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Effect of Cryokinetics on Knee Proprioception, Muscle Strength and Functional Performance in Healthy Young Individuals: A Randomised Controlled Trial

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Abstract: ***Background: Cryotherapy is used in acute injuries to reduce pain, inflammation and swelling. There are inconsistent results of effects of cryotherapy on proprioception, muscle strength and functional performance of knee joint. However, cryokinetics may overcome a few of these drawbacks with a possibility that a healthy individual with injury could start performing movements earlier and the duration of rehabilitation could be reduced. However very few studies have been conducted to support these facts. Methods: A randomized controlled trial was conducted on 70 healthy participants selected from a physiotherapy institute over a period of 18 months. These participants were randomly allocated in Group A receiving cryotherapy and group B receiving cryokinetics. Pre and post intervention joint position sense, maximum voluntary isometric strength of quadriceps muscle and single leg hop test for distance were documented. Result: In group A, there was no significant difference in Reproduced Angle (p = 0.27) and Reproducibility Error (p = 0.59). Significant increase in muscle strength (p value of Peak Torque <0.0001 and p value of Average Torque <0.0001) was evident but there was no significant effect on single leg hop test distance (p value = 0.92) following Cryotherapy. Following Cryokinetics, proprioception (p value for Reproduced Angle = 0.19 and p value for Reproducibility Error = 0.25) was unaffected while muscle strength (p value of Peak Torque <0.0001 and p value for Average Torque <0.0001) and functional performance (p value for Single Leg Hop test distance <0.0001) increased significantly. On inter - group comparison, there was no significant difference in post - intervention proprioception (p value of Reproduced Angle = 0.87 and p value of Reproducibility Error = 0.72). Peak Torque (p = 0.032) and single leg hop test for distance (p = 0.02) showed significant difference post intervention but Average Torque (p = 0.05) difference was not quite significant.***

Keywords: cryotherapy, cryokinetics, knee, proprioception, muscle strength, functional performance.

1. Introduction

Cryotherapy is the simplest and oldest method to treat injuries all over the globe due to its beneficial effects. (1) It causes reduction in blood flow of tissues due to vasoconstriction; reduces metabolism, oxygen usage, inflammation and muscular spasms. Neurological and vascular mechanisms are affected at the local as well as at the spinal level when cryotherapy is applied. There is a decrease in tissue and skin temperature to a depth of 2 to 4cm, reduced threshold of tissue nociceptors and reduced nerve velocity of conduction. This gives rise to a local analgesic effect which is known as cold - induced neurapraxia (2). In clinical practice, cryotherapy is known to cause vasodilatation and is used to lower tissue temperature and promote better movement (3). It controls pain by causing local anesthesia at the central nervous system level by interrupting connections with the sensory system. Studies have stated that stretching along with cryotherapy was beneficial for decreasing muscular spasms and myofascial pain and hence muscle tension was reduced by these two mechanisms. Other known uses of cryotherapy are well established in the treatment of systemic conditions like neurological diseases (spastic paresis, multiple sclerosis, neurosis, etc.), endocrine, immunological disorders; and in the field of cosmetics (4).

Physiologically, cryotherapy causes a reduction in post - injury edema, nerve conduction velocities, metabolism in the cells and local blood flow. On the other hand, secondary effect of cryotherapy is described as an increased metabolism (active congestion of exposure) (4). Clinically, cryotherapy when used as an adjunct to other treatments in acute stages of diseases like rheumatoid arthritis, osteoarthritis, ankylosing spondylitis, fibromyalgia, osteoporosis, degenerative conditions and traumatic conditions, shows great improvement. It is also known that cold therapy is used on field for acute injuries like ankle sprains, muscle sprains and sports injuries of acute nature (5). Cryotherapy reduces temperature, stimulates relaxation**,** causes temporary numbness and pain relief thereby allowing early mobilization and improving joint range of motion. Break in pain - spasm - pain cycle, decrease in the rehabilitation time post traumatic injury and shorter regeneration phase of rehabilitation are the added benefits of cryotherapy application (6). Conditions like Raynaud's disease, cryoglobulinemia, cold intolerance, gangrenous skin lesions, blood supply related conditions, hypothermia and neuropathies are some of the contraindications of local cold application. Irrespective of the method of ice application, cryotherapy may have disadvantages such as delay in the natural process of healing, inconclusive evidence in acute soft tissue injuries, and failure to improve subjective recovery post exercise or reduce self - assessed muscle soreness (7).

