

# Establishing research priorities in animal chiropractic: a mixed-methods study informed by interested parties

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**Background:** *Animal chiropractic is a relatively small subspecialty at the intersection of two well-established professions, chiropractic and veterinary medicine, and is commonly used to manage musculoskeletal conditions in animals. Despite increasing utilization, research guiding its clinical application remains limited.*

**Objective:** *To identify and prioritize research gaps in the animal chiropractic profession to establish interested party-informed research priorities.*

**Établissement des priorités de recherche en chiropratique animale :** *étude à méthodes mixtes tenant compte du point de vue des parties intéressées*

**Contexte :** *La chiropratique animale est une sous-spécialité relativement restreinte, à la croisée de deux professions bien établies, soit la chiropratique et la médecine vétérinaire. Elle est couramment utilisée dans la prise en charge des affections musculosquelettiques chez les animaux. Malgré son utilisation croissante, les recherches susceptibles d'orienter son application clinique demeurent limitées.*

**Objectif :** *Repérer et hiérarchiser les lacunes de la recherche dans le domaine de la chiropratique animale afin d'établir des priorités de recherche tenant compte du point de vue des parties intéressées.*

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## Conflicts of Interest:

The authors have no disclaimers or competing interests to report in the preparation of this manuscript. Canadian Memorial Chiropractic College (CMCC) has received financial donations from the American Veterinary Chiropractic Association (AVCA) to support technology and research development; these funds did not influence the design nor the results of this study. The AVCA covered travel expenses for CMCC-affiliated investigators to attend its Annual Conference for keynote lectures and delivering workshops. The AVCA had no role in the design, conduct, or analysis of this study, aside from permitting its execution during the conference.

**Methods:** *A sequential mixed-methods design was used, comprising an online topic identification survey, in-person Nominal Group Technique sessions, and a final prioritization survey.*

**Results:** *Thirteen major research topics and 71 subtopics were identified and prioritized by Veterinarians and Chiropractors from Canada and the United States. The top five priorities were objective outcomes, safety and adverse events, condition-specific treatment effects, mechanisms of manual therapies, and treatment comparisons.*

**Conclusion:** *This study identified research priorities informed by interested parties to inform the future studies and strengthen grant applications by clearly demonstrating the demand for research in specifically identified areas.*

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**KEY WORDS:** veterinary chiropractic; animal chiropractic; musculoskeletal disorders; research prioritization; complementary and alternative veterinary medicine; chiropractic education; evidence-informed practice

## Introduction

Musculoskeletal (MSK) conditions, such as low back pain, are the leading cause of disability worldwide<sup>1</sup>, resulting in substantial burdens to individuals, society, and health care systems<sup>1,2</sup>. In human health care, chiropractors have been regarded as specialists in spine and MSK care<sup>3</sup>, and in Canada, the majority of people with neck and low back pain consult either a chiropractor, a medical doctor, or a combination of both<sup>2</sup>. Chiropractic care using manual therapy techniques, such as spinal manipulative therapy (SMT), has been shown to be an effective treatment for MSK conditions<sup>4</sup>, reducing pain, disability and improving range of motion for neck pain<sup>5</sup>, low back pain<sup>6</sup>, and other MSK conditions<sup>7</sup>.

In veterinary medicine, MSK conditions are also highly prevalent, with veterinarians ranking them among the

**Méthodes:** *Un devis séquentiel à méthodes mixtes a été utilisé. Celui-ci comprenait un sondage en ligne visant à recenser les sujets de recherche, des séances en personne fondées sur la technique du groupe nominal et un sondage final de priorisation.*

**Résultats:** *Treize grands sujets de recherche et 71 sous-thèmes ont été recensés et classés par ordre de priorité par des vétérinaires et des chiropraticiens du Canada et des États-Unis. Les cinq principales priorités étaient les mesures objectives des résultats, l'innocuité et les événements indésirables, les effets du traitement selon l'affection, les mécanismes d'action des thérapies manuelles et les comparaisons entre traitements.*

**Conclusion:** *Cette étude a permis de dégager des priorités de recherche tenant compte du point de vue des parties intéressées afin d'orienter les études futures et de renforcer les demandes de subvention en démontrant clairement la nécessité de mener des recherches dans les domaines précisément cernés.*

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**MOTS CLÉS:** chiropratique vétérinaire, chiropratique animale, troubles musculosquelettiques, priorisation de la recherche, médecine vétérinaire complémentaire et parallèle, enseignement de la chiropratique, pratique éclairée par les données probantes

third<sup>8</sup> or fourth<sup>9</sup> most common conditions<sup>9,10</sup> seen in practice. MSK conditions affect a wide range of species, including 49.4% of British eventing horses<sup>11</sup>, 56% of small animals<sup>8</sup>, and up to 55% of dairy cattle<sup>12</sup>, resulting in significant impacts on an animal's ability to perform daily activities or maintain mobility<sup>8,9,10</sup>. Diagnosing and treating MSK conditions in animals presents unique challenges due to their inability to verbally communicate in the way humans do. As a result, veterinary practitioners rely on palpation<sup>10</sup> and subjective measures, such as Clinical Metrology Instruments (CMIs), that use behavioural and functional observations (e.g., changes in posture, gait, demeanor, ability to perform daily activities)<sup>10</sup> to identify signs of pain, discomfort, or an underlying pathology<sup>8,9</sup>.

Veterinary medicine traditionally emphasizes treatment of diseases through pharmaceutical or surgical approach-

es.<sup>10,13</sup> However, a branch of veterinary medicine – Complementary and Alternative Veterinary Medicine (CAVM) – has emerged as a growing field that encompasses various approaches to preventing, diagnosing, and treating animal health issues. These approaches, which are typically not emphasized in veterinary school curricula, are instead taught through continuing education courses or additional extracurricular certifications.<sup>14,15</sup> One such professional certification program trains both licensed chiropractors and veterinarians through an extensive program to obtain a certification in animal (veterinary) chiropractic, with a focus on animal MSK care. Currently, more than 1500 veterinarians and chiropractors worldwide hold an active certification in animal chiropractic.<sup>16,17</sup>

With MSK conditions being a leading cause of pain and impairment in both canine and equine populations<sup>8,9</sup>, the demand for alternative treatments among animal owners is steadily increasing<sup>14,15</sup>. As a result, CAVM approaches, such as rehabilitation therapy and animal chiropractic care, are commonly used to manage various MSK conditions in companion, sport, and working animals.<sup>14,18,19</sup> Animal chiropractic care primarily uses manual therapies, including mobilizations, manipulations, massage, stretching, among others.<sup>14,18,19,20</sup> From a theoretical standpoint, these interventions aim to enhance neuromusculoskeletal function by increasing range of motion, alleviating pain perception, and/or improving neuromuscular control.<sup>18,19</sup> Practitioners certified in animal chiropractic contribute to animal care by supporting rehabilitation, both as a first line approach and in post-surgical recovery, and by maintaining optimal physical condition.<sup>14,20</sup> This approach is particularly beneficial for animals involved in sports and agility competitions, helping to reduce risks of injuries<sup>20</sup>, enhance performance, and address behavioural issues<sup>21</sup>, while also minimizing veterinarian treatment costs, surgical interventions, and recovery time for injured competitive animals<sup>20</sup>.

While numerous alternative therapies exist, there is no universal guideline for their protocols, treatments, or dosages.<sup>18,22</sup> Consequently, even though interest in animal chiropractic is growing among animal owners, skepticism persists within the veterinary community regarding its efficacy, safety, and scientific basis.<sup>13,14, 22</sup> Specifically, existing research on animal chiropractic often presents important limitations such as small sample sizes, lack of control groups<sup>14,18</sup>, variability in treatment

protocols<sup>15</sup> and lack of valid and reliable outcome measures<sup>9,15</sup>. As a result, not only is the quality of evidence suboptimal, but reported treatment effects also vary considerably<sup>14,18</sup>, making the current evidence insufficient to draw definitive conclusions. These limitations in the current evidence highlight the responsibility of the practitioners to prioritise animal welfare without replacing necessary conventional veterinary treatments<sup>22</sup> or making unsupported claims, while communicating clearly with veterinarians and animal owners to manage expectations and obtain informed consent<sup>22</sup>, even in the presence of inconclusive evidence.

To move the field forward, it is essential to establish a clear and focused agenda that guides research efforts toward the most relevant and impactful areas. Within animal chiropractic, limited resources and research capacity make it especially important to ensure that future studies address pressing clinical needs and contribute meaningfully to the profession. However, existing research gaps and priorities within animal chiropractic have not yet been systematically defined. By identifying and prioritizing potential research topics in collaboration with interested parties in the animal chiropractic community, this study lays the foundation for future targeted research efforts that can optimise the use of available resources and support the development of evidence-informed care. Therefore, the objective of this study was to identify and prioritize research gaps in the animal chiropractic profession to establish interested party-informed research priorities.

