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# Effects of the Mock Technique System Teaching Students Technique Evaluation

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The purpose of the study was to determine the effectiveness of having chiropractic and naturopathic students evaluate a simulated diagnostic/therapeutic technique system in teaching the evaluation of technique systems and to determine factors that affect this pedagogical technique. The participants were first-semester chiropractic and naturopathic medicine students ( $N = 31$ ). Students were asked to evaluate a simulated diagnostic/therapeutic technique system, the Mock Technique System (MTS), through surveys and interviews. The majority of students found that the evaluation of the MTS was a valuable exercise and that it improved their confidence in their ability to perform a similar evaluation on a real chiropractic diagnostic/therapeutic technique system. The study concluded that the evaluation of the MTS is a valuable classroom simulation exercise for chiropractic and naturopathic students. This exercise allowed the majority of students to strengthen their analytical skills concerning the evaluation of diagnostic/therapeutic technique systems.. (The Journal of Chiropractic Education 13(2): 100-109, 1999)

Key words: chiropractic, educational methods, technology assessment

## INTRODUCTION

It has been estimated that there are over 100 named chiropractic technique systems (1) Keating (2) believed that the development of such a wide variety of techniques was probably fostered by uncritical private empiricism. Technique in this context usually refers to technique systems that incorporate a theoretical model of the dysfunction (the treatable clinical entity) and procedures for assessment and treatment (3).

There have not been any clinical trials to determine the relative effectiveness between any chiropractic technique systems. Only one study has been conducted that has compared the effects of a single application of two different techniques (4). Thus, chiropractic students are confronted with a large variety of technique systems that have not been

adequately tested for clinical effectiveness, validity, and reliability.

Yet, many techniques are presented to students as if they are backed by research, capable of solving all clinical problems, and superceding all other techniques (5). In all fields of science students must learn to develop C.R.A.P. (Convolutd Reasoning or Anti-intellectual Pomposity) detectors which will allow students the ability to critically evaluate the published literature (6). There has been one published C.R.A.P. detector specific for chiropractic techniques. Kaminski et al. (7) from Western States Chiropractic College (WSCC) presented their algorithm for the evaluation of chiropractic methods. This algorithm, based on the scientific method and consensus-based theory, allows for the evaluation of chiropractic technique systems, even though there may be a lack of any published experimental research that evaluates the technique.

The Mock Technique System (MTS) (see Appendix) was developed to provide a chiropractic technique system which has a limited range of

methods and theories to evaluate. Perle (8) found that students were less confident in their ability to critically evaluate chiropractic technique systems after having evaluated the MTS. With this result, it was concluded that the MTS should be removed from the course in which it was used.

Upon further consideration, an alternative hypothesis to explain the result of the previous study has been developed. It is hypothesized that the individual student's confidence in his or her own ability to evaluate technique systems deteriorated after evaluating the MTS, because the students discovered that although the class working together was able to expose the faults in the system, individually the students believed that they did not possess that skill. If this hypothesis is correct, then using the MTS in teaching evaluation of technique systems may be beneficial because it provides students with a model of appropriate technique evaluation and the motivation to improve their evaluation skill. This hypothesis is conditional on finding, as in Perle's (8) previous study, that each student's perception of his or her ability to evaluate technique systems will deteriorate after evaluating the MTS. The purpose of this study was to evaluate further the effectiveness of the MTS in teaching the evaluation of technique systems and to determine the underlying attitudes that impact on the effectiveness of this teaching tool.

## METHODS AND MATERIALS

Chiropractic ( $N = 25$ ) and naturopathic medicine ( $N = 6$ ) students in a first-semester research methods/statistics class were surveyed (see Table 1) about their attitudes regarding their own ability to evaluate diagnostic/therapeutic techniques. Survey statements were rated on a 7-point Likert scale. Resource materials (5,9,10) on technique evaluation, including the WSCC algorithm for evaluation of chiropractic procedures (10), were distributed to the class, with instructions to read this material before the next class, a week later.

At the next class, the following presentations were made: an overview, including a review of *Bloom's Taxonomy*; the MTS; and the debriefing. In the overview, investigators informed students they would be part of a research study to investigate their evaluation of the MTS. The students then reviewed the cognitive domain of *Bloom's Taxonomy* (11). They were told that they should use a problem-solving process that applies the methods and theories

