0846 QUANTITATIVE RISK ASSESSMENT OF THE SWING IN A PARK BY INTEGRATING INJURY DATA, BEHAVIOUR OBSERVATION DATA AND BIOMECHANICAL SIMULATION TECHNOLOGY

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Injury prevention is one of the most important and urgent issue in children health since the primary cause of death of children is unintentional injuries. Developing safety measures based on injury data are essential for preventing childhood injuries. Passive approach, namely Injury prevention approach by product modification is strongly needed. The risk assessment is one of the most fundamental methods to design safety products. However, the conventional risk assessment has been carried out subjectively because product makers have poor data on injuries. Developing methodology quantitative risk assessment

for injury prevention is required by product makers. This paper proposes a new system for risk assessment by integrating biomechanical simulation, sensory observation data on how children's use products, and hospital-based injury surveillance data. The system allows a product designer for foreseeing how children use a product and which types of injuries occur due to the product in daily environment. To prove the effectiveness of the proposed system, this paper describes the application of the system to risk analysis of the swing in a park. In order to obtain children's behaviour data around the swing, video cameras were installed in the park. The camera image of behaviour data was analysed by image processing. As for injury data, authors used detailed injury data collected in hospitals using the body graphic information system developed by authors. The developed system can search the candidate of possible situation resulting in serious injuries using sensory data and injury data, and evaluate risk quantitatively in terms of head injury criteria (HIC) using biomechanical simulation.