Biofeedback and Neurofeedback

Policy Number: PG0094
Last Review: 06/01/2021

GUIDELINES

- This policy does not certify benefits or authorization of benefits, which is designated by each individual policyholder terms, conditions, exclusions and limitations contract. It does not constitute a contract or guarantee regarding coverage or reimbursement/payment. Self-Insured group specific policy will supersede this general policy when group supplementary plan document or individual plan decision directs otherwise.
- Paramount applies coding edits to all medical claims through coding logic software to evaluate the accuracy and adherence to accepted national standards.
- This medical policy is solely for guiding medical necessity and explaining correct procedure reporting used to assist in making coverage decisions and administering benefits.

SCOPE

X Professional
X Facility

DESCRIPTION

Biofeedback is a therapeutic process that electronically monitors the body's physiological functions, such as breathing, heart rate, blood pressure, skin temperature, salivation, peripheral vasomotor activity and muscle tension, which are fed back to the individual by means of sounds, lights or electronic devices. Biofeedback is a process that teaches individuals to voluntary control their own autonomic and neuromuscular functions. It emphasizes relaxation and stress-reducing techniques. Most proponents believe that by using these techniques, individuals can learn to control a variety of physiological responses formerly thought to be completely involuntary and thereby, help manage anxiety and pain commonly associated with stress reactions. Biofeedback is considered an alternative medicine technique.

There are several different types of biofeedback. The three most commonly used forms of biofeedback therapy are electromyography (EMG), thermal biofeedback, and neurofeedback or electroencephalography (EEG). Various forms of biofeedback appear to be effective for a narrow range of health problems. The biofeedback modality selected for therapy depends on the condition to be treated.

1. EMG biofeedback measures muscle tension and is proposed for the treatment of chronic muscle stiffness, injury and pain (e.g., neck and back pain); headaches, asthma, incontinence; and intestinal symptoms.
2. Thermal or temperature biofeedback measures skin temperature and is proposed for the treatment of circulatory disorders, such as headaches, hypertension, and Raynaud's phenomenon.
3. Galvanic skin response (GSR) biofeedback, also called electrodermal response (EDR), electro dermal activity (EDA), skin conductance response (SCR) or skin conductance level (SCL) biofeedback, measures electrical conductance in the skin associated with sweat gland activity and perspiration. GSR is proposed for the treatment of anxiety disorders and phobias.
4. Neurofeedback, also called electroencephalogram (EEG) biofeedback, brainwave biofeedback or neurotherapy, describes techniques for providing real-time feedback about neuronal activity/physical signs, as measured by electroencephalogram biofeedback, functional magnetic resonance imaging, or near-infrared spectroscopy, to teach members to self-regulate physiologic functions and mental states. Neurofeedback measures alpha (associated with relaxation and meditation) and theta (associated with focused attention) brainwave activity. Neurofeedback may use several techniques in an attempt to normalize unusual patterns of brain function in members with various psychiatric and central nervous system disorders, i.e. autism spectrum disorder, insomnia and sleep disorders, learning disabilities, Tourette syndrome, traumatic brain injury, seizure disorders, premenstrual dysphoric disorder, menopausal hot flashes, depression, stress management, panic disorders — 06/01/2021
and anxiety disorders, posttraumatic stress disorder, substance abuse disorders, eating disorders, migraine headaches, stroke, Parkinson disease, bromyalgia, tinnitus, and attention-deficit/hyperactivity disorder.

Neurofeedback differs from established forms of biofeedback in that the information fed back to the member (via EEG tracings, functional magnetic resonance imaging, near infrared spectroscopy) is a direct measure of global neuronal activity, or brain state, compared with feedback of the centrally regulated physiologic processes, such as tension of specific muscle groups or skin temperature. However, the evidence in the published peer-reviewed scientific literature does not support the efficacy of EEG biofeedback.

