Adler · Beckers · Buck

# PNF in Practice

## Fourth Edition

An Illustrated Guide

Springer

Adler · Beckers · Buck

# PNF in Practice

## Fourth Edition

An Illustrated Guide

Springer

# PNF in Practice

Susan S. Adler
Dominiek Beckers
Math Buck

# PNF in Practice

An Illustrated Guide

**Fourth fully revised edition**

With 222 figures in 646 separate illustrations

Springer

**Susan S. Adler**
Chicago, IL, USA

**Dominiek Beckers**
Maasmechelen, Belgium

**Math Buck**
Beek, The Netherlands

ISBN-13 978-3-642-34987-4 ISBN 978-3-642-34988-1 (eBook)
DOI 10.1007/978-3-642-34988-1

**Springer Medizin**


Library of Congress Control Number: 2013943281



Editor: Marga Botsch, Heidelberg
Project Management: Birgit Wucher, Heidelberg
Copyediting: Isabella Athanassiou, Bonn
Project Coordination: Heidemarie Wolter, Heidelberg
Cover Design: deblik Berlin
Cover Illustration: © Dominiek Beckers
Typesetting: Fotosatz-Service Köhler GmbH – Reinhold Schöberl, Würzburg

Printed on acid-free paper

Springer Medizin is brand of Springer
Springer is part of Springer Science+Business Media (www.springer.com)

# Preface

Proprioceptive neuromuscular facilitation (PNF) is a philosophy and a concept of treatment. The PNF philosophy is timeless, and the concept is a continuous process of growth. This fourth edition of our book, with a complete review and full-color figures and photographs, better user-friendly layout, and integration of the latest developments, aims to support this growth. The first chapter is new and describes the position of the PNF concept within the current holistic treatment spectrum.

PNF has been one of the most recognized treatment concepts in physical therapy since the 1940s. Dr. Kabat and Margaret (Maggie) Knott started and continued to expand and develop the treatment techniques and procedures after their move to Vallejo, California, in 1947. After Dorothy Voss joined the team in 1953, Maggie and Dorothy wrote the first PNF book, published in 1956.

At first, mostly patients with multiple sclerosis and poliomyelitis were treated with this method. With experience it became clear that this treatment approach was effective for patients with a wide range of diagnoses. Today, patients with neurological, traumatic, as well as orthopedic symptoms are treated with this concept.

The 3- and 6-month PNF courses in Vallejo began in the 1950s. Physical therapists from all over the world came to Vallejo to learn the theoretical and practical aspects of the PNF concept. In addition, Knott and Voss traveled in the United States and abroad to give introductory courses in the concept.

When Maggie Knott died in 1978 her work at Vallejo was carried on by Carolyn Oei Hvistendahl. She was succeeded by Hink Mangold as director of the PNF program. Tim Josten is the present program director. Sue Adler, Gregg Johnson, and Vicky Saliba have also continued Maggie's work as teachers of the PNF concept. Sue Adler designed the International PNF Association (IPNFA) Advanced and Instructor course programs.

The authors acknowledge their debt to these outstanding people, and also to all members of the International PNF Association (IPNFA), and hope that this book will encourage others to carry on the work.

Developments in the PNF concept are closely followed throughout the world. It is now possible to take recognized training courses in many countries given by qualified PNF instructors. There are other excellent books dealing with the PNF method, but we felt there was a need for a comprehensive coverage of the practical tools in text and illustrations. This book should thus be seen as a practical guide and used in combination with existing textbooks.

This book covers the procedures, techniques, and patterns within PNF. Their application to patient treatment is discussed throughout, with special attention on mat activities, gait, and self-care. The emphasis within this book is twofold: developing an understanding of the principles that underlie PNF, and showing through pictures rather than with words how to perform the patterns and activities. Skill in applying the principles and practices of PNF to patient treatment cannot be learned only from a book. We recommend that the learner combine reading with classroom practice and patient treatment under the supervision of a skilled PNF practitioner.

Movement is our way to interact with our environment. Such interactions are directed by the mechanism of motor learning. Integration of motor learning principles includes a progression from hands-on to hands-off treatments; it includes goal-orientated functional activities and independence. Based on the untapped existing potential of all patients, the therapist will always focus on mobilizing these reserves to reach the highest level of function. Especially in the first and cognitive stage of motor control, the therapist's manual facilitation will be a helpful tool in reaching this goal. This includes goals on the level of body structures as well as on the activity level and the participation level (ICF).

