

## Qualitative and quantitative analysis of gingival microvessels by capillaroscopy in healthy subjects

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Gingiva is composed by attached gingiva and free gingiva that are separated by free gingival line. Attached gingiva covers the alveolar bone and adheres to the bone and root surface by fibres. Free gingiva ends with the gingival margin and in clinical practice it can be displaced from the tooth surface to locate the prosthetic margin. Capillaroscopy allows to take microphotographs of the microvessels and to observe their abnormalities in autoimmune rheumatic diseases (1). Aim of this study was to analyse microvessels of the attached gingiva, free gingiva line and free gingiva by means of capillaroscopy. In correspondence of upper incisors of 12 young healthy volunteers, after placement of liquid vaseline, microphotographs (x200) were taken at level of the free gingiva and 2-3 mm more apically within the attached gingiva. Capillaries structure and organization were evaluated in the three areas of interest. In 10 randomly selected microphotographs of the attached gingiva, the amount and percentage of microvessels per mm<sup>2</sup> were also calculated. For each subject, two analyses were performed at 3 weeks of distance for repeatability assessment. At the observation, in attached gingiva vessels appeared as tortuous capillary loops perpendicular to the epithelial surface. At level of free gingival line vessels get linear and parallel to the arch of gingival margin. In free gingiva capillaries run superficially and parallel to the epithelial surface, toward the margin and fell back with a loop on the tooth side. At the quantitative analysis, the method resulted repeatable (Wilcoxon signed-rank test,  $p > 0.05$ ). A mean of 49.8 ( $\pm 9.5$ ) microvessels for mm<sup>2</sup> was found. Capillaries represented the 10.3% ( $\pm 3.5$ ) of the attached gingiva. Capillaroscopy is a non-invasive repeatable method to observe gingival capillaries. This method may be proposed in clinical practice to detect and monitor changes or abnormalities after placement of prosthetic margins.

### References

[1] Cutolo et al. (2008) Capillaroscopy. *Best Pract Res Clin Rheumatol* 22:1093-108. doi: 10.1016/j.berh.2008.09.001.

### Keywords

Microvessels; capillaroscopy; gingival margin.