



KNSPT

대한중추신경계물리치료학회

Korean Central Nervous System Physical Therapy Association

PNF Introductory Course

Off-line

Basic Pattern Practice

www.e-ptedu.com

PNF Introductory Course

On-line

1. Intro, History, Definition
2. Philosophy
3. Motor Control
4. Motor Learning
5. Basic Principle and Procedure
6. Patterns
7. Gait
8. Techniques
9. Mat

Off-line

SAT, SUN, 2 days

Basic Pattern Practice

Basic Pattern Practice

Pattern in PNF

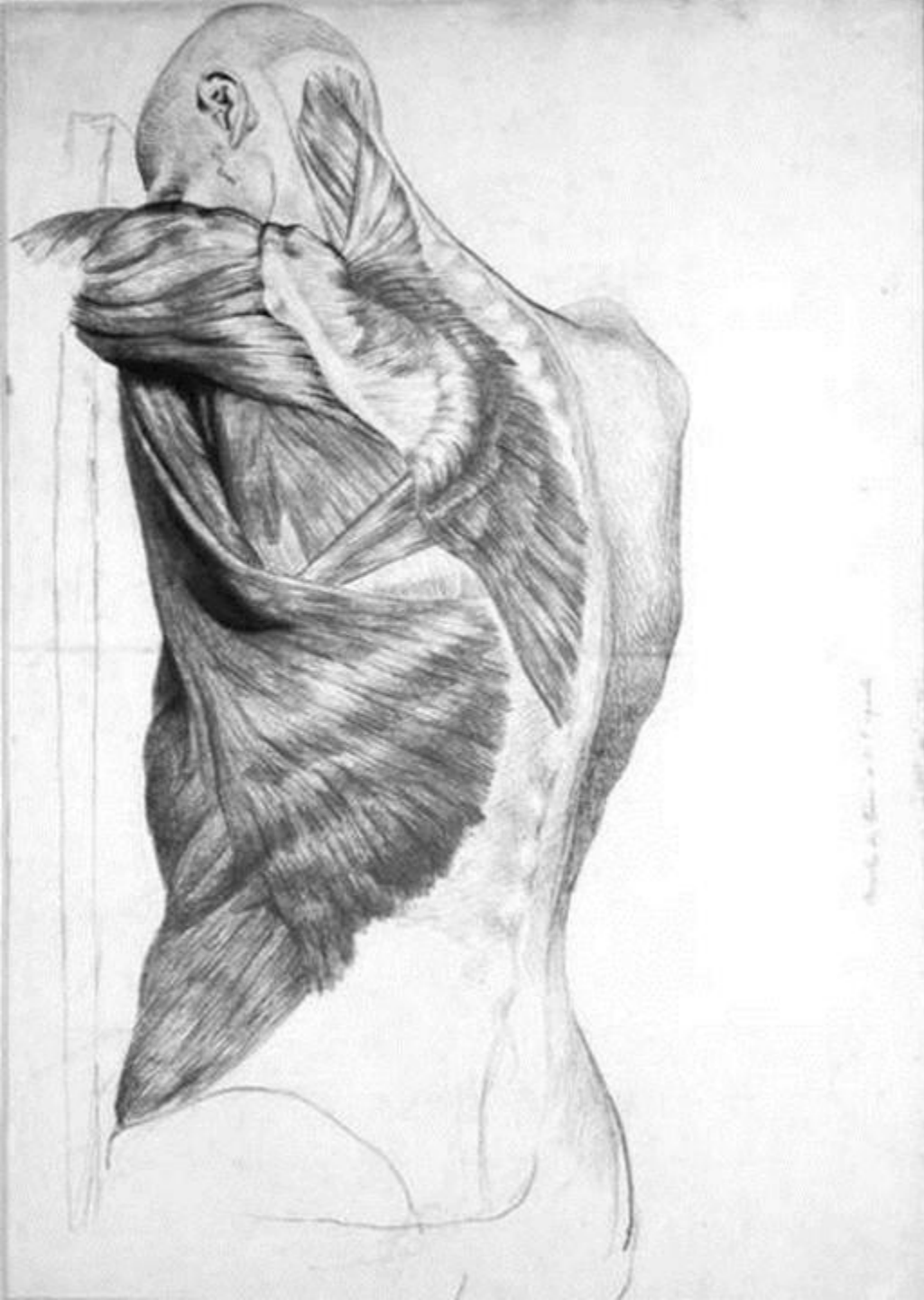
Specific combination of motion

Spiral & diagonal (Knott & Voss 1968)

Three plains of motion

Sagittal, Coronal, Transverse

All patterns are named by their end of range component.



Normal functional motion is composed of movement patterns of the limbs and the synergistic trunk muscles.

- Kabat, 1960

Why do we apply patterns?

Improve activity level and participation level by using a comparable PNF-pattern.

