

# Ontario chiropractor's knowledge of exercise guidelines for pregnant patients

Carol Ann Weis, MSc, DC<sup>1</sup>

Emily Baas, DC<sup>2</sup>

Kristen Ciesla, DC<sup>2</sup>

Carissa Kimpinski, DC<sup>2</sup>

Victoria Landsman, PhD<sup>3</sup>

**Objective:** *To describe the Ontario chiropractors' knowledge regarding the current guidelines for exercise during pregnancy through a knowledge score and exploring its distribution across different strata of interest including gender, experience, location of practice and type of practice.*

**Methods:** *A previously used survey was modified and sent to 500 randomly selected Ontario chiropractors. Demographic and continuing education questions were included, and the knowledge score was calculated using 10 items.*

**Results:** *The differences between the knowledge score values across the four strata of interest were not statistically significant. The average knowledge score in the sample of respondents was low (5.2 out of 10) and highly variable (SD=1.8).*

**Conclusion:** *The average knowledge score of the*

**Objectif :** *Décrire les connaissances des chiropraticien(ne)s de l'Ontario sur les lignes directrices actuelles en matière d'exercice pendant la grossesse au moyen d'un score de connaissances et explorer leur répartition dans différents champs d'intérêt, notamment le sexe, l'expérience, le lieu de pratique et le type de pratique.*

**Méthodologie :** *Un sondage (ayant déjà servi) a été modifié et envoyé à 500 chiropraticien(ne)s choisi(e) s au hasard domicilié(e)s en Ontario. Des questions démographiques et de formation continue ont été ajoutées, et le score de connaissances a été calculé selon 10 critères.*

**Résultats :** *Les différences entre les valeurs du score de connaissances parmi les quatre champs d'intérêt n'étaient pas statistiquement importante. Le score moyen de connaissances dans l'échantillon des personnes interrogées était faible (5,2 sur 10) et très variable (SD=1,8).*

**Conclusion :** *Le score moyen de connaissances des*

<sup>1</sup> Canadian Memorial Chiropractic College

<sup>2</sup> Private practice

<sup>3</sup> Institute for Work & Health, Dalla Lana School of Public Health, University of Toronto

Corresponding author:

Carol Ann Weis

Canadian Memorial Chiropractic College, 6100 Leslie St. Toronto ON M2H 3J1

Tel: 416-899-1194

e-mail: cweis@cmcc.ca

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*respondents was found to be low and highly variable but not statistically or practically different across various strata of interest. A well-designed curriculum or post-graduate courses may be beneficial for practicing chiropractors in Ontario.*

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KEY WORDS: chiropractic, exercise, knowledge, pregnancy, prenatal

## Introduction

Obstetric medical associations, such as the Society of Obstetricians and Gynecologists of Canada (SOGC) and the American College of Obstetricians and Gynecologists (ACOG), encourage their patients to exercise as long as they are experiencing a healthy, uncomplicated pregnancy. In general, exercise is a vital part of a healthy pregnancy as there are both physical and emotional benefits<sup>1-7</sup>; including, decreasing low back and pelvic girdle pain<sup>8</sup>, improving sleep<sup>4,5</sup>, reducing nausea<sup>4</sup>, fatigue<sup>4</sup>, and headaches<sup>4</sup>, preventing excessive maternal obesity<sup>1,2,6</sup>, reducing depression<sup>8</sup>, and improving health perception<sup>4</sup>, to name a few. It has also been shown repeatedly that exercise, in moderation, does not have adverse effects on either the mother or the fetus.<sup>1-3,7,9</sup> ACOG suggests that pregnant women should partake in 30 minutes of moderate activity on most, if not all days of the week.<sup>3,9</sup> SOGC suggests that sedentary pregnant women should start at 15 minutes of exercise and progress up to 30 minutes, while previously active pregnant women can continue their exercise regime.<sup>7</sup> SOGC, in conjunction with the Canadian Society of Exercise Physiology (CSEP), developed the Physical Activity Readiness Medical Examination for Pregnancy (PARmed-X for Pregnancy) tool to use in screening for contraindications to exercise during pregnancy, educating prenatal patients, ongoing medical surveillance and creating exercise programs.<sup>10</sup> This tool was developed for health care providers (medical doctors, chiropractors, physiotherapists, etc.) and other professionals (personal trainers, coaches, etc.) and included specific exercise prescription such as frequency, intensity, timing and type of activity.<sup>10</sup>

