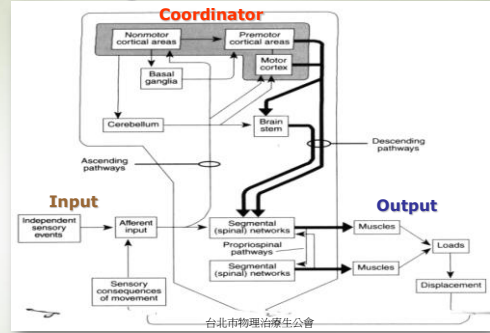


# A Framework of Clinical Practice in PNF Approach

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## Neurological Mechanism



### Higher-level coordination

### FACILITATION

Proprioceptive

Neuromuscular

Sensory Input

Spinal Cord

Motor Performance

### Reactive Feedback

## What is the item "PNF" ?

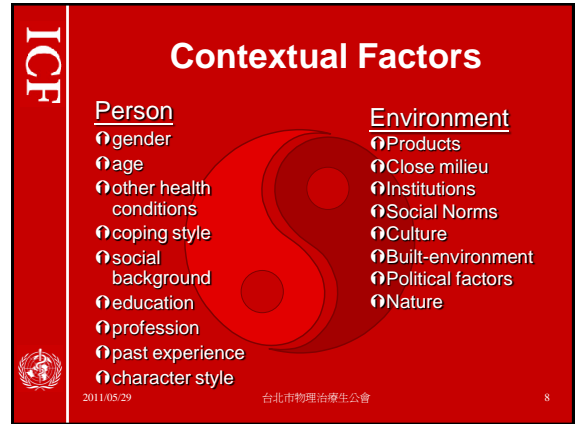
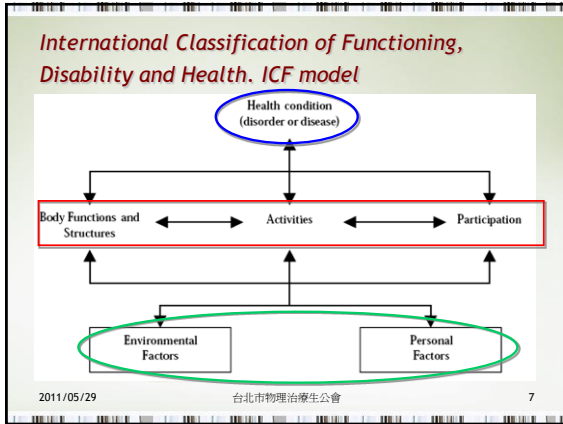
- **Proprioceptive**
  - Tools: body information emphasized
- **Neuromuscular**
  - Intension: integrate the both systems of nerve and muscle
- **Facilitation**
  - Procedures: make it easy

## Philosophy

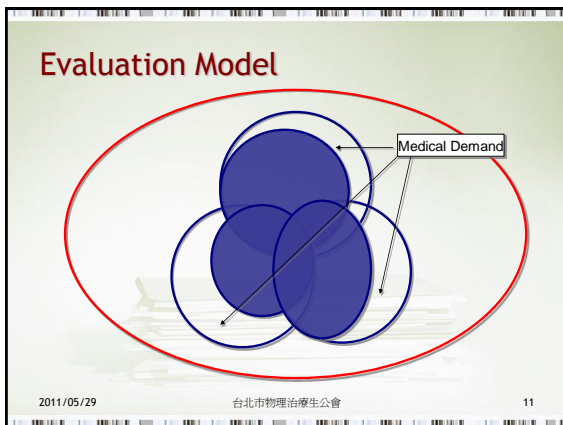
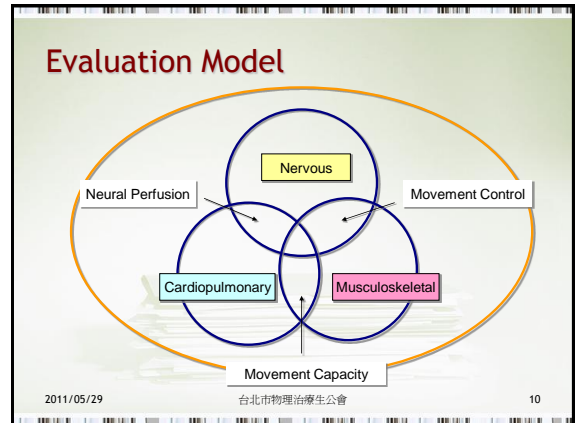
- Increase the Somatic Input to maximal functional (muscle torque ) Output, because of improving Neuromuscular Recruitment.
- A Whole Body Treatment in order to achieve their highest level of function.

