

# Testosterone, Androstenedione, Cortisol and Cortisone levels in unstimulated, stimulated and parotid saliva

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## Background

In recent years measurement of steroid hormones like testosterone, androstenedione, cortisol and cortisone has become increasingly important in both patient care and research. This is mainly due to the simple and non-invasive sample collection. Several saliva collection protocols are used. However, little is known about the influence of the several collection methods on the hormone concentrations in saliva. Therefore we compared the effect of several saliva collection methods on salivary testosterone, androstenedione, cortisol and cortisone concentrations.

## Methods and results

We investigated in twenty healthy volunteers whether there is a difference between steroid hormone concentrations in unstimulated and parotid gland saliva (Fig. 1) as well as stimulated saliva collected while chewing without aid (Fig. 2), and stimulated saliva by using cotton and synthetic Salivettes®, citric acid or chewing gum (Fig. 3). Testosterone, androstenedione, cortisol and cortisone were measured in all saliva samples using Isotope Dilution Liquid-Chromatography Tandem Mass Spectrometry (ID-LC-MS/MS).

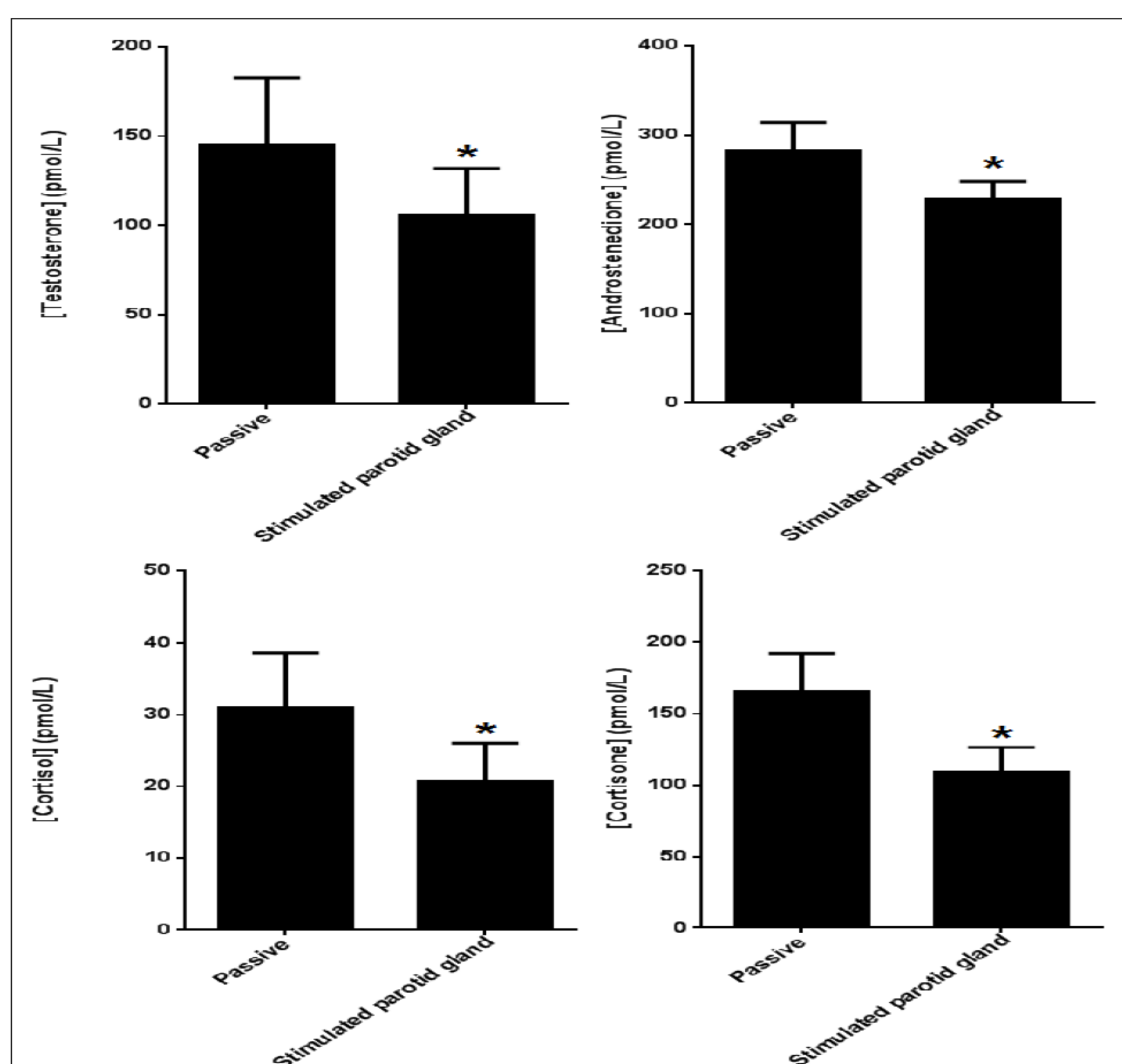


Fig. 1: Testosterone, androstenedione, cortisol and cortisone concentrations in total and parotid saliva. Means +SEM. \* P<0.05 compared to passive saliva collection