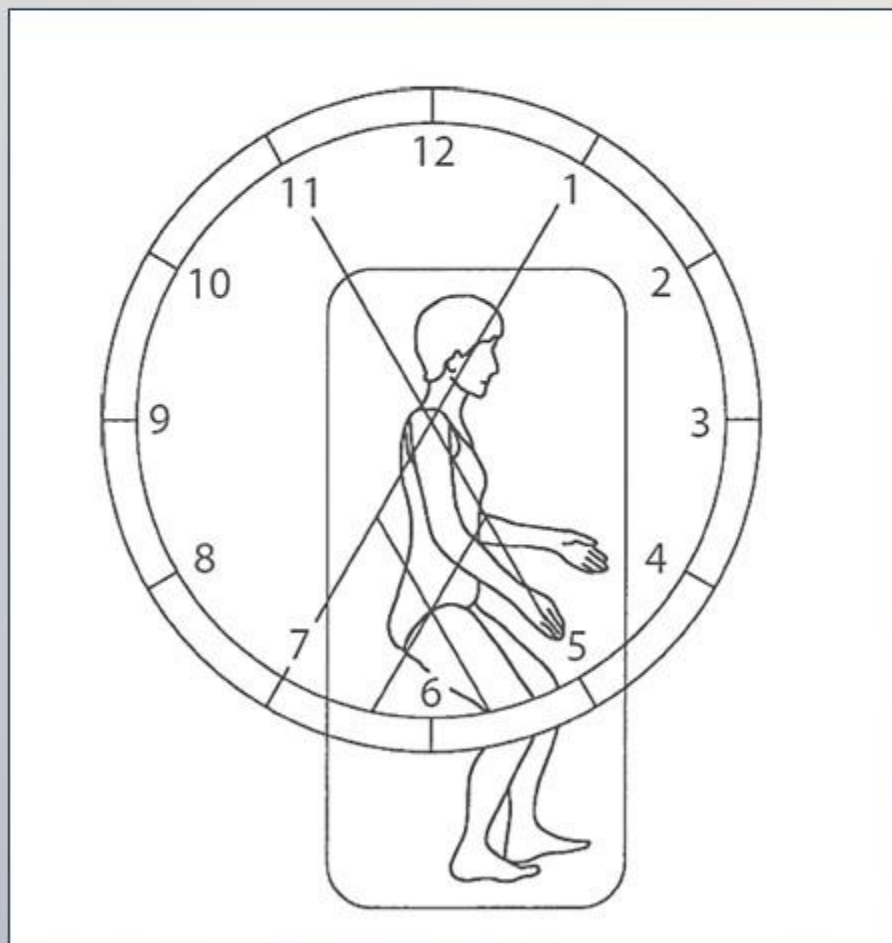
through irradiation of a PNF-pattern.

For body function and structure problem with a PNF-pattern.

Analysis patient's movement with PNF pattern

Scapular Patterns

Scapular patterns in PNF



Posterior Elevation



Anterior Elevation



Posterior Depression



Anterior Depression



Why do we do scapular patterns?

