

Content: abstracts from articles IPNFA members ----- >1 - 3
Abstracts from articles concerning PNF and facial impairments ----- >4 +5
Rehab measures has a new website lay-out ----- > 6
We received: *Resistance training in anxiety issues*----- > 7
A theoretical review on: Motor Learning ----->8

February 2018

Newsletter IPNFA research committee

We like to present here publication from IPNFA members. At the meeting in Warsaw papers from **Stepien et al 2017**, from **Maicki et al 2017** were shortly mentioned. We also learned from a publication from **Ulla Bertichamp** in France and finally from **Wong et al 2017** in Hong Kong. We are proud that more and more publication from IPNFA members are emerging.

Furthermore the research committee received several publication for the use of PNF in Bell's palsy and other facialis impairments and also that resistance training can influence anxiety. Is this maybe a secondary effect also achievable with PNF? Resistance is one of our key facilitators, as is motor learning, our final topic of this edition. We like to present the abstracts here. (Full text is available)
I wish a joyful reading. Fred.



A. Stepień, K. Fabian, K. Graff, M. Podgurniak, A. Wit **An immediate effect of PNF specific mobilization on the angle of trunk rotation and the Trunk-Pelvis-Hip Angle range of motion in adolescent girls with double idiopathic scoliosis—a pilot study** *Scoliosis and Spinal Disorders* (2017) 12:29

Background: Impairment of spine rotation is a key concept in several theories explaining the pathogenesis and progression of scoliosis. In previous studies, a more limited range of motion in scoliotic girls compared to their non-scoliotic peers was noted. The Trunk-Pelvis-Hip Angle measurement is a test used to assess the range of motion in the trunk-pelvis-hip complex in the transverse plane. The aim of this study was to assess an immediate effect of Proprioceptive Neuromuscular Facilitation specific mobilization (mPNF) on the angle of trunk rotation and Trunk-Pelvis-Hip Angle range of motion in adolescent girls with double scoliosis.

Methods: The study was conducted on 83 girls aged 10 to 17 years (mean 13.7 ± 1.9) with double idiopathic scoliosis consisting of a right-sided thoracic curve (mean $25.1^\circ \pm 13.9^\circ$) and a left-sided thoracolumbar or lumbar curve (mean $20.8^\circ \pm 11.4^\circ$). The angle of trunk rotation and Trunk-Pelvis-Hip Angle were measured at baseline and after PNF mobilization. Bilateral lower limb patterns of Proprioceptive Neuromuscular Facilitation were used in combination with the “contract-relax” technique and stimulation of asymmetrical breathing. In the statistical analysis, the SAS rel. 13.2 software was used. Preliminary statistical analysis was performed using descriptive statistics. According to Shapiro-Wilk criterion of normality, the Wilcoxon test was used to compare paired samples. Next, the data was analyzed using multivariate GLM models.

Results: In adolescent girls with double scoliosis, significant differences between the left and right side of the body concerning the Trunk-Pelvis-Hip Angle ranges were noted. A single, unilateral PNF mobilization significantly decreased the angle of trunk rotation in the thoracic ($p < 0.001$) and lumbar spine ($p < 0.001$). Unilateral PNF mobilization also increased the Trunk-Pelvis-Hip Angle ranges on the left ($p < 0.001$) and right ($p < 0.001$) side significantly.

Conclusions: Unilateral PNF mobilization led to a decrease in the angle of trunk rotation, improvement in the range of motion, and the symmetry of mobility in the transverse plane in the trunk-pelvis-hip complex in adolescent girls with double idiopathic scoliosis. The effects should be treated only as immediate. Further studies are required to determine long-term effects of PNF mobilization on the spinal alignment.

Trial registration: ISRCTN11750900.

Keywords: Idiopathic scoliosis, PNF, Angle of trunk rotation, Rotation, Physiotherapy

Full text free available: DOI 10.1186/s13013-017-0132-0

<https://new-scoliosisjournal.biomedcentral.com/articles/10.1186/s13013-017-0132-0>

Bertinchamp U,

Concept PNF : facilitation proprioceptive neuromusculaire (concept Kabat-Knott-Voss) Kinésithérapie-Médecine physique-Réadaptation 2010.