**Table 1. Pre- and Post-exercise Survey Statements**

1.	I think that I know what questions to ask to evaluate a diagnostic/therapeutic method.
2.	Assuming I know what questions to ask to evaluate a diagnostic/therapeutic method, I think I can evaluate the method based on the answers I get.
3.	I feel I have the background knowledge to enable me to critically evaluate a diagnostic/therapeutic method.
4.	If I do not have the background knowledge to enable me to critically evaluate a diagnostic/therapeutic method, I know how and where to get that knowledge.
5.	I believe that critical evaluation of a new diagnostic/therapeutic method is an easy process.
6.	When confronted with a new diagnostic or therapeutic method, the statements of the developer are adequate to validate the method.
7.	I have the confidence to confront a developer of a diagnostic/therapeutic method with questions about the validity and reliability of the method.
8.	If a new diagnostic/therapeutic method lacks any direct research about its validity or reliability, it cannot be used clinically.
9.	If a new diagnostic/therapeutic method lacks any direct research about its validity or reliability, it can be evaluated based on its theoretical rationale.

they had gained in the course. The students were also directed to use critical thinking (analysis) as they considered the MTS being presented.

The MTS was presented in written form and the students were given 15 minutes to read the technique. Then the technique was opened to questions and criticism, with the instructor (S.M.P.) playing both the role of technique developer and facilitator in this exercise. The instructor's responses were modeled after those of various technique developers that one investigator (S.M.P.) had observed over the past 19 years. The responses tended to be supercilious, arrogant, and defensive.

At the end of this exercise, the class completed the same survey that they had taken a week earlier, with the addition of some questions (Table 2) about the just-completed exercise. After the students had

**Table 2. Post-exercise-only Survey Statements**

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Post 1.	My class successfully determined what was “wrong” with the Mock Technique System.
Post 2.	Since my class successfully determined what was “wrong” with the Mock Technique System, I am less confident because I realize this was a group effort and I could not have done it on my own.
Post 3.	I am less confident because evaluating a diagnostic/therapeutic method was not as easy as I thought it would be to do.
Post 4.	Evaluating a diagnostic/therapeutic method is very different than I thought it would be.
Post 5.	Since my class successfully determined what was “wrong” with the Mock Technique System, I am more confident because I realize that even though this was a group effort I could have done it on my own.
Post 6.	I am more confident because evaluating a diagnostic/therapeutic method was easier than I thought it would be to do.
Post 7.	I found evaluating the Mock Technique System to be a valuable exercise.

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completed the second survey, they were interviewed by one of the investigators (A.M.S.) about their perceptions of what had taken place during the evaluation of the MTS.

The Wilcoxon Signed Ranks Test was used to determine if there was a significant difference between the student’s level of agreement with the statements pre- and post-exercise. Correlations were determined with Spearman’s rho ( $r_s$ ), a nonparametric correlation coefficient. Alpha was set at less than .05.

## RESULTS

The pre-exercise survey was completed by 25 students (80.6% of the class) and the postexercise survey was completed by 29 students (93.5% of the class). The only personal information requested on the survey was an identifying number (student ID or social security number) to allow the data from both sets of surveys to be compared using paired statistical analysis (Wilcoxon Signed Ranks Test).

Surveys were excluded if they could not be paired. A total of 19 paired valid surveys were used for this analysis. One subject did not complete the second page and this survey was included for pre-/post-analysis but not in tabulations of the post-exercise-only questions. The remaining 28 surveys filled out post-exercise were used in the tabulation of the post-exercise-only questions.

The survey questions that were repeated (Table 1) were analyzed for changes in student attitudes. The only significant differences were in the following statements: “I think that I know what questions to ask to evaluate a diagnostic/therapeutic method” ( $p = .017$ ) (Fig. 1); “Assuming I know what questions to ask to evaluate a diagnostic/therapeutic method I think I can evaluate the method based on the answers I get” ( $p = .007$ ) (Fig. 2); and “I have the confidence to confront a developer of a diagnostic/therapeutic method with questions about the validity and reliability of the method” ( $p = .02$ ) (Fig. 3). In all three cases there were increases in the degree of agreement with the statements. All other statements failed to show a statistically significant change.

A summary of the results of the post-exercise survey is found in Table 3. Most students agreed (92.9%,  $N = 26/28$ ) that the class successfully determined what was “wrong” with the MTS (“My class successfully determined what was ‘wrong’ with the Mock Technique System.”). A majority (81.5%,  $N = 22/27$ ) of students agreed that they found evaluating the MTS to be a valuable exercise (“I found evaluating the Mock Technique System to be a valuable exercise.”).

For all questions concerning a student’s confidence in his or her ability to perform an evaluation of a diagnostic/therapeutic method, the students responded that their confidence was improved after the evaluation of the MTS. A majority of respondents (67.9%,  $N = 19/28$ ) agreed with the statement, “Since my class successfully determined what was ‘wrong’ with the Mock Technique System, I am more confident because I realize that even though this was a group effort I could have done it on my own.” For the statement, “I am more confident because evaluating a diagnostic/therapeutic method was easier than I thought it would be to do” 53.6% ( $N = 15/28$ ) agreed. Likewise, a minority agreed with these statements when presented in negative form.

