

## Role of Physiotherapy in Canine Rehabilitation - An Experimental Study

Nithyanisha R, Carlin Jersha Rachel J, Abel Sam Abraham

Assistant Professor Faculty of Physiotherapy Dr MGR Educational and Research Institute (Deemed to Be University)

Faculty of Physiotherapy Dr M.G.R Educational and Research Institute ( Deemed to Be University)

Date of Submission: 01-09-2021

Date of Acceptance: 12-09-2021

### I. INTRODUCTION:

#### CANINE:

Canines are known as dogs and animals that belong to the dog family (canidae). The domestic dog is a mammal, a member of the genus canis. Canine derives from the word canis, the Latin word for dog. Wolves, foxes, jackals and coyotes are often called canines owing to the common feature of 4 pointed canine teeth which are especially prominent in dogs. These canine teeth are situated one on either side of the jaw (upper and lower) respectively, next to the incisors. Canines are carnivores that prey on a wide variety of animals; large or small, though some also eat carrion and vegetable matter. Highly intelligent and easily trained, canines were probably the first animals to be domesticated.

#### VETERINARY REHABILITATION:

Veterinary rehabilitation uses many of the same modalities and techniques for animals as physical therapy does for humans; the two are similar in almost all ways. The veterinary rehabilitation offers a good portion by working on building strength, flexibility, proprioception, range of motion and in pain management.

The idea of applying rehabilitation techniques and principles to animals, although not new, has grown appreciably since the mid-1990s. Although many of the treatment protocols for humans were developed and continue to be developed using animal models, a growing number of research studies are being conducted in universities and private practices that look specifically at the benefits of different methods of rehabilitation in animals, especially dogs. Higher owner expectations combined with increased sophistication and technical abilities of veterinary clinicians have resulted in greater interest in physical therapy and rehabilitation

#### CANINE PHYSICAL THERAPY:

Physical therapy for canines adapts human physical therapy techniques to increase function and mobility of joints and muscles in animals. Physical therapy can reduce pain and enhance recovery from injury, surgery, degenerative diseases, age related diseases and obesity.

Canine rehabilitation is also practiced by general veterinarians and physical therapists with specialized training.

The American Veterinary Medical Association (AVMA) in a section titled "The Model Practice Act (Act)". The Act has been periodically updated and revised, and in the current version (2012, section 2.16); the physical therapist may perform physical therapy on the domestic canine upon receiving a referral letter from a licensed, practicing veterinary physician.

The goal of physical therapy is to improve the quality of life, decrease pain and to improve the functional independence on every canine.

#### QUALITY OF LIFE:

Quality of life does not have an operational definition but is judged individually based on dogs values and preferences. Each and every pet has certain needs that should be recognized and respected. Quality of life is a way to refer to and discuss the day to day life and lifestyle of a dog reaching the end of its life, if we can feel confident that our efforts in preserving life are justified.

#### AIM OF THE STUDY

The aim of the study is to achieve the highest level of function, independence and quality of life as possible in domestic canines, by applying various land based exercises.

#### BACKGROUND AND NEED OF STUDY

The need of the study is to achieve the highest level of function, independence and quality

of life as possible in domestic canine, by applying various land based exercises and to create bridging the gap between physical therapy and veterinary medicine.

To access the efficacy of rehabilitation program on improving behavior and welfare of pet dogs. In this study, a rehabilitation protocol including training to improve the functional ability of domestic canine.

#### **HYPOTHESIS**

#### **NULL HYPOTHESIS**

There is no significant difference in the improvement of functional independence and quality of life in domestic canine by applying land based exercises.

#### **ALTERNATE HYPOTHESIS**

There is significant difference in the improvement of functional independence and quality of life in domestic canine by applying land based exercises.

#### **METHODOLOGY**

**STUDY DESIGN** :An experimental study.

**STUDY SETTING** :M. K. Vet. Clinic, Villupuram.

**STUDY DURATION:** 3 sessions per week for about 4 weeks( 1 month).

**SAMPLE SIZE** : 15 subjects.

**STUDY TYPE** :Pre and Post type.

**STUDY SAMPLING:**Random sampling method.

#### **INCLUSION CRITERIA**

Domestic canines.

Been in owner's possession for at least 2 weeks.

