

PROTECTING STYLE IN ALPINE SKIING - BASIC TECHNIQUE

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INTRODUCTION. Especially with joint complaints such as back pain, hip or knee osteoarthritis respectively endoprosthesis many patients ask the question of further physical activity, also in alpine skiing. In recent years the possibility to do this was basically affirmed, if appropriate guidelines are observed. Essential requirement among muscular preparation and experience is the skiing technique used.

PRECONDITIONS. Whereas formerly features like "outer-ski-loading" and "vertical-movement" had priority, today technique parameters such as "both-leg-skiing" and "permanent-ground-contact" are in demand. Subdividing ground reaction forces on both legs, modern skiing is a joint protecting leisure sports. Indeed curve radius reduction of modern carving skis actually leads to higher forces acting on skier. But if sidecut of skis is combined with carving technique, safe and joyful skiing can be achieved without particular force exertion or major joint stress. Ski-model (Gottschlich, Zehetmeyer) shows, that carving-skis drive a curve by itself without any muscular effort. On this basis basic techniques for joint-protecting skiing have been developed and verified with measurements with an experienced ski instructor. Thus, it confirms that the ground reaction forces at moderate speeds with both-leg ski-loading are generally lower than when walking (Jöllenneck et al., 2012).

RESULTS. Skiing with protecting style should avoid body buckling and twisting, because it considerably loads joints and spine. Also steep, icy, mogul or slushy slopes and poor visibility should be avoided if possible. Essential basic elements of protecting style are a hip-wide ski-control and a mean body-position slightly anteverted. Body transverse axis should maintain a neutral position with frontal orientation. Turn initiation can be facilitated by various measures as ahead-side-tipping, step-position of ski, edge-pressure of foot, pedalling etc. While turning among leading outer-ski-loading also inner-ski should be somewhat loaded (Kuchler et al., 2011, Schönle et al., 2014).

Lateral tipping of upper body can be either active or passive. Kinking of lower lumbar spine ("hip-bend") should be performed only moderately. Edging of skis can be performed by whole-body-side-tipping. Turning-width can be regulated easily by more or less edging and body-tipping. Only a slight anticipation of upper body is allowed. The more difficult the situational turn-initiation such as steep, slushy slopes etc., the more helpful is a slight anticipation (caution with spinal-damage). A swinging-body-posture while skiing with moderately flexed knee and hip joints helps to balance uneven ground. Sliding is allowed to dose speed. In steep terrain body-movement should be aligned down-sided forward, upper-body-anticipation may be little more intense (caution with spinal-damage), an active leaning-forward is necessary for ski-control (Kuchler et al., 2011, Schönle et al., 2014).

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