ABSTRACT: **Purpose:** Treatment for benign paroxysmal positional vertigo (BPPV) may include the use of posttreatment restrictions following repositioning. Evidence from the literature is not settled for the use of posttreatment restrictions. The purpose of this study was to identify the opinions and behaviors of vestibular professionals and analyze recent trends regarding posttreatment restrictions for BPPV. **Method:** An online survey was completed by 180 vestibular professionals in the United States. **Results:** The clinical preference of posttreatment restrictions is related to the respondents’ professional degree. PhD degree holders were less likely than other degree holders to promote the use of posttreatment restrictions. Most respondents instruct patients verbally for behavioral restrictions such as limiting activities, and the effective duration is 24 hr. The severity of symptoms is the most common factor that influences the decision for recommending restrictions. Five general statements found no clear consensus supporting or eliminating posttreatment restrictions for BPPV. **Conclusion:** Similar disconnects were found between supporting research from the literature and professional opinions regarding the continuation of posttreatment restrictions for BPPV. Surveyed respondents still recommend posttreatment restrictions, even in the presence of recent evidence suggesting little benefit from their use. This disconnect in findings may highlight the need for continuing evidence-based practice for vestibular rehabilitation.

**KEY WORDS:** benign paroxysmal positional vertigo, postural restrictions, vestibular rehabilitation
risk of the otoconia reappearing inside the affected canal (De Stefano et al., 2011; Baloh & Kerber, 2011; Casqueiro, Ayala, & Monedero, 2008; Cohen & Kimball, 2004; Ganana, Simas, Ganana, Korn, & Dorigeuto, 2005; Gordon & Gadoth, 2004; Korres, Balatsouras, & Ferekidis, 2006; Marciano & Marcelli, 2002; Massoud & Ireland, 1996; McGinnis, Nebbia, Saez, & Rudolph, 2009; Moon, Bae, Kim, Kim, & Cho, 2005; Nuti, Nati, & Passali, 2000; Papacharalampous, Vlastarakos, Kotsis, Davilis, & Manolopoulos, 2012; Roberts, Gans, DeBoodt, & Lister, 2005; Simoceli, Bittar, & Greters, 2005, Toupet, Ferrary, & Bozorg Graveli, 2012). However, a recent randomized study noted that postural restrictions enhance the success of treatment and reduce the recurrence rate of BPPV (Çakır, Ercan, Çakır, & Turgut, 2006). A recent meta-analysis also revealed a statistically significant effect of the use of posttreatment restrictions; however, treatment effectiveness in the posttreatment restrictions group was small (Hunt, Zimmermann, & Hilton, 2012).

Common postural restrictions such as keeping the head in an upright position for 48 hr, wearing a soft neck collar, and avoiding lying down on the affected side have been included in treatment protocols and clinical guidelines in order to enhance the efficacy of the repositioning maneuvers (Herdman & Tusa, 2002; Herdman, Tusa, Zee, Proctor, & Mattox, 1993; Semont, Freyss, & Vitte, 1988). Indeed, the issue of BPPV postmaneuver restrictions is not yet settled in the literature. In vestibular clinical practice, there may also be different opinions regarding whether or not the use of posttreatment restrictions after BPPV repositioning maneuvers is beneficial to patients with BPPV. Therefore, the purpose of this study was to identify the opinions and behaviors of vestibular professionals and analyze recent trends regarding posttreatment restrictions for BPPV.

METH Od

We developed an online survey questionnaire to analyze the opinions and behaviors of vestibular professionals regarding BPPV treatment, with focused questions dedicated to posttreatment restriction practices and opinions. The survey was conducted using the Qualtrics program (www.qualtrics.com), which is Web survey software that is compliant with the Health Insurance Portability and Accountability Act of 1996 privacy rules (Centers for Medicare and Medicaid Services, 1996).

We sent an invitation e-mail explaining the purpose of the study and a link to the survey to 387 members of the Vestibular Rehabilitation Special Interest Group of the American Physical Therapy Association neurology section and 180 members of the American Balance Society. The members from the society primarily include audiologists and physical therapists with clinical interest and experience in vestibular disorders.

Before initiating the survey, we asked all of the participants to read the consent form and click the agreement. The survey was approved by the institutional review board of the University of Nebraska–Lincoln (#20130113202EX). A reminder e-mail was sent after 2 weeks, and the survey remained open for 5 weeks.

