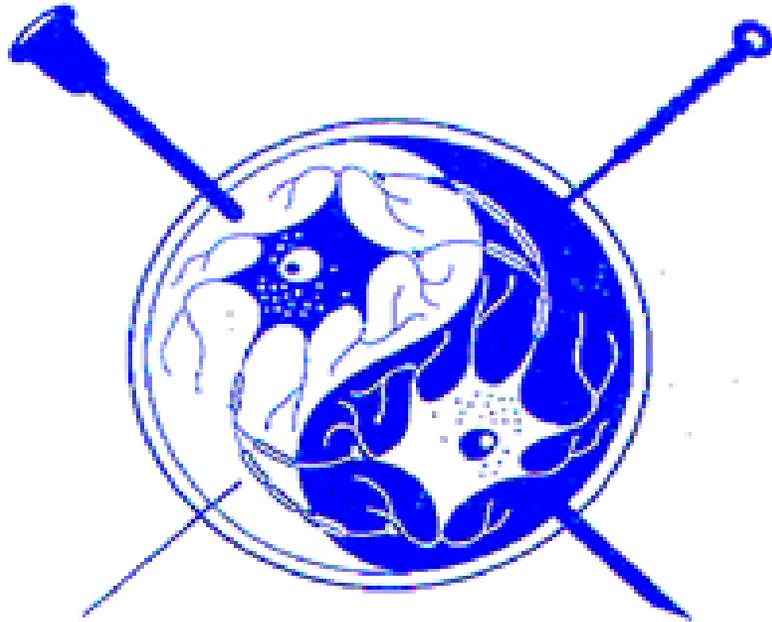


Ozone therapy for fatigue syndromes

(ozono terapia per sindromi affaticamento)



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fatigue-synonyms

(sindromi affaticamento)

- in UK und Scandinavia: myalgic enzephalomyelitis (ME)
- secondary mitochondriopathie [1]
- chronic fatigue syndrome (CFS)
- special syndrome s like post-covid-syndrome (PCS) or post-vac-syndrome

history

(storia)

- in TCM emptiness or **yang-deficiency**
- known as **neurasthenie** by Brown since 1780 [1]
- was brought about the post-traumatic stress syndrome (PTSD) as mental fatigue, especially in soldiers (**gulf war syndrome**) [2]
- since the 1980s **EBV** and since the pandemic the **corona virus (SARS-CoV-2)** have been related [3,4]

1. **Groß R** (2006) Fatigue bei Multipler Sklerose. Diss.

2. **Pall M** (2009) Explaining „Unexplained Illnesses“. Informa Healthcare

3. **Lahmann C**, Dinkel A (2013) Erschöpfung und Chronisches Erschöpfungssyndrom: Relevanz für die Arbeitsmedizin. Umweltmed – Hygiene – Arbeitsmed 18(3): 1-18

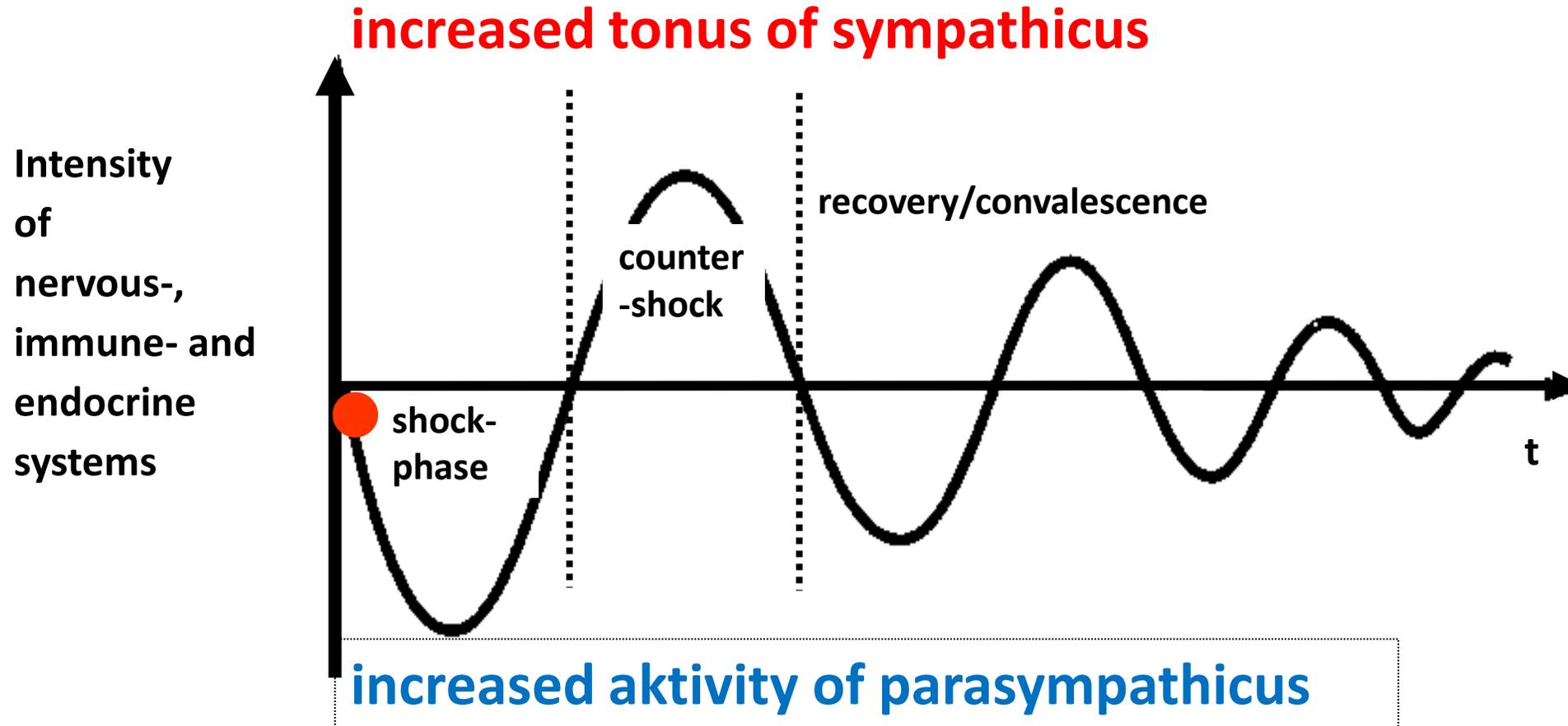
4. **Scheibenbogen C**, Volk HD, Grabowski P, Wittke K, Giannini C, Hoffmeister B, Hanitsch L (2014) Chronisches Fatigue-Syndrom. Täg. Prax. 55: 567-74