Only 21.5% ( $N = 6/28$ ) agreed with “Since my class successfully determined what was ‘wrong’ with the Mock Technique System, I am less confident

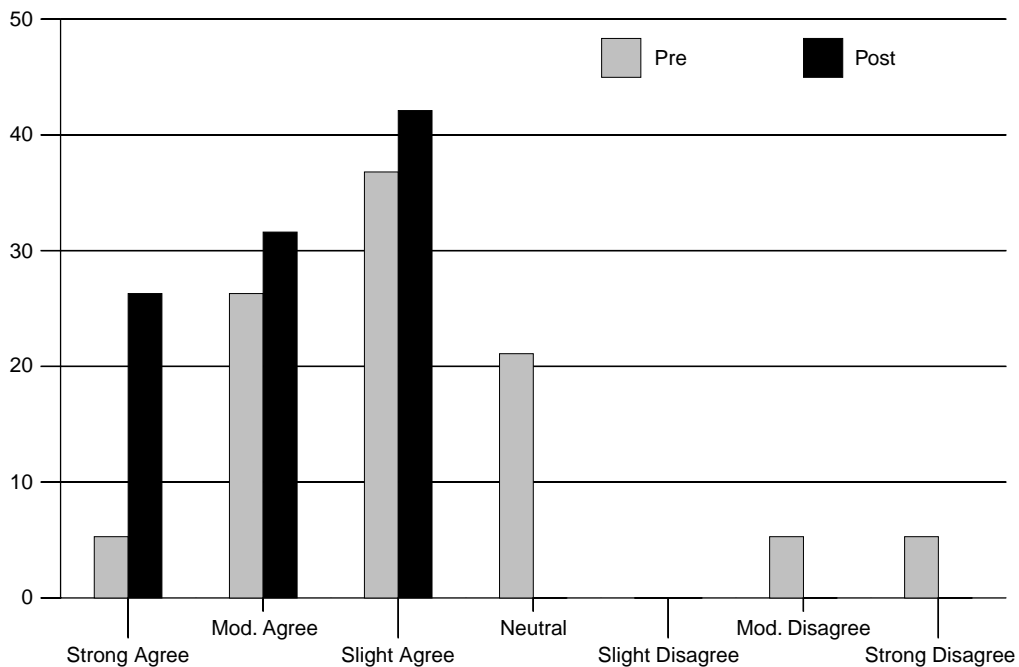


Figure 1. Percent of responses to: "I think that I know what questions to ask to evaluate a diagnostic/therapeutic method" (N = 19).

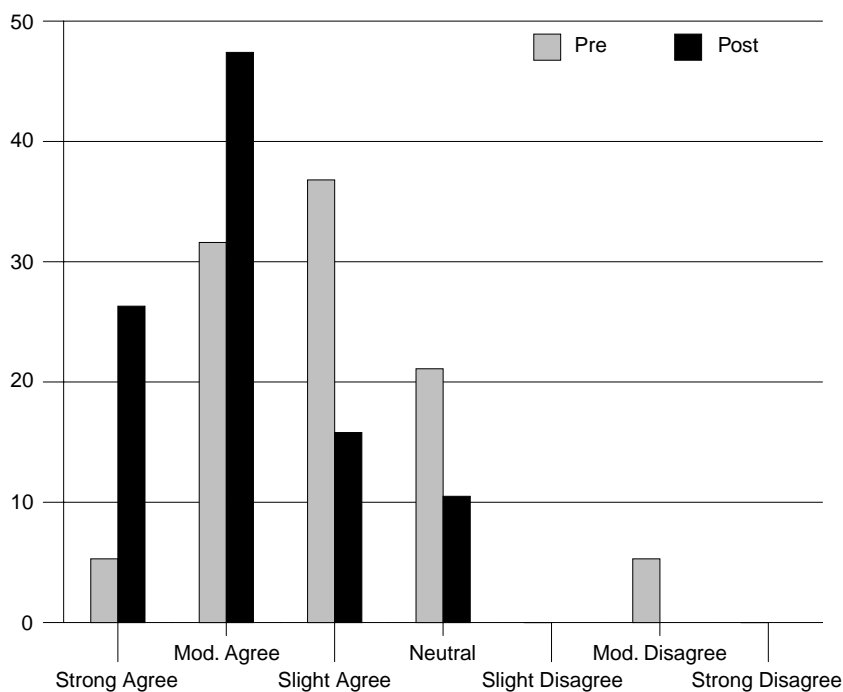


Figure 2. Percent of responses to: "Assuming I know what questions to ask to evaluate a diagnostic/therapeutic method, I think I can evaluate the method based on the answers I get" (N = 19).

