

### Preamble

In accordance with the bylaws of the International Society for Neuroregulation and Research (ISNR), membership requires individuals to consistently maintain standards of professional conduct and pursue practice at the highest level of professional ethics, which include values of competence, fairness, honesty, integrity, objectivity, promotion of intellectual freedom through open discussion of theories and factual findings, and respect and trustworthiness in dealing with others.

These professional standards and ethical principles are to be practiced by ISNR members as well as individuals employed by ISNR, operating under its auspices, receiving grant/aid funds administered by ISNR, and volunteers and representatives who speak or act as agents for ISNR or its publications.

Because ISNR and its members are committed to the protection of human rights, they strive to maintain the dignity, worth, and autonomy of the individual while rendering service, conducting research, and teaching others. They operate within the ISNR Professional Standards and Ethical Principles (PSEP). They strive to provide the highest quality of service and carefully differentiate between empirically validated and experimental procedures. They hold themselves responsible for their actions and make every effort to protect their clients' welfare. Finally, they limit their services to those areas in which they have expertise and exemplify the values of competence, objectivity, freedom of inquiry, and honest communication.

The PSEP is intended to guide all ISNR members who, by applying for membership, have committed themselves to adhere to these Principles as well as to the Principles stated in their licensing act. A copy of the PSEP will be provided to all ISNR membership applicants and will be available on the ISNR website. The PSEP is intended to educate and guide professionals who utilize various neuroregulation training techniques such as neurofeedback training (NFT), biofeedback training (BFT) and neuromodulation training (NMT) to prevent ethical misconduct and the PSEP should be applied with professional maturity.

This definition of neuroregulation was ratified by the ISNR Board of Directors on August 9, 2020.

### Neuroregulation

Neuroregulation is process by which the neuronal mechanisms self-regulate (either instinctively or through a learned response) with the purpose to adjust the bodily activities according to the needs of the organism and the environmental changes. Neuroregulation modulates the structural, functional, and biochemical properties of the cells and organs. The neuroregulation mechanism is responsible for the initiation,

cessation, intensification, and weakening of activities of the cells and organs. Neuroregulation techniques may include NFT, BFT, or as a consequence of NMT techniques.

### Neurofeedback

Like other forms of BFT (see below), neurofeedback training, or NFT, is a self-regulation technique that uses monitoring devices to provide moment-to-moment information to individuals on the state of their physiological functioning. The characteristic that distinguishes NFT from other biofeedback is a focus on the central nervous system and the brain. NFT has its foundations in basic and applied neuroscience as well as data-based clinical practice. It takes in to account behavioral, cognitive, and subjective aspects as well as brain activity.

NFT is preceded by an objective assessment of brain activity and psychological status. During training, sensors are placed on the scalp and then connected to sensitive electronics and computer software that detect, amplify, and record specific brain activity. Resulting information is fed back to the trainee virtually instantaneously with the conceptual understanding that changes in the feedback signal indicate whether or not the trainee's brain activity is within the designated range. Based on this feedback, various principles of learning, and practitioner guidance, changes in brain patterns occur and are associated with positive changes in physical, emotional, and cognitive states. Often the trainee is not consciously aware of the mechanisms by which such changes are accomplished although people routinely acquire a "felt sense" of these positive changes and often are able to access these states outside the feedback session.

NFT does not involve either surgery or medication and is neither painful nor embarrassing. When provided by a licensed professional with appropriate training, generally trainees do not experience negative side-effects. Typically, trainees find NFT to be an interesting experience. NFT operates at a brain functional level and transcends the need to classify using existing diagnostic categories. It modulates the brain activity at the level of the neuronal dynamics of excitation, inhibition, and connectivity, which underlie the characteristic effects that are reported. Research demonstrates that neurofeedback is an effective intervention for many mental health and neurological symptoms. Ongoing research is investigating the effectiveness of NFT for other disorders such as Autistic spectrum disorders, headaches, insomnia, anxiety, substance abuse, traumatic brain disorders, and many pain disorders, and is promising.

Being a self-regulation method, NFT differs from other accepted research-consistent neuro-modulatory approaches such as audio-visual entrainment (AVE) and repetitive transcranial magnetic stimulation (rTMS) that provoke an automatic brain response by

presenting a specific signal. Nor is NFT based on deliberate changes in breathing patterns such as respiratory sinus arrhythmia (RSA) that can result in changes in brain waves. At a neuronal level, NFT teaches the brain to modulate excitatory and inhibitory patterns of specific neuronal assemblies and pathways based upon the details of the sensor placement and the feedback algorithms used, thereby increasing flexibility and self-regulation of relaxation and activation patterns.