Since there are mixed reviews on use of cryotherapy for altering various outcomes like proprioceptive acuity or muscle strength, its immediate effect in healthy individuals

and athletes stays unanswered. If proprioception is affected by cryotherapy, it could lead to injury or impaired performance. Cryotherapy, an integral treatment method, is very commonly used by physiotherapists to treat sports injuries. Hence sports physiotherapists, athletes and physicians who work in sports medicine are aware of the successful potential of cryotherapy as an effective mode of treatment [8]. Application of cryotherapy in healthy athletes causes a higher pain threshold for a longer time, increased viscosity of tissue, making of hormones like testosterone and endorphins, alterations in proprioceptive acuity and muscle strength, improvement in physical activity, ability to undergo rigorous sports training and speedy recovery from fatigue [3]. Of these effects, it is important to study proprioception and muscle strength which in - turn could affect the performance of an individual.

In current study, the Joint Position Sense (JPS) component of proprioception was studied as it is more reliable and easy to assess. JPS gives an idea about an individual's ability to perceive a set joint angle and then after the limb returns to the starting position, to be able to reproduce the set joint angle. This requires normal proprioceptive function, making JPS a very important clinical outcome measure. Literature states that knee and ankle injuries are most common owing to the deficiency of proprioceptive sense in non - athletes and athletes. Flexibility and strength of knee muscles and position sense of the knee are crucial in the field of athletic training not only in impaired knees but also in healthy knees, since the number of participants in sports is increasing [9]. Sports and recreational activities pose to be great risk factors for knee injury [10]. Researchers believe that there are few studies to support the effects of cryotherapy on various aspects of knee joint such as joint position sense, balance, muscular strength, agility, functional performance, etc. The effect of cryotherapy on these factors also depends on the mode of its application. Application techniques vary from immersion methods to ice packs, ice towels, ice massage, ice gel packs, inflatable splints and refrigerant gases with a duration ranging from 5 minutes to as long as 30 minutes [8]. If the goal is to attain rapid anesthesia, then cold application in the form of ice massage is found to be the most effective. Researchers suggest that tissue temperature should be around 5ºC to 15ºC for reduction in metabolism [11].

Evidence shows that lower limb strength plays an integral role in shock attenuation while performing weight bearing activities ([12]. Muscular strength of quadriceps muscle after ice application may show altered results and hence needs to be researched in detail. One of the most common and reliable methods to assess the isometric strength of quadriceps muscle is by evaluating the peak torque or maximum voluntary isometric contraction (MVIC) using the isokinetic dynamometer (McKendry et al, 2019). Isokinetic machines are commonly referred to as a standard, for all assessment methods of strength [13]. These machines are also well known to accurately measure joint position sense actively and passively. It results in a set target angle without any bias from the researcher and is therefore accepted as the standard proprioception testing modality [14].

Screening tools like functional performance - based measures in a healthy individual or an athlete helps in determining loss of muscle function [15]. Clinicians have described numerous hop tests to assess muscle performance which include single leg hop tests for distance or time, hop and stop tests and vertical jump tests. The single leg hop test for distance gives an idea about the neuromuscular control and capacity of the muscles to generate force, is easy to conduct, is suggestive of performance and has good validity and reliability. [16]. This test reveals a correlation to knee strength and measures the individual's function and an athlete's status about returning to sport [17].