the goals of the DGfAN

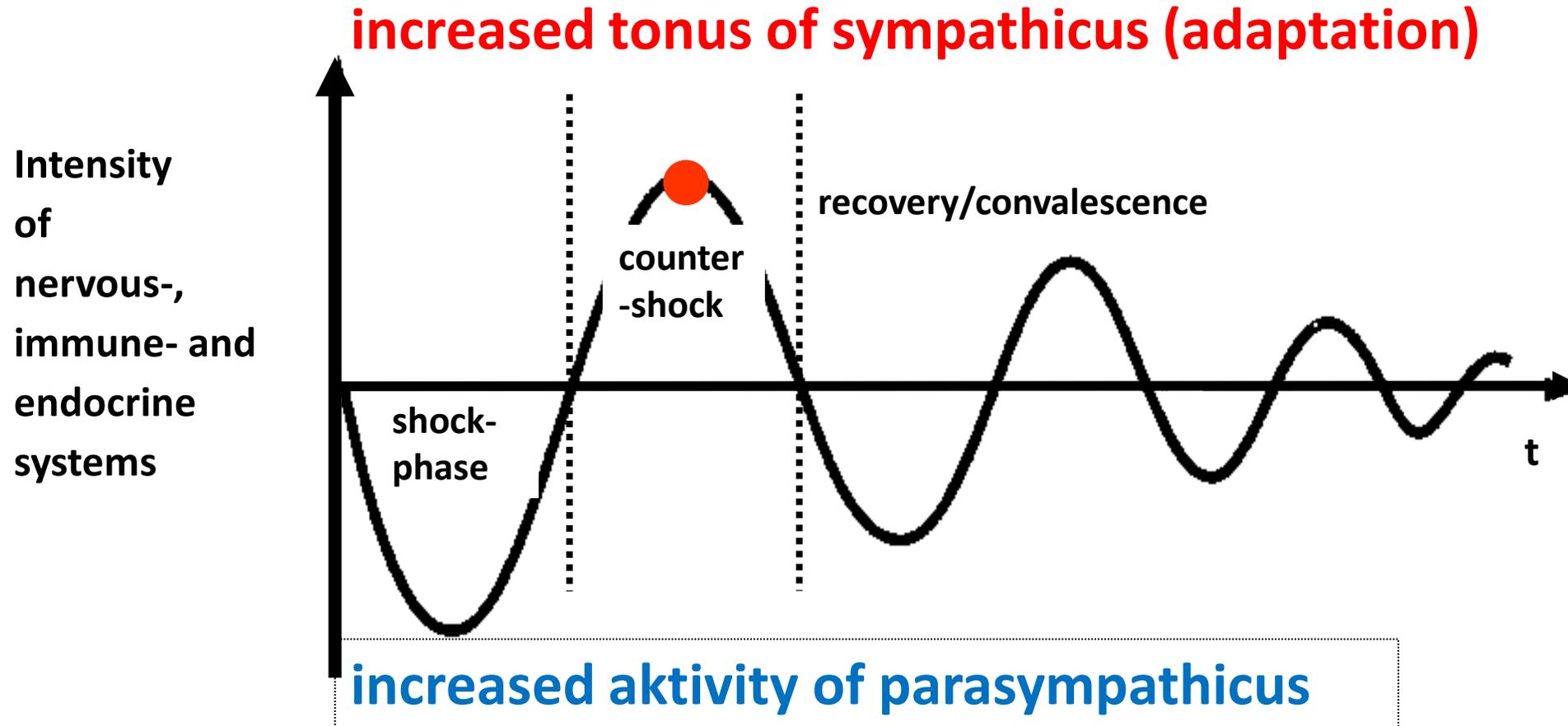
(gli obiettivi della DGfAN)

- teaching to recognize
- the weakness of **yang/sympathicus**
- the limit and relative contraindication of the Neural-therapy
- the combination of systemic Neural-Therapy as an infusion with e.g. **ozone as an autohemotherapy**

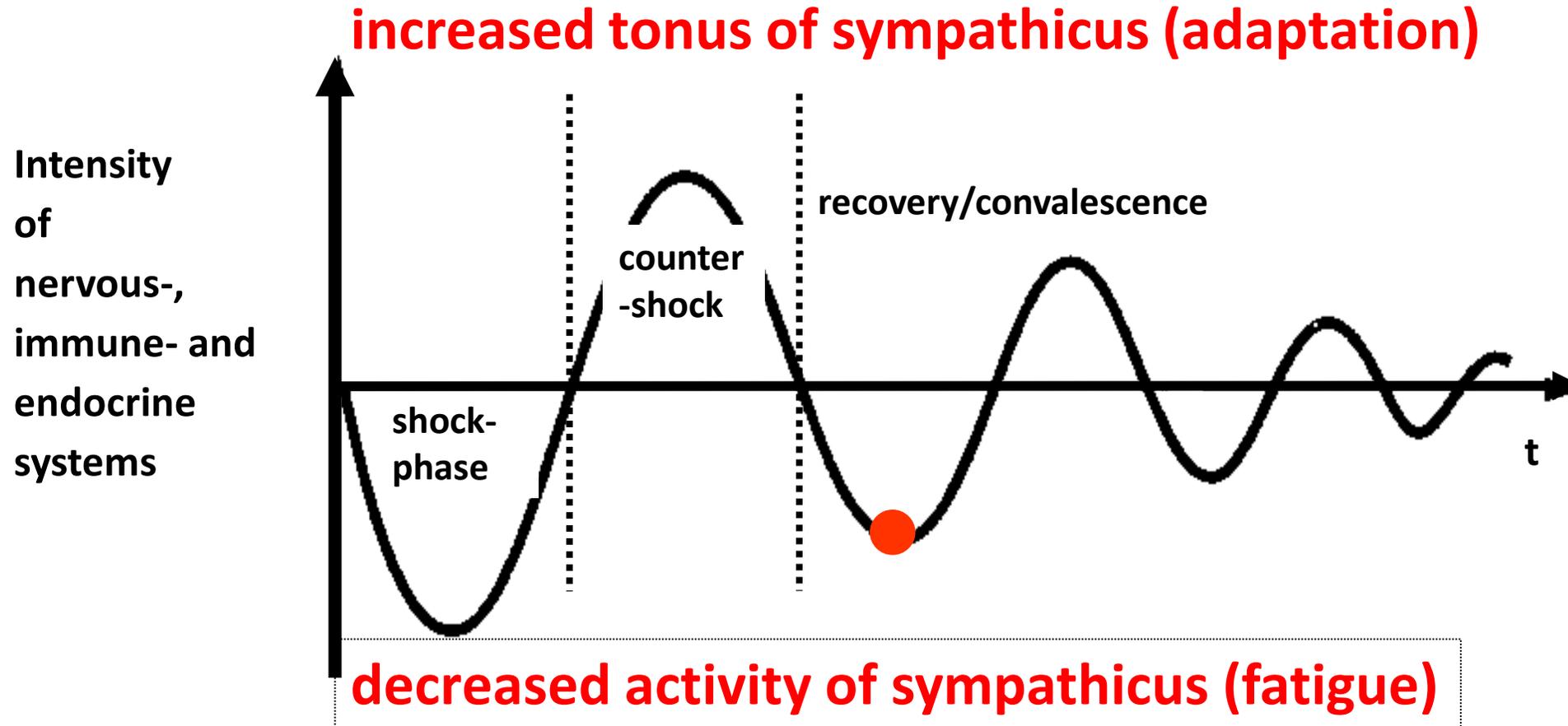
stress response according to Selye (teoria dello stress di Selye)



stress response according to Selye (teoria dello stress di Selye)



stress response according to Selye (teoria dello stress di Selye)



definition of fatigue

(definizione di stress)