## Methods

This study employed a sequential mixed-methods approach and involved 1) an online topic identification survey, 2) in-person nominal group technique (NGT) sessions, and 3) a prioritization survey of the research priorities identified in the first two parts. This project received research ethics approval from the Research Ethics Board at the Canadian Memorial Chiropractic College (REB Approval number: 2409B01).

### *Online topic identification survey*

An online survey was conducted to identify preliminary topics on research gaps within the animal chiropractic field.

### *Participants and recruitment*

Individuals from 15 animal chiropractic organizations (such as chiropractic and veterinary chiropractic professional associations, regulatory bodies, educational institutions, etc.) in Canada and United States of America were identified as interested parties to the animal chiropractic profession through their involvement with, association to, or interest in animal chiropractic (e.g., researchers, educators, animal owners, practitioners, etc.). These individuals were identified by the primary investigator (NMS) as leaders within their respective organizations based on organizational structure. They were asked to disseminate the survey to up to five individuals within their organization, including themselves. This resulted in a potential pool of 75 invited participants, all of whom were required to be at least 18 years of age and to have involvement, association, or interest in the field of animal chiropractic.

### *Survey*

An email including a link to the online survey (SurveyMonkey®, SurveyMonkey Canada Inc., Ottawa, Canada) was distributed in October 2024 and open for three weeks. All participants provided their informed consent prior to participating. The survey collected information regarding:

- Demographic characteristics (age and sex),
  - Relationship and years of involvement with animal chiropractic,
  - Utilization of animal chiropractic care,
  - Academic credentials,
  - Clinical questions specific to practitioners certified in animal chiropractic or veterinary spinal manipulative therapy (vSMT):
    - Post-graduate animal chiropractic training program, additional degrees, certifications, and training, etc.,
    - Practice location (zip/postal code),
    - Type of animals treated,
    - Manual therapy techniques used,
    - Modalities used,
    - Familiarity with research regarding manual therapy to treat animals.
  - Belief that research is necessary in the field of animal chiropractic, and
- Identification of topics that need to be researched in the field of animal chiropractic.

The results from the open-ended question, “what topics are needed to be researched in the field of animal chiropractic. Please list as many as you can and be as specific as possible” was compiled (details below) and used during the in-person NGT sessions.

### *In-person Nominal Group Technique Participants and recruitment*

Participants were recruited through posters, announcements, and word of mouth at the American Veterinary Chiropractic Association (AVCA) Annual Conference in November 2024. Participation was open to all conference attendees over the age of 18 who were interested parties to the animal chiropractic field.

Seven in-person NGT sessions were held in a designated meeting room during the 2024 AVCA Annual Conference in Richardson, Texas (November 15<sup>th</sup>-17<sup>th</sup> 2024). Each session was limited to a maximum of 10 participants, lasted for 90 minutes, and focused on identifying and refining research gaps and setting priorities of research topics within animal chiropractic. Specifically, each session was conducted with the following structure:

### *Introduction and preparation phase*

The group leaders (MF, SW) provided participants with an explanation of the meeting’s purpose, a description of how the session would proceed, the roles and expectations of participants, and an explanation of how the session results would be utilized. Informed consent and participant information (listed above) were collected at the beginning of each session. A live working document was projected onto the main screen for all participants to see and was iteratively updated by an investigator (NMS, SW) within and throughout the sessions.

The group leader introduced the NGT question to the participants: “What are the topics or areas within animal chiropractic that you think need to be researched?” and presented the collated research topics identified in the online survey and previous sessions.

### *Silent idea generation*

Participants were instructed to independently and silently focus on brainstorming research gaps within ani-

mal chiropractic and write down as many topics as they could think of within a 10-minute timeframe. Participants were instructed to either expand from the research gaps identified in the survey and previous sessions or come up with new research topics. They were also instructed to not focus on the feasibility and logistics of conducting the study, but rather just focus on the areas where research was needed.

### *Round robin recording of ideas*

The group leaders facilitated a round-robin process of approximately twenty minutes where each participant around the table shared one topic they identified. An investigator recorded each topic verbatim on the master document. The group leaders would ask questions for clarification, but no discussion was allowed during this phase.

Participants were permitted to contribute topics that were not initially written down but were inspired by others' contributions. The leader continued around the table until all topics had been recorded. When a participant ran out of topics, they could pass their turn. This continued until all participants finished sharing all their topics.

### *Clarification and discussion of ideas*

The group leaders then facilitated a discussion of approximately twenty minutes where participants could discuss each topic with each other and could request clarification on any topic that was generated before it was finalised for voting. This included modifying the wording of the original topic, but only with the agreement of the topic originator. Topics were altered from the list if there was a unanimous agreement among participants, identification of duplicates, or if the group wished to combine similar topics together.

### *Ranking and results*

In the final phase, participants ranked the list of topics and subtopics according to what they, as a group, considered the most important research gaps to determine research priorities, starting with the most important topic or subtopic and proceeding in decreasing levels of importance. The results from the ranking phase were presented to the participants at the end of their own session and used as the starting list for the following NGT session.

## *Prioritization survey*

### *Participants*

Participants who responded to the initial online topic identification survey and/or participated in one of the NGT sessions were invited to respond to the final prioritization survey.

### *Survey*

The final list of research topics from the last NGT session was compiled into the final online ranking survey on SurveyMonkey®, which was then distributed via email. Participants were asked to rank the major research topics in terms of priority with what they think the 'most important topic' is at the top and proceed in decreasing levels of importance.

The subsequent questions asked participants to rank the subtopics within each major research topic with what they considered the 'most important topic' at the top, and continuing in decreasing order of importance. In the instructions, participants were instructed not to consider study feasibility, design, or methodology, and instead to focus on the research topics and their relative importance.

### *Data analysis*

All demographic data collected from the online survey and the NGT sessions were analysed using descriptive statistics, including means and standard deviations for numerical data, and count and percentages for categorical data. Descriptive statistics were used to report frequency distributions (count and percentages) for the online survey and NGT session outcomes. These included animals treated in animal chiropractic practice, manual therapy techniques and modalities used, and familiarity with research in animal chiropractic and manual therapy.

The results from the open-text question "What topics are needed to be researched in the field of animal chiropractic? Please list as many as you can and be as specific as possible" from the initial online survey were analyzed using an inductive thematic analysis. Specifically, each response was independently coded by two persons: an investigator (NMS) and a research assistant (KW) who then met to review coding, refine thematic categories and reach coding and theme consensus. A third investigator (SW) participated in coding discussions for contextualization, review coding and theme decisions, and helped resolve disagreements.

For the final prioritization survey data, similar analysis to Keter *et al.*<sup>23</sup> was conducted. Specifically, the composite score results of overall perceived importance from the final online survey ranking were used to establish the strength of each ranked topic.

Each rank was assigned a weight, with the most important rank weighted the highest, the second most important rank weighted slightly less, and so on, with decreasing weights for lower importance ranks. The composite score was calculated by multiplying each number of respondents who ranked the topic as the X most important priority by its corresponding weight and summing these products using the formula:

Composite Score (CS) = (n1 × 13) + (n2 × 12) + (n3 × 11) + (n4 × 10) + ... + (n13 × 1).

Each topic was reorganized based on the strength of its composite score. Topics with higher composite scores indicated greater perceived importance, whereas topics with lower composite scores reflected lower levels of im-

portance. This process was repeated to calculate a composite score for both major topics and their corresponding subtopics.

## Results

### Participants

Forty-two animal chiropractic interested parties of a potential 75 participants responded to the online survey for a 56% response rate. Most (69.0%) respondents were female with an average age of 53.17 years (standard deviation [SD]: 12.2) (Table 1). The majority of the online survey respondents were either a Doctor of Veterinary Medicine (DVM/VMD) (52.4%) or a Doctor of Chiropractic (DC) (45.2%). Of note, only five respondents did not complete an animal chiropractic program, while 33.3% reported certification in providing acupuncture to animals. The respondents' relationship to animal chiropractic was further broken down with 16 (38.1%) animal owners, 15 (35.7%)

