

Effective February 26, 2018 Policy Replaced by LCD L34537



BlueCross BlueShield
of Alabama

Name of Blue Advantage Policy: Dynamic Posturography

Policy #: 268
Category: Medicine

Latest Review Date: February 2018
Policy Grade: C

Background:

Blue Advantage medical policy does not conflict with Local Coverage Determinations (LCDs), Local Medical Review Policies (LMRPs) or National Coverage Determinations (NCDs) or with coverage provisions in Medicare manuals, instructions or operational policy letters. In order to be covered by Blue Advantage the service shall be reasonable and necessary under Title XVIII of the Social Security Act, Section 1862(a)(1)(A). The service is considered reasonable and necessary if it is determined that the service is:

1. *Safe and effective;*
2. *Not experimental or investigational*;*
3. *Appropriate, including duration and frequency that is considered appropriate for the service, in terms of whether it is:*
 - *Furnished in accordance with accepted standards of medical practice for the diagnosis or treatment of the patient's condition or to improve the function of a malformed body member;*
 - *Furnished in a setting appropriate to the patient's medical needs and condition;*
 - *Ordered and furnished by qualified personnel;*
 - *One that meets, but does not exceed, the patient's medical need; and*
 - *At least as beneficial as an existing and available medically appropriate alternative.*

Routine costs of qualifying clinical trial services with dates of service on or after September 19, 2000 which meet the requirements of the Clinical Trials NCD are considered reasonable and necessary by Medicare. Providers should bill **Original Medicare for covered services that are related to **clinical trials** that meet Medicare requirements (Refer to Medicare National Coverage Determinations Manual, Chapter 1, Section 310 and Medicare Claims Processing Manual Chapter 32, Sections 69.0-69.11).*

Description of Procedure or Service:

Dynamic posturography tests a patient's balance control in situations intended to isolate factors that affect balance in everyday experiences. It provides quantitative information on the degree of imbalance present in an individual but is not intended to diagnosis specific types of balance disorders.

Balance Disorders

Complaints of imbalance are common in older adults and contribute to the risk of falling in this population. Falls are an important cause of death and disability in this population in the United States. Maintenance of balance is a complex physiologic process, requiring interaction of the vestibular, visual, and proprioceptive/somatosensory system, and central reflex mechanisms. Balance is also influenced by the general health of the patient (i.e., muscle tone, strength, range of motion). Therefore, identifying and treating the underlying balance disorder can be difficult. Commonly used balance function tests (e.g., electronystagmography, rotational chair tests) attempt to measure the extent and site of a vestibular lesion but do not assess the functional ability to maintain balance.

Role in Diagnosis

Dynamic posturography aims to provide more quantitative information regarding the functional ability for maintaining balance. The patient, wearing a harness to prevent falls, stands on an enclosed platform surrounded by a visual field. By altering the angle of the platform or shifting the visual field, the test assesses movement coordination and the sensory organization of visual, somatosensory, and vestibular information relevant to postural control. The patient undergoes six different testing situations designed to evaluate the vestibular, visual, and proprioceptive/somatosensory components of balance. In general terms, the test measures an individual's balance (as measured by a force platform to calculate the movement of the patient's center of mass) while visual and somatosensory cues are altered. These tests vary by whether the eyes are open or closed, whether the platform is fixed or sway-referenced, and whether the visual surround is fixed or sway-referenced. Sway referencing involves making instantaneous computer-aided alteration in the platform or visual surround to coincide with changes in body position produced by sway. The purpose of sway referencing is to cancel out accurate feedback from somatosensory or visual systems that are normally involved in maintaining balance. In the first three components of the test, the support surface is stable, and visual cues are either present, absent, or sway-referenced. In tests 4 to 6, the support surface is sway-referenced to the individual, and visual cues are either present, absent, or sway-referenced. In tests 5 and 6, the only accurate sensory cues that are available for balance are vestibular cues. Results of computerized dynamic posturography have been used to determine what type of information (i.e., visual, vestibular, proprioceptive) can and cannot be used to maintain balance. Dynamic posturography cannot be used to localize the site of a lesion.

Posturography tests a patient's balance control in situations intended to isolate factors that affect balance in everyday experiences. Balance can be rapidly assessed qualitatively by asking the patient to maintain a steady stance on a flat or compressible surface (i.e., foam pads) with the eyes open or closed. By closing the eyes, the visual input into balance is eliminated. Use of foam pads eliminates the sensory and proprioceptive cues. Therefore, only vestibular input is available when standing on a foam pad with eyes closed.