This fully revised fourth edition includes a description of how the 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. The chapter on »Activities of Daily Living« has been expanded with new color photos and more in-depth text instructions. The new design and layout highlight the clearly structured way in which the philosophy, basic procedures, and treatment patterns of PNF are presented. Thus, this textbook provides a systematic and easily accessible guide to learning and understanding PNF as a practical tool and using it to full effect in patient treatment.

A special note of thanks goes to the direction and physiotherapy colleagues of Adelante, our Rehabilitation Centre in Hoensbroek (The Netherlands), our colleague Lisan Scheepers for acting as a model, and Ben Eisermann for the drawings.

We would like to thank our colleague Laurie Boston, PNF instructor in Switzerland, for all her support in correcting the translations and contents of this manuscript.

We are also grateful to all our colleagues, PNF instructors, and members of the IPNFA, for their cooperation, their sharing of knowledge, their teaching, and for proceeding with this concept.

But most of all we are devoted and grateful to our patients; without them this work would not be possible.

To Maggie Knott, teacher and friend.
Devoted to her patients,
dedicated to her students,
a pioneer in profession

**Maggie Knott**

**S.S. Adler, D. Beckers, M. Buck**
June 2013

# The Authors

**Susan Adler**

- 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

**Dominiek Beckers**

- Master of Physical Therapy, Movement Science and Rehabilitation at the University of Leuven, Belgium, in 1975
- Physical Therapist at the Rehabilitation Center of Hoensbroek, The Netherlands, since 1975
- International PNF senior instructor of the IPNFA
- Instructor SCI Rehabilitation
- Author of numerous books and articles

**Math Buck**

- Certified as Physical Therapist at the Hoge School in Heerlen, The Netherlands, in 1972
- Physical Therapist at the Rehabilitation Center of Hoensbroek, The Netherlands, since 1973
- International PNF instructor of the IPNFA since 1984. Currently a senior instructor and honorary member of the IPNFA
- Coauthor of numerous books and articles

# Table of Contents

# Introduction

*M. Buck*



S. S. Adler et al., *PNF in practice*,
DOI 10.1007/978-3-642-34988-1_1, 

1

## 1.1 The PNF Concept in Modern Holistic Treatment

In this chapter, we illustrate the position of the PNF concept within the current holistic treatment spectrum. Furthermore, we show how the PNF concept works in conjunction with the assessment and treatment of our patients.

On the one hand, a detailed assessment of the clinimetry findings (measurements) and the experience and expertise of the therapist are necessary for making clinical decisions. On the other hand, scientific knowledge about motor learning and motor control plays an important role in determining the treatment goals. A patient treatment plan is established from the results of the assessment and from following the criteria of »evidenced-based practice.« In addition, social norms and cultural models also influence the treatment. We will briefly describe the factors determining the choice of therapy and their integration into the PNF concept (◘ Fig. 1.1).

### 1.1.1 The ICF Model

#### Assessment and Evaluation

Before a treatment can be started, the therapist must perform a detailed patient evaluation. The ICF model (International Classification of Functioning, Disability and Health, 2001) formulated by the World Health Organization (WHO 2001, ▶ Chap. 4) is recommended as a framework for organizing and directing patient treatment. The goal is to develop a common international and standard language to simplify the communication between different professions within the health sector.

The ICF is a model of understanding (Suppé 2007) (◘ Fig. 1.2) comprising the following five dimensions:

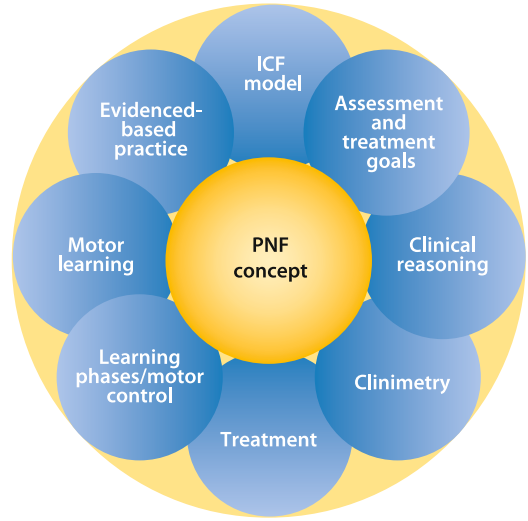
- Body structures and body functions
- Activities
- Participation
- Personal factors
- Environmental factors

The patient evaluation documents which anatomical structures (joint, muscle, tone, sensation etc.) are involved and which motor skills are possible for the patient; it also lists any existing deficits. This examination gives guidelines on the specific activities that the patient more than likely can or cannot perform. The PNF philosophy of a **»positive approach«** entails questioning first those activities that are still present, and later the activities linked to difficulties.

