

Stressmanagement in Clinical Practice:

Applications in Musculoskeletal Treatments, Oncological Rehabilitation and Pain Treatment

Jo Nijs^{1,2,3} & Ward Willaert^{1,2}

¹ Pain in Motion International Research Group, www.paininmotion.be

² Department of Physiotherapy, Human Physiology and Anatomy, Faculty of Physical Education & Physiotherapy, Vrije Universiteit Brussel, Belgium

³ Department of Physical Medicine and Physiotherapy, University Hospital Brussels, Belgium
twitter: @PaininMotion; facebook: www.facebook.com/PainInMotion

Introduction

Stress can be defined as the continuous struggle of living organisms to preserve an internal dynamic state of equilibrium (homeostasis)¹. Any factor, being either physical, psychosocial or emotional, that challenges homeostasis, is labelled as a stressor¹. Severe and long-term stress²⁻⁴ is an established lifestyle factor of utmost importance to maintain chronic pain across the lifespan. Likewise, stress is a crucial player in the cancer process, including allowing the immune system to function appropriately. Many people suffering from chronic pain as well as cancer survivors have dysfunctional physiological stress response systems⁵⁻¹¹, including both the short- (i.e. sympathetic nervous system) and long-term stress response systems (i.e. hypothalamus-pituitary-adrenal axis). Clinically this manifests as intolerance to stress during daily life in cancer survivors and people with chronic pain¹².

Hence, stress management should also be incorporated in a multimodal approach for cancer survivors and people having chronic pain and difficulties coping with everyday stressors, a notion that is supported by available evidence^{13,14}. Stress management should incorporate acknowledgement that inherent stress response systems may not be functioning properly, and that external assistance is required in order to cope better with everyday stressors. Adherence to a stress management program can be an issue. If the illness perception regarding the role of stress is adopted properly, and if the subject can see how the outlined approaches can assist or strengthen the stress response system, improved adherence with stress self-management interventions might be achievable. All these issues will be addressed in this course day.

Learning objectives:

At the end of the course, participants will be able to:

1. Understand the crucial role of stress (intolerance) in people having persistent pain, cancer survivors and musculoskeletal health care problems.
2. Recognize stress intolerance in their patients.
3. Recognize the factors contributing to stress (intolerance) in their patients.
4. Apply evidence-based stress management with their patients.
5. Integrate stressmanagement into the comprehensive treatment program for patients having chronic pain, musculoskeletal problems and cancer survivors.

Content:

08.30 Introduction

09.15 The neurobiology of stress in patients having stress intolerance: a matter of maladaptive changes in the mind, body & brain

11.00 Coffee-break

11.15 Clinical approach to stress management for patients having stress intolerance:

- stepwise approach
- skills training of clinical reasoning skills, including assessment and identification of patients in need for stress management

13.00 Light lunch

14.00 Skills training stress management part 1, including demonstration, case studies and practicing

15.30 Coffee break

15.45 Skills training stress management part 2, including demonstration, case studies and practicing

17.30 End of day

Educational modes:

The course content will be delivered through a mixture of methods to optimize multi-faceted knowledge transfer, designed to address local barriers to knowledge translation, in line with current best-evidence approach in improving evidence-based practice / clinical practice guideline uptake among therapists¹⁵, including:

- interactive lectures
- demonstrations
- didactic sessions
- practical skills training:
 - motivational communication strategies to facilitate the use of stress self-management approaches
 - stress management skills
- illustrations
- discussion and feedback sessions addressing clinical reasoning skills
- case studies

Voorstelling docenten

Drs. Ward Willaert

Ward Willaert behaalde in 2014 aan de Vrije Universiteit Brussel het diploma “Master of Science in de revalidatiewetenschappen en de kinesitherapie” met als specifieke afstudeerrichting musculoskeletale aandoeningen. Van 2014 tot 2016 heeft hij gewerkt als klinisch kinesitherapeut in verscheidene kinesitherapiepraktijken, gericht op mensen met (chronische) musculoskeletale aandoeningen. In deze periode combineerde hij zijn job als kinesitherapeut tevens met die van wetenschappelijk onderzoeker. Hij was tewerkgesteld aan het Brussels Labo voor Inspanning en TopSport (BLITS) en werkte als onderzoeker en lid van Brubotics mee aan een grootschalig onderzoeksproject binnen de neurorevalidatie. In 2017 is Ward gestart aan een doctoraat, gericht op onderzoek en behandeling van aanhoudende klachten en pijn bij personen na een whiplash ongeval. Als joint-PhD onderzoeker voert hij zijn onderzoek uit aan zowel de Vrije Universiteit Brussel als de Universiteit Gent. Hij is lid van de Pain in Motion onderzoeksgroep en zijn onderzoeks- en klinische interesse gaat uit naar chronische “onverklaarbare” pijn, geassocieerde aandoeningen, diagnose en behandeling van (chronische) pijn, en in het bijzonder, whiplash geassocieerde aandoeningen en het centraal zenuwstelsel.