Recent evidence has suggested that the addition of exercise to ice application, known as Cryokinetics, is more effective than ice application alone after various soft tissue injuries, including acute ankle sprain ([18, 19]. The patient can perform exercises earlier and more efficiently. The affected body part needs to be cooled for a maximum of 20 minutes or until the part is numbed. The patient then performs the decided exercises. The entire procedure could be repeated for 5 minutes to re - numb the affected part if required ([20, 21]. There is inadequate literature about the effect of cryokinetics on various outcomes of knee joint like proprioception, muscle strength, functional performance, postural stability, agility etc. It is important to study the alterations caused in the above factors by cryotherapy and cryokinetics. Hence this study was conducted to compare the effect of cryotherapy and cryokinetics on knee joint position sense, quadriceps muscle strength and functional performance in healthy individuals.

2. Methodology

A prospective, single - blinded randomized controlled trial was conducted after obtaining permission from the institutional ethics committee. The study was conducted on young healthy individuals from this institute over a duration of 18 months. A sample size of 64 was calculated after doing a pilot study using the formula, $n=2s^2 (Z1+Z2)^2 / (M1 - M2)^2$, where S is pooled standard deviation; Z1, Z2 are z values of Alpha & Beta; M is the mean of the sample ([22]. After adding 10% non - respondent rate, total size was 70. Samples were recruited using convenient sampling method with random allocation. Individuals of either gender, in the age group of 18 to 25 years were included. Individuals with any condition where cryotherapy was contraindicated and with a history of knee injury or lower limb/spine surgery were excluded.

Outcome Measures:

1) Joint position sense (JPS) using HUMAC NORM isokinetic machine [23]
2) Maximum Voluntary Isometric Contraction (MVIC) of quadriceps using HUMAC NORM isokinetic machine [23]
3) Single leg hop test for distance [24]

Procedure -

Institutional ethics committee approval was taken. Participants who passed the inclusion criteria were included in the study after providing an informed consent. The participants were then randomly assigned to GROUP A (Cryotherapy) and GROUP B (Cryokinetics) using computer generated random numbers [25] with concealed allocation [26]. Both groups had 35 participants each.

Single blinding was maintained as intervention and assessment were done by two different investigators. Demographic data, joint position sense, quadriceps MVIC and single leg hop test for distance was documented.

Group A - Participants' JPS, MVIC of quadriceps and single leg hop test for distance was measured pre - cryotherapy application. After pretest, cryotherapy was applied at the knee joint for 20 minutes. Cryotherapy was given in the long sitting/supine position over the anterior aspect of the knee joint. The application time was monitored on the subject's mobile phone. Post cryotherapy, all the three outcome measures were reevaluated.

Group B – Participants' baseline parameters were evaluated. Cryotherapy was given to the anterior aspect of the knee joint in the long sitting/supine position, for 7 minutes using an ice pack. Post cryotherapy, a preset protocol of knee exercises were given to the individuals. The knee exercise protocol included static quadriceps contraction, dynamic quadriceps and wall squats; each exercise was performed 10 times with a 10second hold. Total duration of exercises was 2 to 3 minutes, that is, till the part remained numb. Once the effect (numbness) started reducing, cryotherapy was given again for 7 minutes and participant was asked to perform the exercises again. The total treatment time for cryokinetics was kept the same as that of cryotherapy to maintain uniform duration of both the intervention protocols. The post test values of the mentioned outcome measures were recorded.

Data Analysis: The data was entered using Microsoft Office Excel 2010 and was analyzed using Graph Pad Instat version 3.06 software. The numerical data was analyzed for normality using the method of Kolmogorov and Smirnov. Parametric test (unpaired t test) was used for the inter - group data passing normality test. Parametric test (paired t test) was used for intra - group data passing normality test.

3. Result

The study was conducted after screening 70 healthy young individuals according to the inclusion and exclusion criteria within the age group of 19 - 25 years (21.66 ±1.86) as seen in graph 1. Graph 2 shows that 91.43% of the total sample size were females while 8.57% were males, which were equally distributed among the two groups.

