



**FEDERATION INTERNATIONALE DE SKI
INTERNATIONAL SKI FEDERATION
INTERNATIONALER SKI VERBAND**



MEDICAL GUIDE

2001/2002



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FOREWORD 2001

"Errare humanum est, perseverare diabolicum"

If the FIS and its Medical Committee had not reacted vigorously following the sad events of the FIS Nordic World Ski Championships in Lahti it would hardly have been able to abscond from the accusation of complacency or even irresponsibility, which one would have had the right to make.

This new version of the Medical Guide 2001/2002 demonstrates in an undisputable way that the FIS authorities have taken the menace of doping very seriously and that they have taken measures to ensure such occurrences will not be repeated. But what may appear to be a reaction, was not really one. Only insiders can know that the competent skiing authorities had already implemented doping control procedures using newly-developing methods on a trial basis before the scandal which affected the Nordic World Ski Championships.

In addition, and before the lessons from numerous persons who appear to know better after such difficulties, the FIS and its Medical Committee have established a close collaboration that has already proved to be valuable with the newly created World Anti-Doping Agency, whilst maintaining the existing excellent relations with the IOC Medical Commission and the International Winter Sports Federations.

In brief, following intensive work, the chapter about anti-doping controls has been revised and we are convinced that FIS now has available an efficient working instrument which is accurate, scientifically defensible and adapted to the particular specifics of our disciplines which remain outdoor sports that take place in the mountains.

The FIS is fully engaged in organising sport at the highest level, that is clean, healthy and setting an example. The Medical Committee has never had the slightest problem to follow – sometimes even precede this policy. All together, with the athletes as our concern, we can and will win the fight against one of the worst calamities threatening our beloved sport.

The Medical Committee
of FIS

Autumn 2001

FOREWORD 2000

"I am fully aware and conscious of the dangers involved in the performance of all FIS disciplines and of the dangers caused by gravitational forces, be it during training runs or during the actual competition. I recognise that there is a risk in reaching excellent results which requires me to stretch my physical abilities to the absolute limit. I know and accept, that by engaging in such competitive sports, life and physical safety could be endangered..."

This is the introduction to the athletes declaration for an international FIS Licence. Ski and snowboard competition events comprises a number of different disciplines many of which involve high speed and increased risk of acute traumatic injury (Ski Jumping, Downhill, Speed Skiing). Other disciplines involve particular medical concerns relative to overuse and fatigue (Cross-Country).

It is the responsibility of every doctor concerned with skiing to familiarise himself with all medical aspects of this fascinating sport.

Some of the more common problems encountered in skiing are summarised in this Medical Booklet which also includes the medical rules and regulations of FIS.

The Medical Committee
of FIS

Autumn 1999

FOREWORD 1999

Compared to the edition of 1998, this Medical Guide contains a fair number of changes.

First of all, it includes a new chapter concerning the haemoglobin controls, now introduced and carried out during two full seasons in all the Cross-Country disciplines.

Then we implemented all the changes found on the IOC List of Classes of Prohibited Substances and Methods of Doping published by the IOC on the 31st January 1999.

As a last point, we would like to call your attention to the Olympic Movement Anti-Doping Code, that will come into force on the 1st January 2000. FIS recognises this new document which in this way will become a part of our own regulations.

The Medical Committee
of FIS

Autumn 1998

THE TASKS, RIGHTS AND DUTIES OF THE MEDICAL COMMITTEE OF THE INTERNATIONAL SKI FEDERATION

The Structure of the International Ski Federation (FIS)

Known in brief as FIS, the legislative organ of the International Ski Federation is the Congress that convenes every other year. At present the delegates at the Congress represent 100 National Ski Associations who elect the FIS Council (Executive) for a period of two years. This consists of the President, four Vice-Presidents, twelve members and the Secretary General.

The FIS Council is advised by a series of committees and sub-committees (e.g. Cross-Country, Ski Jumping, Nordic Combined, Alpine Skiing, Freestyle Skiing, Snowboarding etc.). The Medical Committee is one of these special committees.

Apart from having an advisory capacity, the various committees also have to undertake relevant tasks at the request of the FIS Council. The rights and duties of the Medical Committee are thus predetermined. Like the other committees in the Federation, the Medical Committee has no power of decree and is thus only able to act upon instructions. Recent discussions have centred on the monitoring of physical health, the compilation and observation of clothing regulations (prohibiting plasticised suits) and the improvement of safety precautions (e.g. compulsory helmets).

