

Reducing Skin Infections in High School Wrestlers Using A Body Wipe: Results of a Study Comparing 75% Isopropyl Alcohol vs Soap/H2O-Based Body Wipes

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BACKGROUND

Skin infections chronically plague high school wrestlers with the vast majority occurring within 1 week from the time of exposure. Up to 70% will get Tinea Corporis Gladiatorum each season. Bacterial infections from staph and strep are also well documented. Now with the advent of CA-MRSA in contact sports, severe complications and even death have been documented numerous times in the lay press.

Economic challenges prompt coaches and athletic directors to find means to reduce costs, but maintain variety in the athlete's competition. Over the past 30 years, wrestling matches have increased in number by 50-60%, but the number of dual bouts have dropped. Team tournaments on the weekends have risen as a means to reduce travel costs and still keep the number of bouts high. These tournaments will allow a team to compete in 3-5 matches in one day over a 10-12 hour period. Personal hygiene is compromised due to an athlete showering at the end of the day thus allowing any pathogens transferred from one athlete to remain on the skin of another competitor for 10-12 hours before showering. The use of a medicated skin wipe after each match could hypothetically reduce the number of skin infections these athletes develop.



METHODS

Open prospective study utilizing six high school wrestling teams in the Minneapolis-St. Paul, Minnesota area and surrounding communities. Two teams will be placed in each of three groups: Soap/H2O cleansing wipe* (supplied by SAGE Products, Inc.), 75% isopropyl alcohol wipe (Supplied by Matguard USA) and control. Each team will have 14 participants and they will engage in weekend tournaments with each member competing in a minimum of three matches. After each match, the wrestler will use a wipe immediately after competition on all exposed skin surfaces, including the scalp. Teams assigned to a specific wipe will require all its members to use the same type of wipe. Each of these teams will participate in two weekend tournaments. After the first tournament, each team will be randomized to one of: other wipe or control, for the second tournament. Estimates are that each of the three study groups could have from 168-280 events for use to evaluate the efficacy of these agents in reducing skin infections.



* Contains: H2O, propylene glycol, glycerine, Alkyl Polyglycoside, Diazolidinyl Urea, Polysorbate 20, Sorbic Acid, Nonoxynol-9,Aloe, Vitamin E, Simethicone.




Present Minnesota State High School League (MSHSL) guidelines suggest that a coach or Certified Athletic Trainer (ATC) perform daily skin checks before each practice/competition. The week following each tournament: daily skin checks will be performed, skin lesions will be documented with removal of the athlete from competition/practice and the primary investigator will evaluate/record these lesions.

RESULTS

	75% Isopropyl alcohol (IPA)wipe	Soap/H2O cleansing wipe	CONTROL
# athletes	56	56	56
Participated	45	55	51
Didn't participate	11	1	5
Infection			
Yes	4 (8.9%)	1 (1.8%)	8 (15.7%)
No	41 (91.1%)	54 (98.2%)	43 (84.3%)
# matches per athletes			
1	0	0	5 (9.8%)
2	2 (4.4%)	3 (5.5%)	4 (7.8%)
3	32 (71.1%)	43 (78.2%)	25 (49%)
4	8 (17.8%)	9 (16.4%)	17 (33.3%)
5	3 (6.7%)	0	0
Average # matches per athlete	3.27	3.11	3.06
Total # matches	147	171	156
Compliance	140 (95.2%)	168 (98.2%)	156 (100%)
Shower			
School	43 (97.7%)	41 (74.6%)	46 (90.2%)
Home	1 (2.3%)	11 (20%)	0
Both	0	3 (5.4%)	5 (9.8%)

The odds of infection for the soap/H2O cleansing group was estimated to be 0.089 (95% CI:0.01-0.75) times that for the CONTROL group (p=0.026), so this wipe was significantly better than CONTROL. Odds for 75% IPA group was 0.44 (95% CI:0.11-1.69) times that of the CONTROL group (p=0.23) so this wipe was not significantly better than the CONTROL. Both wipes are not significantly different from each other because the 95% CI for their odds ratios overlap.

Skin Infections at day-long wrestling tournaments for six high school teams, Jan 1-Feb 28, 2010

			
CONTROL	4	2	2
SOAP/H2O CLEANSING WIPE	0	1	0
75% ISOPROPYL ALCOHOL(IPA) WIPE	0	3	1

DISCUSSION

From 2006-09 the National High School Sports Injury Surveillance System estimated skin infections in wrestling at 1.25/10,000 athlete-exposures during competition. Most observers of the sport agree that this statistic is low in its estimation. Our study had 8/156 in the CONTROL group or 512.8/10,000 athlete-exposures during competition. An estimate that appears more realistic with 15.7% of the wrestlers in this study developing an infection. Other interesting point from this study: amongst this group of high school athletes, 8.2% (13/158) didn't shower after wrestling. The importance of hygiene is obvious as these results point out, yet a significant number of these athletes failed to perform an essential and yet simple hygienic process after competing. Also by using a soap/H2O cleansing wipe after each match over a day-long tournament, a fourteen-man team can reduce their risk of infection by 97%.

CONCLUSION

The use of skin wipes help to reduce skin infections in high school wrestlers when used at tournaments after each match. Soap/H2O cleansing wipes show statistically significant reduction in these infections. More studies need to be performed to see if 75% IPA wipes will be as efficacious.