



UNIVERSITY OF PÉCS
MEDICAL SCHOOL

Injury prevention interventions in team sports

Injury prevention for young athletes- Long term athlete development

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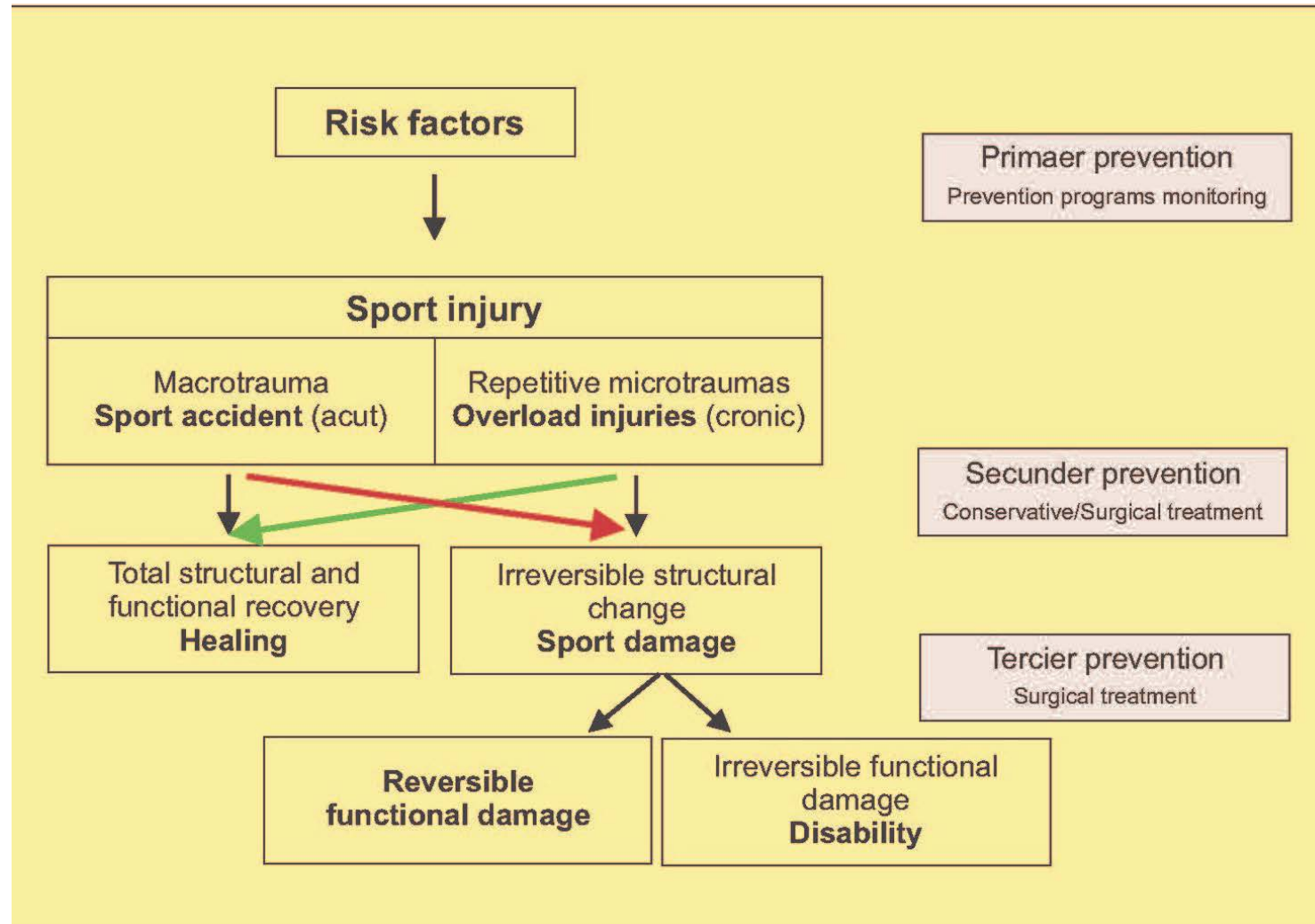
Pécs University Medical School

