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**PREVENTION IN SOCCER: A STUDY ON THE VARIANCES BETWEEN KICKING AND SUPPORTING LEGS AT A YOUTH SOCCER ACADEMY**

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**Introduction**

Hamstring injuries are one of the most common traumas in soccer (Ekstrand et al 2009). In a review, Opar et al. (2012) underlined that hamstring strain injuries are probably due to a poor level of muscle flexibility, a high degree of strength imbalance, and the existence of bilateral asymmetries. However, the incidence rates of hamstring injuries have not declined, even though coaching staffs are always searching for new methods to warn it off. In addition, the risk of recurrence of a muscle district damage is very high and the causes are still unclear. Such information suggests that the understanding of this phenomenon is still incomplete and further investigation is advisable. Considering this, innovative strategies should be assessed in order to concretely reduce hamstring

injuries. Above this, Daneshjoo et al (2013) investigated the effects of a prevention protocols set directly by FIFA. All research carried out to date is based on adult players as subjects. No study has concerned young athletes, even if playing football is very common among children all over the world. That being said, the aim of this study is to identify a valid preventive screening protocol comparing kicking and standing leg parameters at a youth soccer academy

### Methods

20 children ( $8 \pm 2$  years,  $31 \pm 9$  kg,  $132 \pm 10$  cm) from a local soccer school were recruited for the present study. All the parents approved their participation by signing an informed consent. Children were tested using Gwalk (BTS S.p.A., Italy) to analyse the gait cycle while baropdometry and stabilometry were investigated using P-Walk balance board (BTS S.p.A., Italy). In addition, the Spinal Mouse® (Idiag, Volketswil, Switzerland) and a digital goniometer (GetMyRom for Iphone 5s, USA) were used to evaluate the spine morphology and the hip joint mobility respectively. Participants data were collected on the same day. Gait Cycle parameters were recorded through a walk on a 20 meters shuttle path (10+10). Baropdometry and stabilometry were tested standing on the P-walk board for 30 seconds while staring at a specific target applied on the wall. Spine morphology was evaluated on the saggital plane in upright position, in maximal flexion and maximal extention of the spine. Finally, hip goniometry measuers were recorded with the subject lying supine on the examination table. The participant should bend his leg as mush as he could while the opposite one had to remain completely extended.

### Results

Results show a significant difference in the evaluation of hip joint mobility between kicking and standing legs (Table 1,  $p < 0.05$ , 5%), while other trials have not not identified any significant difference.

### Conclusions

Playing soccer can enhance joint mobility differences between kicking and standing legs from early years of practice in prepuberal phase. According to what the literature says about imbalances in flexibility and strenght level in both legs, it is reccomended to propose exercises which are able to minimize joint mobility differences. Furthermore, this study sheds a new light on the investigation of hamstring injuries. The process of injury development in young athletes needs to be consider a central and powerfull component of prevention strategies.

<b>Hip Goniometry</b>			
<b>Players</b>	<b>Footedness</b>	<b>kicking leg</b>	<b>standing leg</b>
Player 1	R	56,1	62,8
Player 2	R	84,9	68,2
Player 3	R	85,1	87,2
Player 4	R	60,7	70,7
Player 5	R	74,2	60,9
Player 6	R	75,7	68,2
Player 7	R	74,5	79,4
Player 8	R	68,2	58,7
Player 9	R	54,9	55,3
Player 10	R	84,1	77,8

Player 11	R	71,6	75,2
Player 12	R	97,0	83,5
Player 13	R	88,3	91,1
Player 14	R	66,4	65,3
Player 15	R	70,9	62,0
Player 16	R	81,5	69,2
Player 17	R	93,0	79,1
Player 18	R	66,7	66,9
Player 19	R	68,2	58,7
Player 20	L	63,1	71,3

Table 1. Hip Goniometry. Table shows data of hip goniometry from kicking and standing leg. Data are expressed in degrees (°). Footedness of players is also declared.

### References (maximum 3)

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