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PO Box 117  
221 00 Lund  
+46 46-222 00 00

# Co-creating injury prevention training for youth handball players targeting end-users at the individual, team, and organizational levels

Eva Ageberg<sup>1</sup>, Sofia Bunke<sup>2</sup>, Jennie Linnell<sup>1,3</sup>, Karin Moesch<sup>2,4</sup>

<sup>1</sup>Department of Health Sciences, Lund University, Lund, Sweden; <sup>2</sup>Department of Psychology, Lund University, Lund, Sweden; <sup>3</sup>Swedish Handball Federation, Stockholm, Sweden; <sup>4</sup>Department of Sports Sciences, Malmö University, Malmö, Sweden

## Conclusion

A process that engaged end-users and researchers/experts to develop injury prevention training specifically for youth handball, generated a comprehensive intervention targeting end-users at the individual, team, and organizational levels. The intervention included information and physical and sport psychology training, that was made available in an interactive mobile application with modules for players, coaches, club administrators, and caregivers.

## Methods

A co-creating process involving researchers/experts (sports medicine, sport psychology, handball, physical therapy, and/or strength and conditioning), and end-users (coaches, players, club administrators) was used to develop end-user-targeted injury prevention information and training for youth handball.

## Introduction and Aim

Injury prevention training is effective in reducing injuries in youth team sports, but public health impact is limited because such training is not widely, properly, or sustainably implemented. Insufficient involvement of end-users has been identified as a main barrier to implementation.

Based on results from previous studies within the “Implementing injury Prevention training Routines in TEams and Clubs in youth Team handball (I-PROTECT)” project, the aim was to develop a full version of the I-PROTECT intervention targeting players, coaches, club administrators, and caregivers through using knowledge from end-users and researchers/experts.

## Results



**A. Tailored example program for younger (13–14 years) and older (15–17 years) players from coach module including physical and sport psychology exercises integrated within handball training for coaches to do with their team(s). Program for older players shown here.**

**B. Example of physical exercise (cutting, jumping, and landing) from the coach module, with video and instructions on what, why, and how.**

**C. Tailored example program from player module including strength training for older players (15–17 years) to do at the gym.**

**D. Example of sport psychology exercise (being in the present moment) from the player module, with instructions on what, why, and how.**

- The intervention (information and training) was made available in a specifically developed interactive mobile application (I-PROTECT GO) with modules for players, coaches, club administrators, and caregivers.
  - All modules include information about injury prevention training
  - The coach module includes physical and sport psychology exercises integrated within handball training (Figure 1 A–B)
  - The player module includes strength and sport psychology exercises (Figure 1 C–D)
  - All exercises include instructions on why, what, and how (Figure 1 B and D)
  - The club administrator module includes information about implementation and a checklist
- Feedback from early end-users (coaches, n=6, club administrator, n=1) included barriers (implementation), facilitators (comprehensive and relevant content, helpful and useful delivery), and ideas for future improvements (implementation strategies, functions in app).

## Contact

Eva Ageberg, PhD, Professor, Department of Health Sciences, Lund University, Lund, Sweden. Email: [eva.ageberg@med.lu.se](mailto:eva.ageberg@med.lu.se)

**Figure 1.** Screenshots from mobile application I-PROTECT GO (only available in Swedish). Tailored example program (A) and example of physical exercise (B) from coach module, and tailored example strength training program (C) and example of sport psychology exercise (D) from player module. To support self-management, adoption, and motivation, several programs are available, and end-users can change, add, and progress the difficulty of exercises.