Background Little is known about the impact of functional muscle restrictions on the level of functional performance among female soccer players.

Objective The aim of this study was to analyze: a) abnormalities in the length of lower limb muscles, b) the correctness of movement patterns, and c) the impact of functional limitations of muscles on the correctness of fundamental movement patterns in a group of female soccer players, in relation to their skill level.

Design Cross Sectional Study.

Setting Elite and sub-elite division.

Participants 21 female soccer players from Polish Ekstraklasa (PE) and 22 players from the 1st Division (1D).

Interventions All participants were tested for lower limb muscle length restrictions and level of fundamental movement skills (with the Fundamental Movement Screen™ test). Chi-square test was used for categorical unrelated variables. Differences between groups in absolute point values were analyzed using the non-parametric Mann-Whitney U test. Statistical significance was set at P<.05.

Main outcome measurements Lower leg muscle length, FMSTM score.

Results Significantly higher number of abnormal rectus femoris length in the 1D (P=.0433) and abnormal hamstring results (P=.0006) in the PE was observed. PE scored higher in the trunk rotational stability test (P=.0008), the 1D players scored higher in the deep squat (P=.0220), in-line lunge (P=.0042) and active straight leg raise (P=.0125) tests. The results suggest that there are different functional reasons affecting point values obtained in the FMSTM tests in both groups.

Conclusions The differences in the rectus femoris and hamstring muscle flexibility observed between female soccer players
with different levels of training may result from a long-term impact of soccer training on the muscle-tendon system and articular structures. Different causes of abnormalities in fundamental movement patterns in both groups suggest the need for tailoring prevention programs to the level of sport skills represented by the players.