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Relaxers may cause permanent bad hair days, warns UCT researcher

The use of hair relaxers can lead to a rash of embarrassing hair and scalp conditions, including hair loss, especially when combined with extensions, weaves or braids, according to a recent study by UCT Associate Professor Dr Nonhlanhla Khumalo, who is based in the Division of Dermatology at Groote Schuur Hospital and Red Cross Children's Hospital.

Dr Khumalo's latest study, published in the March issue of the *Journal of the American Academy of Dermatologists,* analysed the amino acid content of natural and relaxed hair. (Amino acids are the building blocks of protein.) The study showed that relaxers change the levels of four of the 16 amino acids that make up a strand of hair. The changes in three amino acids have been associated with inflammation, and may be the way relaxers contribute to permanent hair loss and Central Centrifugal Circatricial Alopecia (CCCA), which leads to messy bald spots that spread from the crown of the head. This link, however, requires confirmation and is currently being studied further. The fourth change in relaxed hair was a dramatic reduction in cystine: the amino acid directly responsible for hair strength.

For black women, the most worrying causes of hair loss are CCCA and traction alopecia (TA), which is most common on the hairline and is the result of pulling hair into a tight ponytail, braids and weaves. The highest risk of TA occurs when traction hairstyles are performed on relaxed hair.

Even more worrying, Dr Khumalo's research revealed, was that the levels of cystine in oft-relaxed hair were comparable to that of people who suffer from a genetic condition called trichothiodystrophy, which is associated with fragile hair. "The end result is that the hair is fragile and brittle compared to the original, unrelaxed hair," she says.

Adding extensions, weaves or braids to the hair compounds the problem by putting further pressure on the already weak strands.

Dr Khumalo also found that cystine content was lower in the hair furthest from the scalp (distal hair) than in hair closer to the scalp (proximal hair), suggesting that the damage increases with more frequent relaxer use. A possible solution that needs industry investigation is to protect the distal hair with a barrier cream, or by wrapping it in foil during the relaxing procedure.

The best solution, says Khumalo, would be to go natural – it is healthier, especially for children. She advises women who use relaxers to avoid or limit braiding and extensions. Any hairdresser who painfully pulls hair (whether natural or relaxed) should be avoided, she adds.

"Any painful hairstyle, however expensive, should be undone. Pain is the body's way of saying, 'All is not well' – ignore it and you risk losing your hair! A wet *doek* or pain killer is not the solution. After all, you don't keep a burning hand on the stove – so why do it with your hair?"

Dr Khumalo's research into the relationship between hair relaxers and hair loss began when she initiated two population studies in the nearby Langa community and published her findings in the *British Journal of Dermatology* in 2007. The articles showed that some 70% of school girls and 60% of adults were using hair relaxers.

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