To improve mobility and stability of scapular

To facilitate arm function

To improve cervical mobility and stability

To increase the activation of trunk muscles

To facilitate other functional activities

Ex) Rolling, Side sit-up from supine

To increase the activation of lower trunk or leg muscle through irradiation

Anterior Elevation



Patient position

Manual contact

Muscle and synergy

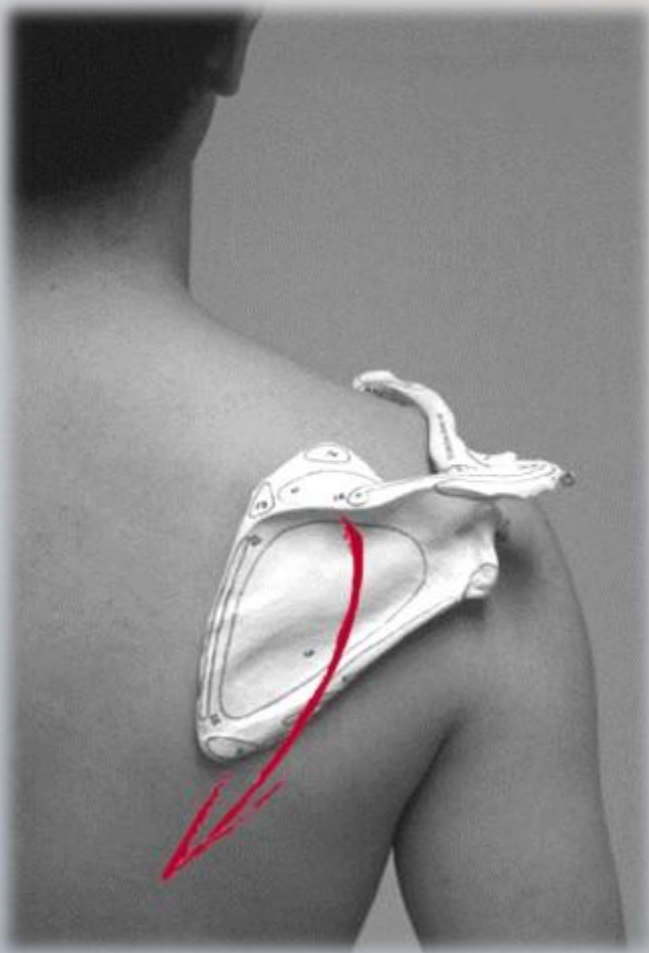
Irradiation

Clinical application

Scapular Anterior Elevation Pattern



Posterior Depression



Patient position

Manual contact

Muscle and synergy

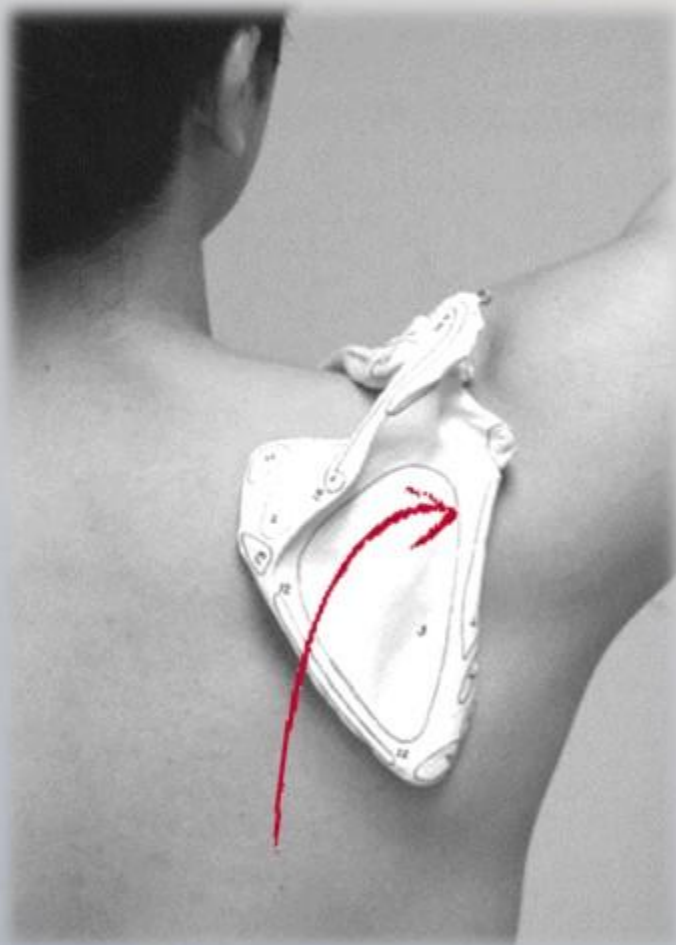
Irradiation

Clinical application

Scapular Posterior Depression Pattern



Posterior Elevation



Patient position

Manual contact

Muscle and synergy

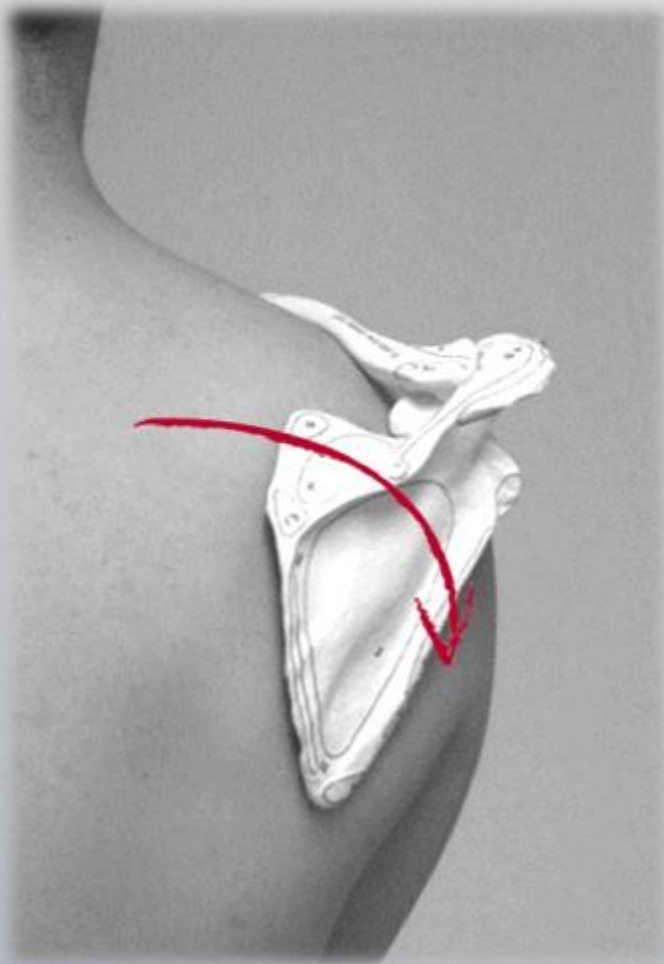