Although there are numerous biofeedback devices available for home use, biofeedback should be performed by a trained professional in a clinical setting. Examples of home devices include: StressEraser® (Helicor, Inc., New York, NY) for mind and body relaxation; BrainMaster (BrainMaster Technologies, Inc., Oakwood Village, OH) EEG biofeedback devices; GSR/Temp2X™ (Biofeedback Instrument Corp., New York, NY) temperature biofeedback system; and RESPeRate (Intercure Ltd., Lod, Israel) which uses therapeutic paced breathing to lower blood pressure. Although devices used during neurofeedback may be subject to FDA regulation, and approved by the FDA, the process of neurofeedback itself is a procedure, and, therefore, not subject to FDA approval.

The evidence in the published peer-reviewed scientific literature and professional societies support the safety and efficacy of biofeedback for the treatment of constipation, and the treatment of stress, urge, mixed and overflow urinary incontinence. The evidence in the published peer-reviewed scientific literature does not support the therapeutic effectiveness of biofeedback for any other indication due to the small number of clinical trials and/or small heterogeneous member populations, short-term follow-ups, lack of documentation of sustained benefits and lack of a comparison to established therapeutic modalities. In most cases, member selection criteria for biofeedback have not been established.

Biofeedback therapy differs from electromyography, which is a diagnostic procedure used to record and study the electrical properties of skeletal muscle. An electromyography device may be used to provide feedback with certain types of biofeedback.

**POLICY**

<table>
<thead>
<tr>
<th>HMO, PPO, Individual Marketplace, Elite/ProMedica Medicare Plan</th>
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<tbody>
<tr>
<td><em>Individual psychophysiological therapy incorporating biofeedback training (90875 and 90876) does not require prior authorization, however, must meet medically indicated criteria as listed below.</em></td>
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<tr>
<td><em>Biofeedback (90901, 90912 and 90913) does not require prior authorization, however, must meet medically indicated criteria as listed below.</em></td>
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**Advantage**

| Individual psychophysiological therapy incorporating biofeedback training (90875 and 90876) does not require prior authorization, however, must meet medically indicated criteria as listed below. |
| Biofeedback (90901, 90912, 90913) is non-covered |

**HMO, PPO, Individual Marketplace, Elite/ProMedica Medicare Plan, Advantage**

Neurofeedback, also known as electroencephalogram (EEG) biofeedback & In-home biofeedback devices (E0746) are non-covered for all product lines. There is insufficient evidence to support the use of Neurofeedback as a treatment for behavioral health or medical indications.

**COVERAGE CRITERIA**

Any services for biofeedback that are considered primarily educational or training in nature are generally NOT covered under many benefit Plans. Biofeedback may be excluded by contract as alternative medicine. Please consult the member’s individual contract regarding Plan coverage.

| HMO, PPO, Individual Marketplace, Elite/ProMedica Medicare Plan, Advantage |
| Biofeedback is considered reasonable and medically necessary for the following: |
• Muscle re-education of specific muscle groups
• Treatment of pathological (disease-based) muscle abnormalities of spasticity
• Incapacitating muscle spasm or weakness when more conventional treatments (e.g., heat, cold, massage, exercise, support) have not been successful
• The treatment of fecal incontinence related to constipation when the underlying cause is determined to be an ineffective anal sphincter squeeze function
• Levator ani syndrome, also known as anorectal pain syndrome
• The treatment of stress and/or urge incontinence
• The treatment of persistent post-prostatectomy urinary incontinence when more conventional treatments (e.g., pharmacology, timed voiding, pelvic muscle exercises) have not been successful
• Cancer pain
• Chronic back pain as part of a rehabilitation program
• Migraine or tension headaches (muscle (EMG), skin or thermal biofeedback; EEG biofeedback is considered experimental and investigational for this indication because its effectiveness for this indication has not been established)

All members selected for biofeedback training must have the ability to understand analog or digital signals using auditory or visual display. If the member is a child, support and guidance must be available. In addition, these members must be self-motivated to learn voluntary control through the observation of biofeedback and perform their personalized home exercise prescription usually on a daily basis.

