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# **Four Years of Strategic Friction Reduction for a Client with Athetoid Cerebral Palsy**

Case Report Courtesy of:  
Chris Cantu OTR/L, School Therapist and  
with Client and Family Permission

## **Author Affiliation:**

Northwestern Illinois Association • Aurora, Illinois, United States

**Ms. Christine Cantu, Occupational Therapist**

Christine Cantu is an OT who received her bachelor of science from UIC in 1992. She has since dedicated her career to pediatric clients who endured profound neurological loss and their associated orthopedic / seating and positioning needs. She has remained highly focused on leadership roles and aggressively expanding her therapeutic skills on her clients' motoric, positioning, skin integrity, and sensory needs. Christine can be reached at [ccantu@thenia.org](mailto:ccantu@thenia.org).

## **Abstract:**

Strategic Friction Reduction can have dramatic prompt and long term implications on skin integrity. This case study shows very quick positive response in the skin integrity, as well as lasting outcomes, over a four-year time period.

The client has athetoid cerebral palsy, with inflammation, and callus and blistering formation from friction on the back of her head, with severe hair loss. She also has impaired skin integrity on her lower extremities where she contacts a pommel. A very low friction technology was added to the seating components. The low friction technology is a dual layer, breathable fabric technology that glides smoothly against itself absorbing friction-induced shear stress to prevent tissue damage in at-risk areas.

This study shows both the prompt, and 4-year outcomes, following the addition of strategic friction reduction technology to a seating system.



**17 Oct. 13**

## 17-Oct-13

Patient: 14 yr. old female

### Diagnosis:

Athetoid Cerebral Palsy

### Condition:

Inflammation, calluses and blistering formation on back of head. Severe hair loss.



**29 Oct. 13**

## 23-Oct-13

GlideWear® application at wheelchair head support bed-cover and pillow-case.



## 29-Oct-13

Inflammation and blistering resolved. Hair is growing again (GlideWear® in use for 6 days).



## 2018

Student still using the GlideWear®-covered headrest. Small spot with reduced hair growth remaining (10-Jun-14).

Hair problem resolved (25-Aug-14).

The headrest continues to provide benefit to this client. The strategic friction reduction helps with comfort and with maintaining skin integrity over a four year period. (23-Jan-18).



## Long Term Result

## Details about pain:

"At this time, client continues to present as non-verbal and demonstrates functional cognitive limitations. However, client possesses a significantly reliable ability to indicate "yes" and "no" with head nod / shake upon verbal questioning in English. Client consistently indicates "yes" when asked if her head feels better since the use of the friction reduction products. Client also consistently gets very excited whenever it is time to put a new cover on or when she is told a new one is on its way. Staff / therapists feel client has an understanding of the positive impacts of friction reduction products on her comfort level. Her headrest cover is replaced at least once a year.

Regarding current indications of pain. At this time client does not indicate any pain in relation to her head. Historical reports are positive for physical presence of deep blisters / calluses, however, no reports of indication of pain at head are found. Historical reports are positive for significant pain with soft tissue damage of her knees. Currently, with use of custom pommel with friction reduction product in place, there are no complaints of or signs of knee related pain."

## Quotes from Client's Mother:

"I am very happy that her hair is not falling out anymore."

"Her hair used to fall off in the tub when we washed her. We do not get hair in the tub anymore."

"Her hair used to rub off on her pillow. We do not find hair on her pillowcase anymore."

"The cover on the block between her knees has helped a lot. She does not have so many bruises on her knees now."

## Purpose

The purpose of this study is to assess the long-term effectiveness of an ultra-low friction fabric as a technology in seating and wheeled mobility components to heal and prevent subsequent injuries from friction and shear forces. Past testing of this fabric shows that it reduces friction and shear forces, and is air and moisture permeable, which supports a therapeutic microclimate.

## Methods

The client in this case study has Athetoid Cerebral Palsy and has significant forceful movement while sitting in her wheelchair and in her bed, contributing to problems with tissue integrity on her head and legs. She developed blisters, calluses, pain on the back of her head, and hair loss on the back of her head and medial femoral condyles. GlideWear® low-friction interface was added to the headrest and to the medial knee support of this client's wheelchair. A GlideWear® pillowcase was also used.

## Results

This client's blisters and calluses healed, and hair re-grew, with a noticeable change in a couple of weeks to a month. This client has had good skin integrity since that time, and no pain attributed to friction and shear, for four years following the onset of this treatment with the low-friction interface.

## Conclusion

Use of a strategic low-friction interface in a seating system contributed to a robust healing process that allowed for the discontinuation of blisters and calluses, and allowed for the reduction of pain and re-growth of hair. The interface has allowed for the maintenance of healed tissue and growth of hair without recurrence of blisters and calluses for the past four years.

## **References**

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