*personnes interrogées s'est avéré faible et très variable, mais pas statistiquement ou pratiquement différent parmi les différents champs d'intérêt. Un programme d'études ou des cours universitaires supérieurs bien conçus peuvent être bénéfiques pour les chiropraticien(ne)s de l'Ontario.*

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MOTS CLÉS : chiropratique, exercice, connaissance, grossesse, prénatal

However, not all health care professionals routinely counsel their pregnant patients regarding exercise and pregnancy.<sup>11-13</sup> Bauer *et al.*<sup>12</sup> and others<sup>11,14</sup> surveyed the knowledge, beliefs, and practice guidelines of various healthcare providers, including certified midwives, obstetricians/gynecologists, medical and osteopathic doctors. Respondents in each of the studies believed that exercise was beneficial and reported that they would recommend exercise to their patients.<sup>12</sup> However, despite the overall positive response to exercise, respondents either lacked the knowledge and/or awareness regarding antenatal physical activity and current guidelines or there is a disconnect translating that knowledge.<sup>11,12,14</sup> In addition, women believe they receive insufficient or no counseling on exercise during pregnancy.<sup>11</sup> However, they believe if they had received information on how to safely and effectively exercise during pregnancy it would have facilitated their engagement in physical activity.<sup>11</sup> A healthcare professional's knowledge or communication skills should never be a factor that limits a pregnant patient's participation in a proper exercise program.<sup>11,14</sup>

Chiropractic care is one of the top three choices selected by pregnant women to help alleviate aches and pains. Yuen *et al.*, who surveyed 755 Ontario chiropractors, established that a variety of methods are used to treat pregnant patients, including Diversified Technique, soft tissue therapy, the Activator and exercise prescription.<sup>6</sup> Sadr *et al.* interviewed chiropractors and patients and determined that exercise prescription is an important component of a chiropractic treatment plan for pregnant women.<sup>5</sup> However, the respondents in their study stated they would not begin an exercise program during pregnancy if their pa-

tient had not been previously active nor would they introduce anything new at a later stage of pregnancy. Both of these strategies are not consistent with the current exercise guidelines for pregnancy.<sup>5</sup> The questions concerning exercise in both of these studies were general in nature and did not establish which guidelines, if any, the chiropractors used to design their exercise regimes, nor did they quantify the chiropractors' overall knowledge regarding exercise and pregnancy.<sup>6</sup> Therefore, the purpose of this paper is to explore the Ontario chiropractors' knowledge regarding the current guidelines for exercise during pregnancy by establishing a knowledge score (KS). It is also to determine the association of this measure with a provider's gender, years of experience, location and type of practice.

We chose these four strata to examine our belief that female patients are more comfortable being treated by a practitioner of the same gender. Female practitioners may have experienced pregnancy themselves. As a result, we believed that female chiropractors may be more knowledgeable with respect to the exercise guidelines. Chiropractors with less than 15 years of experience were expected to have a greater knowledge of exercise and pregnancy guidelines than those who have been practicing for more than 15 years, as they would have been more recently exposed to current guidelines. Most undergraduate programs include female care in their curriculum. Chiropractors in rural settings were expected to have a greater knowledge of pregnancy guidelines as they may be the only primary health care provider available and are like-

ly required to provide prenatal advice on a more regular basis. Finally, practitioners who treat prenatal patients on a regular basis were expected to be more up to date with the latest research and information on this population. Therefore, we hypothesized that respondents with higher knowledge scores would more likely be female chiropractors, more experienced chiropractors, chiropractors practicing in rural areas and those whose practice was focused in prenatal care.

## Methods

### *Study Design*

A survey was developed investigating various aspects of Ontario chiropractors' knowledge regarding the exercise guidelines in the pregnant patient population (Appendix A). The questionnaire for current study was modified to target chiropractors and consisted of 20 questions grouped in five sections. The questions were written with simple, short phrases, and presented in the English language. Table 1 describes each section of the instrument in detail. The Office of Research Administration at the Canadian Memorial Chiropractic College (CMCC) approved this study (1510X06).