Résumé

Le concept PNF développé par le docteur Kabat, les physiothérapeutes Knott et Voss à partir de 1947, évolue constamment, enrichi par les nouvelles recherches des domaines de neurophysiologie, de l'apprentissage moteur et de l'analyse de mouvement (evidence based practice). Ses multiples principes de facilitation et de traitement ainsi que ses techniques spécifiques permettent les évaluations spécifiques des patients et des traitements physiothérapeutiques en phase aiguë et réhabilitation dans tous les domaines médicaux : médecine du sport, rhumatologie, traumatologie, orthopédie, pédiatrie, neurologie et gériatrie.

Le texte complet de cet article est disponible en PDF.

Mots clés : Facilitation proprio- et extéroceptive, Apprentissage et comportement moteur, Principes de facilitation, Stretching, Coordination.

Maicki T, Jan Bilski J, Szczygieł, E, Trajbka R. **PNF and manual therapy treatment results of patients with cervical spine osteoarthritis** Journal of Back and Musculoskeletal Rehabilitation 30 (2017) 1095–1101

PURPOSE: The aim of this study was to evaluate the effectiveness of PNF and manual therapy methods in the treatment of patients with cervical spine osteoarthritis, especially their efficacy in reducing pain and improving functionality in everyday life. Long-term results were also compared in order to determine which method of treatment is more effective.

SUBJECTS AND METHODS: Eighty randomly selected females aged 45–65 were included in the study. They were randomly divided into two groups of 40 persons. One group received PNF treatment and the other received manual therapy (MAN.T). To evaluate functional capabilities, the Functional Rating Index was used. To evaluate changes in pain, a shortened version of the McGill Questionnaire was used.

RESULT: The PNF group achieved a greater reduction in pain than the MAN.T group. The PNF group showed a greater improvement in performing daily activities such as sleeping, personal care, travelling, work, recreation, lifting, walking and standing as well as decreased intensity and frequency of pain compared to the MAN.T group.

CONCLUSION: The PNF method proved to be more effective in both short (after two weeks) and long (after three months) term.

Keywords: Chronic pain, neck pain, rehabilitation

Full text free available at: DOI 10.3233/BMR-169718 <https://content.iospress.com/articles/journal-of-back-and-musculoskeletal-rehabilitation/bmr169718>

Wong YH Candace·Cheung KW Kennis·Ko YC Evelyn·Tse HC Jeffrey· Law YL Margaret·
Seong-Soo Hwang·Ngai PC Shirley *Effect of a 4-week Theraband Exercise with
PNF Pattern on Improving Mobility, Balance and Fear of Fall in Commu-
nity-Dwelling Elderly* J Korean Soc Phys Med, 2017; 12(4): 73-82

PURPOSE: Proprioceptive Neuromuscular Facilitation (PNF) has been shown to improve body function and activity/participation in people with functional dysfunctions. This study evaluates if active exercise using theraband in PNF pattern may induce similar benefits as exercise using manual PNF pattern performed by physiotherapists on promoting mobility, balance and fear of fall in community-dwelling elderly.

METHODS: Twenty-three community-dwelling elderly with independent activities of daily living were recruited and randomly allocated into either PNF group - exercise in PNF pattern by trained physiotherapists or Theraband-PNF (T-PNF) group - exercise using theraband in PNF pattern, for an hour, twice weekly for 4 weeks. Functional outcomes such as Timed Up and Go test, Elderly Mobility Scale, Berg balance scale, functional reach and subjective measures including fear of fall (FOF) scale, bodily pain in visual analogue scale were measured pre and post-program.

RESULTS: Twenty-one participants completed the program. PNF group demonstrated significant within-group improvements in all subjective measures and objective measures. Similar within-group improvements were demonstrated in all outcome measures except FOFS in T-PNF group. However, no between-group differences were found in any of the outcome measures.

CONCLUSION: Comparable improvements in functional outcomes in community dwelling elderly were demonstrated in both groups. As manual PNF exercise traditionally need clinicians' contact and feedback on patient which limit the training to be carried out extensively in community setting. The current findings suggest that exercise using theraband in PNF pattern is feasible to be adopted as self-practice exercise for community-dwelling elderly to induce beneficial effects on functional outcomes.

Key Words: Elderly, PNF, Theraband exercise

Free available: <http://dx.doi.org/10.13066/kspm.2017.12.4.73>

The logic in health care:



Health tip (from experience):

When you cannot afford a doctor, go to an airport. You'll get a free X-ray and a breast exam, and; if you mention you'll get a free colonoscopy.

MAURIZIO BARBARA¹, GIOVANNI ANTONINI², ANNARITA VESTRI³,
LUIGI VOLPINI¹ & SIMONETTA MONINI.

