SHORT REPORT

Key words: SFEMG • jitter • fiber density • reference values

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SINGLE FIBER EMG REFERENCE VALUES: REFORMATTED IN TABULAR FORM

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Single fiber electromyography (SFEMG) has proven to be a useful electrodiagnostic tool to assess defects of neuromuscular junction transmission and to document denervation.[4] The ranges of normal values for jitter and fiber density are determined empirically, and important variables are the particular muscle that is studied and the age of the subject.[4] Several laboratories have published normal values for a limited number of muscles and for subjects in broad age ranges.[2–4] A recent set of complete reference values reflecting a collaborative effort among nine laboratories by the Ad Hoc Committee of the AAEM Single Fiber Special Interest Group has been published.[1] This is a particularly valuable reference because it includes a large number of muscles, a complete span of sub-

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Table 1. Single fiber EMG reference values.

	Jitter values (μs): mean MCD (mean consecutive difference) 95% upper confidence limit of normal/ 95% upper confidence limit of normal for single fiber pairs								
Muscle	10 yr	20 yr	30 yr	40 yr	50 yr	60 yr	70 yr	80 yr	90 yr
Frontalis	33.6/49.7	33.9/50.1	34.4/51.3	35.5/53.5	37.3/57.5	40.0/63.9	43.8/74.1		
Obicularis oculi	39.8/54.6	39.8/54.7	40.0/54.7	40.4/54.8	40.9/55.0	41.8/55.3	43.0/55.8		
Obicularis oris	34.7/52.5	34.7/52.7	34.9/53.2	35.3/54.1	36.0/55.7	37.0/58.2	38.3/61.8	40.2/67.0	42.5/74.2
Tongue	32.8/48.6	33.0/49.0	33.6/50.2	34.8/52.5	36.8/56.3	39.8/62.0	44.0/70.0		
Stern cleido mas	29.1/45.4	29.3/45.8	29.8/46.8	30.8/48.8	32.5/52.4	34.9/58.2	38.4/62.3		
Deltoid	32.9/44.4	32.9/44.5	32.9/44.5	32.9/44.6	33.0/44.8	33.0/45.1	33.1/45.6	33.2/46.1	33.3/46.9
Biceps	29.5/45.2	29.6/45.2	29.6/45.4	29.8/45.7	30.1/46.2	30.5/46.9	31.0/48.0		
Ext dig comm	34.9/50.0	34.9/50.1	35.1/50.5	35.4/51.3	35.9/52.5	36.6/54.4	37.7/57.2	39.1/61.1	40.9/66.5
Abd digiti V	44.4/63.5	44.7/64.0	45.2/65.5	46.4/68.6	48.2/73.9	51.0/82.7	54.8/96.6		
Quadriceps	35.9/47.9	36.0/48.0	36.5/48.2	37.5/48.5	39.0/49.1	41.3/50.0	44.6/51.2		
Ant tibialis	49.4/80.0	49.3/79.8	49.2/79.3	48.9/78.3	48.5/76.8	47.9/74.5	47.0/71.4	45.8/67.5	44.3/62.9
	Fiber density values: mean fiber density 95% upper confidence limit of normal								
Muscle	10 yr	20 yr	30 yr	40 yr	50 yr	60 yr	70 yr	80 yr	90 yr
Frontalis	1.67	1.67	1.68	1.69	1.70	1.73	1.76		
Tongue	1.78	1.78	1.78	1.78	1.78	1.79	1.79		
Stern cleido mas	1.89	1.89	1.90	1.92	1.96	2.01	2.08		
Deltoid	1.56	1.56	1.57	1.57	1.58	1.59	1.60	1.62	1.65
Biceps	1.52	1.52	1.53	1.54	1.57	1.60	1.65	1.72	1.80
Ext dig comm	1.77	1.78	1.80	1.83	1.90	1.99	2.12	2.29	2.51
Abd digiti V	1.99	2.00	2.03	2.08	2.16	2.28	2.46		
Quadriceps	1.93	1.94	1.96	1.99	2.05	2.14	2.26	2.43	
Ant tibialis	1.94	1.94	1.96	1.98	2.02	2.07	2.15	2.26	
Soleus	1.56	1.56	1.56	1.57	1.59	1.62	1.66	1.71	

Recommended criteria for an abnormal study: *Jitter is abnormal if either: (1) value for mean MCD of 20 fiber pairs greater than the 95% upper confidence limit; or (2) jitter values in more than 10% of pairs is greater than the 95% upper confidence limit for action potential pairs. Fiber density is abnormal if mean value of 20 observations is greater than 95% of upper confidence limit.*

ject ages, and robust statistics to set confidence limits. While we have made use of these reference values in our laboratory, the data are distributed amongst several tables. The need to consult several tables to determine the upper limit of the mean consecutive difference (MCD) and the upper 95% normal limits for jitter measurements has prompted us to simplify the presentation of the data into a single table. The new format has been designed to be practical: subject ages are in decades; the mean MCD values and the upper normal limits are presented together; and several muscles not presented in the original publication have been included. In addition, several missing values were detected and included. The reformatting of this data has been done with the cooperation of the Ad Hoc Committee coordinator (Dr. Gilchrist, personal Communication).

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