### *Survey Development and Pilot*

The questionnaire originated from an unpublished study (through personal communication with the faculty supervisor), which examined the knowledge regarding exercise and pregnancy in sports medicine doctors, family phys-

Table 1.  
*Sections of the questionnaire*

Section	Description	# of questions
1	Informed consent	1
2	Demographics information such as age, practice years, etc.	8
3	Agree/Disagree questions (7) and multiple-choice questions (3) used to calculate the Knowledge Score (KS) outcome	4*
4	Individual preferences of the respondent with respect to exercise advice given to patients and desired format for continued education.	6
5	E-mail information should the respondent want more information about the study. This was independent to their responses to the survey in order to maintain confidentiality.	1

\*7 items make up the Agree/Disagree question and there are 3 multiple-choice questions

icians and obstetricians. The exercise-based questions on the survey were developed from the information presented in the Canadian guidelines<sup>7, 15, 16</sup> at the time. Since the guidelines have been updated since the original survey was developed, the current survey was pre-tested by four researchers (two experts/medical professionals involved in the original survey, and two experts in exercise and pregnancy research) to determine the correct answers to the KS questions. For any discrepancies in the 10 questions, the majority rule was utilized.

Originally, this study was designed for physicians, so it was slightly modified for the chiropractic population. Modification of the survey included the addition of an age category, asking female respondents if they had ever been pregnant, what percentage of their practice included prenatal care, if they prescribed exercises for their pregnant patients and what type of post-graduate prenatal training, if any, they had received. As this was part of a master's thesis, the original questionnaire underwent partial feasibility testing and scrutiny through the University Ethics Board.

Prior to distributing the survey, a pilot study was conducted. Five chiropractic teaching faculty at CMCC were asked to review a paper copy of the survey. The purpose of the pilot study was to receive feedback from the selected chiropractors regarding potential problems with the wording, clarity and intention of the questions asked in the survey. The research group reviewed the proposed feedback from the returned surveys (4 out of 5) and incorporated the suggested grammatical changes into the final draft of the questionnaire. The five chiropractors from the pilot study were removed from the randomization process in order to preserve the integrity of the responses.

### *Knowledge Score Outcome*

A continuous outcome measure, named "knowledge score" (KS), was calculated as a number of correct answers to each of the 10 items in the questionnaire: seven Agree/Disagree questions and three case studies with four multiple choices (questions 13 and 14-16, respectively; see Appendix A), only one of which is correct. Therefore, the KS takes values from 0 to 10.

### *Participant selection and survey distribution*

Determination of the sample size of this survey required several assumptions and approximations since KS has not

been measured or studied previously. Keeping in mind that the outcome variable is a scale variable with the values from 0 to 10, we assumed that the highest most commonly seen value in the sample would be 9 ( $H=9$ ) and the lowest most commonly seen value in the sample would be 2 ( $L=2$ ). Then, the SD of the knowledge score was approximated as  $(H-L)/4$ , equaling 1.75 in our case. In addition, we targeted to detect a difference of 1.2 points in comparison between the two groups, leading to the estimated effect size of 0.7 ( $1.2/1.75$ ). Standard sample size calculations under these assumptions implied a sample size of approximately 33 people in each group to ensure that the predefined difference between the two groups could be detected with the power of 80%.

We expected that there might be various technical difficulties reaching potential respondents, and a very low response rate for this population (around 20%). Therefore, we concluded with a sample size of  $n=500$ .

The survey was distributed through the web-based interface Survey Monkey<sup>®</sup>. Five hundred out of 3052 chiropractors in active practice, registered through the 2015–2016 electronic directory of the College of Chiropractors of Ontario (CCO)<sup>17</sup>, were randomly selected using a computer algorithm and invited to participate in the study. As the survey was e-mail based, individuals were not invited to participate if their email address was not registered with the CCO, or if their category for membership was "inactive".

The first page of the email survey contained the informed consent; participants selected "Yes" if they agreed to the terms of the survey and continued to the survey itself, or "No" if they did not. The informed consent described the goals of the study, outlined participant's responsibility if they opted to participate, related any potential risks or harm, and detailed participants' ethical rights. Participants were able to withdraw at any time and/or not answer any of the questions. Participants had four and a half weeks to complete the survey. A total of three reminder emails, eight days apart, were sent out to the participants who had not completed the survey in order to increase the response rate.<sup>18</sup>

### *Statistical Analysis*

Means and standard deviations were obtained to characterize the survey respondents by age, gender, years of experience, clinic location and clinic type. In addition, sur-

