

Case study results of sports injury prevention in young soccer players in lower categories on non-professional federated soccer teams.

Introduction

It's no secret that eating a balanced diet and practicing sport on a regular basis are the ideal starting points to leading a healthy lifestyle, and even more so if begun in childhood. But the younger the athlete, the greater the risk is of suffering sports-related injuries. That's why coaches, parents, trainers, league organizers, and young athletes themselves must be taught and properly trained how to minimize and prevent these types of injuries. And this must take place at any level that organized sports are practiced, whether it be in clubs, associations or schools, with even greater emphasis needed where competitive play is involved.

What follows are the results of a two-year case study (2011-2013) of sports injury prevention in young soccer players on Bertamiráns F.C. (Bertamiráns, Spain) in all the lower non-professional but competitive categories, ranging from the youngest players, "Biberones" (U-6), to the oldest, "Juveniles" (U-18). The 2011-2012 season was the first season in which this soccer club put into place a much needed sports injury prevention and massage service. For this service to be effective, adequate facilities, tools, equipment, and supplies are needed.

These results will then be compared to those of a second club, CD Boiro, (Boiro, Spain) which has been successful in reducing the number and the recovery time of sports-related injuries in young soccer players thanks to the effectiveness of their prevention service, a service which was already in place when the prevention therapist author of this study came on board.

The importance of sports injury prevention

More often than not, sports trainers and coaches fail to realize the importance of injury prevention on a team level BEFORE injuries occur, focusing on injuries only once they have occurred. However, it is a lack of planning, precaution and prevention that often lead to re-injury primarily because of two factors:

- Improper recovery, or
- the lack of knowledge about the importance of proprioception during warm-up and stretching before and after training sessions, games, and even recreational play.

It is true that in some cases the prevention therapist can help to change or prevent this behavior. This is conditioned by three factors:

- the category of the team the athlete plays on,
- the intensity of training and competitive play, and
- the age at which the athlete started playing compared to the age preventive training was initiated.

Categories and Age groups

The following nomenclature is used in Spain and in this study to refer to the lower categories of children's and young adult soccer programs:

| CATEGORÍA | EDADES |
|------------------|---------------|
| Juvenil | U-18 |
| Cadete | U-16 |
| Infantil | U-14 |
| Alevín | U-12 |
| Benjamín | U-10 |
| Prebenjamín | U-8 |
| Biberones | U-6 |

The younger the athlete is, the quicker the recovery time. This is because of a player's survival (return to team play as soon as possible to guarantee one's position) or competitive (play for play's sake) instincts. In fact, young athletes are often able to go from an almost unbearable level of pain to total recovery and active play within a two-or three-day period. Whatever the reason is for this, the work of a prevention therapist is to closely monitor and respond to this sudden evolution to prevent re-injury caused by athletes pushing themselves, or being pushed, beyond their fitness level.

Beginning with U-14 players, the relationship between exercise and injury is greater because of two factors: 1) an increase in competitive play (frequency and duration of games), and 2) the morphological changes taking place at this age. As the table below shows, for U-14 athletes game time doubles from 40 minutes to 80 minutes.

| CATEGORÍA | Length of games (in minutes) |
|--------------------|-------------------------------------|
| Juvenil | 90 |
| Cadete | 80 |
| Infantil | 80 |
| Alevín | 40 |
| Benjamín | 40 |
| Prebenjamín | 40 |
| Biberones | - |

Not only is there a significant increase in playing times but also in the number and length of weekly training sessions as well. As training loads and game play increase, so does the risk for injury. Thus, it is beginning with U14 athletes that there is more emphasis needed on injury prevention and recovery. Injuries occurring during this stage of rapid adolescent growth tend to have greater consequences -real or perceived-. The dynamic of competitive play is that players want to play and coaches want to win, and both are sometimes willing to do so at any cost. There is, therefore, a desire on part of both athletes and coaches to minimize

the time a player is injured/sidelined and recover as soon as possible. Sadly, in some cases players and coaches often fail to understand the importance of proper rehabilitation of an injury and that re-injury due to improper recovery just might worsen the situation to the point that the injury even becomes chronic.

In other cases, the time a player is injured/sidelined is longer than it should be often because the player does not correctly follow the prevention therapist's instructions. Other times it is simply out of mere laziness or a lack of desire to rejoin the team, either for personal or social reasons. Sometimes this even affects the emotional state or spirit of the entire team.

Once a sports injury prevention service is put into place, players are often reluctant to use it, either because they have never used it or because they are unaware of the objectives and benefits it can offer. It is this type of player which is the focus of this study.

