

# EVALUATING AND INCREASING HIGH SCHOOL ATHLETES' UNDERSTANDING OF HOW RECOVERY IMPROVES PERFORMANCE AND REDUCES INJURY RISK



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## Introduction

It is well known to the medical community that nutrition, sleep, hydration, active recovery, and mental wellness all have significant impacts on athletic performance and rates of injury. It is not well studied if high school student athletes know or understand this information.

The purpose of this study was twofold. The first was to evaluate the understanding that High School student athletes have of how the 5 aforementioned topics of recovery impacts their athletic performance. The second was to investigate if educating the student athletes about the 5 topics of recovery made a difference in their understanding.

ATHLETICS PARTICIPATION SURVEY TOTALS						
Year	Participants	Male Participants	Total	Year	Participants	Total
1993-94	1,000,000	500,000	1,500,000	2018-19	1,000,000	1,500,000
1994-95	1,100,000	550,000	1,650,000	2019-20	1,100,000	1,650,000
1995-96	1,200,000	600,000	1,800,000	2020-21	1,200,000	1,800,000
1996-97	1,300,000	650,000	1,950,000	2021-22	1,300,000	1,950,000
1997-98	1,400,000	700,000	2,100,000	2022-23	1,400,000	2,100,000
1998-99	1,500,000	750,000	2,250,000	2023-24	1,500,000	2,250,000
1999-00	1,600,000	800,000	2,400,000	2024-25	1,600,000	2,400,000
2000-01	1,700,000	850,000	2,550,000	2025-26	1,700,000	2,550,000
2001-02	1,800,000	900,000	2,700,000	2026-27	1,800,000	2,700,000
2002-03	1,900,000	950,000	2,850,000	2027-28	1,900,000	2,850,000
2003-04	2,000,000	1,000,000	3,000,000	2028-29	2,000,000	3,000,000
2004-05	2,100,000	1,050,000	3,150,000	2029-30	2,100,000	3,150,000
2005-06	2,200,000	1,100,000	3,300,000	2030-31	2,200,000	3,300,000
2006-07	2,300,000	1,150,000	3,450,000	2031-32	2,300,000	3,450,000
2007-08	2,400,000	1,200,000	3,600,000	2032-33	2,400,000	3,600,000
2008-09	2,500,000	1,250,000	3,750,000	2033-34	2,500,000	3,750,000
2009-10	2,600,000	1,300,000	3,900,000	2034-35	2,600,000	3,900,000
2010-11	2,700,000	1,350,000	4,050,000	2035-36	2,700,000	4,050,000
2011-12	2,800,000	1,400,000	4,200,000	2036-37	2,800,000	4,200,000
2012-13	2,900,000	1,450,000	4,350,000	2037-38	2,900,000	4,350,000
2013-14	3,000,000	1,500,000	4,500,000	2038-39	3,000,000	4,500,000
2014-15	3,100,000	1,550,000	4,650,000	2039-40	3,100,000	4,650,000
2015-16	3,200,000	1,600,000	4,800,000	2040-41	3,200,000	4,800,000
2016-17	3,300,000	1,650,000	4,950,000	2041-42	3,300,000	4,950,000
2017-18	3,400,000	1,700,000	5,100,000	2042-43	3,400,000	5,100,000
2018-19	3,500,000	1,750,000	5,250,000	2043-44	3,500,000	5,250,000
2019-20	3,600,000	1,800,000	5,400,000	2044-45	3,600,000	5,400,000
2020-21	3,700,000	1,850,000	5,550,000	2045-46	3,700,000	5,550,000
2021-22	3,800,000	1,900,000	5,700,000	2046-47	3,800,000	5,700,000
2022-23	3,900,000	1,950,000	5,850,000	2047-48	3,900,000	5,850,000
2023-24	4,000,000	2,000,000	6,000,000	2048-49	4,000,000	6,000,000
2024-25	4,100,000	2,050,000	6,150,000	2049-50	4,100,000	6,150,000
2025-26	4,200,000	2,100,000	6,300,000	2050-51	4,200,000	6,300,000
2026-27	4,300,000	2,150,000	6,450,000	2051-52	4,300,000	6,450,000
2027-28	4,400,000	2,200,000	6,600,000	2052-53	4,400,000	6,600,000
2028-29	4,500,000	2,250,000	6,750,000	2053-54	4,500,000	6,750,000
2029-30	4,600,000	2,300,000	6,900,000	2054-55	4,600,000	6,900,000
2030-31	4,700,000	2,350,000	7,050,000	2055-56	4,700,000	7,050,000
2031-32	4,800,000	2,400,000	7,200,000	2056-57	4,800,000	7,200,000
2032-33	4,900,000	2,450,000	7,350,000	2057-58	4,900,000	7,350,000
2033-34	5,000,000	2,500,000	7,500,000	2058-59	5,000,000	7,500,000
2034-35	5,100,000	2,550,000	7,650,000	2059-60	5,100,000	7,650,000
2035-36	5,200,000	2,600,000	7,800,000	2060-61	5,200,000	7,800,000
2036-37	5,300,000	2,650,000	7,950,000	2061-62	5,300,000	7,950,000
2037-38	5,400,000	2,700,000	8,100,000	2062-63	5,400,000	8,100,000
2038-39	5,500,000	2,750,000	8,250,000	2063-64	5,500,000	8,250,000
2039-40	5,600,000	2,800,000	8,400,000	2064-65	5,600,000	8,400,000
2040-41	5,700,000	2,850,000	8,550,000	2065-66	5,700,000	8,550,000
2041-42	5,800,000	2,900,000	8,700,000	2066-67	5,800,000	8,700,000
2042-43	5,900,000	2,950,000	8,850,000	2067-68	5,900,000	8,850,000
2043-44	6,000,000	3,000,000	9,000,000	2068-69	6,000,000	9,000,000
2044-45	6,100,000	3,050,000	9,150,000	2069-70	6,100,000	9,150,000
2045-46	6,200,000	3,100,000	9,300,000	2070-71	6,200,000	9,300,000