One of the Medical Committee primary concerns is to maintain high standards of medical services at skiing events and relevant details are to be found in the special sections of these guidelines.

Since 1972 the Medical Committee has carried out regular doping tests at various events on behalf of the FIS Council. The first doping rules were compiled in 1972 and were amended in 1987 to incorporate the IOC Medical Committee rules. Although aligned with the latter, the current guidelines do also feature certain peculiarities specific to the sport of skiing. The time and place of doping checks is established by the Medical Committee and any FIS event organiser may be required to carry out doping controls.

Blood controls, where FIS has played a pioneer role have a special place in the various duties of the Medical Committee of FIS. That is the reason why a special chapter is reserved for this specific subject.

The Medical Committee is involved in a regular exchange of information with the other committees in the Federation, various international bodies such as the "International Working Group for Safety in Skiing" (ISSS), The Fédération Internationale de Médecins Sportive (FIMS), the Medical Commission of the IOC and medical representatives of the national associations.

The Medical Committee of the FIS is committed to maintaining skiers' health and to minimising the risk of injury.

THE FIS MEDICAL SUPERVISOR AND HIS ROLE

Whenever a major event is scheduled (Olympic Winter Games, World Championships etc.), the Medical Committee of FIS will propose one or more Medical Supervisor(s), who are appointed by the FIS Council. Where possible this nomination will take place at least one year before the event is scheduled.

As a rule, the Medical Supervisor will be a member of the Medical Committee of FIS but, by mutual agreement, the individual may be recruited from outside the committee. The only restriction placed on the Medical Supervisor is that the individual may not act

as a team doctor or doctor for the organising committee whilst performing the duties of a FIS Medical Supervisor.

The FIS Medical Supervisor will be nominated for one event only and his duties will cease at the end of the event.

Nominations for the Medical Supervisor(s) will be passed immediately to the Secretary General of FIS for approval by the FIS Council and thereafter this information will be forwarded to the event organisers with a copy of the Medical Guide.

Once notification has been received by the event organisers, it is their responsibility to liaise directly with the nominated Medical Supervisor. The organising committee should contact the Medical Supervisor immediately and provide information regarding the delivery of health care at the event. The organising committee will also provide further information regarding safety, doping, gender verification etc., and be responsible for any costs that may be incurred if a pre-event visit is necessary. Visits to the event venue prior to competition will only be made by mutual agreement between the organisers and the FIS Medical Supervisor.

The role of the Medical Supervisor is to assist the organising committee in relation to "medical problems", in the broadest sense of the term. The Medical Supervisor will keep the organising committee informed regarding current FIS medical guidelines and the application of these guidelines before and during the event. The Medical Supervisor will collaborate closely at all times with the FIS Race Directors and other FIS appointed officials (TD, Technical Advisor, equipment control etc.).

The Medical Supervisor may recruit an independent assistant of the opposite sex from the personnel already in attendance at the event, to monitor areas where "same sex" supervision is required.

The FIS Medical Supervisor will not be directly involved with the blood screening or doping controls. If a member of WADA is not present and he is therefore involved with the random draw for the doping controls of athletes, it is as one person within a small group, as described in section B, point 4 of the FIS Doping and Medical Rules. His job in regard to the doping controls is to provide information to the team doctors and officials in regard to the logistical arrangements, such as the whereabouts of the doping control station, timetable and to clarify any questions in connection with the rules.

During the course of the event the Medical Supervisor will be treated in exactly the same way as other FIS appointed officials, (particularly in relation to travel expenses, hotel accommodation, eating arrangements, uniform, honorarium, etc.) and is expected where possible to attend all technical meetings during the event.

At the end of the event the Medical Supervisor will prepare a comprehensive report, a copy of which will be forwarded to each of the following:

1. Secretary General of FIS
2. Chairman of the Medical Committee of FIS
3. Organising committee of the event

MEDICAL SERVICES AT SKI COMPETITIONS

The health of competitors should be an important concern of every organiser of ski competitions whatever the level. In order to realise this aim, a sophisticated health care delivery service is very important. This document presents the essential characteristics of such a service.

It is important that any health care delivery service be under the direction of a competent person who will co-ordinate the medical team and represent this service on the local organising committee. He/she will liaise with the other officials of the organisation (secu-

riety, technical, information, etc.) to ensure that the medical support arrangements operate in a smooth and expedient manner. If the director of the medical health care team is not a physician, then a physician must be appointed to be responsible for the competition.

