**The Groningen Observer Protocol (GOP 2.0)**

**A standardized observation protocol for the classification of pediatric physical therapy actions**

**A. Dependent variables**

**A.1 Neuromotor actions**

**1.1 Behaviors**

1.1.1 Facilitations techniques

All therapeutic hands-on actions of the physical therapist or caregiver aimed at guidance of movement or maintenance of the infant’s posture by gently placing the hands on specific parts of the infant’s body, thus providing the infant with sensorimotor experience and controlling movement output. Note that if the therapists also applies constraint of the best arm during facilitation, scoring of facilitation continues (i.e., it is not interrupted by ‘constraint’).

*Modifier group: Type of facilitation*

1.1.2 Reflex locomotion

According to Vojta holding and pressure point techniques aim to provoke reflex locomotion. These techniques may be observed in two major forms: a) ‘pure’ Vojta like, i.e., consisting of actions that aim to fixate the infant in a defined starting position (holding) which may be followed by application of pressure on defined points of the body (pressure points). b) Vojta pressure point techniques which are applied in combination with handling.

Examples of holding:

* Supine, side lying, prone
* Head turned with an arm and/or leg in a seemingly unnatural position

Examples of pressure points:

* Points on the head, around the mouth, around the shoulder, elbow or wrist
* Points on the thorax or pelvis
* Points around the hip, knee and ankle

*Modifier group: Type of reflex locomotion*

1.1.3 & 1.1.4 Sensory experience; point & state event

All tactile and vestibular stimulation given to the infant during treatment – *without* the aim of facilitation, tapping, or passive motor experience. Sensory events are only scored when they are explicitly provided as a sensory stimulus. This implies that other activities involving sensory experience, such as spontaneous motility, being dressed or undressed, or being repositioned a few centimetres in order to obtain a better camera view, are not scored as sensory experience.

Examples of concrete PT/caregiver actions:

* Touching skin with toy.
* Touching to comfort or praise the infant.

*Modifier group: Aim of sensory experience*

1.1.5 Passive motor experience

All handling techniques induced by the PT or the caregiver in which no activity of the infant is required in the performance of the actions.

Examples of concrete PT/caregiver actions:

* Passive movements of arms and/or legs
* Repetitive movements of the upper arm towards (frontal) support surface.

1.1.6 Self-produced motor behavior (SPMB), no interference with PT/CG

All actions during which the infant is given ample opportunities to explore toys or other aspects of the environment or his body, without interference from PT or caregiver.

Examples of concrete PT/caregiver actions:

* Placing an infant activity play centre over the infant and letting the infant explore the effect of movements of arms, hands, legs, and feet. Note that this implies that the infant plays by itself and that nobody interferes or joins in, e.g., by shaking one of the rattles of the activity centre. If the latter occurs CSPMB is scored.
* Infant is given opportunity for spontaneous exploration with or without toy.
* Postural challenges, infant spontaneously explores postural capacities

1.1.7 SPMB in combination with constraint of one upper limb

All actions during with the infant is given ample opportunities to explore toys or other aspects of the environment or his body while one upper limb, i.e., the best performing limb, is being restrained to participate by a caregiver, PT or by a device such as a sling, towel or mitten.

When SPMB in combination with a constraint (SPMB+) is combined with a facilitation-technique, SPMB+ will change into facilitation when the constraint lasts for more than 10 seconds.

*Modifier-group: Type of constraint*

1.1.8 Challenged to SPMB (CSPMB), infant is allowed to continue activity by him/herself

All actions in which the infant is challenged by toys or the face of the PT or caregiver to experience a variety of motor activity that is continued by the infant her/himself. Note that the neuromotor action CSPMB changes into ‘Self-produced motor behavior’ if PT/CG has not renewed the challenge within an interval of 20 seconds. However, if in the latter case ‘SPMB’ lasts less than 10 seconds before it changes into challenging again, CSPMB is not interrupted by SPMB but continued.

*Modifier-groups:*

*1. Variation*

*2. Extent of challenge*

1.1.9 CSPMB in combination with constraint of upper limb, infant is allowed to continue by him/herself

All actions in which the infant is challenged by toys or the face of the caregiver to experience a variety of motor activity that is continued by the infant her/himself while one upper limb, i.e., the best performing limb, is being restrained to participate by a caregiver or by a device such as a sling, towel or mitten.