Irradiation

Clinical application

Scapular Posterior Elevation Pattern



Anterior Depression



Patient position

Manual contact

Muscle and synergy

Irradiation

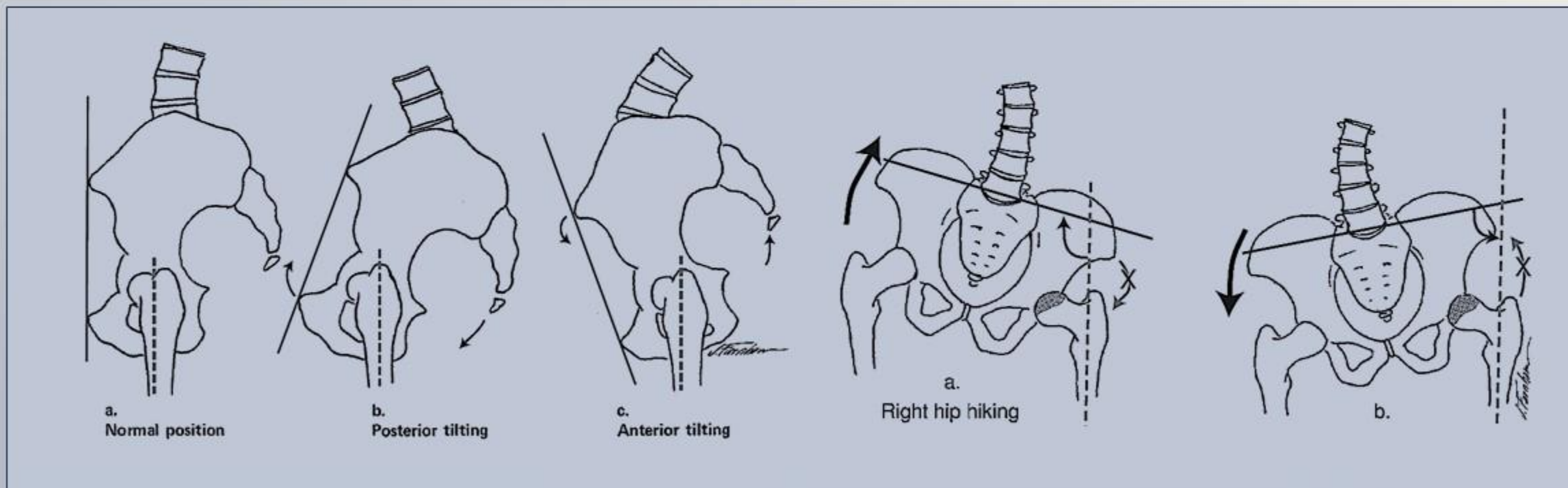
Clinical application

Scapular Anterior Depression Pattern

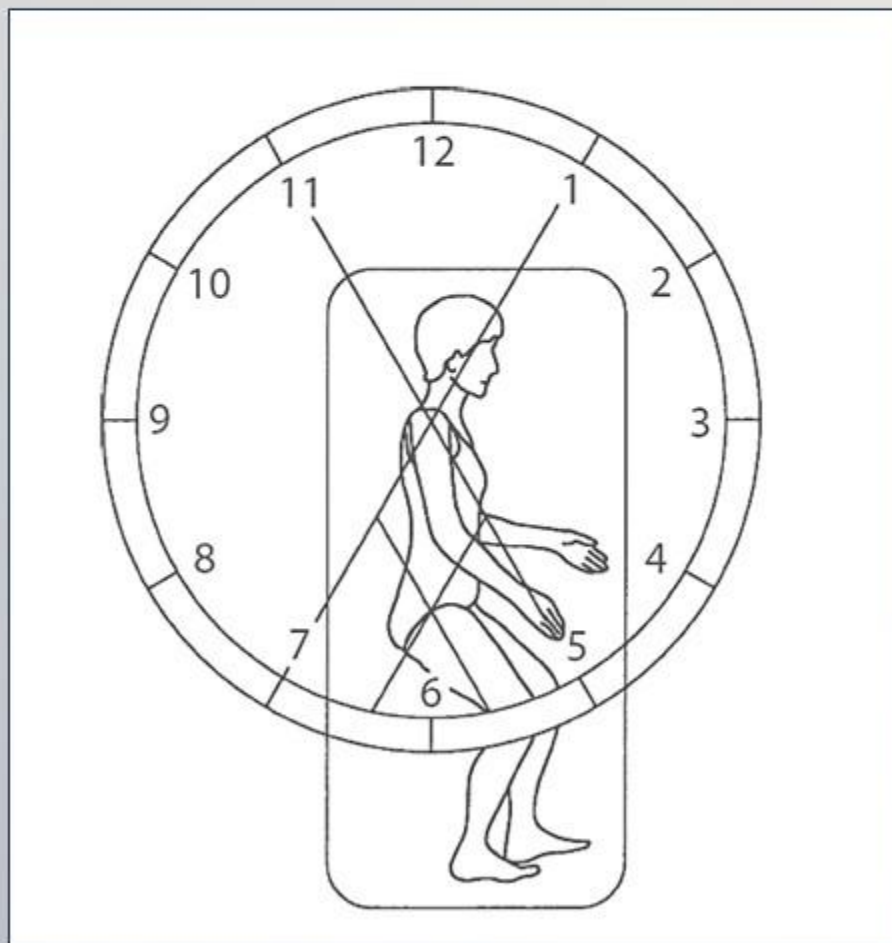


Pelvic Patterns

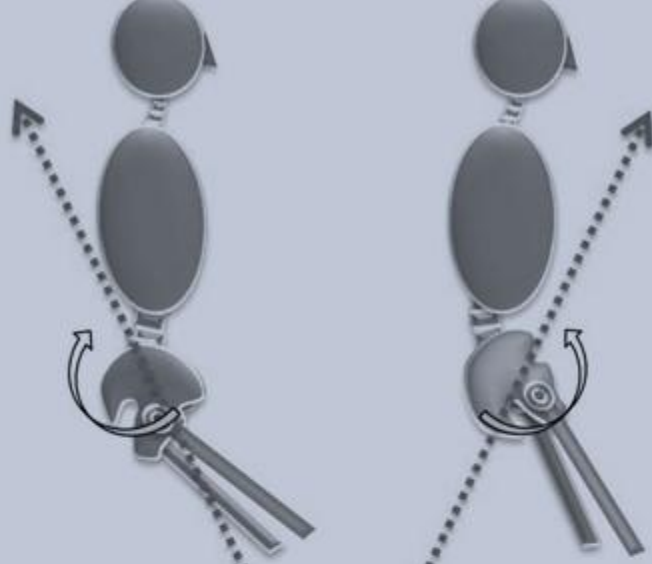
The movement of pelvis is depends on the movement of spine
Lower extremity movement involves pelvic movement



Pelvic patterns in PNF



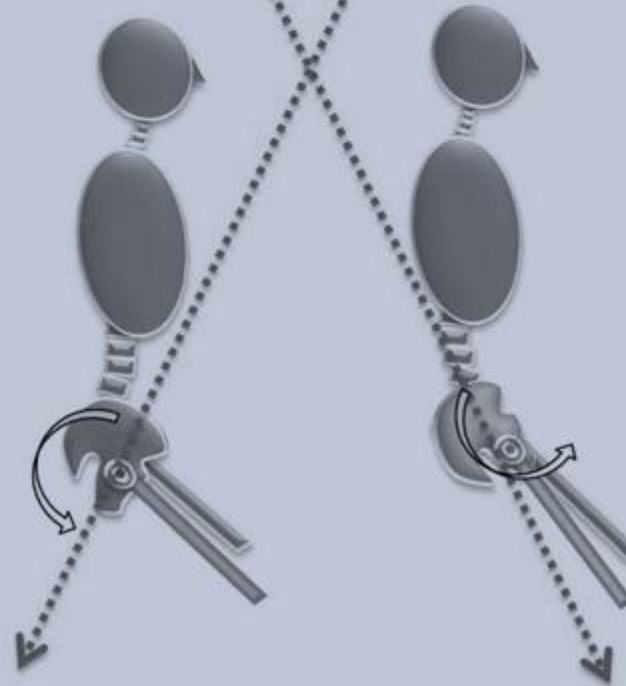
Posterior Elevation



Anterior Elevation



Posterior Depression



Anterior Depression



Why do we do pelvic patterns?

To increase the lumbar mobility and stability

To increase the activation of the trunk and leg muscles

Facilitate leg function

Facilitate other functional activities