## International Classification of Functioning, Disability and Health. ( ICF )

- Nagi Model: (1960)  
Pathology → Impairment → Functional Limitation → Handicaps
- WHO: ICIDH → ICIDH-2  
Disease → Impairment → Disability → Handicaps  
Body functions and structure → Activity → Participations



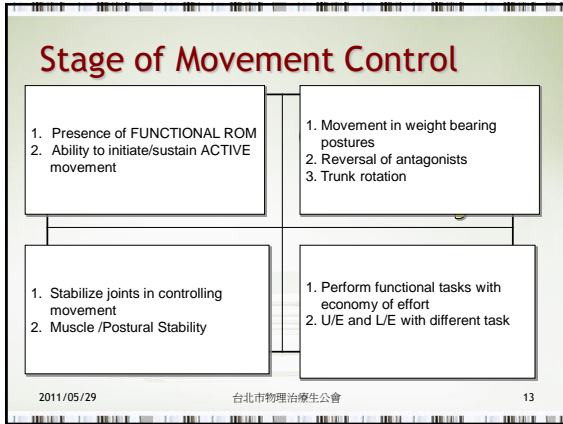
- ### Clinical decision-making
- Evaluation
  - Intervention process
    - Planning for treatment goal sequentially
      - Impairment associated with the functional limitation
    - Set up intervention strategies
      - Toward the patient
      - Toward the environment
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### Intervention Model

		Parameters of Capacity				Stages of Movement control
		Mobility	Stability	Controlled Mobility	Skill	
Activities Postural & Movement	Supine					Functional Outcome
	Kneeling					
	Sitting					

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## Therapeutic components

- **Pattern**
  - Combining components: D1F / D1E / D2F / D2E
  - Performed as ACTIVE movement
- **Techniques**
  - Methods for controlling the patient’s muscular effort
  - Which could be treated as Intervention Strategies
- **Parameters (Element)**

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## Treatment Plan (A.T.P.)

- **Activity (A)**
  - movement Pattern occurring in the Posture
  - chosen to achieve the functional outcome of intervention
- **Concerned**
  - Base of support, Center of gravity
  - WB on/ through a joint
  - Postural Reflexes, Reaction and Control

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## Treatment Plan (A.T.P.)

- **Activity (A)**
  - **Postural Progression**
    1. Supine, Sidelying, Rolling
    2. Pivot prone, Prone on elbow/ hands, Quadruped
    3. Hooklying, Bridging, kneeling, Half-kneeling
    4. Sitting, Modified plantigrade, Standing

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## Treatment Plan (A.T.P.)

- **Technique (T)**
  - **Concerned**
    - Balance the ANS
  - ex: massage, rocking, full skin contact, breathing
  - Achieve the stage of movement control
  - ex: HR for mobility, TE for Strength

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## Treatment Plan (A.T.P.)

- **Parameter (P)**
  - Quantity of movement
  - According to movement capacity
  - ex: Frequency, Duration, Intensity
  - **Concerned**
    - Physiological Stress –HR, BP, RR
    - Tissue healing – circulatory exchange
    - Learning variables –procedure and stimulation

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## Case Study

- Pathology:
  - R shoulder adhesive capsulitis
- Impairment:
  - sharp pain when shoulder raising over horizontal line.
  - Insufficient m strength(2/5↓) on external rotator
- Purpose:
  - pain relief when shoulder raising
  - m strengthening on external rotator

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## Case Study

- Treatment plan(1)
  - A: supine; D1F with elbow flexed
  - T: Hold Relax; massage; MC arm & hand
  - P: low intensity, increased duration, low frequency
- Treatment plan(2)
  - A: supine; D1F with elbow flexing
  - T: HRAM with TE; traction; MC arm & hand
  - P: moderate intensity, increased duration and frequency

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## Clinical Applications

- Musculoskeletal Disease
  - Shoulder disease -- for free
  - Knee disease -- for loading
  - Low back disease -- for stability
- Neuralgic Disease
  - Ambulation deficits
  - Balance deficits

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