Finally, the existing capabilities of the patient's level of participation (work, hobbies) as well as the problems that may be encountered in his social life are documented. Personal factors (age, culture) and environmental factors (stairs, accessibility) must also be considered.

#### Treatment Goals

After documenting the existing capabilities and problems, a discussion begins with the patient (Cott 2004) to determine the treatment goals. It is not just the medical team/therapist (**supply-driven**) or only the patient (**demand-driven**) who formulates the treatment goals. Together, through consultation, the team/therapist and the patient determine and agree on set goals (**dialog-driven**). Ultimately, the goal is to achieve **the highest level of participation** that the patient desires and is realistically able to acquire. Besides these factors, environmental (social environment) and personal factors (individual background) also play a role.




◘ **Fig. 1.1** Factors determining the choice of therapy and their integration into the PNF concept

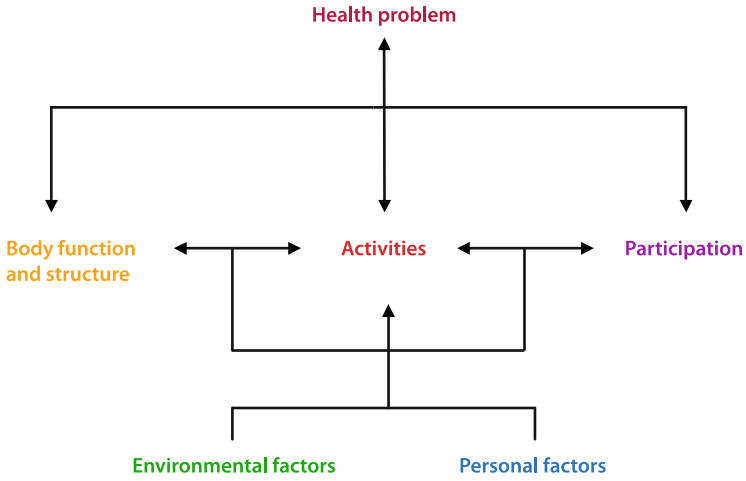



**Fig. 1.2** The five dimensions of the ICF model

**Case Study**

**Patient example: Mr. B.**

Mr. B, a 60-year-old man, has worked as a supervising engineer in a multinational company and has suffered from a severe form of Guillain-Barré syndrome (his second episode).
After a long stay in the intensive care unit (ICU) with intubation, we note on the level of body function and structure good joint mobility, muscle strength (MFT 4), and stability in the trunk. He is very motivated. There is proximal 4 and distal 3 muscle strength in the lower extremities. There are no vegetative disturbances (we refer to these as autonomic disorders). There have been no autonomic disorders. Psychologically, he is clear and oriented. He is apprehensive about his future.
As impairments, we note serious problems: general loss of strength throughout the body including his face, severe limitations in joint movements of the upper extremities, sensory disturbances (primarily in the hands), pain, extensive edema in the hands, and breathing problems.
On the level of activities, he can propel a wheelchair using his legs and he can transfer himself independently from the wheelchair to the bed.
Limitations on the **level of activity** are: initially, a loss of gait functions; within the activities of daily living (ADL), he is almost totally dependent on assistance.
His pronunciation is difficult to understand because of bilateral facial paralysis. Eating and drinking are difficult. Driving and gardening are not possible.
On the **level of participation**, Mr. B can go to his own home on weekends where his children and grandchildren can visit him. Restrictions on the level of participation are: he is not able to work, he cannot visit his children or grandchildren because of the long drive, and under his current circumstances he avoids going to restaurants for dining.
The following **personal factors** hinder him from attaining his goals: his social status, his character, his age, and the fact that this is the second episode of the disease.
The external factors such as his social status, his work, and his hobbies determine what is required for restoring his physical functional ability.

The treatment goals that were formulated together with the patient are adjusted and redefined on an ongoing basis. Thus, the patient becomes an **active member** and a full-fledged discussion partner within the team, which consists of the rehabilitation doctor, the physical, speech, and occupational therapist, the nurse, the psychologist, social workers, and others.

After the jointly defined treatment goals are clear, an objective should be formulated for each goal using the SMART **analysis**.

**SMART** (Oosterhuis-Geers 2004; Scager 2004) stands for:

- **S** = specific: The objective is directed to the patient's individual target goal.