



## Short Communication

# Comparison of the acupuncture manipulation properties of traditional East Asian medicine and Western medical acupuncture



Da-Eun Yoon, In-Seon Lee , Younbyoung Chae 

Department of Science in Korean Medicine, Graduate School, Kyung Hee University, Seoul, Republic of Korea

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## ABSTRACT

**Background:** Acupuncture treatments frequently use manipulation techniques. The therapeutic advantages of acupuncture differ depending on the acupuncture manipulation. The purpose of this article was to compare manipulation techniques in traditional East Asian medicine (TEAM) and Western medical acupuncture (WMA).

**Methods:** Manipulation techniques in TEAM and WMA were compared according to purpose, modulating parameters, and indications. The practical understanding of manipulation in terms of acupuncture stimulation intensity was also explored. The TEAM manipulation techniques of twirling and lifting and thrusting are discussed in terms of the objectives of tonification and sedation.

**Results:** The main therapeutic effect of WMA is mediated through activation of the nervous system, which is achieved with adequate intensity of needling. The TEAM tonification and sedation techniques were designed to produce mild or intense stimulation, respectively, to elicit varying degrees of deqi sensation.

**Conclusions:** Further research is needed to clarify the differences between the TEAM and WMA practices, and to determine whether different needling manipulations affect treatment outcomes.

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## 1. Introduction

Manipulation techniques are widely used in acupuncture education and practice.<sup>1,2</sup> The therapeutic benefits of acupuncture vary according to manipulation parameters, such as twirling frequency.<sup>3</sup> Different acupuncture manipulations elicit different physiological responses (acupuncture sensation,<sup>4</sup> skin blood microcirculation,<sup>5</sup> neural signals in dorsal horn neurons<sup>6</sup>) and clinical outcomes (pain modulation<sup>7-9</sup>; gastric motility<sup>10</sup>; for an overview, see a previous review<sup>11</sup>). The previous review included a variety of human investigations that examined the impact of stimulation intensity on clinical outcomes, including symptomatic improvement in cancer patients<sup>12</sup> and physiological changes such local blood flow or galvanic skin response.<sup>13-15</sup> Acupuncture manipulation is highly individualized and there is considerable interindividual variability among practitioners.<sup>16</sup>

The underlying principles of traditional East Asian medicine (TEAM) and Western medical acupuncture (WMA) differ. The metaphysical concept of “qi” serves as the foundation for TEAM acupuncture treatment, and each patient’s proper needling technique is chosen depending on their inherent strength and pathological condition. In contrast, WMA holds that the twisting and lift-thrust needle manipulations stimulate reflex muscle contractions or neurophysiological responses.<sup>17</sup> Although both TEAM and WMA involve needle manipulation, no previous study has compared their theoretical and evidence-based considerations for clinical practice.

In this study, we compared TEAM and WMA manipulation techniques in terms of purpose, modulating parameters, and indication. We summarized the practical outcomes of manipulation related to the intensity of acupuncture stimulation (Table 1).