Sportmedicine Center

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Levels of prevention



Intrinsic factors

- muscle imbalance
- muscle-, tendon-, ligament weakness
- fatigue
- earlier injury(ies)
- increased physical activity

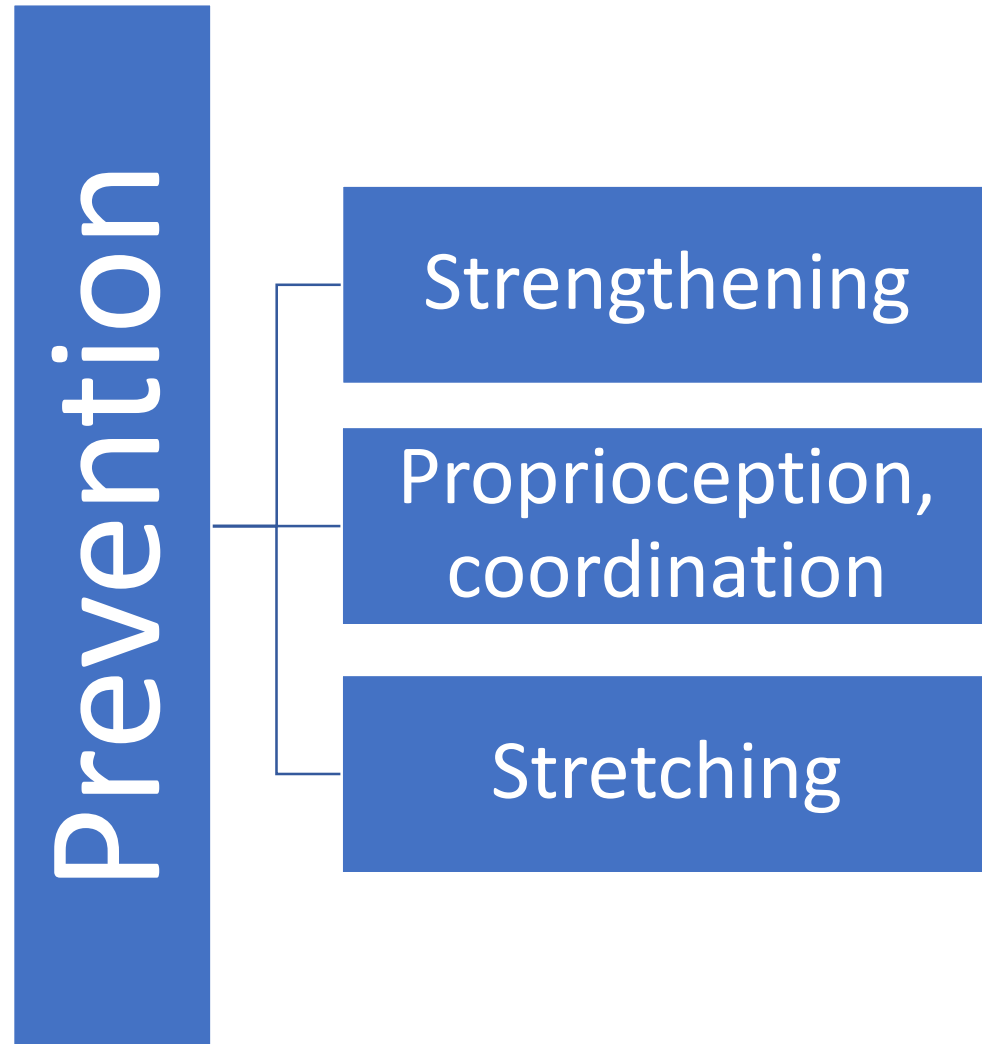


Four-step Program regarding effective measures of prevention

- 1. step:** define the injury including its frequency , consequences and seriousness
- 2. step:** define the etiology, mechanism and pathophysiology regarding the injury
- 3. step:** plan and introduce a preventive program
- 4. step:** assessment of effectiveness of introduced methods, comparing the results with the result of the **1. step** and making necessary changes



Prevention includes...