- a nosological **entity** analogous to neurasthenia,...as a persistent and nagging **feeling of exhaustion**...after even the slightest exertion [1] or
- a **multi-system disease** with dysregulation of the **immune system, nervous system and cellular energy metabolism ...** with the key symptoms
 1. **fatigue** (physical and cognitiv tiredness)
 2. **orthostatic intolerance (OI)**
 3. **postexertionell malaise (PEM)** [2,3]

1. **Lahmann C, Dinkel A** (2013) Erschöpfung und Chronisches Erschöpfungssyndrom: Relevanz für die Arbeitsmedizin. Umweltmed – Hygiene – Arbeitsmed 18(3): 1-18

2. **Scheibenbogen C, Renz-Polster H, Hohberger B, Behrends U, Schieffer E, Schieffer B** (2023) Post COVID and post-vaccine syndrome: The pandemic after the pandemic. Dtsch Ärztebl. 120(13): A-566/B-485

3. **Yong SJ, Liu S**: Proposed subtypes of post-COVID-19 syndrome (or long COVID) and their respective potential therapies. Rev Med Virol 2022; 32(4):

incidence of fatigue

(incidenza della fatica)

- in cases of
 - tumors 38-90% [1,2]
 - multiple sklerose up to 95% [3]
 - chronic fatigue syndrome up to 6% [4,5,6]
 - long-CoViD 10-15% [7]

1. **Heim ME, Weiss J** (2015) Fatigue bei Krebserkrankungen. Schattauer
2. **De Vries U, Reif K, Petermann F** (2012) Tumorbedingte Fatigue und ihre psychosozialen Belastungen. Der Schmerz 26: 85-93
3. **Groß R** (2006) Fatigue bei Multipler Sklerose. Diss.
4. **Knops M** (2013) Charakterisierung des phänotypischen und funktionellen Immunstatus bei Patienten mit Chronischem Erschöpfungssyndrom. Diss
5. **Lahmann C, Dinkel A** (2013) Erschöpfung und Chronisches Erschöpfungssyndrom: Relevanz für die Arbeitsmedizin. Umweltmed – Hygiene – Arbeitsmed 18(3): 1-18
6. **Scheibenbogen C, Volk HD, Grabowski P, Wittke K, Giannini C, Hoffmeister B, Hanitsch L** (2014) Chronisches Fatigue-Syndrom. Tägk. Prax. 55: 567-74
7. **Scheibenbogen C, Renz-Polster H, Hohberger B, Behrends U, Schieffer E, Schieffer B** (2023) Post COVID and post-vaccine syndrome: The pandemic after the pandemic. Dtsch Ärztebl. 120(13): A-566/B-485

etiology of fatigue

(eziologica della fatica)

- immunodeficiency with lack of immunoglobulins, MBL etc. [1,2,3] or longer-lasting immune activation [4] with elevated levels of interferons, interleukins and T-cells
- suprarenal insufficiency (esp. Addison-disease) or antibodies against sympathetic receptors (e.g. β -adrenergic receptors) [3]
- lack in the polymorphisms of mitochondrial enzymes (esp. GST, GPx, SOD etc.) [5]

1. **Lahmann** C, Dinkel A (2013) Erschöpfung und Chronisches Erschöpfungssyndrom: Relevanz für die Arbeitsmedizin. Umweltmed – Hygiene – Arbeitsmed 18(3): 1-18
2. **Löbel** M, Strohschein K, Giannini C, Kölsch U, Bauer S, Döbis C, Thomas S, Unterwalder N, von Baehr V, Reinke P, Knops M, Hanitsch LG, Meisel C, Volk HD, Scheibenbogen C (2014) Deficient EBV-specific B- and T-cell response in patients with chronic fatigue syndrome. PLoS One 15;9(1)
3. **Scheibenbogen** C, Volk HD, Grabowski P, Wittke K, Giannini C, Hoffmeister B, Hanitsch L (2014) Chronisches Fatigue-Syndrom. Tägk. Prax. 55: 567-74
4. **Scheibenbogen** C, Renz-Polster H, Hohberger B, Behrends U, Schieffer E, Schieffer B (2023) Post COVID and post-vaccine syndrome: The pandemic after the pandemic. Dtsch Ärztebl. 120(13): A-566/B-485
5. **Kuklinski** B (2016) Mitochondriopathie. Aurum