***Role of Kabat physical rehabilitation in Bell's palsy:
A randomized trial.*** *Acta Oto-Laryngologica*, 2010; 130: 167_172

Abstract

Conclusion: When applied at an early stage, Kabat's rehabilitation was shown to provide a better and faster recovery rate in comparison with non-rehabilitated patients.

Objective: To assess the validity of an early rehabilitative approach to Bell's palsy patients.

Patients and methods: A randomized study involved 20 consecutive patients (10 males, 10 females; aged 35_42 years) affected by Bell's palsy, classified according to the House-Brackmann (HB) grading system and grouped on the basis of undergoing or not early physical rehabilitation according to Kabat, i.e. a proprioceptive neuromuscular rehabilitation. The evaluation was carried out by measuring the amplitude of the compound motor action potential (CMAP), as well as by observing the initial and final HB grade, at days 4, 7 and 15 after onset of facial palsy.

Results: Patients belonging to the rehabilitation group clearly showed an overall improvement of clinical stage at the planned final observation, i.e. 15 days after onset of facial palsy, without presenting greater values of CMAP.

Chandan Kumar* and Tanpreet Kaur Bagga ***Comparison between Proprioceptive Neuromuscular Facilitation and Neuromuscular Re-Education for Reducing Facial Disability and Synkinesis in Patients with Bell's palsy: A Randomized Clinical Trial.*** *Int J Phys Med Rehabil* 2015,3:4

Abstract

Purpose: To evaluate the comparative effectiveness of neuromuscular re-education technique and proprioceptive neuromuscular facilitation technique on improving facial disability and synkinesis in rehabilitation of bell's palsy.

Methodology: It was a randomized clinical trial consisting 40 participants (males and females) 20 in each group, with Bell's palsy of non-traumatic origin. Group A received proprioceptive neuromuscular technique (PNF) with conventional PT treatment and Group B received facial neuromuscular re-education technique (NMR) combined with conventional PT treatment for 6 days a week for 4 weeks.

Results: The result suggest that Group A had significant higher score at Sunny brook facial grading scale (SFGS) whereas in Facial Disability Index (FDI) Group A had significant difference at total score but there was no significant difference over individual component (social and physical function). Group B had significant better improvement over Synkinesis Assessment Questionnaire (SAQ).

Conclusions: Both PNF group and NMR showed significant results and displayed efficient improvement in facial symmetry after 4 weeks of treatment. PNF with conventional PT is more effective in improving facial function and reducing facial disability whereas NMR with conventional PT is better in reducing synkinesis in Bell's palsy rehabilitation.

Sanjiv Kumar, Shiva Prasad Tiwari, **EFFECT OF NEUROMUSCULAR REEDUCATION IN BILATERAL FACIAL PALSY ON PATIENT WITH GBS**

Int J Physiother Res 2014, Vol 2(2):449-52.

Background: Bilateral facial palsy is a rare entity and remains to be a challenging case to diagnose and manage which has the major impact on the physical and social aspect of the affected individual.

Objective: The aim of the report is to determine the role of neuromuscular reeducation in restoration of function in person with Guillain Barre Syndrome present with facial diplegia.

Case report: We report the case of 23 year male presenting with history of deviation of mouth to the right side, followed by bilateral facial involvement and latter distal symmetrical involvement of bilateral upper and lower limb. The facial diplegia was managed by PNF and Electrical stimulation.

Conclusions: Neuromuscular reeducation is an effective intervention for restoration of function after facial diplegia.

KEYWORDS: Guillain-Barre Syndrome (GBS), Bilateral facial palsy, Proprioceptive Neuromuscular Facilitation (PNF), Electrical stimulation, Neuromuscular Reeducation

**NEURO-PROPRIOCEPTIVE FACILITATION IN THE RE-EDUCATION
OF FUNCTIONAL PROBLEMS IN FACIAL PARALYSIS.
A PRACTICAL APPROACH**