Prevention

Strengthening

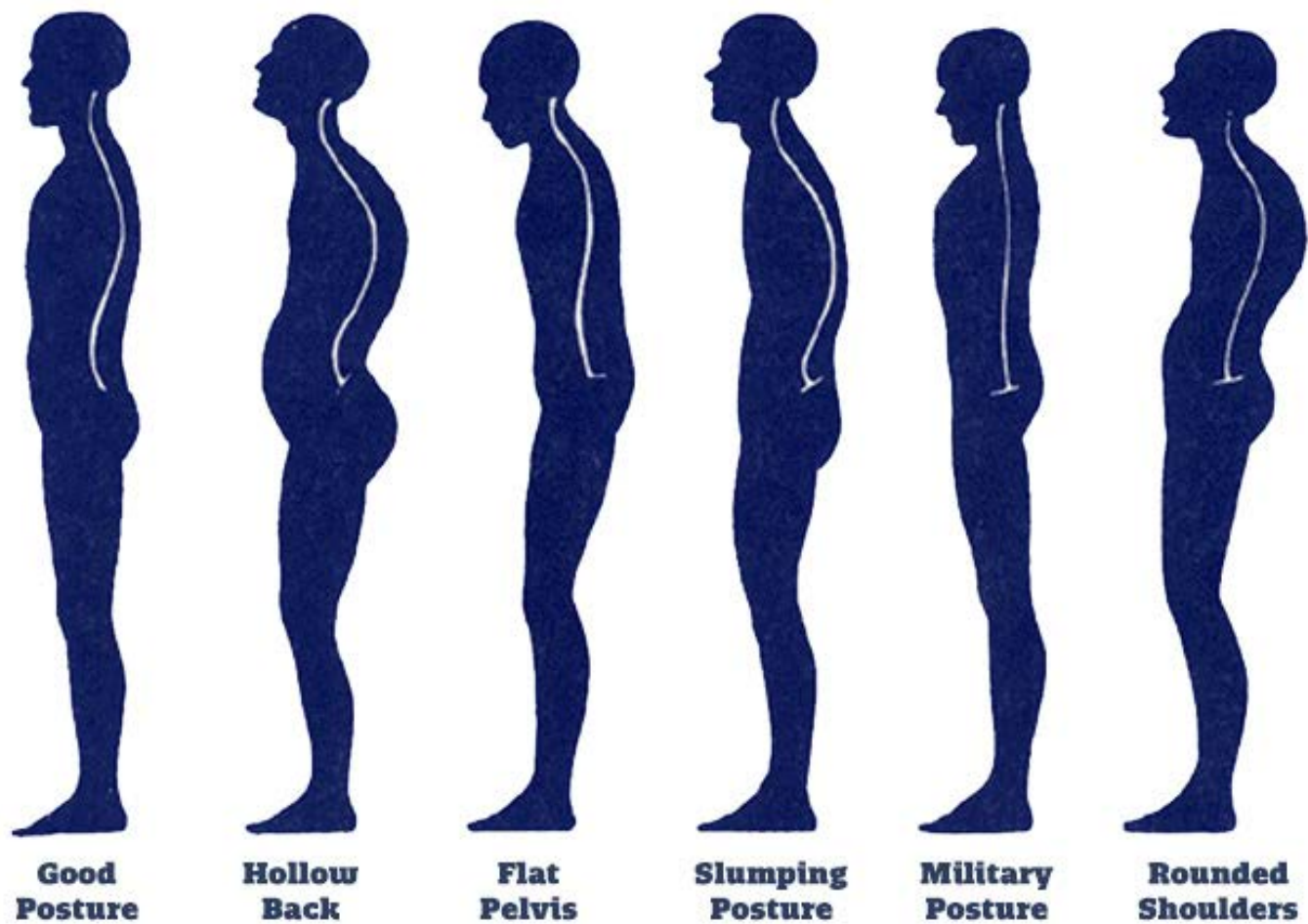
Not equivalent to a gym workout, however, increased functional development

Muscles possess:

- trophy
- strength (static and dynamic)
- endurance
- proprioception
- flexibility



