



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Cody R. Lewis</b>	<b>Project Number</b> <b>S1007</b>
<b>Project Title</b> <b>Utilizing Counter Movement Medicine Ball Throws to Increase Counter Movement Vertical Jump Heights</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Throughout the course of history, many athletes have been forced into early retirement due to knee injuries and joint inflammation. The constant pounding on knee joints of athletes, in volleyball especially, can lead to an abrupt career end. This project was designed to increase an athlete's counter movement vertical jump (CMVJ) height by using repetitions of counter movement medicine ball throws (CMMBT). These throws decrease the pounding on the joints while increasing the subjects' CMVJ heights and maximum power output (MPO) index.</p> <p><b>Methods/Materials</b> The project began 15 weeks ago and consisted of 19 experimental group subjects and 6 control group subjects. All were non-elite high school athletes in grades 9-12 with one exception. The experimental group threw a 4 kg rubber medicine ball, 20 times in a high school gym, 3 times a week for a total of 60 throws per week. Week 1 was used as practice only, to minimize the learning curve. The subjects' initial weight, age, standing vertical reach, CMVJ height, and CMMBT were measured at the beginning of week 2 (the first official "workout" week). During Weeks 2-4, 5-7, 9-11, and 12-14, all experimental subjects completed 9 sessions of CMMBT (approximately 900 CMMBTs). Weeks 2, 5, 7, 12, and 14 included data collection on all experimental and control participants, measuring weight, CMMBT, and CMVJ height.</p> <p><b>Results</b> All male experimental subjects exhibited increases in both their CMVJ height and their MPO. As a group, the males averaged a 2.0 inch increase in their CMVJ height and an 8.4 kg<sup>2</sup>m increase in their MPO within a 14-week period. The female experimental subjects increased 1.8 inches in their CMVJ height and 7.5 kg<sup>2</sup>m in their MPO within a 14-week period. All control group participants decreased in their CMVJ and all but one decreased in their MPO.</p> <p><b>Conclusions/Discussion</b> Overall, the data did support the hypothesis. The results show that it is possible to increase a non-elite athlete's CMVJ height and MPO utilizing an exercise regime that includes throwing a 4 kg medicine ball 20 times, 3 times a week.</p>	
<b>Summary Statement</b> Utilizing counter movement medicine ball throws to increase non-elite high school athletes' counter movement vertical jump height.	
<b>Help Received</b> Mrs. Lewis and Vanessa Marroquin helped set up equipment (vertex), and helped measure and record data on various test days.	