*Modifier-groups:*

*1. Variation*

*2. Type of constraint upper limb*

*3. Extent of challenge*

1.1.10 CSPMB, activity flows over into or is combined with facilitation, sensory or passive experience

All actions in which the infant is challenged by toys or the face of the PT or caregiver to experience a variety of motor activity that is followed by or combined with handling techniques, facilitation (with or without the help of support devices; pressure; tapping), sensory or passive experiences. The interval between the challenge and the handling techniques may be very short (starting virtually simultaneously) and may last maximally 20 seconds. If the time interval between challenging and therapeutic handling is longer than 20 seconds, ‘CSPMB; infant is allowed to continue activity by her/himself’ is scored. Note that the activity that is being challenged (for instance grasping behavior) does not have to be directly related to the main aim of handling (for instance facilitation of rolling into prone). To indicate that a ‘facilitation technique’ starts while the challenge continues, in the category ‘Educational actions towards the infant’ an ‘interference by PT/CG during treatment session’ is scored as ‘PT/CG corrects when infant fails’.

*Modifier-groups:*

*1. Variation*

*2. Type of facilitation techniques, sensory, passive motor experience*

*3. Extent of challenge*

1.1.11 Craniosacral therapy

Applying a gentle manual force to address somatic dysfunctions of the head and spinal cord, in particular aiming to mobilise the cranial structures. Craniosacral therapy is a hands on technique focussing on mobility in neck and spine. This aim is clear from the hand movements of the therapist.

1.1.12 Not specified neuromotor action

All therapeutic actions during the treatment session that cannot be classified into the ten defined categories.

Example:

* Changing the treatment situation.

**1.2 Modifier groups**

* + 1. Type of facilitation
* *Handling:* Specific hands-on techniques to give the infant sensorimotor experience to improve the quality and repertoire of the infant’s movements.

Examples of concrete PT/caregiver actions:

* In supine position or sitting: Shoulders function as key point: handling hands guide shoulders of the infant in protraction to control tone and to facilitate hand-hand contact and symmetry.
* In supine position: Proximal or distal leg functions as key point: the infant’s hip is passively brought in semi-flexion while adducting the leg across the midline to facilitate head righting and rolling.
* In supine position: Pelvis functions as key point: the infant’s pelvis is slightly lifted to elongate the extensor muscles of the trunk and to control tone; in this way hand-foot contact and symmetry are facilitated.
* In prone position: Shoulder functions as key point, the arms are placed in puppy position to facilitate head righting, midline orientation, and body-alignment.
* Sitting: Shoulder functions as key point: the shoulders are moved alternately forwards and backwards to dissociate and facilitate independent arm movements.

*- Pressure techniques:* All handling techniques that produce intermittent pressure to stimulate and gain control over muscle tone, posture, and movement. Pressure is scored when the observer is able to see that the hand which rests on the child exerts pressure. The presence of pressure should not be concluded on the basis of the behavioral reaction of the child.

Examples of concrete PT/caregiver actions:

* Sitting: intermittent downward pressure on shoulders in the direction of the pelvis to facilitate extension of the trunk.
* Sitting: slight intermittent pressure movements on abdominal region in direction of the sacrum to facilitate contraction of the ventral muscles.

- *Tapping techniques, intermittent and sweep tapping*

1.2.2 Type of reflex locomotion

* Holding with pressure points
* Pressure points with handling
* Holding without pressure points
* Other

1.2.3 Aim of sensory experience

* Affective sensory experience
* Mixed affective and body awareness
* With the aim of body awareness

1.2.4 Type of constraint

* Caregiver/ PT
* Towel, mitten, etc.

1.2.5. Type of variation

During one activity variation is scored once; it represents the overall degree of variation during that activity. If the child during a specific activity is challenged to explore more than two strategies, the modifier of variation is scored as ‘large’ as long as ‘CSPMB’ continues.

* Little variation: All actions in which the infant is challenged by toys or the face of the PT or caregiver to explore one or two strategies to reach and grasp, to control posture, to roll, etc. This may also imply that the PT or caregiver presents objects in various directions, but does not provide the infant with ample opportunity to deal with the challenge.
* Large variation: All actions in which the infant is challenged by toys or the face of the PT or caregiver; the infant is challenged to explore more than two strategies to reach and grasp, to control posture, to roll, etc. This implies that the infant is offered ample time to deal with the various challenges, and that some challenges are offered multiple times.

1.2.6 Extent of challenge

* Minimal challenge (easy/too easy)
* Just at the verge of the infant’s abilities (has to put some effort)

**A.2 Educational Action**

**2. A Educational actions towards infant; Interference by PT/CG during treatment session**

**2.1.A Behaviors**

2.1.A.1 PT/CG interferes with activities of infant

2.1.A.2 Not specified educational actions towards infant

**2.2.A Modifier-groups**

2.2.A.1 Type of interference

* PT/CG interrupts activities of infant after having given ample time
* PT/Caregiver interrupts activities of the infant, does not allow the infant time
* PT/Caregiver provokes reflex activity
* PT/CG corrects when infant fails

**2.B Educational action toward caregiver**

**2.1.B Behaviors**

2.1.B.1 Caregiver training

All actions during which the PT instructs caregivers on how to handle the infant or how to use specific Vojta techniques with the aim being that caregivers can continue treatment strategies during daily-life activities and/or in the home environment. The PT (teacher) provides parents with references about what the therapist is doing or what a parent could do while the therapist treats the infant (hands-on).

