Joseph A. Raia MD, P.C.

Test Date: 3/15/2022

Patient:	Adiana Rose	**DOB:**	1/1/1966	**Physician:**	Dr.Kenworthy
Sex:	Female	**Height:**	5' 7"	**Ref Phys:**	
ID#:		**Weight:**	165 lbs.	**Technician:**	Tim

ELECTROMYOGRAPHY AND NERVE CONDUCTION VELOCITY REPORT UPPER AND LOWER EXTREMITIES

Introduction:
Nerve Conduction velocity (NCV) and electromyography (EMG) studies are commonly performed in the evaluation of neuromuscular disorders. NCV/EMG's provide an objective measurement of the presence and severity of peripheral nerve dysfunction, localization, distribution and underlying pathophysiology. In conjunction with a clinical evaluation and imaging studies, NCV/EMG's can assist a physician in the diagnosis, prognosis and treatment of various disease processes.

Technical aspects:
The NCV is performed with surface mounted electrodes, water soluble hypoallergenic gel and standard stimulation and recording techniques. The EMG is performed with disposable 37mm X 27ga monopolar needle electrodes at the standards insertion sites. All extremities are warm during the recording process. All studies are performed on a Cadwell digital NCV/EMG unit.

Clinical correlation:
The reader is referred to the separate accompanying report for clinical information. It is the responsibility of the treating physician to apply the results of the NCV/EMG testing to patient's treatment program. There may be isolated abnormalities and/or technical limitations identified in this study. These will not be addressed in the impression unless clinically warranted.

Medical Necessity: Rule out Cervical Radiculopathy/ Lumbar Radiculopathy/ Polyneuropathy/Carpal Tunnel Syndrome
The patient's symptoms and neurological signs raise the possibility of peripheral nervous system (spinal cord, nerve roots, peripheral nerves) injury (irritation, compression, stretching). Neurophysiological testing is intended to clarify this clinical suspicion and differentiate nerve root lesion from peripheral nerve lesion. Abnormal NCV and EMG correlate with less favorable prognosis of recovery and are helpful in further clinical management. If there are signs of focal demyelination and nerve conduction block, the patient may benefit from surgical intervention. If there is diffuse denervation, prognosis of functional recovery is unfavorable. (For details see the actual report)

CHIEF COMPLAINTS:
Rose, Adiana is a 56 year old female who presents with complaints of neck pain and lower back pain with radiation to both upper and lower extremities. (All details are in consultation report)

FINDINGS:

Evaluation of the left median motor nerve showed normal distal onset latency (4.2 ms), normal amplitude (11.5 mV), and normal conduction velocity (Elbow-Wrist, 51 m/s). The right median motor nerve showed prolonged distal onset latency (4.9 ms), normal amplitude (6.4 mV), and decreased conduction velocity (Elbow-Wrist, 45 m/s). The left peroneal motor nerve showed normal distal onset latency (4.0 ms), normal amplitude (6.0 mV), and normal conduction velocity (B Fib-Ankle, 47 m/s). The right peroneal motor nerve showed normal distal onset latency (4.1 ms), normal amplitude (4.2 mV), and decreased conduction velocity (B Fib-Ankle, 39 m/s). The left tibial motor and the right tibial motor nerves showed prolonged distal onset latency (L8.2, R6.4 ms), reduced amplitude (L3.3, R2.9 mV), and decreased conduction velocity (Knee-Ankle, L34, R40 m/s). The left ulnar motor and the right ulnar motor nerves showed normal distal onset latency (L2.5, R2.3 ms), normal amplitude (L7.2, R7.9 mV), and normal conduction velocity (B Elbow-Wrist, L56, R55 m/s). The left dorsal cutaneous sensory nerve showed normal distal peak latency (1.9 ms), normal amplitude (13.6 μV), and normal conduction velocity (Wrist-Dorsum 5th MC, 53 m/s). The right dorsal cutaneous sensory nerve showed normal distal peak latency (2.3 ms), reduced amplitude (7.2 μV), and normal conduction velocity (Wrist-Dorsum 5th MC, 53 m/s). The left median sensory nerve showed prolonged distal peak latency (4.3 ms), reduced amplitude (12.9 μV), and decreased conduction velocity (Wrist-2nd Digit, 38 m/s). The right median sensory nerve showed no response (Wrist). The left radial sensory and the right radial sensory nerves showed normal distal peak latency (L2.3, R2.5 ms), normal amplitude (L21.0, R15.2 μV), and normal conduction velocity (Wrist-Base 1st Digit, L56, R56 m/s). The left saphenous sensory and the right saphenous sensory nerves showed no response (14cm). The left superficial peroneal sensory and the right superficial peroneal sensory nerves showed no response (14 cm). The left sural sensory and the right sural sensory nerves showed no response (Calf). The left ulnar sensory nerve showed normal distal peak latency (3.0 ms), normal amplitude (26.6 μV), and normal conduction velocity (Wrist-5th Digit, 50 m/s). The right ulnar sensory nerve showed normal distal peak latency (3.0 ms), reduced amplitude (15.1 μV), and decreased conduction velocity (Wrist-5th Digit, 46 m/s).

