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Name of Journal: *World Journal of Orthopaedics*

ESPS Manuscript NO: 29894

Manuscript Type: Review

1. Good study

2. General: It is an interesting subject, with still a lot to discover and a lot to improve in the field. The article is a good first step towards more evidence based clinical practise. The article can be of bigger help if the authors avoid being too general with statements and recommendations.

   Major issue is that the goal(s) of the article (how to deal with which specific stress fractures –page 5) are stated too late, too general.

   This has been added to the Introduction as follows:

   'In this editorial, we aim to determine the optimal evidence-based management strategies for the most common 'high' and 'low' risk sport-related lower limb stress fractures, by reviewing the available literature in this field. With this, we also aim to discuss the areas that require further clarification to provide optimal care for the athlete, as well as to assess the emerging evidence for preventative strategy programmes that can avert such injuries from developing. To illustrate this treatment process in clinical practice, five case reports assessing the management of sport-related lower limb stress fractures are presented at the end of the article.'

   Therefore the 'outcome/take home message' is not clear enough.

   The main fractures are only of the lower extremity and are described only after page 5 (too late). The overall structure is good and complete.

Unfortunately too much repetition especially in the beginning of the manuscript.

Major rewriting is needed in a more to the point and precise style.

Step by step:

Title: too general, it must be clear about which fractures the reader will read (only lower extremities). Suggestion "Lower Limb Stress Fractures in sport: Optimising their management and outcome"

The title has been adjusted to "Lower Limb Stress Fractures in sport: Optimising their management and outcome".

Abstract: too general, in this way it is more a small version of the introduction. Describe highlights of your article. Name in 1 sentence the most important goal, the approach to take (don't have to name the seven questions, but in what kind following areas), name the sites of the fractures of the high and low risk, name most important findings/recommandations.

This has been adjusted accordingly.
The abstract has been restructured to clearly outline on the article goal of establishing optimal management plans for these injuries.
The main high and low risk fracture sites have been included.
The important findings have been noted as:

'From this, we note an increased role for surgical management of certain high risk stress fractures to improve return times and rates to sport.'

Key words: add leg or lower extremity (instead of optimisation).

This has been adjusted accordingly.

Core tips: name the high risk and low risk fractures you discuss in your article.

This has been added as requested.

Introduction: fist part good written. The goals have to be more precise. State that you want to describe the most common stress fractures of the leg and that you choose to divide that into low and high risk fractures and describe why you choose to do.

This has been adjusted accordingly.

Also it has a big overlap with the 'optimising management' part on page 5. Better add this together and use the 'optimising management' part only the -need for- and the -how to- approach via the 7 areas (and why). prevent repetition.

This has been merged as requested.

Main body of article: High risk fractures: explain the reason why these certain sites are according to you of high risk (I don't know why you describe exactly this sites at high risk; if you have a common valid reason, describe it in the general part if the reason is for each of these high risk fractures specific, describe it per fracture).

This has been explained as:

'High Risk Stress Fractures are those which have an increased risk of fracture propagation, delayed union, or non-union'

In the 5th metatarsal session you talk about risk and benefits from conservative and surgical approach, here you should name which risks and benefits.

This has been added as:

'The risks and benefits for both surgical and conservative should be fully explained: for conservative management the main benefit being the avoidance of surgery, while the main risk being the development of non-union; for surgical management, the main benefit being an improved return rate and time to sport, while the main risk being that of infection and structural damage'

Take care about being too general.

Each section has now been revised to provide more specific information for the fracture types.

For all fracture sites count: describe which surgical technique should be considered.

This has been added to each section accordingly.

Low risk fractures: Again name why these fractures are of low risk.

This has been explained as:

'Low Risk Stress Fractures are those with a low risk of fracture propagation, delayed union, or non-union, with reliable healing patterns and resolution of symptoms when managed accordingly'

Explain the abbreviation FNFS and IM.

FNSF – Femoral Neck Stress Fracture.
IM – Intra-Medullary.
Both have been added to the text.

Cases: clear.

Nil to add.

Discussion: make 'bridge' between what you advocate in the main body of the text and cases and clinical practise more clear. You wrote an overview, a clear written goal (see introduction) should be reached and described here.

This has been added as:

'Within this editorial, we have outlined the currently recommended management strategies for the most common sport-related lower limb stress fractures, determining the treatments which offers the best proven results for the athlete, as well as the proven rehabilitation methods to allow the earliest return to sport possible. This is based on the most recent high quality literature in the field, derived from either systematic reviews or high impact cohort studies on each fracture type. With this, we have also reviewed the current evidence-based preventative interventions for each of the fracture types. Integration of the case studies then provides clinicians with a realistic perspective of how to manage such injuries in clinical practice. From this, we hope clinicians will then be able to apply this evidence-based information when assessing and managing such injuries in their practice.'

What makes your article unique in the existing evidence?

We feel it provides the most up-to-date evidence for treating these injuries, as well as provides a clear management strategy by which to direct their parctice:

'This is based on the most recent high quality literature in the field, derived from either systematic reviews or high impact cohort studies on each fracture type.'

'From this, we hope to provide clinicians with both a management framework for these injuries, along with, the most up-to-date evidence-based information on their treatment.'

What did readers learn? What do you want them to learn?

From this we hope that readers that have a more up to date knowledge of the management strategies of these injuries, and so can integrate this within their current practice. We also hope they can translate our sequenced management planning into their practice, to enable optimisation of the treatment of these injuries.

