HOW THE PELVIS MOVES DURING RUNNING IN EXPERIENCED HURDLERS

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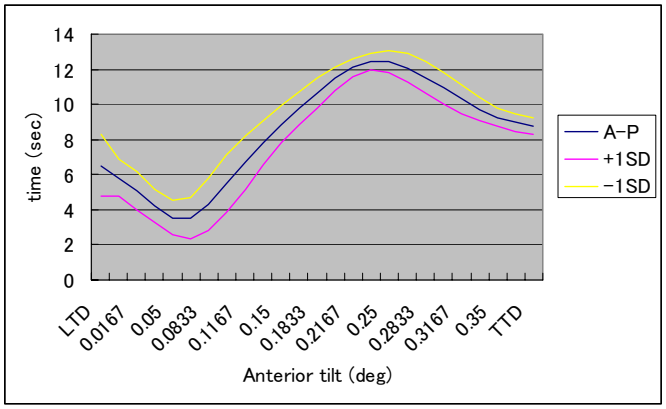
INTRODUCTION: It was said that dash is a symmetric movement. While, it can be said that hurdling is an asymmetric movement. It is thought that the interval running has some different aspects of a usual dash. However, there are few reports about the features of interval running. By the way, there are a lot of reports about pelvic movement during walking and running, and these reports were evidence that the movement of lower limbs greatly influence the pelvic movement. Therefore, the purpose of this research is to clarify the feature of hurdlers running based on the movement of the pelvis.

METHOD: Two experienced hurdlers were participated in this study. Subjects ran the most comfortable speed (4.0m/sec.) on the lane of 1m×20m. The 2.5 diameter reflective markers were put on the right and left ASIS and PSIS. The running were videotaped from a right and left side by 30Hz using the digital video camera. The video images were captured to the personal computer (TOSHIBA), and Frame-DIAS V3 (DKH) were used to calculate the kinematic data. Pelvic Anterior-Posterior tilt (A-P) was calculated using two dimensional Direct Liner Transformation method. Paired t-test was used for a statistical analysis (P<.05).

RESULT AND DISCUSSION: Fig.1 shows the A-P of one subject. The waveforms of A-P showed a similar tendency during running cycle. However, maximum A-P was significantly larger after the lead leg side touchdown. This is thought that grounding the lead leg, subjects received the larger force opposite to the running direction. On the other hand, after grounds it, the maximum value of the inclination of the pelvis is large on the trail leg side. It is thought that the pelvis inclined forward greatly to have tried to regain the deceleration by the earth by a strong kick. And, the same tendency was shown in another subject.



Firure.1 Pelvic A-P tilt after Lead leg touch down(LTD) to Trail leg touch down(TTD).

CONCLUSION: In this research it was clarified that the movement of the pelvis was different in a right and left foot. However, the cause of the difference of movement was not able to be ascertained. It will be necessary to examine the adjoined movement of the segment and the movement of the pelvis additionally in the future.

REFERENCES:

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