F Wave studies indicate that the right median F wave has prolonged latency (32.64 ms). The left tibial F wave has prolonged latency (60.40 ms). All remaining F Wave latencies were within normal limits.

H-reflex studies indicate that the left tibial H-reflex has prolonged latency (35.13 ms). The right tibial H-reflex has prolonged latency (35.86 ms).

All examined muscles (as indicated in the following table) showed no evidence of electrical instability.

IMPRESSION:

Abnormal Study

The above electrodiagnostic study reveals evidence of bilateral carpal tunnel syndrome (median nerve entrapment at wrist) affecting sensorimotor components on the right and sensory components on the left.
The above electrodiagnostic study reveals evidence of peripheral neuropathy of bilateral upper and lower extremities.
The above electrodiagnostic study reveals no evidence of lumbar and cervical radiculopathy.

Sincerely,

Dr.Kenworthy

Nerve Conduction Studies
Anti Sensory Summary Table

Stim Site	NR	Peak (ms)	Norm Peak (ms)	O-P Amp (µV)	Norm O-P Amp	P-T Amp (µV)	Site1	Site2	Delta-0 (ms)	Dist (cm)	Vel (m/s)	Norm Vel (m/s)
Left DorsCutan Anti Sensory (Dorsum 5th MC)												
Wrist		1.9	<2.5	13.6	>8	37.0	Wrist	Dorsum 5th MC	1.5	8.0	53	>50
Right DorsCutan Anti Sensory (Dorsum 5th MC)												
Wrist		2.3	<2.5	7.2	>8	5.5	Wrist	Dorsum 5th MC	1.5	8.0	53	>50
Left Median Anti Sensory (2nd Digit)												
Wrist		4.5	<3.5	12.9	>20	17.6	Wrist	2nd Digit	3.4	13.0	38	>50
Right Median Anti Sensory (2nd Digit)												
Wrist	NR		<3.5		>20		Wrist	2nd Digit		13.0		>50
Left Radial Anti Sensory (Base 1st Digit)												
Wrist		2.3	<2.7	21.0	>15	26.9	Wrist	Base 1st Digit	1.8	10.0	56	>50
Right Radial Anti Sensory (Base 1st Digit)												
Wrist		2.5	<2.7	15.2	>15	13.1	Wrist	Base 1st Digit	1.8	10.0	56	>50
Left Saphenous Anti Sensory (Ant Med Mall)												
14cm	NR		<4.4		>4		14cm	Ant Med Mall		14.0		>40
Right Saphenous Anti Sensory (Ant Med Mall)												
14cm	NR		<4.4		>4		14cm	Ant Med Mall		14.0		>40
Left Sup Peron Anti Sensory (Ant Lat Mall)												
14 cm	NR		<4.4		>6.0		14 cm	Ant Lat Mall		14.0		>40
Right Sup Peron Anti Sensory (Ant Lat Mall)												
14 cm	NR		<4.4		>6.0		14 cm	Ant Lat Mall		14.0		>40
Left Sural Anti Sensory (Lat Mall)												
Calf	NR		<4.4		>6.0		Calf	Lat Mall		14.0		>40
Right Sural Anti Sensory (Lat Mall)												
Calf	NR		<4.4		>6.0		Calf	Lat Mall		14.0		>40
Left Ulnar Anti Sensory (5th Digit)												
Wrist		3.0	<3.1	26.6	>17.0	28.3	Wrist	5th Digit	2.2	11.0	50	>50
Right Ulnar Anti Sensory (5th Digit)												
Wrist		3.0	<3.1	15.1	>17.0	11.3	Wrist	5th Digit	2.4	11.0	46	>50