stress index

according to Baevsky

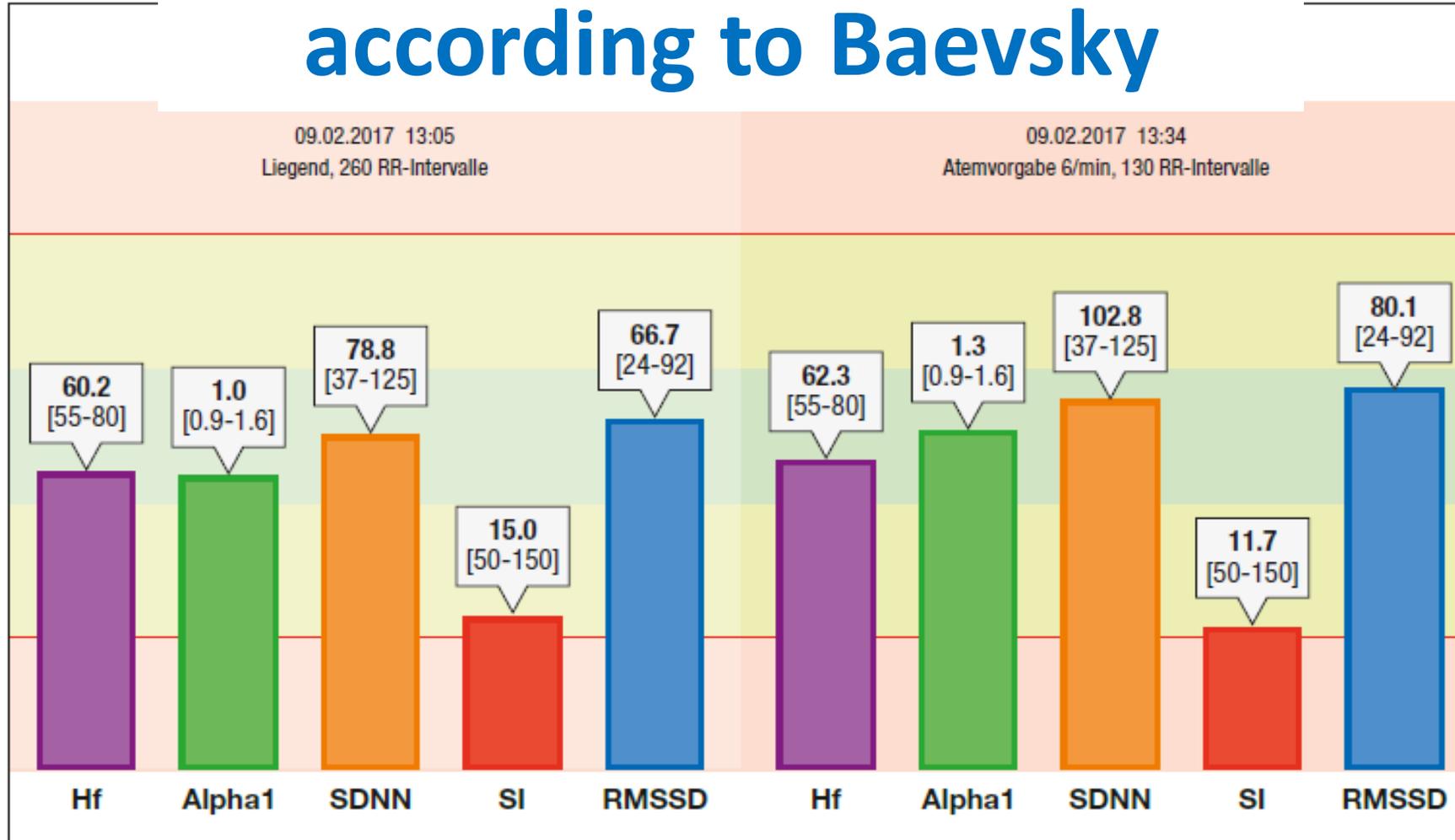


Abb. 2: Fatigue bei Immundefizienz mit rez. Abszessen und Ergüssen Fig2. From (2)

1. Baevsky RM, Kirillov OI, Kletskin SZ (1984) Mathematical analysis of heart rhythm and stress, M, Nauka
2. Günter U (2017) Komplementäre Behandlung nach VNS-Analyse...NHK 5 S 58

risk of fatigue

(rischio di affaticamento)

exhausting trauma, stress, environmental factors or
silent inflammation with

- lack of essential substances [1,2], indigestion, eating disorders, poor standard of living etc. [1]
- paradontal or dentogenic inflammations (non-vital or root-resected teeth, jaw ostitis, cavity-forming osteolysis of jaw bone (FDOJ) [3]
- exposure to EBV, SARS-CoV-2 etc. [4,5,6]

1. **Kuklinski B** (2016) Mitochondriopathie. Aurum
2. **Pall M** (2009) Explaining „Unexplained Illnesses“. Informa Healthcare
3. **Lechner J, von Baehr V** (2013) RANTES and fibroblast growth factor 2 in jawbone cavitations: triggers for systemic disease? Int J Gen Med 22/6:277-90
4. **Lahmann C, Dinkel A** (2013) Erschöpfung und Chronisches Erschöpfungssyndrom: Relevanz für die Arbeitsmedizin. Umweltmed – Hygiene – Arbeitsmed 18(3): 1-18
5. **Löbel M, Strohschein K, Giannini C, Kölsch U, Bauer S, Döbis C, Thomas S, Unterwalder N, von Baehr V, Reinke P, Knops M, Hanitsch LG, Meisel C, Volk HD, Scheibenbogen C** (2014) Deficient EBV-specific B- and T-cell response in patients with chronic fatigue syndrome. PLoS One 15;9(1)
6. **Scheibenbogen C, Volk HD, Grabowski P, Wittke K, Giannini C, Hoffmeister B, Hanitsch L** (2014) Chronisches Fatigue-Syndrom. Täggl. Prax. 55: 567-74

