



**The Effect of Spinal Adjustment /  
Manipulation on Immunity and the  
Immune System: A Rapid Review of  
Relevant Literature.**

**World Federation of Chiropractic.  
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# The Effect of Spinal Adjustment / Manipulation on Immunity and the Immune System: A Rapid Review of the Relevant Literature

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## Introduction

The world is currently in the midst of a global health crisis due to the spread of Coronavirus Disease 2019 (COVID-19). The World Health Organization (WHO) has declared COVID-19 a pandemic, meaning that it is being spread uncontrolled across country borders. At the time of writing, COVID-19 is affecting some 143 countries worldwide and there have been over 200,000 reported cases. As testing for COVID-19 has been limited, it is estimated that the true prevalence of COVID-19 is far greater than the situation reports have stated.

WHO has issued information and guidance with a view to reducing the spread of COVID-19 and controlling the pandemic. This information has included correcting misinformation about COVID-19.

The World Federation of Chiropractic (WFC) has supported WHO in its advice and recommendations and on March 17, 2020 issued an advice note to the worldwide chiropractic profession.

One of the key messages contained in the WFC advice note highlighted the lack of credible, scientific evidence supporting claims of effectiveness of spinal adjustment / manipulation in boosting immunity and strengthening the immune system. Immunity is defined as the ability of an organism to resist disease, either through the activities of specialized blood cells or antibodies produced by them in response to natural exposure or inoculation, or by the injection of antiserum, or the transfer of antibodies from a mother to her baby via the placenta or breast milk.

This rapid review considers materials the WFC is aware have been cited in support of claims of effectiveness for spinal adjustment / manipulation in conferring or enhancing immunity.

## 1. Pero R, Flesia J, (1986) University of Lund, Sweden

**Citation:** None available.

**Overview:** It has been reported that in 1986 Dr Ronald Pero, a Professor of Medicine in Environmental Health at New York State University, collaborated with Dr Joseph Flesia, a basic science researcher and chiropractor. Reports state that subjects receiving chiropractic care (n=107) had a 200% greater immune competence than those who had not received chiropractic care and a 400% greater immune system competence than those with cancer or other serious disease.

**Response:** Numerous attempts have failed to retrieve this study. Without the original study to review, no scientific assessment of its claims can be made. Therefore, the "Pero and Flesia" study does not constitute credible, scientific evidence that spinal adjustment / manipulation enhances or confers immunity nor should it be used as a basis to provide care.

## 2. Enhanced phagocytic cell respiratory burst

**Citation:** Brennan PC, Kokjohn K, Kaltinger CJ, Lohr GE, Glendening C, Hondras MA, McGregor M, Triano JJ. Enhanced phagocytic cell respiratory burst induced by spinal manipulation: potential role of substance P. J Manipulative Physiol Ther. 1991 Sep;14(7):399-408. PMID:1719112.  
<https://www.ncbi.nlm.nih.gov/pubmed/1719112>

**Overview:** This study examined the effect of spinal manipulation on the respiratory burst of polymorphonuclear neutrophils (PMN) and monocytes in asymptomatic adults. The investigators found changes in levels of substance P in subjects who underwent spinal manipulation but not in subjects who underwent sham manipulation.

**Response:** The clinical meaning of the study's results regarding cellular activity is not known. No clinical research has been performed in this area. Therefore, it is not known if these observations have any effect on human health. This report does not constitute credible, scientific evidence that spinal adjustment /



manipulation enhances or confers immunity.

### 3. Enhanced *in-vitro* interleukin-2 production following spinal manipulation

**Citation:** Teodorczyk-Injeyan JA, Injeyan HS, McGregor M, Harris GM, Ruegg R. Enhancement of *in vitro* interleukin-2 production in normal subjects following a single spinal manipulative treatment. *Chiropr Osteopat.* 2008 May 28;16:5. doi: 10.1186/1746-1340-16-5. PMID: 18507834; PMCID: PMC2423359. <https://www.ncbi.nlm.nih.gov/pubmed/18507834>

**Overview:** The purpose of this study was to report on spinal manipulation-related changes in the production of the immunoregulatory cytokine interleukin 2 (IL-2) in asymptomatic adults. This study found a short-term increase in IL-2 with spinal manipulative intervention, with or without cavitation.

**Response:** The clinical meaning of these *in vitro* observations of cellular activity on human health is not known. No clinical research has subsequently been performed in this area.