Motor Summary Table

Stim Site	NR	Onset (ms)	Norm Onset (ms)	O-P Amp (mV)	Norm O-P Amp	P-T Amp (mV)	Site1	Site2	Delta-0 (ms)	Dist (cm)	Vel (m/s)	Norm Vel (m/s)
Left Median Motor (Abd Poll Brev)												
Wrist		4.2	<4.4	11.5	>4	17.1	Elbow	Wrist	4.9	25.0	51	>49
Elbow		9.1		10.1		15.1						
Right Median Motor (Abd Poll Brev)												
Wrist		4.9	<4.4	6.4	>4	10.0	Elbow	Wrist	5.6	25.0	45	>49
Elbow		10.5		5.9		9.3						
Left Peroneal Motor (Ext Dig Brev)												
Ankle		4.0	<6.5	6.0	>2.0	9.4	B Fib	Ankle	7.5	35.0	47	>44
B Fib		11.5		4.9		7.4						
Right Peroneal Motor (Ext Dig Brev)												
Ankle		4.1	<6.5	4.2	>2.0	6.5	B Fib	Ankle	8.9	35.0	39	>44
B Fib		13.0		3.4		5.1						
Left Tibial Motor (Abd Hall Brev)												
Ankle		8.2	<5.8	3.3	>4.0	4.1	Knee	Ankle	11.6	40.0	34	>41
Knee		19.8		1.9		2.5						
Right Tibial Motor (Abd Hall Brev)												
Ankle		6.4	<5.8	2.9	>4.0	4.6	Knee	Ankle	10.0	40.0	40	>41
Knee		16.4		1.8		3.1						
Left Ulnar Motor (Abd Dig Minimi)												
Wrist		2.5	<3.3	7.2	>6	11.5	B Elbow	Wrist	4.1	23.0	56	>49
B Elbow		6.6		5.7		9.8						
Right Ulnar Motor (Abd Dig Minimi)												
Wrist		2.3	<3.3	7.9	>6	11.5	B Elbow	Wrist	4.2	23.0	55	>49
B Elbow		6.5		7.6		11.1						

F Wave Studies

NR	F-Lat (ms)	Lat Norm (ms)	L-R F-Lat (ms)	L-R Lat Norm	M-Lat (ms)	FLat-MLat (ms)
Left Median (Mrkrs) (Abd Poll Brev)						
	30.99	<31	1.65	<2	4.69	26.30
Right Median (Mrkrs) (Abd Poll Brev)						
	32.64	<31	1.65	<2	5.40	27.24
Left Peroneal (Mrkrs) (EDB)						
	53.75	<56	0.78	<2	4.44	49.31
Right Peroneal (Mrkrs) (EDB)						
	52.96	<56	0.78	<2	4.44	48.52
Left Tibial (Mrkrs) (Abd Hallucis)						
	60.40	<56	11.13	<2	7.16	53.24
Right Tibial (Mrkrs) (Abd Hallucis)						
	49.27	<56	11.13	<2	7.16	42.11
Left Ulnar (Mrkrs) (Abd Dig Min)						
	29.57	<32	0.39	<2	2.49	27.08
Right Ulnar (Mrkrs) (Abd Dig Min)						
	29.18	<32	0.39	<2	3.36	25.82

H Reflex Studies

NR	H-Lat (ms)	Lat Norm (ms)	L-R H-Lat (ms)	L-R Lat Norm	M-Lat (ms)	HLat-MLat (ms)
Left Tibial (Gastroc)						
	85.13	<34	0.73	<2	4.79	30.34
Right Tibial (Gastroc)						
	85.86	<34	0.73	<2	4.79	31.07

