

: N37 P37 가 가?
 , dipole (me- montage (mastoid)
 sial surface) P30 far-field
 (positive polarity) 가
 (negative polarity) P37 N37
 가 4-6 가
 Lesser ² SEP
 P37
 N37 20
 가 P37 N37 가 4
 24 29
 가 dipole
 7-9 Yamada ¹⁰ 3b N37 Nicolet
 1, 2 P37 Viking IV 8 channel F₃,
 가 가 C₃, C₄, Cz '(Cz 2cm)
 (mastoid)
 (mastoid refer-
 ence) Cz '-Fz montage
 (vertex) (pre-rolandic)
 gating (cuta-
 neous afferent) (proprioceptive affer-
 ent) (centripetal) near-field 가
 (afferent input) 19 (nee-
 (centrifugal) 11-14 dle electrode)
 gating SEP 2.3Hz,
 0.3msec 700 (averaging)
 15-17 gat- 2 bandpass 5 1500Hz
 ing
 가 gating 20 10
 가
 18. gating PTSEP , 5
 가 (isometric contraction) PTSEP
 , 5 가
 N37 P37 PTSEP
 , F3 C3
 P30 N37, Cz ' C4 P37
 N50
 (baseline to peak), P30, N37 F3 C3
 gating gat- 가 , P37
 ing N50 Cz ' C4 가
 gating 가
 가 10 ,
 (isometric contraction) 5 ,
 Cz '-Fz near-field 5 P30, N37, N50 가

t-test

far-field F3 PTSEP P30
 msec. (mean±SD) 20 28.74±1.84
 , F3, C3, Cz', C4
 P30 F3 C3

(Fig. 1, Table 1).

N37 F3 C3 37.19±
 1.93, 36.8±2.13msec. 20 F3
 C3 P37
 Cz' C4 37.04±1.41, 37±1.5msec.
 Cz'
 N50 Cz C4 46.34±1.5,
 46.09±1.55msec. P37 가
 Cz' (Fig. 1, Table 1).
 10 PTSEP

1 2

- P30 far-field
 가 N37
 P37

N50

(Fig. 1, Fig. 2,

Table 2).

5 PTSEP
 (isometric contraction)
 P30 N37
 , P37 N50

(Table 3).

5 PTSEP P30 far-field

N37
 가 , P37 N50

(Table 4).

100

가

Relaxed

Active contraction

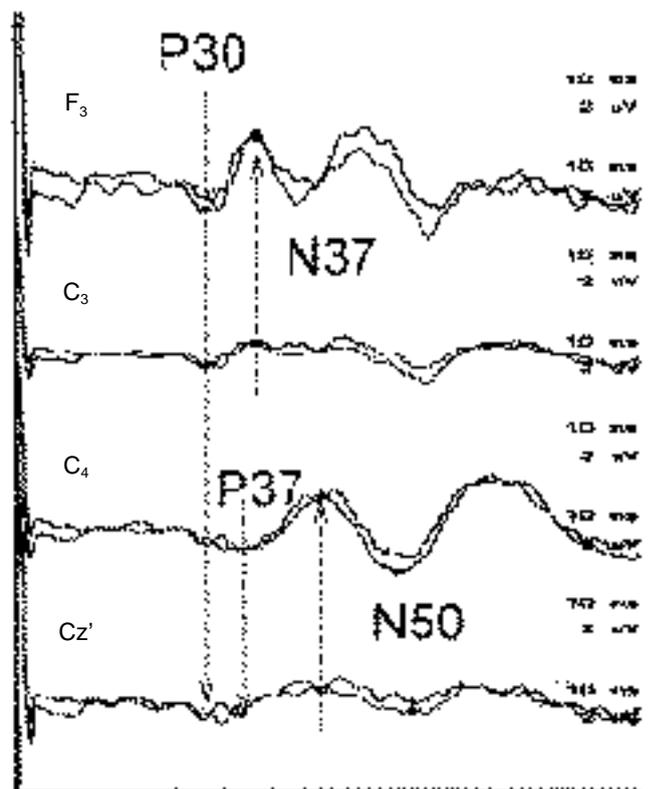
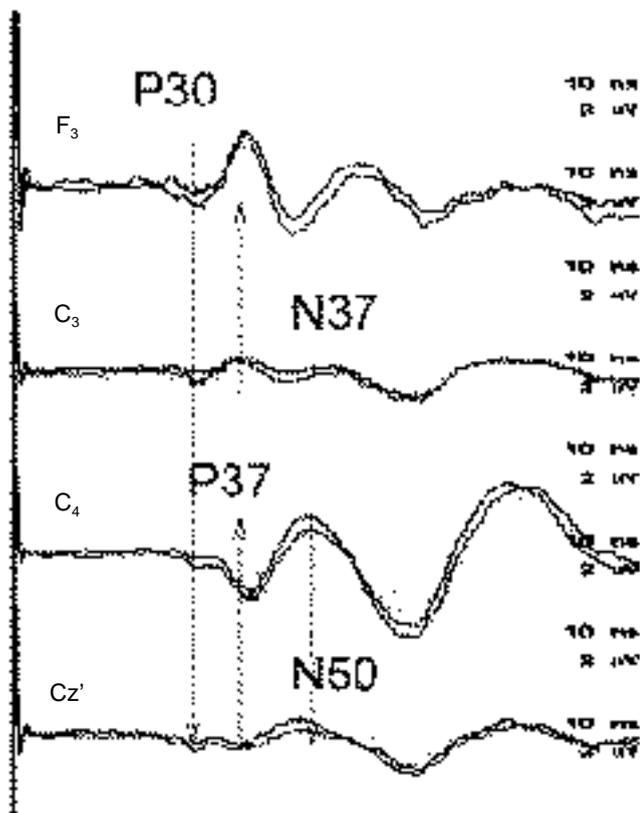