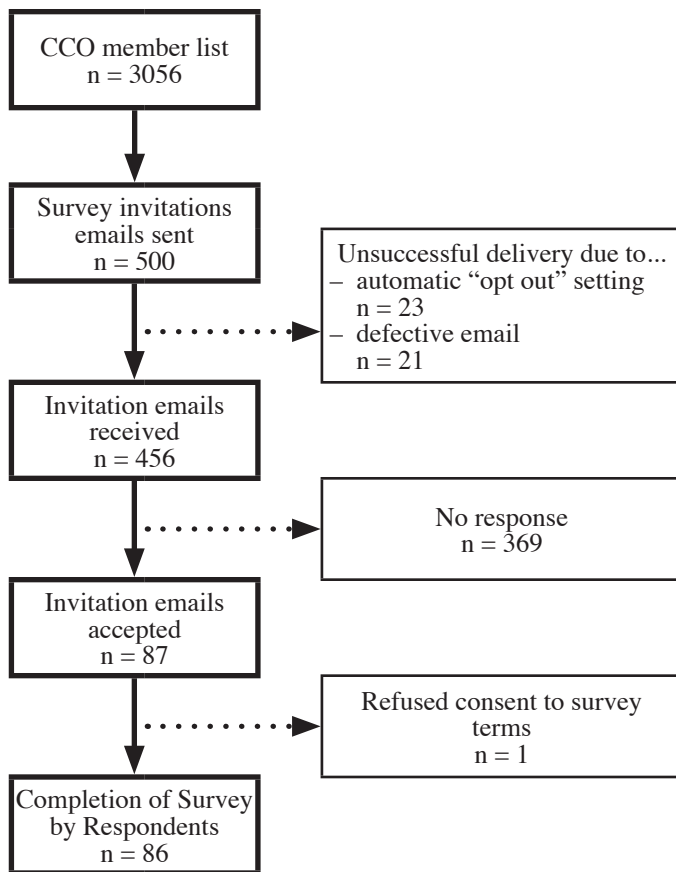


Figure 1:

*Process of subject selection and number of respondents*

vey respondents were compared to the general population of registered chiropractors by age, gender and years of experience.

The mean and standard deviation of the KS were obtained for the entire sample of respondents and for the subgroups of interest. Specifically, the KS scores were compared across two genders (males vs females); two levels of experience (more than 15 years in practice vs 15 or less years in practice); three levels of practice location (rural, urban and both); and two levels for type of practice (providing prenatal care vs not providing prenatal care). The comparisons between the groups were performed using analysis of variance (ANOVA) method.

## Results

Of the 500 surveys that were sent out, 44 were not successfully delivered. In total, 87 subjects out of 456 accepted

the invitation to participate in the survey; one participant declined the consent and 86 surveys were completed, a response rate of 18.9% (Figure 1). The comparison between the demographic characteristics of the respondents and practicing chiropractors registered through 2015-2016 CCO database showed borderline statistically significant difference in gender distribution (with slightly higher proportion of females in the sample than in the population). The age distribution as well as the distribution of the number of years in practice were not found statistically different between the respondents and the general population of all registered chiropractors (Table 2). Based on these results, we believe that the sample of respondents provides a fair representation of the general population.

The overall score on each of the items comprising the KS score was determined first. Overall, the Agree/Disagree statements were answered correctly more often than the case studies (Table 3). The average KS value in the sample was 5.2 (SD=1.8;  $q(0.25)=4$ ; Median = 5;  $q(0.75)=6$ ; Inter-Quantile Range (IQR) = 2). Comparison of the KS scores between male and female practitioners as well as between practitioners practicing for less than 15 years and for more than 15 years do not show any statistically significant differences in the average score (p-values equal 0.7042 and 0.8816, respectively). Additionally, average KS value of practitioners who provide prenatal care are similar to those who do not provide this type of care (p-value = 0.5927). No statistically significant difference in KS values was found between practitioners whose practice is located in urban vs rural vs both rural and urban areas (p-value = 0.6856). These findings are summarized in Table 4.

Over 60% of the participants have not encountered the current exercise and pregnancy guidelines (Table 5). When asked how often they would typically prescribe certain exercise advice to prenatal patients, including whether or not to be active, examples of exercises, as well as their intensity, frequency and duration, four out of five statements were given to prenatal patients “often”, “frequently” or “always” more than 55% of the time. At the same time, 56% of the time, the advice regarding exercise intensity for pregnant women was “occasionally” or “never” suggested (Table 6). When asked what type of postgraduate education respondents had received regarding exercise and pregnancy, approximately a third of all participants indicated that they had received no postgrad-

uate training. Of the knowledge gained after graduation, almost half of the participants reported that they were self-taught and approximately 40% of chiropractors learned guidelines through conferences and seminars. Finally, respondents were asked their preference with respect to continuing education on this topic and it was found that web-based seminars best suited the respondent's needs.

Table 2.  
Demographic analysis of sample of respondents and the population of chiropractors registered with the CCO (for available variables).