The exact composition of the medical team (medical and paramedical personnel) depends on the event. In alpine skiing, ski jumping, and freestyle skiing, the injuries may be dangerous. In Cross-Country skiing, injuries are more likely to be related to overuse or medical in nature. Each event demands different staffing levels.

The exact location of medical facilities at any competition depends on the event. In downhill, the location of the first aid stations will depend on the specific configurations of the course. In slalom a station at the top and at the finish area is normally sufficient.

In downhill and Super G, the safety and evacuation procedures are organised in conjunction with the FIS Race Directors at World Cup races, and the Technical Delegates at other level competitions and an efficient communication system is capital.

The number and nature of the medical stations at a competition will depend on the event. Along a course, the stations may be either open or in tents. They must be easily recognised (e.g. marked with a red cross). The medical equipment within the stations will vary, but should include resuscitation equipment, immobilisation splints, suture sets and appropriate medication. If appropriate, equipment used for evacuation should also be included. A helicopter landing pad may be required if specialist medical facilities are a long way away.

The health care delivery system must be functional from the beginning of training to the end of the competition. Separate arrangements for the spectators must be integrated with those for the competitors.

The health care delivery service must involve the local medical system and indeed there will usually be an overlap between the two with respect to personnel. Prior to the beginning of the competition, a meeting will occur between the team doctors and members of the health care delivery service. This allows support staff to be familiar with the medical arrangements and provides an opportunity to supply a written summary of what is available on site location of equipment, the medical and paramedical personnel involved within the health care delivery system, information concerning local medical and paramedical personnel (address, telephone number), local and regional hospital, availability of evacuation (service, distance to definitive care), dentists (address and telephone), and other information.

Collaboration between team physicians and the local health care delivery service should be encouraged and any treatment of an athlete should be brought to the attention of the team physician.

The chief of the health care delivery system may also be responsible for femininity and doping control (see specific chapters). In this regard he/she will need to be familiar with the appropriate rules as outlined in this book.

Further Reference: The pre-hospital treatment of severely injured athletes, by Inggard Lereim (available at the FIS Secretariat).

	Downhill Super G		Slalom Giant Slalom		Cross-Country		Ski Jumping		Freestyle: Aerials/Moguls		Freestyle: Acro	
	WC	Others	WC	Others	WC	Others	WC	Others	WC	Others	WC	Others
• Direction of medical service	●	●	●	●	●	●	●	●	●	●	●	●
• Information letter	●	●	●	●	●	◐	●	◐	●	◐	◐	◐
• Meeting for team-doctors	●	●	◐	◐	●	◐	●	◐	●	◐	◐	◐
• Helicopter transport w	●	●	◐	◐	◐	◐	●	●	●	●	◐	◐
• Ambulance transport	●	●	●	●	●	●	●	●	●	●	●	●
• Flagmen	●	●	◐	◐	○	○	○	○	○	○	○	○
• Health care arrangement in the finish area	●	●	●	●	◐	◐	●	●	●	●	◐	◐
• Resuscitation equipment	●	●	◐	◐	◐	◐	●	●	●	●	◐	◐
• Immobilisation equipment	●	●	●	●	●	◐	●	●	●	●	◐	◐
• Ackja sledge	●	●	●	●	◐	◐	○	○	●	●	●	●
• Vacuum-mattress	●	●	●	●	○	○	●	●	●	●	●	●
• Scientific meeting	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
• Doping controls	●	◐	●	◐	●	◐	●	◐	●	◐	●	◐
• Gender Testing	●	◐	●	◐	●	◐	○	○	●	◐	●	◐