## 2. TEAM acupuncture manipulation techniques

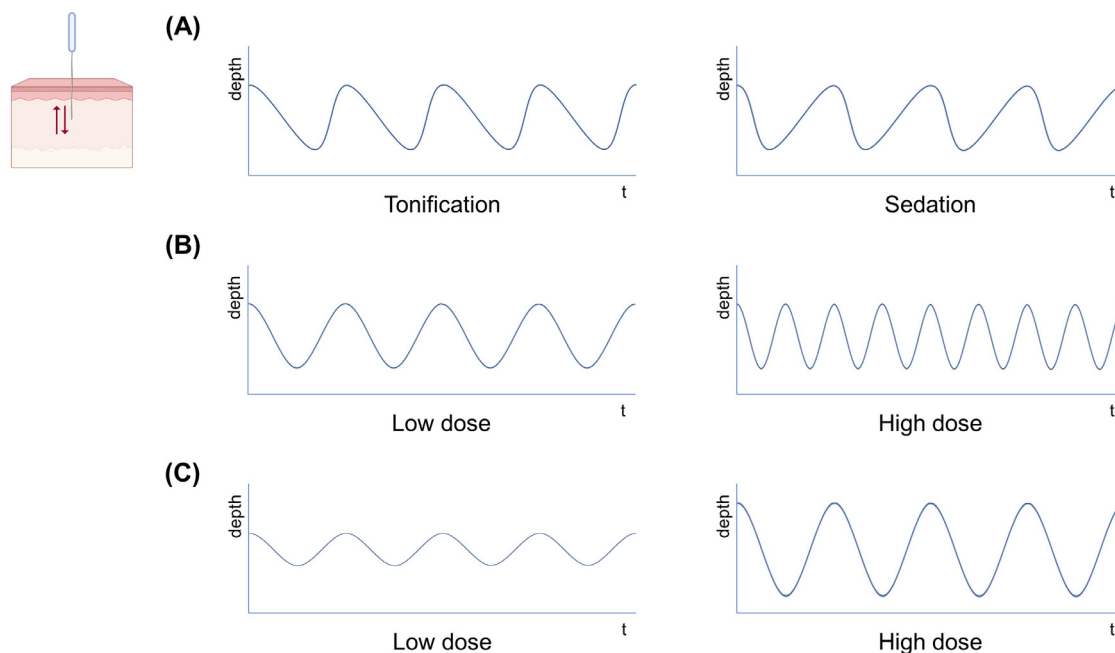
Classical TEAM literature describes the twirling (rotating the needle) and lifting and thrusting (moving the needle forward and backward) manipulation techniques used for sedation and tonification therapy. Tonification (reinforcement or supplementation) is used to boost *qi* in patients with *qi* deficiency. Conversely, sedation (reduction or draining) is used to reduce excessive states. Tonifica-

\* Corresponding authors at: Department of Science in Korean Medicine, Graduate School, Kyung Hee University, 1 Hoegi-dong, Dongdaemun-gu, Seoul, Republic of Korea.

E-mail addresses: [inseon.lee@khu.ac.kr](mailto:inseon.lee@khu.ac.kr) (I.-S. Lee), [ybchae@khu.ac.kr](mailto:ybchae@khu.ac.kr) (Y. Chae).

**Table 1**  
Comparison of traditional East Asian medicine (TEAM) and Western medical acupuncture (WMA) manipulations.

	TEAM	WMA
<b>Purpose</b>	Tonification or Sedation	High or low intensity (dose)
<b>Modulating parameters</b>	Pattern of needle movement: rotating direction, speed of penetration	Depth, magnitude of manipulation
<b>Indication</b>	Deficiency (tonification) Excess (sedation)	High responder (low intensity) Low responder (high intensity)
<b>Response</b>	<i>Deqi</i>	Needling sensation



**Fig. 1.** Lifting and thrusting needling pattern in traditional East Asian medicine and Western medical acupuncture. (A) Traditional East Asian medicine specifies quick lifting and slow thrusting for tonification and slow lifting and quick thrusting for sedation. (B) In Western medical acupuncture, more frequent manipulation (2 Hz) delivers a higher acupuncture dose than less frequent manipulation (1 Hz). (C) A higher acupuncture dose is delivered by larger amplitude acupuncture manipulations in Western medical acupuncture than by smaller amplitude acupuncture manipulations.

tion and sedation require different needle manipulation patterns, such as altering needling speed or rotation direction.<sup>1,2</sup> *The Yellow Emperor's Inner Classic of Internal Medicine* recommends quick lifting and slow thrusting for tonification and slow lifting and quick thrusting for sedation (Fig. 1A). TEAM holds that patient stamina (weak or strong) should determine the needling technique.

