

Kapittel 4C – Normalverdier nevrografi

Kapittelet inneholder normalverdier for nevrografi fra seksjon for klinisk nevrofysiologi, St. Olavs Hospital.

Kapittelet ble lagt inn metodeboken i 2021.

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Tabell 1: Normalverditabell med nedre/øvre grenser i OEX v5 24 jun 2021, KNF, HUNT4, St.Olavs hospital og Ålesund SD= (2)

Motorisk Arm	Lat (ms)	MCV (m/s)	CMAP (mV)	Sensorisk	SCV(dif) m/s	SAP (uV)
	Medianus (n=649)	4.0		4.0	SCVmedvo	48
MCVmed		50	4.0	SCVmedIII	49	3.3
Diff Med 21			84 %	SCVmedIV	51	2.2
F-M minMed	26.3			scvDif5_3	-8 → 10	
F-M meanMed	27.2			scvDif4u_m	-10 → 15	
F-M minMed-Uln	2.7	(max 3.9)		Dig3/Dig5 Ratio		71 %
F-M meanMed-Uln	2.7	(max 3.6)		Dig5/Dig3 Ratio		26 %
Ulnaris (n=633)	3.3		5.7			
MCVuln1		53	5.2	SCVulnIV	56	1.9
MCVuln2		50	5.1	SCVulnV	49	2.0
MCVuln3NY		48		Radialis A (n=485)	54	6.5
MCVSulc		49				
Diff Uln 2-1			76 %			
Diff Uln 3-2		14	87 %	CutAntebLat (n=88)	60	2.6
F-M minuln	27.0			CutAntebMed (n=88)	57	1.9
F-M meanuln	28.3			CutAntebLat (n=42)	SideRatio	35% → 246%
Diff Lumb2-Int2 (n=258)	0.72	(Option 2)		CutAntMed (n=42)	SideRatio	28% → 240%

Tabell 2: Normalverditabell med nedre/øvre grenser i UEX v4 24 jun 2021, KNF, HUNT4, St.Olavs hospital og Ålesund (SD=2)

Motorisk Ben	Lat (ms)	MCV (m/s)	CMAP (mV)	Sensorisk SCV(/dif)		
				m/s	SAP (uV)	
Tibialis (n=396)	5.2	41	2.7	PlantMedO (n=347)	43	0.6
MCVtib				Suralis A (n=319)	43	2.7
CMAP-diff			42 %	Suralis O (n=104)	43	1.3
F-M mintib	54.4			Suralis O+A (n=399)	43	2.2
F-M meantib	57.2			Sur/Rad ratioA		25% → 228%
F-M minTib-Per	6.9	(max 12)		Sur/Rad ratioO		8% → 122%
F-M meanTib-Per	6	(max 12)		Sur/Rad dif ratioO+A	0 → 21	18% → 227%
Peroneus (n=401)	5.0	41	1.8	Peron sup (n=347)	42	1.9
MCVPer				Per/Sur ratio		20% → 209%
MCVPerC		40	1.5	PlantM / Sur ratio		8% → 189%
Diff 2-1			75 %			
Diff 3-2		12	86 %			
F-M minPer	52.7					
F-M meanPer	55.7					

N=717, 70% kvinner, alder 13-86 år (middel 45). Høyde 149-198cm (middel 171 cm), A antidrom, O orthodrom. Se retningslinjer

Øvre grenser for latens, nedre grenser for CV og amplitude. OBS: Justering for alder og høyde kan være nødvendig, se tabell 3 og figurer.

TempMed 34.1 (30-38.8) TempUln 34.4 (30-37)

TempTiB 34.2 (29.3-38.6) TempPER 34.4 (30.1-38.1)