Essential



Desirable



Facultative/Optional



Not necessary

Remark: WC means World Cup and World Ski Championships

	Speed Skiing		Snowboard		Telemark		Rollerski		Grass Skiing			
	WC	Others	WC	Others	WC	Others	WC	Others	WC	Others	WC	Others
• Direction of medical services	●	●	●	●	●	●	●	●	●	●		
• Information letter	●	◐	●	◐	◐	◐	◐	◐	◐	◐		
• Meeting for team-doctors	●	◐	●	◐	◐	◐	◐	◐	◐	◐		
• Helicopter transport	●	●	●	◐	◐	◐	○	○	○	○		
• Ambulance transport	●	●	●	●	●	●	●	●	●	●		
• Flagmen	●	●	◐	◐	◐	◐	○	○	◐	◐		
• Health care arrangement in the finish area	●	●	●	●	◐	◐	◐	◐	◐	◐		
• Resuscitation equipment	●	●	●	●	◐	◐	◐	◐	◐	◐		
• Immobilisation equipment	●	●	●	●	●	●	●	●	●	●		
• Ackja sledge	●	●	●	●	●	●	○	○	○	○		
• Vacuum-mattress	●	●	●	●	●	●	●	●	●	●		
• Scientific meeting	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐		
• Doping controls	●	◐	●	◐	●	◐	●	◐	●	◐		
• Gender Testing	●	◐	●	◐	○	○	○	○	○	○		

● Essential
◐ Desirable

◑ Facultative/Optional
○ Not necessary

Remark: WC means World Cup and World Ski Championships

GENDER VERIFICATION

On the basis of different well reflected arguments and with the support of the Medical Committee of FIS, the FIS Congress 2000 in Melbourne decided to modify the rules for Gender Verification, despite the good experiences made with the FIS specific two pace three step procedure (first at national level, than international randomised test, three examination levels).

Instead it is required that both female and male athletes undergo a thorough evaluation of their medical health, which is to be conducted in the athlete's own nation. (ICR 221.1)

If any question or protest arises as to the gender of the athlete FIS and its Medical Committee will assume responsibility for taking the necessary steps to determine the gender of the athlete (ICR. 221.4).

This means in effect that it is no longer necessary for the competitor to undergo the gender verification procedure as described in the Medical Guide in order to register for the FIS points list. Nevertheless, it is still possible for a gender verification certificate to be issued to any competitor who undergoes the examination as per the described procedure:

Gender testing was introduced by FIS to prevent male athletes from competing in women's races and for women to compete on equal terms.

The determination of gender is complex and depends on an individual's Chromosomal Sex, Gonadal Sex, Genital Sex, Hormonal Sex as well as their Psychological Sex. In the vast majority of individuals, all these parameters are 'harmonised' but in rare instances this may not be the case, either -

- a) as a result of nature (e.g. intersex states) or
- b) as a result of human intervention (e.g. sex change surgery).

There is no simple test that can identify all the different possibilities and it is misguided to believe that a single chromosomal test (buccal smear) can be accepted as the only requirement to establish an individual's gender.

When undertaken correctly, Gender Testing is a dignified procedure that identifies those with potential advantage in ski racing (including males) and enables a rational decision to be made about eligibility for female competition.

It is essential that this testing is carried out in a friendly environment where time is available for the appropriate counselling of the female athletes.

The FIS therefore advises National Ski Associations (NSAs) to carry out the testing of female athletes when they first join the national squad and well in advance of international competition. This will allow sufficient time for further specialist review should any abnormality be discovered (e.g. androgen insensitivity - XY females).

Tests for gender verification are primarily the responsibility of the NSA who must appoint a suitably qualified medical officer to supervise the procedures involved. The appointed NSA Doctor will be directly responsible to the Chairman of the FIS Medical Committee for the satisfactory accreditation of female athletes.

At the FIS Congress in Montreux, May 1990, a protocol for gender verification was agreed, which was modified in 1996 to include the following items:

1. Chromatin test buccal smear or total karyotype (blood)
2. Gynaecological inspection (not examination) by a female doctor
3. Blood hormone test for Testosterone. This protocol may be varied at the discretion of the FIS Medical Committee.

All three tests have to be carried out.

A FIS Gender Form (Annexe 4B) should be completed for each athlete and held by the NSA Doctor in a confidential manner.

When the results of all the tests are available, the NSA Doctor is entitled to issue the FIS Medical Certificate (Annexe 4A "National Certificate") to the athlete concerned, providing that the results confirm femininity.

The NSA Doctor should forward a list of all National athletes that have satisfactorily completed gender testing to the FIS Headquarters who will provide this list to the Chairman of the FIS Medical Committee.

In any case of doubt (where any of the three tests are not of normal female configuration) the Chairman of the Medical Committee must be consulted before the FIS Certificate is issued.

FIS reserves the right to carry out random gender verification tests in case of any question as to the gender of an athlete as provided for in the International Competition Rules, Article 221.4. The athletes selected will complete the same FIS gender protocol (see items 1, 2 and 3 above) under the direction of a female gynaecologist appointed by the FIS Medical Committee or FIS Medical Supervisor for this purpose.