an example of silent inflammation and following fatigue



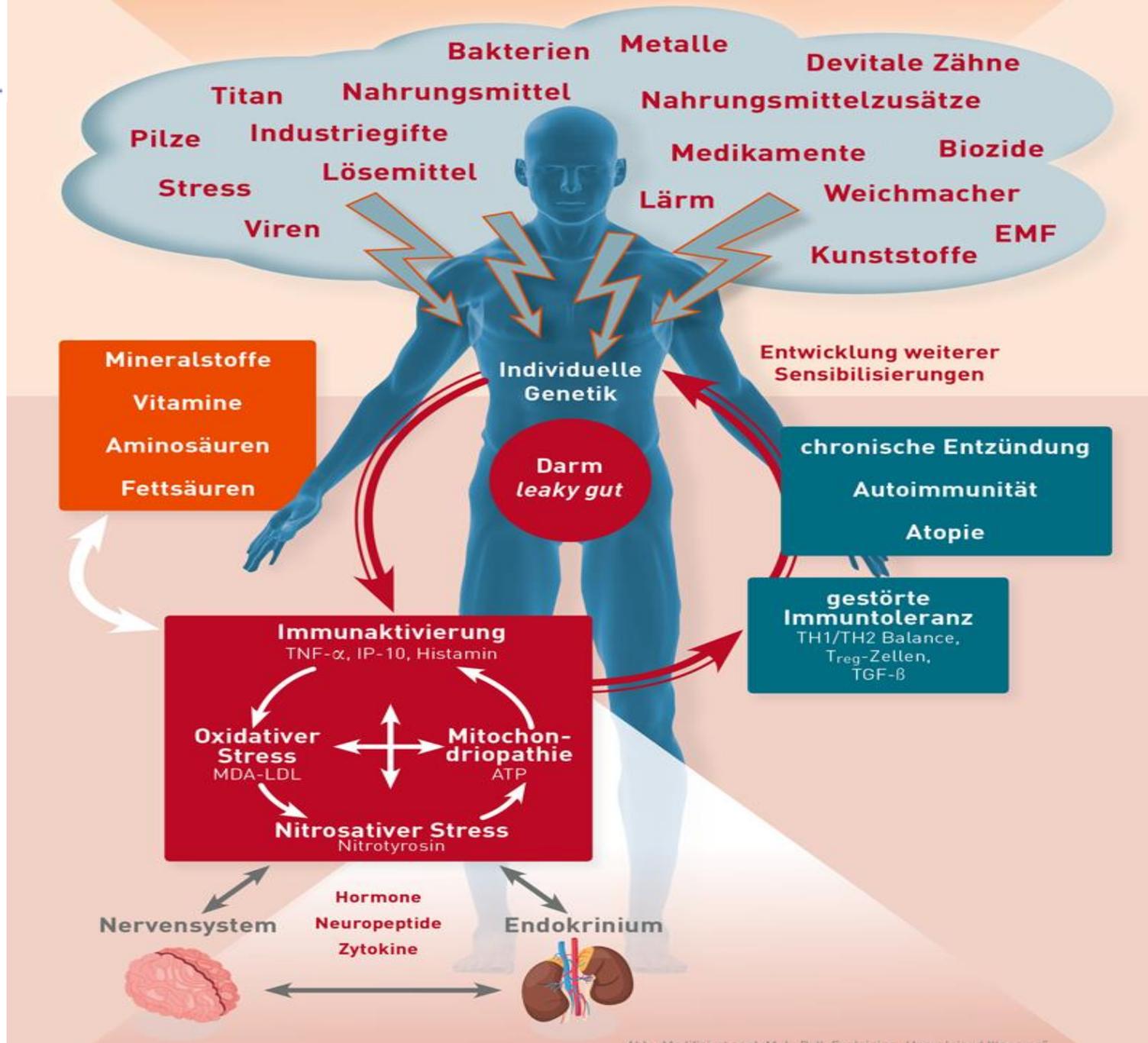
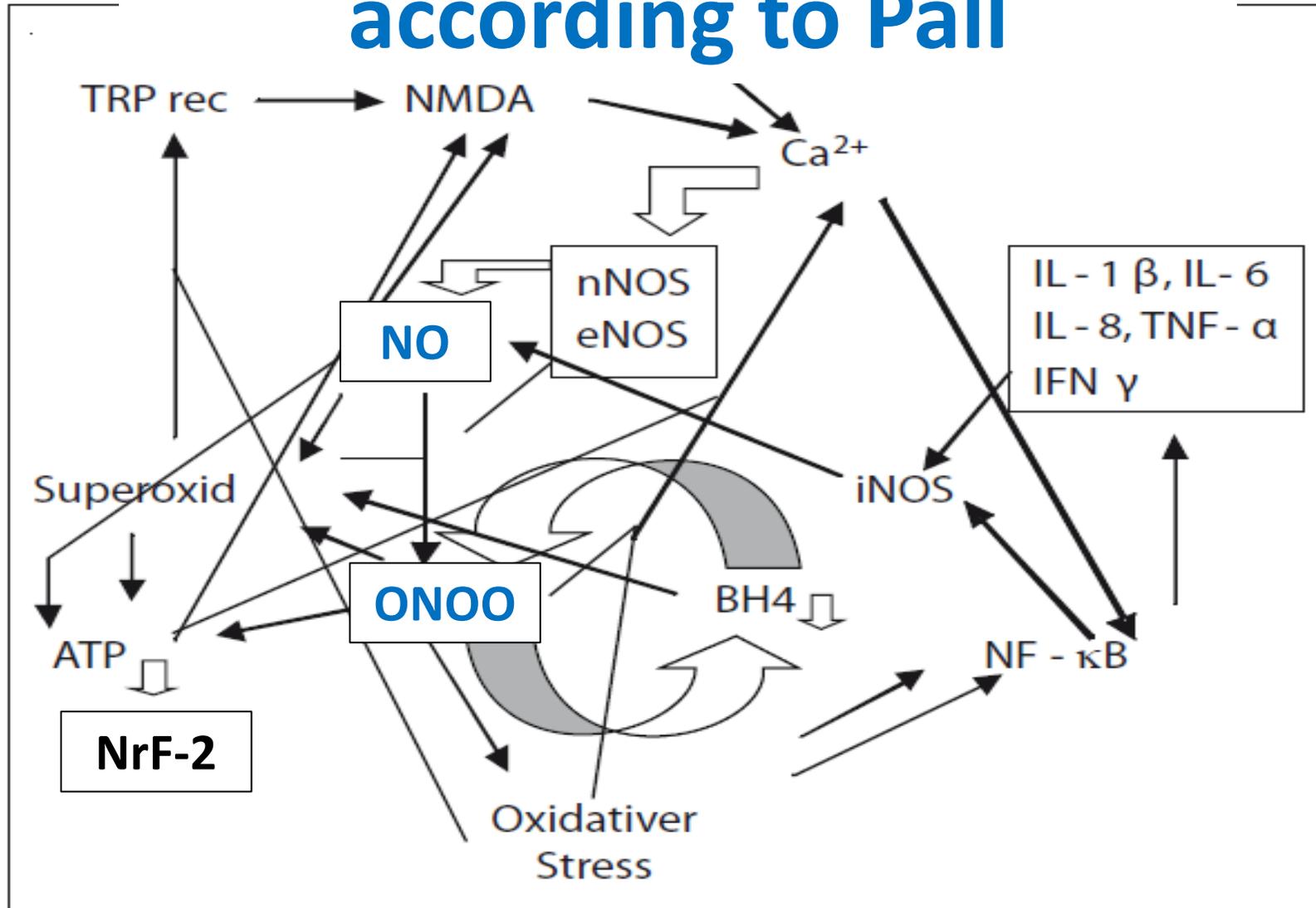


Abb.: Modifiziert nach M. L. Pall: "Explaining Unexplained Illnesses"

the NO/ONOO- cycle according to Pall



symptoms by fatigue syndrome

(sintomi da sindrome di affaticamento)

- **disproportionate exhaustion** after any stress, which cannot be eliminated by sleep, as well as the presence of a sleep disorder without depressive pathology [1]
- **cognitive dysfunction** with slowed thinking, memory and word-finding disorders [1] also known as
 - **#brain fog**

symptoms by fatigue syndrome

(sintomi da sindrome di affaticamento)

- **orthostatic intolerance (OI)** with worsening of symptoms on sitting up and improvement on laying down (esp. headache, dizziness, syncope, palpitations and anxiety) [1]
- muscular fatigue with weakened muscle strength or exercise intolerance such as **postexertional malaise (PEM)** [2] that start up to 14 hours later and last for weeks (in addition to dyspnea, tachycardia, chest pain) [1]

1. **Scheibenbogen** C, Renz-Polster H, Hohberger B, Behrends U, Schieffer E, Schieffer B (2023) Post COVID and post-vaccine syndrome: The pandemic after the pandemic. Dtsch Ärztebl. 120(13): A-566/B-485

2. **Davis** HE, Assaf GS, McCorkell L, et al.: Characterizing long COVID in an international cohort: 7 months of symptoms and their impact. EClinicalMedicine 38: 101019

tests in case of fatigue

(test in caso di affaticamenti)

- bloodpressure (RR) and peripheral pulse when **laying and standing** up or after 1, 3 and 10 min **according to Schellong** [1] or tilt table examination
- **heart rate variability (HRV)** analysis when laying and standing [2,3]
- measurement of **hand force** [4]

1. **Diehl** RR (2003) Postural tachycardia syndrome: Too rarely diagnosed in Germany so far. [100\(43\): A-2794 / B-2330 / C-2185](#)

2. **Günter** U (2017) Komplementäre Behandlung nach VNS-Analyse...NHK 5 S 58

3. **Thompson** AD, Shea MJ (2020) Orthostatische Hypotonie. <https://www.msmanuals.com/de-de/profi/herz-kreislauf-krankheiten/symptome-kardiovaskul%C3%A4rer-erkrankungen/orthostatische-hypotonie>