It is evident from table 1that there was no significant difference in Reproduced Angle (p value = 0.27) and Reproducibility Error (p value = 0.59) thereby revealing that proprioception was not affected following Cryotherapy. According to table 1, significant increase was observed in muscle strength (p value of Peak Torque <0.0001 and p value of Average Torque <0.0001) following Cryotherapy. There was no significant effect on single leg hop test distance (p value = 0.92) following Cryotherapy.

Following Cryokinetics, proprioception (p value for Reproduced Angle = 0.19 and p value for Reproducibility Error = 0.25) was unaffected as seen in table 2. It was also seen that muscle strength (p value of Peak Torque <0.0001 and p value for Average Torque <0.0001) increased significantly following Cryokinetics. There was a significant increase in functional performance (p value for Single Leg Hop test distance <0.0001) following Cryokinetics.

On inter - group comparison, as seen in table 3, there was no significant difference in post - intervention proprioception (p value of Reproduced Angle = 0.87 and p value of Reproducibility Error = 0.72). However, there was an increase in Peak Torque (p value = 0.032) and single leg hop test for distance (p value = 0.02), post intervention between Group A and B. Average Torque difference (p value = 0.05) was not quite significant following inter - group post intervention analysis as evident from table 3.

4. Discussion

The present study was undertaken to determine the effect of cryotherapy and cryokinetics on knee joint proprioception, quadriceps maximum isometric voluntary contraction and single leg hop test for distance.

Variation in the reproducibility error was high as a trial session was not given to the subjects a day prior to assessing the outcomes. Only a short orientation session was given before assessing the pre - intervention readings which may not have been sufficient to induce proper learning of the techniques to be performed for assessment of JPS. In the current study, cryotherapy was applied to the knee joint for 20 minutes to the control group. It is known that ice application for 15 to 20 minutes is commonly used in clinical set up which is known to efficiently reduce the intramuscular temperature. However in the current study, skin temperature could not be measured. Also we chose to assess only the dominant leg (unilateral) by the ball kicking method, as on bilateral assessment in previous studies, there was a difference in the outcome readings of the dominant and non - dominant leg [(27).]

In this study, one of the components of proprioception known as joint position sense (JPS) was assessed. According to the results, reproduced angle (p value = 0.27) and reproducibility error (p value = 0.59), two measures of JPS remained unaffected by cryotherapy.

JPS could be altered depending on the location of ice application i. e. over the joint or muscle belly. Studies have shown that JPS, which is also sensed by muscle spindles, was reduced if cryotherapy was applied over the muscle. Therefore, explanation for JPS not being affected significantly could be that since active testing of JPS was carried out; hamstrings which carried out the leg movement, did not receive cryotherapy, thus sparing the muscle proprioceptors (28). Since cryotherapy was applied over the knee joint, the receptors in the muscles located around the joint would have helped to prevent the deterioration in the proprioceptive function. Also, as stated by Ahmed Aboeleneen et al in a study conducted in 2018, cooling a body part is known to affect small diameter myelinated nerve fibres and since nerve fibres carrying proprioceptive information are large diameter myelinated fibres which have a fast conduction velocity; JPS will be lesser affected by cryotherapy and at a much later stage (28).

Our results are in accordance to that of a few studies (Furmanek et al, 2018; Costello and Donnelly, 2011; Khanmohammadi et al, 2011; Wassinger et al., 2007; Hart et al., 2005; Dover and Powers, 2004; Rubley et al., 2003; Tremblay et al., 2001; John C. Ozmun et al, 1996; Thieme et al., 1996; LaRiviere and Osternig, 1994) which stated that JPS remained unaffected following cryotherapy [8, 29, 30, 31, 32, 33, 34].

However few studies reported an adverse effect of cryotherapy on JPS. Along with differences in the method of application of cryotherapy, few more factors responsible for differences in studies were the method of assessing JPS (active or passive method, and different joints), different machines/modalities used for assessment and the cooling time of the joint varying from 5 to 30 minutes. The investigators attributed the reduced JPS to a decrease in the afferent nerve conduction velocity (neurophysiologic effect) after cryotherapy application. Another reasonable explanation put forward was that cooling stiffened the joint which may not have allowed the mechanoreceptors in the capsule, ligaments and muscles surrounding the knee joint from providing signals [27, 35, 36, 37, 38].