Age group above 2 years of age.

All breeds irrespective of gender.

Duly vaccinated.

#### **EXCLUSION CRITERIA**

Below 2 years of age.

Canines with skin pathology.

Musculoskeletal disorders.

Open wounds.

Neurological disorders.

Rabies.

Behavioural complaints.

Uncooperative canines.

Pregnant domestic canines.

#### **MATERIALS USED**

Stopwatch.

Chalk.

Measuring tape.

Skipping rope

Rocker board.

Resistance band.

Swiss ball

#### **ASSESSMENT FORM**

Name of the dog :  
Age :  
Gender :  
Breed :  
Referring veterinarian :  
Associated health problems :  
If vaccinated for rabies : Yes / No  
Physical examination :  
Name of the dog's owner :  
Address for communication :

#### **OUTCOME MEASURE**

##### **CTUG TEST (CANINE TIMED UP AND GO TEST)**

Canine Timed Up and Go Test is a simple test used to assess a canine's mobility. It uses the time that a canine takes to rise from a start position, walk 6 meters, turn around, walk back to the position and sit down.

##### **General Rules:**

Materials: basic stopwatch, marking tape or chalk/ paint.

Participants: dog, owner/motivator, tester.

2 discrete subtasks: stand up & gait( lie down found to be invalid).

Timing begins with movement in the appropriate direction rather than with command.

Practical trial unnecessary.

Interrater reliabilities for both components.

Test-retest reliabilities( mean of 2 trials) Validity.

##### **CTUG PROTOCOL- STANDUP COMPONENT**

Start position- lying down with lower abdomen in contact with ground and 4 limbs outstretched.

Timing starts when dog initiates upward movement.

Timing stops when limbs are extended to the dog's habitual stance position. Timing continues to completion even if several tries are required to achieve standing.

For this event, the average of 2 trials per session is recommended for test- retest reliability.

##### **CTUG PROTOCOL- GAIT COMPONENT**

A narrow, non-slippery track consists of taped lines at 1,7,10 mt mark. Actual distance timed is 6 mts. Start position- tester holds standing dog behind 1 mt mark.

Owner stands behind the 10 mt mark. This prevents deceleration before 7 mt mark.

Owner chooses communication- verbal, hand gestures, incentive treats- as long as consistent.

Timing starts when dog initiates self-paced, forward movement. Unleashed or slack leash.

Timing stops when 1st paw crosses the 7 mt mark.

For this event, only 1 trial per session is necessary for test- retest reliability.

TRIALS	TIME TAKEN(in seconds)
Trial 1	
Trial 2	
Quickest trial	

PRE TEST SCORE	POST TEST SCORE

**PROCEDURE**

Subjects which were referred from M.K Vet Clinic, Villupuram were selected randomly from all breeds irrespective of their genders. The domestic canines were treated for about 4 weeks(1 month) and is screened by both inclusion and exclusion criteria to participate in this study. The purpose of the study was explained to the owner of the pet. The study begun after obtaining an informed consent in writing and the standardized history of the subject.

The subjects participated in the CTUG test to measure the functional ability before the commencement of the training and the values were recorded.

The CTUG test was done to evaluate the pre-test score and check out their ability to perform the activity.

Based on the criteria mentioned earlier, the 15 subjects were randomly assigned for land based exercise training . The total duration of the training session were about 15- 30 mins/ hours per day and 3 sessions per week for about 4 weeks/ 1 month. The dogs were motivated by verbal, hand gestures and incentive treats- as long as they were consistent, to participate actively in the training in order to improve the functional independence and their quality of life.

**INTERVENTION**

**ENDURANCE TRAINING**

Building endurance is equally important in canine population. This is to create a stronger and healthier body.

Running was encouraged and was performed by the dogs for a distance of 100 mts for about 3-4 rounds. Skipping was performed for about 10-15 counts each session.

**PROPRIOCEPTION**

Many, canine rehabilitation patients struggle with awareness of body position or proprioception. Assisted standing, progressing to standing with addition of gentle perturbation, using Swiss ball for about 5-10 mins. Dog stands on the rocker board and was encouraged to resist this movement to maintain the balance.

**STRENGTH TRAINING**

The emphasis in strength training is primarily on resistance.