Option02	AmpInt1	2.6	2.6	2.6	2.5	2.5	2.5	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0
	AmpLumb2	0.67	0.67	0.67	0.63	0.63	0.63	0.59	0.59	0.59	0.55	0.55	0.55	0.51	0.51	0.51	0.48	0.48	0.48	0.44	0.44	0.44
	DLInt1	3.3	3.5	3.6	3.3	3.5	3.6	3.3	3.5	3.6	3.3	3.5	3.6	3.3	3.5	3.6	3.3	3.5	3.6	3.3	3.5	3.6
	DLLumb2	3.6	3.7	3.8	3.6	3.7	3.8	3.6	3.7	3.8	3.6	3.7	3.8	3.6	3.7	3.8	3.6	3.7	3.8	3.6	3.7	3.8
	<i>MUdif</i>	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Tibialis	DITib	4.6	5.0	5.4	4.7	5.1	5.5	4.8	5.2	5.6	4.9	5.3	5.7	5.0	5.4	5.8	5.1	5.5	5.9	5.2	5.6	6.0
	Amp1Tib	6.9	6.9	6.9	6.2	6.2	6.2	5.5	5.5	5.5	4.9	4.9	4.9	4.4	4.4	4.4	3.9	3.9	3.9	3.5	3.5	3.5
	Amp2Tib	5.0	5.0	5.0	4.3	4.3	4.3	3.6	3.6	3.6	3.1	3.1	3.1	2.6	2.6	2.6	2.2	2.2	2.2	1.9	1.9	1.9
	MCVTib	45	43	40	44	42	40	44	41	39	43	40	38	42	39	37	41	38	36	40	37	35
	F-M minTib ¹	45,1	50,0	55,5	46,2	51,2	56,8	47,2	52,4	58,1	48,3	53,6	59,5	49,5	54,9	60,9	50,6	56,2	62,3	51,8	57,5	63,8
	F-M meanTib	45.6	50.9	56.8	46.9	52.4	58.4	48.3	53.9	60.1	49.6	55.4	61.8	51.0	57.0	63.5	52.5	58.6	65.3	54.0	60.2	67.2
	F-M maxTib	47.9	53.3	59.4	49.4	54.9	61.1	50.8	56.6	63.0	52.4	58.3	64.9	54.0	60.1	66.9	55.6	61.9	68.9	57.3	63.7	70.9
	<i>Fnotib</i> ¹	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Peroneus	DIPer	4.6	4.9	5.3	4.6	5.0	5.3	4.7	5.0	5.4	4.7	5.1	5.4	4.8	5.1	5.5	4.8	5.2	5.5	4.9	5.2	5.6
	Amp1Per	3.1	3.1	3.1	2.9	2.9	2.9	2.7	2.7	2.7	2.5	2.5	2.5	2.4	2.4	2.4	2.2	2.2	2.2	2.1	2.1	2.1
	Amp2Per	2.9	2.9	2.9	2.7	2.7	2.7	2.5	2.5	2.5	2.3	2.3	2.3	2.1	2.1	2.1	1.9	1.9	1.9	1.8	1.8	1.8
	Amp3Per	2.9	2.9	2.9	2.7	2.7	2.7	2.4	2.4	2.4	2.3	2.3	2.3	2.1	2.1	2.1	1.9	1.9	1.9	1.8	1.8	1.8
	MCVPer	46	44	41	45	43	40	44	42	39	44	41	39	43	40	38	42	40	37	41	39	36
	MCVPerCap	46	43	41	45	42	40	44	41	39	43	40	38	41	39	37	40	38	36	39	37	35
	F-M minPer	43.3	48.4	54.2	44.2	49.5	55.3	45.2	50.5	56.5	46.2	51.6	57.7	47.1	52.7	59.0	48.2	53.9	60.3	49.2	55.0	61.5
	F-M meanPer	45.0	50.5	56.7	46.0	51.7	57.9	47.1	52.8	59.3	48.2	54.0	60.6	49.3	55.3	62.0	50.4	56.5	63.4	51.6	57.8	64.9
	F-M maxPer	48.9	54.6	60.9	50.0	55.9	62.4	51.2	57.2	63.8	52.4	58.5	65.3	53.6	59.9	66.8	54.9	61.3	68.4	56.2	62.7	70.0
	<i>FnoPer</i>	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

N=717, 70% kvinner, alder 13-86 år (middel 45). Høyde 149-198cm (middel 171 cm) . Kortsegmenter *iSulc-uSulc, **oSulc-iSulc (n=158). ¹Endret juni 2021