The original survey contained a total of 17 items, including questions dedicated to participants’ academic background, work environment, and patient population demographics. Three demographic questions and six questions focusing on the general trends and types of posttreatment restrictions were included in the final data analysis. Eight items that were not closely related to the purpose of the study were excluded from the data analysis. The analyzed items also included Likert-scale questions pertaining to the strength or disagreement of general statements of posttreatment restrictions that were developed based on the work of Sanger, Friedli, Brunken, Snow, and Ritzman (2012). The survey questions (total of 9 items) are provided in the Appendix.

We used descriptive statistics including frequencies and percentages to quantify the survey responses. We also assessed different preferences regarding posttreatment restrictions between groups using Pearson chi-square (\(\chi^2\)) analysis. The significance level was set to \(p < 0.05\). All statistical analyses were performed using SPSS software.

RESULTS

We sent out a total of 567 invitation e-mails linked to the online survey; we received 203 responses (35.8%). Of these responses, 180 participants completed the nine survey questions used in the data analysis, resulting in a completion rate of 89%. Demographic information from participants regarding terminal degree, work setting, and percentage of patients diagnosed with BPPV overall in the work setting is provided in Table 1. Among participants who completed the demographic questions (\(n = 180\), 28 (16%) were individuals with a bachelor’s degree (e.g., having certifications in physical therapy or in clinical graduate programs); 34 (19%) were master’s degree holders such as Master of Science
Participants with a PhD degree in this study also was likely involved in clinical activities. Further data analysis showed that 50\% of the PhD-degree holders in this study have identified BPPV (11\%–30\%) in the work setting.

Different categories regarding clinical decisions about posttreatment restrictions emerged from the survey responses: 45\% of the respondents (n = 81) always recommended posttreatment restrictions to their patients with BPPV, 33\% (n = 59) sometimes recommended restrictions, and only 22\% (n = 40) did not recommend posttreatment restrictions.

In terms of assessing the relationship among the three different categories of clinical decisions regarding posttreatment restrictions and terminal degree of the respondents, there was a relationship between the variables, \( \chi^2(12) = 21.120, p = 0.049 \). Based on this finding, the type of degree holders that recommended posttreatment restrictions was further investigated. We regrouped the data by professional degree and clinical decision category regarding posttreatment restrictions and analyzed the relationship between the revised variables.

From a sample of 180 participants shown in Table 2, revised into the different types of professional degree (i.e., bachelor’s, master’s, clinical doctoral, academic doctoral degree), different preferences regarding recommendations (recommendation and no recommendation) for posttreatment restrictions were found. There was a significant relationship between the variables, \( \chi^2(3) = 10.376, p = 0.016 \), suggesting differences in trends of recommending posttreatment restrictions based on terminal-degree categories. Follow-up analyses revealed that academic doctoral–degree (PhD) holders demonstrated different preferences (i.e., no recommendations) regarding posttreatment restrictions than the other groups; bachelor’s degree, \( \chi^2(1) = 5.102, p = 0.0239 \); master’s degree \( \chi^2(1) = 7.18, p = 0.0074 \); and clinical doctoral degree, \( \chi^2(1) = 6.1, p = 0.0135 \). The other pairwise comparisons between the nonacademic doctoral–degree groups (i.e., bachelor’s, master’s, and clinical doctoral degrees) showed that there were no relationships between the variables (\( p > 0.05 \)).