Examples of concrete actions:

* PT demonstrates therapeutic handling actions to caregiver.
* PT demonstrates Vojta techniques to caregiver
* PT demonstrates action to caregiver, variable options provided.
* PT practices with caregivers teaching them how to continue some of the handling techniques in daily life at home.
* PT practices with caregivers; he/she teaches caregivers how to continue some of the handling techniques in combination with some of the Vojta techniques in daily life at home
* PT practices with caregivers; he/she teaches the caregivers how to perform reflex rolling and crawling in the home situation

2.1.B.2 Caregiver coaching

All actions during which the PT coaches the caregiver. Coaching aims to empower caregivers so that they can make their own educational decisions during daily-care activities in the home environment. The coach listens, informs, and observes (hands-off), while the caregiver is involved in daily routines with the child, including play, thereby creating a situation in which caregivers feel free to explore and discuss alternative strategies.

Examples of concrete actions:

* PT patiently observes the parent and infant behavior.
* PT provides a suggestion how the caregiver may challenge motor performances just at the limit of the infant’s abilities.
* PT provides a suggestion how the caregiver may provide as little postural support as possible – in order to challenge postural behavior of the infant.
* PT observes while the caregiver tries to evoke pleasure in the infant.

2.1.B.3 Not specified educational action toward caregiver

**A.3 Communication**

**3.1 Behaviors**

3.1.1 Information exchange

All communication between the PT and the caregiver that is related to the guidance of infant and family (includes imparting knowledge) and that is not directly related to the child’s development. Impart knowledge implies communication that provides the caregiver with knowledge about the therapeutic actions that are performed.

Examples of concrete actions:

* PT asks about the performance of an action.
* PT explains the ins and outs of an action.
* PT asks about understanding.
* PT asks about ability of caregiver to perform an action; PT listens to caregiver’s comments on actions.

*Modifier group: Type of exchange*

3.1.2 Instruct

All communication in which the caregiver is given assignments, hints or strict directions regarding treatment strategies.

Examples of concrete actions:

* PT assigns, gives advice what to do.
* PT gives hints, provides a suggestion or clue in a very indirect way so that caregivers feel free to explore ample variable opportunities.
* PT gives strict directions what to do.

*Modifier group: Type of instructing*

3.1.3 Provide Feedback

All communication in which the treatment or the performances of infant and caregiver are evaluated.

Examples of concrete actions:

* PT tells the caregiver what went right/wrong.
* PT evaluates the procedure.
* PT asks and listens to the opinion of the caregiver.
* Caregiver and PT share information on infant development

*Modifier group: Type of feedback*

3.1.4 Not specified communication, e.g. communication with infant

3.1.5 No communication  
No communication is scored if there is a silence for more than 5 seconds.

**3.2 Modifier-groups**

3.2.1 Type of exchange

* Regarding family history, NICU experiences, current situation or daily business
* Regarding principles of NDT: All communication that explains the background of the treatment strategies, including developmental education and family related items (includes imparting knowledge).

Examples of concrete actions:

* Information on role of parents as member of the team, as co-therapist; PT informs the parent what they should or may do (extension of therapy)
* PT explains handling in terms of typical movement patterns, typical development, posture, muscle tone, asymmetry/symmetry, and hand placing.
* PT discusses the application of intervention strategies to daily routines in terms of handling.
* Regarding principles of VOJTA: All communication that explains the background of the treatment strategies, including developmental education and family related items (includes imparting knowledge).

Examples of concrete actions:

* Information on role of parents as therapist in treatment according to Vojta: therapist as teacher, the PT informs the parent what to do during daytime (frequency and duration)
* PT explains Vojta test and reflex locomotion in terms of holding the infant in a specific position, pressure on specific parts of the body, reflex rolling, reflex crawling.
* PT discusses the frequency of application of Vojta techniques at home (e.g., number of times/day and duration)
* Regarding principles of COPCA: All communication that explains the background of the treatment strategies, including developmental education and family related items (includes imparting knowledge).

Examples of concrete actions:

* Information on family function, individual lifestyle, family autonomy, raising children, coping with problems, role of siblings, and daily care
* Information on role of the coach: observing, listening, partners
* PT explains the need for variation, minimal support, exploration, trial and error, challenge, and patience.
* PT explains the infant’s need to explore.
* PT explains means to stimulate speech and language development [communication].
* PT discusses the application of the intervention to daily routines in terms of variation, exploration, motor challenge

3.2.2 Type of instructing

Different types of instruction or rather in the way ideas are communicated can be distinguished. The distinction is based on the space of freedom created by the PT allowing the CG to discover and/or formulate own ideas and actions. Note that the *way* the information is provided does not determine the type of instruction. For example strict instructions may be phrased as a polite question.