because I realize this was a group effort and I could not have done it on my own." A small percentage agreed (14.3%,  $N = 4/28$ ) with the statement, "I am less confident because evaluating a diagnostic/therapeutic method was not as easy as I thought it

would be to do." There was a significant correlation between both of these statements ( $r_s = .761$ ,  $p = .0002$ ). Correlations were found also with the first of these statements on confidence and both of the following statements: "I feel I have the background

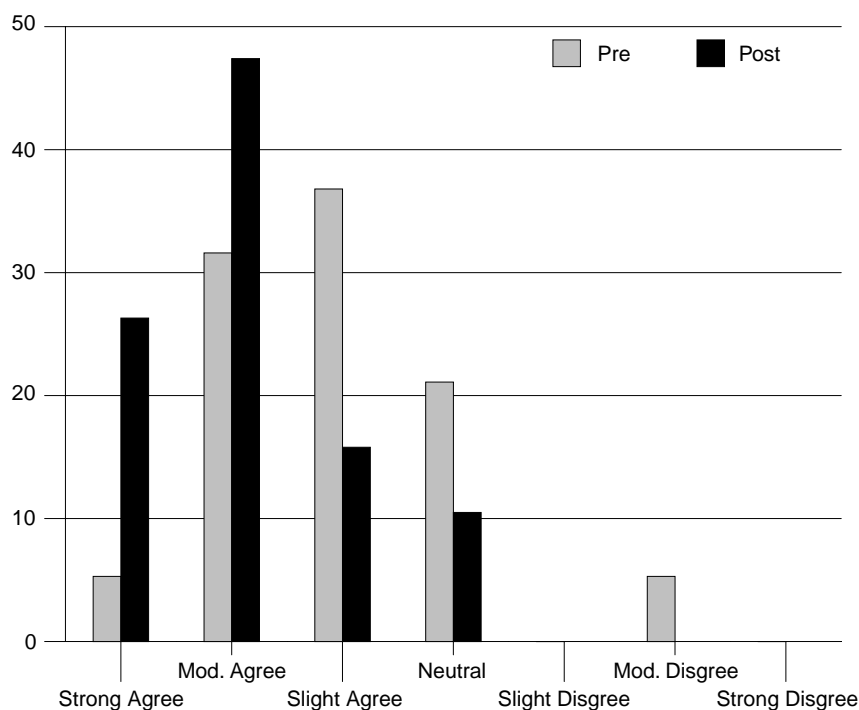


Figure 3. Percent of responses to: “I have the confidence to confront a developer of a diagnostic/therapeutic method with questions about the validity and reliability of the method” ( $N = 19$ ).

**Table 3. Percent Frequency of Likert Responses to Post-MTS Evaluation Statements ( $n = 28$ )**

Statement <sup>a</sup>	Percent agreement with statement								
	Strong agree	Mod. agree	Slight agree	Total agree	Neutral	Slight disagree	Mod. disagree	Strong disagree	Total disagree
Post 1	21.4	39.3	32.1	92.8	3.6		3.6		3.6
Post 2	3.6	3.6	14.3	21.5	32.1	3.6	17.9	25	46.5
Post 3	3.6	3.6	7.1	14.3	17.9	21.4	28.6	17.9	67.9
Post 4	3.6	14.3	28.6	46.5	25.0	10.7	10.7	7.1	28.5
Post 5	14.3	28.6	25.0	67.9	28.6	3.6			3.6
Post 6	10.7	10.7	32.1	53.5	14.3	21.4	10.7		32.1
Post 7	44.4	18.5	18.5	81.4	14.8	3.7			3.7

<sup>a</sup>Refer to Table 2 for statement descriptions.

knowledge to enable me to critically evaluate a diagnostic/therapeutic method” ( $r_s = -.496$ ,  $p = .031$ ) and “I believe that critical evaluation of a new diagnostic/therapeutic method is an easy process” ( $r_s = -.592$ ,  $p = .008$ ).

