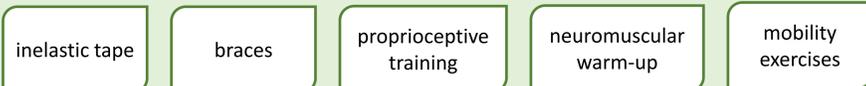


PREVENTION OF ANKLE INJURIES IN BADMINTON- A SURVEY AMONG AUSTRIAN BADMINTON PLAYERS

BACKGROUND

Badminton is one of the most played sports all over the world [1]. Many stop-and-go movements and jumps have to be done. The most common injuries concern the knee (menisci, acl), the ankle and the Achilles tendon [2]. Ankle injuries are also common in other sports like soccer, handball or volleyball [3]. For these sports there exist a few preventive programmes against these injuries. Important to know is, that prevention can be classified into 3 categories: primary (first injury), secondary (chronical injuries) and tertiary (prevention of long term injuries) prevention [4]. The existing preventive programmes use evidence based interventions for primary and secondary prevention such as:



Nevertheless for badminton doesn't exist a specific preventive programme against ankle injuries.

Therefore the **aim** of this study was to analyse if...

- Austrian badminton players know about preventive methods for ankle injuries
- evidence-based methods are used by Austrian badminton players
- there is a correlation between ankle injuries and the implementation of preventive methods
- there is a need of further requirements about this topic

METHODS

An online survey with a semi-standard on the platform "umfrageonline" was done. It started on 29th of March to 19th of April 2019. Chart 1 shows the main steps to answer the asked questions.



chart 1: methods

RESULTS

Over all 140 participants (90 men, 50 women) completed the survey successfully. The mean age was 31,37 (+/- 14,26) years. The mean years of play was 16,30 (+/- 11,12) years. The level of play was between "International" and "Hobby" uniformly distributed. 34 of 140 (=24,29%) players are currently playing in a national or regional team.

64% of the participants know about preventive methods against ankle injuries. Most of the players got the information from their trainer, physiotherapists or from school/education. Chart 2 shows the implementation of preventive methods in different settings. The most common reasons why the players don't apply any or just a few exercises in their training or competition have been "less time" or "no empirical value".

51,42% of the participants had an ankle injury (20,83% of them more than three times). 76,39% of the injuries happened during training sessions and 40,28% in a competition (multiple answers were possible). The most frequent cause was performing a lunge to the frontcourt or a jump/lunge to the back- or sidecourt (chart 3). Based on these results it can't be said if the lunge on the backhand or forehand site is more concerned. More than an half of the affected players had to rest for 7-30 days after their injury.

Chart 4 shows the results of further requirements about this topic. There is a significant request for more information ($p < 0,000^*$; χ^2 -Test). Especially for practical taping courses ($p < 0,041^*$; χ^2 -Test) and the implementation of prevention programs in trainer education ($p < 0,000^*$; χ^2 -Test). There was a significant refusal for the participation in a prevention project ($p < 0,000^*$; χ^2 -Test) and the answer "no interest" ($p < 0,000^*$; χ^2 -Test). Furthermore no significant correlation was found between the use of preventive methods and the occurrence of ankle injuries in this study ($p > 0,05$; $\phi = 0,132$).

| implementation of preventive methods | | | |
|--------------------------------------|----------|-------------|---------|
| method | training | competition | no use |
| inelastic tape | 16,43 % | 22,14 % | 75,00 % |
| braces | 7,86 % | 7,14 % | 90,00 % |
| proprioceptive training | 62,86 % | 10,71 % | 36,43 % |
| neuromuscular warm-up | 91,43 % | 78,57 % | 6,43 % |
| mobility | 71,43 % | 44,29 % | 27,14 % |

chart 2: implementation in training or/and competition (n=140 players)

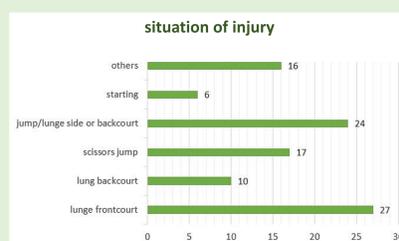


chart 3: situation of injury (n=72 players)

| participants requests for further information | | | |
|------------------------------------------------------------|----------|----------|---------|
| method | quantity | per cent | p-value |
| information | 59 | 69,4 % | 0,000 |
| practical taping courses | 39 | 45,9 % | 0,041 |
| practical proprioceptive training courses | 26 | 30,6 % | 0,364 |
| implementation of prevention programs in trainer education | 49 | 57,6 % | 0,000 |
| prevention program | 24 | 28,2 % | 0,173 |
| participation in a prevention project | 11 | 12,9 % | 0,000 |
| no interest | 2 | 2,4 % | 0,000 |

chart 4: requests (n=85 players)

Physiotherapy in Badminton

60,71% of the participants don't have access to physiotherapy through their club and the players doing it on their own initiative. Only 11 players answered that they receive physiotherapy one or two times per week and most of the players receive it less than one time per month or never. 64% of the players require an access to physiotherapy through their club.

DISCUSSION AND CONCLUSION

This study focused on the first and second category of prevention. The results are representative for Austrians professional and amateur badminton players and it doesn't exist any other study in Austria, which analysed this topic yet. In addition, the gender ratio was almost identical with the number of registered men (=65%) and women (=35%) in the Austrian Badminton Association.

To answer the aims of this study

- 64% of the participants know about preventive methods against ankle injuries
- 75% of the participants use evidence-based methods
- there is no correlation between ankle injuries and the implementation of preventive methods
- 60% of the participants require further information about this topic (chart 4)

The preventive methods, which were asked in this survey, are interventions from other sports like handball, basketball or soccer. Especially some exercises should be specially adapted for badminton. In conclusion, more than a half of the players in Austria injured their ankle one or more times. Based on these results there is a need for a specific badminton ankle injury prevention programme. Therefore a randomized controlled trial, based on these results and the current research, should be made. Afterwards a standardized prevention programme could be integrated in the Austrian Badminton Association, especially in trainer education. Due to these results and requests the role of physiotherapists in the Austrian Badminton Association should be strengthened through offering practical taping courses or providing information materials and the possibility to get access to physiotherapy through their club or through their regional association (chart 4).