The training started with simple movements from lying down to a sit and a sit to a stand. Gravity was the only resistance considered. Number of repetitions is 10 for 5 mins.

External resistance such as Thera band exercises were added as the progressive exercise for both the forelimbs as well as for the hind limbs.

**STATISTICAL ANALYSIS & DATA INTERPRETATION**

The collected data were tabulated and analyzed using both descriptive and inferential

statistics. All the parameters were assessed using statistical package for social science (SPSS) version 24. Paired t-test was adopted to find the statistical difference within the groups.

TABLE 1

DEMOGRAPHIC STATISTICS					
	N	MINIMUM	MAXIMUM	MEAN	STD DEVIATION
AGE	15	3.00	5.00	3.8667	.83381
GENDER	15	MALE - 60%		FEMALE- 40%	

TABLE - 2

COMPARISON OF CANINE TIMED UP & GO TEST WITHIN GROUP BETWEEN PRE & POST TEST VALUES

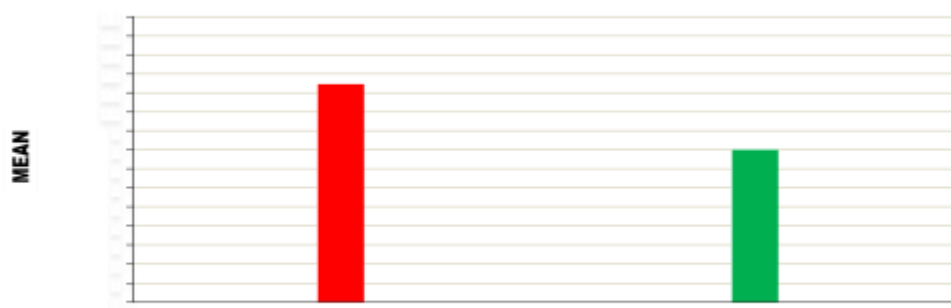
#CTUG	POST TEST		PRE TEST		t- TEST	SIGNIFICANCE
EXP. GROUP	S.D	MEAN	S.D	MEAN		
	8.00	.755	.990	11.46	9.903	.000***

(\*\*\*- P ≤ 0.001)

The above table reveals the Mean, Standard Deviation (S.D), t-value and p-value between pre-test and post-test within Group.

There is a statistically highly significant difference between the pre test and post test values within Group (\*\*\*- P ≤ 0.001).

COMPARISON OF CANINE TIMED UP & GO TEST WITHIN GROUP BETWEEN PRE & POST TEST VALUES



## II. RESULTS

On comparing Canine Timed Up and Go Test Score between Pre test 11.46 and Post test 8.00 Mean values within group shows highly significant difference between Pre test & Post test Mean values at  $P \leq 0.001$

This study concludes that the Role of Physiotherapy in Canine Rehabilitation is very much important to improve their functional independence and their quality of life. The study reveals that there is a significant difference among the domestic canines which participated in the exercise management.

## III. CONCLUSION

SL. NO.	SUBJECT'S NAME	GENDER/AGE (ABOVE 2 YEARS)	PRE TEST- CTUG TEST (CANINE TIMED UP AND GO TEST)	POST TEST- CTUG TEST (CANINE TIMED UP AND GO TEST) IN SECONDS (BETWEEN 7 & 10 SECONDS)
1	TOMMY	3/F	12	7
2	JOHNY	3/M	13	7
3	JACKEY	3/F	11	8
4	ROBIN	3/M	10	8
5	CUFFY	4/M	12	9
6	SHADOW	4/M	12	8
7	POLO	4/M	11	8
8	TYSON	5/M	12	9
9	VINNEE	4/F	10	8
10	ALEX	5/M	12	7
11	DEORA	5/F	12	7
12	DUKE	4/M	11	9
13	BLACKY	3/F	13	9

### CONSENT FORM

TITLE: "Role of physiotherapy in canine rehabilitation- an experimental study"

I, the pet owner ----- hereby volunteer to involve my pet \_\_\_\_\_ in the above mentioned study. The nature and purpose of this research project have been described and explained to me and I am aware of it.

I understand it completely and hereby give my full consent to use my pet's information and images as part of this study.

Therapist's signature

Pet Owner's signature

Date:

Place: