August 2021

Newsletter IPNFA® research committee

When we were editing this edition of the newsletter, we received the sad news of the passing of our dear Sue Adler. This news called for a tribute to an extraordinary PT and teacher. An exceptional IPNFA® instructor, mentor and IPNFA® member.

- Certified as Physical Therapist at Northwestern University, Chicago, Illinois
- Master of Science in Physical Therapy at the University of Southern California, Los Angeles
- PNF education in 1962 at the Kaiser Foundation Rehabilitation Center in Vallejo, California. Worked and taught with Maggie Knott
- International PNF senior instructor of the IPNFA. Developed and led PNF courses in the USA and Europe

Sue was such an important person for all of us from the IPNFA® family.
Teaching the PNF-concept for many year at the Kaiser Vallejo Center under the direction of Maggie Knott, she turned out to be the first responsible for education of the PNF-concept in Europe.
For many instructors Sue was the person who led them through the instructor certificate courses. Several from us will remember the courses in the "Hermitage" in Bad Ragaz, Switzerland. Experiencing her as a teacher was a great pleasure, as she was able to convey theoretical knowledge and practical skills in a remarkable smart and humorous way, with dedication and always an example of positive approach.
Nevertheless, times were changing and Sue managed to adapt easily towards the era of evidence based practice. A standard phrase was: *"you can find it in the books"*, and then she supported the transition to research and evidence, supporting our way of working in physical therapy with the PNF-concept.
Sue, by giving PNF courses, lectures and writing books was essential in sharing PNF throughout the world. Furthermore, Sue was also one of the founding members of the IPNFA®, established in 1990. Naturally she was present in 2015 when we as IPNFA®-community celebrated the 25th anniversary.

Sue was liked and know specially because of her direct way, she talked straight with a dry sense of humor. Sue was able "to put you on your toes", in that way stimulating, encouraging and providing a wider perspective of physical therapy and specifically the use of PNF in a diversity of conditions, diagnoses and contexts.

Our respect and condolences to all the family and friends. Sue thanks for all. RIP

The IPNFA is becoming more and more active in terms of international publications. This edition of the newsletter, august 2021 is featuring several publications authored by IPNFA members. We as editorial team notice an increase of papers and therefore we believe it "pays off" to write about the use of the PNF-concept.

I wish a joyful reading. Fred.

PNF in Practice new edition new edition new

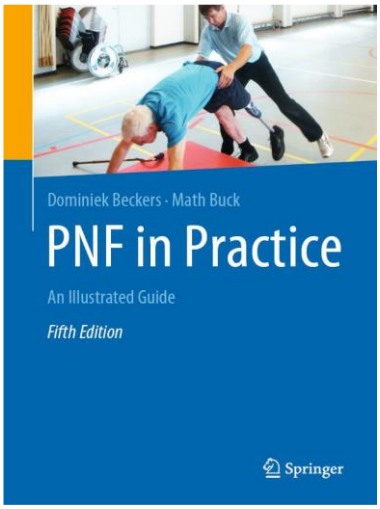
With a lot of effort and commitment Dominiek and Math updated their standard work on the use of the PNF-concept.
The new English version is now available in its fifth edition.

We are happy and a little bit proud to announce you the fifth edition by Springer of our PNF-book: "***PNF in Practice, an illustrated Guide***" by Beckers D. and Buck M.

This revised fifth edition includes a description of how the principles of Clinical Reasoning, principles of the International Classification of Functioning, Disability and Health (ICF), and aspects of motor learning and motor control (from "hands-on" to "hands-off" management), are applied in modern PNF evaluation and treatment. This new edition is completely updated, with in the front an introduction of our IPNFA® and an acknowledgement to Susan Adler. We added all recent new literature references. We integrated additional applications and patient examples.
A special thanksgiving at this 5th edition goes to Agnieszka Stepien from Poland for her contribution about paediatrics and scoliosis. We are very grateful to Fred Smedes for his collection of scientific PNF literature. We also thank Carsten Schäfer and Frits Westerholt for their additions, as well on the 8th German edition as on this 5th English version.
We like to thank all of you, IPNFA®-members and instructors, for your cooperation, your exchange of knowledge and experience and further development of the PNF concept.