There was a significant negative correlation between “Since my class successfully determined what is ‘wrong’ with the Mock Technique System, I am more confident because I realize that even though this was a group effort I could have done it on my own” and the negatively worded counterpart, “Since my class successfully determined what was ‘wrong’ with the Mock Technique System, I am

less confident because I realize this was a group effort and I could not have done it on my own” ( $r_s = -.399$ ,  $p = .035$ ). However, no significant correlation was found between “I am more confident because evaluating a diagnostic/therapeutic method was easier than I thought it would be to do” and its negatively worded counterpart, “I am less confident because evaluating a diagnostic/therapeutic method was not as easy as I thought it would be to do” ( $r_s = -.308$ ,  $p = .111$ ). The highest significant correlations were found between the two sets of negative statements about confidence. “Since my class successfully determined what was ‘wrong’

with the Mock Technique System, I am less confident because I realize this was a group effort and I could not have done it on my own” and “I am less confident because evaluating a diagnostic/therapeutic method was not as easy as I thought it would be to do” ( $r_s = .751, p = .000004$ ); and “Since my class successfully determined what is ‘wrong’ with the Mock Technique System, I am more confident because I realize that even though this was a group effort I could have done it on my own” and “I am more confident because evaluating a diagnostic/therapeutic method was easier than I thought it would be to do” ( $r_s = .700, p = .00003$ ). Concerning how different evaluating the MTS was to their expectations, 46.4% ( $N = 13/28$ ) thought it was different, 25.0% ( $7/28$ ) were neutral, and 28.6% ( $8/28$ ) thought the process was as expected.

As part of the survey, students were asked to indicate the degree to which they found the MTS to be a valuable exercise and to explain their response. Presented in Table 4 is a distribution of students’ ( $N = 22$ ) explanations, in general categories, for why they agreed that the evaluation was a valuable

**Table 4. Subjects Explanations for Why the Exercise Was Valuable**

Response category	Response	Percent using response
A	Applied what was learned in class regarding research methods and critical analysis	27.30%
B	Increased confidence in ability to perform assessment	9.1%
C	The group interaction in the evaluation process was educational in and of itself	27.3%
D	Found that critical evaluation is not easy	4.5%
E	The presentation and evaluation were educational in and of themselves	22.7%
	No explanation	22.7%
	Total	113.6% <sup>a</sup>

<sup>a</sup>The responses total more than 100% because of students who provided more than one explanation.

**Table 5. Representative Explanations for Why the Exercise Was Valuable**

Response category	Representative response
A	It [MTS] made us all think in a more skeptical manner. If we’ve learned anything at all in our research class this semester, it is to question studies done with realism rather than idealism for the benefit of our patients.
B	It [MTS] brought up a whole array of questions and thoughts that I wouldn’t have thought of on my own, combining critical analysis made it more effective. I learned how to be a better critic as well.
C	It [MTS] increased my confidence of my ability to question and assess the validity of a therapeutic method.
D	It [MTS] shows how difficult it is to evaluate a new method of diagnosis and therapy.
E	It [MTS] made the experience less imitating. I realized that I could immediately pick up on cues telling me that I was receiving false or biased information. Flawed logic and biased claims were evident.

exercise. Table 5 contains explanations that are representative of the responses from students in each of the categories of explanations given in Table 4.

Only one student who neither agreed nor disagreed provided any explanation, which was: “Researcher should be more objective in answering questions.” Three students who were neutral on the value of the exercise gave no explanation for their response. Only one student who did not think the exercise was valuable gave an explanation: “It was valuable, however, having someone stand up in front of the class and egotistical and give ‘smart-a\_\_\_’ answers didn’t help both participants.”

Throughout the oral evaluation of the MTS, most students (74%,  $N = 11$ ) consistently used higher cognitive levels of Bloom’s taxonomy. Students asked questions regarding the use of controlled studies to evaluate the technique, reliability of instruments used within the technique, use of objective outcome measures of the patient’s condition, and the

bias of the “technique developer” (i.e., whether or not the developer would make money by using the technique). At one point, when the developer told the students, “The technique works!” A student asserted, “We were taught to be skeptical. I would like to put it [MTS] to a test!”

An investigator (A.M.S.) asked the students (36%) who did not question the “technique developer” why they did not respond orally. The students said that they did not know what else to say and that they were tired; it was the last class of the semester. The students who did not respond all sat in the last two rows in the classroom.

## LIMITATIONS

One of the limitations of this study is that no effort was made to assess objectively students’ learning styles. This may be a limitation because some learning styles may not be suited to the method used in this study. Depending upon their learning style, some students may need more than 15 minutes to adequately process the MTS. They might also feel more confident in understanding the techniques (comprehension), asking appropriate questions about them (application), and analyzing the techniques for their validity and reliability if they have more time in class and prior to the class to read and consider the techniques. Through the use of small group discussion, students might also analyze the techniques to discern their validity and reliability (or lack thereof) and to formulate appropriate questions based on their analysis.