Table 1.  
*Demographics and involvement with animal chiropractic*

|                                                         |                                                                  | Online Topic Identification Survey (n=42) | NGT (n=29) |
|---------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------|------------|
| Sex                                                     | Male                                                             | 13 (31.0%)                                | 17 (58.6%) |
|                                                         | Female                                                           | 29 (69.0%)                                | 12 (41.4%) |
| Age                                                     | (mean ±SD)                                                       | 53.17 ±12.2                               | 55.5 ±11.7 |
| Relationship to Animal Chiropractic                     | Doctor of Veterinary Medicine                                    | 22 (52.4%)                                | 12 (41.4%) |
|                                                         | Doctor of Chiropractic                                           | 19 (45.2%)                                | 17 (58.6%) |
|                                                         | Animal Owners                                                    | 16 (38.1%)                                | 15 (51.7%) |
|                                                         | Education                                                        | 15 (35.7%)                                | 1 (3.4%)   |
|                                                         | Association                                                      | 11 (26.2%)                                | 6 (20.7%)  |
|                                                         | Research                                                         | 5 (11.9%)                                 | 1 (3.4%)   |
|                                                         | Other (student, insurance, shelter/rescue, regulation)           | 5 (11.9%)                                 | 2 (6.9%)   |
|                                                         |                                                                  |                                           |            |
| Academic Credentials and Certifications (self-reported) | Bachelor's Degree                                                | 22 (52.4%)                                | 11 (37.9%) |
|                                                         | Master's Degree or Master's Candidate                            | 13 (30.9%)                                | 4 (13.8%)  |
|                                                         | Doctor of Chiropractic                                           | 19 (45.2%)                                | 17 (58.6%) |
|                                                         | Doctor of Veterinary Medicine / Veterinariae Medicinae Doctoris) | 22 (52.4%)                                | 12 (41.4%) |
|                                                         | Animal Chiropractic Certification                                | 37 (88.1%)                                | 21 (72.4%) |
|                                                         | Acupuncture Certified                                            | 14 (33.3%)                                | 8 (27.6%)  |
|                                                         | Fellowship                                                       | 3 (7.14%)                                 | 0 (0%)     |
|                                                         | Diplomate                                                        | 4 (9.5 %)                                 | 1 (3.4%)   |
|                                                         | Other Academic Credentials                                       | 8 (19.0%)                                 | 0 (0%)     |
|                                                         | Other Certifications                                             | 20 (47.6%)                                | 15 (51.7%) |

|                                                     |                                                                                      | Online Topic Identification Survey (n=42) | NGT (n=29) |
|-----------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------|------------|
| Animal Chiropractic Program Attended                | Options for Animals                                                                  | 12 (28.6%)                                | 12 (41.4%) |
|                                                     | Parker University                                                                    | 11 (12.2%)                                | 11 (37.9%) |
|                                                     | Animal Chiropractic Education Source                                                 | 7 (16.7%)                                 | 2 (6.9%)   |
|                                                     | Veterinary Chiropractic Learning Centre                                              | 3 (7.1%)                                  | 2 (6.9%)   |
|                                                     | Healing Oasis Wellness Centre                                                        | 3 (7.1%)                                  | 0 (0%)     |
|                                                     | Other (International Academy of Animal Chiropractic/ AVCA/Health Pioneers Institute) | 2 (4.8%)                                  | 1 (3.4%)   |
|                                                     | Not Applicable                                                                       | 4 (9.5%)                                  | 0 (0%)     |
|                                                     | Did not respond                                                                      | 0 (0%)                                    | 1 (3.5%)   |
| Years of Involvement with Animal Chiropractic Field | 0-5 years                                                                            | 7 (16.7%)                                 | 5 (17.2%)  |
|                                                     | 6-10 years                                                                           | 4 (9.5%)                                  | 5 (17.2%)  |
|                                                     | 11-15 years                                                                          | 6 (14.3%)                                 | 1 (3.4%)   |
|                                                     | 16-20 years                                                                          | 6 (14.3%)                                 | 7 (24.1%)  |
|                                                     | 21-25 years                                                                          | 6 (14.3%)                                 | 3 (10.3%)  |
|                                                     | 26-30 years                                                                          | 6 (14.3%)                                 | 5 (17.2%)  |
|                                                     | 30+ years                                                                            | 7 (16.7%)                                 | 3 (10.3%)  |
| Frequency of Personal Animal Chiropractic Care Use  | I do not own an animal                                                               | 3 (7.1%)                                  | 0 (0.0%)   |
|                                                     | 0 times                                                                              | 3 (7.1%)                                  | 2 (6.9%)   |
|                                                     | 1-3 times                                                                            | 2 (4.8%)                                  | 1 (3.4%)   |
|                                                     | 4-6 times                                                                            | 2 (4.8%)                                  | 2 (6.9%)   |
|                                                     | 7-9 times                                                                            | 1 (2.4%)                                  | 1 (3.5%)   |
|                                                     | 10+ times                                                                            | 31 (73.8%)                                | 22 (75.8%) |
|                                                     | Did not respond                                                                      | 0 (0%)                                    | 1 (3.4%)   |

NGT = Nominal group technique; SD = standard deviation; AVCA = American Veterinary Chiropractic Association  
Animal Chiropractic Certifications: CVSM, cAVCA, cVCA, CAC, CAC candidate, CVC, VOM, Advanced Animal Chiropractic.  
Other Certifications: CVMRT, CCRT, CCAT, CERP, CCRP, spine trauma management, whiplash and trauma, AC, CCSP, DNM, cVMA, CVS, Graston, Magn Wave, Fear free elite, Activator Advances, AIMLA Veterinary Laser, EMR, CBFP, MPAC, fascial work, Masterson Method, Kinesiotaping. Acupuncture Certified: CVA, AVCA, neurofunctional acupuncturist for small animals, CVBMA. Fellowship: FCoAC, FACFN, Diplomate: DACVSMR, ACVSMR, DACVS-LA, DACT. Other Academic Credentials: Veterinary Assistant, Registered Massage Therapist, DC or DVM student, Doctorate of Humanities

involved through education, 11 (26.2%) through an association, 5 (11.9%) through research and 1 (2.38%) each through insurers, shelter/rescue, and regulation.

In total, there were 29 participants in the NGT sessions, with slightly over half of the participants (58.6%) being male, with an average age of 55.5 years (SD: 11.7) (Table 1). They consisted of 12 (41.4%) DVMs and 17 (58.6%) DCs with further relationships to animal chiropractic through 15 (51.7%) animal owners, six (20.7%) involved with an association, and one (3.4%) each involved with education, research, shelter/rescue and regulation.

The most commonly treated animals by participants

were dogs, cats, and horses with 62.5% to 96.6% of practitioners reporting working with these species. Ranch and livestock animals were also reported to be treated, though less frequently, by up to 37.5% of practitioners, while exotic, wildlife and other animals (i.e., reptiles, pocket pets, raccoons, etc.) were rarely treated (2.5% to 20.7%). A wide variety of manual therapies and modalities were reportedly used to treat animals, with the top four techniques being vSMT (55.2% to 97.2%), soft tissue therapy (51.7% to 66.7%), light therapies (58.3% to 62.15%), and some form of acupuncture or acupressure (27.6% to 50%) (Table 2).

Table 2.  
*Manual therapy and modality techniques used (self-reported)*

| Manual Therapy or Modality Technique                                                                                                                                                       | Online Topic Identification Survey (n=36) | NGT (n=29) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------|
| vSMT                                                                                                                                                                                       | 35 (97.2%)                                | 16 (55.2%) |
| Soft tissue therapy                                                                                                                                                                        | 24 (66.7%)                                | 15 (51.7%) |
| Light therapy                                                                                                                                                                              | 21 (58.3%)                                | 18 (62.1%) |
| Acupuncture                                                                                                                                                                                | 18 (50.0%)                                | 8 (27.6%)  |
| Pulsed Electro Magnetic Fields (PEMF)/MagnaWave                                                                                                                                            | 8 (22.2%)                                 | 5 (17.2%)  |
| IATSM/ Graston                                                                                                                                                                             | 5 (13.9%)                                 | 4 (13.8%)  |
| Mobilizations                                                                                                                                                                              | 5 (13.9%)                                 | 2 (6.9%)   |
| Trigger Point                                                                                                                                                                              | 5 (13.9%)                                 | 2 (6.9%)   |
| Homeopathy (essential oils, herbal supplements, Bach Flowers)                                                                                                                              | 4 (11.1%)                                 | 4 (13.8%)  |
| Manual therapy                                                                                                                                                                             | 4 (11.1%)                                 | 2 (6.9%)   |
| Activator                                                                                                                                                                                  | 3 (8.3%)                                  | 3 (10.3%)  |
| Exercise                                                                                                                                                                                   | 3 (8.3%)                                  | 1 (3.4%)   |
| Kinesiology taping                                                                                                                                                                         | 3 (8.3%)                                  | 1 (3.4%)   |
| Ultrasound                                                                                                                                                                                 | 3 (8.3%)                                  | 1 (3.4%)   |
| Extracorporeal Shock Wave Therapy (ESWT)                                                                                                                                                   | 2 (5.6%)                                  | 3 (10.3%)  |
| Electrical Stimulation                                                                                                                                                                     | 2 (5.6%)                                  | 2 (6.9%)   |
| Hydrotherapy                                                                                                                                                                               | 2 (5.6%)                                  | 1 (3.4%)   |
| <b>Other</b> (Ancient Chinese massage therapy/ NST/ muscle testing/ glandular therapy, Gua Sha, traction, own technique, physio, myocardial release, rehabilitation modalities, vibration) | 11 (30.6%)                                | 5 (17.2%)  |
| Interventions within Veterinary Scope of Practice                                                                                                                                          | 1 (2.8%)                                  | 4 (13.8%)  |

### *Online topic identification survey results*

The online topic identification survey participants mainly familiarized themselves with research regarding manual therapy for animals by sporadically reading specific papers (65.8%) and through discussions with peers (52.6%). Only 15.8% reported subscribing to an academic journal, and 2.6% indicated obtaining research updates through the AVCA or by watching educational webinars that review current research. There were eight (19.0%) participants who were actively involved in leading or participating in research, and one participant who had published peer-reviewed articles, while 13.2% were not familiar with research on manual therapy for animals. Of note, 100% of online survey respondents believed that research on manual therapy for animals is needed.

