PHYSICIAN PERCEPTIONS OF THE VALUE OF PHYSICAL MODALITIES IN THE TREATMENT OF MUSCULOSKELETAL DISEASE

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SUMMARY
We randomly surveyed 100 specialists in rehabilitation medicine and 100 rheumatologists concerning their perceptions of the value of 11 different physical modalities — cold, active and passive exercise, interferential current, laser, magnetotherapy, microwave, shortwave diathermy, traction, ultrasound and transcutaneous nerve stimulation in the treatment of seven different musculoskeletal conditions — acute arthritis, joint contracture, neck pain, back pain, tendinitis, reflex sympathetic dystrophy and frozen shoulder. There were significant differences in the perceived benefits of modalities which varied by modality and condition. Overall, rehabilitation medicine specialists regarded modalities to be helpful more often than rheumatologists (P<0.001).

KEY WORDS: Physical modalities, Rheumatology, Rehabilitation.

RESULTS
Sixty-three per cent of all physicians were in academic and 31% in private practice (Table I). There were more academicians among the specialists in rehabilitation medicine. Approximately half of the physicians in each group had been in practice for at least 10 years. Seventy-two per cent of all physicians were from Canada and the USA; there were more rheumatologists than specialists in rehabilitation medicine (82% vs 62%).

There were differences in the perceived benefits of modalities amongst the 200 physicians as a whole which varied by modality and by condition (Table II). For example, 51% of physicians regarded TENS to be useful for frozen shoulder and 49% did not. There was more agreement with microwave, laser and magnetotherapy which was believed to be beneficial by less than 20% of physicians for all conditions.

Overall, specialists in rehabilitation medicine valued

A significant variation among physician prescription of rheumatic drugs has been reported [1]. Controversy also exists within the medical community concerning the appropriate indications of non-pharmacologic physical modalities in the treatment of musculoskeletal conditions [2, 3]. The opinions of physicians regarding the value of modalities has never been reported. Thus, we decided to survey the two groups of physicians who frequently treat musculoskeletal diseases, specialists in rehabilitation medicine and rheumatologists. In Canada, a referral is required by a physician before treatment with modalities can be initiated by the physiotherapist. In the UK, a patient may or may not be referred to the physiotherapist for treatment.

METHODS
We randomly surveyed 100 specialists in rehabilitation medicine (physiatrists) and 100 rheumatologists attending two international medical conferences. The survey stated, 'We are interested in your use of various physical modalities for the treatment of musculoskeletal disease. Please put a number in each box which reflects whether you use or never use each modality for each disease.' A chart, divided into boxes, comprised 11 different physical modalities — cold, active and passive exercise, interferential current, laser, magnetotherapy, microwave, shortwave diathermy, traction, ultrasound and transcutaneous nerve stimulation (TENS) and seven common musculoskeletal conditions — acute arthritis, joint contracture, neck pain, back pain, tendinitis, reflex sympathetic dystrophy and frozen shoulder. Data was tabulated using an IBM AT computer and Dbase III+ software. Statistical analysis with SAS software (SAS Institute, Cary, NC), was performed using $\chi^2$ tests. $P$-values were corrected by multiplying by the number of measurements done.

(main text continues)
modalities significantly more than rheumatologists \((P<0.001)\) (Table III). All modalities were felt to be helpful for every disease more often by specialists in rehabilitation medicine than rheumatologists except for ultrasound in acute arthritis. Significant differences between specialists in rehabilitation medicine and rheumatologists by specific modality for specific diseases were not found when the \(P\)-values were corrected for the number of questions asked.

There were no significant differences overall between physicians in academic or private practice or between physicians with more or less than 10 years in practice or between those in North American Practice and Europe.

### DISCUSSION

For the first time, we have shown that there are different opinions of the value of physical modalities amongst specialist physicians most often involved in the treatment of common musculoskeletal diseases. For example, 53% of physicians felt that active exercise was helpful for acute arthritis and 47% did not. There was more uniformity concerning microwave, laser and magnetotherapy which were generally not felt to be useful. However, this may represent the relative unavailability of these therapies.