## DISCUSSION

This study was intended to question Perle’s (8) findings concerning the effectiveness of using the MTS to teach evaluation of chiropractic technique systems. It was hypothesized that the individual student’s confidence in his or her ability to evaluate technique systems would deteriorate after evaluating the MTS because the students would discover that although the class working together was able to expose the faults in the system, the individual student believed that he or she did not possess that skill. In his earlier study, Perle only used a single question to determine if students’ attitudes about their ability to evaluate technique systems had changed after

evaluating the MTS. The data indicated that students were less confident in their ability to evaluate technique systems after evaluating the MTS. In the present study, students were surveyed with several questions and were provided with the opportunity to give open-ended answers to questions about their attitudes concerning performing the evaluation.

Contrary to Perle’s (8) earlier findings, both the quantitative and qualitative data demonstrated that students were more confident in their ability to evaluate diagnostic/therapeutic techniques after evaluating the MTS. Therefore, the hypothesis about why students were less confident is not supported. After the evaluation of the MTS, all the students agreed that they also knew what questions to ask about diagnostic/therapeutic method and how to use the answers to evaluate it. The questions that students asked during the evaluation of the MTS and the student responses during the post-exercise interview showed that the evaluation of the MTS did allow students the opportunity to use higher order (analytical) cognitive skills.

However, a small group of students (21.5%) found that evaluating the MTS decreased their confidence in their ability to evaluate diagnostic/therapeutic techniques, because they realized that the successful evaluation of the MTS was a group effort and that they could not have done it on their own. When considering the students’ attitudes prior to the exercise, the correlational analysis showed that these students were less confident in their ability to perform the evaluation, felt that they lacked the knowledge, and thought that the evaluation process was not easy. This was consistent with their opinions after the evaluation. Thus the student’s experience seemed to be a self-fulfilling prophecy.

This suggests that this subgroup may have learning styles that are different than the majority of this class. Examples of alternate approaches that might accommodate this subgroup are: 1) They may need more time to process information about the MTS before asking relevant questions; 2) a small group discussion prior to the evaluation of the MTS may be more valuable to them by allowing them to rehearse the evaluation process before taking part in the class evaluation; 3) some students might need a prior model of appropriate technique evaluation; and 4) they may need additional instruction or practice in technique evaluation.

There are a few reasons why this study’s results are contrary to Perle’s (8) earlier work. There were many differences in the survey questions asked of the

students. In the previous study, two additional sets of survey questions, not relating to the effectiveness of the evaluation of the MTS, were asked to help mask the central question's face validity. In the present study, students actually had less time to evaluate the MTS because of the time spent on the overview, review of Bloom's taxonomy, and the post-exercise interview. Since no effort was made to categorize students by learning styles, it is possible that the previous two cohorts of students (used as subjects in Perle's earlier study) may have been more typical of the subgroup in this study that did not find the exercise helpful.

The evaluation of the MTS is an example of a teaching method called a simulation. Two of the goals of simulations are to increase a student's ability to apply principles and to develop analytical thinking processes (12). The qualitative data suggest that the evaluation of the MTS accomplished these goals. These analytical thinking processes are required for diagnostic/therapeutic students who will be entering a field where evidence-based evaluations of diagnostic and therapeutic methods must be made (13).

## CONCLUSIONS

There are a large number of technique systems used that lack definitive practice guidelines regarding the appropriateness of any technique for any patient condition. Consequently, chiropractic and naturopathic students need to be taught methods that will strengthen their analytical skills, so that they can choose the best diagnostic and therapeutic methods to employ in their future practices. The evaluation of the MTS is a valuable classroom simulation exercise for chiropractic and naturopathic students. This exercise enabled the majority of students to strengthen their analytical skills concerning the evaluation of diagnostic/therapeutic technique systems.

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## REFERENCES

1. Bartol KM. Osseous manual thrust techniques. In: Gatterman MI, ed. Foundations of Chiropractic. Subluxation. St. Louis: Mosby, 1995, pp. 88–104.
2. Keating JCJ. Toward a philosophy of the science of chiropractic: a primer for clinicians. Stockton: Stockton Foundation for Chiropractic Research, 1992.
3. Peterson DH. Principles of adjustive technique. In: Bergmann TF, Peterson DH, Lawrence DJ, ed. Chiropractic technique: Principles and Procedures. New York: Churchill Livingstone, 1993, p. 127.
4. Gemmell HA, Jacobson BH. The immediate effect of Activator vs. Meric adjustment on acute low back pain: a randomized controlled trial. *J Manipulative Physiol Ther* 1995;18(7):453–456.
5. Richards TJ. Save money by avoiding chiropractic wizardry. *ACA J Chiropr* 1987;35–37.
6. Norman G, Streiner D. *PDQ Statistics*, 2nd ed. St. Louis: Mosby, 1997.
7. Kaminski M, Boal R, Gillette RG, Peterson DH, Villnave TJ. A model for the evaluation of chiropractic methods. *J Manipulative Physiol Ther* 1987;10(2):61–64.
8. Perle S. Using a Mock Chiropractic Technique System to Help Teach Evaluation of Technique. *J Chiropr Ed* 1998;11(4):169.
9. Coulter I. A "reasoned" approach to the validation of chiropractic methods. *Chiropr Technique* 1990;2(3): 98–102.
10. Kaminski M. Evaluation of chiropractic methods. *Chiropr Tech* 1990;2(3):107–113.
11. Anderson L, Sosniak L, ed. Bloom's Taxonomy: a Forty-Year Retrospective. Chicago: National Society for the Study of Education, 1994.
12. Orlich D, Harder R, Callahan R, Gibson H. *Teaching Strategies: a Guide to Better Instruction*. Boston: Houghton Mifflin Co, 1998.
13. Sackett D, Richardson W, Rosenberg W, Haynes R. *Evidence-based medicine: How to practice and teach EBM*. New York: Churchill Livingstone, 1997.