Topics identified on the qualitative analysis of the re-

sponses to “what topics are needed to be researched in the field of animal chiropractic” included safety and adverse events, mechanisms of manual therapies, animal-specific investigations, outcome-based investigations, treatment and changes in outcomes, objective outcomes, subjective outcomes, treatment effects on specific conditions, cost-benefit, effectiveness, efficacy, force-time characteristics, indications and contraindications, diagnostic reliability, comparison with other care, and risks and benefits.

### *Nominal Group Technique results*

Twenty-nine participants attended one of seven NGT sessions. Participants in these sessions were not asked about their research familiarity or their perceptions of research need, as the in-person format assumed a need for research

and was designed to provide an opportunity to brainstorm potential research topics.

At the end of all NGT sessions, the final list had identified and ranked 13 major topics and 71 subtopics (Table 3). Notably, ten of the thirteen topics had ranked sub-

topics, as multiple subtopics were identified within those categories. Additionally, five ideas were identified that did not fit within a specific research topic, as they more closely identified as main goals for the animal chiropractic research as a whole.

Table 3.

*NGT identified and ranked research topics and subtopics with final subtopic composite score prioritization rankings*

| Major Research Topics<br><i>Listed in ranked order identified by NGT sessions</i> | Subtopics<br><i>Listed in ranked order identified by NGT sessions</i>                                                                                                                            | Subtopic Composite Score<br><i>Ranked in Final Prioritization Survey</i> |                         |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------|
|                                                                                   |                                                                                                                                                                                                  | Composite Score                                                          | Average Composite Score |
| 1. Safety & Adverse Events                                                        | 1. Safety to <b>animal</b> – Safety/ <b>Adverse Events/Harms</b> /tissue damage & force parameters (force guideline, education/training) – variation of practitioner strategy                    | 233                                                                      | 6.66                    |
|                                                                                   | 2. <b>Risk of injury</b> of treatment/Safety<br>– Intervertebral disc disease (IVDD) population<br>– Older (e.g., disc desiccation)<br>– Puppies & kittens & Foals, immature skeleton population | 207                                                                      | 5.91                    |
|                                                                                   | 3. <b>Extremity adjustments</b>                                                                                                                                                                  | 122                                                                      | 3.49                    |
|                                                                                   | 4. <b>Reporting of adverse events</b>                                                                                                                                                            | 121                                                                      | 3.46                    |
|                                                                                   | 5. When is ‘enough’ – avoiding over-adjusting                                                                                                                                                    | 110                                                                      | 3.14                    |
|                                                                                   | 6. Risk-Benefit analysis                                                                                                                                                                         | 115                                                                      | 3.29                    |
|                                                                                   | 7. Safety for practitioner                                                                                                                                                                       | 72                                                                       | 2.06                    |
| 2. Objective Outcomes (numbers)                                                   | 1. Video gait and posture & biomechanical analysis (normal vs abnormal)<br>Quadruped compensation static (e.g., head carriage position, mane flip)                                               | 420                                                                      | 12                      |
|                                                                                   | 2. Activity levels pre-post adjustment, duration of changes, weight change                                                                                                                       | 371                                                                      | 10.6                    |
|                                                                                   | 3. Force plate analysis (Gait – weight distribution/compensation), temporospatial analysis                                                                                                       | 360                                                                      | 10.29                   |
|                                                                                   | 4. Performance (e.g. time, dock dive distance, agility, any course sport)                                                                                                                        | 339                                                                      | 9.69                    |
|                                                                                   | 5. Physiological parameters (measurable: cortisol, oxytocin, hormones, thyroid, <b>immune markers</b> , inflammatory markers)                                                                    | 294                                                                      | 8.4                     |
|                                                                                   | 6. Audible cavitation effects                                                                                                                                                                    | 120                                                                      | 3.43                    |
|                                                                                   | 7. Lameness locator/ <b>mobility</b> / thermoimaging                                                                                                                                             | 268                                                                      | 7.66                    |
|                                                                                   | 8. Remote effects/Somatovisceral                                                                                                                                                                 | 235                                                                      | 6.71                    |
|                                                                                   | 9. Reproductive benefits (semen, eggs, % rate of conception, dystocia)                                                                                                                           | 179                                                                      | 5.11                    |
|                                                                                   | 10. Milk production (related to comfort levels, cow noise)                                                                                                                                       | 143                                                                      | 4.09                    |
|                                                                                   | 11. Pain pressure threshold (PPT), PPT paired with thermo-imaging                                                                                                                                | 161                                                                      | 4.6                     |
|                                                                                   | 12. Objective functional evaluation (e.g., step climb)                                                                                                                                           | 139                                                                      | 3.97                    |
|                                                                                   | 13. Chiro care decrease amount of joint injections                                                                                                                                               | 156                                                                      | 4.46                    |

| Major Research Topics<br><i>Listed in ranked order<br/>identified by NGT sessions</i> | Subtopics<br><i>Listed in ranked order identified by NGT sessions</i>                                    | Subtopic Composite<br>Score<br><i>Ranked in Final<br/>Prioritization Survey</i> |                               |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------|
|                                                                                       |                                                                                                          | Composite<br>Score                                                              | Average<br>Composite<br>Score |
| 3. Subjective Outcomes                                                                | 1. <b>Quality of life / function</b> (like ODI, Ohio state QoL)                                          | 265                                                                             | 7.57                          |
|                                                                                       | 2. Pain (vocal & acknowledgement)                                                                        | 218                                                                             | 6.23                          |
|                                                                                       | 3. Show/Performance (e.g. video analysis of Westminster winners)<br>Porcine conformation position        | 192                                                                             | 5.49                          |
|                                                                                       | 4. Animal mood and behaviour change (Anxiety/Personality)                                                | 198                                                                             | 5.66                          |
|                                                                                       | 5. Rider satisfaction                                                                                    | 141                                                                             | 4.03                          |
|                                                                                       | 6. Saddle fit (rider has scoliosis, rider has previous injuries)                                         | 124                                                                             | 3.54                          |
|                                                                                       | 7. Audible cavitation effects                                                                            | 65                                                                              | 1.86                          |
|                                                                                       | 8. Taste/quality of meat                                                                                 | 57                                                                              | 1.63                          |
| 4. Specific Conditions &<br>Treatment Effects                                         | 1. Degenerative joint or Disc lesions (IVDD) & atrophy                                                   | 612                                                                             | 17.49                         |
|                                                                                       | 2. Age-related effects – pain & mobility, QoL<br>Arthritis small animals and horses (old vs young)       | 580                                                                             | 16.57                         |
|                                                                                       | 3. Acute versus chronic                                                                                  | 479                                                                             | 13.69                         |
|                                                                                       | 4. <b>Post-op surgery</b> (e.g., no tx versus chiro), arthritic seniors                                  | 498                                                                             | 14.23                         |
|                                                                                       | 5. Extension/ continuity of life / untreatable conditions                                                | 437                                                                             | 12.49                         |
|                                                                                       | 6. <b>Comorbidities:</b> how they effect treatment success                                               | 384                                                                             | 10.97                         |
|                                                                                       | 7. Degenerative myelopathy                                                                               | 370                                                                             | 10.57                         |
|                                                                                       | 8. Hip dysplasia                                                                                         | 402                                                                             | 11.49                         |
|                                                                                       | 9. CCL tear, insufficiency – chiropractic manipulation                                                   | 370                                                                             | 10.57                         |
|                                                                                       | 10. Urinary incontinence                                                                                 | 336                                                                             | 9.6                           |
|                                                                                       | 11. Paralyzed dog (Down dog – IVDD, Fibrocartilaginous Embolus)                                          | 375                                                                             | 10.71                         |
|                                                                                       | 12. Histological difference in IVDD gene-positive or clear – dogs                                        | 198                                                                             | 5.66                          |
|                                                                                       | 13. Pelvic disorders (elderly restoration), effects                                                      | 209                                                                             | 5.97                          |
|                                                                                       | 14. K9 vestibular syndrome                                                                               | 235                                                                             | 6.71                          |
|                                                                                       | 15. K9 cognitive dysfunction                                                                             | 140                                                                             | 4                             |
|                                                                                       | 16. Effects of tail docking on posture & biomech of lumbar spine and<br>sacroiliac joints– cats and dogs | 133                                                                             | 3.8                           |
|                                                                                       | 17. Excessive nail length – biomechanical effects                                                        | 143                                                                             | 4.09                          |
|                                                                                       | 18. Cold/limber/swimmer tails                                                                            | 84                                                                              | 2.4                           |

