

# PEMF in REHAB at Extreme Sport

**Special Cases** ©Mr W. M. R. Balliel<sup>1,2</sup> Paper No 137 – ESM-EVBO 2019

<sup>1</sup>Movenda BV – Independent Therapeutic RN-Practice Balliël, Maastricht, The Netherlands

<sup>2</sup>Former: Research nurse, Division of Haematology, Maastricht University Medical Centre, The Netherlands

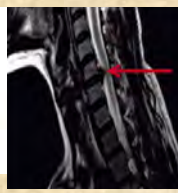
## Introduction:

PEMF\*-Systems get more evaluated, some even are WHO-certified and are structured used by health-care professionals in supporting preparing treatment before and REHAB after accidents in sports.

\* Pulsed ElectroMagnetic Field

## Cases:

Extreme athlete on high-mountaineering, ultra-marathon and biking, standard applying specific PEMF-Treatment on high scale, aged 59 and exercising several sport disciplines for 45 years, underwent 3 mostly lethal bike-crashes in 2016 and 2018. Remaining pathology is still present, documented by X-Ray and MRI: hernia cervicalis C4, hernia lumbalis L4, double contusion cerebri, Baker's Cystia right knee, injury in supra- & infra-spinalis sinister incl. corpus alineum, multiple cut wounds on face, arms e.d. Injuries should have led "normally" to a very long-term "standard" REHAB with wheel-chair dependency or total or partial paraplegia.



## Treatment:

Immediately after demission from the half-day hospital ambulatory, a specific PEMF-Treatment at the technical maximal possible level of  $\mu$ -Tesla was administered three times / day / 20 minutes and several different applicators were used. The mean (reachable) was 150  $\mu$ -T; we choose also for a longer  $\Delta$ -t of  $\pm 25$  min. / treatment to have a longer period of extra stimulated Vasomotion on microcellular base. PEMF-Treatment on this extreme level was administered for 2 months, supported by osteopathy on weekly scale, application-set of nutritional supplements and special REHAB-Training at the gym, prescribed by physiotherapist, extended to 300% on own risk of patient.

After 2 months, the specific PEMF-Treatment was reduced to individual "standard" scale of patient, which is the mean dose of 150  $\mu$ -Tesla / 2 x daily / 12 min on the used device, possible. No medication was administered.



Höhe	6150 m
Sauerstoff	8.77 %
Luftfeuchte	50.6 %H
Temperatur	23.02 °C



## Results:

1 week after each of the three crashes, patient was still able to follow training program on  $\pm 70\%$  of his standard level, hernia-precaution / core-stability included. 3 weeks after each of the crashes, patient could switch to his standard training-program for the following extreme sport event, including track and field running with 15kg extra weight as heavy gym-exercises. Summer 2016 up to April 2017 training for Marathon des Sables, Morocco and summer 2018 for Mountaineering at  $> 8.0000$  mtrs and bike-challenge.



## Positive 2<sup>nd</sup>-line effects :

Specific PEMF-Treatment is applied on a structural level since spring 2016 before starting training and afterwards for regeneration. Patient never suffered any more from cramps, muscle injuries or muscle pain, joint problems or overload symptoms of the muscle-skeletal system, e.g. the former "peak-pain" after long race-bike-climb at elevation of  $>15\%$  /  $20\%$  never more occurred.

## Conclusions & future directions:

Specific PEMF-Treatment as single-use-therapy and / or as support of other therapeutic approaches in extreme sports need to be more tested, evaluated & validated.