### 4. Interleukin-2-regulated *in vitro* antibody production following single spinal manipulative treatment.

**Citation:** Teodorczyk-Injeyan JA, McGregor M, Ruegg R, Injeyan HS. Interleukin 2-regulated *in vitro* antibody production following a single spinal manipulative treatment in normal subjects. *Chiropr Osteopat.* 2010 Sep 8;18:26. doi: 10.1186/1746-1340-18-26. PMID: 20825650; Central PMCID: PMC2945351. <https://www.ncbi.nlm.nih.gov/pubmed/20825650>

**Overview:** The purpose of this study was to determine if spinal manipulation-related augmentation of *in vitro* interleukin-2 synthesis in asymptomatic adults is associated with the modulation of interleukin 2-dependent and/or interleukin-2-induced humoral immune response. While the augmentation of IL-2 induced IgG or IgM synthesis in subjects receiving spinal manipulation, the amount did not exceed the physiological range of normal human response.

**Response:** The clinical meaning of these *in vitro* observations of cellular activity on human health is not known. No clinical research has been performed in this area. Further, the authors state "The clinical significance of the elevated responsiveness to IL-2 demonstrated in this *in vitro* study is presently unclear."

### 5. Effects of specific upper cervical adjustments on CD4 counts in HIV positive patients.

**Citation:** Hightower BC, Pflieger B, Selano J. The Effects of Specific Upper Cervical Adjustments on the CD4 Counts of HIV Positive Patients. *Chiropractic Research Journal* 1994 ;3(1):32-39. No PubMed ID available – this publication is not indexed by PubMed [https://www.chiroindex.org/?search\\_page=articles&action=&articleId=5619](https://www.chiroindex.org/?search_page=articles&action=&articleId=5619)

**Overview:** This project sought to demonstrate if upper cervical specific adjustments have a profound effect on the physiology, serology and immunology of HIV positive individuals. No statistically significant differences between the treatment and control group were found.

**Response:** With only 5 subjects in the experimental treatment group, no description of how the study was conducted or analyzed, and no reporting of absolute change in CD4 values, these results are highly questionable. Further, the authors state "...it must be noted that we cannot generalize our findings to the general population." The clinical meaning of these *in vitro* observations of cellular activity on human health is not known.

### 6. Reports of decreased mortality in chiropractic/osteopathic patients during flu epidemics.

**Citation:** None

**Overview:** It is claimed that the treatment of patients by chiropractors during the influenza pandemic of 1918 resulted in fewer deaths than those treated by medical doctors.

**Response:** These narrative reports of historical events do not equate to scientific studies. Their lack of methodological structure or data analysis is likely to have resulted in incomplete information and a high likelihood of bias. We note that even those who have written about these events in a positive light

(<https://doi.org/10.7556/jaoa.2013.036>) concede that there is no way to tell if these observations can be attributed to manual medicine and care philosophy or “statistical issues of reporting”. These various reports do not provide the necessary evidence to justify the use of spinal adjustment / manipulation for infectious diseases.

## 7. Effects induced by spinal manipulative therapy on the immune and endocrine system

**Citation:** Colombi A, Testa M. The effects induced by spinal manipulative therapy on the immune and endocrine systems. *Medicina* 2019; 53:448. doi 10.3390/medicina55080448.

**Overview:** This was a narrative review of the available literature that aimed to provide an overview of the available evidence supporting the biological plausibility of high-velocity, low-amplitude thrust on the immune-endocrine system. Following a search, 4 studies were retrieved studying the effect of spinal manipulation on the immune system.

**Response:** The authors concluded that “While spinal manipulation may stimulate the neuroimmunoendocrine system, the evidence supporting a biological account for the application of high-velocity, low-amplitude thrust manipulation in clinical practice is mixed and conflicting.” It also concluded that the clinical relevance of most of the studies remained unanswered as they were conducted on healthy subjects. This study supports that there is no current basis for which to provide spinal adjustment / manipulation for the purpose of conferring or enhancing immunity.

### Conclusion

No credible, scientific evidence that spinal adjustment / manipulation has any clinically relevant effect on the immune system was found. Available studies have small sample sizes and a lack of symptomatic subjects.

At the time of writing, there exists no credible, scientific evidence that would permit claims of effectiveness for conferring or enhancing immunity through spinal adjustment / manipulation to be made in communications by chiropractors.

In the event that new scientific evidence emerges, it will be critically appraised using scientific methods of analysis.

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