-Rolling, Gait, etc.

Facilitate the upper trunk or arm movement through irradiation

Anterior Elevation



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Pelvic Anterior Elevation Pattern



Posterior Depression



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Pelvic Posterior Depression Pattern



Posterior Elevation



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

P N F

Pelvic Posterior Elevation Pattern

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Anterior Depression



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

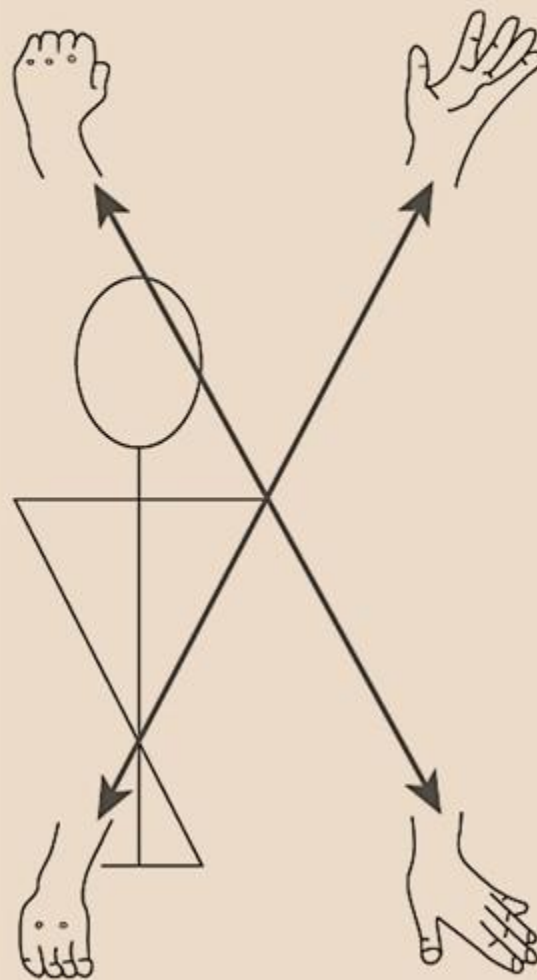


Pelvic Anterior Depression Pattern



U/E Patterns

U/E patterns in PNF



Why do we do U/E patterns?

To treat dysfunction caused by neurologic problem, muscular disorder or joint restrictions.