	Sample of respondents n = 86 (n, %)	Population registered with the CCO N = 3056 (n, %) p-value
Age p = 0.4479		
<30	8 ( 9.3%)	426 (10.1%)
30-40	30 (34.9%)	1334 (31.2%)
41-50	30 (34.9%)	1406 (32.9%)
51-60	14 (16.3%)	635 (14.9%)
60>	4 ( 4.7%)	468 (11.0%)
Gender p = 0.0414		
Female	41 (47.7%)	1577 (36.9%)
Male	45 (52.3%)	2692 (63.1%)
Number of Years in Practice p = 0.5638		
<5	17 (19.8%)	866 (20.3%)
5-14 years	29 (33.7%)	1580 (37.0%)
15-25 years	26 (30.2%)	1016 (23.8%)
25>	14 (16.3%)	808 (18.9%)
Location		
Urban (pop. ≥50,000)	61 (70.9%)	N/A
Rural (pop. <50,000)	20 (23.3%)	N/A
Both (Urban & rural)	5 ( 5.8%)	N/A
Provide Prenatal Care		
Yes	66 (77.6%)	N/A
No	19 (22.4%)	N/A

## Discussion

The benefits of exercise during a healthy non-complicated pregnancy are no longer disputed<sup>19</sup> and as such health care professionals, including chiropractors, should have a current, working knowledge of exercise guidelines for prenatal patients to ensure safety for the mother and fetus. In this study, we aimed to explore the chiropractor's know-

Table 3.  
Agree/Disagree (A/D) questions and case scenarios that define the knowledge score and percentage of correct answers (n=86). See Appendix A for correct answers and description of case studies.

KO Item	Correct	Incorrect
A/D 1: Regular moderate exercise is beneficial to most low risk pregnancies (n=84)	93.0%	7.0%
A/D 2: Frequency of exercise should be limited to twice weekly (n=84)	83.7%	16.3%
A/D 3: Moderate exercise for pregnant women consists of 1-hour duration (n=84)	19.8%	80.2%
A/D 4: Most pregnant women will have some sweat while exercising (n=84)	86.0%	14.0%
A/D 5: Light to moderate aerobic exercise is considered appropriate for pregnancy (n=83)	86.0%	14.0%
A/D 6: Twin gestation after the 28th week is a relative contraindication to exercise during pregnancy (n=84)	29.1%	70.9%
A/D 7: A woman with uncontrolled hypertension should not exercise during pregnancy (n=84)	45.3%	54.7%
Scenario 1: Terry & Yoga, n=81	16.3%	83.7%
Scenario 2: Rebekah & Running, n=78	17.4%	82.6%
Scenario 3: Galina & Swimming, n=81	40.7%	59.3%

ledge regarding exercise and pregnancy by calculating a KS based on the number of correct answers to the survey questionnaire. The mean KS for the current study was low (5.2 out of 10) and diverse, indicating a great variability in the knowledge scores of the participants. This finding is further strengthened by the fact that over 60% of respondents reported they never saw or referenced any

guidelines and, in more than half cases, did not give out pertinent advice, such as exercise intensity. In addition, we examined the KS across strata of interest and found no statistically or practically important difference in KS between gender, years of experience, practice location and type of practice with respect to providing prenatal care.

Up to 40 years ago, the research on exercise during

Table 4.

*Stratified analysis of the knowledge score measure by gender, years in practice, practice location and provision of prenatal care.*

Variable	Mean	Standard Deviation	p value
<b>Gender</b>			
Male	5.10	1.87	0.7042
Female	5.24	1.71	
<b>Years in Practice</b>			
<15 years	5.22	1.81	0.8116
≥15 years	5.13	1.76	
<b>Prenatal Care Provision</b>			
Yes	5.12	1.77	0.5927
No	5.37	1.83	
<b>Location</b>			
Between Groups	df = 2	F = 0.38	P value = 0.6856
Within Groups	83		

Table 5.

*Exposure to pregnancy and exercise guidelines of active, practicing chiropractors in Ontario (n= 65).*

Exposure to Guidelines	Respondents
n (%)	
Have not seen them	54 (63.5%)
Have heard about them through a colleague	10 (11.8%)
Have attended an educational event about the guidelines	12 (14.1%)
Refer to them regularly before advising appropriate patients	11 (12.9%)
Use the ParMed-X for Pregnancy Screening Tool	10 (11.8%)

*Percentages may be greater than 100% because participants were able to select more than one detractor.*

Table 6.