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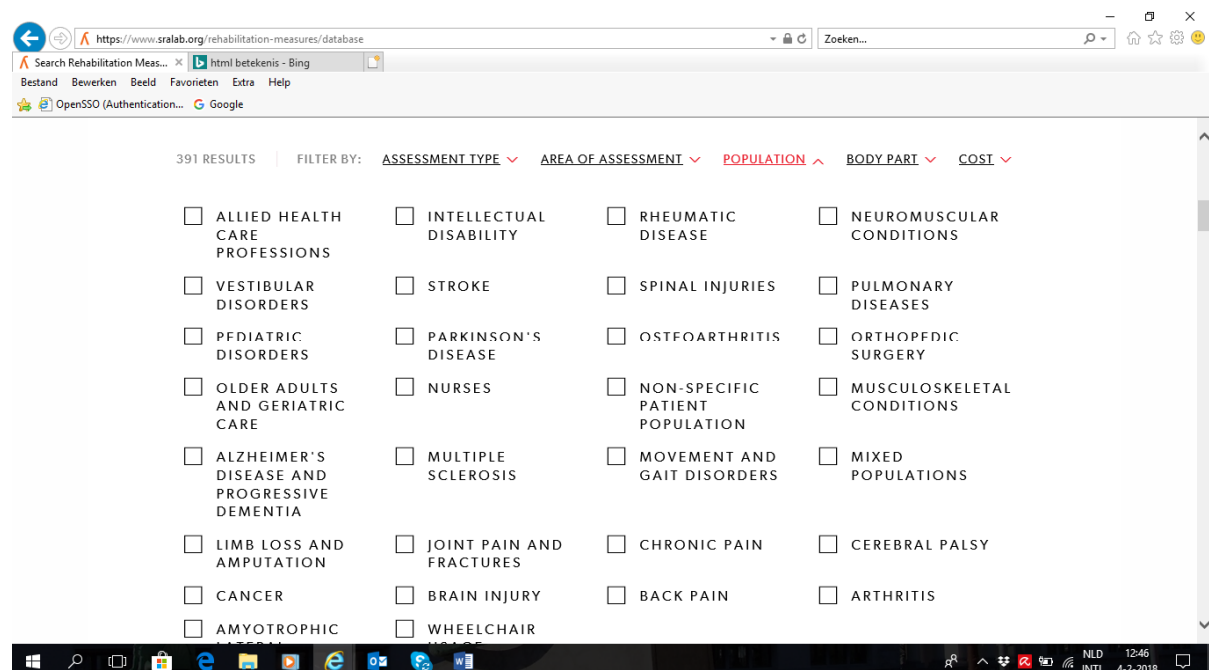
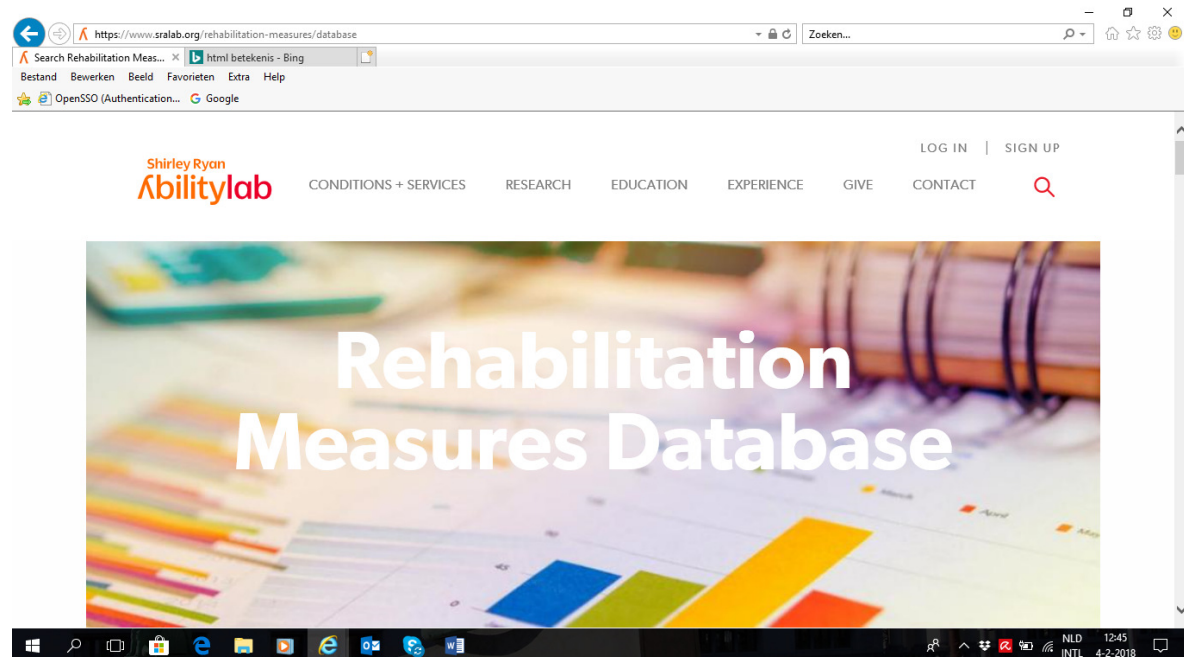
NEURO-PROPRIOCEPTIVE FACILITATION IN THE FUNCTIONAL RE-EDUCATION OF IN FACIAL PARALYSIS. A PRACTICAL APPROACH (Abstract): Facial paralysis, in the form of Bell's syndrome, is an acute paralysis of idiopathic origin. Disability in patients with this medical condition is the result of impairment or loss of complex and multidimensional functions of the face like emotion expression through facial mimics, facial identity and communication. **Aim:** This study aimed to present new and improved practical manual techniques in the area of facial neuromuscular facilitations and to review the literature for disability indexes and facial nerve grading. **Material and methods:** We present the practical modality of using neuro-proprioceptive facilitation techniques, such as rhythmic initiation, repeated stretch (repeated contractions), combination of isotonic and percussion, and also report the effects of these techniques in three Bell's syndrome patients which were previously evaluated. **Conclusions:** Recovery from facial paralysis can be a difficult and long lasting process and the utilization of a grading system may help the physical therapist. The effects of this type of therapy may help benefit the patient if the therapist is well trained and familiar with the neurophysiological background. **Keywords:** FACIAL PARALYSIS, PROPRIOCEPTIVE FACILITATION, BELL'S SYNDROME, HAUSE-BRAUCKMANN SCORE

