

Gait Analysis and Surface Electromyography

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<u>Effective Date</u>	4/1/2024
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<u>Version</u>	1

Member-specific benefits take precedence over medical policy and benefits may vary across plans. Refer to the individual's benefit plan for details ^{*}.

Purpose:

This policy addresses gait analysis using surface electromyography. Also called computerized gait analysis.

Description & Definitions:

Surface electromyography (SEMG) is a non-invasive, computer-based procedure, most commonly used in an office setting to assess muscle function by recording muscle activity from above the muscle on the skin surface. Can be combined with camera and computer system used to quantify and graphically display human movement patterns for adults and children.

Criteria:

Computerized gait analysis is considered medically necessary when **ALL** of the following criteria are met:

- **One or more** of the following diagnoses is present:
 - A child or adolescent has a diagnosis of cerebral palsy.
 - Spina Bifida Meningomyelocele.
 - Traumatic brain injury.
 - Incomplete quadriplegia.
 - Spastic hemiplegia.
 - Spastic diplegia.
- The use of computerized gait analysis is being used for the evaluation of musculoskeletal gait function to assess and aid in planning for orthopedic surgery or interventional neurology (e.g., nerve blocks to reduce spasticity orthotic application) in ambulatory members with certain gait dysfunctions associated with the following conditions.

Gait analysis or Computerized gait analysis is considered **not medically necessary** for any use other than those indicated in clinical criteria

Coding:

Medically necessary with criteria:

Coding	Description
96000	Comprehensive computer-based motion analysis by video-taping and 3D kinematics;

96001	Comprehensive computer-based motion analysis by video-taping and 3D kinematics; with dynamic plantar pressure measurements during walking
96002	Dynamic surface electromyography, during walking or other functional activities, 1-12 muscles
96003	Dynamic fine wire electromyography, during walking or other functional activities, 1 muscle
96004	Review and interpretation by physician or other qualified health care professional of comprehensive computer-based motion analysis, dynamic plantar pressure measurements, dynamic surface electromyography during walking or other functional activities, and dynamic fine wire electromyography, with written report

Considered Not Medically Necessary:

Coding	Description
	N/A

U.S. Food and Drug Administration (FDA) - approved only products only.

Document History:

Revised Dates:

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Reviewed Dates:

- 2023: September

Effective Date:

- April 1, 2024

References:

Specialty Association Guidelines; Government Regulations; Winifred S. Hayes, Inc; UpToDate; Literature Review; Specialty Advisors; National Coverage Determination (NCD); Local Coverage Determination (LCD).

(2023). Retrieved Aug 28, 2023, from Hayes, Inc:

<https://evidence.hayesinc.com/search?q=%257B%2522text%2522:%2522gait%2520analysis%2520%2522,%2522title%2522:null,%2522termsource%2522:%2522searchbar%2522,%2522page%2522:%257B%2522page%2522:0,%2522size%2522:50%257D,%2522type%2522:%2522all%2522,%2522sources>

(2023). Retrieved Aug 28, 2023, from Centers for Medicare and Medicaid Services: [https://www.cms.gov/medicare-coverage-database/search-](https://www.cms.gov/medicare-coverage-database/search-results.aspx?keyword=Gait+analysis&keywordType=starts&areald=all&docType=NCA,CAL,NCD,MEDCAC,TA,MCD,6,3,5,1,F,P&contractOption=all)

[results.aspx?keyword=Gait+analysis&keywordType=starts&areald=all&docType=NCA,CAL,NCD,MEDCAC,TA,MCD,6,3,5,1,F,P&contractOption=all](https://www.cms.gov/medicare-coverage-database/search-results.aspx?keyword=Gait+analysis&keywordType=starts&areald=all&docType=NCA,CAL,NCD,MEDCAC,TA,MCD,6,3,5,1,F,P&contractOption=all)

(2023). Retrieved Aug 28, 2023, from Carelon Medical Benefits Management:

https://guidelines.carelonmedicalbenefitsmanagement.com/?s=Gait+analysis&et_pb_searchform_submit=et_search_process&et_pb_search_cat=11%2C1%2C96&et_pb_include_posts=yes