Policy:

Effective for dates of service on or after February 26, 2018 refer to LCD L34537

Effective for dates of service on or after June 20, 2006 and prior to February 26, 2018:

Blue Advantage will treat Dynamic posturography to assess vestibular dysfunction as a non-covered benefit and as investigational.

Blue Advantage does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Advantage administers benefits based on the members' contract and medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.

Key Points:

The policy was initially developed using a 1996 TEC Assessment which concluded that the evidence was insufficient to determine whether dynamic posturography distinguished between peripheral and central vestibular dysfunction. The policy was updated regularly using the MEDLINE database through December 11, 2017.

Evidence reviews assess whether a medical test is clinically useful. A useful test provides information to make a clinical management decision that improves the net health outcome. That is, the balance of benefits and harms is better when the test is used to manage the condition than when another test or no test is used to manage the condition.

The first step in assessing a medical test is to formulate the clinical context and purpose of the test. The test must be technically reliable, clinically valid, and clinically useful for that purpose. Evidence reviews assess the evidence on whether a test is clinically valid and clinically useful. Technical reliability is outside the scope of these reviews, and credible information on technical reliability is available from other sources.

Diagnostic Posturography

Clinical Context and Test Purpose

The purpose of dynamic posturography in patients who have balance dysfunction is to inform a decision whether to pursue additional diagnostic workup (e.g., imaging studies that would not have been indicated based on clinical presentation alone) or immediate treatment.

Patients

The relevant population(s) of interest is patients presenting with balance dysfunction or dizziness. It would be expected that these patients will have had an initial basic evaluation directed by symptoms that will have included a clinical examination and history, with appropriate vital signs and orthostatic blood pressure measurements, and may have had basic evaluations as directed by their symptoms (e.g., electrocardiogram).

Interventions

The intervention in this case includes a class of dynamic posturography tests. A number of tests have clearance from the Food and Drug Administration. The specific maneuvers may be operator dependent.

Comparators

Depending on the clinical presentation, patients with balance dysfunction may be managed with clinical evaluation alone or with more intensive evaluations including vestibular function testing, which can be used to localize the cause of the dysfunction.

Outcomes

The general outcomes of interest are test accuracy and validity, along with symptoms and morbid events. The ultimate goal of evaluation is to correctly diagnose and treat the underlying condition.

Timing

The time frame of interest is months to approximately a year.

Setting

Patients with balance dysfunction being evaluated with dynamic posturography are generally seen in the outpatient setting. Testing may be conducted by audiologists, physical therapists, or technologists under the supervision of physicians.

Simplifying Test Terms

There are 3 core characteristics for assessing a medical test. Whether imaging, laboratory, or other, all medical tests must be:

- Technically reliable
- Clinically valid
- Clinically useful.

Because different specialties may use different terms for the same concept, we are highlighting the core characteristics. The core characteristics also apply to different uses of tests, such as diagnosis, prognosis, and monitoring treatment.

Diagnostic tests detect presence or absence of a condition. Surveillance and treatment monitoring are essentially diagnostic tests over a time frame. Surveillance to see whether a condition develops or progresses is a type of detection. Treatment monitoring is also a type of detection because the purpose is to see if treatment is associated with the disappearance, regression, or progression of the condition.

Prognostic tests predict the risk of developing a condition in the future. Tests to predict response to therapy are also prognostic. Response to therapy is a type of condition and can be either a beneficial response or adverse response. The term predictive test is often used to refer to

response to therapy. To simplify terms, we use prognostic to refer both to predicting a future condition and to predicting a response to therapy.

Technically Reliable

Assessment of technical reliability focuses on specific tests and operators and requires review of unpublished and often proprietary information. Review of specific tests, operators, and unpublished data are outside the scope of this evidence review and alternative sources exist. This evidence review focuses on the clinical validity and clinical utility.

Clinically Valid

A test must detect the presence or absence of a condition, the risk of developing a condition in the future, or treatment response (beneficial or adverse).

We did not identify any studies that evaluated the sensitivity and specificity of dynamic posturography for diagnosing any specific balance disorder compared to commonly accepted balance tests. There is no “criterion standard” test for measuring balance, which is a physiologic parameter. In the absence of a gold standard comparison, the literature search sought to identify studies that systematically compared results of dynamic posturography and other balance tests in an appropriate patient population, i.e., individuals who are at increased risk of falling due to balance issues.

