



# Back Flexibility Through Yoga, Weight Training, and a Health Education Class

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# Introduction

- ***Statement of Problem***

- The focus of the research was to see if back flexibility increased through yoga, weight training, or a health and wellness lecture class. There have been few studies done on back flexibility, which showed why this research was needed. Being in a country where yoga is still a new concept, it has not taken a firm hold with many Americans yet. While weight training has been around for centuries and many people know the benefits of exercising.

- ***Significance of the Study***

- Yoga is a very old practice, which has worked its way to the United States from India. The study is needed to validate that yoga can improve back flexibility and contribute to a healthier life. Not many people know the benefits of yoga. This study will examine the contribution of yoga to total fitness and will help to bring more reliability and validity to yoga. Many of the studies that were done reported the specifics of yoga in helping to reduce back pain. This study could also help bring yoga to the forefront of alternative medicine.

# Yoga Studies

- **Galantino et al. (2004)**
  - 22 Subjects, 6 week Hatha yoga program to ease chronic back pain. Improved balance and flexibility along with decreased depression.
- **Armstrong and Smedley (2003)**
  - 30 females, 10 week home based yoga program on flexibility of older women. Exercise group, yoga group, and a control. Results showed flexibility increased in the treatment groups but not the control.
- **Rauh (2005)**
  - 101 adults with low back pain. Yoga group (3 months of 75 min classes), Exercise group (3 months of classes of 75 min), which included aerobics and strength training classes. Control read book about back pain. After 3 months yoga group could use backs more efficiently in ever day activities.

# Weight Training Studies

- **Nobrega et al. (2005)**
  - 43 healthy young adults, 4 different interventions 2 x wk for 12 wks, results showed that both resistance training and flexibility training increased flexibility.
- **Barbosa et al. (2002)**
  - Study used elderly women, over ten weeks. Used 8 different lifts not including flexibility. Results found those who lifted increased in flexibility.
- **Thrash and Kelly (1987)**
  - Small number of male college students over 11 week weight training program. Tested the ROM at 3 points, ankle, trunk and shoulder. Used 8 exercises, focused on entire body. Results found that only two areas increased ankle dorsi-flexion and shoulder extension.
- **Guidelines from Lori Miller, B.S.**
  - Work the muscle group through a full range of motion.
  - Work opposing muscle groups. For example, a person with large, strong biceps and weak triceps may experience tightness when stretching the biceps.
  - Incorporate a gradual emphasis on the lowering phase of the lift, into the strength-training program. Eccentric contractions produce more stress in the working muscle fibers, by producing a greater stretch and enhancing flexibility.

# Subjects

- 23 subjects.
  - 10 from H&W Group
  - 8 from a Yoga Group
  - 5 from W.T. Group
- Downtown YMCA members and students from TSU
- All given Pre- and Post-tests using the double leg sit-and-reach test.
- Aged from 18-29
- From all Classifications

# Testing Instrument

All subjects were told to warm up by stretching their legs and lower back for five minutes. The test involved sitting on the floor with legs extended straight ahead. Feet (shoes off) were placed with the soles flat against the box, shoulder-width apart. With hands on top of each other and palms facing down, the subject reaches forward along the measuring line as far as possible. Three reaches were held for at least two seconds while the distance was recorded. Subjects were told to make certain there were no jerky movements and that the fingertips remained level and the legs flat.