### 3. Western medical acupuncture manipulation techniques

The main therapeutic effect of WMA is mediated through activation of the nervous system, which is achieved with adequate intensity of needling. The acupuncture 'dose', or the total amount of stimulation, is more important than the needle insertion and manipulation techniques.<sup>18</sup> One of the most significant elements of an acupuncture dose is the intensity of the stimulation.<sup>11</sup> For instance, increasing the intensity might cause a greater physiological response, such as the interaction between the needle and the tissue,<sup>19</sup> a change in the local microcirculation,<sup>14</sup> and a psychophysical response.<sup>4</sup> These results indicate higher intensity as a higher dose and lower intensity as a lower dose.<sup>20</sup>

The intensity of needling stimulation is controlled by the depth of insertion or magnitude of manipulation. For example, in the lifting and thrusting manipulation, more frequent manipulation (2 Hz) provides more stimulation than less frequent manipulation (1 Hz; Fig. 1B). Similarly, a higher acupuncture dose is delivered by larger amplitude acupuncture manipulations than by smaller amplitude acupuncture manipulations (Fig. 1C). Practitioners can change the amount of stimulation according to the

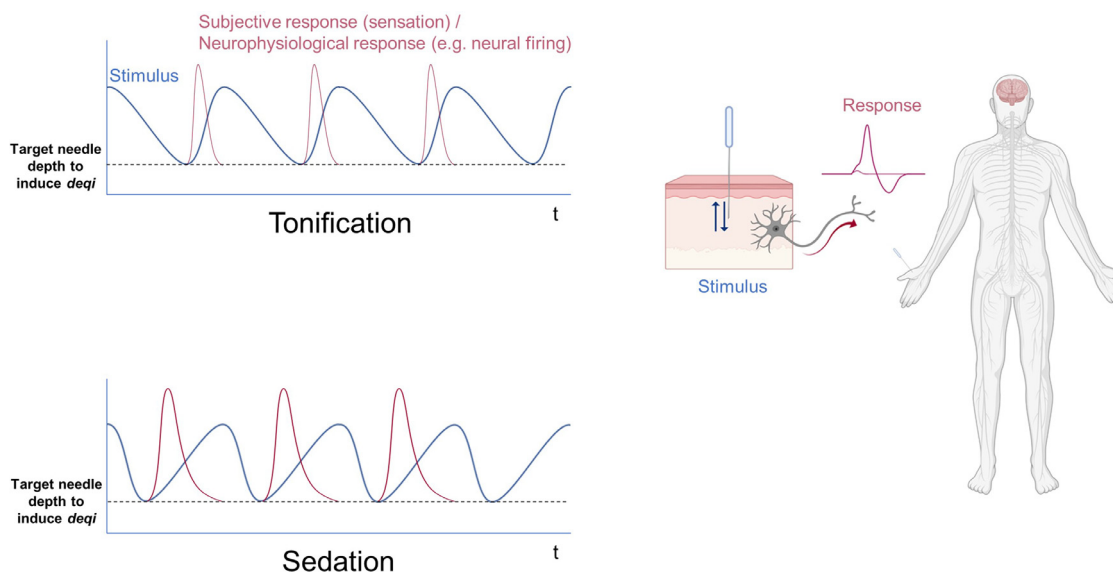
patient's condition and response to acupuncture. Low intensity should be administered for patients who have high responsiveness (high-responder), while high intensity should be applied for patients who have low response (low-responder).

### 4. Acupuncture manipulation response: the *deqi* sensation

Both TEAM and WMA aim to elicit *deqi*, or the achievement ('de') of vital energy ('qi'). In TEAM, the *deqi* sensation is viewed as a favorable response to treatment, whereas in WMA, this sensation is interpreted as evidence of therapeutic nerve stimulation.<sup>17</sup> The *deqi* sensation, traditionally described as soreness, numbness, heaviness, and fullness, is thought to be carried by distinct nerve fibers.<sup>21,22</sup> Elicitation of the *deqi* sensation is associated with better treatment outcomes.<sup>23-25</sup> Moreover, because acupuncture manipulation can increase the *deqi* sensation, it is considered to be a significant clinical response.<sup>4,26</sup> Despite the fact that WMA does not acknowledge the idea of *deqi*, the needling sensations associated with effective acupuncture treatment share similar properties with the *deqi* sensation.

