EFFECT OF VOCAL TECHNIQUE ON ACCURACY IN THE SINGING VOICE

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INTRODUCTION
The accuracy in singing voice is analyzed on the basis of the fundamental frequency (f0) and can access the quality of vocal production1. The general population can sing in tune when the tempo is slow2. The accuracy of singing voice increases with musical training3.

AIMS
→ Effect of vocal expertise and « lyrical » vocal technique on pitch, tempo and accuracy.
→ Validity of analysis tools for accuracy.

METHOD
Participants:
• 14 Professional singers (19-54 years old) m=24,21 ; SD=8,79
• 63 Occasional singers (OS) without musical training (15-75 years old) m=29,83 ; SD=14,99

Tasks:
• 2 Glissandi
• Sing « Joyeux Anniversaire »

For professional singers :
• Sing a self-chosen melody then JA in stage-like conditions
• Therefore one Technique-less (TL) condition and one With-technique (WT)

RESULTS

<table>
<thead>
<tr>
<th>Non Singers</th>
<th>Singers</th>
<th>Differences between groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tempo</td>
<td>98,37</td>
<td>112,99</td>
</tr>
<tr>
<td></td>
<td>80,13</td>
<td>F(2, 88)= 16.61 p &lt; .001</td>
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<tr>
<td>Pitch</td>
<td>5446,51</td>
<td>5966,29</td>
</tr>
<tr>
<td></td>
<td>6406,29</td>
<td>F(2, 88)=165,63 p &lt; .001</td>
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<tr>
<td>Tonal center</td>
<td>42,33</td>
<td>26,17</td>
</tr>
<tr>
<td></td>
<td>25,81</td>
<td>F(2, 88)=3,001 p=.055 (tendance)</td>
</tr>
<tr>
<td>Interval accuracy</td>
<td>50,82</td>
<td>32,61</td>
</tr>
</tbody>
</table>

Correlations « tempo-interval accuracy » (rho de Spearman)
• OS : r=.321, p=.01 The slower the more accurate
• TL : r=.321, p=.01 The faster the more accurate
• WT : r=.662, p=.01 The faster the more accurate

DISCUSSION

Effect of vocal expertise :
• Efficient vocal technique
• Training which increases the accuracy

Effect of “lyrical” vocal technique :
• Utterly out of tune (vibrato, large harmonic content, excessive musical interpretation)
• Relativize the role of f0 to analyze these voices

Impact of vocal training on singing accuracy
Validity of analysis tools for accuracy but not when “lyrical technique” is involved

References :

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