



Vestibular rehabilitation therapy in Europe: chances and challenges

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Dear Sirs,

Dizziness, vertigo, and balance problems are among the most common complaints in patients and at least 50% of patients out of balance need some form of physical therapy [1]. Besides the excellent evidence that the specific physical maneuvers are effective for treatment in benign paroxysmal positional vertigo (level 1), there is also sufficient evidence that vestibular rehabilitation therapy (VRT) improves outcome in unilateral (level 1) and bilateral (level 1) vestibular hypofunction [2–7]. The principles of treatment go back to the 1940s when Cawthorne and Cooksey first described exercises to improve balance after vestibular injuries [8]. While there is a general agreement that balance training is useful in vestibular disorders, there is insufficient evidence for specific interventions in specific clinical situations, optimal exercise dose, advantages of supervised vs. home-based exercises, and optimal duration of treatment programs [9–12]. Recently, the American Physical Therapy

Association published evidence-based clinical practice guidelines for VRT in peripheral vestibular hypofunction [13]. Further, an ICF core set (ICF = International Classification of Functioning, Disability and Health) was set up by an international group to improve the meaningfulness of outcomes for clinical studies in the field [14, 15].

In Europe, the DIZZYNET, an international initiative for translational research in vertigo and balance disorders, recognized vestibular rehabilitation as one of the core fields of action for the network. In the 2018 meeting of the DIZZYNET, the vestibular rehabilitation research group identified the following areas that need urgent improvement:

- *Qualification of care provider* (physical therapists and specialized physicians) seems to be extremely heterogeneous across Europe. There are major differences in the curricula on the topic for graduate and postgraduate education. This holds true concerning diagnostics and treatment of balance disorders, but also with respect to qualification for planning and running of high-quality clinical research.

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- *Standards of treatment* do not exist in most countries. In many places evidence-based treatment depends on the activity of single therapists and clinicians interested in vertigo and balance disorders. The general use of evidence-based treatment options is not mandatory in most countries due to the heterogeneity of qualification. Further, treatment offered often depends on the focus and diagnostic spectrum of local care providers (e.g., overdiagnosis of cervical vertigo in some centers).
- *Clinical studies of high quality* (multicentre randomized controlled trials) are not run across Europe, because of a lack of knowledge on the structures of vestibular rehabilitation therapy in different countries. In general, there is a lack of knowledge about the situation in different European countries.

To overcome the shortcomings the group initiated the following:

- *A web-based survey* on clinical practice and research on vestibular rehabilitation in Europe was set up to learn about qualification and treatment standards of physicians and therapists involved in VRT. The survey will be distributed by local representatives as soon as all formal prerequisites are obtained (ethics, data protection). In addition to the English version, there will be translations to different European languages to ensure that all relevant care providers can be reached.
- *European treatment guidelines* and standards for training programs are developed on the basis of the results of the survey and on the basis of different national initiatives. The training program for physicians and therapists will be provided during annual clinical meetings and conferences on vertigo and dizziness in the different countries (such as during the annual Vertigo Symposium and Vertigo Master-Class in Munich, Germany; www.klinikum.uni-muenchen.de/Deutsches-Schwindelzentrum-IFB-LMU/de/Veranstaltungscontainer/index.html).
- *A rehabilitation network for clinical studies* will be established. Currently, qualified researcher from different countries are identified and invited to participate in the network.

The Vestibular Rehabilitation Research Group in the European DIZZYNET aims to overcome the restrictions described by joining forces and improvement of networking in the field. Members of the group are active in international research exchange. We are therefore confident of being able to improve education, treatment, and research in a timely manner. Current activities will be updated on the website of the European DIZZYNET (www.klinikum.uni-muenchen.de/European-Dizzynet).

Definition of level 1 evidence: Evidence obtained from high-quality ($\geq 50\%$ critical appraisal score) diagnostic studies, prospective studies, or randomized controlled trials [13].

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Compliance with ethical standards

Conflicts of interest The authors declare that they have no competing interests to report.

Ethical approval This work does not present original experimental data. However, all work related to the paper have been done in accordance with ethical standards (Declaration of Helsinki and later amendments).

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