Another finding of current study was that the isometric strength of the quadriceps muscle showed a significant increase following cryotherapy. Both, peak torque ($p < 0.0001$) and average torque ($p < 0.0001$) were increased. This could be attributed to multiple factors such as facilitation of the central nervous system (manipulation of altered spinal reflexive and cortical motor pathways) caused by an increase in knee extensor motor output and increased activation of motor neurons which promote higher neural drive to neuromuscular junction [39, 40].

Similar results were evidenced in studies conducted by William A. Loro et al, 2019; Pietrosimone et al., 2009; Melnyk et al., 2006; Atnip and McCrory, 2004; Rubley et al, 2003; Hopkins and Stencil, 2002; Tremblay et al., 2001; Moghadam and Dehghane; Sanya and Bello [41, 42, 43].

On the other hand, studies conducted by Maattacola et al, Coppin et al and McGown et al demonstrated a reduction in muscular strength following cryotherapy the authors attributed to a decrease in activity of muscle spindle and reduction in ATP hydrolysis and improper release of calcium and its uptake in muscle [44].

As evident from the results, single leg hop test distance showed a significant improvement ($p < 0.001$) following cryokinetics only. Cryotherapy failed to show a significant change (p value = 0.92) in the distance which demonstrated that functional performance was unaffected following cold application alone. Results obtained from the study conducted by Hopkins et al proved that muscle activity was increased following cryokinetics which could be attributed to deviations in supraspinal drive caused by joint cooling and alterations in the afferent input caused by skin and joint receptors [45, 46]. This increased activity with improved strength of muscles may have lead to better functional performance.

In contrast, studies conducted by Richendollar et al, Fischer et al, Wassinger et al and Cross et al reported a detriment in the functional performance [47]. Authors stated that this could be attributed to the change in proprioception. Another reason for the reduction in functional performance could be the location of ice application. When a muscle received cryotherapy, impairments such as inhibition of muscle spindles, reduction in ATP production and hindrance in calcium release were observed. This along with altered proprioceptive acuity may have potentially caused deficits in functional performance (Montgomery et al., 2015; Fullam et al., 2015; Furmanek et al., 2014; Bleakley et al., 2012; Patterson et al., 2008; Richendollar et al) [3, 19, 47, 48]. The authors mentioned above stated that the lower extremity may not be at a risk of injury while landing after knee joint cryotherapy [49].

The experimental group was given cryotherapy for 7 minutes followed by three minutes of exercises which included closed and open chain type of exercises. As observed in the results, this group did not show any significant change in proprioception (p value of reproduced angle = 0.19; p value of reproducibility error = 0.25). Heather et al conducted a study in which cryokinetics with open chain exercises was given to the subjects and proprioception was assessed at different knee ranges (90 to 60º, 60 to 30º and 30 to full extension). Proprioception was unaffected in this study which the authors attributed to the fact that different receptors work at different ranges of the movement [7].

Current study supported the alternate hypothesis that cryokinetics (peak torque: mean = 144.31 ± 27.89; average torque: mean = 118.43 ± 26.93) was more effective in increasing the peak torque and average torque as compared to cryotherapy (peak torque: mean = 125.97 ± 40.82; average torque: mean = 103.46 ± 35.37). As cryotherapy caused an increase in muscular strength, it can be understood that cryokinetics also showed a significant increase. This can be attributed to the fact that exercises bring about neural adaptations such as increasing the central drive from higher centres of the nervous system, multiple motor units firing at the same time (increased motor unit synchronization), increased motor unit firing rate and a decrease in the intensity of antagonist co - activation [50]. Other short term effects of exercises on muscle strength like increase in blood flow to the exercising muscles, increased pliability of the muscles and increased recruitment of muscle fibres due to enhanced connectivity of the nervous system to these fibres would have contributed further [51]. Following cryokinetics, muscle strength is also known to increase owing to physiological and anaerobic mechanisms [52, 53].