Satisfactory completion of these tests under FIS supervision will preclude the need for any further testing of that athlete at any time in the future. In these circumstances an official FIS endorsement will be added to the gender certificate already issued by the NSA (see Annexe 4B "International Certificate").

FIS DOPING AND MEDICAL CONTROL REGULATIONS

Introduction

FIS is committed to maintaining the integrity of all skiing competitions and condemns the use of doping in sport.

The FIS Doping Control Regulations have been compiled in accordance with:

- The mission statement of the World Anti-Doping Agency (WADA)
- The Olympic Movement Anti-Doping Code
- The "agreement for the prevention of doping in sport between the IOC and the Olympic Winter Sports Federations"

It is certainly not an exaggeration to claim that since years, FIS has been one of the most active and innovative leading International Sport Federations in the tough and very complex fight against doping.

More than ever, FIS is strongly committed to intensify this fight, in order to offer to all participants in every discipline fair and safe competitions.

To reach this ambitious goal, FIS's Medical Committee, in close co-operation with neighbouring International Winter Sport Federations (ISU, IBU), the Medical Commission of the International Olympic Committee (IOC) and very intensively with the World Anti-Doping Agency (WADA), has at its disposal a battery of different controls described below:

1. Blood screening

Pre competition blood controls with measurements of haemoglobin and other haematological parameters will be carried out at Cross-Country and Nordic Combined events to determine whether the athlete may start or not. Primarily this is not a doping control, but pathological values identify the need to carry out further a doping control. Additionally, blood screening on the entire starting field will be carried out at a number of unannounced competitions.

2. Out-of-competition controls

As the wording says it clearly, such controls take place independently of a competition. Nevertheless, the time point can be out of or during the season. All these controls will be conducted by WADA, and can include urine as well as blood controls or blood screening.

3. Competition controls

"Classical" post-competition anti-doping controls, on ranked, drawn or "screened" athletes, with both urine and blood testing being possible.

Members of the FIS Medical Committee are responsible for organising competition controls in their own nation, respectively advising the national doping advising the national doping agency of the competition calendars.

As we can see, there is no clear delimitation between health and doping controls any more, the reason for which the blood screening and the haemoglobin start prohibition control is newly integrated in the chapter dealing with doping.

FIS DOPING RULES

Where appropriate in these rules, the masculine shall include the feminine and the singular shall include the plural. As per article of 1.3 the FIS Statutes, the term "ski" shall include "ski and snowboard".

RULE 1 - DOPING

1. The International Ski Federation (FIS), in accordance with the World Anti-Doping Agency (WADA) and International Olympic Committee (IOC) rules, condemns the use of products and methods, which affect different physiological systems in the body and serve the purpose of artificially improving performance in sport.

Doping is defined as:

1. the use of an expedient (substance or method) which is potentially harmful to athletes health and/or capable of enhancing their performance.
2. the presence in the athletes body of a prohibited substance or evidence of the use thereof or evidence of the use of a prohibited method.

As it is possible by means of doping to gain an unfair advantage over other athletes and because doping is a threat to physical and mental health, doping is incompatible with the general standards of sporting ethics and is a contradiction of the rules and regulations of sport.

2. The FIS declares that doping is strictly forbidden for all FIS licence holders and doping is an offence under the FIS rules in and out of competition.
3. The offence of doping takes place when a prohibited drug is found to be present within an athletes body tissue or fluids, or an athlete uses a banned method, or an athlete admits having used a prohibited drug or a banned method on the FIS list of doping classes and methods.
4. An admission may be made either orally in a verifiable manner or in writing.
5. In order to prevent the use of forbidden substances and methods, doping and medical controls are carried out in accordance with the established FIS Rules.
6. FIS underlines the moral obligation not only to penalise offences but also to implement preventive and educational programs. FIS draws the National Associations attention to the importance of these tools in the fight against doping.
7. The FIS list of doping classes and methods is based upon the most recent published WADA/IOC list of doping classes and methods, without being restricted or bound by them.

