



# SOUTHERN IMPACT RESEARCH CENTER, LLC

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## INTERPRETING THE RESULTS

Scientific research has demonstrated that the risk of skull fracture and serious head injury increases dramatically once the head experiences linear acceleration forces that exceed 300 g's. A properly worn helmet can reduce the force transferred to the wearer's head during an impact, thereby lowering the risk of skull fracture and other serious head injuries that could occur while playing polo.

Included in the following test report are results from two helmet test standards, ASTM F1163, "Standard Specification for Protective Headgear Used in Horse Sports and Horseback Riding" and NOCSAE ND 050, "Standard Performance Specification for Newly Manufactured Polo Helmets".

To comply with the ASTM F1163 equestrian standard, the force transferred through the helmet during an impact must remain below 300 g's. Helmets that comply with ASTM F1163 are typically capable of managing a single high magnitude impact. The NOCSAE Polo Helmet standard requires that the transferred force be below a Severity Index of 1200 (approximately 200 g's). In contrast to the ASTM standard, the NOCSAE standard requires management of multiple high magnitude impacts as well as low energy impacts.

	<b>ASTM Equestrian Standard [ASTM 1163]</b>	<b>NOCSAE Polo Standard [ND 50]</b>
Transferred Force Limit	Below 300 g's	Below 1200 SI [~200 g's]
High Magnitude Impact Energy	84.6 Joules	105.9 Joules
Total Number of Impacts Required for Complete Test	16	32
Multiple Impacts to Same Impact Location	No	Yes
Low Energy Impact Requirement	No	Yes [11.34 ft/s]

While eye protectors were not tested, another compelling component of the NOCSAE Polo standard is the companion eye protector document [ND 055] that can be used in conjunction with the ND 050 to provide a very high level of eye protection against mallet and ball strikes.

### Referenced Documents

ASTM F1163-15, Standard Specification for Protective Headgear Used in Horse Sports and Horseback Riding, ASTM International, West Conshohocken, PA, 2015, [www.astm.org](http://www.astm.org)  
NOCSAE Doc (ND) 050, Standard Performance Specification for Newly Manufactured Polo Helmets, National Operation Committee on Standards for Athletic Equipment, [www.nocsae.org](http://www.nocsae.org)