



MASSACHUSETTS

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Medical Policy Biofeedback as a Treatment of Chronic Pain

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Policy Number: 210

BCBSA Reference Number: 2.01.30 (For Plans internal use only)

Related Policies

- Biofeedback as a Treatment of Urinary Incontinence, #[173](#)
- Biofeedback as a Treatment of Fecal Incontinence or Constipation, #[308](#)
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Policy

Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity

Biofeedback as a treatment of chronic pain, including but not limited to low back pain, is [INVESTIGATIONAL](#).

Prior Authorization Information

Inpatient

- For services described in this policy, precertification/preauthorization **IS REQUIRED** for all products if the procedure is performed **inpatient**.

Outpatient

- For services described in this policy, see below for products where prior authorization **might be required** if the procedure is performed **outpatient**.

	Outpatient
Commercial Managed Care (HMO and POS)	This is not a covered service.
Commercial PPO and Indemnity	This is not a covered service.

CPT Codes / HCPCS Codes / ICD Codes

Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member.

Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.

The following codes are included below for informational purposes only; this is not an all-inclusive list.

According to the policy statement above, the following CPT/HCPCS codes are considered investigational for the conditions listed for **Commercial Members: Managed Care (HMO and POS), and PPO, Indemnity:**

CPT Codes

CPT codes:	Code Description
90875	Individual psychophysiological therapy incorporating biofeedback training by any modality (face-to-face with the patient), with psychotherapy (eg, insight oriented, behavior modifying or supportive psychotherapy); approximately 20-30 minutes
90876	Individual psychophysiological therapy incorporating biofeedback training by any modality (face-to-face with the patient), with psychotherapy (eg, insight oriented, behavior modifying or supportive psychotherapy); approximately 45-50 minutes
90901	Biofeedback training by any modality

HCPCS Codes

HCPCS codes:	Code Description
E0746	Electromyography (EMG), biofeedback device

Description

Biofeedback is a technique intended to teach patients the self-regulation of certain unconscious or involuntary physiologic processes. Biofeedback equipment converts physiological signals into outputs given to patients. The technique involves the feedback of a variety of types of information not usually available to the patient, followed by a concerted effort on the part of the patient to use this feedback to help alter the physiologic process in a specific way. Biofeedback has been proposed as a treatment for a variety of diseases and disorders including anxiety, headaches, hypertension, movement disorders, incontinence, pain, asthma, Raynaud disease, and insomnia. The type of feedback used in an intervention (eg, visual, auditory) depends on the nature of the disease or disorder being treated.

Biofeedback may be administered, using different techniques and monitoring devices and sensors (eg, electromyograph), in an outpatient setting by psychiatrists, psychologists, and general practitioners. Biofeedback training is done either in individual or group sessions, alone or in combination with other behavioral therapies designed to teach relaxation. A typical program consists of 10 to 20 training sessions of 30 minutes each. Sessions can take up to 90 minutes. Training sessions are performed in a quiet, nonstimulating environment. Patients are instructed to use mental imagery techniques to affect the physiologic variable being monitored, and feedback is provided for the successful alteration of that physiologic parameter in the form of lights or tone, verbal praise, or other auditory or visual stimuli. This evidence review focuses on the use of biofeedback for the treatment of chronic pain.

Treatment for chronic pain is often multimodal and typically includes psychological therapy. Psychological techniques vary but may include cognitive therapy, which teaches subjects the ability to cope with stressful stimuli by attempting to alter negative thought patterns and dysfunctional attitudes, and behavioral approaches to reduce muscle tension and break the pain cycle. Relaxation, using any of a variety of techniques including meditation or mental imagery, is considered a behavioral therapy that may be used alone or as a component of a cognitive-behavioral therapy program. Electromyography biofeedback has also been used for the treatment of chronic pain, on the assumption that the ability to reduce muscle tension will be improved through the feedback of data to the patient regarding the degree

of muscle tension. While some consider electromyography biofeedback to be a method used to obtain relaxation, others consider biofeedback to be distinct from other relaxation techniques.

