

M. NAGAMACHI, M. NAKAMURA, K. MORISHIMA. *Kansei engineering development for preventing bed sores. Gerontechnology 2010;9(2):312; doi:10.4017/gt.2010.09.02.211.00* **Purpose** A bed sore (pressure sore, decubitus ulcer) occurs when a client lies down on the bed for a long time. The reasons are, (i) a person strongly presses his/her body to a mattress, (ii) this prohibits blood flow in the upper layer of skin, (iii) friction, which happens when the body turns on the mattress, will trigger a bed sore to occur, (iv) moisture, from sweat and urination, will make skin weak, and (v) bad nutrition is also related to bed sores. These reasons combine when using a low rebounding mattress, for instance using a mattress made of Polyurethane. **Method** Breathair, made of polyester, has a higher rebounding function, is easy to wash and dry and has a density and height production can be easily controlled. Breathair is dry because it is made of intricate and small pipes. Toyobo provided Breathair in a variety of densities and heights and we collected twenty-two polyurethane mattresses from the market. These samples were tested for body pressure between 40~108 kg using FSA body pressure measurement. At the same time, participants evaluated all mattresses using a 5-point scale of the kansei words: comfortable, don't sink, easy rolling over and so on. Body pressure and kansei data was collected using 22 + 8 new mattress using PCA (Principal Component Analysis). **Results & Discussion** PCA results showed that, (i) too small body pressure wraps a body and as a result rolling over was very hard and prevent blood flow, (ii) higher scored mattress in kansei evaluation has reasonable low body pressure and was easy to roll over on. We placed ten new mattresses each in five national hospitals and have recorded recovery information for patients using the new mattresses. In Akita Labor Hospital seven patients recovered from their bed sores, four in 1-4 weeks, the other three, who had more severe bed sores, took 3-5 months to heal. At present, all hospitals testing the mattresses have had no new reports of bed sores.

References

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