The International Society for Neuroregulation and Research (see [www.isnr.org](http://www.isnr.org)) is the largest group of licensed professionals involved in the practice, teaching, and research of NFT. Some members of ISNR have sought and received certification by the Biofeedback Certification Institute of America (see [www.bcia.org](http://www.bcia.org)). Members of ISNR subscribe to a code of ethics providing an added measure of accountability to the standards of their profession. Additionally, ISNR is committed to supporting new developments by publishing a professional journal, by producing a well-attended annual conference, and by encouraging large studies of NFT through the ISNR Research Foundation.

This definition was ratified by the ISNR Board of Directors on January 10, 2009 and edited on June 11, 2010.

### Biofeedback

Biofeedback training, or BFT, is a process that enables an individual to learn how to change physiological activity for the purposes of improving health and performance. Precise instruments measure physiological activity such as brainwaves, heart function, breathing, muscle activity, and skin temperature. These instruments rapidly and accurately "feed back" information to the user. The presentation of this information — often in conjunction with changes in thinking, emotions, and behavior — supports desired physiological changes. Over time, these changes can endure without continued use of an instrument.

This definition was ratified by the Task Force on Nomenclature in 2008.

### Neuromodulation

Neuromodulation training, or NMT, is a technology whose goal is to modulate (enhance or suppress) the target neuronal activity by applying a stimulus such as electrical stimulation, chemical agent or other agent. NMT can be defined as "the alteration of nerve activity through targeted delivery of a stimulus, such as electrical stimulation or chemical agents, to specific neurological sites in the body" (INS, 2020) In appropriate patients, this growing class of therapies, in common use since the 1980s, can help restore function or relieve symptoms that have a neurological basis.

NMT devices stimulate nerves—with pharmaceutical agents, electrical signals, or other forms of energy—by modulating abnormal neural pathway behaviour caused by the disease process. NMT approaches range from non-invasive techniques such as transcranial magnetic stimulation to implanted devices, such as a spinal cord stimulation or a deep brain stimulation system (INS, 2020). Common in-office NMT stimulation procedures include transcranial magnetic stimulation (TMS), transcranial direct or alternating current stimulation (tDCS/tACS), pulsed electromagnetic field (pEMF) and photobiomodulation techniques.

### Purpose and Scope

The PSEP consists of guidelines for professional neuroregulation practice. The guidelines are neither exhaustive and nor meant to limit ISNR members' ethical responsibilities. They highlight areas in which ethical concerns often arise. For ISNR members who practice under a state and/or national licensing act, the PSEP is not meant to replace, but to confirm and reinforce, professional ethical guidelines.

1. The PSEP should be followed by ISNR members, applicants, and their staff who help provide neuroregulation training, and related services.
2. ISNR members' ethical conduct is measured by the PSEP, state and/or national licensing acts, and the ethical guidelines of the members' professional membership organizations where applicable.
3. A violation of the PSEP may lead to disciplinary action, which may include loss of membership. In some instances, such as sexual contact with a client, a criminal charge may result from breach of the PSEP and other professional guidelines for ethical practice.

### A. Responsibility

When providing neuroregulation training, ISNR members adhere to the highest standards of their profession. They behave responsibly; accept responsibility for their behavior and its consequences; ensure that neuroregulation training is used appropriately; and strive to educate the public concerning the responsible use of these modalities in treatment, training, and research. ISNR members are responsible for adhering to the ethical principles of their profession; the local, state and national laws relevant to their professional activities; and the PSEP.

1. As practitioners, ISNR members recognize their obligation to help clients acquire knowledge and skill through training that represents the best professional practice and that is delivered in the most cost-effective manner.
2. ISNR members will require supervisees and trainees to adhere to the PSEP.

3. As teachers, ISNR members are committed to the advancement of knowledge. They encourage the free pursuit of learning by their students and present information objectively, accurately, and completely.
4. ISNR members guard against misuse of their influence since they realize that their professional services impact the lives of their clients and others.
5. ISNR members should only continue neuroregulation training as long as their clients receive benefit. If their clients require an intervention that they are not qualified to provide, they should help them obtain these services and should never abandon them.

### B. Competence

ISNR members recognize the boundaries of their competence and only use those biofeedback and adjunctive techniques in which they have expertise. They also recognize the proper limitations of neuroregulation training and inform all concerned parties about the clinical utility of particular procedures, possible negative effects, and whether the procedures are experimental or clinically verified. ISNR members maintain current knowledge of relevant basic and applied neuroregulation research.