RULE 2 - ANCILLARY OFFENCES

8. A competitor who fails to attend the doping control or who refuses doping control after having being requested to do so by an appointed official, under Rule 4, In-competition testing and under Rule 5 Out-of-Competition Testing will have committed a doping offence and be subject to sanctions in accordance with Rule 7. This fact shall be reported to the FIS by his National Ski Association.
9. Any person assisting or inciting others, or admitting having incited or assisted others, to use a prohibited substance, or prohibited techniques, shall have committed a doping offence and shall be subject to sanctions in accordance with Rule 7. If that person is not an athlete, the FIS Council may, at its discretion, impose an appropriate sanction.

RULE 3 - RESPONSIBILITY FOR DOPING AND MEDICAL CONTROLS

10. FIS will be responsible for doping and medical control at FIS World Championships (WSC), major international competitions (World Cups, etc.). Out-of-competition testing shall be carried out by the World-Anti Doping Agency (WADA).

RULE 4 – BLOOD SCREENING

11. At Major Championships and in World Cup Competitions in Cross-Country and Nordic Combined, pre-competition blood screening tests are conducted by scientific experts in close co-operation with WADA if present, and the IOC at the Olympic Winter Games.
12. The expenses of this screening are born by FIS and the Organising Committee.
13. The Organisers are required to make the necessary facilities for the screening available according to the FIS rules, doping and medical regulations.
14. The analysis of the blood will be carried out on the spot and immediately by scientific experts equipped with instruments that can measure the necessary parameters.

RULE 5 – IN-COMPETITION TESTING

15. Major Championships
 - 15.1 Doping control tests must be carried out at each FIS World Championship and major events in accordance with the current FIS rules, under the supervision of an officer of the FIS Medical Committee (Medical Supervisor) in regard to the logistical arrangements, and/or WADA. The expense of all the tests are the responsibility of the organisers.
 - 15.2 The organisers of FIS World Championships and major FIS events are required to carry out the control of doping classes and methods according to the FIS rules and doping regulations.

- 15.3 Analysis of all urine samples must be carried out at a laboratory accredited by WADA or IOC. Analysis of blood samples can only take place at a laboratory recognised for this purpose by WADA and/or the IOC.
- 15.4 Doping control tests at each Olympic Winter Games will be carried out according to the current IOC rules for the Olympic Winter Games, which may vary from the FIS rules. It is the responsibility of competitors, coaches, physicians, and officials to be aware of any differences.
16. International Competitions
Doping control tests are recommended at major FIS international competitions (World Cups, etc.). These tests must be carried out in accordance with the FIS rules and doping regulations, and may be supervised by an official FIS representative approved by the FIS Medical Committee and/or a representative of WADA. The expense of all testing is the responsibility of the local organiser.
- 16.1 All National Ski Associations, respectively National Doping Agencies are obliged to inform FIS in confidence the date and location where a Doping Control will take place. Thereafter on the day of the control or the day before, the FIS Race Director or Technical Delegate (only) will be informed, in order that the programme of the event can accommodate the organisation of the doping control without adversely affecting the programme for any athletes involved.
17. Further Doping Controls
National Ski Associations are encouraged to carry out further doping controls in accordance with the FIS rules and doping regulations. Where testing is the responsibility of, or is carried out by, a National Ski Association, that National Ski Association should adhere to the recommended procedures contained in the "Procedural Guidelines for Doping Control".
- RULE 6 – OUT-OF-COMPETITION TESTING**
18. It is a condition of membership of the FIS that a National Ski Association includes within its constitution:
- 18.1 a provision obliging that the National Ski Association conducts out-of-competition, no-notice doping control, a report of which must be submitted to the FIS annually; and
- 18.2 a provision allowing the FIS to conduct out-of-competition, no-notice testing on that member's athletes.
19. Procedural guidelines for the conduct of out-of-competition, no-notice testing are to be found in the "Procedural Guidelines for Doping Control".
20. Out-of-competition testing shall be conducted in respect of doping classes and methods as requested by the FIS Medical Committee and/or WADA.

21. It is the duty of any National Ski Association to assist the FIS and, if appropriate other National Ski Associations in the carrying out of such testing, and any National Ski Association preventing, hindering or otherwise obstructing the carrying out of such testing shall be liable to sanctions according to the FIS sanction catalogue.
22. Where an athlete has been declared ineligible for a period, other than life, and wishes to resume competing after his period of ineligibility has expired, he must make himself available for out-of-competition testing at any time during his period of ineligibility.

