

Injury prevention in WC alpine ski racing

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It is widely accepted that in alpine skiing injuries are too common. Until 2006 there were no reliable statistics about the injuries in WC alpine skiing. There were statistics that were made by the national federations, but most of these were kept in secret and not published. In 2006 FIS started a study with Oslo Sports Trauma Research Center (FIS Injury Surveillance System) to collect data about the injuries in Alpine and Freestyle skiing, Snow board, nordic disciplines and ski jumping. After the first season nordic disciplines and ski jumping were rejected from the study because the injury rates were so low.

In the beginning we had three methods of collecting data; 1) TD reports, 2) reports from the teams (doctors or physios), 3) interviews of the teams after the season. Of these three methods, only the post season interview turned out to be reliable.

After six seasons of data collecting we now know that:

1. time-loss injuries occur for every third skier per season
2. no difference between males & females
3. injuries to the knee, head, shoulder & lower back are most common
4. 30% are severe(absence over 28 days)
5. 60% occur in WC events

It was clear that not only data collecting was enough to prevent injuries. For this reason prof Erich Mueller and his group from University of Salzburg joined this study in 2008.

First a qualitative approach to determine key injury risk factors was started and after analyses of the figures High and Low loading, hot spots could be determined.

High loading HOT Spots

1. Risk factor: Equipment (Ski, binding, plate, boot)
2. Risk factor: Changing snow conditions
3. Risk factor: Physical aspect (are all the young skiers fit enough, athletes coming back from the injuries)
4. Speed and course setting aspect
5. Fatigue (time schedules)

First step after this was to study the possibilities to make the equipment safer.

In DH and SG there seemed to be no effect in changing equipment. In GS there seemed to be high correlation in the forces transmitted to the skier to the radius and the length of the ski.

The first equipment change was therefore made to the GS ski and the ongoing season is the first one with the new skis. If this will affect the injury rates remains to be seen. At the same time of course the other HOT spot issues are monitored carefully.

At this time we have a solid documentation about the injury rates in WC alpine skiing. Coming years will show if we can diminish the risks in the future