**Relationship between pressure ulcers and dynamic buttock-pressure distribution during performance in wheelchair athletes**By Prof. Hiromi Sanada, Dr. Takeo Minematsu, Dr. Misako Dai

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Background

Dynamic pressure distribution on the buttocks is thought to be a major risk factor for pressure ulcers (PUs) in wheelchair athletes as they perform complex actions. However, no studies have investigated these dynamic pressure distributions during performance. This study aimed to measure dynamic pressure distribution and investigate its association with PUs in wheelchair athletes.

Methods: A cross-sectional study was conducted among fourteen elite wheelchair basketball athletes in November 2017. A wound, ostomy, and continence nurse and a sonographer identified any PUs. Buttock pressure distributions were measured using the High Speed I-Scan system (Nitta, Osaka, Japan) and sheet-type pressure sensors, BIG-MAT (Nitta).

Results

Ischial PUs were observed in three (21.4%) participants. In the analysis of dynamic pressure distribution during 5-min performance, the total length, maximum lengths, and the number of high-pressure periods (>115 mmHg), were 60.25–155.16 s, 2.53–23.53 s, and 190–706 times, respectively, in participants who experienced ischial PUs. These results were higher than those of participants without ischial PUs (0.00–28.05 s, 0.00–1.25 s, and 0–104 times, respectively).

Conclusion

Our findings suggested that continuous and/or repetitive high-pressure loading related to the occurrence of PUs during the performance of wheelchair basketball.