Sensorisk arm og ben

Medianus	SAPmedvo	16.7	13.6	11.0	15.1	12.3	10.0	13.7	11.2	9.1	12.5	10.1	8.2	11.3	9.2	7.5	10.2	8.3	6.8	9.3	7.5	6.1
	SAPmedIII	5.8	4.9	4.2	5.0	4.3	3.6	4.4	3.7	3.1	3.8	3.2	2.7	3.3	2.8	2.4	2.9	2.4	2.1	2.5	2.1	1.8
	SAPmedIV	3.8	3.3	2.9	3.3	2.8	2.5	2.8	2.4	2.1	2.4	2.1	1.8	2.0	1.8	1.5	1.7	1.5	1.3	1.5	1.3	1.1
	SCVmedvo	51	51	51	50	50	50	49	49	49	48	48	48	47	47	47	46	46	46	45	45	45
	SCVmedIII	53	51	49	52	50	48	51	49	47	50	48	46	49	47	45	48	46	44	47	45	43
	SCVmedIV	55	53	50	54	52	49	53	51	48	52	50	47	51	49	46	50	48	45	49	47	44
Ulnaris	SAPulnV	3.9	3.1	2.5	3.3	2.7	2.2	2.9	2.3	1.8	2.5	2.0	1.6	2.1	1.7	1.3	1.8	1.4	1.1	1.5	1.2	1.0
	SAPulnIV	3.8	3.0	2.3	3.2	2.5	2.0	2.7	2.1	1.6	2.2	1.8	1.4	1.9	1.5	1.1	1.6	1.2	0.9	1.3	1.0	0.8
	SCVulnV	53	51	49	52	50	48	51	49	47	51	49	47	50	48	46	49	47	45	48	46	44
	SCVulnIV	62	60	57	61	58	56	60	57	54	58	56	53	57	54	52	56	53	50	54	52	49
Uln-Med Diff	scvDif5_3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
	scvDif4u_m	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
Radialis	SAPrad	11.0	8.6	6.7	10.0	7.8	6.1	9.0	7.1	5.5	8.2	6.4	5.0	7.4	5.8	4.5	6.7	5.3	4.1	6.1	4.8	3.7
	SCVrad**	59	57	55	58	56	54	57	55	53	56	54	52	55	53	50	54	52	49	53	51	48
Suralis	SAPsurA*	5.8	4.9	4.1	4.8	4.1	3.4	4.0	3.4	2.9	3.4	2.8	2.4	2.8	2.4	2.0	2.3	2.0	1.6	1.9	1.6	1.4
	SAPsurO*	4.4	3.0	2.1	3.5	2.4	1.6	2.7	1.9	1.3	2.1	1.5	1.0	1.7	1.1	0.8	1.3	0.9	0.6	1.0	0.7	0.4
	SCVsurA*	45	43	42	44	43	42	44	43	41	44	42	41	44	42	41	43	42	41	43	42	40
	SCVsurO*	51	47	44	49	46	43	48	45	42	46	43	40	45	42	39	44	41	38	42	40	37
Peroneus	SAPper	5.0	3.9	3.0	4.1	3.2	2.4	3.4	2.6	2.0	2.7	2.1	1.6	2.2	1.7	1.3	1.8	1.4	1.1	1.5	1.1	0.8
	SCVper	46	44	41	46	43	40	45	42	40	44	41	39	43	41	38	43	40	38	42	39	37
PlantarisMed	SAPpla	4.5	2.7	1.6	3.1	1.8	1.1	2.1	1.2	0.7	1.4	0.8	0.5	1.0	0.5	0.3	0.6	0.3	0.2	0.4	0.2	0.1
	SCVpla	49	46	44	47	45	43	46	44	42	45	43	41	44	42	40	43	41	39	42	40	38
Cut antebrach	SAPcabL#	3.1	2.7	2.3	3.1	2.6	2.2	3.0	2.5	2.2	2.9	2.5	2.1	2.8	2.4	2.0	2.7	2.3	2.0	2.7	2.3	1.9
	SAPcabM#	2.3	2.1	1.9	2.1	2.0	1.8	2.0	1.8	1.7	1.9	1.7	1.6	1.8	1.6	1.5	1.7	1.5	1.4	1.6	1.4	1.3
	SCVcabLa_	63	62	60	63	61	59	62	60	59	61	59	58	60	59	57	60	58	56	59	57	55
	SCVcabMe_	58	58	57	58	57	56	57	57	56	57	56	56	56	56	55	56	55	55	55	56	54