* PT gives strict instruction on the best way to perform: only a single, explicitly formulated option is provided, e.g. “While bathing, the child should be sitting” or “Could you, please, have the child in sitting position during bathing?”.
* Instruction about multiple ways to achieve best performance: more than one explicitly formulated option is provided, e.g. “While bathing, the child can either sit or lay in supine position”.
* PT gives hints, provides a suggestion/clue (indirect): no explicitly formulated options are provided, the subject to be discussed is presented in an open way, encouraging the CG to generate options and ideas, e.g. “Could you think of different positions while bathing your child?”
* Not specified

3.2.3 Type of feedback

* PT tells the caregiver what went right/wrong: only short comments without details, e.g. ‘well done’, ‘good job’.
* PT evaluates the procedure: includes all communication on therapeutic actions and caregiving strategies which have been addressed during PT-sessions. E.g. how well the child performs during treatment, how implementation in daily life works out or how the child reacts to different actions.
* PT asks and listens to the opinion of the caregiver: scored when the PT is interested in the CG’s opinion, is interested to obtain more insight in the CG’s point of view.
* Caregiver and PT share information on infant development: all information exchange involving the child’s development that is not directly related to therapeutic actions or CG coaching.

**A.4 Position**

The position of the child is always scored except for situations in which the child is not visible. A new position (after a transition) starts when the child stays in the position for at least three seconds.

For exceptions and specific scorings of postures see Appendix I.

**4.1 Behaviors**

4.1.1. Supine

*Modifier groups:*  *1. Surface*

*2. Lifting of the pelvis*

*3. Adaptations*

4.1.2. Prone

4.1.3. Side *Modifier groups: 1. Surface*

4.1.4. Sitting  *2. Postural support*

4.1.5. Standing *3. Adaptations*

4.1.6. Walking

4.1.7. Transition

*Modifier group: With or without handling*

4.1.8: Not specified position

**4.2 Modifier-groups**

4.2.1.Lifting of the pelvis:

* With imposed pelvis lift
* Pelvis not lifted
* Pelvis lift not observable

4.2.2. Surface

* On flat surface
* On lap PT /CG
* On Bobath ball
* On Bobath roll
* Across leg/arm of PT/CG
* Saddle
* Maxicosi/buggy
* Baby chair
* Baby walker
* On dressing mattress
* Against upper part of CG/PT’s body
* Other surface

4.2.3 Postural support:

Postural support can be offered by the CG/PT or the environment, e.g., a baby chair. Other examples of postural support by the environment are holding onto the table, leaning against the wall or leaning with one or two hand(s) on the ground.

* No postural support: PT or caregiver leaves it to the infant to adjust posture independently. “Hands-off.”
* Minimal postural support: PT or caregiver provides as little support as possible in order to challenge postural behavior of the infant performance just at the verge of the infant’s abilities, The child has to “work” hard to maintain balance, which is for example visible in wobbling or swaying back and forth. The amount of support that is considered minimal is depending on the abilities of the child and varies between infants and situations. Note that if the infant is able to maintain the position itself, e.g., is able to sit independently on a flat surface, it is not possible to allude the score ‘minimal’ to the support provided. The latter support has to be classified as either clear or full support depending on the situation.
* Clear postural support: PT or caregiver provides support to such that minimal active involvement of the infant is required to adjust posture.
* Full postural support: PT or caregiver supports all parts of the body of the infant that play a role in postural adjustments. No active involvement of the infant is required.

4.2.4 Adaptive equipment, e.g., lying, seating, standing or walking devices

* No adaptive equipment
* Adaptive equipment

4.2.5 With or without handling

* With a handling technique: when the PT/CG changes the position of the child by using a specific handling technique (‘Handling’ has to be scored at the same time for ‘Neuromotor action’)
* Without a handling technique: when the PT/CG changes the position without using a specific technique (‘Not specified neuromotor action’ has to be scored at the same time for ‘Neuromotor action’.)

**A.5 Situation of treatment session**

The situation of the treatment is always scored except for situations in which the child is not visible.

