Comparing Treatment Methods of Vocal Fatigue in Young Adults

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Introduction

People who use their voice frequently in the workplace, e.g. teachers, ministers and salespeople, often experience vocal fatigue. Two methods to effectively treat vocal fatigue are resting the voice (vocal rest) and drinking water (hydration). Existing research has examined the effect of hydration alone or the effect of hydration and vocal rest together as a treatment for vocal fatigue. There is little to no research comparing the effect of each treatment on vocal fatigue.

Research Question/Hypothesis

Which treatment (water or rest) will be most effective in alleviating vocal fatigue in healthy, female, college-aged students? I hypothesized that, after treatment, mean measures of vocal fatigue [as measured by current speaking effort level (EFFT), ability to produce soft voice (IPSV), and level of laryngeal discomfort (DISC)] would be lowest for the Water group, higher for the Rest group, and highest for the Control group.

Methods

Participants

16 healthy, female college-aged students ranging in age from 20 to 25 years (mean = 22.5 years)
no history of chronic respiratory disorders (e.g. asthma, chronic obstructive respiratory disease)
no history of voice disorders or smoking
no respiratory tract infection or discomfort, or abnormal vocal quality on the day of the study.

Procedure

Students were randomly assigned to one of three groups: Water, Rest or Control group. Baseline measures of vocal function were collected from each participant before the treatment began. These measures included current speaking effort level (EFFT), ability to produce soft voice (IPSV), and level of laryngeal discomfort (DISC). For example, participants were asked to rate how fatigued their voice felt on a scale from 1 to 10 after a series of vocal tasks. For example, sustain the vowel /i/ (ee) for 5 seconds as softly as possible on a comfortable pitch. To induce vocal fatigue, each participant was required to read aloud for one hour. During this 60-minute reading session, those assigned to the Water group sipped water every 15 minutes, those assigned to the Rest group rested for five minutes every 15 minutes, and the members of the Control group received no treatment.

Results

The IPSV and DISC measures were combined to create the variable FATIGUE. FATIGUE measures collected before and after the treatment were compared using a repeated measures 2 X 3 analysis of variance. The means and standard deviations for FATIGUE pre- and post-treatment are displayed in the table below.

<table>
<thead>
<tr>
<th>Group</th>
<th>Treatment</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Pre</td>
<td>9.67</td>
<td>2.658</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>19.33</td>
<td>6.218</td>
<td>6</td>
</tr>
<tr>
<td>Water</td>
<td>Pre</td>
<td>5.40</td>
<td>.894</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>7.00</td>
<td>1.581</td>
<td>5</td>
</tr>
<tr>
<td>Rest</td>
<td>Pre</td>
<td>7.80</td>
<td>2.280</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>19.60</td>
<td>4.930</td>
<td>5</td>
</tr>
</tbody>
</table>

The ANOVA for FATIGUE revealed significant main effects of Group, $F(2, 26) = 15.769, p < .001$, partial $\eta^2 = .548$; and Treatment, $F(1, 26) = 33.919, p < .001$, partial $\eta^2 = .566$; and a significant Interaction effect $F(2, 26) = 5.294, p = .012$, partial $\eta^2 = .289$ at the .05 level.

Conclusion

An hour of reading causes significant vocal fatigue in healthy, female, college-aged students. This study shows that drinking 3 ounces of water every 15 mins is an effective way to alleviate this vocal fatigue. In contrast, pausing for 5 minutes of rest every 15 minutes was not an effective way to alleviate vocal fatigue. In fact, in this study resting the voice had no effect on vocal fatigue. Further research will need to be done on whether a longer rest period would be effective. Previous studies group water and rest together as a combined treatment for vocal fatigue. Further research will need to be done on whether rest and water are more effective together than water alone on reducing vocal fatigue in speakers.

The results of this study will be useful for professionals who use their voice frequently. Sipping water consistently while talking should reduce vocal fatigue, thereby limiting any long-term negative effects on vocal quality and function. Employers should consider providing water in the workplace.

References


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