### Table 1. Demographic characteristics of the respondents.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal degree (n = 180)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor (BS, BA)</td>
<td>28</td>
<td>16</td>
</tr>
<tr>
<td>Master (MS, MA, MSPT)</td>
<td>34</td>
<td>19</td>
</tr>
<tr>
<td>Doctoral (AuD)</td>
<td>36</td>
<td>20</td>
</tr>
<tr>
<td>Doctoral (DPT)</td>
<td>47</td>
<td>26</td>
</tr>
<tr>
<td>Doctoral (MD)</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Doctoral (PhD)</td>
<td>32</td>
<td>18</td>
</tr>
<tr>
<td>Work setting (n = 180)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Otorhinolaryngology (ENT) clinic</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Audiology clinic</td>
<td>27</td>
<td>15</td>
</tr>
<tr>
<td>Neurology clinic</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Physical therapy clinic</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td>Outpatient clinic</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Hospital setting</td>
<td>73</td>
<td>41</td>
</tr>
<tr>
<td>Academic setting</td>
<td>21</td>
<td>12</td>
</tr>
<tr>
<td>Others (nursing facility, etc.)</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Percentage of patients diagnosed with BPPV overall in clinic practice (n = 180)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;10%</td>
<td>25</td>
<td>14</td>
</tr>
<tr>
<td>11%–30%</td>
<td>78</td>
<td>43</td>
</tr>
<tr>
<td>31%–50%</td>
<td>44</td>
<td>24</td>
</tr>
<tr>
<td>51%–70%</td>
<td>25</td>
<td>14</td>
</tr>
<tr>
<td>71%–90%</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>&gt;90%</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Note. BS = Bachelor of Science; BA = Bachelor of Arts; MS = Master of Science; MA = Master of Arts; MSPT = Master of Physical Therapy; AuD = Doctorate of Audiology; DPT = Doctorate of Physical Therapy; MD = Doctor of Medicine; PhD = Doctor of Philosophy; ENT = ear, nose, and throat; BPPV = benign paroxysmal positional vertigo.
Overall preferences for the type of posttreatment restrictions for the respondents who recommended restrictions \((n = 81)\) are shown in Figure 1. Almost half of the respondents \((n = 39, 48\%)\) instructed patients verbally for behavioral restrictions such as limiting activities after treatment. Fewer respondents \((n = 31, 38\%)\) indicated providing patients with handout materials regarding head movement restrictions in addition to verbal instructions to limit activities after treatment. The remaining 9% \((n = 8)\) recommended the use of a neck collar or soft towel after BPPV treatment.

Among the 58 respondents who had sometimes recommended restrictions, they recommended posttreatment restrictions when the following factors were observed (Figure 2): older age \((n = 3, 5\%)\), severe degree of symptom \((n = 14, 24\%)\), more than one treatment maneuver performed \((n = 8, 14\%)\), patient’s lifestyle \((n = 8, 14\%)\), patient’s personality \((n = 4, 7\%)\), recurrence of symptom \((n = 7, 12\%)\), all or some of the above \((n = 11, 19\%)\), and other factors such as cognitive ability of understanding repositioning treatment \((n = 4, 7\%)\).

Respondents were further asked about the recommended duration for posttreatment restrictions after BPPV treatment. Postural restrictions for 24–72 hr \((n = 89, 63\%)\) were mostly recommended; less than 24 hr \((n = 43, 30\%)\) and more than 7 days \((n = 5, 4\%)\) were relatively less recommended (Figure 3).

The type of posttreatment restrictions recommended was further explored from the survey responses. The most commonly used restriction was

**Table 2. Preference of posttreatment restrictions by four broad degree categories: bachelor, master, clinical doctoral, and academic doctoral; \(n = 180\).**

<table>
<thead>
<tr>
<th></th>
<th>Bachelor’s ((BS, BA))</th>
<th>Master’s ((MS, MA, MSPT))</th>
<th>Clinical doctoral ((AuD, DPT, MD))</th>
<th>Academic doctoral ((PhD))</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommend</td>
<td>24 (86%)</td>
<td>30 (88%)</td>
<td>70 (81%)</td>
<td>19 (59%)</td>
<td>143</td>
</tr>
<tr>
<td>No recommend</td>
<td>4 (14%)</td>
<td>4 (12%)</td>
<td>16 (19%)</td>
<td>13 (41%)</td>
<td>37</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>34</td>
<td>86</td>
<td>32</td>
<td>180</td>
</tr>
</tbody>
</table>

**Figure 1.** Preferred types of posttreatment restrictions among the respondents who had recommended posttreatment restrictions (responded “Yes”; \(n = 81\)).

**Figure 2.** Type of factors that influence the decision that posttreatment restrictions are sometimes necessary among the respondents who had sometimes recommended posttreatment restrictions (responded “Sometimes”; \(n = 59\)).
limitation of head movements (e.g., patient’s head up, down, or bending over; n = 95, 53%). Approximately half (n = 87, 48%) of the respondents recommended to avoid sleeping on the treated side, and 41% (n = 74) recommended sleeping semireclined with the use of several pillows. Limitation of daily living activities (n = 62, 34%), avoidance of sudden head movements (n = 54, 30%), and staying upright (n = 41, 23%) were also commonly recommended. Table 3 summarizes the types of restrictions that were recommended by the surveyed professionals.