| Major Research Topics<br><i>Listed in ranked order<br/>identified by NGT sessions</i> | Subtopics<br><i>Listed in ranked order identified by NGT sessions</i>                                                         | Subtopic Composite<br>Score<br><i>Ranked in Final<br/>Prioritization Survey</i> |                               |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------|
|                                                                                       |                                                                                                                               | Composite<br>Score                                                              | Average<br>Composite<br>Score |
| 5. Treatment Comparisons                                                              | 1. Multimodal treatment compared to single therapy                                                                            | 328                                                                             | 9.37                          |
|                                                                                       | 2. Treatment protocols (per population)<br>Order of assessment and treatment Equine – Teeth, feet, spine order                | 280                                                                             | 8                             |
|                                                                                       | 3. Instrument (Activator, Arthrostim, neuro impulse gun) versus manual therapy, instrument vs instrument                      | 229                                                                             | 6.54                          |
|                                                                                       | 4. PT vs PT + chiro (post-surgery)                                                                                            | 239                                                                             | 6.83                          |
|                                                                                       | 5. Chiro versus Medication (e.g., NSAIDs)                                                                                     | 292                                                                             | 8.34                          |
|                                                                                       | 6. Chiro care vs surgery population – IVDD                                                                                    | 261                                                                             | 7.46                          |
|                                                                                       | 7. Longitudinal study (e.g., same litter, treatment versus no treatment)-<br>Hip dysplasia DM                                 | 163                                                                             | 4.66                          |
|                                                                                       | 8. Upper cervical for IVDD/dural torque, cranial sacral, Logan, tonal technique                                               | 169                                                                             | 4.83                          |
|                                                                                       | 9. Extremity adjustments                                                                                                      | 131                                                                             | 3.74                          |
|                                                                                       | 10. <b>Cost/Risk-benefit</b>                                                                                                  | 112                                                                             | 3.2                           |
|                                                                                       | 11. TMJ adjustments – activity levels, physicalities (e.g., ability, posture, coordination, digestive changes, sacral levels) | 106                                                                             | 3.03                          |
| 6. Animal-specific Investigations                                                     | 1. Small versus large animals                                                                                                 | 88                                                                              | 2.51                          |
|                                                                                       | 2. Various animal species, purpose/use (e.g., pet, agility, working)                                                          | 80                                                                              | 2.29                          |
|                                                                                       | 3. Pretension with tool adjustments – ideal setting/tool for each animal                                                      | 42                                                                              | 1.2                           |
| 7. Research database (use of historical data)                                         | 1. Insurance data (e.g., risk analysis of chiro care)                                                                         | 38                                                                              | 1.09                          |
|                                                                                       | 2. Historical Data                                                                                                            | 67                                                                              | 1.91                          |
| 8. How/Why Treatment Works (i.e., Mechanisms of Manual Therapies)                     | 1. How adjustments work (physiological changes)                                                                               | 60                                                                              | 1.71                          |
|                                                                                       | 2. Neuro/biochemical changes affect outcomes (e.g. speed)                                                                     | 45                                                                              | 1.29                          |
| 9. Best Practices (are we doing what we say we're doing)                              | 1. Duration and <b>frequency of treatment (Acute, chronic, maintenance phases)</b>                                            | 161                                                                             | 4.6                           |
|                                                                                       | 2. Number of segments adjusted/threshold                                                                                      | 98                                                                              | 2.8                           |
|                                                                                       | 3. Maintenance care                                                                                                           | 92                                                                              | 2.63                          |
|                                                                                       | 4. Clinical guidelines (standardized health screen checklist – flow decision tree)                                            | 87                                                                              | 2.49                          |
|                                                                                       | 5. Time frame for treating paralysis (early versus late) – prognosis                                                          | 87                                                                              | 2.49                          |
| 10. Diagnostic Tests                                                                  | 1. Inter-examiner reliability (e.g., function & pain scales)                                                                  | 62                                                                              | 1.77                          |
|                                                                                       | 2. X-rays                                                                                                                     | 43                                                                              | 1.23                          |

| Major Research Topics<br><i>Listed in ranked order<br/>identified by NGT sessions</i> | Subtopics<br><i>Listed in ranked order identified by NGT sessions</i> | Subtopic Composite<br>Score<br><i>Ranked in Final<br/>Prioritization Survey</i> |                               |
|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------|
|                                                                                       |                                                                       | Composite<br>Score                                                              | Average<br>Composite<br>Score |
| 11. Survey of non-chiro veterinarians on perceptions of chiropractic care             | –                                                                     | –                                                                               | –                             |
| 12. Survey of treatment used by practitioners                                         | –                                                                     | –                                                                               | –                             |
| 13. Contextual Factors (practitioner state of mind, intent, etc.)                     | –                                                                     | –                                                                               | –                             |

**Items in bold:** Denote items that were consistently emphasized as important or frequently mentioned by participants throughout the sessions.

NGT = Nominal group technique; IVDD = Intervertebral Disc Disease; PPT = Pain pressure threshold; ODI = Oswestry Disability Index; QoL = Quality of Life; Tx = Treatment; DM = Degenerative Myelopathy; CCL = Canine Cruciate Ligament; K9 = Canine; PT = Physical Therapy; Chiro = Chiropractic; NSAIDs = non-steroidal anti-inflammatory drugs; TMJ = Temporomandibular joint

The goals for the animal chiropractic research were identified as improving public education and perception, enhancing education of veterinarians on chiropractic care during professional training, fostering conversations and collaborations with regulatory boards, establishing best practices and consistent standards of care and competency, and generating high-quality scientific evidence.

#### *Final prioritization survey*

Of the 71 total participants across the first two stages, eight participated in both. Therefore, 63 unique participants from the online survey and the NGT sessions were emailed the link to the final prioritization survey (Figure 1). Thirty-five participants responded to the final survey, yielding a response rate of 55.6%.

After the composite score analysis was conducted, the major topics were reordered based on strength. The top five ranked topics were objective outcomes, safety & adverse events, specific conditions and treatment effects, mechanisms of manual therapies, and both subjective outcomes and treatment comparisons equally ranked for fifth place (Table 4). All composite scores for the subtopics are presented in Table 3.

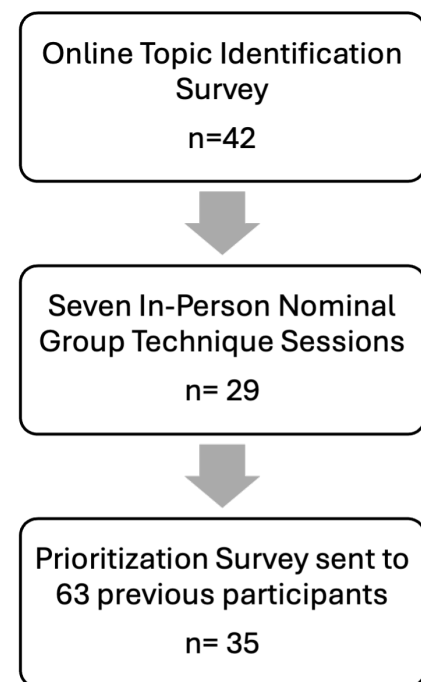


Figure 1.  
*Flow of participants across study phases*

Table 4.  
*Ranked prioritization of major topics*

| Major Topics in Ranked Order                                                 | Composite Score | Average Composite Score |
|------------------------------------------------------------------------------|-----------------|-------------------------|
| Objective Outcomes                                                           | 406             | 11.6                    |
| Safety & Adverse Events                                                      | 375             | 10.71                   |
| Specific Conditions & Treatment Effects                                      | 366             | 10.46                   |
| How/Why Treatment Works (Mechanisms of Manual Therapies)                     | 298             | 8.51                    |
| Subjective Outcomes                                                          | 296             | 8.46                    |
| Treatment Comparisons                                                        | 296             | 8.46                    |
| Animal-specific Investigations                                               | 279             | 7.97                    |
| Best Practices (are we doing what we say we're doing) – Dose                 | 231             | 6.6                     |
| Research database (use of historical data)                                   | 212             | 6.06                    |
| Diagnostic Tests                                                             | 155             | 4.43                    |
| Survey of non-vSMT trained veterinarians on Perceptions of Chiropractic Care | 118             | 3.37                    |
| Survey of Treatment Used by Practitioners                                    | 101             | 2.89                    |
| Contextual Factors                                                           | 52              | 1.49                    |

Within the top ranked research priority of objective outcomes, the strongest five research subtopic priorities were biomechanical analysis (CS=420, average CS=12), pre/post analysis of activity levels (CS=371, average CS=10.6), force plate analysis (CS=360, average CS=10.29), performance measures (CS=339, average CS=9.69), and physiological parameters (CS=294, average CS=8.4).

