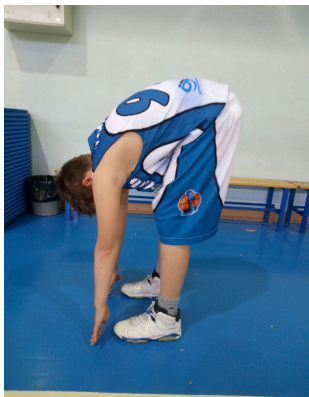


LONGITUDINAL PREVENTION STUDY OF LOW BACK PAIN IN SPORTY CHILDREN: A PRELIMINAR CASE-CONTROL STUDY

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Introduction: epidemiologic evidence of Low Back Pain (LBP) demonstrates a significant increasing incidence on adolescents. Furthermore juvenile LBP is a risk factor for adult LBP. In the Italian context there is no more evidence neither research about this topic. This longitudinal study aims to verify the influence of sport practice and other risk factors on adolescents' LBP. Through a prevention program, we would verify if the incidence of this disease would change. The project considers a sample of young basketball players aged between 8 and 12 years old.



Methods: Recruitment in 2 basketball Clubs of the region of Trieste .

- 61 children aged between 11 and 12 years old (mean-age 11.3; SD=0.45)
 - 3 children excluded for LBP; 1 child excluded for lack of assessment. Final sample of **57 children** (43 boys and 14 girls).
- The children participated in two different programs of training:
- 35 children (14F; 21M), mean-age 11.5 years (SD=0.5); 3 basketball trainings for week and weekly 30' **Prevention Protocol – CASES.**
 - 22 children (just M), mean-age 11 years; 3 basketball trainings for week and motor activity by the coach (weekly 30' of nonspecific activity) – **CONTROLS.**

The first assessment (T0) consisted in:

- anamnestic Questionnaire, observational postural assessment, Photogrammetric assessment (through validated software PASS/SAPO)

After T0, a specific Prevention Protocol for the cases has been developed and proposed by Physical Therapists.

This Prevention Protocol consisted in weekly 30' of: **global active stretching (RPG method), selective stretching, core stability/balance/proprioception.**

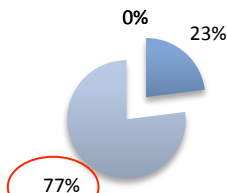
The children have been re-evaluated after a short prevention period of three months (T1).

Results: the table on the right shows the p-values at T0 and T1 between cases and controls. At T0 the groups were statistically comparable for the considered items (Cranio-cervical angle – CCA, Lumbo-pelvic angle – LPA, Tibio-talar angle – TTA). At T1 the statistically significant LPA difference between the two groups emerges. By considering the longitudinal analysis, cases LPA has not been modified (P value=0.5056). On the contrary LPA of controls has changed, but with a significant negative difference (P-value=0.0008). The following pie charts show the LPA percentage changing of the two groups, related to the hamstrings flexibility: cases demonstrate a decreasing number of children with very limited flexibility, controls an increasing one instead.

	P-value at T0	P-value at T1
CCA	>0.05	>0.05
LPA	>0.05	<0.01**
TTA	>0.05	>0.05

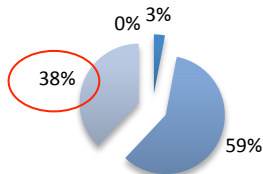
LPA at T0 - CASE

■ <6,6° ■ 6,6°<22,5 ■ 12,9°<22,5° ■ >22,5°



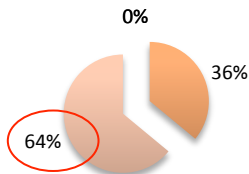
LPA at T1 - CASE

■ <6,6° ■ 6,6°<22,5 ■ 12,9°<22,5° ■ >22,5°



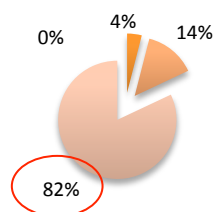
LPA at T0 - CONTROL

■ <6,6° ■ 6,6°<22,5 ■ 12,9°<22,5° ■ >22,5°



LPA at T1 - CONTROL

■ <6,6° ■ 6,6°<22,5 ■ 12,9°<22,5° ■ >22,5°



Legend

LPA's cut-offs:

- <6,6°: greater hamstrings flexibility
- 6,6°>12,9°: normal hamstrings flexibility
- 12,9°>22,5°: limited hamstrings flexibility
- >22,5°: very limited hamstrings flexibility



Conclusion: Even if the prevention protocol has been proposed for a short period of three-months, the outcomes demonstrate a statistically significant difference, especially considering the LPA. This modification is important because of the correlation (as risk factor) between LPA and LBP. The project has been continuing by increasing the sample also with younger participants, and by focusing on the longitudinal analysis of the cases after a longer period of prevention protocol.