*Frequency of exercise advice given by chiropractors to prenatal patients (n= 64).*

Advice Given to Prenatal Patients	Never	Occasionally	Often	Frequently	Always
Encouraging exercise in an inactive woman	16.9%	20.0%	29.2%	13.8%	20.0%
Specified the recommended frequency of exercise during pregnancy	14.1%	28.1%	32.8%	10.9%	14.1%
Provided examples of appropriate types of exercises during pregnancy	10.8%	21.5%	33.8%	13.8%	20.0%
Given examples of measuring exertion intensity during exercise	36.9%	20.0%	16.9%	9.2%	16.9%
Specified the duration of recommended exercise in minutes	18.5%	26.2%	26.2%	18.5%	10.8%

pregnancy was almost non-existent. Since that time, there have been many iterations of the exercise guidelines and PARmed-X for Pregnancy set out by CSEP and SOCG<sup>7, 10, 15, 20</sup> reflecting the most current research for that period of time. Staying current with the pace and amount of the new research available can be challenging<sup>14</sup> and may explain the deficit in knowledge. In fact, the guidelines and the PARmed-X for Pregnancy are going through another iteration, due out late 2018. This deficit may imply a lack of formal educational training, as the specific guidelines may not have been presented as part of the chiropractic curricula. Finally, our study reveals that clinical intuition may play a large role in guiding the respondent's decision-making process for this patient population. Over half of the respondents had not even heard of the current published guidelines such as the PARmed-X for Pregnancy, let alone used them. Despite the variability in knowledge, over half (55%) of the surveyed respondents reported that they tried to provide exercise advice to their patients "often", "frequently" or "always".

Bauer *et al.* confirm the existence of a willingness amongst chiropractors to improve their knowledge based on current evidence, standards of practice and willingness to learn.<sup>12</sup> Bussieres *et al.* suggested that Canadian chiropractors have a positive attitude towards evidence-based research but have difficulty implementing it into daily practice.<sup>21</sup> Combining the conclusions from these and our studies, it seems that there is an opportunity to create a post-graduate course, such as a web-based seminar, to disseminate the most current research and practical applications for chiropractors. These standardized guidelines may be the key solution to closing the knowledge gap. By increasing the awareness of chiropractors of the availability of nationally approved screening tools, such as PARmed-X for Pregnancy, or specific guidelines put out by various medical associations, it is possible to create better consistency in chiropractic prescription of exercise in prenatal patients that can be maintained between locations and practitioners.

### Strengths and Limitations

One of the key design features of this study was selection of a random sample of 500 chiropractors from the CCO database. Only about 20% of the selected sample agreed to participate and answered the survey questions. However, our comparison of respondent characteristics

(age, gender and years in practice) to the population of chiropractors registered with the CCO, showed that the sample of respondents is fairly consistent with the population of interest, and thereby we believe that our results can be generalized to all chiropractors in Ontario. One demographic item we did not ask about was college of graduation; as chiropractic colleges curriculum differ, this would have been an interesting piece of information to compare. Although we did not test the survey validity rigorously, which can be considered a limitation to the study, the survey questionnaire was tested on a small number of chiropractors before being sent to the sampled individuals. We utilized a majority rule by experts in the field of exercise and pregnancy for questions. Both of these approaches improved the overall quality of the final questionnaire and precision of the KS estimates. A low response rate in this survey (18.9%) can be considered a limitation. We understand that it is important to consider some additional design elements, such as mailing a paper survey to respondents<sup>22, 23</sup>, which would potentially help to increase the response rate.

### Conclusions

In this study we developed a KS outcome measure to explore the knowledge of practicing chiropractors in Ontario regarding prenatal exercise guidelines which was found to be low and highly variable. Stratified analysis by gender, years in practice, practice location and provision of prenatal care did not reveal any statistically significant differences. A well-designed curriculum or post-graduate courses, such as web-based seminars, may be beneficial for the practicing chiropractor in Ontario.

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Appendix A.  
*Cover Letter and Survey Questionnaire*

*Chiropractor's Knowledge of Exercise Guidelines for Pregnant Populations*

Dear Chiropractor

We are conducting a research study to gain a better understanding of chiropractor's knowledge of the exercise guidelines during pregnancy. We are kindly asking for your cooperation in completing the survey that follows this letter. Please answer each of the 20 questions listed in this survey. It should take less than 15 minutes to respond by checking the one box (unless otherwise stated) that best reflects your answer to each question.

