

perienced what all racers feel before the start—that faintly hollow, unreasonable sensation. “Ten seconds,” brought me back to earth and I was cool. “Five seconds, four, three, two, one—Go!” I was off. The soft snow flashed like down beneath my skis, and my poles left shadowy hollows in the pillowed mounds. A long straight run at first was easy, and the descent was gradual. The first turn ahead, and swinging into a christiania, I was around it. Then steeper, and next an “S” curve, narrow, banked like a race track, with a solid line of spruce along the top. Instinctively I braked and rode the bend to high; falling inwards, my skis crashed against the lower branches of a tree and my legs took the shock. Up again and once more gathering speed along the “Devil’s bumps,” hard banks of drifted snow, where the very vitals seemed shaken out of me. Then a quick right, followed by a left. If I took the curves too high, it was over the top into the trees; if too low, then it was impossible to get around. Here and there broken poles lay on the trail, and I noticed one good pair whose owner had evidently been in too much of a hurry to retrieve them. Now the lower slopes were reached; a long straight run ahead, through open woods with a warm sun over all, that made the track soft and slow, slow to tired legs and burning ankles.

The trail now gently curving, but drop-

ping steadily. The trees had thickened and one could scarcely see a hundred feet around the bend. With the colder snow my speed increased, warning me of the turn ahead, the last but swiftest of them all. It came all too suddenly. A sweeping curve and I was on it. Sloping sharply down, it almost doubled back upon itself, and right below I could see the finish line. The ground seemed to drop away as I hit the chute. I tried to stem, to brake with poles or skis; no use, the trail worn down to icy crust by those before, offered no resistance to my vain attempts. Faster, and now the curve, banked, scraped clean. I rode it high, feet apart and straining, my body almost horizontal to the ground as the centrifugal force flung me up and outwards. Above, on the bank, a row of faces, all blurred into one long streak; the bright ski suits, a patchwork quilt of running hue. And now I was around, still upright, the end in sight; one second more, and all was over.

And then hot soup and things around an open roaring fire, chatter and merriment, as we recounted in detail our own run down. One casualty only marred the completeness of the day, a Dartmouth chap crashed into a tree and acquired two broken ribs and a broken wrist. One takes that chance, however.

Tired but satisfied, we started home. A six-hour drive before us, but it was worth it, anytime, for that one run down.

## SKI-ING IN ITS MEDICAL ASPECTS

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*Reprinted from the "Canadian Medical Association Journal"*

WINTER brings with it its own train of woes, medical as well as other. Some of these are connected with sport, which, desirable and praiseworthy as it is, is apt, we should remember, to exact a certain price. The advent of Spring usually causes us to look forward, yet it may also be permitted to inspire a look backward. We may, properly, “take stock,” as it were, and so are impelled to consider briefly in what ways winter sports are beneficial and in what ways they may be harmful. The first aspect of the case needs but little elaboration. Winter sports, in general, by bringing the sportsman into a new environment, into the pure air and bright sunlight, into a contact with nature, leaven the mind and body with a new vigour. They harden the muscles to meet unusual effort; they train the mind to skill, perseverance and resourcefulness. To break with the monotony of one’s every-day vocation means much, and the very alternation of effort and repose is of advantage.

Thus far we are in the realms of physiology. But we may stray into the paths of pathology.

There seems to be a fashion in sports as in most other things. In Canada it used to be snowshoeing and skating, then it was tobogganning, and now it is ski-ing. The popularity of ski-ing today is enormous and is steadily increasing. In certain northern countries of Europe, ski-ing has been found to be a very practical mode of locomotion, and it has also been found useful as a means to an end, as, for example, in mountaineering, but, of course, both in Europe and in America it may be pursued merely as a pastime. The popularity of ski-ing as a sport is perhaps to be explained by its comprehensive character. The range and freedom of snowshoeing and skating are there and, in addition, there is the joy of sliding and jumping—in short, the thrill of speed.

From the standpoint of the medical man the forms of ski-ing may be divided into

two distinct categories. Climbing and long-distance running have medical connotations; downhill sliding, ski-joring and jumping have surgical connotations. In the former group the movements involved are mainly concerned with progression in a straight line, or, if in a curved one, are yet slow and well under control; in the latter they are quick and badly under control, especially when there is an abrupt change of direction. Consequently, in the former the disability is apt to take the form of exhaustion and cardiac over-strain, while in the latter we meet with abrasion, laceration, contusion, concussion, sprain, dislocation and fracture. In connection with the surgical disabilities speed and alteration of the line of projection seem to be the controlling factors. Statistics from Switzerland show that the injuries listed in the second group are more than one hundred times as common as are the disabilities of the first group. This would seem to indicate that most of the people in that country who go in for ski-ing do so for the sake of downhill gliding and not for climbing or flat-racing, and the same would seem to be true for Canada.

Disabilities on the side of the heart are said by Oscar Hug, of Zürich, to have been much commoner twenty or thirty years ago than they are now, in spite of the fact that nowadays the runs are sometimes much longer, the speed is greater, and the number of contestants has enormously increased. Henschen, in Sweden, in the 90's of the last century, by percussion methods found dilatation of the heart in as high as thirty per cent of ski-racers. In contrast with this, Hug and his associates, using the more perfect orthodiagraphic methods, did not find one case of cardiac dilatation among the racers at the Olympic Winter Games at St. Moritz in 1928. Rather unexpectedly, it was found that the hearts of racers were even smaller immediately after the contests than before, and, moreover, the greater the effort, the smaller the heart. This surprising result is to be attributed to the careful physical training to which the contestants submit themselves beforehand. As a corollary, we

may infer with certainty that no one should undertake long-distance runs and hill-climbing who has not been specially prepared for it, any more than one would enter a boat race "green."

In the case of descents, slalom and jumping, on the other hand, the matter is one of skill rather than endurance. Smoothness and promptness in co-ordination between nerves and muscles and the correct statics of the articulations here play a decisive role. Excessively violent pressure and traction, suddenly applied, can disrupt the normal anatomical relationships. The chief cause of this excessive pressure or traction is the great speed with which the body hurtles through the air, followed by the sudden stop. In a steep descent or a big jump this speed has been shown to reach on occasion fifty or sixty miles per hour. That injuries due to this cause are not more frequent or more serious, as we would expect *a priori*, is explained by the fact that the majority of falls occur tangentially rather than at right angles to the receiving surface, so that the force of the impact is greatly mitigated. The injuries found are usually those due to pressure caused by the body striking the ground too vertically, as for example, fractures of the femora; and the traction injuries, those due to a twist when the direction of movement is suddenly altered, which include sprains, twists and fractures. The latter type of accident is less serious, as a rule, than the former. With regard to the distribution of the injuries, the figures of Bernhard, v.Saar, Hug, and Knoll agree that the lesions are more common in the parts of the body nearest the skis. The lower extremities are affected in 68 per cent of cases. Serious injuries to the head or abdominal organs are very rare. The region of the ankle is involved in 31.5 per cent and the knee in 26.5. In general, injuries to the joints are much more numerous than fractures of the bones. Fortunately, the majority of injuries due to ski-ing can be completely cured, so that the sport can be taken up again safely, to the extent even of racing and jumping.

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