Results

According to the information obtained from our case study, we have the following results:

Results by number of players using the service:

| | Total num. of players | Num. Of consultations | Num of players attended | % of players using the service |
|-------------------|-----------------------|-----------------------|-------------------------|--------------------------------|
| BERTAMIRANS 11/12 | 295 | 331 | 86 | 29.15% |
| BERTAMIRANS 12/13 | 295 | 218 | 79 | 26,77% |
| BOIRO 12/13 | 149 | 171 | 64 | 42,95% |

As can be seen, during the two years of this study, although there was not a significant change in the number of Bertarmirans players using this service, there was an important decrease in the number of consultations.

This was due to an effective use of the service and increased awareness as to injury prevention on the part of coaches and players. However,

And although it is true that CD Boiro had fewer total players than Beramirns F.C., a higher percentage used this service and the number of consultations per player was greater. However, this was not always due to real necessity but rather to a misuse of the service.

Results by area of the body where the injury occurred:

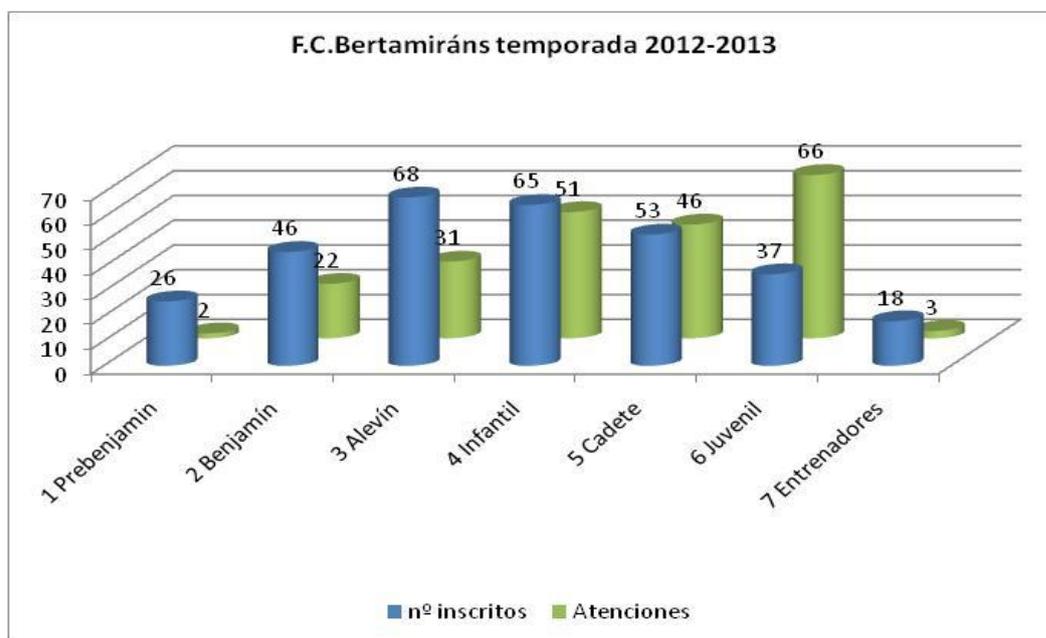
| Body Zone | BERTAMIRANS 11/12 | BERTAMIRANS 12/13 | BOIRO 12/13 |
|------------|----------------------|----------------------|----------------|
| Lower body | 91,54% | 81,45% | 78,36% |
| Upper body | 8,46% | 18,55% | 21,64% |
| | 100,00% | 100,00% | 100,00% |

It's not surprising that in soccer players the majority of injuries occurred in the lower body. We do not have at this time specific details as to the nature and reason behind the increased number of upper body injuries in 2012-13.

Results by type of contact injury (data available only for Bertamirns F.C 2012-13):

| Injury | BERTAMIRANS 12/13 |
|-----------|----------------------|
| Bones | 9% |
| Tendons | 20% |
| Ligaments | 71% |
| | 100% |

Results by category (data available only for Bertamiráns F.C 2012-13.):



“Nº inscritos” = total Num. of players

As can be seen in the number of consultations (“atenciones”) by category, as training and game play increase by age, so does the risk for injury. Although there was a greater number of injuries during training sessions, they were less serious than those sustained during games due to the competitive nature of the sport.

Results by month (data available only for Bertamiráns F.C 2012-13):

Galicia, Autonomous Community where both Bertamiráns and Boiro are located, is the wettest area in Spain. According to Meteogalicia's “Annual Climatological Report for 2011- 2013”, 2013 was exceptionally rainy, especially the months of January, March and October as shown in the following graph.