Summary

Biofeedback is a technique intended to teach patients self-regulation of certain physiologic processes not normally considered to be under voluntary control. Electromyography biofeedback has been evaluated as a method to reduce chronic or recurrent pain of musculoskeletal or psychosomatic origin.

For individuals who have chronic pain (including low back, knee, neck and shoulder, orofacial, and abdominal pain as well as fibromyalgia, osteoarthritis, systemic lupus erythematosus, and vulvar vestibulitis) who receive biofeedback, the evidence includes multiple randomized controlled trials (RCTs) for different pain syndromes. Relevant outcomes are symptoms, functional outcomes, quality of life, and medication use. The results of these RCTs, some of which were sham-controlled, did not consistently report a benefit for biofeedback. Some RCTs reported improved outcomes with biofeedback, but these improvements were often of uncertain clinical significance or were not durable. Many other RCTs have found that biofeedback did not provide a significantly greater benefit in outcomes when it was used instead of or in addition to other conservative interventions such as exercise. Overall, the available RCTs were limited by small sample sizes and high dropout rates. This evidence base does not permit conclusions about the specific effects of biofeedback beyond the nonspecific effects of sham interventions, nor does it permit conclusions about the contribution of biofeedback beyond that of other conservative treatments for pain. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Policy History

Date	Action
1/2022	Annual policy review. Description, summary, and references updated. Policy statements unchanged.
1/2021	Annual policy review. Description, summary, and references updated. Policy statements unchanged.
1/2021	Medicare information removed. See MP #132 Medicare Advantage Management for local coverage determination and national coverage determination reference.
12/2019	Annual policy review. Description, summary, and references updated. Policy statements unchanged.
1/2019	Annual policy review. Description, summary, and references updated. Policy statements unchanged.
2/2018	Clarified coding information.
1/2018	Annual policy review. New references added
5/2015	Annual policy review. New references added
5/2014	Annual policy review. New references added. Updated Coding section with ICD10 procedure and diagnosis codes, effective 10/2015.
5/2013	Annual policy review. New references added.
11/2011-4/2012	Medical policy ICD 10 remediation: Formatting, editing and coding updates. No changes to policy statements.
6/2011	Reviewed - Medical Policy Group – Orthopedics, Rehabilitation Medicine and Rheumatology. No changes to policy statements.
7/2010	Reviewed - Medical Policy Group – Orthopedics, Rehabilitation Medicine and Rheumatology. No changes to policy statements.
3/2009	Reviewed - Medical Policy Group - Pulmonology, Allergy and ENT/Otolaryngology. No changes to policy statements.
3/2008	Reviewed - Medical Policy Group - Pulmonology, Allergy and ENT/Otolaryngology. No changes to policy statements.
3/2007	Reviewed - Medical Policy Group - Pulmonology, Allergy and ENT/Otolaryngology. No changes to policy statements.

Information Pertaining to All Blue Cross Blue Shield Medical Policies

Click on any of the following terms to access the relevant information:

[Medical Policy Terms of Use](#)

[Managed Care Guidelines](#)

[Indemnity/PPO Guidelines](#)

[Clinical Exception Process](#)

[Medical Technology Assessment Guidelines](#)