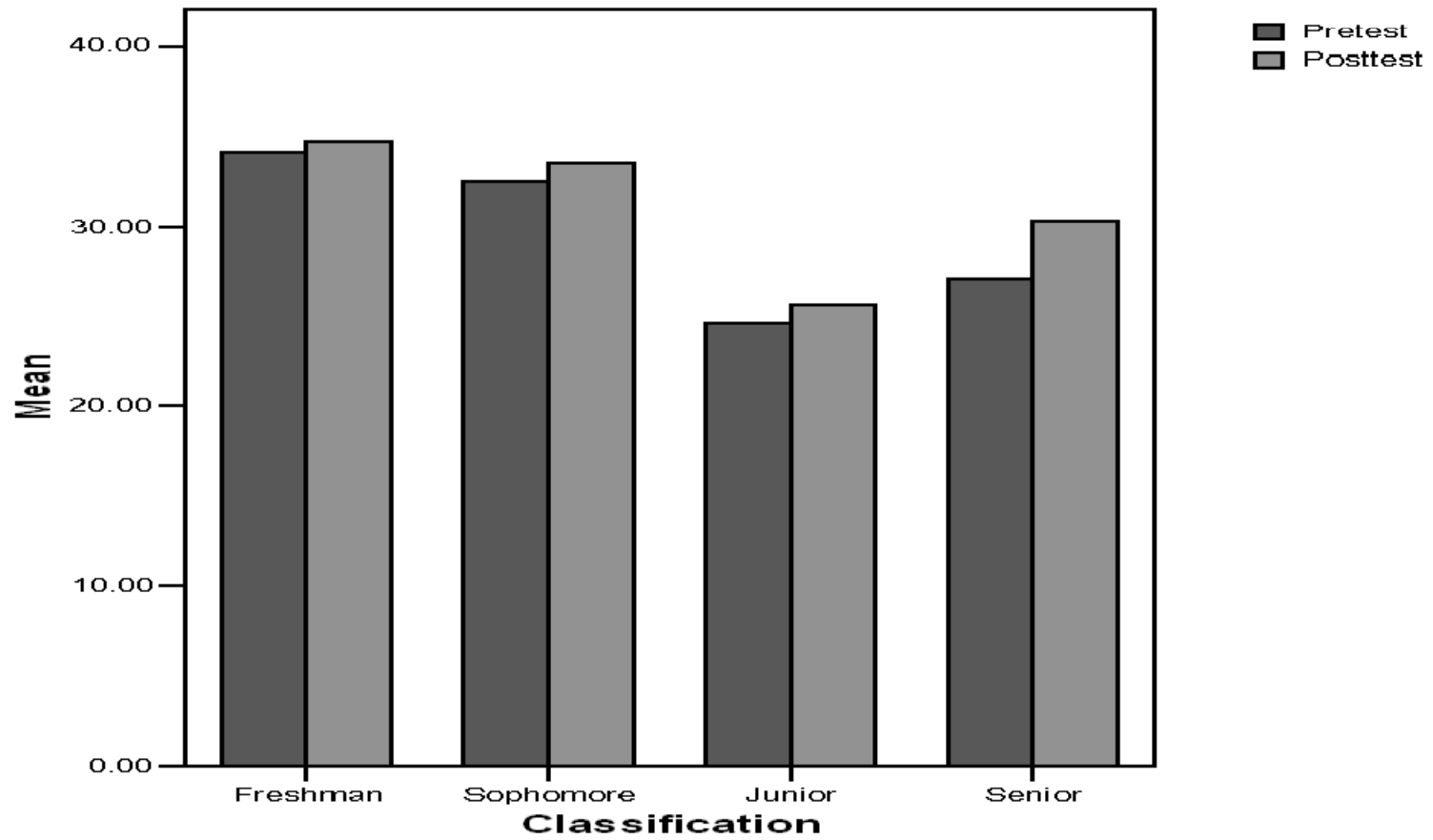
# Findings

- Age
  - Could Play roll in Flexibility
  - Non-significant but very close so it could be assumed.
- Recruitment played a significant roll
  - Yoga group was more flexible than weight training and health and wellness class .
  - The differences in the flexibility for pretest and posttest where from 10-13 centimeters respectively.

		N	Mean	Std. Deviation	Minimum	Maximum
Posttest	Health and Wellness	6	27.5833	4.58232	22.30	33.30
	Yoga	5	40.3600	10.41672	28.00	50.60
	Weight Training	5	27.5800	4.32920	22.00	32.00
	Total	16	31.5750	8.85163	22.00	50.60
Pretest	Health and Wellness	10	28.4867	8.04073	17.60	43.60
	Yoga	8	38.8000	8.92941	27.60	49.30
	Weight Training	5	23.1000	3.22335	19.00	26.00
	Total	23	30.9029	9.63729	17.60	49.30



Graph showing the pre and posttest by classifications.



# Findings

The analysis of the data revealed the following findings:

- Freshman had the most flexibility.
- There was a significant difference in those who did yoga vs. the other groups.
- No significant difference if the person was an athlete.
- Age and Classification did not show a significant difference but the younger subjects had better results.
- Gender and race did not make a significant difference in the results.



# Conclusions

Within the limitations of the study, the following conclusions are warranted:

- As the body gets older the flexibility of the back starts to weaken.
- Doing yoga or weight training can help to increase flexibility of the hamstrings and lower back.
- Playing sports or being an athlete does not mean a person has good flexibility.
- College aged students in health/fitness related classes tend to have decent flexibility.



# Recommendations

The following recommendations are made concerning further research:

- The study should be done using a wider age range of people
- The study should be done using a more diverse sample (i.e. other majors).
- The study should be done using different testing interments.
- The study should use a longer period of time.
- The study should use other types of yoga and weight training activities