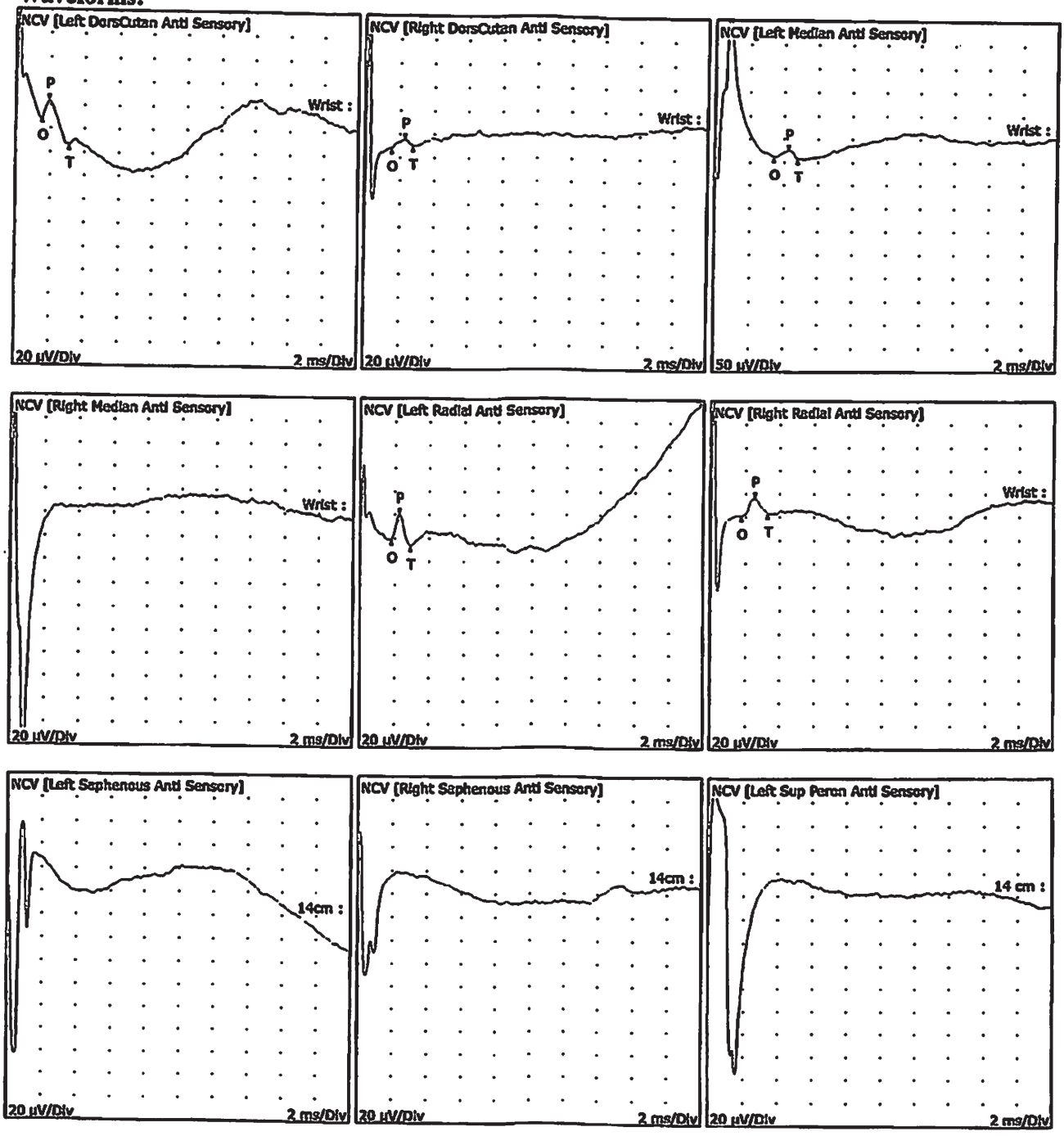
EMG

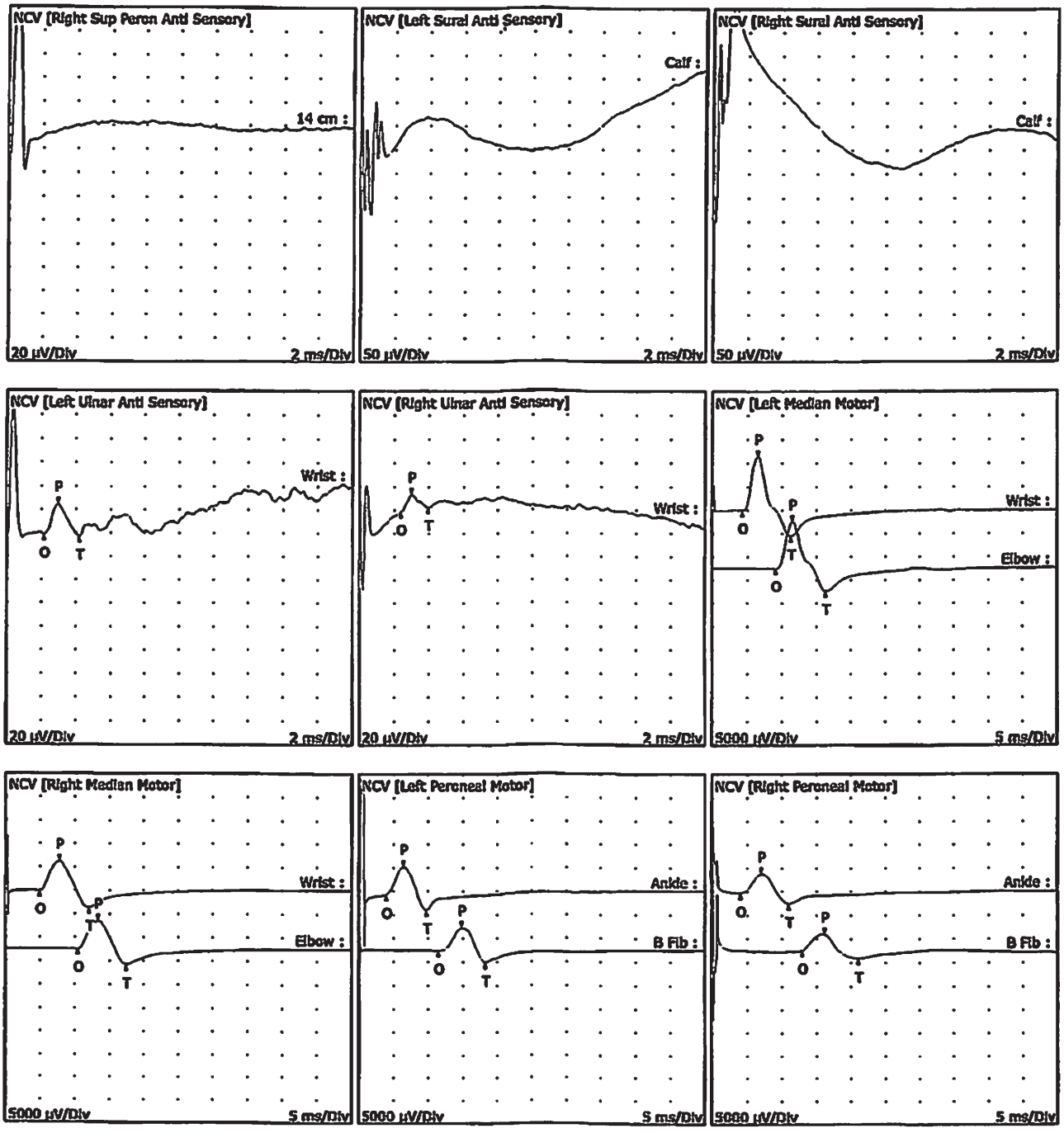
Side	Muscle	Nerve	Root	Ins Act	Fibs	Psw	Amp	Dur	Poly	Recrt	Int Pat	Comment
Left	Deltoid	Axillary	C5-6	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Left	Biceps	Musculocut	C5-6	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Left	Triceps	Radial	C6-7-8	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Left	FlexCarUln	Ulnar	C8-T1	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Left	1stDorInt	Ulnar	C8-T1	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Right	Deltoid	Axillary	C5-6	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Right	Biceps	Musculocut	C5-6	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Right	Triceps	Radial	C6-7-8	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Right	FlexCarUln	Ulnar	C8-T1	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Right	1stDorInt	Ulnar	C8-T1	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Left	LatGastroc	Tibial	S1-2	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Left	MedGastroc	Tibial	S1-2	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Left	AntTibialis	Dp Br Peron	L4-5	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Left	RectFemoris	Femoral	L2-4	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Left	VastusMed	Femoral	L2-4	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Left	BicepsFemL	Sciatic	L5-S2	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Left	Peroneus Long	Sup Br Peron	L5-S1	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Right	LatGastroc	Tibial	S1-2	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Right	MedGastroc	Tibial	S1-2	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Right	AntTibialis	Dp Br Peron	L4-5	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Right	RectFemoris	Femoral	L2-4	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Right	VastusMed	Femoral	L2-4	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Right	BicepsFemL	Sciatic	L5-S2	Nml	0	0	Nml	Nml	Nml	Nml	Complete	
Right	Peroneus Long	Sup Br Peron	L5-S1	Nml	0	0	Nml	Nml	Nml	Nml	Complete	

