

Two main factors contribute to skin barrier damage in the diapered region which can lead to irritation:

**Overhydration:** prolonged exposure to excessive moisture

**Prolonged contact with irritants in urine & feces**

Diapers with superabsorbent material lock in fluid to help keep baby's skin dry



Use pH balanced wipes to help support baby's skin by cleaning away irritants in urine & feces at every diaper change



### What does overhydration do to skin?

#### Disrupts the skin barrier<sup>1-4</sup>

Overhydration compromises the integrity of the skin barrier, making it easier for potential irritants to penetrate the skin and cause inflammation:

- 1) Skin cells absorb excess moisture, swelling in size
- 2) Excess water collects between cells, causing gaps to form
- 3) The lipid barrier that forms around each cell becomes disrupted, allowing irritants to easily penetrate

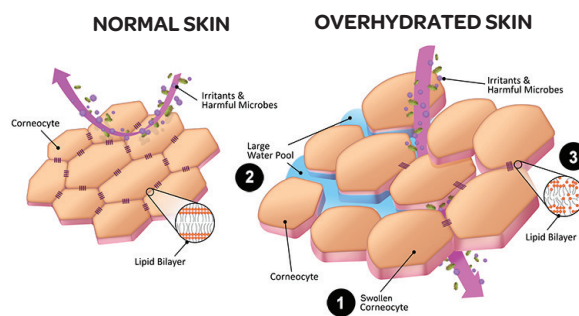


Diagram of normal versus overhydrated skin

#### Increases skin pH<sup>5-7</sup>

When the skin barrier is disrupted, skin pH can increase due to a breakdown of the acid mantle, a thin film on the skin surface made up of sebum, and lactic and amino acids from sweat.

Increased skin pH has been shown to:



Skin barrier formation



- Activity of enzymes in feces that breakdown skin
- Pathogenic bacteria growth on skin



**Increased risk of dermatitis in diapered region**

#### Increases skin friction<sup>8,9</sup>

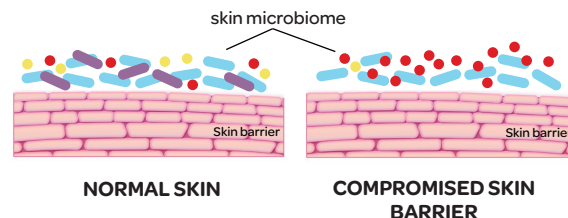
Overhydrated skin is at higher risk of damage due to friction or abrasion. To reduce this risk:

- Perform frequent diaper changes
- Allow time for baby's skin to air dry before putting on a new diaper

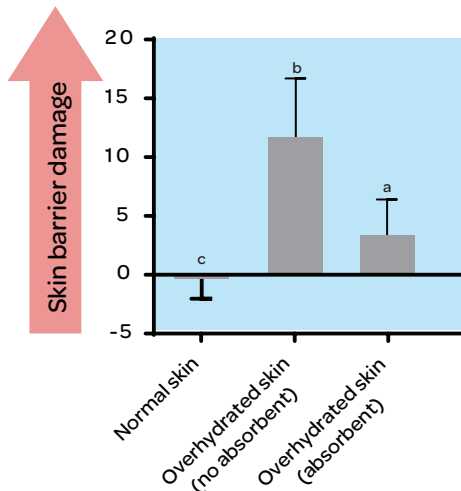


#### Disrupts natural skin microbiome<sup>10,11</sup>

Healthy human skin is home to a diverse community of skin-friendly microorganisms, called the skin microbiome, that keep skin balanced. Overhydration reduces skin microbial diversity. Lower skin microbial diversity has been linked to a compromised skin barrier and can potentially increase risk of dermatitis in the diapered region.

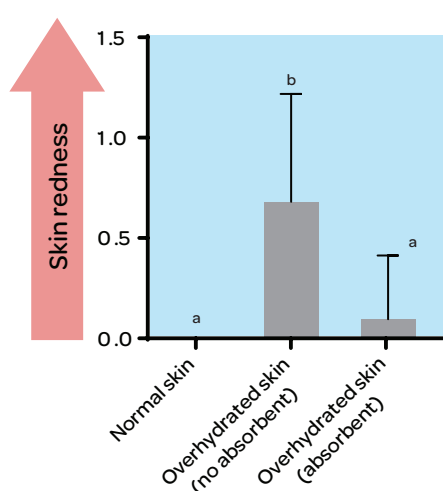


Potential skin damage due to overhydration can be minimized by reducing the amount of excess moisture on skin.



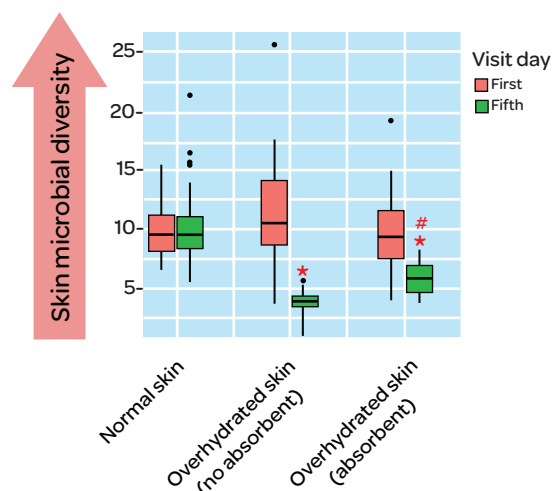
**Figure 1:** Change in transepidermal water loss (TEWL), a measurement of skin barrier integrity, between days 1 and 5 for overhydrated skin, overhydrated skin with an absorbent, and normal skin (control) groups.

Data presented as mean  $\pm$  SD (n=26). Statistical grouping was based on p-value from ANOVA. Different letter codes designate statistical difference among groups (p<0.05).



**Figure 2:** Skin erythema score on day 5 of treatment for overhydrated skin, overhydrated skin with an absorbent, and normal skin (control) groups.

Data presented as mean  $\pm$  SD (n=26). Statistical grouping was based on p-value from ANOVA. Different letter codes designate statistical difference among groups (p<0.05).



**Figure 3:** Skin microbial diversity on days 1 and 5 for overhydrated skin, overhydrated skin with an absorbent, and normal skin (control) groups.

Data presented as mean  $\pm$  SD (n=26). Asterisks denote p<0.05 compared to normal skin control on respective days (ANOVA, Tukey's multiple comparison). # denotes p<0.05 comparison between overhydrated skin with and without an absorbent on day 5.



**Huggies® diapers feature a super absorbent material that quickly pulls in fluid and locks it away to help keep delicate skin clean, dry and healthy.**

Overhydration compromises the skin barrier which then allows more irritants to penetrate into deeper layers of the skin and cause inflammation. The absorbent core in Huggies® diapers lock in fluid to help keep baby's skin dry and healthy.



**Huggies® Little Snugglers diapers have a breathable outer cover to help keep skin dry.**

Breathability is important for reducing moisture build-up against baby skin. Together with the absorbent core, these features can help keep skin healthy.



**Huggies® Natural Care™ wipes are pH balanced to help maintain healthy skin.**

Removal of irritants in urine and feces from baby's skin at every diaper change is important to help maintain proper skin barrier function. Our wipes are formulated to help support healthy baby skin.

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