Women’s football is one of the fastest growing sports worldwide, at all levels. Sports-related joint injuries are also on the rise, and consequently the incidence of post-traumatic knee, hip, and ankle osteoarthritis is increasing. This systematic review and meta-analysis combined the results from 12 studies investigating the effects of injury prevention programs on injury incidence in 11,773 women football players.

These injury prevention programs are effective in reducing:
- 45% of ACL injuries
- 29% of hip/groin injuries*
- 17% of knee injuries*
- 22% of ankle injuries*

*Lower injury reduction rates than male football players

Internal validity and adherence: Adherence to programs in female football ranged from 52% to 95%. Adherence in other sports (male/female) ranges from 18% to 100%. ~50% of studies report information on adherence, and many studies don’t define adherence, or how they measure it, or the effect of adherence on injury risk.

The systematic review and meta-analysis by Crossley et al. (2020) combined the results from 12 studies investigating the effects of injury prevention programs on injury incidence in 11,773 women football players. Reducing joint injuries will also reduce incidence of post-traumatic osteoarthritis.

WHAT EXERCISES MAKE UP THESE PROGRAMS?

- **Strength**: 11 studies
- **Plyometric/power**: 10 studies
- **Balance**: 8 studies
- **Running**: 9 studies
- **Mobility**: 6 studies
- **Agility**: 6 studies

Multicomponent programs (e.g. including at least 2 of the above activities) were more effective at reducing overall injuries and knee injuries than single component programs (e.g. 1 of the above activities). 30% and 67% of the studies included met the guidelines for strength and plyometric/power training, respectively.

![Figure 1. Activities in multicomponent exercise-based injury prevention programs](https://oarsi.org/research/discussion-groups)

The numbers in the figure represents the number of studies including that exercise in their program.

- **Balance**
  - 9 studies
  - Kneeling unstable surface
  - Lateral crunch unstable surface
  - Arm & leg extensions on stomach
  - Prone extension holds
  - Plank
  - Sit-up

- **Strength**
  - 11 studies
  - DL DB
  - SL single leg

- **Plyometric/power**
  - 10 studies
  - DL DB
  - SL forward jump
  - SL lateral jump
  - Broad jump
  - DL forward jump

Most studies included were rated as a high risk of bias.

ARE INJURY PREVENTION PROGRAMS USED?

- Adherence to programs in female football ranged from 52% to 95%
- Adherence in other sports (male/female) ranges from 18% to 100%
- ~50% of studies report information on adherence
- Many studies don’t define adherence, or how they measure it, or the effect of adherence on injury risk

![Injury prevention programs work better if you do them](https://oarsi.org/research/discussion-groups)

Injury prevention programs work better if you do them. Working in female football? Start using existing evidence-based programs!

WHERE TO NEXT?

- Understand how to improve their effectiveness
- Increase program adherence - as we know they work
- Improve methods and reporting of adherence to the program
- Address challenges specific to the population (e.g. less resources, sport experience)

Want to get involved in the discussion? Join the OA Prevention Related to Sport, Exercise, and Physical Activity (SEPA) Discussion Group [https://oarsi.org/research/discussion-groups](https://oarsi.org/research/discussion-groups)