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Topographical Analysis of Pacinian Corpuscle in the Pulp of Human Cadaver Finger Tip Pulp: A Pilot Cadaver Study

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< Previous

Next >

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Abstract

Background: The human hand is a specialised organ for fine motion and sensation and has a relatively large representation in the homunculus. The pathway of sensation starts from information sent by mechanoreceptors in the hand. This study reports the topography of the Pacinian corpuscle in the fingertips of a human cadaver.

Methods: All 10 digits from both hands of a fresh-frozen cadaver were examined. Glabrous skin distal to the distal interphalangeal joint was harvested superficial to the periosteum including fat and subcutaneous tissue. The glabrous skin were divided into 10 sections that included five distal and five proximal sections. Modified gold chloride staining was performed. Sectioned specimens were observed under a light microscope and the density of Pacinian corpuscles was determined in each segment. The density of the corpuscles was compared between the radial/ulnar and proximal/distal segments and also between digits from the right hand versus those from the left hand.

Results: Pacinian corpuscles were observed only in the subcutaneous tissue. There was no significant difference in density of the corpuscles between the distal and proximal segments or between the right and left hands. There was a statistically significant greater density of Pacinian corpuscles on the radial segments of all digits except the thumb.

Conclusions: There is a greater density of Pacinian corpuscles on the radial side of the human fingertip in all digits except the thumb.

Keywords: Finger Pulp Mechanoreceptor Density Pacinian corpuscle

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