are proposed.

In this training regime, many exercises traditionally used in professional football have been removed: high overload exercises, jumps between obstacles and jumps using one leg only. In practice exercises that can provoke micro-traumas and local muscle fatigue are excluded.

Particular importance is attached to individual work before the pre-match warm-up carried out by the physiotherapist of fitness coach, comprising PNF exercises, stretching, mobility and compression of the spinal column.

Results

Contrary to what was reported in literature, total injuries, including muscle injuries, which are generally the result of pre-season training, were reduced in the month of August compared with the following months (only one muscular injury both in 2001-02 and 2003-04 seasons). There tended to be year-on-year reductions in the incidence of muscular injuries (1.11 injuries every 1,000 hours of practice & play in 2001-02; 1.06 in 2002-03 and 0.73 in 2003-04) and also in the severity of these injuries (missed training/total training sessions) 13% in 2001-02; 15% in 2002-03 and 7% in 2003-04.

Conclusions

In modern professional football, in each training session, it is necessary to modulate the intensity of exercises devised specifically for football and to exclude exercises that require a too high intensity or which involve anomalous motor coordination.

The analysis of the data of this study shows a low incidence of muscle injuries, achieved without compromising the level of performance.