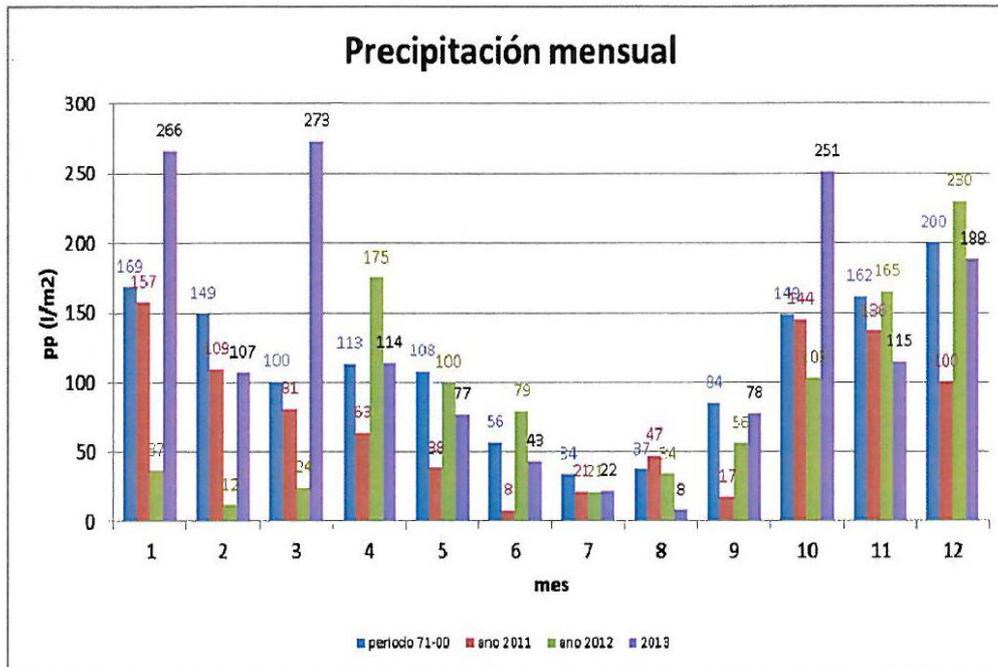
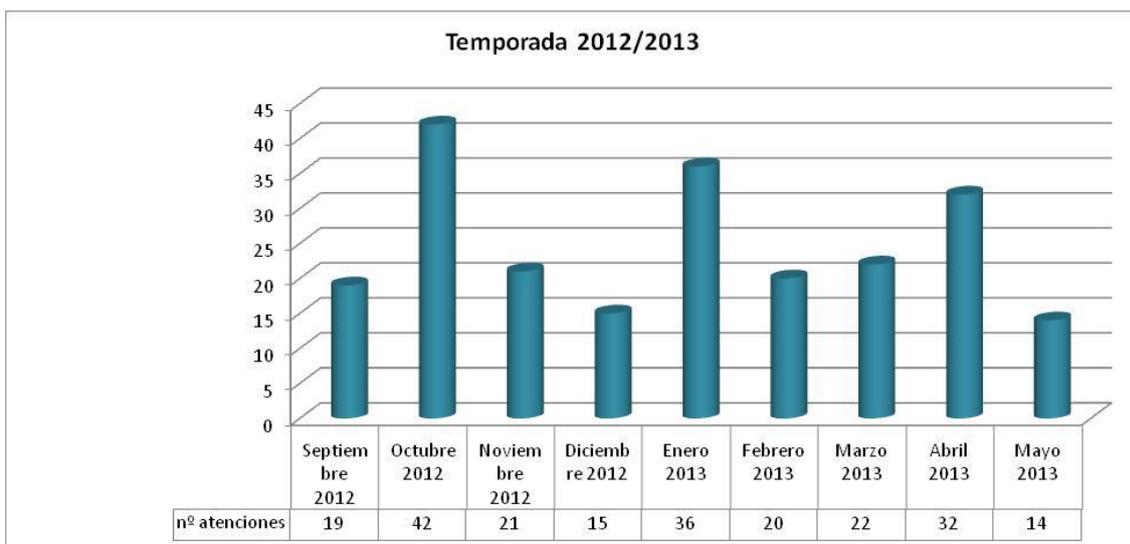


Figura 10: Chuvia mensual dos anos 2011 a 2013 e a media 1971-2000.

And weather conditions and climate do play a significant role on the physical state of the playing field and on the emotional state of the players. Notice in the following graph that one of these three rainiest months (January) coincides with the month with the highest occurrence of injury in 2013 and that in March there was a high incidence as well.



It is important to point out that although the figures for annual rainfall during the time frame of this study were not especially significant, precipitation was particularly intense and localized which adversely affected the state of the playing fields in Galicia.

Final Comment

One of the pillars of sports nowadays has become the supreme physical condition of its athletes. Consequently, overall physical fitness and training have become even more important to guarantee the top performance of all athletes, no matter what sport we are talking about. Many factors influence the development of an athlete's overall physical condition: age, genetics, psychological traits, lifestyle, and training. All of these factors together have a direct effect on the frequency and duration of injuries that an athlete suffers. And it is those injuries which have a clear impact on an athlete's overall performance. That is why every member of the sports community must be aware of how to prevent and minimize injuries and a formal injury prevention service, even if only minimal, must be put into place at all levels of competitive and recreational play.

Thanks

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