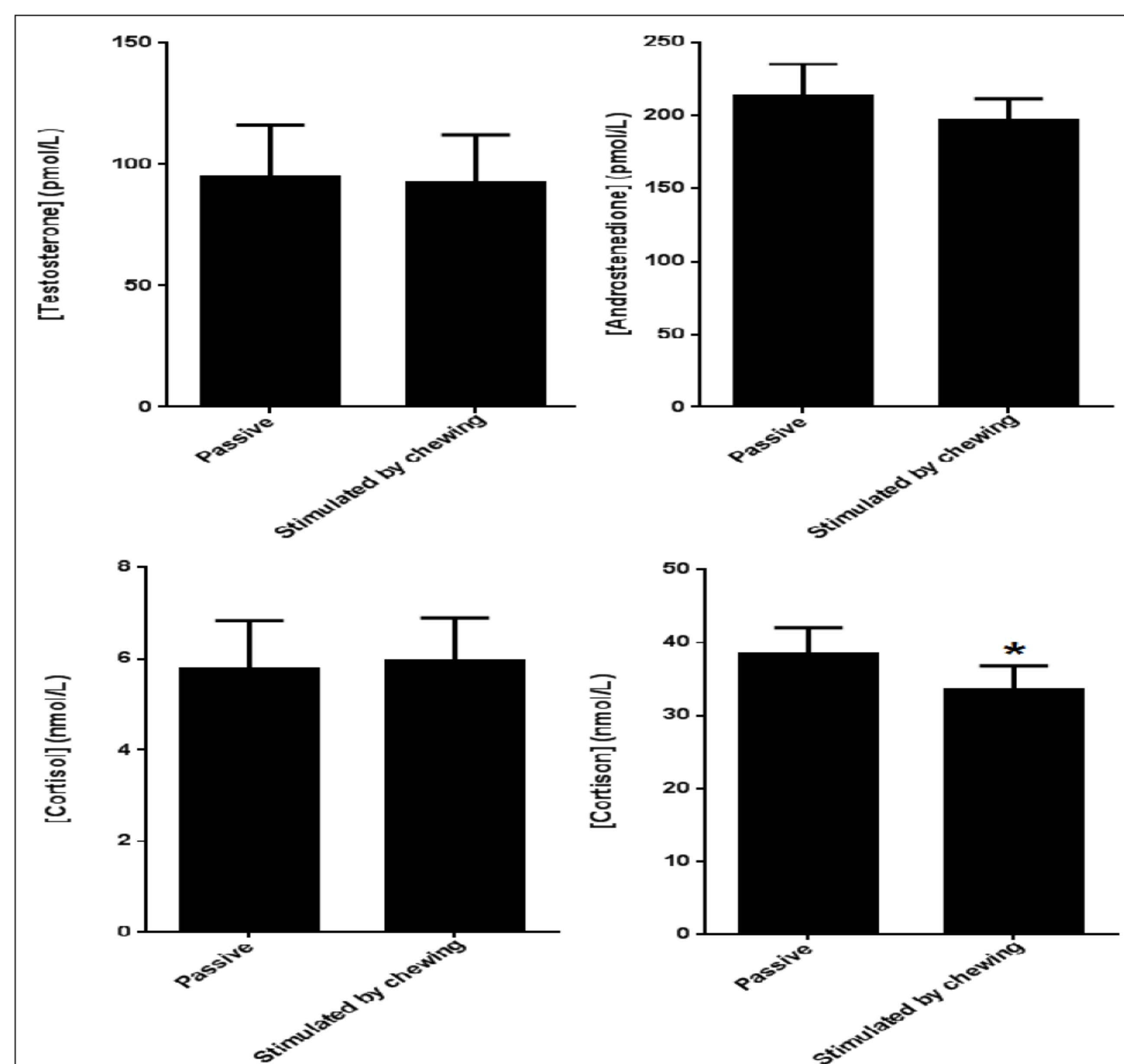


Fig. 2: Testosterone, androstenedione, cortisol and cortisone concentrations in passive and stimulated saliva. Means +SEM. \* P<0.05 compared to passive saliva collection

