

## Effect of Step Aerobic Exercise on Selected Physical Variables Among College Men Kabaddi Players

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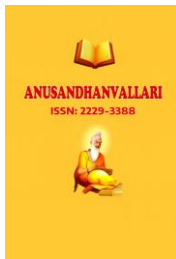
### Abstract

The empirical investigation set out to look into the direct effects brought about by structured step aerobics exercise on selected physical fitness components among collegiate male kabaddi players. To carry out the specified inquiry, thirty college men kabaddi players from various Madurai Kamaraj University affiliated colleges were picked out at random. The chronological age span of the sampled cohort ranged from 17 to 21 years. The chosen subjects were broken down into two balanced cohorts of fifteen participants each. The experimental framework was drawn up as a true random group design, which rested on rigorous pre-test and post-test assessment protocols. The participant cohorts were marked out as a step aerobics training group and a sedentary control group in an equal manner. Group I signed up for and went through the dedicated step aerobics training module, while Group II served as the inactive control cohort. The intervention team took on the continuous exercise protocol over an uninterrupted timeline of twelve weeks to draw out the explicit impact of the conditioning schedule. In contrast, the control group stayed away from any structured physical regimen throughout this entire interval. The primary dependent attributes singled out for evaluation zeroed in on flexibility and agility. Baseline metrics were tracked down from every player before starting up the specific physical intervention. This preliminary evaluation turned out to be the formal pre-test score. Following the full completion of the twelve-week physical regimen, the participants were tested out once again across all selected measures to write down post-treatment records. This terminal evaluation served as the official post-test measure. To break down the collected scores, paired 't' tests were worked out to check up on the statistical significance of mean gains racked up across each variable within the experimental and control divisions. The cut-off threshold for establishing statistical significance was laid down at the 0.05 confidence level, which was factored in as robust and sufficient for the research design. The computational outcomes pointed out that the step aerobics exercise regimen brought on substantial, statistically verified improvements in physical capacity among the collegiate kabaddi athletes. Meanwhile, the observed 't' ratios within the non-active control cluster completely failed to measure up to the mandated 0.05 significance mark. The derived figures prove that systematically carrying through step aerobic workouts builds up the physical execution of active kabaddi competitors.

**Key words:** step Aerobics Exercise, flexibility, agility

### Introduction

The term aerobic denotes the presence and utilization of oxygen within systemic metabolic pathways for cellular energy generation. Biological systems draw on molecular oxygen to break down substrates and fuel physiological activity. Consequently, aerobic exercise accounts for physical exertion that steps up systemic oxygen uptake and processing. Such physical activities typically call for moderate exertion over prolonged intervals. Maximum physiological benefits stem from a structured three-phase protocol. The regimen kicks off



with a preliminary warm-up phase. The core conditioning phase follows immediately, requiring at least 20 minutes of sustained, moderate-to-vigorous exertion targeting major muscle complexes. The workout winds down through a final cool-down phase to normalize physiological markers.

Step aerobics constitutes a specialized modality of cardiovascular training that relies on a low elevated platform termed the step. Modifiable risers allow practitioners to set up and fine-tune the platform height to suit individual biomechanical thresholds. Fitness facilities frequently put on structured step conditioning classes for diverse populations. The discipline was brought about around 1989 by fitness pioneer Gin Miller. Following an acute knee trauma, Miller looked to an orthopedic physician for clinical rehabilitation guidance. The physician suggested stepping up and down upon an ordinary milk crate to build up the supporting musculature around the patellofemoral joint. Miller acted on this clinical concept, mapped out systematic stepping patterns, and rolled out the contemporary step fitness protocol.

More broadly, aerobic training encompasses any physical regimen that ramps up sweat production, deepens respiration, and drives up the heart rate above baseline resting parameters. These sustained demands build up pulmonary and myocardial tissue integrity over time. The cardiovascular system learns to take in, carry out, and deliver oxygenated blood far more efficiently to peripheral tissues. Regular training also acts to clear away metabolic byproducts and ward off cardiovascular dysfunction by conditioning vascular pathways throughout the entire organism.

## Methodology

An empirical investigation was carried out to assess the influence of step aerobics workouts on chosen physical parameters in collegiate male kabaddi competitors. Thirty male kabaddi participants enrolled across institutions tied to Madurai Kamaraj University were picked out at random. The age bracket of these subjects spanned across seventeen to twenty-one years.