The survey will be open for 8 weeks; if a response has not been received, a reminder email will be sent approximately once every 2 weeks, until a completed survey is received or the survey itself is closed. If you prefer, we can send the survey as an email attachment and you can fill it out and return it by email; please communicate this request by email: XXXX@XXXX.XX.

There may not be any direct benefit to you by participating in this survey. You can choose whether to complete this survey or not, by choosing the "I agree to participate" button or the "I do not wish to participate" button following this information letter. All participants will be entered into a draw for a \$50 Starbucks gift certificate. The draw will take place after the study closes, where one entry will be randomly selected to receive the certificate. You have the ability to withdraw participation at any time during the process without consequence. You may also refrain from answering any of the items within the survey and continue to be part of the study.

Any resulting publication of the data gathered from this survey will be presented in aggregate form. Consideration to exclude identifying information from discussion will be given to prevent the potential identification of participants, or a small group of participants who partook in the study. To protect confidentiality, your answers to the survey shall remain anonymous and will not be linked to your specific email. The survey responses will be kept on a secure database that can only be retrieved by the investigators of this study.

You are not waiving any legal claims, rights or remedies because of your participation in this research study. This study has been reviewed and received ethics clearance through the Academic Institution Research Ethics Boards (REB). The REB office can be contacted by phone:

- Research Administrator of the Academic Institution Research Ethics Boards at xxx-xxx-xxxx ext. xxx

If you consent to participate in this study, please click the following link: [www.surveymonkey.com](http://www.surveymonkey.com)

Thank you for your time and effort.

Sincerely,

Student Investigators:

And Faculty Supervisor:

Survey:

**Chiropractor's Knowledge of Exercise Guidelines for the Pregnant Populations**

1.	Do you consent to participate in this survey? <input type="checkbox"/> Yes <input type="checkbox"/> No
2.	Age <input type="checkbox"/> <30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 41-50 <input type="checkbox"/> 51-60 <input type="checkbox"/> >60
3.	How many years have you been in practice? <input type="checkbox"/> <5 <input type="checkbox"/> 5-14 <input type="checkbox"/> 15-25 <input type="checkbox"/> >25
4.	Where is the location of your practice? <input type="checkbox"/> Urban (population >50,000) <input type="checkbox"/> Rural (population <50,000) <input type="checkbox"/> Both
5.	Gender <input type="checkbox"/> Male <input type="checkbox"/> Female
6.	Have you ever been pregnant? (Females only) <input type="checkbox"/> Yes <input type="checkbox"/> No
7.	Did you exercise during your pregnancy? (Females only) <input type="checkbox"/> Yes <input type="checkbox"/> No
8.	Have you come across Exercise and Pregnancy guidelines? <input type="checkbox"/> Have not seen them <input type="checkbox"/> Have heard about them through a colleague <input type="checkbox"/> Have attended an educational event about the guidelines <input type="checkbox"/> Refer to them regularly before advising appropriate patients <input type="checkbox"/> Use the ParMed-X Screening Tool
9.	Approximately how many prenatal patients do you treat per week? <input type="checkbox"/> 0 <input type="checkbox"/> 1-5 <input type="checkbox"/> 6-10 <input type="checkbox"/> 11-20 <input type="checkbox"/> 21-30 <input type="checkbox"/> greater than 30
10.	Do you prescribe exercises for your pregnant patients? <input type="checkbox"/> Yes, regularly <input type="checkbox"/> Yes, sometimes <input type="checkbox"/> No
11.	Please name the Exercise and Pregnancy reference you refer to the most. <input type="checkbox"/> Unable to name; do not know <input type="checkbox"/> Guideline used (Please list guidelines below) <hr/>

