Sample Muscle Load Report

Wed Mar 25 2020 16:05:20 GMT
OPENSIGNALS VERSION: Public Build 2019-09-02
Author: PLUX

Devices

name		address	type	sampling rate
00:07:80:3B:46:61		00:07:80:3B:46:61	biosignalsplux	1000 Hz

channel	label	sensor	resolution
A3	PORT3_CHN1	EMG	16

channel	label	sensor	resolution
I0	INPUT/OUTPUT	--	1

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MUSCLE LOAD

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Muscle load analysis

unit
Millivolt

session time
00:28.5

selection start
00:00.0

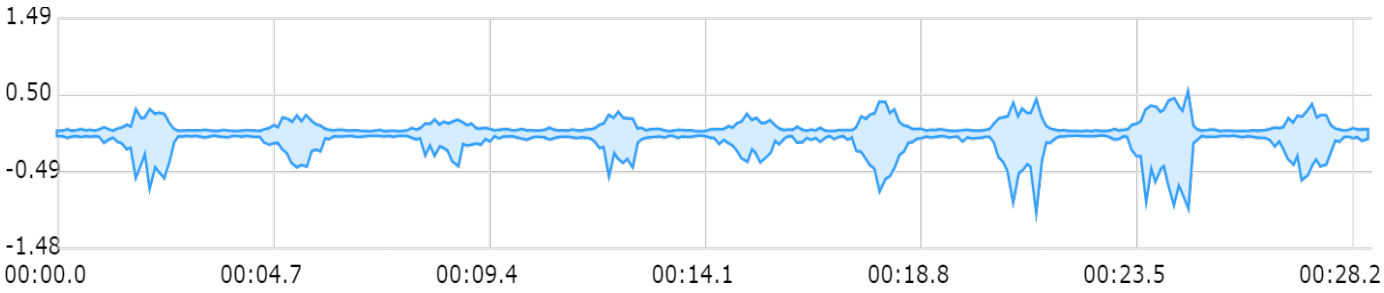
selection end
00:28.5

total processed time
00:28.5

doesn't meet the minimum requirement of 20 minutes

00:07:80:3B:46:61

A3 - EMG



Processed channels

00:07:80:3B:46:61

A3

APDF calculation based on the calculated MVC

MODE

applied APDF mode

MVC

calculated from current signal

00:07:80:3B:46:61

channel	mvc	unit
3	0.74	mV

Effort density (%MVC in %time)

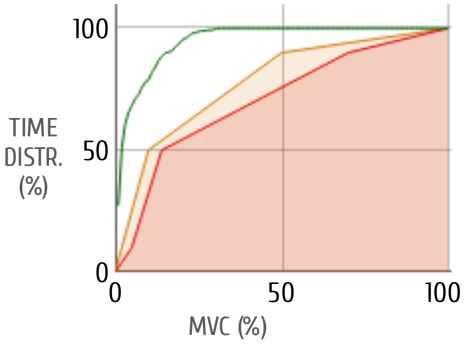
cumulative effort in terms (%) of the MVC
at 10, 50 and 90% of the time

00:07:80:3B:46:61

channel	m@10	m@50	m@90
CH3	1	2	16

Amplitude Probability Density Function (APDF)

Calculates cumulative percentage histogram of the enveloped data in (%) of the MVC.



WARNING ZONE Should not enter - Tiredness
DANGER ZONE Must not enter - Fatigue

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MUSCLE LOAD

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APDF REFERENCE

Proper electromyography signal processing can provide a reference for the analysis of the relationship between work and required muscular load. Jonsson(1982)[1] described a technique in which the frequency of occurrence of a particular level of EMG is calculated, generating a curve of probability distribution function of amplitude(APDF). The APDF is the distribution of the muscle contraction levels during a certain observation period.

The APDF concept was originally developed to extract information from EMG records of. muscular activity and has been used to analyze EMG in many Ergonomics studies.

According to muscle fatigue studies, when performing static and dynamic tasks, a set of limit values are suggested for the work performed over periods longer than one hour:

- Static contraction level must not exceed 2% of the MVC and cannot overcome 5% of the MVC.
- The average level must not exceed 10% of the MVC and cannot overcome 14% of the MVC.
- Loads's highest values must not exceed 50% of the MVC and cannot overcome 70% of the MVC.

Glossary

1. APDF: Amplitude Probability Function.
2. MVC: Maximum Voluntary Contraction.

1. JONSSON Bengt. Measurement and evaluation of local muscular strain in the shoulder during constrained work. Journal of human ergology, 1982, 11.1 73-88

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