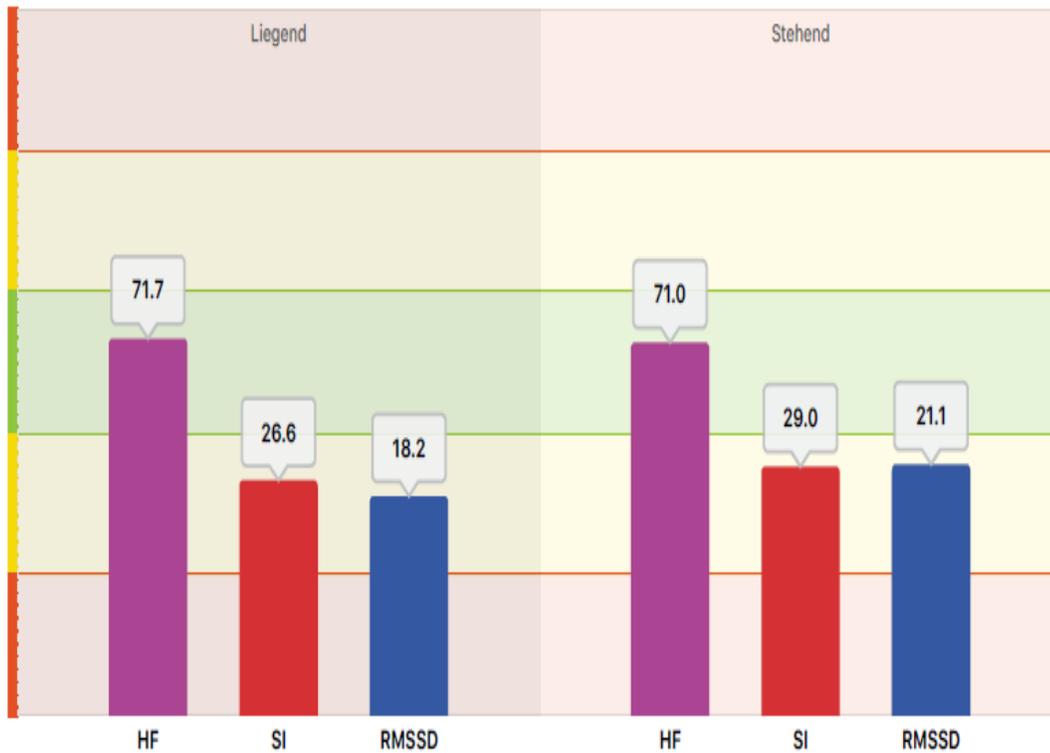
4. **Jäkel** B, Kedor C, Grabowski P, Wittke K, Thiel S, Scherbakov N, Döhner W, Scheibenbogen C, Freitag H (2021) Handle strength and fatigue: correlation with clinical parameters and diagnostic suitability in ME/CFS. J. of Translational Medicine. 19 , Article number: 159

comparism

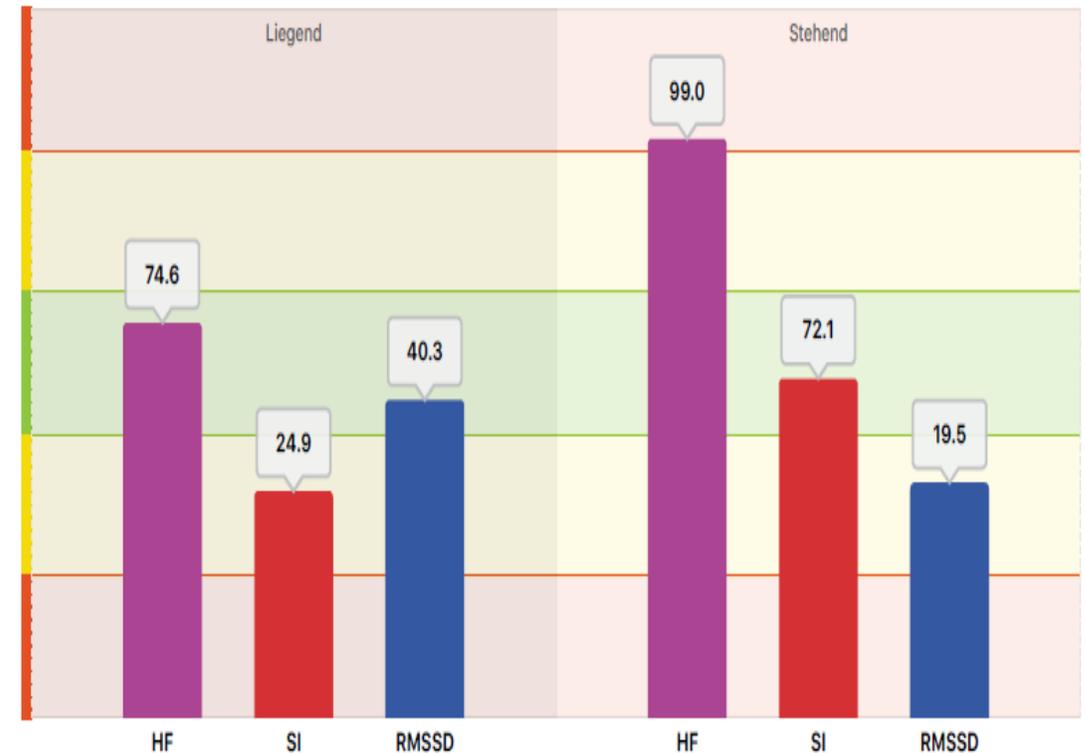
fatigue and orthostase

(confronto tra affaticamento e ortostasi)

Hauptparameter der VNS Analyse



Hauptparameter der VNS Analyse



laboratory references in fatigue

(risultati di laboratorio in affaticamento)

- decreased value of silent inflammation like TNF, IL1, RANTES, histamine or **special antibodies against receptors** (e.g. adrenergic receptors)
- increased value of **cortisol**, vitamin D25, P-5-P or B6, Holo-TC or 12, glutathione, Q10, ATP etc.
- decreased activity of **GST, GPx, SOD** etc.
- in the urine: increased value of **heavy metals** after Chelat-infusion

a suggestion for therapy

(una proposta terapeutica)

detoxication management

- moderate exercise and sauna,
- diet low in meat, gluten and histamine, high in fluids and fiber,
- additional, algae, flora, toxin conjugators such as clinolites or zeolites
- homotoxicology/chelates as drugs or infusion

homotoxicology

according to Reckeweg

(omotossicologia secondo Reckeweg)

- lymphatic system/matrix
- liver
- bile system
- kidney/bladder
- stomache/intestines
- skin/mucosa
- tooth unit/odonton
- mitochondriae
- Lymphomyosot/Lymphdiaral[®]
- Hepar compositum[®]
- Berberis Homaccord[®]
- Solidago compositum[®]
- Nux Vomica[®]
- Mucosa compositum[®]
- Pulpa dentis[®]
- ATP comp[®]

Chelates

(chelati)

- chelates bind heavy metals
 - **DMPS** or **DMSA** esp. Hg, Pb, As, Cd
 - **EDTA** esp. Al, Ni, Fe, Zn, Cu
 - **alpha-liponacid** 600-1200mg as an universal chelat and antioxidant
 - and with **glutathione** 600mg as an universell toxin conjugator and antioxidant
- as an **infusion** over 30-120 min
- and 2-3 days later trace elements and mitochondrial management

trace elements

(oligoelementi)



Inzolen E®

- NaCl = 100,68mmol/l
- K = 50mmol/l
- Mg = 13mmol/l
- Zn = 70mmol/l
- Cu = 14mmol/l
- Mn = 10mmol/l

a suggestion for therapy

(una proposta terapeutica)

mitochondrial management

- omega-3-acid as carnithine as an drug,
- vitamine B6, B12 or complex and C as an infusionen,
vitamine D, Q10 etc. as an drug,
- amino-acids like arginin, tyrosine, glutathione etc. as drug or
as an infusionen
- trace elements like Se, Fe, Mn, Cu, Mg as an drug or as an
infusionen
- and **OZONE!**

goals for **ozone** therapy

(gli obiettivi dell' **ozono** terapia)

- low O₃ concentration -> ionic reaction without radical formation -> Ozonolysis -> hydroperoxides on phospholipids of cell membranes ->
- **activation of mitochondrial enzymes** (esp. SOD, GPx and GST)
- **influencing the cell metabolism** incl. ATP, increase and activation of NrF-2 etc.

