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## THE MANAGEMENT OF NIGHT TIME URINARY INCONTINENCE: EFFECTS ON SKIN

**AIMS OF STUDY:** Absorbent pads are the main method of managing urinary incontinence in residential settings. Improvements in technology have resulted in highly absorbent products which may be worn all night, but the effects of prolonged pad wearing on aged skin are unknown. Hydrated skin is known to be more susceptible to dermatitis<sup>1</sup>, friction and abrasion<sup>2</sup>. The aim of this study was to examine the effect of different pad changing regimes on skin health.

**METHODS:** A cross-over design was used. Following a two week baseline period subjects from residential settings were randomly allocated to one of two pad changing regimes, a *more frequent* pad changing regime (whereby residents were changed at 22.00, 02.00 and 06.00) or a *less frequent* pad changing regime (with residents changed at 22.00 and 06.00 only). Each regime lasted four weeks and was followed by the alternative regime. Skin measurements were taken from selected skin sites using the following tools (i) the Diastron erythema meter (ii) visual rating scale (iii) the Servomed evaporimeter (to measure trans-epidermal water loss) (iv) a pH meter. The primary outcome variable was measurement of erythema using the Diastron erythema meter.

**RESULTS:** Eighty five subjects from 20 nursing/residential homes for elderly people completed the study. Continuous data were analysed using general linear modeling and ordinal data using McNemar's test. The table below shows results from four of the skin sites. No significant differences were found in the severity of erythema, or skin pH, between regimes. However, measurements of trans-epidermal water loss were significantly higher in the *less frequent* pad changing regimes indicating that skin was 'wetter'.

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Five subjects developed a stage 2 pressure ulcer (abrasions) during the *less frequent* pad changing regime, but none in the *more frequent* pad changing regime, this result was not significant  $0.1 > P > 0.05$ .

	Less frequent regime (mean/SD)	More frequent regime (mean/SD)	P value	Visual rating scale
Erythema meter. Groin R	89.6 (36.5)	93.3 (29.1)	0.311 (NS)	NS
Groin L	92.9 (33.7)	93.8 (35.1)	0.612 (NS)	NS
Buttock R	125.4 (41.2)	132.8 (44.2)	0.207 (NS)	NS
Buttock L	133 (41.6)	133 (42.6)	0.399 (NS)	NS
Trans-epidermal water loss (g/m <sup>2</sup> /hr)	55.9 (31.8)	68.1 (33.8)	0.009	
pH	6.8 (0.4)	6.7 (0.5)	0.140 (NS)	

**CONCLUSIONS:** We found no evidence that a *less frequent* pad changing regime has an effect on skin erythema, but there is evidence that skin is wetter, which may make it more vulnerable to friction and abrasion. The non-significant finding of greater incidence of stage 2 pressure ulcers merits further investigation. We cannot therefore be confident that a *less frequent* pad changing regime has no effect on skin health.

<sup>1</sup> (1986) Etiological factors in diaper dermatitis: the role of urine Pediatric Dermatology 3 2 102-6

<sup>2</sup> (1986) The effects of wearing diapers on skin Pediatric Dermatology 3 2 95-101.