## APPENDIX: MOCK CHIROPRACTIC TECHNIQUE SYSTEM I

**Note:** *This chiropractic "technique" system is NOT intended to be used on patients. This was developed purely as an educational aid. This "technique" has been designed to be used during an educational symposium to demonstrate the use of the Western States Chiropractic College model (1–3)*

*for the evaluation of chiropractic techniques. This "technique system" is NOT being taught, researched, or promulgated for any other purpose.*

## **History**

This Mock Technique System I was developed by Stephen M. Perle, D.C., C.C.S.P., Assistant Professor of Clinical Sciences, University of Bridgeport College of Chiropractic, Bridgeport, CT. This mock technique system was developed for use at the Pennsylvania Chiropractic Society Symposium on Evaluation of Chiropractic Techniques that was produced with the assistance of the ACA Council on Technique and its Intercollege Panel of Advisors in August of 1994. If there are any similarities between this mock technique and any past or present technique systems used by doctors of chiropractic, except as noted, this is accidental.

The Mock Chiropractic Technique System I is based on three basic diagnostic procedures. There are two basic treatment procedures.

## **General Adaptive Syndrome**

### **Rationale**

New patients are evaluated by using the skin rolling procedure (4) to determine areas of hypesthesia. Hypesthesia is demonstrable evidence of the irritation of a nerve or muscle caused by a subluxation. Recall that DD Palmer said that disease is caused by too much or too little tone (5). Hypesthesia demonstrates a region of the spine with too much tone, thus indicating that this is an area of the spine that has subluxation and obviously needs to be adjusted. But this does not tell us which specific vertebral segment or the listing.

To understand how the listing is determined the following must be recalled: We know that Palmer's concept of undue irritation of the nervous system is analogous to Hans Selye's concept of stress. Selye and those who followed him in research have shown that stressors can be mechanical, chemical, or psychological (6), analogous to Palmer's undue irritation of the nervous system coming from traumatism, poison, or auto-suggestion causes (5). Therefore, in Selye's model a subluxation is a mechanical stressor of the nervous system. We know it to be the chief stressor. Selye has shown that any stressor invokes what he termed the General Adaptive Syndrome (GAS). The GAS is a specific response to a nonspecific stimulus. One might remember that GAS is another name for the fight-or-flight response of the sympathetic nervous

system. One of the observable signs of GAS is an increase in the patient's peripheral pulse. It is this increase in the patient's pulse when experiencing undue irritation to a nervous system that allows us to locate the specific motion segment involved and the line of correction. When the vertebra that is subluxed is challenged in the direction that will correct the subluxation, the patient's pulse will decrease. This is because pushing the vertebra back towards its normal alignment (a vector of force that would tend to correct the subluxation) reduces the stress and therefore decreases the patient's GAS. Obviously, the magnitude of the decrease is proportional to the severity of the subluxation. A more severe and chronic subluxation would cause more stress and therefore would have sped up the patient's pulse to a greater degree than a more mild and acute subluxation.

### **Procedure**

The patient lies prone. Skin rolling is performed from the sacrum to the occiput, bilaterally. Regions of hypesthesia are noted. Next a pulse meter is placed on the patient with a readout dial that the doctor can see. In a region of hypesthesia, the doctor pushes on each vertebra on both the left and right looking for a decrease in the patient's pulse. When a vertebra and correct side are identified then the doctor challenges the vertebra in more specific directions. The direction that causes the largest decrease in pulse is the direction in which the vertebra should be adjusted. Any highly specific adjustive technique is appropriate, provided that the line of correction (line of drive) used is that found to cause the largest decrease in patient's pulse.