Several studies have used both dynamic posturography and another test for assessing balance. A 2015 study by Fritz et al assessed the correlation between dynamic and static posturography and other measures of gait and balance dysfunction in 57 ambulatory patients with multiple sclerosis (MS). Two dynamic posturography parameters and 4 static posturography parameters were measured. Walking velocity, the alternative test, was measured in 2 ways: (1) in a laboratory using the Optotrak Motion Capture System and (2) using the timed 25-foot walk test. In regression analysis, demographics, 1 of the dynamic posturography parameters (anteroposterior sway) and 1 of the static posturography parameters (eyes open, feet apart) explained 95.3% of the variance in walking velocity. A higher degree of anteroposterior sway, assessed using dynamic posturography was significantly associated with higher walking velocity. Although the study found that dynamic posturography was associated with measures of walking velocity, the utility of this information in terms of impact on patient management is unclear.

A 2015 study by Ferrazzoli et al evaluated dynamic posturography compared with the Berg Balance Scale (BBS). The BBS is a 14-item scale that assesses the performance on a variety of functional tasks, each rated on a 0 to 4 scale (maximal score, 56 points). Lower scores indicate higher fall risk. The study included 29 patients with Parkinson disease (PD) not complaining of balance problems and 12 healthy controls matched for age and sex. Scores on the BBS were significantly lower in PD patients than controls ($p=0.002$). Similarly, results of body sway analysis assessed by posturography were significantly different in PD patients and controls. Specifically, compared with controls, PD patients had higher standard deviation of body sway measurements in the eyes open condition ($p=0.005$) and the eyes open counting condition ($p=0.020$). The standard deviation of PD patients was also higher than controls in posturography along the mediolateral axis in the eyes open condition ($p=0.019$) but results were similar in the eyes open counting condition. The authors noted that posturography can potentially identify

early balance disorders in PD patients before they develop clinical symptoms and that rehabilitation programs could possibly be developed to address specific balance issues. As discussed in the next section, there is a lack of prospective studies comparing health outcomes in patients managed with and without dynamic posturography.

Other published literature on dynamic posturography includes several studies using posturography in the assessment of fall risk. For example, Whitney et al (2006) conducted a retrospective review of 100 charts of individuals referred to a balance and falls clinic with a vestibular diagnosis who had undergone dynamic posturography. Patients who reported multiple falls over six months had lower initial scores on the SOT than those who reported 1 or no falls.

Additional studies have used dynamic posturography as a research tool to study balance, e.g., in older individuals, Parkinson patients and knee osteoarthritis patients; these studies were not designed to evaluate the technical performance or accuracy of dynamic posturography. Dynamic posturography has also been considered a control technique in studies evaluating other novel methods of assessing balance. For example, in 2014, Alahmari et al assessed the reliability and validity of a balance rehabilitation device and compared findings with dynamic posturography using the EquiTest.

Section Summary: Clinically Valid

Describing the diagnostic performance of dynamic posturography in terms of sensitivity and specificity is difficult given the lack of a true criterion standard for measuring balance. The available studies comparing dynamic posturography with other types of clinical measures of measuring balance have suggested that posturography results correlate with those measures; however, whether dynamic posturography can be used as a diagnostic test is unknown.

Clinically Useful

A test is clinically useful if the use of the results informs management decisions that improve the net health outcome of care. The net health outcome can be improved if patients receive correct therapy, or more effective therapy, or avoid unnecessary therapy, or avoid unnecessary testing.

Direct Evidence

Direct evidence of clinical utility is provided by studies that have compared health outcomes for patients managed with and without the test. Because these are intervention studies, the preferred evidence would be from randomized controlled trials.

No randomized or nonrandomized controlled studies were identified that compared health outcomes in patients when treatment decisions were made with and without the results of dynamic posturography. One randomized controlled trial was identified, but this study used dynamic posturography as an outcome measure, rather than as a tool for making treatment decisions; thus conclusions cannot be drawn from this study on the impact of posturography on patient management.