N=717, 70% kvinner, alder 13-86 år (middel 45). Høyde 149-198cm (middel 171 cm) , * A antidrom og O orthodrom, ** antidrom (underarm-håndrygg), # cutaneus antebrachi lateralis (L) og medialis (M)

Tabell 4: Kortversjon. Grenseverdier justert for alder og høyde v5 (24.06.2021 KNF St.Olavs Hospital) SD= (2)

		Ungdom			Unge			Voksen			Middelalder			Senior			Pensjonist			De eldste		
		20	20	20	30	30	30	40	40	40	50	50	50	60	60	60	70	70	70	80	80	80
		160	175	190	160	175	190	160	175	190	160	175	190	160	175	190	160	175	190	160	175	190
Motorisk arm																						
Medianus (APB)	Distal Latens ms	3.6	3.8	4.1	3.6	3.9	4.1	3.7	3.9	4.2	3.7	4.0	4.2	3.8	4.0	4.3	3.8	4.1	4.3	3.9	4.1	4.4
	<i>Amplitude mV</i>	5.7	5.7	5.7	5.3	5.3	5.3	5.0	5.0	5.0	4.6	4.6	4.6	4.3	4.3	4.3	4.0	4.0	4.0	3.7	3.7	3.7
	MCV Uarm m/s	54	53	52	53	52	51	52	51	50	51	50	49	50	49	48	49	48	47	48	47	46
	F-M min ms	21.9	24.6	27.5	22.3	25.0	28.0	22.6	25.4	28.4	23.0	25.8	28.9	23.4	26.2	29.4	23.8	26.7	29.9	24.2	27.1	30.4
Ulnaris (ADM)	Distal Latens ms	3.0	3.2	3.4	3.0	3.2	3.5	3.1	3.3	3.5	3.1	3.3	3.6	3.2	3.4	3.6	3.2	3.5	3.7	3.3	3.5	3.7
	<i>Amplitude mV</i>	6.5	6.5	6.5	6.4	6.4	6.4	6.2	6.2	6.2	6.1	6.1	6.1	5.9	5.9	5.9	5.8	5.8	5.8	5.7	5.7	5.7
	MCV Uarm m/s	57	55	53	56	54	52	56	53	51	55	53	50	54	52	50	53	51	49	53	50	48
	MCV Sulcus m/s (avst. 8 cm)	54	51	48	54	50	47	53	49	46	52	49	45	51	48	44	50	47	44	49	46	43
	F-M min ms	22.3	25.1	28.1	22.8	25.5	28.6	23.2	26.0	29.1	23.6	26.5	29.7	24.0	27.0	30.2	24.5	27.5	30.8	24.9	28.0	31.4
Medianus*	Amp Int2 mV	2.6	2.6	2.6	2.5	2.5	2.5	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0
Ulnaris*	Amp Lumb2 mV	0.67	0.67	0.67	0.63	0.63	0.63	0.59	0.59	0.59	0.55	0.55	0.55	0.51	0.51	0.51	0.48	0.48	0.48	0.44	0.44	0.44
Latensforskjell	Med –Uln dif ms	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Motorisk ben																						
Tibialis (Abd Hall)	Distal Latens ms	4.6	5.0	5.4	4.7	5.1	5.5	4.8	5.2	5.6	4.9	5.3	5.7	5.0	5.4	5.8	5.1	5.5	5.9	5.2	5.6	6.0
	<i>Amplitude mV</i>	6.9	6.9	6.9	6.2	6.2	6.2	5.5	5.5	5.5	4.9	4.9	4.9	4.4	4.4	4.4	3.9	3.9	3.9	3.5	3.5	3.5
	MCV Legg m/s	45	43	40	44	42	40	44	41	39	43	40	38	42	39	37	41	38	36	40	37	35
	F-M min ms ¹	45,1	50,0	55,5	46,2	51,2	56,8	47,2	52,4	58,1	48,3	53,6	59,5	49,5	54,9	60,9	50,6	56,2	62,3	51,8	57,5	63,8
Peroneus (EDB)	Distal Latens ms	4.6	4.9	5.3	4.6	5.0	5.3	4.7	5.0	5.4	4.7	5.1	5.4	4.8	5.1	5.5	4.8	5.2	5.5	4.9	5.2	5.6
	<i>Amplitude mV</i>	3.1	3.1	3.1	2.9	2.9	2.9	2.7	2.7	2.7	2.5	2.5	2.5	2.4	2.4	2.4	2.2	2.2	2.2	2.1	2.1	2.1
	MCV Legg m/s	46	44	41	45	43	40	44	42	39	44	41	39	43	40	38	42	40	37	41	39	36
	MCV Cap Fib m/s	46	43	41	45	42	40	44	41	39	43	40	38	41	39	37	40	38	36	39	37	35
	F-M min ms	43.3	48.4	54.2	44.2	49.5	55.3	45.2	50.5	56.5	46.2	51.6	57.7	47.1	52.7	59.0	48.2	53.9	60.3	49.2	55.0	61.5