The causes for these differences in opinion are unknown as physicians were not questioned for the reasons behind their particular choices. The differences could not be accounted for by physicians who have been in practice for longer or shorter periods. There were also no differences in the perceived value of modalities between physicians in academic or private practice.

Part of the variation of opinion amongst physicians may be accounted for by the more frequent value of modalities by specialists in rehabilitation medicine rather than by rheumatologists. The reasons for this difference in perception of the benefits of modalities in the treatment of similar populations of patients by both specialties is unclear. However, trainees in rehabilitation medicine have greater exposure to physiotherapists and the use of modalities than those training in rheumatology [3, 4]. Furthermore, there is a lack of interaction between rehabilitation medicine, rheumatology [3, 4].

### TABLE II

<table>
<thead>
<tr>
<th>Modality</th>
<th>Acute arthritis</th>
<th>Joint contracture</th>
<th>Neck pain</th>
<th>Back pain</th>
<th>Tendinitis</th>
<th>RSD</th>
<th>Frozen shoulder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td>106</td>
<td>180</td>
<td>181</td>
<td>183</td>
<td>135</td>
<td>157</td>
<td>189</td>
</tr>
<tr>
<td>Passive</td>
<td>153</td>
<td>181</td>
<td>148</td>
<td>137</td>
<td>140</td>
<td>47</td>
<td>186</td>
</tr>
<tr>
<td>Ultrasound</td>
<td>81</td>
<td>147</td>
<td>160</td>
<td>160</td>
<td>157</td>
<td>100</td>
<td>160</td>
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<tr>
<td>Cold</td>
<td>156</td>
<td>70</td>
<td>130</td>
<td>126</td>
<td>138</td>
<td>78</td>
<td>90</td>
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<tr>
<td>TENS</td>
<td>75</td>
<td>62</td>
<td>155</td>
<td>163</td>
<td>79</td>
<td>115</td>
<td>101</td>
</tr>
<tr>
<td>Shortwave</td>
<td>31</td>
<td>71</td>
<td>62</td>
<td>93</td>
<td>66</td>
<td>43</td>
<td>72</td>
</tr>
<tr>
<td>Traction</td>
<td>22</td>
<td>96</td>
<td>168</td>
<td>143</td>
<td>7</td>
<td>9</td>
<td>43</td>
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<tr>
<td>Current</td>
<td>26</td>
<td>28</td>
<td>54</td>
<td>55</td>
<td>45</td>
<td>35</td>
<td>47</td>
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<tr>
<td>Microwave</td>
<td>26</td>
<td>38</td>
<td>38</td>
<td>44</td>
<td>36</td>
<td>30</td>
<td>36</td>
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<tr>
<td>Laser</td>
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<td>20</td>
<td>23</td>
<td>23</td>
<td>35</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Magneto</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>14</td>
<td>8</td>
<td>5</td>
<td>8</td>
</tr>
</tbody>
</table>

RSD, reflex sympathetic dystrophy (algodystrophy); shortwave, shortwave diathermy; current, interferential current; magneto, magnetotherapy; TENS, transcutaneous nerve stimulation.
tology and physiotherapy in the areas of resident training, clinical practice and research [2]. Research concerning physical modalities is infrequently published in rheumatology journals [2].

Another reason may be the unavailability of consistent clinical research in this area. There are many problems to surmount designing studies of physical modalities. There is a large placebo effect [6], treatments are difficult to blind, many conditions studied do not have validated criteria for diagnosis and have a benign natural history [7]. Contradictory positive and negative studies, for example in the use of laser for tendinitis, have been published [8, 9].

While the physiotherapist, as an independent professional may choose the specific modality for the patient, it is also important for physicians to become more aware of physical modalities to provide appropriate information to the physiotherapist [10]. These treatments are not without side-effects. For example, heating and cooling modalities should be avoided in patients with cognitive dysfunction, sensory deficits and poor vascular supply. Physical modality treatments are costly and often require expensive equipment and personnel for their application.

This survey demonstrates that further physician education is essential to ensure that the patient receives the best available and most cost-effective treatment. A closer interaction between physicians and physiotherapists can only improve the quality of care for patients with musculoskeletal disease.

ACCOLINGMENTS

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REFERENCES