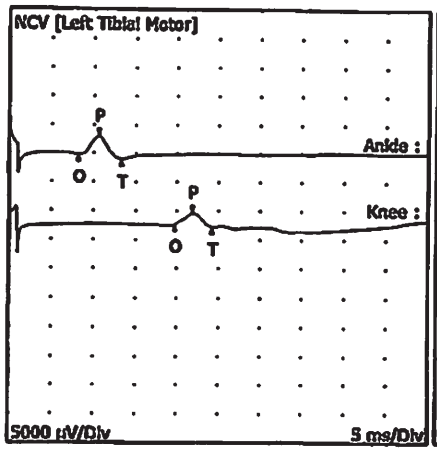
Paraspinal EMG

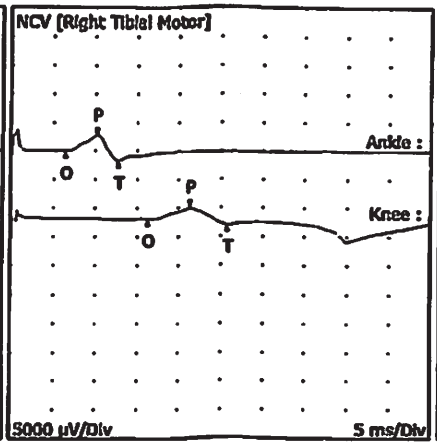
Side	Muscle	Nerve	Root	Ins Act	Fibs	Psw	Comment
Right	C5 Parasp	Rami	C5	Nml	0	0	
Right	C6 Parasp	Rami	C6	Nml	0	0	
Right	C7 Parasp	Rami	C7	Nml	0	0	
Left	C5 Parasp	Rami	C5	Nml	0	0	
Left	C6 Parasp	Rami	C6	Nml	0	0	
Left	C7 Parasp	Rami	C7	Nml	0	0	
Right	L4 Parasp	Rami	L4	Nml	0	0	
Right	L5 Parasp	Rami	L5	Nml	0	0	
Right	S1 Parasp	Rami	S1	Nml	0	0	
Left	L4 Parasp	Rami	L4	Nml	0	0	
Left	L5 Parasp	Rami	L5	Nml	0	0	
Left	S1 Parasp	Rami	S1	Nml	0	0	

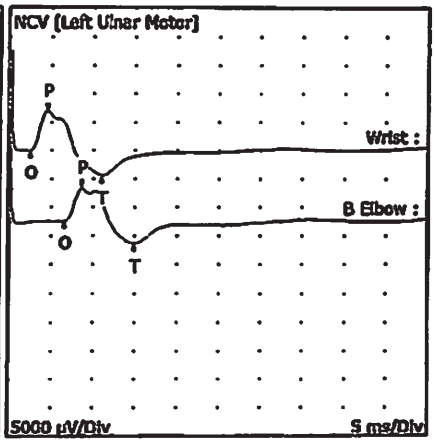
Waveforms:

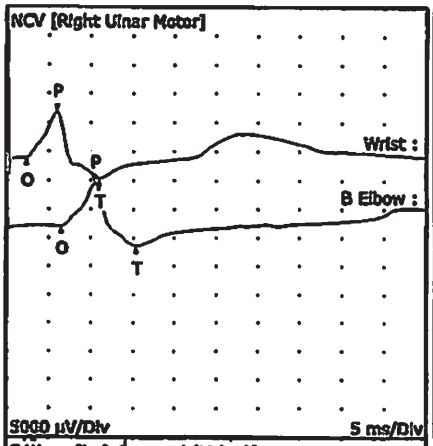

NCV [Left DorsCutan Anti Sensory]
P
O
T
Wrist :
20 µV/Div
2 ms/Div
NCV [Right DorsCutan Anti Sensory]
P
O T
Wrist :
20 µV/Div
2 ms/Div
NCV [Left Median Anti Sensory]
P
O T
Wrist :
50 µV/Div
2 ms/Div
NCV [Right Median Anti Sensory]
Wrist :
20 µV/Div
2 ms/Div
NCV [Left Radial Anti Sensory]
P
O T
20 µV/Div
2 ms/Div
NCV [Right Radial Anti Sensory]
P
O T
Wrist :
20 µV/Div
2 ms/Div
NCV [Left Saphenous Anti Sensory]
14cm :
20 µV/Div
2 ms/Div
NCV [Right Saphenous Anti Sensory]
14cm :
20 µV/Div
2 ms/Div
NCV [Left Sup Peron Anti Sensory]
14 cm :
20 µV/Div
2 ms/Div