**5.1 Behaviors**

5.1.1. Motor activity/ play

5.1.2. Feeding

5.1.3. Bathing

5.1.4. Dressing/ Undressing

5.1.5. Changing Diapers

5.1.6. Carrying

5.1.7. Not specified situation

**Technical non-PT action categories (i.e., actions that interfere with the video-evaluation of PT-actions)**

**I. Comforting**Comforting of the infant is scored when the therapeutic actions stop in order to comfort the child. When applicable the variables ‘Situation of the treatment session’, ‘Position’ and ‘Neuromotor action’ are scored / continue to be scored during comforting. When the child is held and cuddled to be comforted, the ‘Neuromotor action’ in general will be ‘Sensory state event – Affective’. When the ‘Neuromotor action’ is not clear, ‘not specified neuromotor action’ is scored.

**Behaviors**

I a) No comforting

I b) Comforting of the infant when infant is upset/crying/tired.

**II. Interruption by operator**

**Behaviors**

II a) No interruption

II b) Interruption

**III. Locomotion**

**Behaviors**

III a) Crawling

III b) Creeping

III c) Bottom shuffling

III d) Walking

III e) Other

III f) No locomotion**B. Independent variables**

Independent variables:the value of this variable is supposed not to change during the course of an observation. It gives the observer the opportunity to summarize briefly the important characteristics of the observation. Independent variables are to be scored after finishing the Observer XT in a dropdown menu.

**B.1 Type of session (clinical impression)**

Categories:

1. COPCA
2. TIP (based on NDT)
3. VOJTA
4. TIP (based on NDT) in combination with VOJTA
5. Cranio-sacral therapy
6. TIP (based on NDT) in combination with Cranio-sacral therapy
7. Constraint Induced Movement Therapy (CIMT)
8. COPCA in combination with CIMT

**B.2 Dressing**

The way in which the infant is dressed during the treatment session. If the dressing situation changes during the session, score the predominant dressing situation.

Categories:

1. Dressed
2. Infant is partially dressed, wears more clothes than underwear only.
3. Infant is wearing underwear only
4. Infant is undressed.

**B.3. Family members involved in the treatment session**

The description of the family members that have an active role in the treatment session are included in scoring. This also implies that e.g. the presence of an infant twin sister of brother who does not play an active role in the session, is not scored as ‘other family member present’.

Categories:

1. Mother present only
2. Father present only
3. Other adult relatives only, e.g. grandparents, aunt.
4. Both caregivers but no other family members present
5. In addition to parent(s) also other family members present
6. Caregiver or caregivers present but no active role in the treatment session

**B.4 Role of the caregiver**

The way in which the caregiver of family members are involved in the treatment session.

Categories:

1. Physical therapist performs treatment by means of handling techniques
2. PT performs treatment by means of specific Vojta techniques (holding the infant in specific ‘Vojta positions’ provoking reflex locomotion by pressure stimulation on specific defined points on the head, trunk or limbs).
3. PT performs treatment by means of handling in combination with Vojta techniques
4. Caregiver and physical therapist act together in handling techniques, physical therapist performs the treatment (hands on) while the caregiver guides the attention of the infant
5. Caregiver performs handling techniques. The PT instructs the caregiver how to handle.
6. PT and caregiver act together; PT trains caregiver how to perform the Vojta techniques
7. Caregiver performs the treatment by means of specific Vojta techniques
8. Caregiver performs the treatment by means of handling in combination with Vojta techniques
9. Caregiver and PT act together (hands off), caregiver is playing with the child and may provide the infant with minimal support but leaves the infant always with ample opportunities for exploration. PT observes the caregiver-infant relationship and may give hints.
10. Caregiver is playing with the infant (hands off) and leaves the infant with ample opportunities for exploration.
11. PT is playing with infant (hands off) and leaves the infant with ample opportunities for exploration – caregiver observes
12. PT is playing with infant (hands off) and leaves the infant with ample opportunities for exploration – no specific role of caregiver

**B.5. Presence of twins**

Categories:

1. no = singleton infant
2. yes = twins

**Specific scorings**

| **Variable** | **Behavior/modifier** | **How to score?/ Specific feature** |
| --- | --- | --- |
| **Neuromotor actions** | Sensory experience state event vs. point event | * Modifier: ‘aim of sensory experience’   Affective sensory experience – to cuddle or to pet the infants head/tummy  Mixed affective and body awareness – not clear to differentiate, it is a combination of a therapeutic aim and to pet the infant  With the aim of body awareness – is related to a therapeutic aim e.g. to touch or tickle the dorsal part of a fist with the aim to open it, or to redirect the hand’s movement direction.  Moving in a sling with suspension point on the ceiling, moving on the knee (“horse riding”) or ”flying” in the air are also examples of sensory stimulation of body awareness   * A point event only last for a few seconds and other activity are not being changed. * A state event is used when a whole sequence of ‘sensory experience’ is observed. * If you observe multiple point events with very short intervals, this series of point events is scored as a single point event. |
|  | CSPMB, infant is allowed to continue activity by him/herself | * Modifier ‘variation’:   ‘little’ – is challenged to explore one or two strategies to reach and grasp, to control posture, to roll, etc. This may also imply that the PT or caregiver presents objects in various directions, but does not provide the infant with ample opportunity to deal with the challenge  ‘large’ – is challenged to explore multiple strategies to reach and grasp, to control posture, to roll, etc. This implies that the infant is offered ample time to deal with the various challenges, and that some challenges are offered multiple times.   * Note that the neuromotor action CSPMB changes into ‘Self-produced motor behavior’ if PT/CG has not renewed the challenge within an interval of 20 seconds. |
|  | Self-produced motor behavior in combination with constraint of one upper limb, interference of caregiver | * The less affected arm is restrained by the PT/CG or constrained by means of e.g. towel, sling or mitten] in order to force the use of the more affected arm * This can be a point event or a state event (see prescription in “neuromotor actions) |
|  | CSPMB, infant is allowed to continue activity by him/herself | * Modifier: ‘extent of challenge’:   ‘minimal’ challenge’ – it is obvious that the child can fulfil the task applying relatively little effort (e.g. toy is placed into the child’s hand)  ‘just’ at the verge of the infant’s ability’ – the child has to put some effort to succeed or it may imply that occasionally the infant fails to accomplish the task (shows an error in the trial & error behavior)   * Within one challenge a toy may be offered several times or a new toy is offered but the challenge remains identical. This may be indicated by ‘interference by PT/CG during treatment session’ – ‘PT/CG interrupts activities of infant’ |
|  | CSPMB, activity flows over into or is combined with facilitation, sensory, passive | * Scoring of the challenge see above * While or after the challenge a ‘facilitation technique’ may occur. * Modifier ‘type of facilitation techniques, sensory, passive motor experience’ * To indicate that a ‘facilitation technique’ starts while the challenge continues an ‘interference by PT/CG during treatment session’ is scored as ‘PT/CG corrects when infant fails’ |
| **Educational actions** | Coaching | * PT observing the CG/infant interaction is part of coaching therefore a whole intervention session can be scored as ‘coaching’ |
|  | Training | * PT shows/trains CG in facilitation techniques or Vojta techniques * Training may be verbally only, it does not imply that the CG has to be active with the infant |
|  | PT/CG corrects when infant fails | * The PT/CG corrects the infant’s movement to a more ‘efficient’ way in the sense of optimizing the movement. (e.g. the infant is doing side steps and the PT/CG poses the food in a certain position), PT corrects head position by returning the head in the midline position |
| **http://www.aok.de/assets/bilder/bundesweit/i-motor.jpgPosition/ locomotion** | Rolling | * If the infant actively rolls, you need to score starting and end position (e.g., supine to side, or supine to prone) (caution: infant being turned by PT/CG, it is scored as transition with handling) * Rolling as locomotion: The infant rolls over several times as means of locomotion e.g. in order to reach a toy further away. In addition to the change of position the category ‘locomotion’ has to be scored in ‘other’ |
| **http://bidok.uibk.ac.at/library/ammann-respekt26.png[[1]](#footnote-1)** | Creeping | * ‘prone’ * Modifier: depending on the level of postural support * At the same time ‘locomotion’ has to be scored in ‘creeping’ |
| **http://bidok.uibk.ac.at/library/ammann-respekt31.png** | Crawling | * ‘prone’ * Modifier: depending on the level of postural support * At the same time category ‘locomotion’ has to be scored in ‘crawling’ |
| **http://bidok.uibk.ac.at/library/ammann-respekt31.png** | 4-point-kneeling | * ‘prone’ * Modifier: depending on the level of postural support |
| **http://bidok.uibk.ac.at/library/ammann-respekt37.png** |  | * ‘prone’ * Modifier: depending on the level of postural support * At the same time category ‘locomotion’ has to be scored in ‘crawling’ |
| **http://bidok.uibk.ac.at/library/ammann-respekt34.png** | Knee-walking | * ‘walking’ * Modifier: depending on the level of postural support * At the same time category ‘locomotion’ has to be scored in ‘other’ |
|  | Walking | * ‘walking’ * Modifier: depending on the level of postural support * At the same time category ‘locomotion’ has to be scored in ‘walking’ |
| **Bottom shuffling[[2]](#footnote-2)** | Bottom shuffling | * ‘sitting’ * Modifier: depending on the level of postural support * At the same time category ‘locomotion’ has to be scored in ‘bottom shuffling’ |
| **http://bidok.uibk.ac.at/library/ammann-respekt33.png** | Kneeling/  Half kneeling | * ‘standing’ * Modifier: depending on the level of postural support (caution: when the infant is sitting on his knees, ‘sitting – on flat surface’ is scored.) |
| **http://bidok.uibk.ac.at/library/ammann-respekt35.png** | Squat | * ‘standing’ * Modifier: depending on the level of postural support |
|  | Side | * Side is scored a) when almost the entire side of the body is supported by a support surface, or b) when - in a semi-sideward sitting position - the lateral part of the thorax is supported. Examples of support surfaces are the matrass, the PT/CG, a pillow or another support device or adaptive equipment. |
|  | Transition | * Is done by PT/CG. It is not scored if the child actively changes the position. Then you only score the end position of the child. * ‘with a handling technique’ * Category ‘neuromotor actions’ has to be set as ‘facilitation technique’; modifier ‘handling’ * ‘without a handling technique’ * Category ‘neuromotor actions’ has to be set as ‘not specified neuromotor action’ |
| **Situation** | Carrying | * During carrying of the child the position is depending on main support of child’s centre of gravity (e.g. stomach is facing PT/CG upper body ⇒ ‘prone’; back is facing PT/CG upper body ⇒ ‘supine’) * Modifier: ‘against upper part of caregiver’s/ PT’s body’ * If CG/PT is walking the situation has to be changed into ‘carrying’. Maintains the CG/PT for example in a sitting position, the current situation continues. |
|  | Motor activity and play | * most of the treatment situation |
|  | Feeding  Bathing  Dressing/Undressing  Changing diapers | * If ‘neuromotor action’ can be observed you have to score them as such. In general this means that SPMB is scored, unless a specific therapeutic technique is used. Besides that ‘position’ of the child and aspects of ‘communication’ or ‘education’ need to be scored as well. |