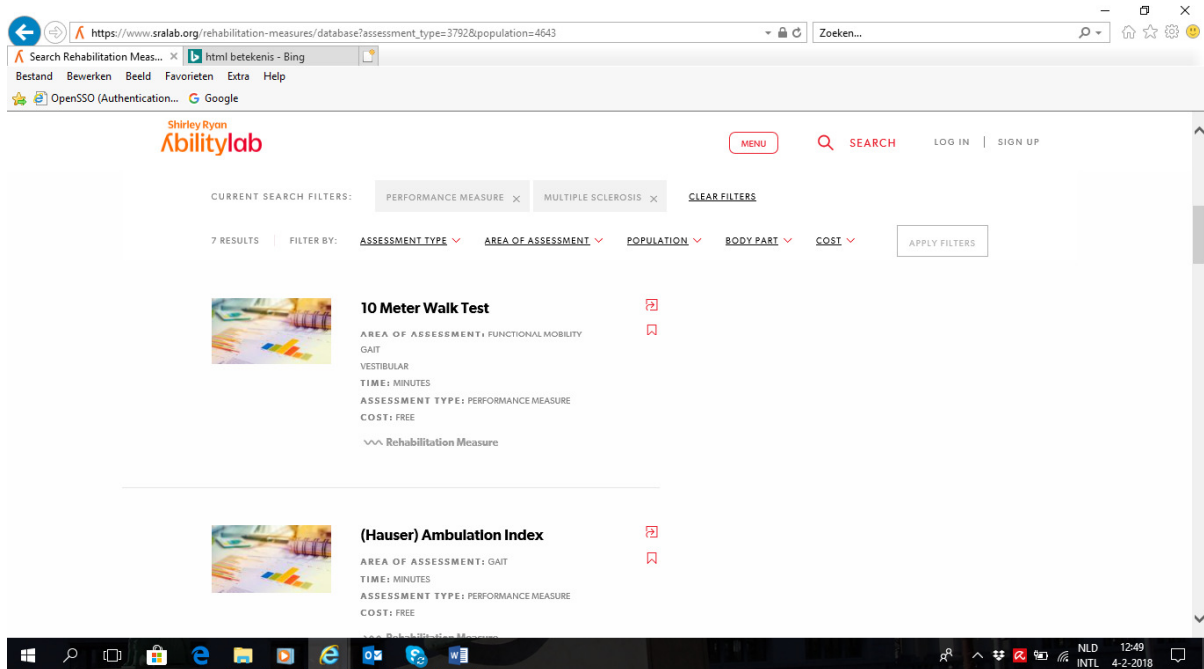
Rehabmeasures.org has renewed their website.

In the newsletter, two years ago, edition February 2016 we provided a link to a website for finding validated measurement tools. This website [rehabmeasures.org](https://www.rehabmeasures.org) has been transformed and has a new html-code. You can find the website now on:

<https://www.sralab.org/rehabilitation-measures/database>

The layout is different from the original (figure 1). Overview of measurement tools is now by type of test, type of population (figure 2), or combined (figure 3).