N=717, 70% kvinner, alder 13-86 år (middel 45). Høyde 149-198cm (middel 171 cm) , * (10 cm). ¹Endret juni 2021

	Ungdom			Unge			Voksen			Middelalder			Senior			Pensjonist			De eldste		
Sensorisk	20	20	20	30	30	30	40	40	40	50	50	50	60	60	60	70	70	70	80	80	80
	160	175	190	160	175	190	160	175	190	160	175	190	160	175	190	160	175	190	160	175	190

Arm

Medianus (orto)	<i>SAP vola</i> uV	16.7	13.6	11.0	15.1	12.3	10.0	13.7	11.2	9.1	12.5	10.1	8.2	11.3	9.2	7.5	10.2	8.3	6.8	9.3	7.5	6.1
	<i>SAP dig 3</i> uV	5.8	4.9	4.2	5.0	4.3	3.6	4.4	3.7	3.1	3.8	3.2	2.7	3.3	2.8	2.4	2.9	2.4	2.1	2.5	2.1	1.8
	SCV vola m/s	51	51	51	50	50	50	49	49	49	48	48	48	47	47	47	46	46	46	45	45	45
	SCV dig 3 m/s	53	51	49	52	50	48	51	49	47	50	48	46	49	47	45	48	46	44	47	45	43
Ulnaris (orto)	<i>SAP dig 5</i> uV	3.9	3.1	2.5	3.3	2.7	2.2	2.9	2.3	1.8	2.5	2.0	1.6	2.1	1.7	1.3	1.8	1.4	1.1	1.5	1.2	1.0
	SCV dig 5 uV	53	51	49	52	50	48	51	49	47	51	49	47	50	48	46	49	47	45	48	46	44
Uln-Med Diff	Dig 5 –Dig 3 m/s	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Radialis (anti)	<i>SAP håndr.</i> uV	11.0	8.6	6.7	10.0	7.8	6.1	9.0	7.1	5.5	8.2	6.4	5.0	7.4	5.8	4.5	6.7	5.3	4.1	6.1	4.8	3.7
	SCV m/s	59	57	55	58	56	54	57	55	53	56	54	52	55	53	50	54	52	49	53	51	48

Ben

Suralis (Legg - Lat mall)**	<i>SAP**</i> uV	5.3	4.2	3.3	4.3	3.4	2.7	3.5	2.8	2.2	2.9	2.3	1.8	2.4	1.9	1.5	1.9	1.5	1.2	1.6	1.2	1.0
	SCV** m/s	45	44	42	45	43	41	45	43	41	44	42	41	44	42	40	44	42	40	43	41	40
Peroneus (orto)	<i>SAP</i> uV	5.0	3.9	3.0	4.1	3.2	2.4	3.4	2.6	2.0	2.7	2.1	1.6	2.2	1.7	1.3	1.8	1.4	1.1	1.5	1.1	0.8
	SCV m/s	46	44	41	46	43	40	45	42	40	44	41	39	43	41	38	43	40	38	42	39	37
Plantaris Med (orto)	<i>SAP</i> uV	4.5	2.7	1.6	3.1	1.8	1.1	2.1	1.2	0.7	1.4	0.8	0.5	1.0	0.5	0.3	0.6	0.3	0.2	0.4	0.2	0.1
	SCV m/s	49	46	44	47	45	43	46	44	42	45	43	41	44	42	40	43	41	39	42	40	38

N=717, 70% kvinner, alder 13-86 år (middel 45). Høyde 149-198cm (middel 171 cm) , * (10 cm), ** Kombinert antidrom og ortodrom.