



ORIGINAL ARTICLE

Structured neuromuscular warm-up for injury prevention in young elite football players[☆]



M. Mayo*, R. Seijas, P. Álvarez

Facultat de Medicina i Ciències de la Salut, Universitat Internacional de Catalunya, Barcelona, Spain

Received 27 February 2014; accepted 15 May 2014

KEYWORDS

Warm-up;
Prevention;
Injuries;
Football;
Young

Abstract

Objective: To gather evidence about the outcomes of structured neuromuscular warm-up programs without additional equipment, as prevention of non-contact injuries in young professional soccer players.

Materials and methods: A literature search was conducted during March and April 2013 (PubMed, Cochrane Library, The American Journal of Sports Medicine, The British Journal of Sports Medicine and the search engine Trip Database).

Results: After applying the inclusion and exclusion criteria, a total of 6 studies were obtained (3 clinical trials, one cohort study and 2 systematic reviews). “FIFA 11+” program showed a reduction of injuries of between 33% and 57%. These included 52% in knee, 22% in ankle, 40% in medial tibial stress syndrome, 50% in posterior thigh, and 21% in the anterior, and 12% in the groin area. “FIFA 11” program showed a 58% reduction in ankle sprains and 27% in anterior cruciate ligament (ACL) injuries. Other specific programs to prevent ACL injuries reduced them by 74% and “Knäkontroll, SISU Idrottsböcker©” by 64%. “HarmoKnee” program reduced knee injuries by 78%.

Discussion: Several methodological weaknesses were observed, but it seems that there is a trend toward a warm-up that contains basic stretching, strengthening and balance exercises, which could prevent injuries when those were regularly performed for more than three months.

Conclusions: “FIFA 11+” program might be a good preventive measure of injuries by implementing its program of structured warm-up. In any event new, better designed, studies are needed to assess this evidence.

© 2014 SECOT. Published by Elsevier España, S.L.U. All rights reserved.

[☆] Please cite this article as: Mayo M, Seijas R, Álvarez P. Calentamiento neuromuscular estructurado como prevención de lesiones en futbolistas profesionales jóvenes. Rev Esp Cir Ortop Traumatol. 2014;58:336–342.

* Corresponding author.

E-mail address: miguelmayo@uic.es (M. Mayo).

PALABRAS CLAVE

Calentamiento;
Prevenición;
Lesiones;
Fútbol;
Joven

Calentamiento neuromuscular estructurado como prevención de lesiones en futbolistas profesionales jóvenes

Resumen

Objetivo: Recopilar evidencia sobre los resultados de los programas de calentamiento neuromuscular estructurados sin equipo adicional como método de prevención de lesiones de no contacto en futbolistas jóvenes profesionales.

Material y métodos: Se realizó durante marzo y abril de 2013 una búsqueda de literatura (PubMed, Biblioteca Cochrane Plus, The American Journal Sports of Medicine, The British Journal of Sports Medicine y el motor de búsqueda Trip Database).

Resultados: Se obtuvieron, tras aplicar los criterios de inclusión y exclusión, un total de 6 estudios (3 ensayos clínicos, un estudio de cohortes y 2 revisiones sistemáticas). El programa «FIFA 11+» mostró una reducción de lesiones en un 33-57%, desgranándose en un 52% en rodilla, 22% en tobillo, 40% en síndrome de estrés medial tibial, 50% en muslo posterior y 21% en el anterior, y 12% en la zona inguinal. El programa «FIFA 11» mostró una reducción del 58% en esguinces de tobillo y del 27% en lesiones de LCA. Otros programas específicos de prevención de lesiones de LCA las redujeron en un 74% y «Knäkontroll, SISU Idrottsböcker©» en un 64%. El programa «HarmoKnee» redujo lesiones de rodilla en un 78%.

Discusión: Se observaron varias debilidades metodológicas, pero parece que existe la tendencia a que un calentamiento que contenga como base estiramientos, fortalecimiento y ejercicios de equilibrio, realizado durante más de tres meses y de manera regular podría prevenir lesiones.

Conclusiones: El programa «FIFA 11+» podría ser una buena medida preventiva de lesiones aplicando su programa de calentamiento estructurado. A pesar de ello, nuevos estudios mejor diseñados se requieren para poder valorar bien esta evidencia.

© 2014 SECOT. Publicado por Elsevier España, S.L.U. Todos los derechos reservados.

Introduction

Football (or soccer) is the most popular sport in the world. In recent decades, its popularity has increased among males and females, to the point that there are about 300 million registered players, referees and technical staff, 40 million of whom are female players.¹ At present, people start practicing sports at a younger age, thus forcing the rate of learning and the development of their biological condition. Along with the associated physical benefits, this level of demand at such early stages entails an increase of the associated risks and, therefore, the lesions derived thereof.

Sport in general is the leading cause of injury among adolescents.^{2,3} Most lesions in football occur in the lower limbs, especially the knee and ankle. Majewski et al.⁴ studied 17,397 patients with 19,530 sports injuries over a period of 10 years and observed that the sport which caused most lesions was football, with 35%. On average, an elite footballer suffers between 1.5 and 7.6 lesions for every 1000 h of training and 12–35 lesions for every 1000 h of competitive play.^{5,6}

The main risk factors for injury are the level of play (higher risk among professionals than amateurs), the exercise load and the method of training.⁶ There are only very few small or non-randomized studies on the prevention of lesions. Among the most recent are those which implement the so-called ‘‘FIFA 11+’’¹ of the *Fédération Internationale de Football Association* (FIFA), a full warm-up program to reduce injuries among footballers aged over 14 years.

The objective of this study was to carry out a literature review to gather information on the results of structured neuromuscular warm-up programs with no additional equipment as a method to prevent non-contact injuries among young elite footballers.

Materials and methods

Between March and April 2013 we conducted a literature search in various computerized databases (*PubMed*, *Cochrane Plus*, *The American Journal Sports of Medicine*, *The British Journal of Sports Medicine* and the search engine *Trip Database*) using the following keywords: prevention, warm-up, injury, football and young. These words were expanded to obtain the maximum possible relevant literature: (1) *prevention AND/OR Strategies AND/OR FIFA (primary+prevention)*; (2) *warm-up OR warm-up training OR neuromuscular warm-up*; (3) *injuries (wounds AND/OR injuries. Football+Injur\$. Soccer+Injur\$)*; (4) *football OR soccer (AND elite OR professional)*; and (5) *young OR adolescent OR youth*.

The keyword search returned 107 results. We assessed the abstracts and titles of all the studies and selected articles according to the type of study, applying inclusion and exclusion criteria according to the type of participants without taking into account gender, depending on the interventions conducted and the results measured. The search and selection phases, along with the criteria, are detailed in [Fig. 1](#).

Download English Version:

<https://daneshyari.com/en/article/4087182>

Download Persian Version:

<https://daneshyari.com/article/4087182>

[Daneshyari.com](https://daneshyari.com)