

## EFFECT OF ZUMBA DANCE PILATES AND CORE POWER YOGA ON AGILITY STRENGTH AND CARDIO VASCULAR ENDURANCE AMONG HOCKEY PLAYERS

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### Abstract

*Forty men hockey players were selected randomly from Amal Jothi Eng. College, Kanajarpally, Kottayam (Dist), Kerala as subjects. The age of the subjects ranged from 17 to 21 years. They were randomly divided into four groups. Group I underwent zumba dance, group II underwent pilates, group III underwent core power zumba dance and group IV acted as control group. Each group consists of 10 subjects each. The training schedule was for a period of 12 weeks. The criterion variables selected for the study were agility and resting heart rate. The data collected for the pre, mid and post tests were analysed by using one way (ANOVA) and analysis of co-variance (ANCOVA). The result of the study reveals that all the criterion variables had significant improvement in all the three experimental groups when compared to control group, except for strength in yogic practice group.*

**Keywords:** Zumba, Dance, Yoga, Hockey Players

### Introduction

In this modern era, human life in the earth a matter of lot of misery and sorrows has been created due to the modernization, mechanization, liberalization and globalization. This stress is an inevitable part of today's fast changing life due to sedentary lifestyle. Thus, physical activities predominantly play a vital role in refreshing the mind, as the human is in need of recreation as well as physical fitness.

“Physical activity is an important element in the superiority of life because it increases energy and promotes the physical, mental and psychological wellbeing in adding together to confer worthy health habits”.

Zumba is to be designed to be low-impact, and to be an intense and efficient calorie-burning workout that is adaptable and suitable for all different ages, body types and levels of fitness. At women's fitness clubs of Canada, we aim to help women of all ages, shapes and sizes accomplish their fitness goals in a healthy, comfortable and supportive environment. Zumba's philosophy therefore fits in well with ours.

Pilates called technique of contrology (Generated from control and Greek -λογία, -logia); is a process in which the mind controls the muscles. The program focuses on the core postural muscles which help keeping the body balanced and which are essential to provide support to the spine. In particular, Pilate's exercise teaches consciousness of breath and alignment of the spine, and aim to strengthen the deep torso muscles.

Core Power Yoga is a dynamic and energetic structure of yoga exercise. It physically and mentally challenges the practitioner and connects to an inner power. Core power yoga helps heal, detoxify and awaken the body and mind.

The conception of physical fitness has extensive and ample history. Sound mind in a sound body is the ancient concept behind the fitness. It plays the maximum degree of physical efficiency

and to be equipped to meet unforeseen danger or destruction. It is therefore, the responsibility of each nation to encourage physical fitness to every citizen. It results the genetic makeup and interaction with the environment.

### Methodology

To achieve this purpose, forty men hockey players who were the present past students of studying in Amal Jothi Eng. College, Kanajarpally, Kottayam (Dist) Kerala were selected randomly as subjects. The age of the subjects ranged from 17 to 21 years. They were randomly divided into four groups. Group I underwent Zumba dance, group II underwent Pilates, group III underwent core power yogic practices and group IV acted as control group. Each group consists of ten subjects. The experimental groups were subjected to the yogic practices in the morning and Pilates and core power yogic practices in the evening on alternative days for a period of 12 weeks except on Sunday. The data were collected two days before the training schedule (pre-test); 6 weeks after the starting of training schedule (mid test) and after the end of training schedule (post-test). The criterion variables selected for the study are agility, strength and resting heart rate; and were assessed by the following standardized test items such as: shuttle run test, sit ups test and resting pulse rate test respectively. The descriptions of independent variables are as follows.

### Analysis of the Data and Results of the Study

The data pertaining to the study were selected from the criterion variables. The collected data were examined and analyzed using the Statistical Package for the Social Science Version 16 (SPSS) using one way repeated measure (ANOVA) for finding the significance difference within the group (pre, mid and post test). In order to find the significance difference between the groups (zumba dance, pilates, core power yogic practices and control groups) ANCOVA were used and results are presented in the following tables.

