



# A comparative study of the skin tolerance and efficacy of a retinol product regimen vs. a retinol/niacinamide product regimen in Chinese females

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## Introduction:

Studies on the anti-wrinkle effects of retinol have been widely reported [1-2]. Retinol can inhibit the degradation of matrix metalloproteinases, increase collagen density and dermal layer thickness, and improve skin elasticity [3-5]. Although retinol has excellent anti-aging effects, it may also cause a range of irritants, especially in Asians [6-10].

Whether or not retinol can be used in the daytime for Asians is a very interesting topic to study. Although many documents suggest that daytime use of retinol is okay, most of them are theoretical analysis. In addition, niacinamide is expected to reduce the irritation and increase the efficacy of retinol due to its barrier repair function and its own anti-aging effect [11-16]. The purpose of this clinical study was to explore whether a 0.1% retinol cream could be used during the daytime in the seasons of increasing UV exposure; and determine if preconditioning the skin with 5% niacinamide moisturizer before beginning 0.1% retinol treatment and continuing 5% niacinamide moisturizer application during 0.1% retinol treatment would facilitate the early phase of retinol usage and augment the treatment response in Chinese females.

## Materials & Methods:

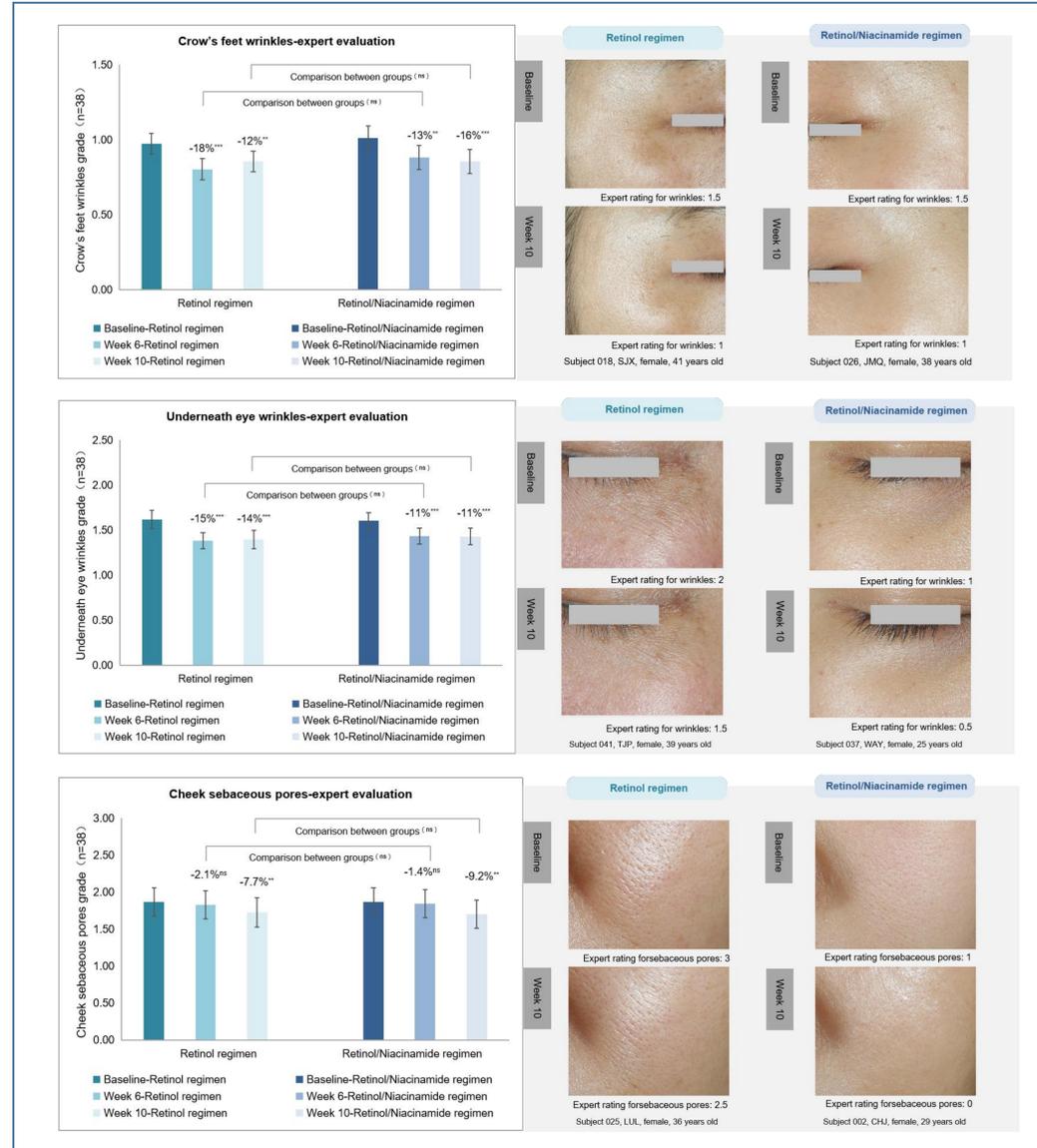
### Clinical research.