The cohort was split up into two matched clusters of fifteen participants each. A true random group design featuring pre-testing and post-testing protocols was drawn up. Group I was designated as the experimental branch to take up step aerobics regimens, while Group II served as the inactive control benchmark. The experimental branch carried on with the structured training program across a span of twelve weeks to draw out the net gains of the scheduled drills. The control group stood by without engaging in any dedicated conditioning routines.

The primary dependent parameters measured throughout the study centered on flexibility and agility. Initial measurements were gathered from every participant before rolling out the experimental treatment plans. This phase was documented as the baseline assessment. Once the twelve-week regimen wound down, secondary observations were brought together for all physical parameters under review. These terminal assessments were logged as the post-test results.

The collected numerical datasets were broken down using paired t-tests to figure out the significance of the mean gains achieved across each parameter. A standard alpha significance threshold of 0.05 was laid out as the statistical criterion for the evaluation.

The final outcomes showed that the experimental cohort pulled off notable enhancements across the selected physical markers. Conversely, the control cluster fell short of the critical statistical standard, failing to demonstrate any meaningful change over the observed period.

**Table -1**

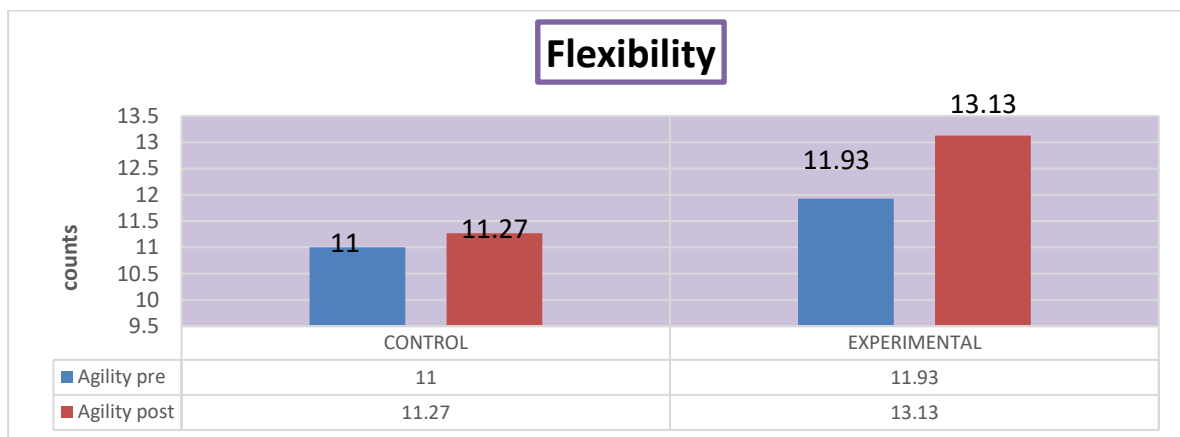
**Mean, Mean Difference, Standard Deviation and ‘T’ Value of Experimental and Control Group on Flexibility**

| Group                     | No. of Subjects | Pre-Mean | Post-Mean | Standard Deviation |      | Std. Error Mean | t- ratio |
|---------------------------|-----------------|----------|-----------|--------------------|------|-----------------|----------|
|                           |                 |          |           | Pre                | Post |                 |          |
| <b>Control group</b>      | 15              | 11       | 11.27     | 1.25               | 1.79 | 0.34            | 0.774    |
| <b>Experimental group</b> | 15              | 11.93    | 13.13     | 1.87               | 2.10 | 0.17            | 6.874*   |