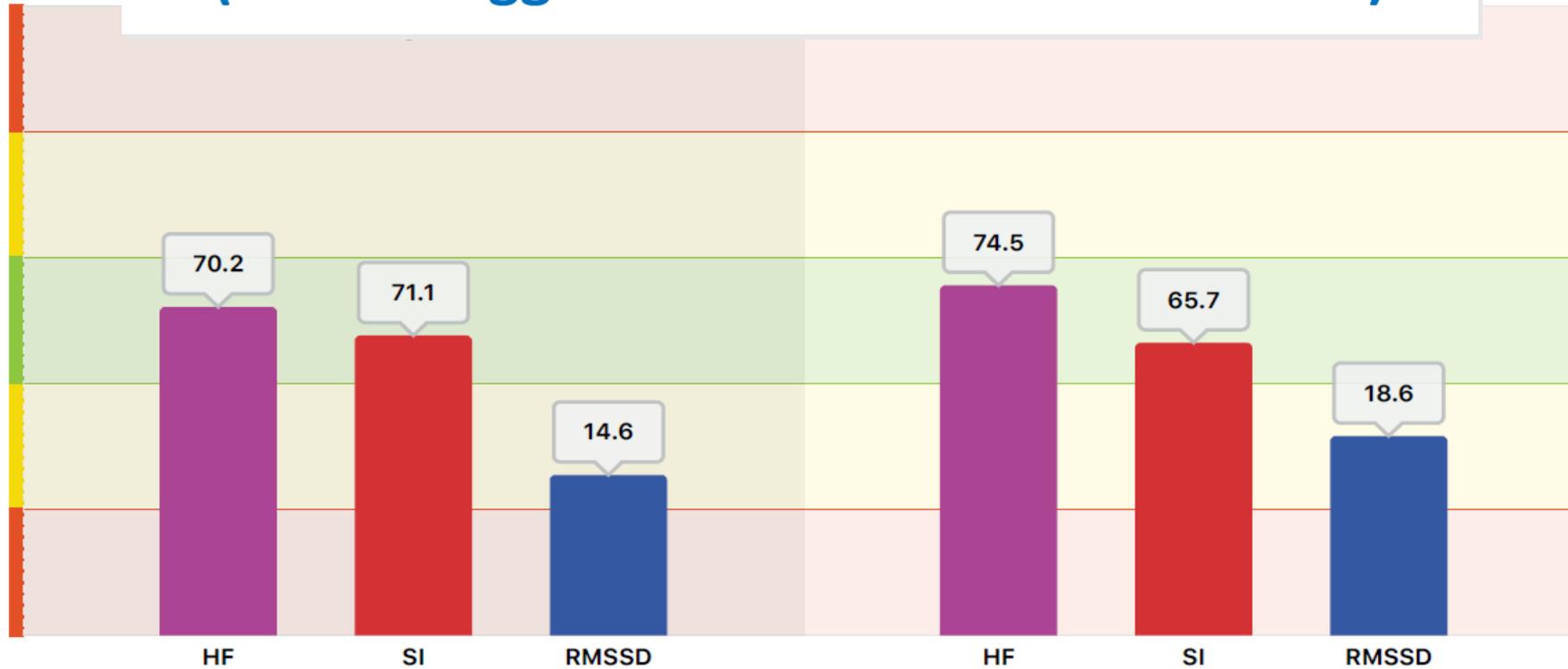
a praxis concept

(un concetto di pratica)

- personal-, room- and emergency management
- time management
- indication and laboratory diagnostics
- preparation (storage, vein check, device check, oxygen)
- conducted with dose adjustment based on compliance
- combination with other infusions
- monitoring and controlling
- appointment management

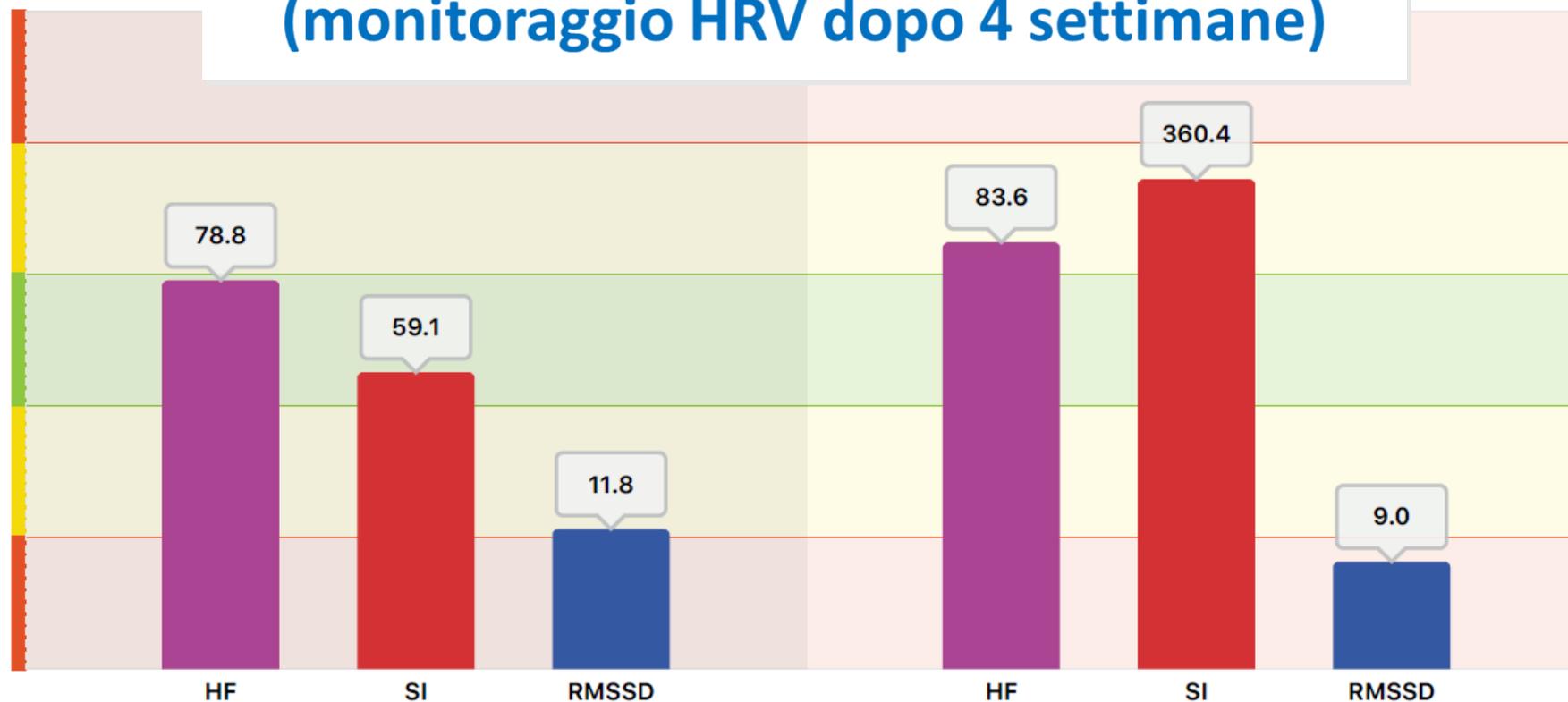
HRV-monitoring in orthostase-tests?