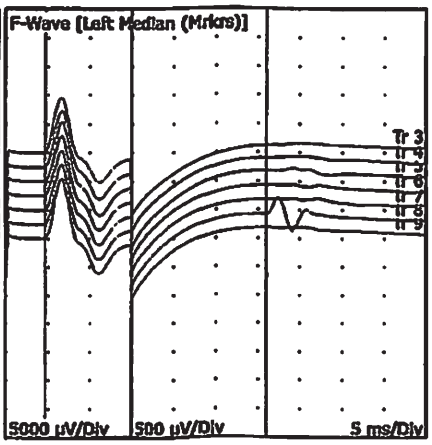

NCV [Right Sup Peron Anti Sensory]
14 cm :
20 µV/Div
2 ms/Div
NCV [Left Sural Anti Sensory]
Calf :
50 µV/Div
2 ms/Div
NCV [Right Sural Anti Sensory]
Calf :
50 µV/Div
2 ms/Div
NCV [Left Ulnar Anti Sensory]
Wrist :
P
O
T
20 µV/Div
2 ms/Div
NCV [Right Ulnar Anti Sensory]
Wrist :
P
O
T
20 µV/Div
2 ms/Div
NCV [Left Median Motor]
Wrist :
Elbow :
P
O
T
5000 µV/Div
5 ms/Div
NCV [Right Median Motor]
Wrist :
Elbow :
P
O
T
5000 µV/Div
5 ms/Div
NCV [Left Peroneal Motor]
Ankle :
B Fib :
P
O
T
5000 µV/Div
5 ms/Div
NCV [Right Peroneal Motor]
Ankle :
B Fib :
P
O
T
5000 µV/Div
5 ms/Div


NCV [Left Tibial Motor]
Ankle :
Knee :
5000 µV/Div
5 ms/Div


NCV [Right Tibial Motor]
Ankle :
Knee :
5000 µV/Div
5 ms/Div


NCV [Left Ulnar Motor]
Wrist :
B Elbow :
5000 µV/Div
5 ms/Div


NCV [Right Ulnar Motor]
Wrist :
B Elbow :
5000 µV/Div
5 ms/Div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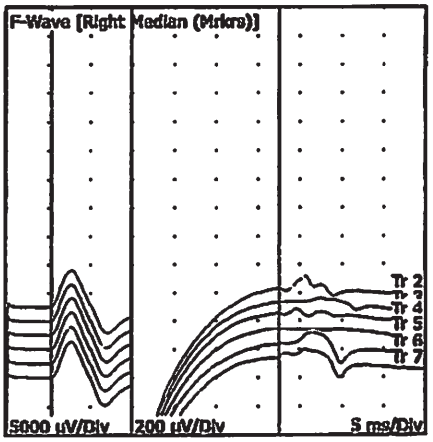
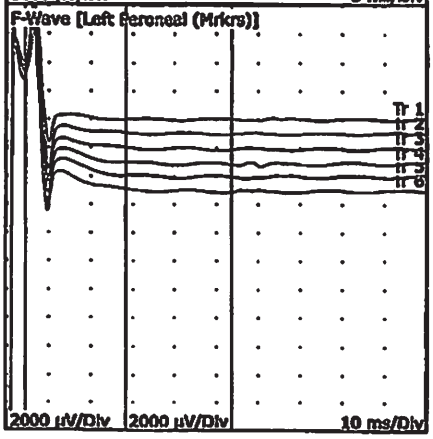
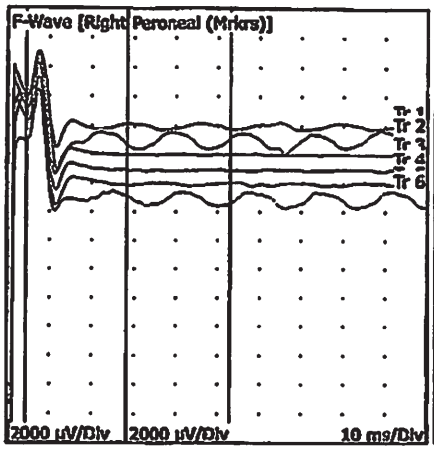
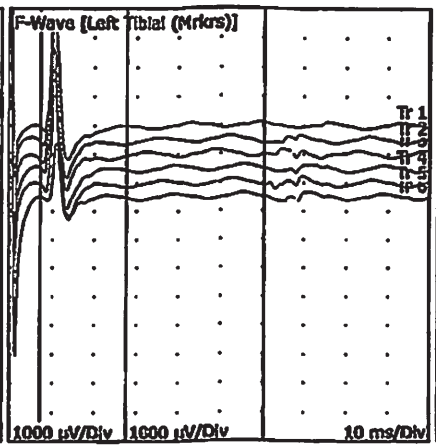
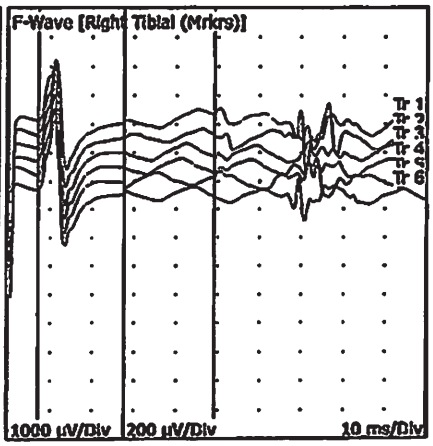
Tr 3
5000 µV/Div
500 µV/Div
5 ms/Div