To facilitate arm function

Facilitate other functional activities

Ex) Rolling, Side sit-up from supine

To improve mobility and stability of scapular

To increase the activation of trunk muscles

To increase the activation of lower trunk or leg muscle through irradiation

1. Flexion-Abduction-External Rotation



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application



Upper Extremity Flexion-Abduction-Ext.Rot



2. Extension-Adduction-Internal Rotation



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application



PNF Introductory pattern practice

Upper Extremity Extension-Adduction-Int.Rot



11. Flexion-Adduction-External Rot. With elbow extension



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application



PNF Introductory pattern practice

Upper Extremity Flexion-Adduction-Ext.Rot



4. Extension-Abduction-Internal Rotation



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application



Upper Extremity Extension-Abduction-Int.Rotation



5. Flexion-Abduction-External Rotation with elbow flexion



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application



Upper Extremity Elbow Variation Patterns



6. Extension-Adduction-Internal Rot. with elbow extension



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application



Upper Extremity Elbow Variation Patterns



7. Flexion-Abduction-External Rot. with elbow extension



Patient position

Manual contact

Muscle and synergy

Irradiation

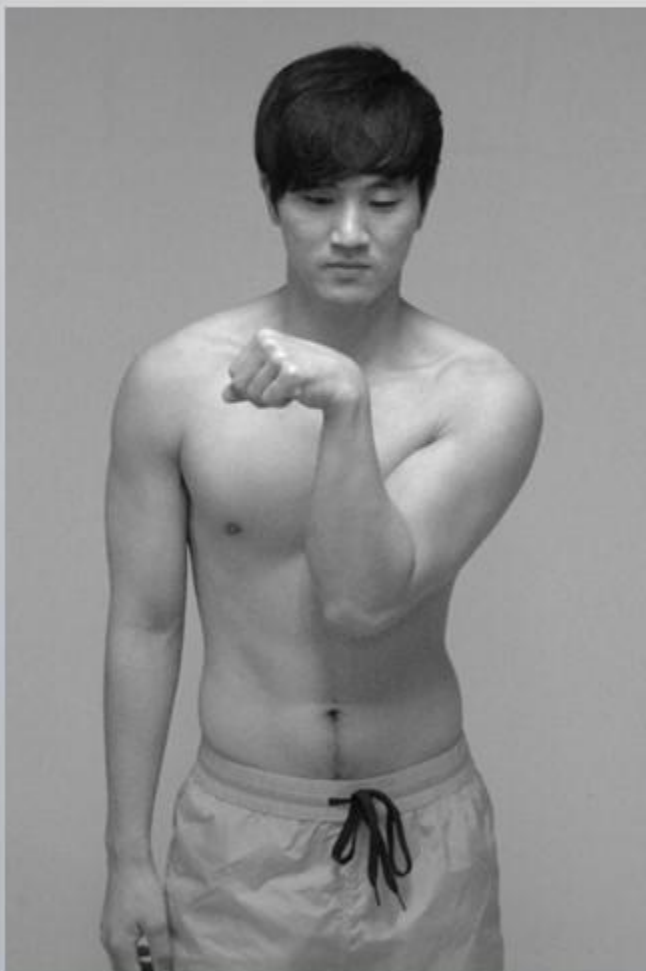
Clinical application



Upper Extremity Elbow Variation Patterns



8. Extension-Adduction-Internal Rot. with elbow flexion



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application



Upper Extremity Elbow Variation Patterns



9. Flexion-Adduction-External Rot. With elbow flexion



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application



Upper Extremity Elbow Variation Patterns



10. Extension-Abduction-Internal Rot. with elbow extension



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application



Upper Extremity Elbow Variation Patterns



11. Flexion-Adduction-External Rot. With elbow extension



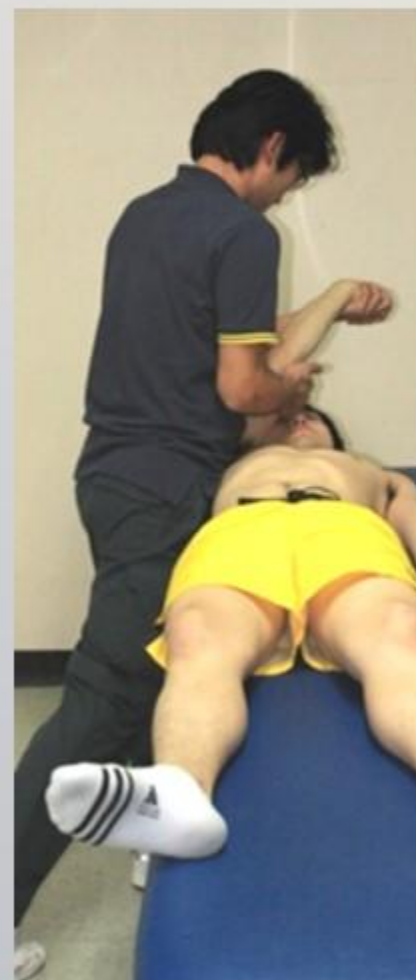
Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application