References

1. U.S. Department of Health and Human Services. Pain management best practices. May 2019. <https://www.hhs.gov/sites/default/files/pain-mgmt-best-practices-draft-final-report-05062019.pdf>. Accessed October 2, 2021.
2. Dworkin RH, Turk DC, Farrar JT, et al. Core outcome measures for chronic pain clinical trials: IMMPACT recommendations. *Pain*. Jan 2005; 113(1-2): 9-19. PMID 15621359
3. Dworkin RH, Turk DC, Wyrwich KW, et al. Interpreting the clinical importance of treatment outcomes in chronic pain clinical trials: IMMPACT recommendations. *J Pain*. Feb 2008; 9(2): 105-21. PMID 18055266
4. Williams ACC, Fisher E, Hearn L, et al. Psychological therapies for the management of chronic pain (excluding headache) in adults. *Cochrane Database Syst Rev*. Aug 12 2020; 8: CD007407. PMID 32794606
5. Fisher E, Law E, Dudeney J, et al. Psychological therapies for the management of chronic and recurrent pain in children and adolescents. *Cochrane Database Syst Rev*. Sep 29 2018; 9: CD003968. PMID 30270423
6. Humphreys PA, Gevirtz RN. Treatment of recurrent abdominal pain: components analysis of four treatment protocols. *J Pediatr Gastroenterol Nutr*. Jul 2000; 31(1): 47-51. PMID 10896070
7. Palermo TM, Eccleston C, Lewandowski AS, et al. Randomized controlled trials of psychological therapies for management of chronic pain in children and adolescents: an updated meta-analytic review. *Pain*. Mar 2010; 148(3): 387-397. PMID 19910118
8. Henschke N, Ostelo RW, van Tulder MW, et al. Behavioural treatment for chronic low-back pain. *Cochrane Database Syst Rev*. Jul 07 2010; (7): CD002014. PMID 20614428
9. Kapitza KP, Passie T, Bernateck M, et al. First non-contingent respiratory biofeedback placebo versus contingent biofeedback in patients with chronic low back pain: a randomized, controlled, double-blind trial. *Appl Psychophysiol Biofeedback*. Sep 2010; 35(3): 207-17. PMID 20237953
10. Tan G, Rintala DH, Jensen MP, et al. A randomized controlled trial of hypnosis compared with biofeedback for adults with chronic low back pain. *Eur J Pain*. Feb 2015; 19(2): 271-80. PMID 24934738
11. Glombiewski JA, Hartwich-Tersek J, Rief W. Two psychological interventions are effective in severely disabled, chronic back pain patients: a randomised controlled trial. *Int J Behav Med*. Jun 2010; 17(2): 97-107. PMID 19967572
12. Collins NJ, Bisset LM, Crossley KM, et al. Efficacy of nonsurgical interventions for anterior knee pain: systematic review and meta-analysis of randomized trials. *Sports Med*. Jan 01 2012; 42(1): 31-49. PMID 22149696
13. Campo M, Zadro JR, Pappas E, et al. The effectiveness of biofeedback for improving pain, disability and work ability in adults with neck pain: A systematic review and meta-analysis. *Musculoskelet Sci Pract*. Apr 2021; 52: 102317. PMID 33461043
14. Kamonseki DH, Calixtre LB, Barreto RPG, et al. Effects of electromyographic biofeedback interventions for shoulder pain and function: Systematic review and meta-analysis. *Clin Rehabil*. Jul 2021; 35(7): 952-963. PMID 33517777
15. Juul-Kristensen B, Larsen CM, Eshoj H, et al. Positive effects of neuromuscular shoulder exercises with or without EMG-biofeedback, on pain and function in participants with subacromial pain syndrome - A randomised controlled trial. *J Electromyogr Kinesiol*. Oct 2019; 48: 161-168. PMID 31394380
16. Kosterink SM, Huis in 't Veld RM, Cagnie B, et al. The clinical effectiveness of a myofeedback-based teletreatment service in patients with non-specific neck and shoulder pain: a randomized controlled trial. *J Telemed Telecare*. 2010; 16(6): 316-21. PMID 20798425