(monitoraggio HRV come test ortostatico?)

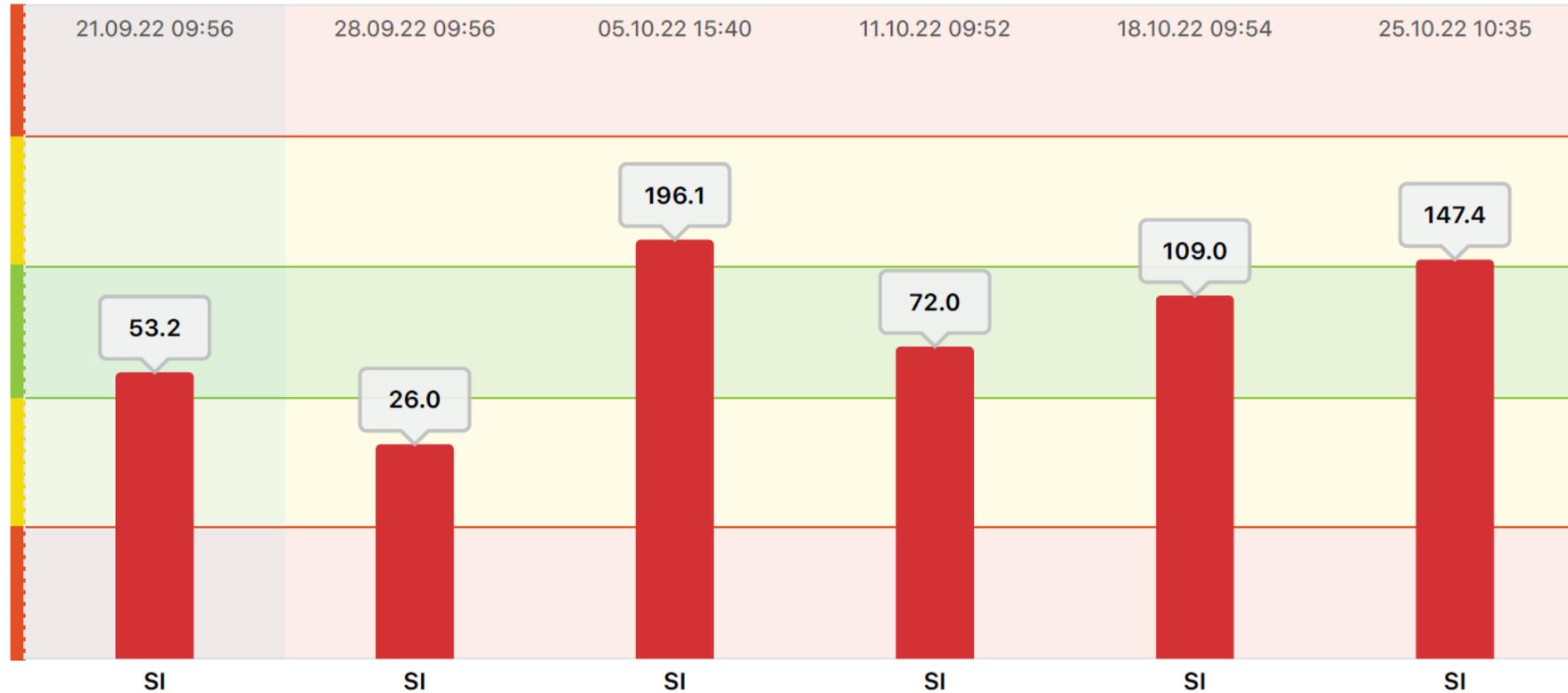


HRV-monitoring after 4 weeks!

(monitoraggio HRV dopo 4 settimane)



HRV-monitoring over 4 weeks (monitoraggio HRV per 4 settimane)

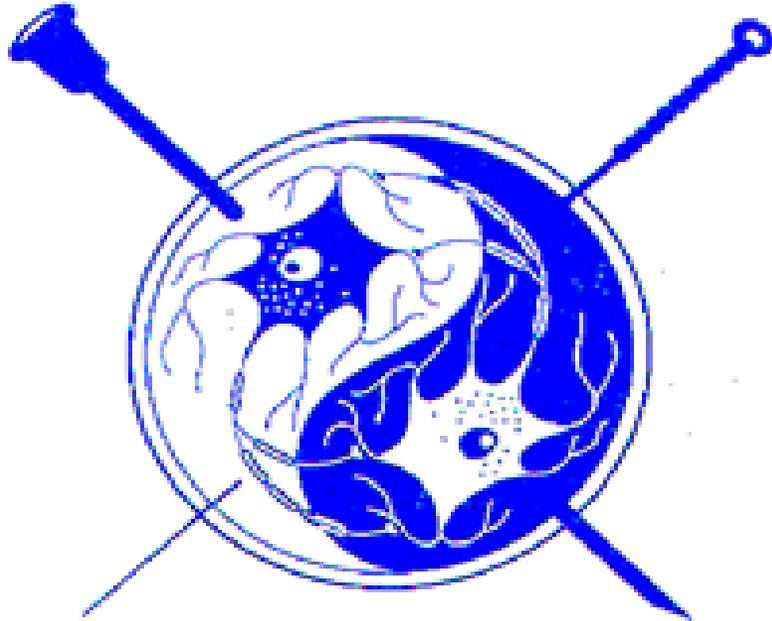


chronic fatigue in future

(stanchezza cronica in futuro)

- It is not enough to just recommend to eating more salt, wearing compression tights etc.
- It is not enough to just recommend „pacing“, „support groups“ or cortison therapy alone
- It is not enough to just recommend antihistamines, antidepressives etc.
- I recommend the combination of multimodal diagnostics and therapy of the mitochondria with detoxication and
- ozone

**Thank you very much for your attention
(Grazie mille per l'attenzione)**



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