For the last question of the online survey, five subquestions regarding the strength of the agreement or disagreement with general trends of posttreatment restrictions were asked (Table 4). The first question stated that behavioral restrictions are believed to prevent otolithic debris from going back into the semicircular canal (Hunt et al., 2012; Moon et al., 2005). More than half of the respondents agreed (96/180, 53%) with the statement; however, 65/180 (36%) disagreed with the statement. Second, 40% (72/180) of the respondents disagreed and 24% (43/180) strongly disagreed with the statement that posttreatment restrictions should be applied to all BPPV patients. Third, the respondents disagreed (81/180, 45%) and strongly disagreed (30/180, 17%) that patients who followed posttreatment restrictions showed late or no recurrence of BPPV compared with patients who did not receive posttreatment restrictions. Fourth, 44% (79/180) of the respondents disagreed and 33% (59/180) strongly disagreed that a longer duration of posttreatment restrictions would not be associated with the recurrence of BPPV. Fifth, the respondents agreed (82/180, 46%) and strongly agreed (35/180, 19%) that posttreatment restrictions can be a burden on patients (e.g., cost and behavioral limitation) following treatment of BPPV.

**DISCUSSION**

The recent literature suggests that posttreatment restrictions are unnecessary following BPPV (De Stefano et al., 2011; Andre, Moriguti, & Moreno, 2010; Bhattacharyya et al., 2008; Burton, Eby, & Rosenfeld, 2012; Çakir et al., 2006; Casqueiro et al., 2008; Cohen & Kimball, 2004; Fife et al., 2008; Fyrmpas et al., 2009; Ganança et al., 2005; Gordon & Gadoth, 2004; Korres et al., 2006; Marciano & Marcelli, 2002; Masoud & Ireland, 1996; McGinnis et al., 2009; Moon et al., 2005; Mostafa, Youssef, & Hamad, 2013; Nunez, Cass, & Furman, 2000; Nuti et al., 2000; Papacharalampous et al., 2012; Roberts et al., 2005; Simoceli et al., 2005; Toupet et al., 2012). However, a prospective study (Çakır et al., 2006) and a meta-analysis (Hunt et al., 2012) support the recommendation of posttreatment restrictions. Hunt et al. (2012) compared the raw data from multiple studies and found a statistically

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**Table 3.** Types of restrictions recommended by vestibular professionals who indicated “Yes” or “Sometimes” to recommending posttreatment restrictions (n = 140).

<table>
<thead>
<tr>
<th>Response</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keep the head upright (even while sleeping)</td>
<td>33</td>
<td>18</td>
</tr>
<tr>
<td>Keep the head upright (except sleeping)</td>
<td>29</td>
<td>16</td>
</tr>
<tr>
<td>Avoid sleeping on the treated side</td>
<td>87</td>
<td>48</td>
</tr>
<tr>
<td>Sleep in a seated position for 1 or 2 days</td>
<td>21</td>
<td>12</td>
</tr>
<tr>
<td>Hold the head with 45° elevation</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Stays as upright as possible</td>
<td>41</td>
<td>23</td>
</tr>
<tr>
<td>Do not tip the patient’s head up or down or bend it</td>
<td>95</td>
<td>53</td>
</tr>
<tr>
<td>Do not turn right or left</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Avoid sudden head movements</td>
<td>54</td>
<td>30</td>
</tr>
<tr>
<td>Never tilt more than 45% from the vertical</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Do not go to appointments that require the patient to lie down or tilt the head (barber, dentist, chiropractor, etc)</td>
<td>62</td>
<td>34</td>
</tr>
<tr>
<td>Use several pillows to prop the patient (Avoid supine position)</td>
<td>74</td>
<td>41</td>
</tr>
<tr>
<td>Do not take a bath</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>Do not rollover</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Others</td>
<td>12</td>
<td>7</td>
</tr>
</tbody>
</table>
significant effect of posttreatment restrictions; however, treatment efficacy was only slightly improved. According to Hunt et al., the number of patients who need to be treated with postural restrictions in order for one patient to benefit is 10.

The sufficient evidence supporting the recommendation that posttreatment restrictions are unnecessary does not correspond with our survey responses and the general trends of practicing clinicians. When we combined both of the categories yes and sometimes regarding the recommendation of posttreatment restrictions following BPPV, 78% (n = 140) of the respondents indicated recommending posttreatment restrictions to their patients.

Academic-degree holders (i.e., PhD) had far more unfavorable opinions of posttreatment restrictions than did clinical-degree holders (i.e., MS, MA, AuD, DPT). The difference in opinions between the academic- and clinical-degree professionals might suggest a difference in awareness of evidence-based practice. However, there are known barriers to access evidence-based practice in the clinic. Mullen (2005) reported that keeping abreast of scholarly literature comes with some challenges for the following reasons: insufficient time to conduct a review of the literature, cost of continuing education, and limited access to continuing education.