'From this, we hope to provide clinicians with both a management framework for these injuries, along with, the most up-to-date evidence-based information on their treatment; this should allow provision of a systematic and evidence-based approach to assessing and treating lower limb sport-related stress fractures in their practice.

.'

Figures: can be a bit more MRIs (if available) and bigger to make more clear.

An MRI Image has been added for Case 2. For Cases 1, 3 and 5 no MRI was performed due to the clear diagnostic features of the radiographs. This has been stated in the text.
The figures have been increased in size accordingly.

3. *GENERAL COMMENTS: - It is a very good work because it is really important to have correct guidelines about how to act in front of these injuries. –

   If we talk about stress fractures in sport we must talk also about upper limb stress fractures which are quite common in sports using especially the upper limb such rowing, tennis… In other hand you should change the title of the article. –

   The title has been adjusted to "Lower Limb Stress Fractures in sport: Optimising their management and outcome".

   I understand that the limited number of words and the type of article is a limitation, but I think that the description of every fracture, its treatment and its rehabilitation program is a little bit repetitive.

   *Introduction: - In my opinion it is very important to differentiate the grade of the stress fracture.

   A discussion regarding the grading and classification systems of stress fractures has been added throughout the text.

   In posterior chapters you talk about the surgical treatment of the, for example, the tibial diaphysis, and obviously it is not the same if there is a complete fracture (affecting both corticals) than just affecting the anterior bone cortical. This should be explained.

   This has been added as:

   'When both cortices of the tibia are involved, with completed fracture lines, this injury needs to be managed as an acute fracture'

'For completed fractures, current protocols advocate conservative management with casting for those which are undisplaced, and surgical management for those which are displaced, normally with an IM Nail. Reported return times for these injuries included 11.5 months for conservative management and 7 months for surgical management, with return rates of 67% for conservative management and 100% for surgical management'

*Optimising the Management and Outcome of Sport-Related Stress Fractures: - It is true that there are some classifications about the category of the stress fractures, but it is really important, especially in athletes, to look at this from the perspective of the sport they practice.

This has been discussed as:

'Even with similar injuries, management and return to sport times can vary for differing sport, with prolonged rehabilitation often required to return to repetitive loading sports such as long distance running and jumping'

- When the author say: "Even with the high level athlete, it is important to fully concord..." I am not fully agree with this, it is true that you need a guide for the treatment but the evolution of the stress fractures sometimes need to change the way of treatment depending on the patient, the type of sport…

This has been discussed as:

'There is a growing trend for surgical management of such injuries in high level athletes and athletes in high intensity repetitive loading sports (running, jumping), with a recent systematic review from Mallee et al showing proven benefit of surgical management, in terms of return times and rates to sport.'

'Undisplaced fractures in the high level athlete and in athletes who participate in high intensity repetitive loading sports (such as running and jumping) are, however, now recommended for the surgical fixation, as this has been shown to reduce return to sport times, compared to conservative management'

*High Risk Sport-Related Stress Fractures: - when the authors talk about treatment and especially rehabilitation, I think that the rehabilitation guides they say are too general to take them as a guideline.

Each section has now been revised to provide more specific information for the fracture types.

- In the Anterior tibial diaphysis description, when the authors say "This review also found that conservative management of these injuries..." --> Again it depends on the stress fracture grade

This has been discussed as:

'Fredericson Grade 1 to 3 injuries are managed with crutch-assisted weightbearing until resolution of pain; bracing serves as a potential adjunct to reduce symptoms. For Grade 4 injuries, initially casting is recommended for a period of 6 weeks'

- In the Anterior tibial diaphysis description, when the authors say "For conservative management, recommended rehabilitation techniques comprise activity cessation and limited weightbearing for at least 3 months, with progression of weightbearing and return to loading activities as pain allows" --> This is a too general premise. - These commentaries can be applied to all the descriptions of stress fractures.

This has been adjusted as follows to provide more specific information:

'For conservative management, recommended rehabilitation techniques advise activity cessation, with avoidance of heavy loading of the tibia, limited weightbearing with crutches for between 3 to 6 months. During this time, bracing of the lower limb can be helpful to reduce symptoms. Following this, progression of weightbearing and return to loading activities can be allowed as pain permits.'

*Low Risk Sport-Related Stress Fractures:

- In Postero-Medial Tibial Diaphysis --> I have a question: What do the authors think about the role of the periostitis in the development of a stress fracture? Please explain, I think it will improve the information of the article.

This has been discussed as:

'To note, there is growing evidence that 'shin splints' or 'tibial periostitis' form a continuum with stress fractures injuries, with MR Studies demonstrating periosteal and bone oedema in cohorts of athletes with 'shin splints'. When present, it is advised to treat 'tibial periostitis' as Grade 1 injuries, in order to present progression and prolongation of the injury.'

CASES --> cases are well presented and redacted.

Nil to add.

DISCUSSION --> correct, it could be longer because there are a lot of issues and topics to discuss about stress fractures in athletes.

This has been expanded as requested.

REFERENCES: If we are talking about stress fractures in sports the authors, as I said before, have to talk about upper limb stress fractures (mandatory). In that case there is a lot of bibliography to add.

The title has been adjusted to "Lower Limb Stress Fractures in sport: Optimising their management and outcome". As such, there has been no major changes in the references used.

FIGURES: - It would be great to add more MRI images in the cases that don't have them. It will improve the quality of the cases because, as the authors say, plain RX not always can show the stress fracture.

An MRI Image has been added for Case 2. For Cases 1, 3 and 5 no MRI was performed due to the clear diagnostic features of the radiographs. This has been stated in the text.

- CCase 2 has just one image.

An AP view has been added.