Within the second ranked safety and adverse events research priority, the strongest research subtopic priorities were safety to animals (CS=233, average CS= 6.66), the risk of injury with treatment (CS=207, average CS=5.91), extremity adjusting (CS=122, average CS=3.49), reporting of adverse event (CS=121, average CS=3.46), and risk-benefit analysis (CS=115, average CS=3.29).

Research into intervertebral disc disease (IVDD) (CS=612, average CS=17.49), aging (CS=580, average CS=16.57), post operative care (CS=498, average CS=14.23), acute versus chronic (CS=479, average CS=13.69), and continuity of life care (CS=437, average

CS=12.49) were the strongest priorities within the third ranked specific conditions and treatment effects topic.

Within the fourth-ranked mechanisms of manual therapy topic, the physiological changes of the adjustment (CS=60, average CS=1.71) were ranked higher than how neurological and/or biochemical changes affect outcomes (CS=45, average CS=1.29).

Within co-fifth ranked subjective outcomes, the strongest priorities were quality of life (CS=265, average CS=7.57), pain (CS=218, average CS=6.23), mood/behavioural changes (CS=198, average CS=5.66), performance (CS=192, average CS=5.49), and rider satisfaction (CS=141, average CS=4.03).

Multimodal treatments compared to single therapy (CS=328, average CS=9.37), chiropractic care compared to medications (CS=292, average CS=8.34), population-specific treatment protocols (CS=280, average CS=8), chiropractic care compared to surgical care of IVDD (CS=261, average CS=7.46), and post-surgical physical therapy alone versus physical therapy and chiro-

practic care (CS=239, average CS=6.83) were the strongest priorities within the co-fifth ranked treatment comparisons topic.

## Discussion

Animal chiropractic research remains limited, with existing studies examining various aspects of the field, including utilization<sup>24</sup>, reviews of manual therapy techniques<sup>18,19</sup>, retrospective analysis of CAVM services, and scoping reviews on physiological responses to manual therapy in animal models<sup>23</sup>. These studies provide valuable insights into practice trends and theoretical understanding. However, there remains limited high-quality studies within animal chiropractic, including randomized control trials, systematic reviews or quantitative investigations that could contribute to a stronger evidence base.

The structured, interested party-driven research priorities identified in this study provide directions for future investigations and support the development of an evidence-informed animal chiropractic profession by outlining and ranking where research is most needed. The top-ranked priorities: objective outcomes, safety and adverse events, specific conditions and treatment effects, mechanisms of manual therapies, subjective outcomes, and treatment comparisons, reflect a collective commitment amongst animal chiropractic practitioners and interested parties to enhance the credibility of the profession, improve clinical decision making, and foster the integration of animal chiropractic within veterinary healthcare.

Objective outcomes emerged as the highest priority, highlighting the need for standardized and measurable indicators to assess patient changes. Measures such as biomechanical outcomes, activity levels, performance measures, and physiological parameters can provide practitioners with data to monitor progress, guide treatment decisions, and communicate findings more effectively with animal owners. These outcome measures can also contribute to building consistency in clinical practice and enhancing the profession's scientific credibility. Clark and Comerford's existing work on mobility assessment in dogs with MSK disease highlights the advantages and limitations of both subjective and objective measures, including force plate and kinematic gait analysis, in diagnosing and monitoring MSK disorders<sup>8</sup>, as well as Adie's use of a pressure-sensitive walkway to assess gait symmetry following animal chiropractic manipulations in

dogs<sup>25</sup>. The 2022 American Animal Hospital Association (AAHA) Pain Management Guidelines for Dogs and Cats highlight the validity of force plate and pressure-sensitive walkways for clinical research and their use in dedicated assessment centres for screening, diagnosing, and monitoring canine limb pain. However, the guidelines consider the force plates expensive, challenging and labor intensive<sup>10</sup> to implement in most clinical practices.

The emphasis on safety and adverse events reflects the profession's responsibility to ensure animal welfare and minimize risk. Priority areas identified include safety to animals, such as adverse events, tissue damage, and force parameters (e.g., typical force-time characteristics and practitioner education/training). Additional concerns include the risk of injury associated with treatment, particularly in vulnerable populations such as animals with IVDD, older animals, and skeletally immature animals such as puppies and foals. Extremity adjustments and the systematic reporting of adverse events were also highlighted as key areas requiring attention. These considerations may be essential for supporting meaningful risk-benefit analyses, enabling informed consent, and guiding the development of professional guidelines. While research specifically focused on adverse events in animal chiropractic remains limited<sup>26</sup>, Benedetti *et al.*<sup>27</sup> observed in their pilot study that chiropractic treatment in healthy horses elicited some transient discomfort behaviours compared with a grooming control session but did not trigger physiological signs of acute stress and was well tolerated when performed by a qualified animal chiropractor. In broader studies, adverse event outcomes may be reported as secondary outcomes. For example, Adie included a subjective exit interview questionnaire specifically asked, "What adverse outcome(s) if any did you observe in your pet?" and reported that no animal owners noted adverse events or unwanted outcomes occurred during treatment.<sup>25</sup> However, this observation was not the central focus of the study. These findings highlight the need for more targeted research to better understand the safety of animal chiropractic interventions.

The prioritization of specific conditions and treatment effects highlights the need to determine which clinical presentations respond most effectively to chiropractic care. Research priorities in this area include conditions such as intervertebral disc disease, age-related issues, postoperative care, acute versus chronic presentations,

and continuity of life care. While some studies address related topics, significant gaps remain. For example, Cramer, Solano, and Constable explored the epidemiology of lameness in cattle, examining prevalence, incidence, and risk factors, but did not address treatment interventions.<sup>12</sup> Similarly, the 2015 AAHA / AAFP (American Association of Feline Practitioners) Pain Management Guidelines reviewed a range of pain management strategies, including non-steroidal anti-inflammatory drugs (NSAIDs), opioids, anesthetics, acupuncture, diet, exercise, and lifestyle modifications, and briefly mentioned animal chiropractic care.<sup>13</sup> However, the veterinary guidelines concluded that evidence for chiropractic care in veterinary pain management is insufficient, unreliable, and contradictory, in contrast to the robust evidence base supporting chiropractic care in human medicine.<sup>13</sup> Promising research has begun to provide novel evidence that animal chiropractic treatment may help reduce the likelihood of early-onset spondylosis in young Boxers. Although animal chiropractic care is not currently a routine intervention for this condition due to limited supporting evidence, findings from recent randomized studies suggest its potential as a preventative or delayed-onset measure for spondylosis.<sup>28</sup> Obtaining more knowledge pertaining to specific conditions and treatment effects has the potential to guide treatment planning and support evidence-informed claims in animal chiropractic practice.

The prioritization of research into the mechanisms of manual therapy highlights the importance of understanding the physiological, neurological, and biochemical changes that occur during chiropractic adjustments and how these changes influence clinical outcomes. A long-standing history of using animal models in MSK studies<sup>29</sup> has contributed to their findings extrapolated to human applications and advancements in human medicine, chiropractic, and broader health research. For example, Han *et al.*<sup>30</sup> demonstrated the analgesic effects of SMT and mobilizations in a rat model of acute lumbar radiculopathy, suggesting a potential link to anti-inflammatory processes, though the exact mechanisms remain unclear. Other studies have explored biomechanical aspects of SMT using porcine spines, revealing that both the force magnitude and the site of SMT application significantly influence the distribution of forces into the spine structures.<sup>31</sup> Feline models have been used to investigate changes in intradiscal pressure and the influence

of viscoelastic properties of spinal tissues in response to SMT.<sup>32</sup> These findings may inform the adaptation of chiropractic techniques and research findings to animal care<sup>33</sup> and may be increasingly applicable within animal chiropractic contexts, offering valuable insights to support the development of evidence-informed practices in animal chiropractic.<sup>29</sup> Nevertheless, these findings should be interpreted with caution as the studies were originally designed focused on their application to humans.