17. Ma C, Szeto GP, Yan T, et al. Comparing biofeedback with active exercise and passive treatment for the management of work-related neck and shoulder pain: a randomized controlled trial. *Arch Phys Med Rehabil.* Jun 2011; 92(6): 849-58. PMID 21621660
18. Middaugh S, Thomas KJ, Smith AR, et al. EMG Biofeedback and Exercise for Treatment of Cervical and Shoulder Pain in Individuals with a Spinal Cord Injury: A Pilot Study. *Top Spinal Cord Inj Rehabil.* 2013; 19(4): 311-23. PMID 24244096
19. Sandsjo L, Larsman P, Huis in 't Veld RM, et al. Clinical evaluation of a myofeedback-based teletreatment service applied in the workplace: a randomized controlled trial. *J Telemed Telecare.* 2010; 16(6): 329-35. PMID 20798427
20. Arami J, Rezasoltani A, Khalkhali Z, et al. The effect of two exercise therapy programs (proprioceptive and endurance training) to treat patients with chronic non-specific neck pain. *JBUMS.* 2012;14(1):77-84.
21. Bissett A, Mitchell KR, Major G. The cervico-brachial pain syndrome: muscle activity and pain relief. *Behav Change.* 1985;2(2):129-132.
22. Bobos P, Billis E, Papanikolaou DT, et al. Does Deep Cervical Flexor Muscle Training Affect Pain Pressure Thresholds of Myofascial Trigger Points in Patients with Chronic Neck Pain? A Prospective Randomized Controlled Trial. *Rehabil Res Pract.* 2016; 2016: 6480826. PMID 27990302
23. Dellve L, Ahlstrom L, Jonsson A, et al. Myofeedback training and intensive muscular strength training to decrease pain and improve work ability among female workers on long-term sick leave with neck pain: a randomized controlled trial. *Int Arch Occup Environ Health.* Mar 2011; 84(3): 335-46. PMID 20803028
24. Ehrenborg C, Archenholtz B. Is surface EMG biofeedback an effective training method for persons with neck and shoulder complaints after whiplash-associated disorders concerning activities of daily living and pain -- a randomized controlled trial. *Clin Rehabil.* Aug 2010; 24(8): 715-26. PMID 20562165
25. Eslamian F, Jahanjoo F, Dolatkah N, et al. Relative Effectiveness of Electroacupuncture and Biofeedback in the Treatment of Neck and Upper Back Myofascial Pain: A Randomized Clinical Trial. *Arch Phys Med Rehabil.* May 2020; 101(5): 770-780. PMID 31954696
26. Iqbal ZA, Rajan R, Khan SA, et al. Effect of deep cervical flexor muscles training using pressure biofeedback on pain and disability of school teachers with neck pain. *J Phys Ther Sci.* Jun 2013; 25(6): 657-61. PMID 24259822
27. Jull G, Trott P, Potter H, et al. A randomized controlled trial of exercise and manipulative therapy for cervicogenic headache. *Spine (Phila Pa 1976).* Sep 01 2002; 27(17): 1835-43; discussion 1843. PMID 12221344
28. Jull G, Falla D, Treleaven J, et al. Retraining cervical joint position sense: the effect of two exercise regimes. *J Orthop Res.* Mar 2007; 25(3): 404-12. PMID 17143898
29. Nezamuddin M, Answer S, Khan SA, et al. Efficacy of pressure-biofeedback guided deep cervical flexor training on neck pain and muscle performance in visual display terminal operators. *J Musculoskelet Res.* 2013;16(3):1350011
30. Voerman GE, Sandsjo L, Vollenbroek-Hutten MM, et al. Effects of ambulant myofeedback training and ergonomic counselling in female computer workers with work-related neck-shoulder complaints: a randomized controlled trial. *J Occup Rehabil.* Mar 2007; 17(1): 137-52. PMID 17260162
31. Wani S, Raka N, Jethwa J, et al. Comparative efficacy of cervical retraction exercises (McKenzie) with and without using pressure biofeedback in cervical spondylosis. *Int J Ther Rehabil.* 2013;20(10):501-508.
32. Ribeiro D, Silva AG. A single session of visual feedback improves range of motion in patients with chronic idiopathic neck pain: A randomized and controlled study. *Musculoskeletal Care.* Mar 2019; 17(1): 72-78. PMID 30378756
33. Aggarwal VR, Lovell K, Peters S, et al. Psychosocial interventions for the management of chronic orofacial pain. *Cochrane Database Syst Rev.* Nov 09 2011; (11): CD008456. PMID 22071849
34. McNeely ML, Armijo Olivo S, Magee DJ. A systematic review of the effectiveness of physical therapy interventions for temporomandibular disorders. *Phys Ther.* May 2006; 86(5): 710-25. PMID 16649894
35. Medlicott MS, Harris SR. A systematic review of the effectiveness of exercise, manual therapy, electrotherapy, relaxation training, and biofeedback in the management of temporomandibular disorder. *Phys Ther.* Jul 2006; 86(7): 955-73. PMID 16813476