## **The Immunostimulant Effect**

### **Rationale**

Chiropractic history is replete with examples of chiropractors who, through the exclusive use of adjusting, have helped those with bacterial and viral infections to heal themselves and demonstrate wellness. The profession has used many explanations for this phenomenon, but none except for the Immunostimulant Effect is based on sound scientific research. The Immunostimulant Effect was discovered by Brennan et al. (7) in research done at National Chiropractic College. What they found was that shortly after manipulation in the thoracic spine that there was a transient threefold increase in phagocytic activity of the lymphocytes. This increase in activity completely diminished after a little less than 30 minutes. It was also found that this activity

happened whether or not the manipulation was done at a site of subluxation. The only thing that mattered was that the manipulation involved an application of greater than 450 N force. Therefore, to maintain this threefold increase in phagocytic activity, one need only perform nonspecific adjustments of the thoracic spine more often than every 30 minutes.

### **Procedure**

The patient is positioned prone. A cross-bilateral-pisiform contact is made in the midthoracic spine and the patient is adjusted. The patient is instructed to walk around the office for 15 minutes. After the 15 minutes, the procedure is repeated until either the patient cannot stay or the doctor must close the office. In our experience a minimum of 3 hours of adjusting is needed. Usually the patient will start to feel better and show demonstrable signs of improvement within 24 hours. In a few cases this treatment protocol needs to be repeated for 2 or 3 days in a row.

## **Laser Sympathetic System Diagnosis**

### **Rationale**

It is a well established fact that the interference pattern generated by reflected laser light contains in it all the information contained in the object off of which it reflected (8). As a result, it is possible to use the reflected laser light to diagnose disease of the sympathetic nervous system. Knowing the parasympathetic nervous system egresses from both the proximal and distal ends of the CNS, parasympathetic vibration travels in the sagittal plane. Conversely, the sympathetic nervous system causes transverse planer vibration, due to its egress in the middle of the body (9). This information allows us to use reflected laser light to analyze the balance between the sympathetic and parasympathetic nervous systems. Balance is restored by adjusting the patient. The thoracics are adjusted to stimulate the sympathetic nervous system and the sacroiliac joint is adjusted to stimulate the parasympathetic nervous system.

### **Procedure**

With a patient supine, a half-silver mirror<sup>1</sup> is placed on the abdomen. The doctor points a 0.3-mW

diode-laser at the mirror. The motion of the reflection is noted. If the reflection moves horizontally this means that the patient is experiencing sympatheticotonia/parasympatheticopinea and should be adjusted at the sacroiliac joint. If the reflection moves vertically, this means that the patient is experiencing parasympatheticotonia/sympatheticopinea and should be adjusted at the thoracics. If the reflection rotates clockwise, the patient's sympathetic nervous system is in balance. However, if the reflection rotates counterclockwise, the patient is swapped and requires the following treatment: The patient needs to have their ears adjusted. This is because the ears hear the discordant sounds of the industrial world and try to get the nervous system to swap to a more serene input. This adjustment is done by pulling the left ear lobe with the right hand and vice versa. If your office is in a rural location reverse the hand contacts (e.g., right hand with right ear).

## REFERENCES

1. Kaminski M, Boal R, Gillette RG, Peterson DH, Villave TJ. A model for the evaluation of chiropractic methods. *J Manipulativ Physiol Ther* 1987;10(2):61-64.
2. Kaminski M. Evaluation of chiropractic methods. *Chiropr Tech* 1990;2(3):107-113.
3. Boal R, Kaminski M, Peterson DH, Gillette RG. An algorithm for the analysis of chiropractic methods. In Vear HJ, ed., *Chiropractic Standards of Practice and Quality of Care*. Gaithersburg, MD: Aspen Publishers, 1992.
4. Mennell JM. *The Musculoskeletal System: Differential Diagnosis from Symptoms and Physical Signs*. Gaithersburg, MD: Aspen Publishers, 1992; pp. 28, 83-85.
5. Palmer DD. *The Science, Art and Philosophy of Chiropractic*. Portland, OR: Portland Printing House Co. 1910.
6. Seyle H. *Stress in Health and Disease*. London: Butterworth, 1975.
7. Brennan PC, Triano JJ, McGregor M, Kokjohn K, Hondras MA, Brennan DC. Enhanced neutrophil respiratory burst as a biological marker for manipulation forces: Duration of the effect and association with substance P and tumor necrosis factor. *J Manipulative Physiol Ther* 1992;15(2):83-89.
8. Hutchingson LM, Starkey R, Joel B. Information transmission by laser holography. *Science* 1989;1023(2):345-367.
9. Kandel ER, Schwartz JH. *Principles of Neural Science*, 2nd ed. New York: Elsevier Science Publishing Co., 1985.

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<sup>1</sup> Edmunds Scientific, catalogue part number SMR-3452A.