### Agility

Table 1.1

One Way Repeated Measure ANOVA on Agility of Experimental and Control Groups

| Group           | Source of Variance | Sum of Squares | D.f | Mean Squares | F-ratio |
|-----------------|--------------------|----------------|-----|--------------|---------|
| Zumba           | Test (Between)     | 0.38           | 2   | 0.19         | 4.59*   |
|                 | Error              | 0.74           | 18  | 0.04         |         |
| Pilates         | Test (Between)     | 1.02           | 2   | 0.51         | 11.82*  |
|                 | Error              | 0.78           | 18  | 0.04         |         |
| Core power yoga | Test (Between)     | 1.97           | 2   | 0.99         | 28.83*  |
|                 | Error              | 0.62           | 18  | 0.03         |         |
| Control group   | Test (Between)     | 0.00           | 2   | 0.00         | 0.00    |
|                 | Error              | 0.01           | 18  | 0.00         |         |

\*Significant at 0.05 level of confidence.

Table 1.1 reveals the analyzed data on agility within the group. The obtained F- ratio values are 4.59, 11.82 & 28.83 of Yoga practices, Pilates and Core power yoga group respectively. The table value required for significance at 0.05 level of confidence with 2 and

18 were 3.55. Since the obtained F-ratio is higher than the table F-value all the three groups are significant. Based on the obtained F-ratio value core power yoga group training proves to be the most significant and zumba were the least significant among the three experimental groups.

Table 1.2

Analysis of Covariance of Experimental and Control Groups on Agility

| Adjusted Post test Mean |                  |                 |               | Source of variance | Sum of squares | D.f | Mean squares | F – ratio |
|-------------------------|------------------|-----------------|---------------|--------------------|----------------|-----|--------------|-----------|
| Zumba dance             | Pilates training | Core power yoga | Control group |                    |                |     |              |           |
| 9.54                    | 9.46             | 9.37            | 9.69          | Between            | 2.19           | 3   | 0.73         | 8.43*     |
|                         |                  |                 |               | Error              | 3.03           | 35  | 0.09         |           |

\*Significant at 0.05 level of confidence.

Table 1.2 reveals that all the three experimental groups had shown significant improvement in strength among the groups. The obtained ANACOVA (F- ratio) value 8.43 shows that the entire experimental groups are significant among them since obtained value is higher than the table value 2.87 of 3 and 35.

**Strength**

Table 2.1

One Way Repeated Measure ANOVA on Strength of Experimental and Control Groups

| Group           | Source of Variance | Sum of Squares | D. f | Mean Squares | F-ratio |
|-----------------|--------------------|----------------|------|--------------|---------|
| Zumba           | Test (Between)     | 10.07          | 2    | 5.03         | 3.24    |
|                 | Error              | 27.93          | 18   | 1.55         |         |
| Pilates         | Test (Between)     | 63.22          | 2    | 31.61        | 24.97*  |
|                 | Error              | 22.78          | 18   | 1.27         |         |
| Core power yoga | Test (Between)     | 234.02         | 2    | 117.01       | 42.71*  |
|                 | Error              | 49.32          | 18   | 2.74         |         |
| Control group   | Test (Between)     | 0.52           | 2    | 0.26         | 0.10    |
|                 | Error              | 47.48          | 18   | 2.64         |         |

\*Significant at 0.05 level of confidence.

Table 2.1 reveals the analysed data on strength within the group. The obtained F- ratio values are 3.24; 24.97 & 42.71 of Yoga practices, Pilates and Core power yoga group respectively. The table value required for significance at 0.05 level of confidence with 2 and 18 were 3.55. The experimental groups Pilates and Core power yoga proved significant. Based on F-ratio value core power yoga group training proves to be the most significant, among the three experimental groups and zumba were not significant.

