VALIDATION OF THE CHECK-METHOD

CHECK

Assessment is based on **the FAM** –method initially developed by Juno Medical LLC in 2009. **The FAM** –method has been researched in 3 separate research studies.

1

The research group led by Dr. Sulin Cheng acquired a significant amount of data (n=780) from China showing that the method assess 1) physiological change generated by physical therapy intervention and 2) the recovery of male athletes from an intense exercise. Cheng collected a scientifically valid normative sample (n=309) and concluded on the FAM –method: *"The technical measuring performance is very good. A level of reliability comparable to other common methods of the field was reached. Short-term (n=30) and long-term (n=30) reproducibility of the devices were tested. The precision error is comparable to that of exiting bio-signal devices such as EMG and to some extent even better than EMG."*

The clinical data of the efficacy study was collected from 207 patients with knee problems treated with either traditional physiotherapy or electric treatment. The study validated that the FAM method assesses the effectiveness of the traditional physical therapy treatments. The conclusive effects of the electric treatment were not finally proven but most of the patients felt they had received relief on their symptoms. The research group concluded that the monitoring period was too short in this case.

The male athletes (n=30) performed physical exercises and the recovery was monitored with the FAM –method. The physical load and the recovery process was proven with FAM. The female athletes in the study were a national team for water polo. The FAM –assessments were conducted during an especially heavy training load. The load was visible in the assessments but the recover was incomplete during the 7 –day monitoring period. Kari Miettunen proved in his study already in 2004 that during eccentric exercise, the subjective assesment of the athlete does not correlate with the actual recovery. It was proven with FAM –assessment and traditional recovery indicators such as blood samples, EMG and maximum power test. Again, the recovery took more than 7 days.

One of the most relevant findings was the strong correlation between FAM –assessment and aEMG/MVC. It verifies that FAM –assessment can be used to monitor physical load and recovery as well as the motoric potential.

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2

The research group by Professor Vesa Linnamo from University of Jyväskylä used FAM –method to separate eccentric and co-eccentric training (n=12). FAM –method was able to identify these 2 separate training responses. In addition, the correlation between FAM –method and traditional markers of fatigue and recovery (e.g. creatine-kinesis, lactate, infection markers, MVC, HRV) was significant. An interesting finding was also that a heavy ergometer training session was visible in all other markers except HRV.

It implies that FAM –method is able to identify acute neuromuscular fatigue not yet cumulated in central nervous system (therefore not visible in HRV).

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3

Research group led by Mr. Arto Hautala of Verve used CHECK™ –prototype to assess the fatigue of football players. The group consisted of players from the club AC Oulu (N=14). The players performed an extensive fitness test before the start of the research period as well as a test on the psycho-motoric skill level. In the end of the period the tests were repeated. It was found that CHECK™ –assessment correlates with the reaction time tests performed. In addition, a trend between fitness test and CHECK™ –assessment was found. As a summary, CHECK™ –assessment was found to be an effective method for assessing the neuro-muscular fatigue.

The research group of University of Jyväskylä is releasing another validation study in 1Q/2014 on CHECK™.

In addition, CHECK™ has conducted internal studies on the correlation between FAM and CHECK™.

There is a clear, positive correlation between the methods.

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