Prof. Dr. Jo Nijs

Jo Nijs holds a PhD in rehabilitation science and physiotherapy. He is professor at the Vrije Universiteit Brussel (Brussels, Belgium), physiotherapist/manual therapist at the University Hospital Brussels, and holder of a Chair on oncological physiotherapy funded by the Berekuyt Academy, the Netherlands. Jo runs the Pain in Motion international research group (www.paininmotion.be). His research and clinical interests are patients with chronic pain and pain-movement interactions, with special emphasis on the central nervous system. The primary aim of his research is improving care for patients with chronic pain. At the age of 43, he has (co-)authored >230 peer reviewed publications, obtained €8 million grant income, supervised 16 PhD projects to completion (excluding

14 ongoing PhD projects) and served more than 270 times as an invited speaker at national and international meetings in 25 different countries (including 30 keynotes). He trained 3k clinicians in 91 courses held in 12 different countries spread over 4 continents. His work has been cited >5k times (*h*-index: 42), with 24 citations per article (ISI Web of Knowledge). Jo is ranked 1st in the world among central nervous system sensitization researchers, 5th in the world among chronic pain researchers (2nd in Europe), 2nd in the world among chronic fatigue syndrome researchers, and 5th among whiplash injury researchers (expertscape.com). He served as Guest Editor of *Journal of Clinical Medicine's* (SCI₂₀₁₈=5.688; 15/160 Medicine general & internal D1) special issue 'Rehabilitation for Persistent Pain Across the Lifespan'.

References

1. Schouten M, Aschrafi A, Bielefeld P, Doxakis E, Fitzsimons CP. microRNAs and the regulation of neuronal plasticity under stress conditions. *Neuroscience* 2013; **241**: 188-205.
2. Adler GK, Geenen R. Hypothalamic-pituitary-adrenal and autonomic nervous system functioning in fibromyalgia. *Rheumatic diseases clinics of North America* 2005; **31**(1): 187-202, xi.
3. Bradesi S, Lao L, McLean PG, et al. Dual role of 5-HT₃ receptors in a rat model of delayed stress-induced visceral hyperalgesia. *Pain* 2007; **130**(1-2): 56-65.
4. De Couck M, Nijs J, Gidron Y. You may need a nerve to treat pain: the neurobiological rationale for vagal nerve activation in pain management. *The Clinical journal of pain* 2014; **30**(12): 1099-105.
5. Radanov BP, di Stefano G, Schnidrig A, Ballinari P. Role of psychosocial stress in recovery from common whiplash [see comment]. *Lancet (London, England)* 1991; **338**(8769): 712-5.
6. Radanov BP, Di Stefano G, Schnidrig A, Sturzenegger M. Psychosocial stress, cognitive performance and disability after common whiplash. *Journal of psychosomatic research* 1993; **37**(1): 1-10.
7. Sterling M, Jull G, Vicenzino B, Kenardy J. Sensory hypersensitivity occurs soon after whiplash injury and is associated with poor recovery. *Pain* 2003; **104**(3): 509-17.
8. Sterling M, Kenardy J. The relationship between sensory and sympathetic nervous system changes and posttraumatic stress reaction following whiplash injury—a prospective study. *Journal of psychosomatic research* 2006; **60**(4): 387-93.
9. McLean SA. The potential contribution of stress systems to the transition to chronic whiplash-associated disorders. *Spine* 2011; **36**(25 Suppl): S226-32.
10. Gaab J, Baumann S, Budnoik A, Gmunder H, Hottinger N, Ehlert U. Reduced reactivity and enhanced negative feedback sensitivity of the hypothalamus-pituitary-adrenal axis in chronic whiplash-associated disorder. *Pain* 2005; **119**(1-3): 219-24.
11. Crofford LJ. The hypothalamic-pituitary-adrenal stress axis in fibromyalgia and chronic fatigue syndrome. *Z Rheumatol* 1998; **57 Suppl 2**: 67-71.
12. Van Houdenhove B, Egle U, Luyten P. The role of life stress in fibromyalgia. *Curr Rheumatol Rep* 2005; **7**(5): 365-70.
13. Dunne RL, Kenardy J, Sterling M. A Randomized Controlled Trial of Cognitive-behavioral Therapy for the Treatment of PTSD in the Context of Chronic Whiplash. *The Clinical journal of pain* 2011.
14. Varatharajan S, Ferguson B, Chrobak K, et al. Are non-invasive interventions effective for the management of headaches associated with neck pain? An update of the Bone and Joint Decade Task Force on Neck Pain and Its Associated Disorders by the Ontario Protocol for Traffic Injury Management (OPTiMa) Collaboration. *European spine journal : official publication of the European Spine Society, the European Spinal Deformity Society, and the European Section of the Cervical Spine Research Society* 2016; **25**(7): 1971-99.
15. Stander J, Grimmer K, Brink Y. Training programmes to improve evidence uptake and utilisation by physiotherapists: a systematic scoping review. *BMC medical education* 2018; **18**(1): 14.