RULE 7 – NOTIFICATION OF NATIONAL TESTS

23. Every National Ski Association (NSA) shall inform the FIS Secretary General of any positive result(s) and sanction(s) that are imposed in the course of doping controls carried out by the National Ski Association. These sanctions shall be reviewed at the next meeting of the FIS Council. At this meeting, the FIS Council will decide to accept or amend the sanction imposed by the National Ski Association in relation to the FIS sanction catalogue. Where sanctions have been amended, the decision of the FIS Council is final and binding upon all National Ski Associations. An appeal against the decision of the FIS statutory bodies may be made to CAS.
24. Where a doping control has been carried out by the FIS, every National Ski Association shall recognise the results of such doping control and shall take all necessary action to render such decisions effective.
25. The FIS Council may recognise the results of doping control carried out by a sporting body other than the FIS, with Rules and Procedures different from those of the FIS, provided that the testing was properly carried out and the rules of the governing body conducting these test afford sufficient protection to the athlete.
26. If the FIS Council decide that the result of doping control carried out by a sporting body other than the FIS is to be recognised, then the athlete shall be deemed to have breached the relevant FIS Rule and will be subject to the same sanctions. National Ski Associations shall take all necessary action to ensure that this decision is effective.

PROCEDURAL GUIDELINES FOR DOPING AND MEDICAL CONTROLS

These procedural guidelines take into account the FIS doping rules 1 - 6 and the guidelines should be followed as far as reasonable practicable. Where appropriate in these rules, the masculine shall include the feminine and the singular shall include the plural.

A. BLOOD SCREENING

1. Introduction

Since 1989, examination of blood pictures was carried out within the framework of FIS doping controls at Nordic World Ski Championships. These analyses revealed a distinct increase in the haemoglobin values in female as well as in male Cross-Country skiers that cannot be explained with only physiological arguments.

Some of the values found can without discussion, be considered as pathological and dangerous, and would often need treatment in situations of normal life. Undoubtedly, they represent an increased risk for the health of the athlete (cerebral apoplexy, acute death, other damages).

In 1997, FIS on recommendation of its Medical Committee, introduced a control of the haemoglobin value prior to an event for Cross-Country skiers, and Nordic Combined competitors before the Cross-Country event for permission to take part. These controls are not to be considered as classical doping controls, but do not exclude blood controls after the competition, as described in the FIS Medical Guide. Nevertheless, if these controls reveal abnormal parameters, further blood screening and doping controls can be carried out.

Following collaboration with six other International Federations coordinated by WADA, for the 2001/2002 season FIS under the guidance of WADA has introduced the same procedures used by several other International Federations for carrying out the blood screening examinations.

2. Procedure

2.1 Selection of the athletes

Approximately 20% of the athletes on the start list will be selected by random, at the team captains meeting the evening before the event. This draw will be conducted by the Race Directors and the Technical Delegate and if present supervised by a representative of WADA, who keep the established list absolutely confidential.

2.2 Information to the team captains

At the team captains meeting, precise and complete information about the time and place of the controls as well as the method of receiving the names of chosen athletes will be given to the team captains.

2.3 Nomination of the athletes

About 2½ hours before race start time for Cross-Country races and usually after the Ski Jumping event for Nordic Combined competitions, the team captain or trainer asks the Race Director or the TD at the published place (office, telephone) if one of his athletes has been selected. It is his task to pass on this information to the athlete. Normally the information time is divided into two different groups based on the starting fields.

2.4 Time of control

After informing the team official, the selected athlete has 15 minutes to appear at the control. All athletes who have been drawn for blood screening are required to attend, even those who may have withdrawn from the race.

2.5 Place of control

The location for the haemoglobin control and blood screening will be clearly indicated. The control station will be equipped as described in the FIS Doping Control Regulations, Section C.

2.6 Blood sampling

See page 29 Collection of Blood Samples in the FIS Doping Control Regulations.

2.7 Measurements

At the World Cup, World Championships and the Olympic Winter Games, an independent scientific expert will be responsible for evaluating the results of the blood screening. The work may be supervised by a representative of WADA if present.

The measurements will be done with the independent scientific expert's measuring machines that are capable of measuring the haemoglobin, hematocrit and reticulocytes. The result can be read immediately within about 90 seconds.

The maximum tolerated haemoglobin values are:

16.0 g/dl for ladies

17.5 g/dl for men

If an athlete has a higher haemoglobin value at the first measurement, a second measurement will be performed immediately and by the same procedure. The athlete is not allowed to leave the testing area.