Upper Extremity Elbow Variation Patterns



12. Extension-Abduction-Internal Rot. with elbow flexion



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

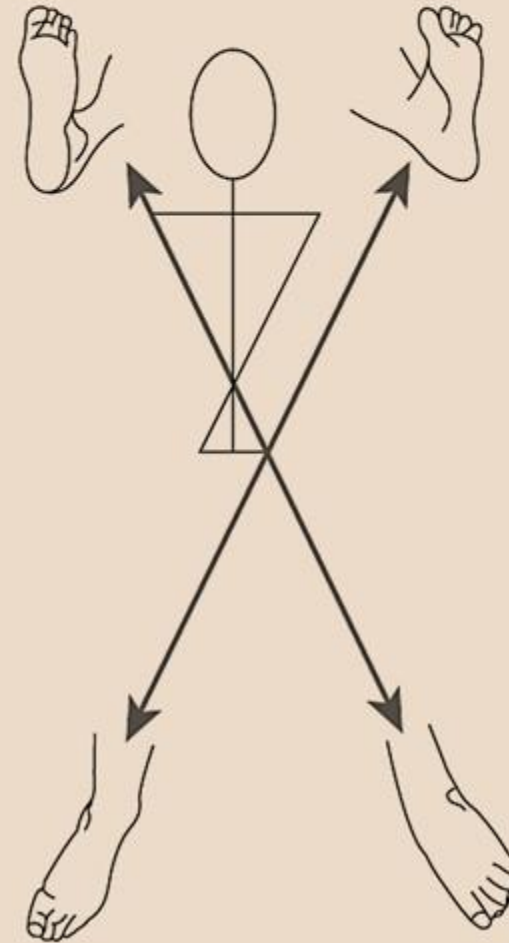


Upper Extremity Elbow Variation Patterns



L/E Patterns

L/E Patterns in PNF



Why do we do L/E patterns?

To treat dysfunction caused by neurologic problem, muscular disorder or joint restrictions.

To improve mobility and stability of L/E

Facilitate L/E function

Facilitate other functional activities

Ex) Rolling,

To increase the activation of trunk muscles

To increase the activation of upper trunk or arm muscle through irradiation

1. Flexion-adduction-ext. rot with knee flexion



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower Extremity Flexion-adduction-Ext.rot with Knee flexion Patterns



2. Extension-Abduction-Internal Rot. with knee Extension



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower Extremity Extension-abduction-Int.rot with Knee Extension Patterns



3. Flexion-abduction-int. rot with knee flexion



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower Extremity Flexion-abduction-Int.rot with Knee flexion Patterns



4. Extension-adduction-ext. rot with knee extension



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower Extremity Extension-adduction-Ext.rot with Knee Extension Pattern



5. Flexion-adduction-ext. rot



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower Extremity Straight Pattern



6. Extension-abduction-int.rot



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower Extremity Straight Pattern



7. Flexion-abduction-int. rot



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower Extremity Straight Pattern



8. Extension-adduction-ext. rot



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower Extremity Straight Pattern



9. Flexion-adduction-ext. rot with knee extension



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower Extremity Flexion-adduction-Ext.rot with knee extension Pattern



10. Extension-abduction-int. rot with knee flexion



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower Extremity Extension-abduction-int.rot with knee flexion Pattern



11. Flexion-abduction-int. rot with knee extension



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower Extremity Flexion-abduction-Int.rot with knee extension Pattern



12. Extension-adduction-ext. rot with knee flexion



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower Extremity Extension-adduction-Ext.rot with knee flexion Pattern





Trunk Patterns

Trunk! Trunk! Trunk!



By using U/E, L/E, Neck, Scapular, Pelvis patterns, and Breathing, and trunk patterns

Trunk

Trunk is important in itself.

The trunk is the base of limbs movement(U/E, L/E, neck).

Well controlled trunk movements(stability and mobility) make possibility of coordination of whole body.

Activities of daily living: Rolling, walking, reaching...

Trunk patterns

Trunk extension and flexion pattern

Trunk patterns with U/E : Chopping, lifting

Trunk patterns with U/E : Bilateral L/E asymmetry flexion and extension pattern

Trunk flexion patterns



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Trunk Extension patterns



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Neck and Trunk Patterns



Lifting



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Chopping



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower trunk flexion pattern



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Lower trunk extension pattern



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Neck and Trunk Patterns



Neck Patterns

Neck pattern in PNF

Neck is connected with head and trunk.

The movement of head and neck help guide to trunk motions.

The neck patterns consist of head and neck motions.

Jaw motion is associated with movements of the head on the neck

(Adler, et al.,2008)

Neck pattern in PNF

Timing

From chin motion to neck motion

Short neck flexion or extension: Upper cervical level(C1 ~ 3)

Long neck flexion or extension: Lower cervical level(C4 ~ T6)

