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***Abstract***

*The asymmetry of use of lower limbs may influence balance beam results and injury risk. This research was performed to study how many elements which asymmetrically load lower extremities are included in balance beam routines of professional female gymnasts. We video-recorded all exercises of qualification round on balance beam at an international competition B World Cup in Ljubljana 2014. We analysed take-offs and landings to define the actions done by left leg, both legs simultaneously, or right leg. A delay of at least 0.01 second in recruitment of one of the lower limbs defined the action as being from a single leg. In the routines of 19 included gymnasts we found significant asymmetry of load: right leg initiated 42.87% of actions (on average 12.47±3.32 per routine), while left leg and both legs initiated 29.08 and 28.05 % of actions (on average 8.58±2.97 and 8.21±3.07 per routine, respectively). The load on right leg was significantly larger compared to left leg and both legs (p=0.002 and 0.003). Only 4 gymnasts (20.8%) loaded left leg more than right leg. Additional review of code of points revealed that it mostly contains elements (in 60% of cases) where a single leg at take-off or at landing is loaded. We conclude that asymmetric lower limb loading is present at balance beam routines in elite gymnasts. We hypothesize that the unilateral distribution of load may be associated with the unilateral predominance of injuries and this should be analysed in further research.*

***Keywords:*** *female, artistic gymnastic, injuries, lateralization.*