Course guide and practice book: ------- A must-have for all those who are learning or already using PNF Basics, treatment techniques and PNF patterns explained step by step With over 640 color illustrations and numerous patient examples
From neurophysiological basics to diagnostic, different techniques and PNF patterns - with this practice and textbook you will learn step by step about all facets of Proprioceptive Neuromuscular Facilitation and become an expert in this established method. In this book you will find the basics of PNF (including PNF philosophy, ICF model, motor learning and much more). It covers PNF patterns and their functional application – both explained precisely and easy to understand. More than 640 figures illustrate all important techniques and treatment steps. Additionally the book offers many examples how to treat patients, plus numerous practical tips for an uncomplicated implementation in everyday therapy. In order to review your learning success, every chapter ends with questions for you to answer. New in the 5th edition:
• Completely updated, introduction of the International PNF Association, additional applications and patient examples
• A must-have for everyone who wants to learn or already uses PNF!

Dominiek Beckers & Math Buck



De Oliveire Ferro JK et al. (IPNFA- Co-authors: **Vicente Martins and Paulo Barboza**)

Electromyographic analysis of transversus abdominis/internal oblique muscles during the execution of pelvic patterns of proprioceptive neuromuscular facilitation,

Avanços em Medicina 2021, 1(1):30-35 DOI: 10.52329/AvanMed.7

Abstract

Objective To evaluate the electromyographic response of the transversus abdominis/internal oblique muscles (TrA/IO) during the execution of the four pelvic patterns of proprioceptive neuromuscular facilitation (PNF).

Methods Cross-sectional study. Were evaluated 21 women aged 18-38 years. The right TrA/IO complex, ipsilateral to the execution of a PNF combination of isotonics technique was monitored by surface electromyography. Three repetitions were performed with two-minute intervals between them in the four PNF pelvic patterns: anterior elevation, posterior depression, anterior depression, and posterior elevation. For the analysis of the electromyographic signal, a period of 500ms adjusted to the central value was extracted and the Root Mean Square amplitude was analyzed. Descriptive statistics and ANOVA test was used with a 95% confidence interval.

Results There was a higher TrA/IO activity in the concentric phase in the anterior elevation pattern (36.2 ± 32.3 μV) when compared to previous depression (19.5 ± 12.9 μV), posterior elevation (16.1 ± 8.7 μV), posterior depression 14.6 ± 5.9 μV). In addition, in the antero-elevation there is greater activation of the TrA/IO muscle complex when compared to the other patterns ($p < 0.01$).

Conclusion The higher EMG response of the TrA/IO found in the anterior elevation pattern reveals its usefulness for clinical use.

Full text free available from DOI 10.52329/AvanMed.7 or
Vista do Electromyographic analysis of transversus abdominis/internal oblique muscles during the execution of pelvic patterns of proprioceptive neuromuscular facilitation (jornalavancosmedicina.com)

Again our IPNFA® education day or symposium day will be online

The Online Congress will take place from 13th – 18th of September.

The travel restriction that are still in place and / or the quarantine rules for traveling overseas made it impossible to organize a real life meeting again. Therefore the 2021 education day will be an online event one more time.

BUT….. this year a service for the online lectures will feature subtitles in **variable languages**.

IPNFA online presentations and lectures, your source of information on how and what you can do with the clinical application of the PNF-concept in various indications and conditions.

IPNFA のオンラインプレゼンテーションと講義、さまざまな適応症と状態での PNF コンセプトの臨床応用でどのようにそして何ができるかについてのあなたの情報源。

Prezentacje i wykłady online IPNFA, Twoje źródło informacji o tym, jak i co możesz zrobić z klinicznym zastosowaniem koncepcji PNF w różnych wskazaniach i stanach.

Jeanbart K and Tanner- Bräm C. Mobilization of the neurodynamic system using proprioceptive neuromuscular facilitation decreases pain and increases mobility in lower extremities and Spine - A case report Journal of Bodywork & Movement Therapies 27 (2021): 682-691

Introduction: Different approaches are used in physical therapy when treating patients with paralysis and pain syndrome, such as neuro-mobilization techniques, manual therapy, muscle strengthening, active mobilization and relaxation techniques. Proprioceptive neuromuscular facilitation (PNF) seems to be a promising therapy for mobilizing the neurodynamic system. This case report illustrates the clinical reasoning and feasibility of applying PNF based neuro mobilization to a patient not responsive to standard physical therapy.
Case description: A 66-year-old male was diagnosed with neurofibrosarcoma grade II, paravertebral L4-L5 left (L) side. After laminectomy of the transverse process L4 and L5 L side and stent in the lumbar region, the patient presented pain and peripheral nerve paralysis. The patient's complaints 13 years later were chronic lower back, buttock and leg pain and weakness in the L leg.
Patient management: Six treatment sessions with follow-up were provided during 3.5 months. The PNF based-rehabilitation-approach applied the PNF philosophy, specific techniques, and facilitating principles and procedures using manual guidance in 3-dimensional PNF movement patterns in various positions, aiming to mobilize the neurodynamic system to decrease pain and achieve trunk and leg mobility.
Discussion and conclusion: The PNF-based-rehabilitation-approach led to improvement in pain, nerve mobility and balance beyond or close to clinical relevance. This approach had positive effects, by supplying oxygen to the nerves, increasing nerve mobility and decreasing pain, hence restoring altered movement patterns, which all improved the patient's activities-of-daily-living. In a situation, where standard strengthening and mobilization techniques are not effective, PNF seems a feasible alternative to decrease chronic pain.

