



Supporting occupational health
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STAGING OF HAND ARM VIBRATION SYNDROME

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This summary of the grading of HAVS is intended to be read in conjunction with advice given in the SOM document of HAVS regarding management of HAVS and methods of undertaking specific clinical assessments.

BACKGROUND

Grading or staging of HAVS is intended to

- give an indication of the severity of the condition
- assist in monitoring changes in the condition from one assessment to the next,

and

- provide a clinical basis for managing the condition.

The current standard for grading the severity of HAVS is the Stockholm Workshop Scale (SWS) for vascular and sensorineural deficit ^{i,ii}, with the modifications proposed by McGeogh, Lawson et al ⁱⁱⁱ. Use of this may be facilitated by use of the Griffin numerical scale for the extent of vascular symptoms (blanching). The pros and cons of the SWS were reviewed by Lawson ^{iv}.

THE MODIFIED STOCKHOLM WORKSHOP SCALE

The pioneering work by Taylor and Pelmear led to the development of the Taylor-Pelmear scale in 1968, which was published in 1975 ^v. This is now of historical interest, although it is still encountered on occasion, for example in medico-legal reports. It is not used for health surveillance purposes.

The Stockholm Workshop Scale was largely based on Taylor-Pelmear but split the grading for vascular and sensorineural symptoms. For each of those components a grade of "0" indicates vibration exposure but no relevant symptoms. Any relevant symptoms are then graded into 1, 2 or 3 to reflect the severity of the condition. It is generally agreed that severe Raynaud's phenomenon with trophic skin changes, previously known as stage '4v' in the Stockholm Workshop Scale, is more likely to represent an underlying medical condition than be due to the effects of vibration, so employees with this degree of disease should be referred for further clinical assessment via their GP.

The two components should be assessed separately, with the vascular grading primarily reflecting the extent of blanching. Use of the Griffin scale ^{vi} (see below - also sometimes referred to as the Cornish-Rigby scale ^{vii}) may assist in this process. While frequency of attacks is included within the definitions of the vascular grades, care should be taken to ensure that this does not reflect changes in the pattern of cold exposure. The extent of blanching overrides frequency of attacks when assessing severity. There is likely to be benefit in reviewing the pattern of attacks 12 months after initial diagnosis in order to be able to assess the full seasonal variation, and therefore a range of temperature exposures.

Clinical judgement will be required where there is divergence between Griffin score and the Stockholm description. For example, if one finger is affected over two phalanges that would be stage 1v based on a Griffin score of 3, but because it involves distal and middle phalanges a grade of 2v would be applied using the Stockholm descriptors. In this circumstance, if differing interpretations of the grading systems lead to a change of grading in subsequent assessments, it is essential that all concerned appreciate that this does not reflect a change in the severity of the condition.

The vascular grades are as follows:

- **Stage 1v** – Attacks affecting only the tips of the distal phalanges of one or more fingers - usually with a Griffin blanching score of 1-4.
- **Stage 2v (early)** – Occasional attacks (i.e. three or less per week) affecting the distal and middle (and occasionally proximal) of one or more fingers - usually with a Griffin score of 5-9.
- **Stage 2v (late)** – Frequent attacks (i.e. more than three per week) of whiteness affecting the distal and middle (rarely also proximal) phalanges of one or more fingers - usually with a Griffin blanching score of 10-16.
- **Stage 3v** – Frequent attacks of whiteness affecting all the phalanges of most of the fingers all year - usually with a Griffin blanching score of 18 or more.

The sensorineural grades are as follows:

- **Stage 1sn** – Intermittent tingling and/or numbness, without any abnormality on sensory testing. Care should be taken to distinguish this from the normal response to vibration exposure. Persistence of the tingling and/or numbness for more than 20 minutes after cessation of tool use is usually taken as indicating progression beyond normality, although that may be dependent on the duration and level of exposure immediately preceding the symptoms.
- **Stage 2sn** – Intermittent tingling and/or numbness with reduced perception. Intermittent is regarded as lasting less than two hours, and this should be accompanied by examination evidence of impaired sensation - usually light touch and/or pin prick sensation.
- **Stage 3sn** – Is of persistent tingling and/or numbness with reduced sensory perception (as for stage 2sn) and reduced manipulative dexterity in the warm. The original Stockholm Workshop scale refers to impairment of tactile discrimination in the definition of stage 3sn, but the later modified scale quoted by HSE no longer includes that.