Figure 1. Posterior tibial nerve somatosensory evoked potential during full relaxation in normal subject.

Figure 2. Posterior tibial nerve somatosensory evoked potential during active contraction in normal subject.

Table 1. Comparison of mean latency (msec) between baseline and contraction state

	F3		C3		Cz'		C4	
	P30	N37	P30	N37	P37	N50	P37	N50
Baseline	28.74 ± 1.84	37.19 ± 1.93	28.68 ± 3.1	36.8 ± 2.13	37.04 ± 1.41	46.34 ± 1.5	37 ± 1.5	46.09 ± 1.55
contraction	29.07 ± 1.09	37.61 ± 1.95	28.9 ± 1.2	37.22 ± 2.16	37.01 ± 1.08	46.51 ± 1.72	37.11 ± 1.17	46.45 ± 1.85

Mean ± SD

Table 2. Mean amplitude (uV) of PTSEP in baseline condition and during active contraction

	P30	N37	P37	N50
Baseline	0.87 ± 0.27	1.54 ± 0.34	1.25 ± 0.58	1.50 ± 0.54
Active contraction	0.86 ± 0.29	1.60 ± 0.24	0.40* ± 0.52	0.46* ± 0.46

* p < .05, t-test Mean ± SD

Table 3. Mean amplitude (uV) of PTSEP in baseline condition and isometric contraction

	P30	N37	P37	N50
Baseline	0.80 ± 0.38	1.50 ± 0.71	1.40 ± 0.69	1.27 ± 0.68
Isometric contraction	0.68 ± 0.28	1.53 ± 0.61	0.58 ± 0.42*	0.73 ± 0.72*

*P<.05, t-test, Mean ± SD

P37, N50

N50

5).
P37, N50
(Table 1).

PTSEP
P30, N37,

N50

PTSEP

N50

PTSEP

가
(nucleus gracilis)

(medial lemniscus)

19,20

P30 far-field

가

(dorsal col-

Table 4. Mean amplitude (uV) of PTSEP in baseline condition and passive contraction

	P30	N37	P37	N50
Baseline	0.68 ± 0.30	1.53 ± 0.46	1.80 ± 1.13	1.78 ± 0.88
Passive contraction	0.69 ± 0.27	1.22 ± 0.46	0.55* ± 0.44	0.77* ± 0.38

* P < .05, t-test Mean ± SD

Table 5. Mean percentage change (SD) of amplitudes during active, isometric, and passive contraction with respect to the base-line condition

	P30	N37	P37	N50
Active contraction	101.38 (29)	106.02 (16.55)	33.17* (60.38)	33.55* (32.25)
Isometric contraction	79.7 (16.90)	104.1 (21.57)	34.02* (21.07)	54.46* (19.75)
Passive contraction	107.22 (34.14)	83.94 (35.63)	32.32* (21.68)	47* (26.34)

* P < .05, t-test

umn nuclei)

(pyramidal tract)

21

18

P30

가

P14

22-24

P37

20

700

PTSEP
near-field
P30

N37 P37

Cz'
N50

C4

P37,

1, 2 , gating 3b

F3 N37 N37

. N37 P37 dipole

N37

P37 N37 P37

가

15

1998 9

PTSEP

Tinazzi¹⁸

, N37 P37

PTSEP

가 (recovery cycle)

P37, N50, N37

²⁵

(primary sensory cortex)

(single modality specific stimulus)

(,)

1. PTSEP 20

P30

far-field 가

PTSEP

Cz'-Fz

montage

Cz'-mastoid montage

²⁶⁻²⁸

PTSEP

P37 N50

2. 10

PTSEP

P37 N50

가

N37

가

(centripetal mechanism)

N37

3. 5

PTSEP

P37 N50

가 ()

N37

가

PTSEP N37, P37,

N50

P37 N50

가

4. 5

PTSEP

P37 N50

N37

가

, P37

N50

가

가

5.

PTSEP

P37 N37

P37

1,2

²⁹. Zanette³⁰
(amyotrophic lateral sclerosis)

N37 3b

PTSEP

P37 N50

, N37

P37 N50

1, 2

3b

^{31,32}

PTSEP

gating

P37 N50

Yamada¹⁰ 가

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