Rt. Side Neck Extension Pattern

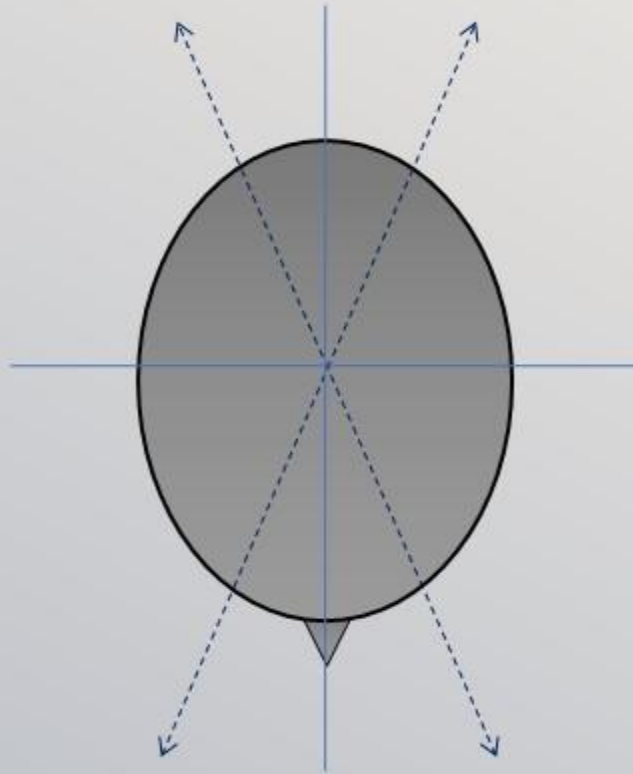


Rt. Side Neck Flexion Pattern

Lt. Side Neck Extension Pattern



Lt. Side Neck Flexion Pattern



Neck flexion pattern



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

Neck Extension pattern



Patient position

Manual contact

Muscle and synergy

Irradiation

Clinical application

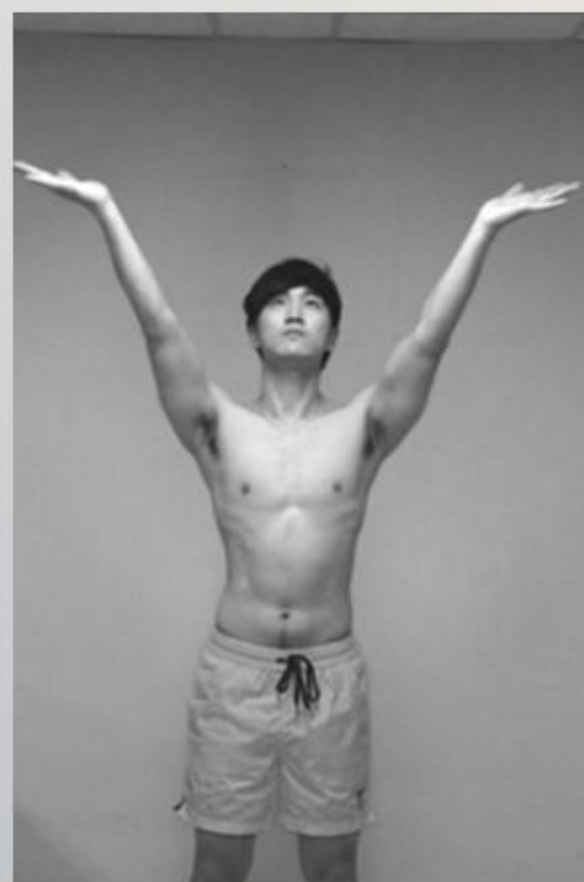
Neck and Trunk Patterns



Combination Patterns

Combination Patterns

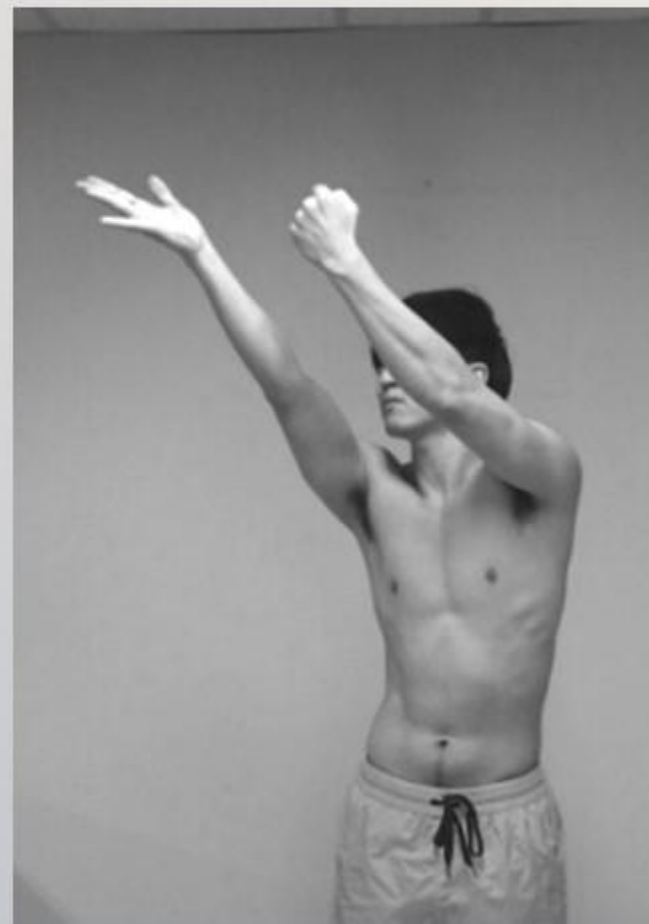
Symmetric patterns



Symmetric Reciprocal patterns



Asymmetric Patterns



Asymmetric Reciprocal Patterns



Thank you!

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