Research Project with Aspen Valley Ski & Snowboard Club
New Helmet Technology Measures Head Trauma in Adolescent Skiers and Snowboarders

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As falling leafs turn to falling snow, the time is coming to get our skis, boots, and neon one-pieces out of storage and make sure we are fully prepared to hit the slopes in style. One piece of equipment not to be overlooked, however, is a proper helmet. Helmets have been shown to decrease head injuries by up to 60%. Furthermore, as head injuries account for up to 15% of all ski and snowboard injuries, proper headwear is important. In fact, major head trauma from skiing or snowboarding is the second leading cause of recreational death in Colorado.

Concussion awareness has become a very important issue in all aspects of athletics, including skiing and snowboarding. Concussion, as defined by the most recent consensus statement, is a complex pathophysiological process affecting the brain and is induced by traumatic biomechanical forces. Worldwide, experts are working to better understand the causes and possible complications that arise from even "minor" head injuries. As reported in the news recently, head injuries seen even as a "bump" on the head can lead to catastrophic results if not treated in a timely manner. Guidelines for when a person may return to activity are also continually being updated as new research becomes available.

Up to 70% of all head injuries reported in skiers and snowboarders are considered concussions. But, data on concussion in adolescents and recovery are very scarce. To improve the knowledge base in this field, this season Aspen Orthopaedic Associates and the Aspen Sports Medicine Foundation are teaming up with the Aspen Valley Ski & Snowboard Club (AVSC), and Simbex Technologies to conduct a study of concussions in adolescent skiers and snowboarders. This study will focus on the different types of impacts experienced by the athletes and the possible

underlying issues and their symptoms. We will also look to evaluate the relationship between cognitive and postural testing and self-reported concussion symptoms in adolescent skiers and snowboarders.

Symptoms of head trauma include: headache, feeling in a fog, amnesia, behavioral changes, dizziness and/or drowsiness.

This novel study will be one of the first to follow young snow athletes after an injury to help determine proper course of treatment. Researchers will use balance, cognitive, and computerized testing currently being implemented at the college and professional levels to determine neurocognitive function before and after injury. With this complete array of testing, we expect to learn a great deal about differences in recovery in adolescents and adults.

We are also proud to include the state-of-the-art Head Impact Telemetry System (HITS) in a number of the AVSC helmets this year. This technology enables us to record and analyze every head impact sustained by athletes who wear these helmets. Able to fit into the already popular Giro Nine.9 helmet, this technology will allow us to evaluate possible concussion-causing impacts like never before.

While on the hill this year, have fun, be safe, and be aware of the signs and symptoms of concussion. If you observe or experience any symptoms of head trauma after a head impact, see a doctor to ensure proper treatment and prevent possible complications.