Careful relevant neurological examination is essential in determining the grading of the sensorineural component. It is important to remember that numbness is a symptom – that is something of which the patient complains – as opposed to a sign, which is a finding on clinical examination. For these purposes, reduced sensory perception, reduced tactile discrimination, and reduced manipulative dexterity are signs; given that numbness is the symptom of reduced sensory perception, the definition of stage 2sn would otherwise be meaningless repetition.

For sensorineural grading, the first Stockholm Workshop propounded an assessment process of testing light touch, pinprick, and temperature – each of which scored 1 if abnormal – and two-point discrimination, which scored 2. Adding those scores together allowed the following grading:

- score of 0 or 1 = 1sn
- score of 2 or 3 = 2sn
- score of 4 or 5 = 3sn

It is conventional to record the score for each hand separately; hence, for example, a scoring of 'L2v(3) 2sn; R1v(2) 2sn' indicates stage 2 vascular disease affecting three fingers of the left hand, with stage 2 sensorineural disease for the left hand, and stage 1 vascular disease affecting two fingers of the right hand which also has stage 2 sensorineural disease. In practical terms it is useful to record extent of colour change on a diagram of the hand. Any available digital photography should be recorded. While this may not necessarily capture all affected fingers during a single attack, it may be strongly supportive that true vasospasm is being described.

In the UK it has become conventional to divide stage 2 vascular or sensorineural into 'early' or 'late', that distinction being used particularly to monitor progression towards more incapacitating effects of vibration.

Cold sensitivity or intolerance should also be recorded. While this remains a matter of debate, the presence of cold sensitivity does not currently affect either the vascular or sensorineural grading ^{viii}.

THE GRIFFIN SCALE

The Griffin scale ^v may be useful in describing the severity of the vascular component and is based on a score calculated from which phalanges of each digit are affected. The scores are shown in the attached diagram, and the individual scores for each digit are then added to give a total score out of a potential maximum of 33. Hence if the whole finger is affected by blanching a score of 6 would be applied. It is likely to be helpful if a diagram is included in the employee's clinical record so that the distribution as well as the extent of blanching is recorded.

A score of 17 on the Griffin scale is possible but unlikely, requiring the involvement of the full extent of the thumb (score 9), with a score of 8 for the fingers. It has been suggested that Raynaud's phenomenon of the thumb may be an indication of underlying connective tissue disease ^{ix}. On that basis, specialist referral should be considered where there is involvement of the thumb without a clear history of exposure of that thumb to vibration.

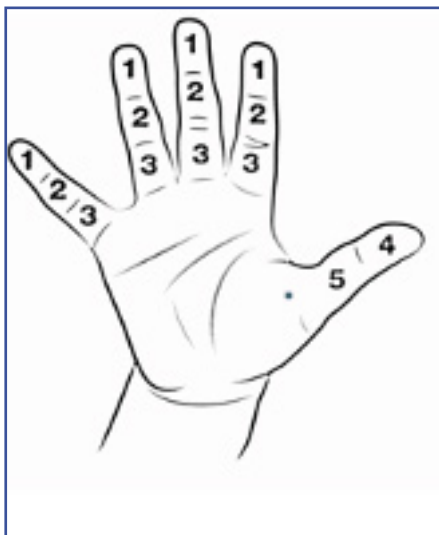


Diagram showing scores attributed to each phalanx in the Griffin scale.

THE INTERNATIONAL CONSENSUS CRITERIA (ICC)

A recently proposed scale was intended to replace the Stockholm Workshop Scale ^x but has not been adopted by HSE in their 2019 Guidance L140. This scale advocated a number of changes in approach, including:

- Loss of the division of stage 2 into early and late
- Use of two or more validated tests to diagnose stage 2sn - in practical terms meaning use of standardised testing
- Referral to a specialist centre for employees with significant deterioration in bend force threshold on monofilament testing
- Stage 3v to include those with a Griffin score of greater than 12.

At the time of writing, this scale has not been recommended by HSE, and it is the view of the SOM HAVS Special interest Group that the Stockholm and Griffin scales should remain as the standard classification systems for grading the severity of HAVS.

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