https://doi.org/10.1016/j.jbmt.2021.04.010

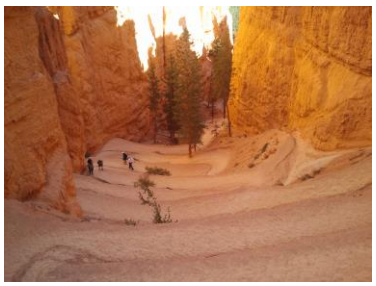
If you are always trying to be normal, you will never know how amazing you can be!!!

Maya Angelou

There is no elevator to success, you have to take the stairs.

Zig Ziglar

Both quates from: Top Tips Tuesday - Issue 35 and 36, newsletters from Physiopedia



Smedes F, Heidmann M, Keogh J.

PNF- based Gait Rehabilitation-training after a Total Hip Arthroplasty in congenital pelvic malformation; A case report

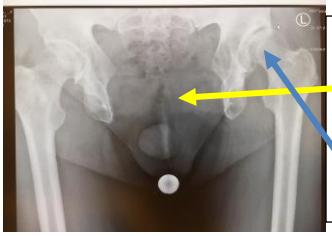
PHYSIOTHERAPY THEORY AND PRACTICE https://doi.org/10.1080/09593985.2021.1955422

Introduction: Congenital dysplasia of the pelvis often occurs in isolation, however, it can also involve other pelvic components, and anomalies of the digestive system. Pelvic malformations have effects on the pelvic girdle and pelvic stability influencing the quality of gait. The condition can be treated with a total hip arthroplasty (THA). The concept of Proprioceptive Neuromuscular Facilitation (PNF) has been described as a comprehensive rehabilitation approach with a focus on motor learning. This case report seeks to illustrate the clinical reasoning and feasibility of applying the PNF-concept in a patient after a THA with multiple congenital pelvis malformations.

Case Description: A male, 44 years of age, physically active laborer was treated with THA after hip dysplasia, with comorbid missing pubic symphysis. The patient presented with complaints in gait speed, gait distance, hip joint mobility and stability.

Patient Management: PNF-based motor-control training, including specified PNF-pattern exercises with specific PNF-facilitation principles and techniques was provided over a period of eighteen weeks. Results showed improvements beyond the minimal detectable change and/or the minimal clinically important difference for physical functioning in gait, strength, range of motion, and personal required activities.

Discussion and Conclusion: Gait rehabilitation training, restoring altered movement patterns in the patient's activities of daily living was provided with PNF. Besides targeting structural impairments, this approach elicited motor learning effects. PNF-patterns have been described as: "mimicking functional activities" from daily life and sports. A specified PNF-based therapy including motor learning components, was a feasible approach in this case of complex pelvic skeletal malformations.



Note: 1) the absence of the symphysis and the pubic bones
2) the hip dysplasia +
3) the cyst in the left hip

Διαδικτυακές παρουσιάσεις και διαλέξεις IPNFA, η πηγή πληροφοριών σας για το πώς και τι μπορείτε να κάνετε με την κλινική εφαρμογή της έννοιας PNF σε διάφορες ενδείξεις και καταστάσεις.

IPNFA 온라인 프리젠테이션 및 강의, 다양한 적응증 및 조건에서 PNF 개념의 임상 적용으로 수행할 수 있는 방법 및 작업에 대한 정보 소스입니다.

IPNFA online-presentationer och föreläsningar, din informationskälla om hur och vad du kan göra med den kliniska tillämpningen av PNF-konceptet i olika indikationer och tillstånd.

Rasha A. Mohamed , El Sayed H. Mohamed, Suzan M. Habshy , Sobhy M. Aly

Impact of two different pulmonary rehabilitation methods in children with down syndrome

Journal of Bodywork & Movement Therapies 27 (2021) 512-521

a b s t r a c t

Purpose: To investigate and compare the effect of proprioceptive neuromuscular facilitation of respiratory muscles with that of inspiratory muscle training as a preventive measure on respiratory muscle strength, chest expansion, spirometry, and functional capacity in children with Down syndrome.

