

Pain Visual Analogue Scale (Pain VAS)

Measures pain intensity at rest or with activity

Phases

Pre-op
Acute
Post-acute
Active living



Body function



~ 1 min to
complete & score¹



Administration

Print version; Fillable
PDF; Online version



Quality



Validity

Construct validity: Knee/hip OA: Excellent, highly correlated with both verbal & numerical pain scales^{1,3}
Hip OA: Excellent correlation (> 0.995) with 5-point Likert scale⁴



Reliability

Test-retest: Knee OA: Excellent at/within 24 hr (ICC=0.97)³



Responsiveness

Knee/hip OA: More responsive than WOMAC pain subscale.⁵



Floor/ceiling effects

No evidence found



Feasibility

Simple, quick to complete & score



Instructions

A continuous horizontal or vertical line, usually 100mm long, & anchored by 2 verbal descriptors (i.e., “no pain” & “worst imaginable pain”).^{1,2} Ask patient to rate “current” pain intensity or pain intensity “in the last 24 hr” by placing a single mark on the line. See ‘Relevant Links’ for detailed instructions.

Scoring: Use a ruler to measure the distance, in mm, from “no pain” anchor to mark on Pain VAS line. Record value between 0-100mm.



Interpretation

Direction: Higher number = worse pain. For post-surgical pain: no pain (0-4mm), mild pain (5-44mm), moderate pain (45-74mm), & severe pain (75-100mm).¹

SEM: Knee OA: 0.03mm which is considerably less than the numeric rating scale (0.48mm) & verbal rating scale (0.21mm).³

MDC: TKA: 16.1mm (acute hospital phase)⁶; THA: 14.9mm (acute hospital phase).⁶ Knee OA: 0.08³

MCID: Differs by surgery & whether pain is improving or worsening; TKA: -18.6mm if pain improving; 29.1mm if pain worsening.⁶

THA: -22.6mm if pain improving; 23.6mm if pain worsening.⁶

Cut points/Thresholds: No evidence found

PASS: Knee OA: 35.0mm (95% CI=32.8-37.4); Hip OA: 32.3mm (95% CI=30.1-34.7).⁷ Higher baseline VAS = higher PASS value.⁷

Normative/Reference values: No evidence found



Other

Key messages: Recommended. Widely used, easy to administer, score & interpret. Minimal difficulties with translation. To avoid interpretation errors, ensure the line measures 100mm after printing or photocopying. Not suitable for persons with visual or cognitive impairment, or for telephone administration.



Relevant Links

[Print PDF \(Yale University\)](#)

[Summary & instructions \(Physiopedia\)](#)

[Online fillable PDF \(orthopaadicscores.com\)](#)



References

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2. Pagard V, Shreif K, Jackson K et al. Visual Analogue Scale. Physiopedia. Accessed January 26 2023. https://www.physio-pedia.com/Visual_Analogue_Scale
3. Alghadir AH, Anwer S, et al. Test-retest reliability, validity, and minimum detectable change of visual analog, numerical rating, and verbal rating scales for measurement of osteoarthritic knee pain. *J Pain Res*. 2018; 26;11:851-6. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5927184/>
4. Averbuch M, Katzper M. Assessment of visual analog versus categorical scale for measurement of osteoarthritis pain. *J Clin Pharmacol*. 2004;44(4):368-72. PMID: [15051743](#)
5. da Costa BR, Saadat P, et al. Visual Analogue Scale has higher assay sensitivity than WOMAC pain in detecting between-group differences in treatment effects: a meta-epidemiological study. *Osteoarthritis Cartilage*. 2021;29(3):304-12. PMID: [33271331](#)
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7. Tubach F, Ravaud P, et al. Evaluation of clinically relevant states in patient reported outcomes in knee and hip osteoarthritis: the patient acceptable symptom state. *Ann Rheum Dis*. 2005;64(1):34-7. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1755212/>