Rectal incontinence:
Biofeedback for the treatment of rectal incontinence related to dyssynergia-type constipation in adults may be considered medically necessary as demonstrated by meeting ALL of the following indications:
• Anorectal testing should not be done until a thorough history and appropriate physical examination has been performed, medications that can cause constipation are discontinued, constipation secondary to other diseases has been excluded and there has been a trial of fiber and/or other laxatives; and
  o Anorectal Manometry is a diagnostic test that measures the anal sphincter pressures and provides an assessment of rectal sensation, rectoanal reflexes, and rectal compliance, thus measuring the weakness of the external anal sphincter.
  o Electromyography studies (EMG) of the anal or urethral sphincter is a diagnostic test that measures muscle activity and that is used to assist in evaluating fecal or urinary incontinence, dysfunctional elimination of bowel and bladder and neurogenic bladder dysfunction leading to functional abnormalities of the muscular sphincter.
• When pelvic floor retraining or biofeedback is being considered, the patient should be capable of participating in the therapy, physically and intellectually; and
• Symptoms of functional constipation that meet Rome IV criteria; and
  o Rome IV diagnostic criteria (fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis) for functional constipation include:
    ▪ Must include TWO or more of the following
    ▪ Loose stools are rarely present without the use of laxatives;
    ▪ Insufficient criteria for irritable bowel syndrome.
    ▪ Straining during more than one-fourth (25%) of defecations,
    ▪ Lumpy or hard stools (Bristol Stool Funn Scale 1-2) more than one-fourth (25%) of defecations,
    ▪ Sensation of incomplete evacuation more than one-fourth (25%) of defecations,
    ▪ Sensation of anorectal obstruction/blockage more than one-fourth (25%) of defecations,
    ▪ Manual maneuvers to facilitate more than one-fourth (25%) of defecations (e.g., digital evacuation, support of the pelvic floor),
    ▪ Fewer than three spontaneous bowel movements per week
• Objective physiologic evidence of pelvic floor dyssynergia demonstrated by inappropriate contraction of the pelvic floor muscles or less than 20% relaxation of basal resting sphincter pressure by manometry, imaging or electromyography (EMG); and
• Failed a 3-month trial of standard treatments for constipation including laxatives, dietary changes, and exercises (as many of the previous as are tolerated).
Biofeedback is considered experimental, investigational and/or unproven as a treatment of constipation/fecal incontinence in adults and children in all other situations, as there is insufficient evidence to support a conclusion concerning the health outcomes or benefits associated with this procedure, including but not limited to:

- Isolated internal anal sphincter weakness
- Overflow incontinence associated with behavioral or psychiatric disorders
- Neurological disorders associated with substantial loss of rectal sensation and/or the inability to contract the external anal sphincter
- Decreased rectal storage capacity from resection, inflammation, or fibrosis
- Suspected or established major structural damage to continence mechanisms
- Chronic constipation in members with organic neuromuscular impairment who have difficulty with outlet obstruction

**Stress, urgency, mixed, or overflow urinary incontinence:**
Biofeedback for the treatment of stress and/or urge urinary incontinence may be considered medically necessary as demonstrated by meeting the following indications:

- Cognitively intact adult members when documentation supports a previously failed trial of pelvic muscle exercise (PME) training. A failed trial is observed when no significant clinical improvement in urinary incontinence is noted after completing four weeks of a physician plan of pelvic muscle exercises to increase periurethral muscle strength.
- For children with daytime urinary dysfunction when the child meets the following criteria:
  - Ages four years or older
  - Neurologic, anatomic, infectious or functional causes have been ruled out
  - Other alternative options have been unsuccessful, e.g., timed voiding, prophylactic antibacterial therapy for recurrent urinary tract infections, short term anticholinergic medications to assist developing a normal voiding pattern
  - Able to comprehend and follow verbal instructions

Documentation in the member's medical record for biofeedback training for the treatment of stress, urge, or persistent post-prostatectomy urinary incontinence must support medical necessity and must provide a clear history of conventional treatments unsuccessfully tried before the initiation of biofeedback (e.g., pharmacology; lifestyle changes, such as weight loss, dietary changes, smoking cessation; behavioral modification training, such as bladder training, scheduled or prompted voiding, fluid intake modification; heat, cold, or massage). In addition, documentation must show evidence that the member has failed a 4-week prescribed trial of pelvic muscle exercises (e.g., Kegel's exercise) to increase periurethral muscle strength, which resulted in no clinically significant improvement in urinary incontinence prior to starting biofeedback. This information is usually found in the history and physical, office/progress notes and treatment plan.

