

# Immediate effects from manual therapy: much ado about nothing?

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I hope you don't mind if I state the obvious: There has been a wealth of research lately on the immediate effects associated with manual therapy. I assume it has a lot to do with the global interest in the effects of manual therapy, the interests in justifying the value of manual therapy, and to be honest, some to do with the reduced rigor and time necessary to perform this form of research. Immediate effects studies may involve a simple or detailed analysis of change in pain, range, qualitative or quantitative elements, and/or proprioception, directly after the input of a manual therapy procedure. The reduced rigor/time is associated with the short-term follow-up (typically directly after the intervention), relatively simple statistical calculations, and a demonstrable and measurable statistically significant treatment effect.

Manual therapy oriented, immediate effects studies generally take two forms: 1) those associated with understanding the physiological and psychological mechanisms associated with manual therapy, and 2) those that are oriented toward understanding the 'clinical' effects of manual therapy. The former are beneficial in recognizing mechanisms associated with manual therapy and have proven useful toward dispelling myths associated with manual therapy performance and toward improving our recognition of the overall magnitude of a manual therapy intervention. An example is the use of *quantitative sensory testing* or others forms of investigation that measures whether benefits or neurophysiological, biomechanical, or psychological. The benefit of the latter types of studies, those associated with immediate 'clinical' effects may be less valuable. In essence, these studies measure direct outcome after a particular form of measurable treatment in an effort to extrapolate *clinical value* from the intervention, based on the response of the immediate effect.

The measurable treatment effect may take many forms. Within the last few years, immediate effects of thrust and non-thrust manipulation have been shown to: improve proprioception,<sup>1</sup> standing balance,<sup>2</sup> reduce pain,<sup>3,4</sup> increase nociceptive flexion reflex threshold,<sup>5</sup> thermal pain sensitivity (temporal summation),<sup>6</sup>

provide a widespread hypoalgesic effect,<sup>7</sup> improve range of motion,<sup>4,8</sup> alter EMG signals,<sup>9</sup> and modify sensorimotor integration.<sup>10</sup> In fairness, the studies represented here were both mechanistic- and clinically-oriented.

But before we get too excited about these results, let's look at literature outside main-stream manual therapy, because thrust and non-thrust manipulation aren't alone in their ability to provide immediate measurable treatment effects.

Immediate effects have been reported with superficial heat, long-wave ultrasound, short-wave diathermy, and specific exercises.<sup>11</sup> In addition, immediate effects have been identified using massage,<sup>12</sup> kinesio-taping,<sup>13</sup> passive physiological movements,<sup>14</sup> acupressure,<sup>15,16</sup> ischemic compression,<sup>17</sup> thermal ultrasound,<sup>18</sup> simple touch,<sup>19</sup> ice massage,<sup>20</sup> and strain-counterstrain.<sup>21</sup> Even more notable and dubious are the immediate effects findings of improved active mouth opening after hamstring stretching,<sup>22</sup> improved hamstring mobility after suboccipital stretching,<sup>23</sup> and improved spatial cognitive tasking *after breathing through the left nostril only*.<sup>24</sup>

Despite the ability of manual therapy interventions to produce statistically significant changes, the limited effect size for many of these interventions raises concerns about their clinical significance. Indeed, the majority of the effects were the same as those identified using thrust and non-thrust manipulation. It's sort of a buzz kill, isn't it?

What do findings of immediate effects tell us as clinicians? That's difficult to say. We know the effects of manipulation are short-term<sup>25</sup> and the effects of non-thrust manipulation are likely similar. We know the carry-over effect of some immediate findings (within-session changes) lead to between-session changes,<sup>26</sup> but there is little to support these changes having any effect on long-term functional outcome.<sup>26-28</sup> We know that in rare instances, immediate effects are associated with poorer long-term outcomes, albeit when the intervention is a cortisone injection.<sup>29</sup> Lastly, we also know that in many cases, the immediate effects are small and

whether or not they are clinically significant demands further investigation.

This suggests the following:

1. all forms of interventions (even suspect ones) may lead to statistically significant immediate effects;
2. the wealth of findings associated with immediate effects from manual therapy research designed to measure clinical response, may not provide substantial value during long-term, progressive, clinical decision making.

What we need to further flesh out is which set of interventions that lead to immediate effects that are designed to define a clinical outcome, actually lead to long-term clinical benefits. What we don't need is a litany of further studies that assume clinical importance because immediate effects occurred directly after the administration of a manual therapy intervention; *we've got that covered*.

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