## What's Next

To the best of our knowledge, this is the first report of an effective method to educate high school student athletes on how 5 topics of recovery contribute to and can increase athletic performance.

This study calls for a larger population sample to assess different academic settings to determine if student athletes could benefit from information regarding recovery as part of their physical education curriculum. Additionally, the golden standard of any medical research is to evaluate if this information increases performance and reduces the rates of injury in High school athletes.



## Design and Methods

19 male student athletes (age 15-18) were given a Likert scale before and after the intervention. The Likert Scale prior to the intervention would assess the athlete's knowledge of how important recovery was to their performance. The athletes went through a single 45-minute information session that educated them about the 5 topics. The same Likert scale was re-administered after the information session.



SCAN ME: Link to survey



SCAN ME: Link to presentation

## Results

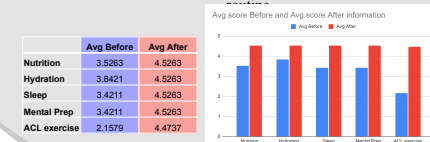
A two-tailed t-test was calculated to determine the mean Likert scale score for each of the 5 topics. There was an increase in knowledge reported by the student athlete in all five of the topics, and all five topics showed significantly higher levels of knowledge (P<0.05). Most significant result was active recovery through ACL prevention exercises (P<0.0000007).

	1 (STRONGLY DISAGREE)	2 (DISAGREE)	3 (NEUTRAL)	4 (AGREE)	5 (STRONGLY AGREE)	TOTAL
How nutrition impacts my athletic performance	0.00%	0.00%	0.00%	100.00%	0.00%	19
Proper hydration to improve my performance	0.00%	0.00%	0.00%	100.00%	0.00%	19
How to maximize my sleep to improve my performance	0.00%	0.00%	0.00%	100.00%	0.00%	19
How mental preparedness affects my performance	0.00%	0.00%	0.00%	100.00%	0.00%	19
How to prevent ACL injury through active recovery	21.74%	0.00%	26.09%	34.78%	17.39%	22
	1 (STRONGLY DISAGREE)	2 (DISAGREE)	3 (NEUTRAL)	4 (AGREE)	5 (STRONGLY AGREE)	TOTAL
How nutrition impacts my performance	0.00%	0.00%	0.00%	47.37%	52.63%	19
Proper hydration to improve my performance	5.26%	0.00%	0.00%	26.32%	68.42%	19
How to maximize my sleep to improve my performance	5.26%	0.00%	5.26%	15.79%	73.68%	19
How mental preparedness affects my performance	0.00%	0.00%	5.26%	31.58%	63.16%	19
How to prevent injury through active recovery	0.00%	0.00%	10.53%	31.58%	57.89%	19

## Conclusion

These results demonstrate that as a collective group, the students reported higher levels of knowledge about how the 5 aforementioned topics of recovery impacted their performance after they were educated. This also suggests that presenting the information that is relevant to athletes had significant impact on their knowledge.

As physicians, when athletes present with an over use injury, or unsatisfied with their athletic performance, we should inquire about their recovery



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