Several retrospective studies have described a customized exercise program based on results of a complete medical and neuro-otologic history and physical examination that included platform posturography. However, the contribution of dynamic posturography to the overall assessment

and customization of the exercise program by the Badke group is unclear. In particular, the reports did not describe how (or whether) the exercise programs were modified based on specific deficits identified by platform posturography. Customized vestibular rehabilitation programs can be devised with a standard battery of tests. These retrospective reports were also limited by selection bias and lack of follow-up. Moreover, while these studies showed that individualized therapy can improve patient outcomes, no controlled trials have assessed whether individually customized therapy programs are more effective than generic vestibular exercises.

In addition, other related studies have included the use of posturography in the assessment of patients after a clinical intervention. Examples included conducted with PD patients and assessment of patients with idiopathic normal pressure hydrocephalus before and after shunt surgery. For instance, in 2009, Nocera et al used posturography to evaluate the effectiveness of a home-based exercise program on postural control for 10 patients with PD. The 10 patients and 10 healthy age-matched controls were assessed with dynamic posturography before and after the 10-week intervention. Dynamic posturography was not used to select patients for the intervention or to individualize the intervention.

Chain of Evidence

Indirect evidence on clinical utility rests on clinical validity. If the evidence is insufficient to demonstrate test performance, no inferences can be made about clinical utility.

Section Summary: Clinically Useful

Direct evidence of how dynamic posturography can be used to improve outcomes is lacking. Absent direct evidence for a diagnostic test, a chain of evidence can sometimes be identified to demonstrate improvement in health outcomes. However, in the case of dynamic posturography, the chain of evidence about clinical validity and how the test would be used in practice is uncertain; therefore, no inferences can be made about clinical utility.

Summary of Evidence

For individuals with suspected balance disorders who receive dynamic posturography, the evidence includes cross-sectional comparisons of results in patients with balance disorders and healthy controls and retrospective case series reporting outcomes for patients assessed with dynamic posturography as part of clinical care. Relevant outcomes are test accuracy and validity, symptoms, and morbid events. There are no generally accepted reference standards for dynamic posturography, which makes it difficult to determine how testing results can be applied in clinical care. There are no studies demonstrating the clinical utility of the test that would lead to changes in management that improve outcomes (e.g., symptoms, function). The evidence is insufficient to determine the effects of the technology on health outcomes.

Practice Guidelines and Position Statements

The American Academy of Otolaryngology-Head and Neck Surgery Foundation has issued 2 guidelines that mention dynamic posturography:

- A position statement on the evaluation or therapy of individuals with suspected balance or dizziness disorders, revised in September 2014, listed dynamic posturography as 1 of 4 medically indicated tests or evaluation tools.

- In 2008, a guideline on the management of benign paroxysmal positional vertigo listed computerized posturography as one of 18 potential tools to consider for diagnosing this condition.

U.S. Preventive Services Task Force Recommendations

Not applicable.

Key Words:

Dynamic posturography, vestibular dysfunction

Approved by Governing Bodies:

In 1985, the NeuroCom EquiTest® (NeuroCom International, Portland, OR; now Clackamas, OR), a dynamic posturography device, was cleared for marketing by the U.S. Food and Drug Administration (FDA) through the 510(k) process. Other dynamic posturography device makers include Vestibular Technologies (Cheyenne, WY) and Mediacpteurs (Balma, France). Companies that previously manufactured dynamic posturography devices include Metitur (Jyvaskyla, Finland) and Micromedical Technology (Chatham, IL).

Benefit Application:

Coverage is subject to member's specific benefits. Group specific policy will supersede this policy when applicable.

Current Coding:

CPT Codes:

92548 Computerized dynamic posturography

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Policy History:

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Medical Policy Group, March 2007

Medical Policy Group, March 2008

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Medical Policy Group, November 2010

Medical Policy Group, November 2011

Medical Policy Group, November 2012

Medical Policy Group, January 2014

Medical Policy Group, November 2014

Medical Policy Group, February 2016

Medical Policy Group, February 2017

Medical Policy Group, January 2018

Medical Policy Group, February 2018

This medical policy is not an authorization, certification, explanation of benefits, or a contract. Eligibility and benefits are determined on a case-by-case basis according to the terms of the member's plan in effect as of the date services are rendered. All medical policies are based on (i) research of current medical literature and (ii) review of common medical practices in the treatment and diagnosis of disease as of the date hereof. Physicians and other providers are solely responsible for all aspects of medical care and treatment, including the type, quality, and levels of care and treatment.

This policy is intended to be used for adjudication of claims (including pre-admission certification, pre-determinations, and pre-procedure review) in Blue Cross and Blue Shield's administration of plan contracts.