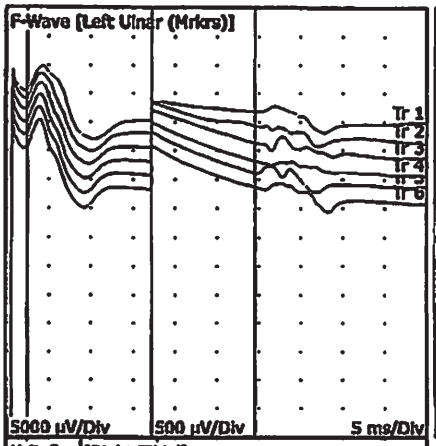

F-Wave [Right Median (Mrkrs)]
Tr 2
Tr 3
Tr 4
Tr 5
Tr 6
Tr 7
5000 µV/Div
200 µV/Div
5 ms/Div

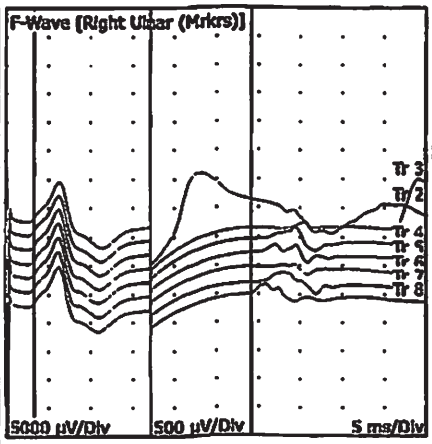

F-Wave [Left Peroneal (Mrkrs)]
Tr 1
2000 µV/Div
2000 µV/Div
10 ms/Div

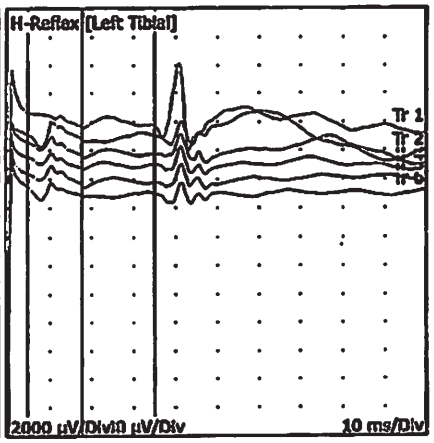

F-Wave [Right Peroneal (Mrkrs)]
2000 µV/Div
2000 µV/Div
10 ms/Div

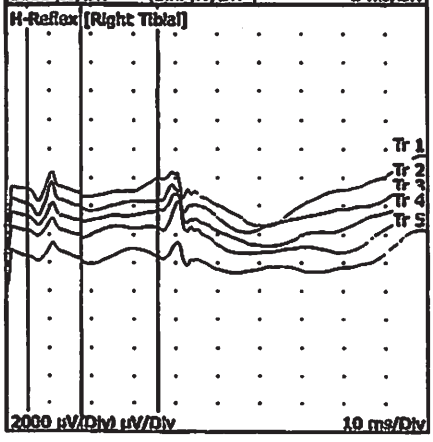

F-Wave [Left Tibial (Mrkrs)]
1000 µV/Div
1000 µV/Div
10 ms/Div


F-Wave [Right Tibial (Mrkrs)]
1000 µV/Div
200 µV/Div
10 ms/Div


F-Wave [Left Ulnar (Mrkrs)]
5000 µV/Div
500 µV/Div
5 ms/Div


F-Wave [Right Ulnar (Mrkrs)]
5000 µV/Div
500 µV/Div
5 ms/Div


H-Reflex [Left Tibial]
2000 µV/Div
10 µV/Div
10 ms/Div


H-Reflex [Right Tibial]
2000 µV/Div
1 µV/Div
10 ms/Div