\*Sig. @0.05 level of confidence

**Figure-1**

**Bar diagram showing the pre and post mean test value of experimental and control group on Flexibility**



**Table -2**

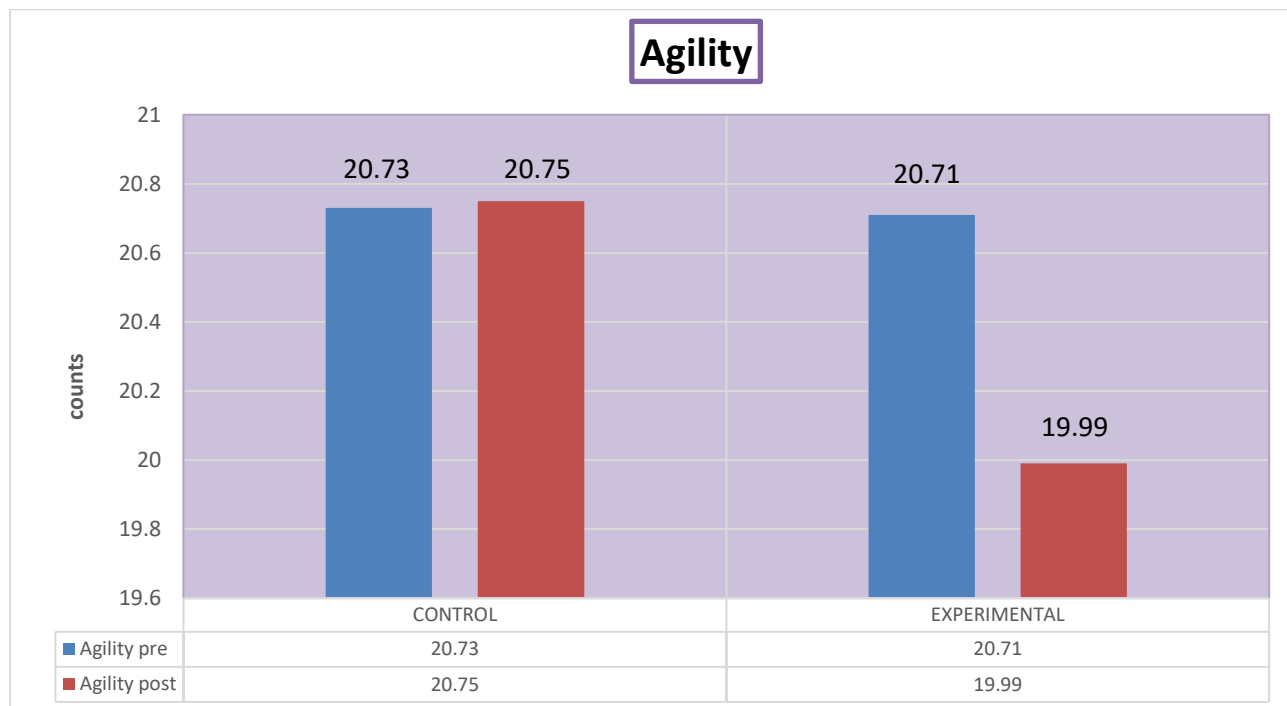
**Mean, Mean Difference, Standard Deviation and ‘T’ Value of Experimental and Control Group on Agility**

| Group                     | No. of Subjects | Pre-Mean | Post-Mean | Standard Deviation |      | Std. Error Mean | t- ratio |
|---------------------------|-----------------|----------|-----------|--------------------|------|-----------------|----------|
|                           |                 |          |           | Pre                | Post |                 |          |
| <b>Control group</b>      | 15              | 20.73    | 20.75     | 1.58               | 1.65 | 0.41            | 2.08     |
| <b>Experimental group</b> | 15              | 20.71    | 19.99     | 0.62               | 0.70 | 0.4             | 8.03*    |

\*Sig. @0.05level of confidence

**Figure-1**

**Bar diagram showing the pre and post mean test value of experimental and control group on Agility**

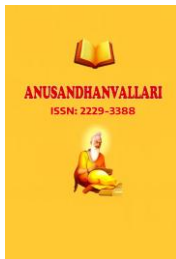


### Conclusions

- The empirical findings of the present investigation point out distinct outcomes, even when factoring in the specific constraints brought about by the testing environment. A thorough assessment of the intervention makes clear that the athletes in the experimental group picked up substantial gains across the tested parameters. Specifically, collegiate male kabaddi players undergoing the targeted training program pulled off marked advancements in physical suppleness alongside quick-footed maneuverability. These participants stood out distinctly with respect to both joint flexibility and overall agility when weighed against their baseline measurements.
- Furthermore, carrying out comparative statistical evaluations brought to light critical distinctions between the two study cohorts. Running tests on the post-intervention mean scores turned up a meaningful, statistically significant variance between the experimental cohort and the control group across all chosen performance variables. The collected data back up the premise that the structured routine helped bring about superior physical adaptation. Ultimately, breaking down the final measurements confirmed that the experimental group moved ahead convincingly, accounting for noticeable progress across the specific athletic markers selected for this research.

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