Gordon, B.R., McDowell, C.P., Lyons, M. et al. **The Effects of Resistance Exercise Training on Anxiety: A Meta-Analysis and Meta-Regression Analysis of Randomized Controlled Trials** Sports Med (2017) 47: 2521

Background: The salutary effects of resistance exercise training (RET) are well established, including increased strength and function; however, less is known regarding the effects of RET on mental health outcomes. Aerobic exercise has well-documented positive effects on anxiety, but a quantitative synthesis of RET effects on anxiety is needed.

Objectives: To estimate the population effect size for resistance exercise training (RET) effects on anxiety and to determine whether variables of logical, theoretical, and/or prior empirical relation to anxiety moderate the overall effect.

Methods: Thirty-one effects were derived from 16 articles published before February 2017, located using Google Scholar, MEDLINE, PsycINFO, PubMed, and Web of Science. Trials involved 922 participants (mean age = 43 ± 21 years, 68% female/32% male) and included both randomization to RET ($n = 486$) or a non-active control condition ($n = 436$), and a validated anxiety outcome measured at baseline, mid-, and/or post-intervention. Hedges' d effect sizes were computed and random effects models were used for all analyses. Meta-regression quantified the extent to which participant and trial characteristics moderated the mean effect.

Results: RET significantly reduced anxiety symptoms ($D = 0.31$, 95% CI 0.17–0.44; $z = 4.43$; $p < 0.001$). Significant heterogeneity was not indicated ($Q(30) = 40.5$, $p[0.09]$; $I^2 = 28.3\%$, 95% CI 10.17–42.81); sampling error accounted for 77.7% of observed variance. Larger effects were found among healthy participants ($D = 0.50$, 95% CI 0.22–0.78) compared to participants with a physical or mental illness ($D = 0.19$, 95% CI 0.06–0.31, $z = 2.16$, $p[0.04]$).

Effect sizes did not significantly vary according to sex ($b = -0.31$), age ($b = -0.10$), control condition ($b = 0.08$), program length ($b = 0.07$), session duration ($b = 0.08$), frequency ($b = -0.10$), intensity ($b = -0.18$), anxiety recall time frame ($b = 0.21$), or whether strength significantly improved ($b = 0.19$) (all $p > 0.06$).

Conclusions: RET significantly improves anxiety symptoms among both healthy participants and participants with a physical or mental illness. Improvements were not moderated by sex, or based on features of RET. Future trials should compare RET to other empirically-supported therapies for anxiety.

KEY POINTS

Resistance exercise training significantly improves anxiety symptoms, and improvements were not moderated by sex or based on features of the resistance exercise training.

Larger effects were derived from studies of healthy participants compared to participants with a physical or mental illness; nonetheless, RET significantly reduced anxiety among otherwise healthy participants and participants with an illness.

Optimizing performance through intrinsic motivation and attention for learning: The OPTIMAL theory of motor learning

Psychon

Bull Rev (2016) 23:1382–1414

Abstract:

Effective motor performance is important for surviving and thriving, and skilled movement is critical in many activities. Much theorizing over the past few decades has focused on how certain practice conditions affect the processing of task-related information to affect learning. Yet, existing theoretical perspectives do not accommodate significant recent lines of evidence demonstrating motivational and attentional effects on performance and learning. These include research on (a) conditions that enhance expectancies for future performance, (b) variables that influence learners' autonomy, and (c) an external focus of attention on the intended movement effect. We propose the OPTIMAL (Optimizing Performance through Intrinsic Motivation and Attention for Learning) theory of motor learning. We suggest that motivational and attentional factors contribute to performance and learning by strengthening the coupling of goals to actions. We provide explanations for the performance and learning advantages of these variables on psychological and neuroscientific grounds. We describe a plausible mechanism for expectancy effects rooted in responses of dopamine to the anticipation of positive experience and temporally associated with skill practice. Learner autonomy acts perhaps largely through an enhanced expectancy pathway. Furthermore, we consider the influence of an external focus for the establishment of efficient functional connections across brain networks that subserve skilled movement. We speculate that enhanced expectancies and an external focus propel performers' cognitive and motor systems in productive "forward" directions and prevent "backsliding" into self- and non-task focused states. Expected success presumably breeds further success and helps consolidate memories. We discuss practical implications and future research directions.

Keywords Motivation. Attentional focus. Self-efficacy Positive affect. Dopamine. Motor performance

Full text free available: DOI 10.3758/s13423-015-0999-9

<https://link.springer.com/article/10.3758/s13423-015-0999-9>

Diagonal movement patterns in Olympic Sports