Prevention - strengthening



Prevention - strengthening

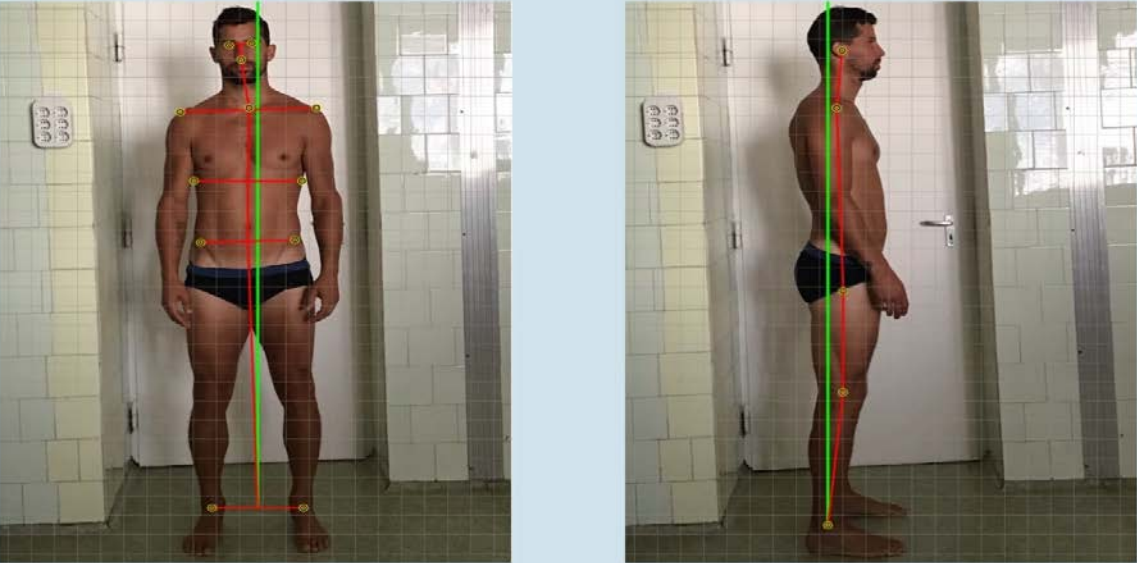
- survey
- assessment
- Adequate, individual development
- controll

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Results

PostureScreen™
Accurate Postural Assessment

Generate PDF



Posture Index® Values: Front View		Effective Head Weight 8,7 kg	Posture Index® Values: Right View	
Total Shifts	5,28cm		Total Shifts	7,10cm
Total Tilts	10,8°	Total Tilts	11,3°	

Front View Deviations

Head is shifted 2,3 cm right. Head is tilted 6,6° right.
Shoulders are shifted 0,3 cm left. Shoulders are tilted 2,1° right.
Ribcage is not shifted significantly left or right.
Hips are shifted 2,6 cm right. Hips are tilted 2,0° right.

Right View Deviations

Your head weighs approximately 5,7 kg. It is shifted 1,4 cm forward, 4,3° off vertical.
Based on physics, your head now effectively weighs 8,7 kg instead of 5,7 kg.
Shoulders are shifted 1,7 cm backward, 1,7° off vertical.