**Chronic pain**
Biofeedback for the treatment for chronic pain may be considered medically necessary as part of a rehabilitation program. The purpose of electromyography (EMG) biofeedback in patients who have chronic pain is to provide a treatment option that is an alternative to or an improvement on existing therapies.

**Muscle re-education**
Biofeedback be considered medically necessary for muscle re-education of specific muscle groups or for treating pathological muscle abnormalities of spasticity, incapacitating muscle spasm (including pain due to spasm), or weakness when more conventional treatments (heat, cold, massage, exercise, support) have not been successful. Biofeedback is not covered for treatment of ordinary muscle tension states or for psychosomatic conditions.

**Migraine and tension headaches:**
Thermal biofeedback combined with relaxation training or electromyography (EMG) biofeedback may be considered medically necessary as treatment options in management of tension-type and migraine headaches. In general, electromyographic biofeedback is used to treat tension headaches. With this procedure, electrodes are attached to the temporal muscles, and the patient attempts to reduce muscle tension. Feedback on achievement of a decrease in muscle tension is provided to the subject, reinforcing those activities (behaviors or thoughts) that are
effective. Thermal biofeedback is a commonly employed technique for migraine headache, in which patients learn to increase the temperature of their fingertips through the use of imagery and relaxation. In this technique, a temperature sensor is placed on the finger, and the subject is taught to increase peripheral vasodilation by providing feedback on skin temperature, an effect that is mediated through sympathetic activity. The combination of thermal biofeedback and relaxation training has also been used to improve migraine symptoms. Biofeedback for the treatment of cluster headache is investigational.

Before a biofeedback program for management of tension-type and migraine headaches is introduced, a physician must determine that the headaches are not pathological in nature. Such pathologies include:

- Brain tumors; or
- Hematoma; or
- Edema; or
- Aneurysm; or
- Disease of the eyes, ears, or sinus

Coverage for biofeedback management of tension-type and migraine headaches typically indications required no more than 20 office-based sessions. Requests for additional sessions are subject to medical necessity review.

The physician and/or the non-physician practitioner (NPP) must provide direct supervision during biofeedback training when the service is rendered in the physician’s office. Direct supervision in the office setting does not mean that the physician must be present in the same room with his or her aide. However, the physician must be present in the office suite and immediately available to provide assistance and direction throughout the time the aide is performing services.

Documentation maintained by the performing provider must support that the indication for biofeedback training is reasonable and necessary and that more conventional treatments have not been successful (e.g., heat, cold, massage, exercise, support).

- Biofeedback therapy must be ordered by the member’s attending provider
- A written treatment plan must include the specific diagnosis/conditions to be treated, long and short term goals and measurable objectives and the time frame and the frequency of treatment in which the goals and objectives will be achieved

The documentation maintained by the performing provider should be legible and must be made available upon request.

Biofeedback is non-covered for all other indications including, but not limited-to:

- Addictions
- Allergy
- Anger management
- Anterior shoulder instability or pain
- Anxiety disorders
- As a rehabilitation modality for spasmodic torticollis, spinal cord injury, or following knee surgeries
- Attention deficit hyperactivity disorder (ADHD)
- Autism
- Balance training (with tongue-placed electrotactile biofeedback or visual interactive biofeedback)
- Bell's palsy (idiopathic facial paralysis)
- Cardiovascular diseases (e.g., heart failure)
- Childhood apraxia of speech
- Chronic abacterial prostatitis
- Chronic fatigue syndrome
- Chronic pain (e.g., back pain, fibromyalgia, neck pain) other than migraine and tension headache
- Cleft palate speech (nasopharyngoscopic biofeedback)
- Daytime syndrome of urinary frequency
- Depression
- Diabetes
- Epilepsy
• Facial pain
• Functional dysphonia
• Home biofeedback (for any indication)
• Hypertension (e.g. RESPeRATE Device)
• Improvement of anorectal/bowel functions after sphincter-saving surgery for rectal cancer
• Insomnia
• Labor pain
• Neurogenic bladder
• Non-neuropathic voiding disorders
• Ordinary muscle tension states
• Pain associated with multiple sclerosis
• Panic disorders (e.g., FreeSpira breathing system)
• Pelvic floor dysfunction
• Peripheral arterial disease (e.g., intermittent claudication)
• Pre-term labor
• Prophylaxis of medication overuse headache and pediatric migraine
• Post-trauma stress disorder
• Psychosis
• Psychosomatic conditions
• Raynaud's disease/phenomenon
• Rehabilitation modality for spasmodic torticollis, spinal cord injury, or following knee surgeries
• Sleep bruxism
• Spasticity secondary to cerebral palsy
• Toe-out gait modification/retraining in people with knee osteoarthritis
• Tourette’s syndrome
• Treatment of food/substance craving
• Tremor
• Type 2 diabetes
• Urinary retention
• Vaginal tear
• Vaginismus
• Vertigo/disequilibrium
• Visual disorders
• Vulvodynia

Biofeedback training will not be covered for mechanical urinary incontinence, psychosomatic conditions, or functional urinary incontinence, as these types of urinary incontinence are not amenable to biofeedback training.

Biofeedback training is not covered as a Behavioral Health intervention.

Neurofeedback is considered investigational and not medically necessary for all conditions including, but not limited to:

• Anxiety
• Asperger syndrome
• Asthma
• Attention-deficit hyperactivity disorder
• Autistic spectrum disorders
• Cardiovascular conditions
• Cigarette cravings
• Cluster headaches
• Cognitive impairment
• Depression
• Epilepsy
• Fibromyalgia
• Headache
• Insomnia and sleep disorders
• Obsessive-compulsive disorder
• Overweight and obesity
• Post-traumatic stress disorder
• Primary headaches
• Schizophrenia
• Substance use disorders
• Traumatic brain injury

The use of home biofeedback devices is considered not medically necessary and not covered for all conditions. As they are considered experimental, investigational or unproven and are non-covered:
• In-home biofeedback devices (E0746)

This policy applies to biofeedback therapy rendered by a practitioner in an office or other facility setting. Home use of biofeedback therapy is not covered. Biofeedback training in a group setting is not covered.

CODING/BILLING INFORMATION
The inclusion or exclusion of a code in this section does not necessarily indicate coverage. Codes referenced in this clinical policy are for informational purposes only. Codes that are covered may have selection criteria that must be met. Payment for supplies may be included in payment for other services rendered.

<table>
<thead>
<tr>
<th>CPT CODES</th>
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<tr>
<td>90875</td>
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<td>90901</td>
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Neurofeedback is specific to electroencephalogram (EEG) biofeedback. There is no specific CPT code for neurofeedback. Procedures 90875, 90876 and 90901 are used to describe neurofeedback.