1. ISNR members should operate within the guidelines of applicable local, state, and national laws as well as in accordance with the ethical principles of their profession.
2. ISNR members who treat medical or psychological conditions must demonstrate professional competence and relevant licensure as defined by applicable local, state, and national licensing/credentialing laws.
3. ISNR members who are not appropriately licensed or credentialed, and who wish to treat medical or psychological conditions, must acquire appropriate supervision according to applicable state and national laws and professional codes/regulations.
4. ISNR members must accurately describe their qualifications, training, experience, and/or specialty. They must only list degrees in an approved healthcare field earned from a regionally accredited academic institution when applying for ISNR membership. When ISNR members promote their practice in advertisements, business cards, directories, websites, and similar professional publications, that listing cannot include an unaccredited degree nor can it list a degree not related to health care.

### C. Ethical Standards

ISNR members are sensitive to prevailing community norms and recognize that the violation of these standards may jeopardize the quality of their services, completion of professional responsibilities, and public trust in biofeedback. They should impart ethical standards of professional conduct through both instruction and example.

1. ISNR members will only charge for services actually provided by them or by those under their legal supervision. In billing third party payers, practitioners will comply with the rules and regulations of the third-party payer, including clearly specifying which services the practitioner provided directly and which were supervised, and providing information regarding their qualifications (e.g., degree, license, and certification).
2. ISNR members will clarify any potential or actual conflict of interest that exists when serving clients, conducting training or research, or when engaged in any other professional activity (such as a workshop in which presenters recommend their own product).
3. ISNR members will obtain written informed consent and a verbal or written summary from clients for all assessment and treatment procedures, billings and fee collections, and procedures to protect confidentiality, as well as conditions that limit confidentiality.
4. ISNR members will obtain written informed consent and a written or verbal summary from clients for all experimental treatment applications.
5. To distinguish experimental and clinically-validated procedures is difficult and requires familiarity with related documents.

### D. Multiculturalism and Diversity

1. ISNR members are encouraged to recognize that, as cultural beings, they may hold attitudes and beliefs that can detrimentally influence their perceptions of and interactions with individuals who are different from themselves ethnically, racially, in sexual orientation, or gender identity.
2. ISNR members are encouraged to recognize the importance of multicultural sensitivity/responsiveness to, knowledge of, and understanding about individuals who are different ethnically, racially, in sexual orientation, or gender identity.
3. As educators, ISNR members are encouraged to employ the constructs of multiculturalism and diversity in education.
4. Culturally sensitive researchers are encouraged to recognize the importance of conducting culture-centered and ethical research among persons from diverse ethnic, linguistic, racial, sexual orientation, or gender identity backgrounds.
5. ISNR members are encouraged to apply culturally appropriate skills in clinical and other biofeedback practices.
6. ISNR members are encouraged to use positive motivational change processes to support culturally informed organizational (policy) development and practices.

7. ISNR members regularly engage in professional reading and education (both online and face to face) on multiculturalism and diversity, keeping up to date on current standards and research.

### E. Public Statements

ISNR members recognize that all public statements, announcements of services and products, advertising, and promotional activities concerned with NFT and BFT should help the public make informed choices. Statements about NFT and BFT must be based on scientifically verifiable information, including recognition of the limits and uncertainties of such data. ISNR members must accurately represent their qualifications, affiliations, and positions, and must not mislead the public.

1. ISNR members shall accurately represent the efficacy of NFT and BFT procedures for all disorders or conditions being treated.
2. ISNR members must use accurate information in statements about NFT and BFT when providing services, marketing a product, and in all other professional activities. They consider the context and source requesting information when making a public statement and guard against misrepresentation.
3. ISNR members recognize that they may have personal interests when they promote NFT and BFT, and agree that these interests must be superseded by professional objectivity, concern for clients' welfare, and the PSEP and the standards of other professional societies to which they belong. When a question arises as to their objectivity, they seek professional guidance from appropriate professional sources like ISNR, BCIA, and their professional associations.
4. Announcements and listing of services and training offered by ISNR members, such as service directory listings, letterheads, business cards, and marketing brochures and websites, should be accurate and designed in a professional manner, and should adhere to the guidelines of their professional associations.

### F. Confidentiality

ISNR members protect the confidentiality of their clients' data. They may only release information with the written consent of the client or the client's legal representative, when nondisclosure would endanger the client or others, or when otherwise required by law.