**Appendix II – Short list**

**A. Dependent Variables**

| **Behavior** | **Modifier-groups** | **Modifiers** |
| --- | --- | --- |
| **A1. Neuromotor actions** | | |
| * 1. Facilitation techniques | Type of facilitation | - Handling  - Pressure techniques  - Tapping techniques, intermittent and sweep tapping |
| * 1. Reflex Locomotion | Type of reflex locomotion | - Holding without pressure points  - Holding with pressure points  - Pressure points with handling  - Other |
| * 1. Sensory experience; state event | Aim of sensory experience | - Affective sensory experience  - Mixed affective and aiming body awareness  - With the aim of body awareness |
| * 1. Sensory experience; point event | Aim of sensory experience |
| * 1. Passive motor experience |  |  |
| * 1. Self-produced motor behavior (SMBP), no interference with PT/CG |  |  |
| * 1. Self-produced motor behavior (SMPB) in combination with constraint of one upper limb, no interference of caregiver/PT | Type of constraint | - CG/PT  - Towel, mitten, etc |
| * 1. Challenged to SPMB (CSPMB), infant is allowed to continue activity by him/herself | 1. Variation 2. Extent of challenge | Variation:  - Little variation  - Large variation  Type of constraint upper limb  - Caregiver/ PT  - Towel, sling, mitten, etc.  Extent of challenge:  - Minimal challenge (easy/too easy)  - Just at the verge of the infant’s abilities  Facilitation techniques, sensory, passive motor experience:  - Handling techniques  - Pressure  - Tapping  - Sensory  - Passive |
| * 1. CSPMB in combination with constraint of upper limb, infant is allowed to continue activity by him/herself | 1. Variation 2. Type of constraint upper limb 3. Extent of challenge |
| * 1. CSPMB, activity flows over into facilitation, sensory or passive experience | 1. Variation 2. Type of facilitation techniques, sensory, passive motor experience 3. Extent of challenge |
| * 1. Craniosacral therapy |  |  |
| * 1. Not specified |  |  |
| **A2. Educational actions** | | |
| *2A Educational actions towards infant; Interference by PT/CG during treatment session* | | |
| * 1. PT/CG interferes with activities of infant point event | Type of interference | - PT/CG interrupts activities of infant after having given ample time  - PT/CG interrupts activities of the infant, does not allow the infant time  - PT/CG provokes reflex activity  - PT/CG corrects when infant fails |
| * 1. Not specified |  |  |
| *2B Educational actions towards caregiver* | | |
| 2.1. Caregiver training |  |  |
| 2.2. Caregiver coaching |  |  |
| 2.3. Not specified |  |  |

| **A3. Communication** | | |
| --- | --- | --- |
| 3.1. Information exchange | Type of exchange | - Family history, NICU experiences, current situation or daily business  - NDT principles  - VOJTA principles  - COPCA principles |
| 3.2. Instruct | Type of instructing | - PT gives strict instruction on the best way to perform  - Instruction about multiple ways to achieve best performance  - PT gives hints, provides a suggestion/clue (indirect)  - Not specified |
| 3.3. Provide feedback | Type of feedback | - PT tells the caregiver what went right/wrong.  - PT evaluates the procedure.  - PT asks and listens to the opinion of the caregiver.  - Caregiver and PT share information on infant development. |
| 3.4. Not specified, e.g. communication with infant |  |  |
| 3.5. No communication |  |  |