### 5. Intensity-related aspects of TEAM acupuncture manipulation

While the rationale for acupuncture differs between TEAM and WMA, the control of stimulation intensity plays an important role in both traditions. In TEAM, this control is reflected in the tonification and sedation techniques. *The Yellow Emperor's Inner Classic of Internal Medicine* states that the diagnosis of excess or deficiency



**Fig. 2.** Traditional East Asian medicine manipulation techniques produce different *deqi* sensations. The sedation manipulation elicited the *deqi* sensation quickly with fast thrusting then the sensation gently resolved with slow lifting. In contrast, the *deqi* sensation commenced slowly and resolved quickly with the slow thrusting and fast lifting of the tonification manipulation. The sedation technique may provide greater stimulation than the tonification procedure given the prolonged *deqi* response. The figure was created using BioRender ([www.biorender.com](http://www.biorender.com)).

should be based on the patient's body constitution (fat or thin). Thus, it is apparent that the primary goal of acupuncture manipulations is to provide mild stimulation for tonification (for the thin and weak) and intense stimulation for sedation (for the fat and strong). The findings of a literature review support the view that the two manipulation techniques are related to the degree of stimulation,<sup>27</sup> and it has been empirically shown that the *deqi* sensations elicited by the sedation manipulation are more intense than those induced by the tonification technique.<sup>28</sup> Recently, it was proposed that tonifying and sedative techniques of acupuncture treatment in TEAM correspond to the stimulation intensity of acupuncture manipulation techniques.<sup>29</sup>

The lifting and thrusting needle movement and typical response are shown in Fig. 2. The sedation manipulation elicits the *deqi* sensation quickly with fast thrusting, then the sensation gently resolves with slow lifting. In contrast, the *deqi* sensation commences slowly and is resolved quickly with the slow thrusting and fast lifting of the tonification manipulation. Therefore, it is thought that the sedation method elicits a stronger response in patients (e.g., subjective sensation, neurophysiological responses) by prolonging the *deqi* sensation. Furthermore, a neuroimaging study found that increased acupuncture stimulation enhances the remaining sensation, indicating that the sedation technique amplifies stimulation.<sup>30</sup>

The tonification and sedation procedures have the same objective stimulation intensity (Fig. 1A), and thus stimulation dose, which is defined by the amplitude and frequency of needle stimulation (although not discussed in this article, depth should be also considered). Conversely, the *deqi* sensation may vary with different manipulation techniques. For instance, the needle reaches the desired depth sooner and remains in place longer after commencement of the *deqi* sensation in the sedation manipulation than in the tonification method. Therefore, we propose that the TEAM manipulation strategies might be built to create stimulation at different intensities.

## 6. Future perspectives in acupuncture and manipulation research

TEAM is based on traditional philosophy and concepts, whereas WMA clinical practice is based on stimulation of anatomical

locations. Nevertheless, several common features bridge these acupuncture systems. Needling sensation and *deqi* sensation often indicate the same response to acupuncture treatment. Furthermore, the sensation may be affected by the acupuncturist's needling technique in terms of dose and intensity. Although the relationship between *deqi* sensation and clinical outcomes remains controversial, sensation intensity may reflect acupuncture dose as it elicits similar neurophysiological responses.<sup>30,31</sup> Therefore, we propose that the effects of needling technique on stimulation intensity be revisited in future research to quantify manipulation techniques and clarify the relationship between stimulation sensation and *deqi* sensation and clinical outcomes.

## 7. Conclusion

In this article, we compared the TEAM and WMA perspectives on acupuncture manipulation. Although WMA does not recognize the TEAM concept of *deqi*, various needling intensities produce patterns of neurophysiological reactions that are considered good responses in both systems. The TEAM tonification and sedation techniques were designed to produce mild or intense stimulation, respectively, to elicit varying degrees of *deqi* sensation. However, there is no direct neurophysiological evidence of relationships between manipulation techniques and stimulation intensity or therapeutic outcomes. Further research is needed to clarify the differences between the TEAM and WMA practices and to determine whether different types of needling manipulations affect treatment outcomes.

## CRediT authorship contribution statement

**Da-Eun Yoon:** Conceptualization, Writing – original draft.  
**In-Seon Lee:** Conceptualization, Writing – review & editing.  
**Younbyoung Chae:** Conceptualization, Writing – review & editing.

## Conflict of interest

The authors declare that they have no competing interests.

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## Ethical statement

Not applicable.

## Data availability

The data can be provided by the authors upon reasonable request.

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