The prioritization of subjective outcomes emphasizes the importance of evaluating quality of life, perceived pain, behaviour, performance, and owner or rider satisfaction as part of animal chiropractic care research. Of note, performance was also highlighted within objective outcomes, however, it can span both objective and subjective categories. Performance can be quantified objectively using tools such as kinematic gait analysis to provide measurable data while performance can also be assessed subjectively based on owner or practitioner observations of gait patterns. Subjective measures, such as CMIs, provide valuable insights into animal well-being and owner perceptions, often complementing objective data.<sup>10,25</sup> The 2022 AAHA Pain Management Guidelines for Dogs and Cats reviewed 18 CMIs and categorized their validity based on an overview of published studies assessing psychometric properties. However, while the guideline summarizes CMIs as fully validated, moderately validated, having limited validation, or not validated, the specific criteria used to determine these classifications are not described. Overall, 14 CMIs were rated as moderately to fully validated and four CMIs were rated as unvalidated or having only limited validation<sup>10</sup>. Current research has evaluated pain and functional status using owner-reported questionnaires and practitioner-assessed functional tasks, finding significant improvements across all subjective measures, including decreased pain scores and enhanced mobility and function following chiropractic manipulation<sup>25</sup>. Wells *et al.*<sup>9</sup> reviewed current approaches to assessing mobility and function in veterinary medicine, such as the Canine Geriatric Functional Score (CGFS), and emphasized the need for further validation of standardized assessment methods. They also suggested adapting validated human subjective assessment tools for veterinary use.<sup>9</sup> Regardless of their validation status – and despite 70.8% of dog owners expressing a willingness to use health questionnaires, and these tools being freely available to veterinarians – utilization remains low. One study reported only

4.4% of practitioners used subjective outcome questionnaires.<sup>9</sup> Research is needed to identify barriers to implementation and strategies to improve uptake.

The prioritization of treatment comparisons reflects the need to evaluate the relative effectiveness of animal chiropractic care within different therapeutic contexts, including multimodal approaches versus single therapies, animal chiropractic care compared to medications, and its role alongside surgical or rehabilitative interventions. Comparative research in this area has the potential to inform evidence-informed treatment protocols tailored to specific populations and conditions. To support this, high-quality randomized control trials are essential for evaluating the effectiveness of different treatment methods and identifying appropriate providers for implementing interventions to target populations<sup>34</sup>. For example, Haussler *et al.*<sup>35</sup> conducted a randomized control trial on 61 competitive performance horses with back pain attributed to spinal MSK disorders, examining the effects of low-level laser therapy (LLLT) and chiropractic care. They observed reduced back pain, muscle hypertonicity and stiffness in the group receiving LLLT, and improved trunk and pelvic flexion reflexes in the group receiving chiropractic care.<sup>35</sup> The combination of both therapies produced improvements across all measured outcomes, suggesting potential synergistic benefits.<sup>35</sup> Similarly, Sullivan, Hill and Haussler investigated instrument-assisted chiropractic treatment, therapeutic massage, and phenylbutazone in horses without clinical signs of MSK pain by measuring spinal mechanical nociceptive thresholds.<sup>36</sup> By day seven, both chiropractic and massage produced significant increases in these thresholds, whereas the phenylbutazone resulted in decreased thresholds on days 1–3 followed by only a small increase at day seven. These findings demonstrate an antinociceptive effect of chiropractic and massage, even in an MSK condition-free equine population.<sup>36</sup>

In addition to identifying specific research priorities, this study also revealed broader goals essential for advancing the animal chiropractic profession. These goals include improving public education and perception of animal chiropractic, integrating chiropractic content into veterinary training, fostering conversations and collaborations with regulatory bodies, and establishing best practices to ensure consistency and standard competency across practitioners. The generation of high-quality scientific

evidence remains a central goal, underscoring ongoing efforts to integrate animal chiropractic into mainstream veterinary care. These goals reflect a comprehensive vision for the field that not only addresses clinical and scientific gaps but also supports professional development, public trust, and regulatory alignment.

### *Strengths and limitations*

This study's key strength is its robust methodology for identifying and ranking research priorities within the animal chiropractic field. The mixed-methods approach of combining the online topic identification survey with the NGT sessions ensures input is shaped by participants and was refined iteratively across multiple stages to enhance the relevance and robust nature of the findings to reflect real-world needs and support evidence-informed practice.

Rather than using a formal Delphi process, the NGT was selected because it is well suited to early-stage priority setting, allowing for the efficient generation, clarification, and ranking of a broad range of topics within a short time frame, especially for a relatively small and geographically dispersed profession. With the NGT, participants were not limited to a narrowly predefined expert panel but rather the initial online survey recruitment intentionally sought broad input from interested professional and organisational parties and the in-person NGT was conducted at a professional conference as it is one of the few practical opportunities to assemble the animal chiropractic community. Delphi methods aim to iteratively refine and narrow opinions toward a predefined consensus threshold across multiple rounds, however, the purpose of the present study was to capture the breadth of perceived research needs and assign relative strength to each topic rather than exclude items that did not reach consensus. A future Delphi study using these priorities as a starting framework would be well suited to reassess, refine, and update the research agenda as new evidence emerges and the field continues to evolve.

This study has several limitations. Most participants were certified animal chiropractic practitioners, primarily affiliated with the AVCA and based in the United States and Canada. This limits the generalizability of the findings to international contexts and may exclude perspectives from other key interested parties such as non-vSMT trained veterinarians, animal owners, and veterinary regulatory bodies. However, those certified in animal chiro-

practic are uniquely positioned to speak to the challenges and experiences faced by their profession, including interactions with the public, other health care professionals, and regulatory bodies. Of note, the results are reported using the original wording provided by participants to preserve the authenticity of their contributions and may not necessarily follow methodological standards. Nonetheless, their insights provide valuable context for shaping a meaningful and relevant research agenda. Finally, recruitment through professional associations may introduce a selection bias to potentially favour more engaged and aligned viewpoints.

### *Implementation and next steps*

Animal chiropractic is a relatively small but growing subspecialty at the intersection of two well-established professions. Given the limited capacity and resources available to fund and conduct high quality research, it is essential to strategically prioritise and focus on the research topics and subtopics outlined in the priorities established here. Doing so will ensure involved parties are actively involved in efforts that are both meaningful and aligned with the most pressing gaps identified in the field. This targeted approach can help maximize the impact of future research and foster interdisciplinary collaboration.

In parallel with these prioritization efforts, initiatives to consolidate and improve access to existing animal chiropractic literature are beginning to emerge. For example, the Canadian Memorial Chiropractic College has recently published an online Animal Chiropractic Library Guide that serves as a centralized repository of published research in this area. This resource provides a single access point for clinicians, educators, and researchers seeking to review the current literature, while also allowing users to submit citations for newly published work as it becomes available. Increasing the visibility and use of such tools can strengthen the foundation on which future research priorities are implemented and help ensure that new investigations build on existing knowledge.

These research priorities can inform the sequencing of future studies and strengthen grant applications by clearly demonstrating the demand for research in specifically identified areas. To advance the field meaningfully, efforts should focus on building research capacity, such as developing collaborative teams, mentorship structures, and institutional support, to lead and sustain high-quality investigations. Establishing funding mechanisms and strategic partnerships will also be essential to ensure continuity, promote innovation, and support long-term growth in animal chiropractic research.

### *Conclusion*

This study provides a structured, interested party-driven research agenda that identifies key research priority areas for advancing the evidence base in animal chiropractic care. By emphasizing objective outcomes, safety, condition-specific effectiveness, underlying mechanisms, subjective measures, and treatment comparison, these research priorities offer a roadmap of topics to guide clinically relevant evidence. Addressing these priorities may not only strengthen the scientific foundation of the profession but also enhance its integration within animal healthcare, and acceptance among animal owners and veterinary professionals. Ultimately, these efforts aim to improve patient outcomes, promote informed decision-making, and support the responsible growth of animal chiropractic as an evidence-informed discipline.