36. Weydert JA, Ball TM, Davis MF. Systematic review of treatments for recurrent abdominal pain. *Pediatrics*. Jan 2003; 111(1): e1-11. PMID 12509588
37. Glombiewski JA, Bernardy K, Hauser W. Efficacy of EMG- and EEG-Biofeedback in Fibromyalgia Syndrome: A Meta-Analysis and a Systematic Review of Randomized Controlled Trials. *Evid Based Complement Alternat Med*. 2013; 2013: 962741. PMID 24082911
38. Babu AS, Mathew E, Danda D, et al. Management of patients with fibromyalgia using biofeedback: a randomized control trial. *Indian J Med Sci*. Aug 2007; 61(8): 455-61. PMID 17679735
39. van Santen M, Bolwijn P, Verstappen F, et al. A randomized clinical trial comparing fitness and biofeedback training versus basic treatment in patients with fibromyalgia. *J Rheumatol*. Mar 2002; 29(3): 575-81. PMID 11908576
40. Buckelew SP, Conway R, Parker J, et al. Biofeedback/relaxation training and exercise interventions for fibromyalgia: a prospective trial. *Arthritis Care Res*. Jun 1998; 11(3): 196-209. PMID 9782811
41. Macfarlane GJ, Paudyal P, Doherty M, et al. A systematic review of evidence for the effectiveness of practitioner-based complementary and alternative therapies in the management of rheumatic diseases: osteoarthritis. *Rheumatology (Oxford)*. Dec 2012; 51(12): 2224-33. PMID 22923762
42. Yilmaz OO, Senocak O, Sahin E, et al. Efficacy of EMG-biofeedback in knee osteoarthritis. *Rheumatol Int*. May 2010; 30(7): 887-92. PMID 19693508
43. Durmus D, Alayli G, Canturk F. Effects of quadriceps electrical stimulation program on clinical parameters in the patients with knee osteoarthritis. *Clin Rheumatol*. May 2007; 26(5): 674-8. PMID 16897119
44. Greco CM, Rudy TE, Manzi S. Effects of a stress-reduction program on psychological function, pain, and physical function of systemic lupus erythematosus patients: a randomized controlled trial. *Arthritis Rheum*. Aug 15 2004; 51(4): 625-34. PMID 15334437
45. Bergeron S, Binik YM, Khalife S, et al. A randomized comparison of group cognitive--behavioral therapy, surface electromyographic biofeedback, and vestibulectomy in the treatment of dyspareunia resulting from vulvar vestibulitis. *Pain*. Apr 2001; 91(3): 297-306. PMID 11275387
46. Qaseem A, Wilt TJ, McLean RM, et al. Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians. *Ann Intern Med*. Apr 04 2017; 166(7): 514-530. PMID 28192789
47. Hegmann KT, Travis R, Andersson GBJ, et al. Non-Invasive and Minimally Invasive Management of Low Back Disorders. *J Occup Environ Med*. Mar 2020; 62(3): e111-e138. PMID 31977923
48. Benzon HT, Connis RT, De Leon-Casasola OA, et al. Practice guidelines for chronic pain management: an updated report by the American Society of Anesthesiologists Task Force on Chronic Pain Management and the American Society of Regional Anesthesia and Pain Medicine. *Anesthesiology*. Apr 2010; 112(4): 810-33. PMID 20124882
49. Pangarkar SS, Kang DG, Sandbrink F, et al. VA/DoD Clinical Practice Guideline: Diagnosis and Treatment of Low Back Pain. *J Gen Intern Med*. Nov 2019; 34(11): 2620-2629. PMID 31529375
50. Kreiner DS, Matz P, Bono CM, et al. Guideline summary review: an evidence-based clinical guideline for the diagnosis and treatment of low back pain. *Spine J*. Jul 2020; 20(7): 998-1024. PMID 32333996
51. Centers for Medicare & Medicaid Services. National Coverage Determination (NCD) for Biofeedback Therapy (30.1). n.d.; <https://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=41&ncdver=1&bc=AAAAQAAAAAA&>. Accessed October 2, 2021.