Methods: Forty-five Down syndrome participants with an age ranged from 10 to 13 years were enrolled. There were distributed into three groups. The study group A (n ¼ 15) underwent proprioceptive neuromuscular facilitation of respiratory muscles while study group B (n ¼ 15) underwent inspiratory muscle training. Third group C (n ¼ 15) was a control group. The three groups received aerobic exercises using the bicycle ergometer for 20 min, 5 times/week for 12 successive weeks. The treatment program for both study groups was conducted for 20-30 min, 5 times/week for 12 successive weeks. Measurements of respiratory muscle strength (MIP, MEP), chest expansion, spirometry test (VC, FEV1, PEFR, MVV) and 6 min walk test were measured pre and post treatment.

Results: The post treatment mean values of all investigated variables were significantly increased in both study groups with higher effect to group underwent proprioceptive neuromuscular facilitation of respiratory muscles.

Conclusion: Both proprioceptive neuromuscular facilitation of respiratory muscles and inspiratory muscle training are effective in children with Down syndrome on improving respiratory muscle strength, chest expansion, spirometry and functional capacity with superior effect of proprioceptive neuromuscular facilitation.

https://doi.org/10.1016/j.jbmt.2021.04.009

Arthur Prochazka in: Current Opinion in Physiology 2021, 21:100440

Proprioception: clinical relevance and neurophysiology

This review is intended for clinicians, therapists and researchers interested in proprioception and its role in kinesthesia and the control of movement. First, the neurophysiological basis of proprioception is summarized, identifying the sensory receptors involved and how their signals mediate the perception and control of bodily movement. Past and present hypotheses and the continuing uncertainties and controversies that surround them are outlined. Psychophysical experiments that have helped identify the contribution of proprioceptive receptors to kinesthesia in humans are briefly reviewed. The article then discusses proprioceptive deficits, what causes them, how they are treated and how proprioceptive acuity is assessed.

INTRODUCTION: This article starts with an outline of the neurophysiology of proprioception as it relates to kinesthesia and sensorimotor control. It then covers aspects of proprioception of interest to clinicians, therapists and sports medicine practitioners. Busy clinicians may prefer to start with the clinical section, referring back to the basic neurophysiology when necessary.

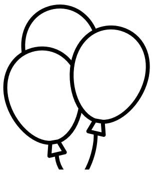
Origins and definitions: In 1821 Charles Bell proposed that muscles contained sensory elements that contributed both to conscious sensation ("muscle sense") and to the subconscious, reflexive control of movement [1]. In 1907 Sherrington distinguished between outward-facing *extero-ceptive* and inward-facing *intero-ceptive* receptors that sensed the organism's own internal actions. He coined the term "*proprio-ceptors*" for *intero-ceptive* receptors that sensed movement and position of body segments[2].

https://doi.org/10.1016/j.cophys.2021.05.003

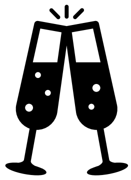
Although we started this edition with sad news, time rolls on.
Other events happen and they can be joyful. With respect to our first issue in this newsletter we also want to honor other older long lasting careers within the IPNFA.

Dear PNF / IPNFA® -fellows,

With honor and proudness we want to highlight and announce an anniversary of a very famous, active, energetic and always in a good mood IPNFA instructor.



It is: **Britta Dietz**

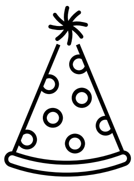


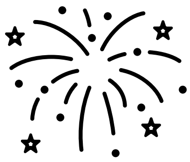
Britta turned 80 years on June 15, this year. She loves to party, but as you all know,……. stupid Corona……….No party!
So, she decided to just celebrate her 80th next year.
This is such a positive approach!!!!!!!!

Congratulation!!!

Dear beloved Britta, we wish you all the best, may all your wishes come true and may you stay healthy and happy. You are a role model, still dedicated and enthusiastically involved into PNF, one of your passions. Your students are excited and love your teaching. Your `Sprinter and Skater` is well known all over the world. Congratulation, we are proud to have you with us in our PNF community, you are still one of just a few persons who were educated by Maggi Knott!!!!!!
Your positive esprit and spirit and human being is infectious and extraordinary enriching. Thank you.

On behalf of the PNF/IPNFA community,





Marianne and colleagues.