

How to calculate HJHS scores with a Non-Evaluable (NE) item

As mentioned previously in the manual, **“non evaluable” or “NE” should not be used** except under rare circumstances. **In most cases, the joint can be evaluated.** As a rule of thumb: If in doubt, always evaluate and score the item. All final HJHS items and total scores are rounded to 1 decimal place.

Situations where an “NE” is applicable include

- If a child is not developmentally able to perform a particular gait item, then the item must be marked as “NE”.
- If an adult or elderly person is not physically (e.g. cardio-vascular or neurological) able to perform a particular gait item, then the item must be marked as “NE”.
- Fused joint (NE for muscle strength and crepitus only)
- Amputated joint (NE for all items for the amputated joint)
- Non-ambulatory patient due to other origin than joint/muscle bleed. (NE for gait)
- If the duration of swelling is not known (NE for Duration of Swelling)
- If assessing any item causes concern for harm or an increased chance of bleeding, then that item should not be assessed and should be marked as NE. (note: the other items for that joint should be assessed)

A common mistake in calculating the final HJHS score is to simply assign “0” to the tested parameter which would make the final score inaccurate (and the score appear better).

When NE is recorded, alternative calculations are used for the final HJHS score to be valid. This is done by using a **conversion factor** for each NE item or joint.

If NE is used and not provided in the examples below, it is very likely that the joint can be evaluated and should be assessed (unless the NE is because of concerns for harm or an increased chance of bleeding).

Validation for Conversion Factors:

- 1) NE due to developmental age was used in the published HJHS pediatric validation study.
- 2) All other NE conditions and conversions were not tested in the published HJHS validation studies.

(NOTE: The information and calculations provided are to be used as a guide for the conversions and does not include every potential NE combination.)

Table of conversion factors for conditions that are non-evaluable

Non-evaluable conditions	Conversion Factor
Non ambulatory (NE for gait)	1.03
Developmental reasons – pediatrics (NE for gait)	0.96
Amputated joint (NE for all items for the amputated joint)	1.19
Amputated joint and non-ambulatory (NE for all items for the amputated joint and NE for gait)	1.24
Fused joint (NE for strength and crepitus)	1.43
Duration of swelling (NE for duration of swelling)	1.05

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Overview of NE calculations

- NE used in Gait or joint amputations = The conversion factor is applied to the “HJHS total Score”
- NE used in an HJHS item for a specific joint = The conversion factor is applied to the “Total of all HJHS item scores for that specific joint”

EXAMPLES - How to use conversion factors with clinical findings:

1. Non ambulatory

If gait is unable to be evaluated, the conversion factor is 1.03.

The Adjusted HJHS total score would be the HJHS total score X the conversion factor

Example:

If the HJHS total score is 20.0 with gait as NE, the final adjusted HJHS total score would be 20.6

$$20.0 \times 1.03 = \underline{20.6}$$

2. Due to developmental age reasons (pediatrics)

The child should not be penalized for not performing a skill due to developmental age.

For this reason, maximum gait score (4) is subtracted from the denominator and HJHS Total (124).

The Adjusted HJHS total score denominator would be 120. The conversion factor is 0.96

Example:

If the child had an HJHS total score of 3.0 and was unable to perform gait due to developmental reasons, the final adjusted HJHS total score would be 2.9

$$3.0 \times 0.96 = \underline{2.9}$$

3. Amputated joint

a) If a joint is amputated and the patient is ambulatory, the conversion factor is 1.19

Example:

If the left arm is amputated and the HJHS total score was 10.0, the final adjusted HJHS total score would be 11.9

$$10.0 \times 1.19 = \underline{11.9}$$

b) If a joint is amputated and the patient is non-ambulatory, the conversion factor is 1.2

Example:

If the right leg is amputated and the HJHS total score was 10.0, the final adjusted HJHS total score would be 12.4

$$10.0 \times 1.24 = \underline{12.4}$$

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4. Fused Joint

If there is a fused joint with no residual movement, the conversion factor is 1.43.

Example:

If the right ankle (RA) is fused, joint muscle strength and crepitus cannot be assessed. These two HJHS items would be scored as NE. In this case we will assume that all the other HJHS item parameters for the right ankle add up to 3.0.

The Right Ankle joint score total would be the sum of right ankle item scores X the conversion factor

$$3.0 \times 1.43 = \underline{4.3}$$

5. Duration of swelling

If the duration of swelling is unknown, the conversion factor is 1.05.

Example:

If the duration of swelling in the right ankle is unknown and we assume that all the other HJHS item parameters for the right ankle add up to 3.0

The Right Ankle joint score total would be the sum of right ankle item scores X the conversion factor

$$3.0 \times 1.05 = \underline{3.2}$$

6. Other NE calculations (rare cases)

In other rare cases requiring the use of “NE”, you will have to calculate the Adjusted joint score total, followed by the conversion factor to be applied to the total sum of all other HJHS item scores for that joint.

The calculations are provided below:

- 1) **Adjusted joint score total** = Maximum joint score total – (Maximum joint score for item 1+ Maximum joint score for item 2)
- 2) **Conversion Factor** = Maximum joint score total score divided by the Adjusted joint score total

For further information, please refer to the HJHS website or help desk at
hjhs.helpdesk@sickkids.ca