

Polysomnography Time Study -User evaluation

Neuroline 720 is a small self-adhesive single patient electrode with conductive gel, suitable for polysomnographic tests. Single patient electrodes are considered as being timesaving by many technicians, both concerning patient set-up and cleaning, compared to the traditional reusable cup electrodes.

Thus the primary objective was to investigate the time aspect of using disposable Neuroline 720-00-S electrodes and reusable gold cup electrodes for facial derivations (EOG, EMG, ground and reference (A1 and A2)). The secondary objectives were to evaluate how the patients perceived the two types of electrodes concerning comfort and how the technicians evaluated the handling of the electrodes.

The study was conducted at Geisinger Medical Center in Pennsylvania, US. 68 patients scheduled for a PSG examination were included and all 68 patients were eligible for statistical analysis. Normal examination procedure at the department was followed and the patients were randomised to either gold cups or Neuroline electrodes.

RESULTS

No statistical difference was found between the 2 groups regarding gender, height, weight and skin condition.

Mean handling time in seconds

	Placement of electrodes	Removal of electrodes	Cleaning of electrodes	Total
Neuroline	144	47	63	254
Gold Cups	332	103	115	556
	$p < 0.0000051$	$p < 0.0000441$	$p < 0.0000031$	

PATIENTS' EVALUATION OF COMFORT

A significant difference was also found in the patients' evaluation of comfort. Patients were asked to rate the comfort of the following applications on an ordinal scale (no bother; a little bother; uncomfortable; irritating; painful):

Application of electrodes in the facial area ($p=0.001$)²

	No bother	A little bother	Uncomfortable	Irritating
Neuroline	93.8%	6.3%	-	-
Gold Cups	58.3%	33.3%	8.3%	-



HANDLING TIME

A significant difference in handling time was found between the Neuroline 720-00-S electrode and the gold cups for all 3 tested time parameters.

Total average handling time was more than twice as long for the gold cups as for the Neuroline electrode (556 seconds for Gold Cups compared to 254 seconds for Neuroline).

How were the electrodes in the facial area during the sleep study ($p=0.006$)²

	No bother	A little bother	Uncomfortable	Irritating
Neuroline	81.3%	15.6%	-	3.1
Gold Cups	47.2%	50.0%	2.8%	-

Removal of electrodes ($p=0.00002$)²

	No bother	A little bother	Uncomfortable	Irritating
Neuroline	84.4%	15.6%	-	-
Gold Cups	33.3%	55.6%	8.3%	2.8%

1) Student t-test

2) Mann Whitney test