| **A4. Position** | | |
| --- | --- | --- |
| * 1. Supine | 1. Surface 2. Lifting of the pelvis | Lifting of the pelvis:  - With imposed pelvis lift  - Pelvis not lifted  - Pelvis lift not observable  Surface:  - On flat surface  - On lap PT[[3]](#footnote-3)/CG[[4]](#footnote-4)  - On Bobath ball  - On Bobath roll  - Across leg/arm of PT/CG  - Saddle  - Maxicosi/buggy  - Baby chair  - Baby walker  - On dressing mattress  - Against upper part of CG/PT’s body  - Other surface  Postural support:  - No postural support  - Minimal postural support  - Clear postural support  - Full postural support  - Not observable  Adaptive equipment:  - No adaptive equipment  - Adaptive equipment |
| 4.2. Prone  4.3. Side  4.4. Sitting  4.5. Standing  4.6. Walking | 1. Surface 2. Postural support |
| 4.7. Transition | With or without handling | - With a handling technique  - Without a handling technique |
| 4.8. Not specified position |  |  |
| **A5. Situation of treatment session** | | |
| 5.1. Motor activity/ play  5.2. Feeding  5.3. Bathing  5.4. Dressing/ undressing  5.5. Changing Diapers  5.6. Carrying  5.7. Not specified situation |  |  |

| **Technical non-PT action categories** | | |
| --- | --- | --- |
| **AI. Comforting** | | |
| Ia. No comforting  Ib. Comforting the infant when infant is upset/crying/tired |  |  |
| **AII. Interruption by operator** | | |
| IIa. No interruption  IIb. Interruption |  |  |
| **AIII. Locomotion** | | |
| IIIa. Crawling  IIIb. Creeping  IIIc. Bottom shuffling  IIId. Walk  IIIe. Other  IIIf. No locomotion |  |  |

**B. Independent Variables (note after session is completed)**

**B.1 Type of session (clinical impression)**

Categories:

* + - 1. COPCA
      2. TIP (based on NDT)
      3. VOJTA
      4. TIP (based on NDT) in combination with VOJTA
      5. Cranio-sacral therapy
      6. TIP (based on NDT) in combination with Cranio-sacral therapy
      7. Constraint Induced Movement Therapy (CIMT)
      8. COPCA in combination with CIMT

**B.2 Dressing**

Categories:

Dressed

Infant is partially dressed, wears more clothes than underwear only.

Infant is wearing underwear only

Infant is undressed.

**B.3. Family members involved in the treatment session**

Categories:

* + - 1. Mother present only
      2. Father present only
      3. Other adult relatives only, e.g. grandparents, aunt.
      4. Both caregivers but no other family members present
      5. In addition to parent(s) also other family members present
      6. Caregiver or caregivers present but no active role in the treatment session

**B.4 Role of the caregiver**

Categories:

Physical therapist performs treatment by means of handling techniques

PT performs treatment by means of specific Vojta techniques (holding the infant in specific ‘Vojta positions’ provoking reflex locomotion by pressure stimulation on specific defined points on the head, trunk or limbs).

PT performs treatment by means of handling in combination with Vojta techniques

Caregiver and physical therapist act together in handling techniques, physical therapist performs the treatment (hands on) while the caregiver guides the attention of the infant

Caregiver performs handling techniques. The PT instructs the caregiver how to handle.

PT and caregiver act together; PT trains caregiver how to perform the Vojta techniques

Caregiver performs the treatment by means of specific Vojta techniques

Caregiver performs the treatment by means of handling in combination with Vojta techniques

Caregiver and PT act together (hands off), caregiver is playing with the child and may provide the infant with minimal support but leaves the infant always with ample opportunities for exploration. PT observes the caregiver-infant relationship and may give hints.

Caregiver is playing with the infant (hands off) and leaves the infant with ample opportunities for exploration.

PT is playing with infant (hands off) and leaves the infant with ample opportunities for exploration – caregiver observes

PT is playing with infant (hands off) and leaves the infant with ample opportunities for exploration – no specific role of caregiver

**B.5. Presence of twins**

Categories:

1. no = singleton infant

2. yes = twins

1. http://bidok.uibk.ac.at/library/ammann-respekt.html [11.11.2012] [↑](#footnote-ref-1)
2. http://www.novita.org.au/Content.aspx?p=70 [11.11.2012] [↑](#footnote-ref-2)
3. PT – Physiotherapy, CG – Caregiver [↑](#footnote-ref-3)
4. [↑](#footnote-ref-4)