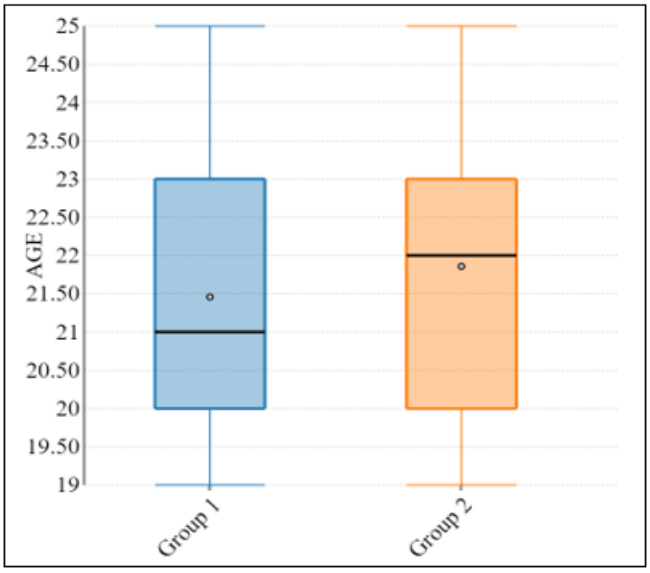
As seen earlier, any change in factors like muscle strength and proprioception cause an alteration in functional performance. Since muscle strength was increased following cryokinetics, a positive effect was seen on single leg hop test (p value <0.0001). This could be due to increased metabolic rate thereby increasing blood flow to the muscles (vasodilatation). Secondly, since the exercising muscles require energy, the temperature increases to bring about the chemical breakdown of fats and carbohydrates, thereby causing heat as a waste product. Increased rates of ATP hydrolysis and cross - bridge formation following exercises can also be responsible for improving the functional performance [20, 54].

Cryotherapy and cryokinetics failed to individually affect the proprioception. Hence their inter - group comparison also showed no significant difference, thereby showing that these interventions could be given to individuals without imposing significant risk of injury and performance of any movement or activity could be carried out safely. On the other hand, cryokinetics showed better effect on peak torque, average torque and single leg hop test distance as compared to cryotherapy.

In conclusion, cryotherapy did not have an effect on knee joint position sense and single leg hop test performance but improved muscle strength (peak torque and average torque) significantly. Cryokinetics produced no change in knee joint position sense but had a significant positive effect on quadriceps muscle strength and single leg hop test distance. When cryotherapy and cryokinetics were compared, cryokinetics showed a more significant increase in peak torque, average torque and single leg hop test distance.

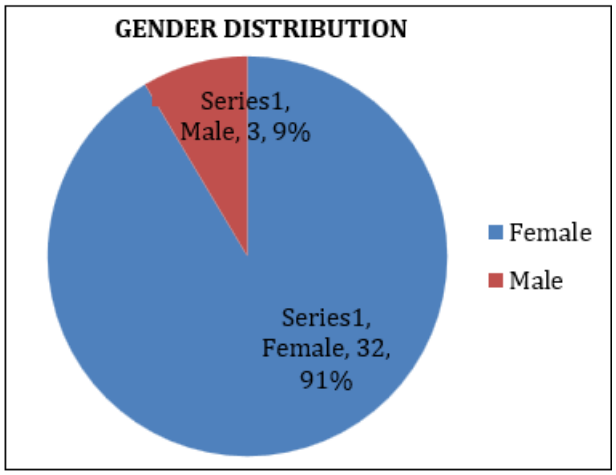
Hence, cryotherapy and cryokinetics can be used safely in clinical practice and for athletes. Cryokinetics may give an additional advantage of starting with exercises early as compared to cryotherapy.

5. Tables and Graphs



Graph 1: Descriptive statistics of Age Distribution

Inference – The above box plot shows the age distribution in group A and group B.



Graph 2: Gender distribution

Inference – The box plot shows the gender distribution in group A and B.