<p>12. In your daily practice, with low risk pregnant patients, how often would you say you have provided the following advice in the last 12 months? Please choose one of the following: Never, Occasionally, Often, Frequently, Always.</p> <ol style="list-style-type: none"> <li>Encouraging exercise in an inactive woman</li> <li>Specified the recommended frequency of exercise during pregnancy</li> <li>Provided examples of appropriate types of exercises during pregnancy</li> <li>Given examples of measuring evectional intensity during exercise</li> <li>Specified the duration of recommended exercise minutes</li> </ol>														
<p>13. Please state where you agree or disagree with the following statements: (Note: A = Agree, D = Disagree)</p> <table border="0"> <tr> <td>a. Regular moderate exercise is beneficial to most low risk pregnancies</td> <td>(Correct answer: Agree)</td> </tr> <tr> <td>b. Frequency of exercise should be limited to twice weekly</td> <td>(Correct answer: Disagree)</td> </tr> <tr> <td>c. Moderate exercise for pregnant women consists of one-hour duration</td> <td>(Correct answer: Disagree)</td> </tr> <tr> <td>d. Most women will have some sweat while exercising</td> <td>(Correct answer: Agree)</td> </tr> <tr> <td>e. Light to moderate aerobic exercise is considered appropriate for pregnancy</td> <td>(Correct answer: Agree)</td> </tr> <tr> <td>f. Twin gestation after the 28th week is a relative contraindication to exercise during</td> <td>(Correct answer: Agree)</td> </tr> <tr> <td>g. A woman with uncontrolled hypertension should not exercise during pregnancy</td> <td>(Correct answer: Agree)</td> </tr> </table>	a. Regular moderate exercise is beneficial to most low risk pregnancies	(Correct answer: Agree)	b. Frequency of exercise should be limited to twice weekly	(Correct answer: Disagree)	c. Moderate exercise for pregnant women consists of one-hour duration	(Correct answer: Disagree)	d. Most women will have some sweat while exercising	(Correct answer: Agree)	e. Light to moderate aerobic exercise is considered appropriate for pregnancy	(Correct answer: Agree)	f. Twin gestation after the 28th week is a relative contraindication to exercise during	(Correct answer: Agree)	g. A woman with uncontrolled hypertension should not exercise during pregnancy	(Correct answer: Agree)
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g. A woman with uncontrolled hypertension should not exercise during pregnancy	(Correct answer: Agree)													
<p>Note:</p>														
<p>14. (Terry &amp; Yoga). Terry had her first prenatal visit with you at 8 weeks gestation, healthy low risk pregnancy and states that she has been inactive for the last 2 years but would like to join a prenatal yoga class. Please choose one response</p> <ol style="list-style-type: none"> <li>Yes, she can join the class as long as the instructor is certified for prenatal exercise</li> <li>Yes, she can join the class now and attend twice weekly</li> <li>Yes, she may attend the class but only after she has completed her first trimester</li> <li>Yes, she may attend the class but must warm up for 20 minutes to ensure she does not strain herself</li> </ol> <p>(Correct answer: C)</p>														
<p>15. (Rebekah and running). Rebekah has her first prenatal visit with you at 8 weeks gestation, healthy low risk pregnancy and states she has been an avid runner for 2 years and she would like to continue running 4-5 times per week for 60-90 minutes duration. Please choose one response.</p> <ol style="list-style-type: none"> <li>She can continue running at her previous frequency and duration but must wait until 2<sup>nd</sup> trimester</li> <li>She can continue running at her previous frequency and duration from her first trimester onwards</li> <li>She can continue running from her first trimester but should reduce the frequency from 2-3 times per week</li> <li>She can continue running from her first trimester but should reduce her duration to 30-40 minutes per session</li> </ol> <p>(Correct answer: B)</p>														
<p>16. (Galina and swimming). Galina visits you in her 2<sup>nd</sup> trimester at 18 weeks and she has just found out that she is carrying twins; she has asked if she can continue to swim 4 times a week for 30 minutes duration? Please choose one response</p> <ol style="list-style-type: none"> <li>Yes, swimming is safe to continue for the duration of the pregnancy</li> <li>No, she should discontinue all exercise except walking now</li> <li>Yes, she can continue but will have to reduce or eliminate exercise past 28 weeks gestation</li> <li>No, she may not swim 4 times a week, but she can swim 2 times a week</li> </ol> <p>(Correct Answer: C)</p>														
<p>17. Please specify the type of post-graduate education regarding pregnancy and exercise you have obtained? Please select all that apply.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Web seminar</li> <li><input type="checkbox"/> Grand rounds</li> <li><input type="checkbox"/> Mentorship</li> <li><input type="checkbox"/> Conferences/seminars</li> <li><input type="checkbox"/> Personal research/textbooks/ research papers</li> <li><input type="checkbox"/> Personal trainer</li> <li><input type="checkbox"/> Other</li> <li><input type="checkbox"/> None</li> </ul>														

18. Which of the following educational formats would best suit your learning needs as a clinician. Please rank in order of preference, with 1 being your most desirable and 5 being your least desirable.
- a. Web-based seminars
  - b. Patient-professional workbook and text
  - c. Clinical information pocket tools
  - d. Conferences and grand rounds
  - e. Mentorship/small group training
  - f. Other

19. If you wish to receive a letter containing a summary of the study results please provide your email address here:
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