(2023, Jun 27). Retrieved Aug 28, 2023, from MCG: <https://careweb.careguidelines.com/ed27/index.html>

(2023). Retrieved Aug 28, 2023, from Department of Medical Assistance Services:

<https://vamedicaid.dmas.virginia.gov/manuals/provider-manuals-library#gsc.tab=0&gsc.q=Gait%20analysis&gsc.sort=>

(2023). Retrieved Aug 28, 2023, from Google, Inc:

<https://www.google.com/search?q=Professional+recommendations+for+three+dimensional+gait+analysis&safe=strict&sc>

a_esv=560734445&rlz=1C1GCEA_enUS982US982&ei=CersZKWUF4DI5NoPydKfGA&ved=0ahUKEwjlvPawglCBAxWAMlkFHUnpBwMQ4dUDCBA&uact=5&oq=Professional+recommend

Computerized gait analysis. (2023, Feb). Retrieved Aug 28, 2023, from AmeriHealth Caritas: <https://www.amerihealthcaritasdc.com/pdf/provider/resources/clinical/policies-20230518/ccp1105-computerized-gait-analysis.pdf>

Hellsten, T., Karlsson, J., Shamsuzzaman, M., & Pulkkis, G. (2021, Jul 05). The Potential of Computer Vision-Based Marker-Less Human Motion Analysis for Rehabilitation. Retrieved Aug 28, 2023, from Sage Journals - Rehabilitation Process and Outcome: <https://journals.sagepub.com/doi/10.1177/11795727211022330?icid=int.sj-full-text.similar-articles.9>

Jakob, V., Kuderle, A., Kluge, F., Klucken, J., Eskofier, B., Winkler, J., . . . Gassner, H. (2021, Nov 18). Validation of a Sensor-Based Gait Analysis System with a Gold-Standard Motion Capture System in Patients with Parkinson's Disease. Retrieved Aug 28, 2023, from PubMed: <https://pubmed.ncbi.nlm.nih.gov/34833755/>

Mukaino, M., Ohtsuka, K., Tanikawa, H., Matsuda, F., Yamada, J., Itoh, N., & Saitoh, E. (2018, Mar 04). Clinical-oriented Three-dimensional Gait Analysis Method for Evaluating Gait Disorder. Retrieved Aug 28, 2023, from PubMed: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5931438/>

Sec. 890.5360 Measuring exercise equipment. (2023, Jun 07). Retrieved Aug 28, 2023, from Code of Federal Regulations (National Archives): <https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-B/part-410/subpart-B/section-410.49>

Stenum, J., Hsu, M., Pantelyat, A., & Roemmich, R. (2023, Jan 30). Clinical gait analysis using video-based pose estimation: multiple perspectives, clinical populations, and measuring change. Retrieved Aug 28, 2023, from MedRxIV: <https://www.medrxiv.org/content/10.1101/2023.01.26.23285007v1.article-info>

Qualisys Clinical System. (2018, Aug 02). Retrieved Aug 28, 2023, from U.S. Food and Drug Administration: https://www.accessdata.fda.gov/cdrh_docs/pdf17/K171547.pdf

Special Notes: *

Medical policies can be highly technical and complex and are provided here for informational purposes. These medical policies are intended for use by health care professionals. The medical policies do not constitute medical advice or medical care. Treating health care professionals are solely responsible for diagnosis, treatment, and medical advice. Sentara Health Plan members should discuss the information in the medical policies with their treating health care professionals. Medical technology is constantly evolving, and these medical policies are subject to change without notice, although Sentara Health Plan will notify providers as required in advance of changes that could have a negative impact on benefits.

Services mean both medical and behavioral health (mental health) services and supplies unless We specifically tell You otherwise. We do not cover any services that are not listed in the Covered Services section unless required to be covered under state or federal laws and regulations. We do not cover any services that are not Medically Necessary. We sometimes give examples of specific services that are not covered but that does not mean that other similar services are covered. Some services are covered only if We authorize them. When We say You or Your We mean You and any of Your family members covered under the Plan. Call Member Services if You have questions.

Keywords:

Gait Analysis, Surface electromyography, motion analysis, 3D kinematics, walking video, computerized gait