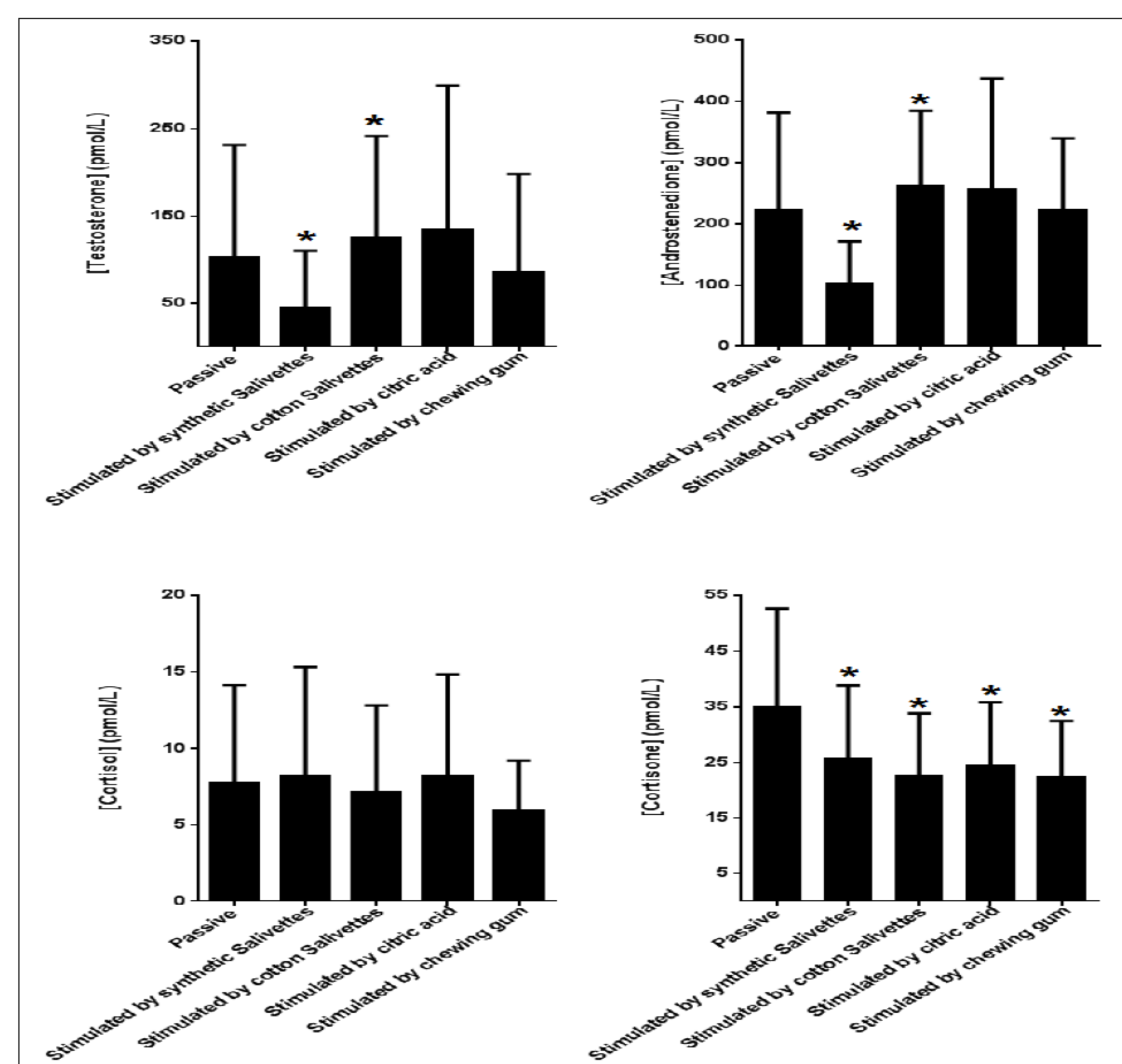


Fig. 3: Testosterone, androstenedione, cortisol and cortisone concentrations in passive and stimulated saliva. Means +SEM. \* P<0.05 compared to passive saliva collection

## Conclusion

The way saliva is collected should be taken into account when analyzing and interpreting salivary hormone concentrations.