Results Front Right

PostureScreen LeanScreen Exercise Send



Proprioception

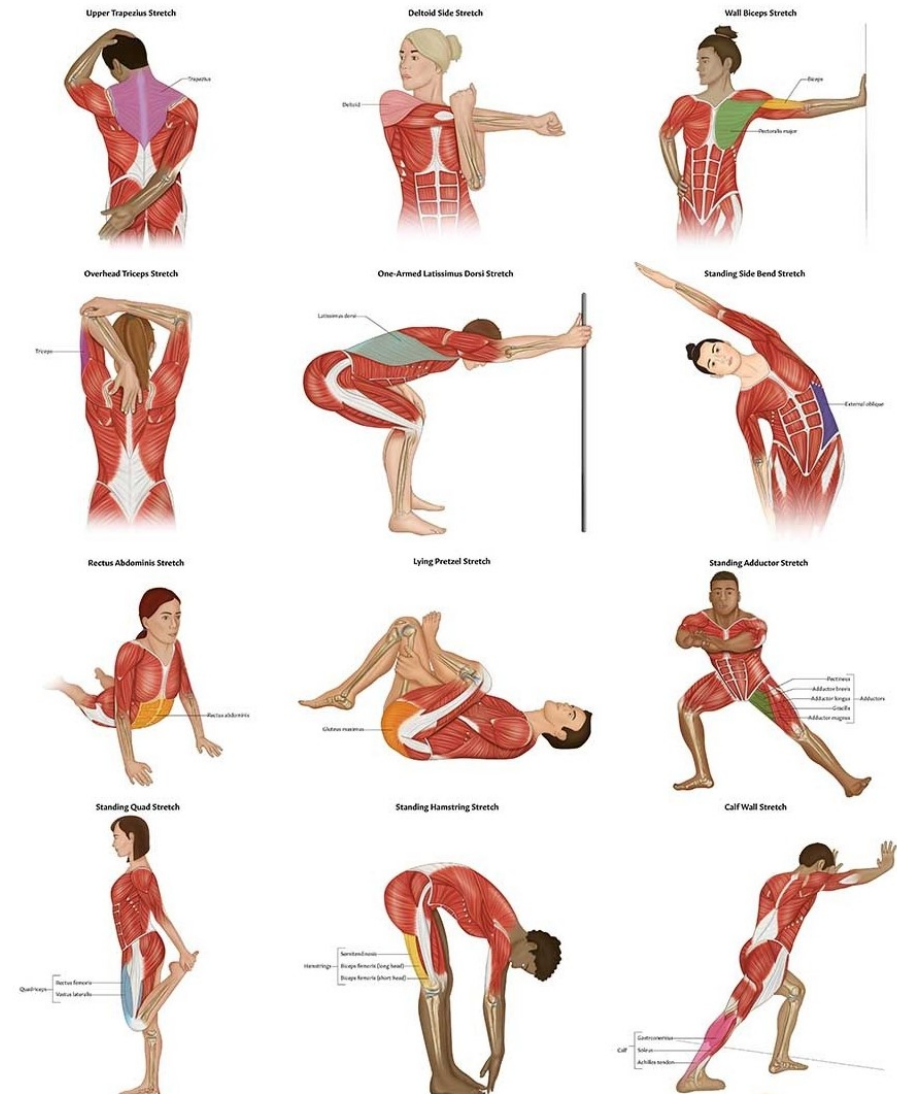
- Conscious and independent perception of joint position
- Different receptor cells (proprioceptors in muscles, tendons and ligaments)
- Sensory organs (visual, hearing, touch, etc.)
- Planning of the movements

Prevention - stretching

Power, speed and usefulness regarding movement is dependent upon biomechanic specificity and conditioning of muscle-tendon unity



Determination of effectiveness of movement



Prevention - stretching

- Increased levels of strength and speed
- Improved blood circulation throughout muscle tissue – faster recovery
- Improved quality and range of movement – increased range of motion. More diverse, complex and coordinated movement
- Injury prevention
- Increased overall performance



Prevenção az utánpótlás sportban

Sport injuries

- Assymmetric load
- Effects of sports on posture
- Sportspecific injuries
- Lack of prevention training

Longterm athletes' development models

- Focus is elsewhere in each age groups
 - 0-6 aged
 - **12- 15 aged**
 - 6-9 aged
 - 15- 18 aged
 - 9- 12 aged
 - 18+



Adolescence

- Peak height velocity

	average		accelerated		late maturing	
	age	cm/year	age	cm/year	age	cm/year
Boys	13,4	8,6	11,6	9,4	15	7,9
girls	11,2	8,32	9,8	9,01	12,8	7,61

- Varying body sizes, body proportions
- Changes in biomechanical conditions of movements



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13

14

Prevention in adolescence sport

Optimization of training load

- „overuse”
- „dysuse”
- „misuse”
- „abuse”





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Thank you for attention!