A randomized, split-face comparative study was conducted in 40 Chinese women (average age 31±5 years). The subjects were randomly assigned to apply 5% niacinamide moisturizer twice daily to one side of the face for 10 weeks (from April to July). Full-face 0.1% retinol treatment commenced 2 weeks into the study. The retinol cream was used in a gradual manner. At first, it was used only twice a week at night. After gradually establishing tolerance, it was used twice a day, once in the morning and once in the evening in the last 4 weeks. Subjects were required to take strict sun protection measures throughout the study. Facial images of all subjects were captured by Visia-CR at baseline and at the 6th and 10th weeks, and were evaluated by experts referring to skin aging atlas (Asian type). Evaluation contents included crow's feet wrinkles, underneath eye wrinkles, and cheek sebaceous pores. In addition, skin color of a\* value was obtained through image analysis of Visia-CR captured pictures by Image-Pro Plus software. Subjects' self-rated questionnaires containing redness, tingling, itching, burning, desquamation/peeling, dryness/tightness, and acne were also studied.

### Statistical analysis.

SPSS was used for data statistics, the significance level was  $p < 0.05$ . For expert evaluation grade data, Wilcoxon signed rank test was used before and after comparison within groups; Mann-Whitney U test was used for comparison of differences between groups. For the a\* value data, the paired t test was used before and after the comparison within the group; the 1 The IFSCC Conference 2021 Mexico independent t test was used for the difference comparison between the groups. Improvement (%) of week 6 / week 10 = (test value of week 6 / week 10 - baseline value) / baseline value, it is used to observe the improvement degree of each parameter. In the analysis results, \* indicates comparison with baseline,  $P < 0.05$ ; \*\* indicates comparison with baseline,  $P < 0.01$ ; \*\*\* indicates comparison with baseline,  $P < 0.001$ .

## Results & Discussion:



## Conclusions:

Even in the seasons of increasing UV exposure, the 0.1% retinol cream produced only mild side effects to the skin of a very small number of subjects, all within acceptable limits. After 8 or 10 weeks application, for retinol product regimen and retinol/niacinamide product regimen, the crow's feet wrinkles grades demonstrated a significant decrease of 12% and 16%, respectively; the underneath eye wrinkles presented a significant decrease by 14% and 11%, respectively; the cheek sebaceous pores improved significantly by 7.7% and 9.2%, respectively; a\* value decreased significantly by 3.5% and 3.3%, respectively. In addition, there were no significant differences in skin tolerance (subject self-assessed adverse reaction results) or efficacy (on the four skin status parameters we studied, including crow's feet wrinkles, under the eye wrinkles, cheek pores, and skin redness) between the two regimens. Products containing 0.1% retinol can be used on the whole face in Asian population once every morning and evening. There were no significant differences about the skin tolerance and efficacy between retinol product regimen and retinol/niacinamide product regimen in the Chinese females, while both regimens provided a series of skin benefits.

## Aknowledgments:

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