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## Abbreviations

| Term     | Meaning                                                                            |
|----------|------------------------------------------------------------------------------------|
| AC       | Animal Chiropractic                                                                |
| AVCA     | American Veterinary Chiropractic Association                                       |
| CAC      | Certified Animal Chiropractor                                                      |
| cAVCA    | American Veterinary Chiropractic Association certified                             |
| CBFP     | Unable to Identify Acronym                                                         |
| CCAT     | Certified Companion Animal Therapist                                               |
| CCRP     | Certified Canine Rehabilitation Practitioner                                       |
| CCRT     | Certified Canine Rehabilitation Therapist                                          |
| CCSP     | Certified Canine Sports Practitioner                                               |
| CERP     | Certified Equine Rehabilitation Practitioner                                       |
| cIVCA    | International Veterinary Chiropractic Association certified                        |
| CoAC     | College of Animal Chiropractors                                                    |
| CVA      | Certified Veterinary Acupuncturist                                                 |
| CVBMA    | Certified Veterinary Balance Method Acupuncturist                                  |
| CVC      | Certified Veterinary Chiropractor                                                  |
| CVMRT    | Certified Veterinary Massage and Rehabilitation Therapist                          |
| cVMA     | Certified in Veterinary Medical Acupuncture                                        |
| cVSMT    | Certified in Veterinary Spinal Manipulative Therapy                                |
| DACT     | Diplomate of American College of Theriogenology                                    |
| DACVS-LA | Diplomate of American College of Veterinary Surgeons- Large Animal                 |
| DACVSMR  | Diplomate of the American College of Veterinary Sports Medicine and Rehabilitation |
| DC       | Doctor of Chiropractic                                                             |
| DNS      | Dynamic Neuromuscular Stabilization                                                |
| DVetHom  | Doctorate in Veterinary Homeopathy                                                 |
| DVM      | Doctor of Veterinary Medicine                                                      |
| EMRS     | Electro-Magnetic Radiation Specialist                                              |
| FACFN    | Fellow of the American College of Functional Neurology                             |
| FCoAC    | Fellow of the College of Animal Chiropractors                                      |
| IVCA     | International Veterinary Chiropractic Association                                  |
| MPAC     | Unable to Identify Acronym                                                         |
| VMD      | Veterinary Medical Doctorate                                                       |
| VOM      | Veterinary Orthopedic Manipulation                                                 |

## References

- Vos T, Barber RM, Bell B, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990–2013: A systematic analysis for the global burden of disease study 2013. *Lancet*. 2015; 386(9995): 743–800.
- Côte P, Cassidy JD, Carrol L. The treatment of neck and low back pain. Who seeks care? Who goes where? *Med Care*. 2001; 39(9): 956–967.
- Schneider M, Murphy D, Hartvigsen J. Spine care as a framework for the chiropractic identity. *J Chiropr Humanit*. 2016; 23(1): 14–21.
- Hurwitz EL. Epidemiology: Spinal manipulation utilization. *J Electromyogr Kinesiol*. 2012; 22(5): 648–654.
- Diao Y, Liu Y, Pan J, Chen J, Pan J, Liao M, Liu H, Liao L. Efficacy and safety of spinal manipulative therapy in the management of acute neck pain: A systematic review and meta-analysis. *Syst Rev*. 2025; 14(1): 1-14.
- Paige NM, Miake-Lye IM, Booth MS, et al. Association of spinal manipulative therapy with clinical benefit and harm for acute low back pain: Systematic review and meta-analysis. *JAMA*. 2017; 317(14):1451–1460.
- Hawk C, Whalen W, Farabaugh RJ, et al. Best practices for chiropractic management of patients with chronic musculoskeletal pain: A clinical practice guideline. *J Altern Complement Med*. 2020; 26(10): 884–901.
- Clark N, Comerford E. An update on mobility assessment of dogs with musculoskeletal disease. *J Small Anim Pract*. 2023; 64(10): 599–610.

9. Wells GM, Young K, Haskell MJ, Carter AJ, Clements DN. Mobility, functionality and functional mobility: A review and application for canine veterinary patients. *Vet J*. 2024; 305:1-8.
10. Gruen ME, Lascelles BDX, Colleran E, et al. 2022 AAHA pain management guidelines for dogs and cats. *J Am Anim Hosp Assoc*. 2022; 58(2):55-76.
11. Tranquille CA, Chojnacka K, Murray RC. Musculoskeletal injury and illness patterns in British eventing horses: A descriptive study. *Animals*. 2024; 14(18): 1-19.
12. Cramer G, Solano L, Constable PD. Epidemiology of lameness in cattle. *Merck Vet Man*. 2023 [cited 2025 Jun 2]. Available from: <https://www.merckvetmanual.com/musculoskeletal-system/lameness-in-cattle/epidemiology-of-lameness-in-cattle>
13. Epstein ME, Rodan I, Griffenhagen G, Kadrlik J, Petty MC, Robertson SA, Simpson W. 2015 AAHA/AAFP pain management guidelines for dogs and cats. *J Feline Med Surg*. 2015; 17(3): 251-272.
14. Gilberg K, Bergh A, Sternberg-Lewerin S. A questionnaire study on the use of complementary and alternative veterinary medicine for horses in Sweden. *Animals*. 2021; 11(11): 1-13
15. Miscioscia E, Repac J. Evidence-based complementary and alternative canine orthopedic medicine. *Vet Clin North Am Small Anim Pract*. 2022; 52(4): 925-938.
16. American Veterinary Chiropractic Association. Doctor search [Internet]. American Veterinary Chiropractic Association; [cited 2025 Jun 2]. Available from: <https://www.animalchiropractic.org/doctor-search/>
17. International Veterinary Chiropractic Association. Find a veterinary chiropractor [Internet]. International Veterinary Chiropractic Association; [cited 2025 Jun 2]. Available from: <https://ivca.de/find-a-veterinary-chiropractor/>
18. Haussler KK, Hesbach AL, Romano L, Goff L, Bergh A. A systematic review of musculoskeletal mobilization and manipulation techniques used in veterinary medicine. *Animals*. 2021; 11: 1-18.
19. Haussler KK. Review of manual therapy techniques in equine practice. *J Equine Vet Sci*. 2009; 29(12): 849-869.
20. Gulda D, Lik M. The use of manual therapy in canine discipline-agility. *Pol J Nat Sci*. 2018; 33: 487-501.
21. Haq U, Shah O, Hussain SA, Iqbal M. A mini review on chiropractic medicine and its application in veterinary medicine. *Pharma Innov J*. 2017; 6: 471-473.
22. Khan A. The rise of integrative veterinary medicine: Use of cam in animal healthcare. *Clin Res Anim Sci*. 2023; 3(2): 1-5.
23. Keter DL, Bent JA, Bialosky JE, Courtney CA, Esteves JE, Funabashi M, et al. An international consensus on gaps in mechanisms of force-based manipulation research: Findings from a Nominal Group Technique. *J Man Manip Ther*. 2024; 32(1): 111-117.
24. Batty DJ. A survey on the use, benefit and level of training in joint manipulation by veterinarians in Johannesburg, South Africa [Thesis]. Johannesburg (SA): University of Johannesburg.
25. Adie KD. The impact of chiropractic manipulation on pain, functional outcomes and gait symmetry in dogs with mobility impairments using clinical measurement and gait analysis instruments. [Thesis]. Oshawa (ON): University of Ontario Institute of Technology; 2025.
26. Rome PL, McKibbin M. A review of chiropractic veterinary science: An emerging profession with somatic and somatovisceral anecdotal histories. *Chiropr J Aust*. 2011; 41: 127-139.
27. Benedetti B, Freccero F, Piscopiello M, et al. Effects of chiropractic manipulations on behavioral and physiological parameters in healthy horses: A preliminary investigation. *Journal of Veterinary Behavior*. 2024; 76: 25-33.
28. Halle KS, Granhus A. Veterinary chiropractic treatment as a measure to prevent occurrence of spondylosis in Boxers. *Vet. Sci*. 2021; 8 (199): 1-9.
29. Van Weeren, Tryfonidou MA. Musculoskeletal health from the “One Medicine” perspective – What can we learn from large and small animal models (with emphasis on articular cartilage)? *BMC Musculoskelet Disord*. 2015; 16(S6): 1-2.
30. Han L, Zhao P, Han X, Wei J, Wang F, Li Y, Guo G. Analgesic effects of two types of spinal manipulation in acute lumbar radiculopathy model rats. *Chin J Integr Med*. 2022; 28(6): 518-523.
31. Funabashi M, Nougrou F, Descarreaux M, Prasad N, Kawchuk G. Influence of spinal manipulative therapy force magnitude and application site on spinal tissue loading: A biomechanical robotic serial dissection study in porcine motion segments. *J Manipulative Physiol Ther*. 2017; 40(6): 387-396.
32. Reed WR, Liebschner MAK, Lima CR, et al. In Vivo measurement of intradiscal pressure changes related to thrust and non-thrust spinal manipulation in an animal model: A pilot study. *Chiropr Man Therap*. 2022; 30(1): 1-11.
33. Haussler KK. Chiropractic evaluation and management. *Veterinary Clin North Am Equine Practice*. 1999; 15(1): 195-209.
34. Airaksinen O, Brox JI, Cedraschi C, Hildebrandt J, Klaber-Moffett J, Kovacs F, Mannion AF, Reis S, Staal JB, Ursin H, Zanolli G. Chapter 4: European guidelines for the management of chronic nonspecific low back pain. *Eur Spine J*. 2006;15:S192-S300.
35. Haussler KK, Manchon PT, Donnell JR, Frisbie DD. Effects of low-level laser therapy and chiropractic care on back pain in quarter horses. *J Equine Vet Sci*. 2020; 86: 102891
36. Sullivan KA, Hill AE, Haussler KK. The effects of chiropractic, massage and phenylbutazone on spinal mechanical nociceptive thresholds in horses without clinical signs. *Equine Vet J*. 2008; 40(1): 14-20.