1- **Structural changes and immunohistochemical localisation of epidermal growth factor receptor in the true vocal fold of female albino rats administered anabolic, androgenic steroids, and effects of anti-androgen therapy.**

**Background:** Anabolic steroid abuse by women is associated with a number of adverse effects, including laryngeal changes. The epidermal growth factor receptor is related to regulation of the cell life cycle. This study aimed to investigate the structural changes and immunohistochemical localisation of epidermal growth factor receptor in rat vocal folds following anabolic steroid administration, and also to assess the effect of anti-androgens.

**Material and methods:** Thirty-two adult female albino rats were divided into: group I (controls), group II (receiving anabolic steroids for two months) or group III receiving anabolic steroids plus anti-androgen for two months).

**Results:** Group II rat true vocal folds showed thicker epithelial layers with many mitotic figures, thicker lamina propria and thicker muscle fibres; epithelial cells were also immunohistochemically positive for epidermal growth factor receptor. Group III rats showed similar changes, but thin muscle fibres and extravasated red blood cells within the lamina propria.

**Conclusion:** Anabolic steroids caused structural and immunohistochemical changes within the female rat true vocal fold. Co-administration of anti-androgens did not prevent these changes, suggesting that anti-androgens have a limited role in the management of such changes in humans.

2- **Immunohistochemistry: a need for standardization**

As immunohistochemical techniques continue to evolve, their application to surgical and research pathology is becoming increasingly valuable. Despite this, there is no standard method that can be applied for the analysis of the results of immunostaining to ensure that the selected antibody reacts with the expected antigen specifically.

The main goal of standardization in immunohistochemistry is to obtain reproducible and consistent results within each laboratory and comparable results among different laboratories. During the technique, specimens are subjected to different preanalytical, analytical, and postanalytical variables that may affect the reliability of the stain. Therefore, it is important to highlight the different tissue processing and staining variables that may alter the results of immunohistochemistry and assess the magnitude of reported factors in the literature that require standardization.