5. ISNR members specify in advance the legal limits of confidentiality to clients, particularly when collecting fees and complying with mandated reporting laws that concern abuse or neglect. Confidentiality applies to clients in treatment, students in training, and research participants.

6. Client records are stored and destroyed in ways that maintain confidentiality. ISNR members will keep records for the time required by applicable national and state laws.

### G. Protection of Client Rights and Welfare

ISNR members protect the welfare of clients, students, research participants, and other groups with whom they work. They inform all consumers of their rights, provide them with a written statement of these rights, fully inform them as to the purpose and nature of procedures to be implemented, and assure that clients' rights are not abridged.

1. Sexual intimacy with current clients, trainees, supervisees, and research subjects is prohibited. ISNR members should follow the applicable guidelines of state/national law and their professional associations regarding when sexual intimacy is permissible after termination of a professional relationship.
2. Professionals adhere to the highest standards of infection mitigation to protect clients and staff. Practitioners are responsible to learn and follow reasonable disinfection standards applicable to instruments, sensors, and office environments.
3. In attaching sensors, professionals assure that the privacy and rights of the client are protected and respect the feelings and sensitivities of their clients. Caution and common sense are required whenever an applicant or certificant has physical contact with clients. Any physical contact requires the permission of the client. Touching of sensitive body parts, such as breasts or genitals, is not acceptable in neuroregulation practice, with the exception of a medical exam or medical treatment provided by a licensed medical practitioner.
4. Special care is taken to protect the rights of children when providing NFT or BFT, or when conducting research. Wherever possible, ISNR members should seek children's agreement to participate in these activities.
5. ISNR members do not discriminate against or refuse services to anyone on the basis of sex, sexual orientation, gender identity, race, religion, disability, or national origin.
6. ISNR members will ensure client access to all client records and office policy, obtain written informed consent agreements based upon full disclosure of potential risks, benefits, and options, and develop an accessible formal complaint resolution policy.
7. In clinical settings, ISNR members will maintain records of assessment plan, referral, progress, contact notes, consults, and termination in a manner to protect confidentiality.

8. ISNR members will only offer evaluation and intervention services (e.g. QEEG, neuroregulation, etc.) to prospective recipients for whom they judge to be appropriate and within the scope of practice. The judgment is to be based upon signs or symptoms of cognitive, emotional, physical conditions, or behaviors.

### H. Professional Relationships

ISNR members recognize the interdisciplinary nature of their practice and respect the competencies of colleagues in all professions. They strive to act in accordance with the obligations of the organizations with which they and their colleagues are associated.

They:

1. Should only treat medical disorders if clients have first received a medical evaluation and/or are under the care of a physician.
2. Should strive to be objective in their professional judgment of colleagues and to maintain good professional relationships even when opinions differ.
3. Should maintain professional dignity, respect and integrity when discussing the opinions and findings of others.
4. Should avoid multiple relationships with their clients that could impair their professional judgment or increase the risk of exploitation, and must never exploit clients, students, supervisees, employees, research participants, or third-party payers.

### I. Research with Humans and Animals

ISNR members conduct research to advance understanding of human behavior, to improve human health and welfare, and to advance science. They carefully consider alternative research methods and assure that in the conduct of research the welfare of research participants (human and animal) is protected.

All researchers will adhere to state and national regulations and the professional standards of their profession with regard to the conduct of research.

Research involving humans may be subject to regulation by local institutional review boards and to state and/or national regulations.

As authors, ISNR members (1) guarantee the originality of any scholarly papers or presentation, (2) give credit to others for their works, (3) assume responsibility for accuracy and fairness of presented information, (4) use data of others with specific written permission, and (5) disclose any proprietary interests related to professional papers or presentations.

As reviewers of funding proposals or manuscripts submitted for publication, ISNR members consider related information to be confidential and not to be used in any other manner without specific written permission, and excuse themselves from the review process if there is a perceived conflict of interest, including business relationships or ongoing legal disputes.

Animal research may be subject to local institutional animal care and use committees and must comply with state and national policies on the use of animals.