Interestingly, even though the surveyed academic doctoral–degree professionals adopted a fairly negative attitude toward the use of posttreatment restrictions, 59% recommended restrictions to their patients with BPPV. This result shows that half of the academic doctoral–degree professionals support the use of some posttreatment restrictions along with the other professional groups. Thus, the professionals surveyed might believe that posttreatment restrictions such as use of a soft neck collar (André et al., 2010; Casqueiro et al., 2008; Ganaça et al., 2005; Gordon & Gadoth, 2004; Papacharalampous et al., 2012; Roberts et al., 2005), avoidance of sleeping on involved side (Cohen & Kimball, 2004; Frympas et al., 2009; Papacharalampous et al., 2012; Roberts et al., 2005; Simoceli et al., 2005), and limited movement of forward and backward head and body movements (Marciano & Marcelli, 2002; Moon et al., 2005; Papacharalampous et al., 2012; Simoceli et al., 2005) are noninvasive and potentially nonharmful means of eradicating BPPV. However, some chronic neck stiffness has been reported in the literature (De Stefano et al., 2011; Frympas et al., 2009).

Some of the surveyed professionals might also expect a placebo effect of posttreatment restrictions on their patients, which further supports why some recommendations for posttreatment restrictions are still made today. However, based on the Likert-scale responses, the respondents disagreed that posttreatment restrictions should be applied to all patients with BPPV. The following factors might influence the decision to recommend posttreatment restrictions: age of patient, degree of symptoms, number of maneuvers performed, patient’s lifestyle, patient’s personality, recurrence rate, and so on (Figure 2). Although the majority of the respondents are still recommending the use of posttreatment restrictions, the respondents disagreed that the longer the duration of posttreatment restrictions, the less patients show the recurrence rate of BPPV. This finding is also consistent with the recent literature; the length of posttreatment restrictions may negatively affect the quality of life for patients and delay returning to their usual activities of daily living (McGinnis et al., 2009).

### Limitations

This study had some limitations. In the survey, a question regarding work experience in the vestibular

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**Table 4.** The strength of agreement or disagreement pertaining to general statements of posttreatment restrictions.

<table>
<thead>
<tr>
<th>Likert question</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttreatment restrictions prevent otolith debris from going back into the semicircular canal.</td>
<td>12 (7%)</td>
<td>53 (29%)</td>
<td>76 (42%)</td>
<td>20 (11%)</td>
<td>19 (10%)</td>
</tr>
<tr>
<td>Posttreatment restrictions should be applied to all BPPV patients.</td>
<td>43 (24%)</td>
<td>72 (40%)</td>
<td>40 (22%)</td>
<td>16 (9%)</td>
<td>9 (5%)</td>
</tr>
<tr>
<td>Patients who followed posttreatment restrictions show late or no recurrence of BPPV rather than patients who did not.</td>
<td>30 (17%)</td>
<td>81 (45%)</td>
<td>28 (15%)</td>
<td>11 (6%)</td>
<td>30 (17%)</td>
</tr>
<tr>
<td>The longer the duration of posttreatment restrictions, the less patients show the recurrence rate of BPPV.</td>
<td>59 (33%)</td>
<td>79 (44%)</td>
<td>10 (5%)</td>
<td>2 (1%)</td>
<td>30 (17%)</td>
</tr>
<tr>
<td>Posttreatment restrictions can be a burden on patients (e.g., cost, behavioral limitation).</td>
<td>8 (4%)</td>
<td>49 (27%)</td>
<td>82 (45%)</td>
<td>35 (20%)</td>
<td>6 (3%)</td>
</tr>
</tbody>
</table>
rehabilitation field should have been included; thus, lack of work experience might have an unwanted effect on the results. Another limitation was the fact that responses were received only from the members of the American Physical Therapy Association and the American Balance Society, which do not represent overall vestibular professionals.

CONCLUSION

Based on our results, a majority of the surveyed respondents recommended BPPV posttreatment restrictions. This finding is inconsistent with recent literature supporting the omission of behavioral restrictions after BPPV treatment (reviewed in Bhattacharyya et al., 2008; Mostaf et al., 2013). Although the issue of posttreatment restrictions is not yet settled in the literature (Çakir et al., 2006; Hunt et al., 2012), minimal improvement in treatment effectiveness has been noted (Hunt et al., 2012), and in most cases, patients may be treated with Epley treatment alone. It is suggested that vestibular professionals who are serving patients with BPPV be educated on the current scientific literature for improved evidence-based practice and patient-centered care. This study could serve as a future reference for researchers who are examining the general trend and clinical opinions of vestibular professionals regarding posttreatment restrictions of BPPV as well as a reminder for clinicians of the importance of continuing education and evidence-based practice.