6. Comparative Analysis

1) Intra Group:

Group A – Cryotherapy

Table 1: Comparison of pre and post - cryotherapy for Group A

Outcome Measures	Outcomes	Minimum (º)	Maximum (º)	Mean	Standard Deviation	P value	Significance
1. Reproduced Angle	Pre	47º	78º	59.51	8.55	0.27	Non – Significant
	Post	40º	79º	59.64	9.55		
2. Reproducibility Error	Pre	0º	33º	14.51	8.55	0.59	Non - Significant
	Post	0º	34º	15.34	8.87		
3. Peak Torque	Pre	39 N - m	179 N - m	107.46	32.33	<0.0001	Significant
	Post	60 N - m	245 N - m	125.97	40.82		
4. Average Torque	Pre	31 N - m	140 N - m	85.83	27.93	<0.0001	Significant
	Post	53 N - m	205 N - m	103.46	35.37		
5. Single Leg Hop Test Distance	Pre	35 cm	130 cm	73.99	20.17	0.92	Non- Significant
	Post	36 cm	148 cm	73.81	22.63		

Inference – The above table shows that there is significant difference in Peak Torque and Average Torque, within group A, post cryotherapy. No significant difference is seen in Reproduced Angle, Reproducibility Error and Single Leg Hop Test for Distance.

Group B: Cryokinetics

Table 2: Comparison of pre and post - cryokinetics for Group B

Outcome Measures	Outcomes	Minimum (º)	Maximum (º)	Mean	Standard Deviation	P value	Significance
1. Reproduced Angle	Pre	41º	75º	59.74	8.94	0.19	Non – Significant
	Post	45º	78º	59.57	8.83		
2. Reproducibility Error	Pre	2º	30º	12.97	8.59	0.25	Non - Significant
	Post	0º	33º	14.57	8.83		
3. Peak Torque	Pre	60 N - m	174 N - m	119	28.35	<0.0001	Significant
	Post	83 N - m	198 N - m	144.31	27.89		
4. Average Torque	Pre	50 N - m	136 N - m	91.80	23.77	<0.0001	Significant
	Post	77 N - m	183 N - m	118.43	26.93		
5. Single Leg Hop Test Distance	Pre	46 cm	117.5 cm	73.81	17.91	0.92	Non- Significant
	Post	52 cm	137 cm	86.14	19.49		

Inference – The above table shows that there is significant difference in Peak Torque and Average Torque, within group B, post cryokinetics. There is no significant difference in Reproduced Angle, Reproducibility Error and Single Leg Hop Test for Distance.

2) Inter - Group

Post - intervention –

Analysis of post - intervention outcome measures for group A and group B using unpaired t test

Table 3: Intergroup comparison between group A and group B post intervention

Outcome Measures	Group	Minimum (º)	Maximum (º)	Mean	Standard Deviation	P value	Significance
1. Reproduced Angle	Group A	40º	79º	59.94	9.54	0.87	Non – Significant
	Group B	45º	78º	59.57	8.83		
2. Reproducibility Error	Group A	0º	34º	15.34	8.87	0.72	Non - Significant
	Group B	0º	33º	14.57	8.83		
3. Peak Torque	Group A	60 N - m	245 N - m	125.97	40.82	0.032	Significant
	Group B	83 N - m	198 N - m	144.31	27.89		
4. Average Torque	Group A	53 N - m	205 N - m	103.46	35.37	0.05	Not Quite Significant
	Group B	77 N - m	183 N - m	118.43	26.93		
5. Single Leg Hop Test Distance	Group A	36 cm	148 cm	73.81	22.63	0.02	Significant
	Group B	52 cm	137 cm	86.14	19.49		

Inference: The above table shows that there is significant difference of post intervention Peak Torque and Single Leg Hop Test for Distance between Group A and Group B. There is no significant difference of post intervention Reproduced Angle and Reproducibility Error. Average Torque is not quite significant post intervention.

Declaration

Source – K. J. Somaiya College of Physiotherapy, India

Disclaimer – The views expressed in this article are solely the authors' and not of the institution or source. *

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