1. The results of research will be released in a manner which accurately reflects research results and only when the findings have satisfied widely-accepted scientific criteria. Any limitations regarding factors such as sampling bias, small samples, and limited follow-up, will be explicitly stated. All descriptive materials distributed regarding clinical practice will be factual and straightforward.
2. The individual researcher is responsible for the establishment and maintenance of acceptable ethical practice in research. The investigator is also responsible for the ethical treatment of research participants by collaborators, assistants, students, and employees, all of whom also incur similar obligations. Information obtained about research participants during the course of an investigation should be confidential. When the possibility exists that others may obtain access to such information, ethical research practice requires that this possibility, together with the plans to protect confidentiality, be explained to the participants as part of the procedure for obtaining informed consent.
3. Ethical practice requires that the investigator inform participants of all features of the research that might be reasonably expected to influence their willingness to participate and to explain all other aspects of the research about which the participant inquires. ISNR members protect participants from physical and psychological discomfort, harm, and danger. If the risk of such consequences exists, investigators are required to inform the participant of that fact, secure informed consent before proceeding, and take all possible measures to minimize distress. A research procedure may not be used if it is likely to cause serious and lasting harm to participants. As participants' risk increases, so does the responsibility of the researcher to protect the research participants. Written informed consent and a verbal and written summary of the research is customary for most kinds of non-survey research (including a signature by the research participant in both cases).
4. The investigator must respect an individual's freedom to decline to participate in research or to discontinue participation at any time. The obligation to protect this freedom requires special vigilance when the investigator has power over the participant. When a prospective participant is a minor, investigators should seek the child's assent.

5. After research data are collected, the investigator must fully debrief participants about the nature of the study.
6. When scientific or human values justify delaying or withholding information, the investigator acquires a special responsibility to assure that the participant is not harmed.

### J. Adherence to Professional Standards

ISNR members should be knowledgeable about efficacious interventions and adhere to the professional standards associated with these techniques.<sup>6</sup>

### K. Additional Standards

ISNR members who hold a state or national license/credential should adhere to the guidelines of the relevant professional licensing act. Additional guidance can be found in the ethical standards of organizations like the American Psychological Association, American Psychiatric Association, the American Nurses Association, the American Physical Therapy Association, the American Medical Association, the American Counseling Association, the National Association of Social Workers, the American Dental Association, the American College of Sports and Rehabilitation, the American Academy of Physical Medicine and Rehabilitation, and their international counterparts.

### L. Ethics Complaint Procedures

Allegations of unethical or unprofessional behavior shall only be accepted in writing from any source with first-hand knowledge. When ISNR receives such a written complaint regarding an ISNR member or applicant, ISNR's Executive Director will record the complaint and will write a letter to the complainant that will describe ISNR's role in ethics cases, direct the complainant to directly discuss the complaint with the provider (certificant or applicant), and if requested by the complainant, identify state and/or national regulatory agencies with jurisdiction. Since ISNR's approach to ethical issues is educational, ISNR will not recommend that complainants contact these agencies, nor will it represent complainants before them.

ISNR will not intervene in complaints about manufacturer or vendor products, services, or sales practices as these issues are the concern of state and national regulatory agencies.

While ISNR encourages members to first discuss ethical concerns with their colleagues, members may directly contact appropriate regulatory agencies. If an agency declares that a complaint lacks merit, is frivolous, or is malicious, ISNR will defer to the agency to discipline the complainant.

The ISNR Board of Directors will periodically review and update the PSEP. Thereafter, ISNR members shall be required to adhere to the revised PSEP. Comment is invited. Individuals desiring more information about the PSEP may contact ISNR.

### M. Related Documents

1. Biofeedback Alliance and Nomenclature Task Force (2008).
2. Hagedorn, D. (2014). Infection risk mitigation for biofeedback providers. *Biofeedback*, 42(3), 93-95.
3. Humane care and use of animals (A 343401) (Federal Regulations).
4. International Neuromodulation society. <https://www.neuromodulation.com/>
5. Neuroregulation. (n.d.) *The Great Soviet Encyclopedia, 3rd Edition*. (1970-1979). Retrieved June 6 2020 from <https://encyclopedia2.thefreedictionary.com/Neuroregulation>
6. ISNR Board of Directors on January 10, 2009 and edited on June 11, 2010.
7. Regulations for the protection of human research subjects (45 CFR46 and 56 FR 28003) (Federal Regulations).
8. Tan, G., Shaffer, F., Lyle, R., & Teo, I. (Eds.). *Evidence-based practice in biofeedback and neurofeedback* (3rd ed.). Wheat Ridge, CO: Association for Applied Psychophysiology and Biofeedback. (2016)

### N. Acknowledgements

*ISNR Professional Standards and Ethical Principles* were developed from the *Ethical Principles, Code of Conduct*, which were adopted by the Board of Directors on March 12, 2002 and the Biofeedback Certification International Alliance (BCIA) Professional Standards and Ethical Principles, which were adopted by its Board of Directors on August 9, 2020.