HCPCS CODE
E0746 Electromyography (EMG), biofeedback device

ICD-10-CM CODES
G04.1 Tropical spastic paraplegia
G35 Multiple sclerosis
G43.001-G43.919 Migraine
G44.201-G44.229 Tension type headache
G81.00-G81.94 Flaccid hemiplegia affecting unspecified side - Hemiplegia, unspecified affecting left nondominant side
G82.20-G82.22 Paraplegia, unspecified - Paraplegia, incomplete
G82.50 - G82.54 Quadriplegia, unspecified - Quadriplegia, C5-C7 incomplete
G83.0 Diplegia of upper limbs
G83.10 - G83.34 Monoplegia of lower limb affecting unspecified side - Monoplegia, unspecified affecting left nondominant side
G83.4 Cauda equina syndrome
G89.3 Neoplasm related pain
I67.89 Other cerebrovascular disease
K59.00 - K59.09 Constipation, unspecified - Other constipation
K59.4 Anal spasm
M25.78 Osteophyte, vertebrae
M47.011 - M47.9 Anterior spinal artery compression syndromes, occipito-atlanto-axial region - Spondylosis, unspecified
M48.10 - M48.9 Ankylosing hyperostosis [Forestier], site unspecified - Spondylopathy, unspecified
M62.40 - M62.49 Contracture of muscle, unspecified site - Contracture of muscle, multiple sites
M62.81 Muscle weakness (generalized)
M62.830 - M62.838 Muscle spasm of back - Other muscle spasm
N31.2 Flaccid neuropathic bladder, not elsewhere classified
N31.9 Neuromuscular dysfunction of bladder, unspecified
N36.42 Intrinsic sphincter deficiency (ISD)
N36.43 Combined hypermobility of urethra and intrinsic sphincter deficiency
N36.44 Muscular disorders of urethra
N39.3 Stress incontinence (female) (male)
N39.41 Urge incontinence
N39.42 Incontinence without sensory awareness
N39.43 Post-void dribbling
N39.44 Nocturnal enuresis
N39.45 Continuous leakage
N39.46 Mixed incontinence
N39.490 Overflow incontinence
R15.0 - R15.9 Incomplete defecation - Full incontinence of feces
R32 Unspecified urinary incontinence
R33.0 Drug induced retention of urine
R33.8 Other retention of urine
R33.9 Retention of urine, unspecified
R35.0 Frequency of micturition
R39.14 Feeling of incomplete bladder emptying
R39.15 Urgency of urination
R39.191 Need to immediately re-void

Paramount reserves the right to review and revise our policies periodically when necessary. When there is an update, we will publish the most current policy to https://www.paramounthealthcare.com/services/providers/medical-policies/.

REVISION HISTORY EXPLANATION
ORIGINAL EFFECTIVE DATE: 08/01/2006

<table>
<thead>
<tr>
<th>Date</th>
<th>Explanation &amp; Changes</th>
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<tr>
<td>09/11/12</td>
<td>• Per the Medical Policy Steering Committee, procedure 90911 will be covered for all members when medically necessary without prior authorization</td>
</tr>
<tr>
<td>01/14/14</td>
<td>• Removed CPT codes 51784-51785, 97110, 97112, 97530 &amp; 97535</td>
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<td>• ICD-10 Codes added from ICD-9 conversion</td>
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<td>Date</td>
<td>Updates</td>
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<tr>
<td>07/11/17</td>
<td>- Policy reviewed and updated to reflect most current clinical evidence</td>
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<td>- Approved by Medical Policy Steering Committee as revised</td>
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<tr>
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<td>- Changed name from Anorectal Biofeedback to Biofeedback</td>
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<tr>
<td></td>
<td>- Added code 90901 as covered for HMO, PPO, Individual Marketplace, Elite per CMS guidelines, and non-covered for Advantage per ODM guidelines</td>
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<tr>
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<td>- Added code E0746 as non-covered for all product lines</td>
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<tr>
<td></td>
<td>- Removed ICD-9 codes &amp; added many ICD-10 codes per CMS guidelines</td>
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<tr>
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<td>- Policy reviewed and updated to reflect most current clinical evidence per Medical Policy Steering Committee</td>
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<tr>
<td>12/14/2020</td>
<td>- Medical policy placed on the new Paramount Medical policy format</td>
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<tr>
<td>06/01/2021</td>
<td>- Changed Medical Policy name from Biofeedback to Biofeedback and Neurofeedback</td>
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<tr>
<td></td>
<td>- Removed deleted CPT code 90911</td>
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<tr>
<td></td>
<td>- Added new CPT codes 90912 and 90913</td>
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**REFERENCES/RESOURCES**

Centers for Medicare and Medicaid Services, CMS Manual System and other CMS publications and services

Ohio Department of Medicaid


Centers for Medicare and Medicaid Services, Healthcare Common Procedure Coding System, HCPCS Release and Code Sets


Industry Standard Review

Hayes, Inc.

Industry Standard Review