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### Title

Photosensitisation of Helicobacter pylori with 5-amino laevulinic acid

### Permalink

<https://escholarship.org/uc/item/0hh24717>

### Journal

GASTROENTEROLOGY, 116(4)

### ISSN

0016-5085

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### Publication Date

1999

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Peer reviewed

## COMPARISON OF STIMULATION METHODS FOR ANORECTAL SENSATION AND NOCICEPTION TESTING.

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Different methods of anorectal sensory testing are used for neurophysiological and algometric investigations in patients and healthy subjects. Distension and electrical mucosal stimulation are often used, but the comparability of the data and the precise afferents activated by each method are unclear. Methods: distension and electrical stimulation were prospectively compared in 60 healthy volunteers without GI disease: 30 men and 30 women (10 each 20-35y, 36-50y, >50yrs; females balanced nulliparous and parous). Electrical anal (5Hz, 100us, ramped 1mA/s) and rectal (10Hz, 500us, ramped 5mA/s) and rectal distension (ramped 10ml/s) sensation and pain detection thresholds were obtained under strictly standardized conditions. Correlations between stimulation methods and with demographic factors were examined with Spearman's test. Results: correlations: *sensation*: rectal distension with electrical anal (n.s.,  $r=0.21$ ) or rectal (n.s.,  $r=0.25$ ); *pain*: rectal distension with electrical anal ( $p=0.03$ ,  $r=0.28$ ) and rectal ( $p=0.005$ ,  $r=0.35$ ); *demographics*: electrical anal & rectal sensation and pain with age ( $p<0.02$ ,  $r>0.3$ ); rectal distension sensation with parity & episiotomy ( $p<0.05$ ,  $r>0.35$ ). Conclusions: anorectal distension and electrical pain, but not sensation, stimulation thresholds are significantly, but not closely correlated. Furthermore, thresholds are affected differently by various epidemiological variables. This supports the assumption that distension and electrical stimulation activate different sensory afferents. Future studies will investigate the differentiated use of these stimulation methods in clinical and algometric investigations.

thresholds	males (n=30)	females (n=30)
electrical anal sensation	8.6 (7-10) mA	8.6 (6-11) mA
electrical anal pain	20.1 (17-24) mA	21.2 (18-25) mA
electrical rectal sensation	17.5 (13-22) mA	19.6 (14-25) mA
electrical rectal pain	29.5 (24-35) mA	31.6 (30-37) mA
distension rectal sensation	19 (14-24) ml	15 (12-17) ml
distension rectal pain	155 (129-182) ml	172 (145-199) ml