Table 2.2

Analysis of Covariance of Experimental and Control Groups on Strength

| Adjusted Post test Mean |                  |                 |               | Source of variance | Sum of squares | D.f | Mean squares | F – ratio |
|-------------------------|------------------|-----------------|---------------|--------------------|----------------|-----|--------------|-----------|
| ZUMBA dance             | Pilates training | Core power yoga | Control group |                    |                |     |              |           |
| 26.26                   | 27.35            | 28.95           | 25.42         | Between            | 279.53         | 3   | 93.18        | 16.32*    |
|                         |                  |                 |               | Error              | 199.77         | 35  | 5.71         |           |

\*Significant at 0.05 level of confidence.

Table 2.2 reveals that all the three experimental groups had shown significant improvement in strength among the groups. The obtained ANACOVA (F- ratio) value 16.32 shows that the entire experimental groups are significant since the value is higher than the table value 2.87 of 3 and 35.

### Cardio Vascular Endurance

Table 3.1

One Way Repeated Measure ANOVA on Cardio vascular endurance of Experimental and Control Groups

| Group           | Source of Variance | Sum of Squares | d.f | Mean Squares | F-ratio |
|-----------------|--------------------|----------------|-----|--------------|---------|
| Zumba           | Test (Between)     | 57822.92       | 2   | 28911.46     | 10.75   |
|                 | Error              | 48427.08       | 18  | 2690.39      |         |
| Pilates         | Test (Between)     | 252218.75      | 2   | 126109.38    | 31.19   |
|                 | Error              | 72781.25       | 18  | 4043.40      |         |
| Core power yoga | Test (Between)     | 692093.75      | 2   | 346046.88    | 33.37   |
|                 | Error              | 186656.25      | 18  | 10369.79     |         |
| Control group   | Test (Between)     | 510.42         | 2   | 255.21       | 0.04    |
|                 | Error              | 129906.25      | 18  | 7217.01      |         |

\*Significant at 0.05 level of confidence.

Table 3.1 reveals the analyzed data on cardio vascular endurance within the group. The obtained F- ratio values are 10.75; 31.19 & 33.37 of Zumba, Pilates and Core power yoga group respectively. The table value required for significance at 0.05 level of confidence with 2 and 18 were 3.32. Since the obtained value is higher than the table value the entire experimental groups are significant. Based on F-ratio value core power yoga group training proves to be the most significant and Zumba were the least significant among the three experimental groups.

Table 3.2

Analysis of Covariance of Experimental and Control Groups on Resting Heart Rate

| Adjusted Post test Mean |                  |                 |               | Source of variance | Sum of squares | D.f | Mean squares | F – ratio |
|-------------------------|------------------|-----------------|---------------|--------------------|----------------|-----|--------------|-----------|
| ZUMBA dance             | Pilates training | Core power yoga | Control group |                    |                |     |              |           |
|                         |                  |                 | 2453.32       | Between            | 793113.78      | 3   | 264371.26    | 17.28*    |
| 2534.37                 | 2572.95          | 2648.73         |               | Error              | 535479.93      | 35  | 15299.43     |           |

\*Significant at 0.05 level of confidence.

Table 3.2 reveals that all the three experimental groups had shown significant improvement in cardio vascular endurance among the groups. The obtained ANACOVA (F-ratio) value 17.28 shows that the entire experimental groups are significant among them since the obtained value is higher than the table value 2.92 of 3 and 35.

### Conclusion

From the analysis of the data, the following conclusions were drawn.

1. The experimental groups' namely zumba group, pilates group and core power yoga group achieved significance improvement on selected criterion variables such as agility, strength and cardio vascular endurance when compared to control group.
2. Significant differences were found among zumba practices, pilates and core power yoga groups improving selected criterion variables such as agility, strength and resting heart rate.
3. It was concluded that core power yoga group was found to be better than zumba group and pilates group in developing selected criterion variables such as agility, strength and resting heart rate; pilates group was found to be better than zumba group in developing agility, strength and resting heart rate.

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