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REFERENCES


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APPENDIX. BENIGN PAROXYSMAL POSITIONAL VERTIGO POSTTREATMENT RESTRICTION QUESTIONNAIRE

What is your terminal degree for vestibular disorders?
1. Bachelor (B.S., B.A.)
2. Masters (M.S., M.A.)
3. Master (MSPT)
4. Doctoral (Au.D.)
5. Doctoral (DPT)
6. Doctoral (MD)
7. Doctoral (Ph.D.)
8. Others (please specify):

Where do you work for?
1. Otorhinolaryngology (ENT) clinic
2. Audiology clinic (hearing and vestibular clinic)
3. Neurology clinic
4. Physical therapy clinic
5. Outpatient clinic
6. Hospital setting (Medical center/VA hospital)
7. Academic setting (University clinic/Research center)
8. Others (please specify):

What percentage of your vestibular patients are diagnosed with BPPV?
1. <10%
2. 11%–30%
3. 31%–50%
4. 51%–70%
5. 71%–90%
6. >90%

Do you recommend/prefer having any posttreatment restrictions for vestibular patients diagnosed with BPPV?
1. Yes
2. No
3. Sometimes

(If yes.) What type of head positioning restriction do you recommend?
1. Keep the head upright (even while sleeping)
2. Keep the head upright (except sleeping)
3. Avoid sleeping on the treated side
4. Sleep in a seated position for 1 or 2 days
5. Hold the head with 45 degrees elevation
6. Stay as upright as possible
7. Do not tip the patient’s head up or down or bend
8. Do not turn right or left
9. Avoid sudden head movements
10. Never tilt more than 45% from the vertical
11. Do not go to appointments that require the patient to lie down or tilt the head (barber, dentist, chiropractor, etc)
12. Use several pillows to prop the patient (avoid supine position)
13. Do not take a bath
14. Do not rollover
15. Others (please specify):

(If yes or sometimes.) What types of home restrictions regarding head positioning do you recommend? (Click one or more)
1. Keep the head upright (even while sleeping)
2. Keep the head upright (except sleeping)
3. Avoid sleeping on the treated side
4. Sleep in a seated position for 1 or 2 days
5. Hold the head with 45 degrees elevation
6. Stay as upright as possible
7. Do not tip the patient’s head up or down or bend
8. Do not turn right or left
9. Avoid sudden head movements
10. Never tilt more than 45% from the vertical
11. Do not go to appointments that require the patient to lie down or tilt the head (barber, dentist, chiropractor, etc)
12. Use several pillows to prop the patient (avoid supine position)
13. Do not take a bath
14. Do not rollover
15. Others (please specify):

(If yes or sometimes.) How long do you recommend the patient to follow the restrictions?
1. ≤1 hour
2. 2–3 hours
3. 6 hours
4. 12 hours
5. 24 hours
6. 2–3 days
7. ≥1 week
8. Others (please specify)

(If yes or sometimes.) How long do you recommend the patient to follow the restrictions?
1. ≤1 hour
2. 2–3 hours
3. 6 hours
4. 12 hours
5. 24 hours
6. 2–3 days
7. ≥1 week
8. Others (please specify)

(If sometimes.) What kind of factors influence your decision that posttreatment restrictions are sometimes necessary?
1. Age
2. Degree of symptom
3. The number of maneuver I performed
4. Patient’s lifestyle
5. Patient’s personality
6. Recurrence rate
7. All or some of the above
8. Others (please specify)

Please click the strength of your agreement or disagreement with each question.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>NOT sure</th>
</tr>
</thead>
</table>
1. Posttreatment restrictions prevent otolith debris from going back into the semicircular canal. | □ | □ | □ | □ | □ |
2. Posttreatment restrictions should be applied to all BPPV patients. | □ | □ | □ | □ | □ |
3. Patients who followed posttreatment restrictions show late or no recurrence of BPPV rather than patients who did not. | □ | □ | □ | □ | □ |
4. The longer the duration of posttreatment restrictions, the less patients show the recurrence rate of BPPV. | □ | □ | □ | □ | □ |
5. Posttreatment restrictions can be a burden on patients (e.g., cost, behavioral limitation). | □ | □ | □ | □ | □ |