Other hematological parameters will be measured at the same time as haemoglobin (hematocrit, reticulocytes, etc). If abnormal, these results can lead to anti-doping controls, in either a post-competition or an out-of-competition form as a urine doping control.

3. Start Prohibition

If an athlete shows higher values than the haemoglobin values of 16.0 g/dl for ladies and 17.5 g/dl for men after the 2 consecutive measurements, he/she will be notified by the Jury that he/she is not allowed to start. The time between the two consecutive measurements may not exceed 5 minutes. Only the athlete or his/her National Ski Association has the right to comment on this notification.

This interdiction to take part in the competition is not a sanction, but is to be considered as a protection of the health of the athlete. Consequently, no disciplinary measures will be taken.

Given the extremely short time available to carry out the analysis and make a decision, an appeal is not possible.

3.1 Information to the athlete

In the case of a result which exceeds the haemoglobin values of 16.0 g/dl for ladies and 17.5 g/dl for men, this information will be provided to the athlete in writing straight away. He will sign this form, confirming in this way he has approved the whole procedure.

4. Blood screening of the Whole Starting Field

In addition blood screening on the entire starting field will be carried out at a number of unannounced competitions. Teams will be informed when and where the controls take place either at an Information Meeting or Team Captains Meeting. Teams will be summoned on a nation by nation basis. All other procedures under the above points 2.5 to 2.8 apply, with the exception that only one blood screening measurement will be carried out.

5. Administration of the results

Only the scientific expert(s) and the representative of WADA shall be present during the evaluation of the blood sample. The results of the screening will be stored in a database accessible only to WADA and FIS. The National Ski Association of the athlete concerned may obtain the results of its own athlete(s) from FIS on request in writing. This information will not be released to coaches or National Association representatives at the competition site by the scientific expert.

6. Miscellaneous

The costs for the above blood controls are born by the FIS (travel, expenses for the scientific expert) and the Organising Committee (accommodation, meals for the scientific expert).

The Organising Committee is required to organise a local nurse(s), who is qualified to carry out phlebotomy for drawing the blood. The nurse should be able to communicate in English.

7. Exceptions

Athletes whose normal (natural) haemoglobin values exceed the limits of 17.5 for men or 16.0 for ladies are required to provide a certification to the FIS Office before the start of the season, respectively their first competition.

This certification must come from a Hematological Department and contain the athlete's full history and hematological profile from an early age in life. The athlete will also be subject to a further examination by a hematological institution approved by WADA and FIS, and the IOC during the period of the Olympic Winter Games.

B. DOPING CONTROL DURING COMPETITIONS

1. General

- 1.1 Athletes, coaches and team officials should acquaint themselves with the FIS Doping Rules 1 - 6 and these procedural guidelines.
- 1.2 These guidelines must be followed as far as is reasonably practicable, however, a departure or departures from these guidelines shall not invalidate the finding of a prohibited substance or method, unless it was such as to cast substantial doubt on the reliability of the finding.
- 1.3 All costs incurred for in-competition doping control are the responsibility of the local organisers.
- 1.4 The doping control procedure at any event or out-of-competition doping controls may include blood sampling in addition to urine sampling.
- 1.5 The Doping Control Notification shall state whether the competitor is required to undergo blood sampling in addition to urine sampling.
- 1.6 Blood sampling may be performed prior to, or after the urine sampling procedure at the convenience of the Doping Control Officer. All blood samples shall be taken by qualified personnel.

2. FIS Medical Supervisor

- 2.1 When a FIS Medical Supervisor has been appointed by the FIS Council, he will be responsible at the designated competition for liaising with the Organising Committee and the doping agency carrying out the doping controls in regard to the organisational aspects of the doping control, in order to inform the teams and Jury.
- 2.2 When no FIS Medical Supervisor is in attendance, this roll may be carried out by an official FIS representative approved by Council on recommendation of the FIS Medical Committee.
- 2.3 If necessary, a Medical Doping Control Committee can be formed under the Chairmanship of the FIS Medical Supervisor or a designated FIS Representative. This committee should include a physician specifically appointed by the organisers of the competition for doping control.
- 2.4 Additional members such as assistants, interpreters, couriers, etc. may be recruited to aid in carrying out the duties and functions of the Medical Doping Control Committee.
- 2.5 The World Anti-Doping Agency (WADA) may attend any FIS doping control as an independent observer and supervise all stages of the proceedings.

3. Facilities and Equipment (provided by Organisers)

- 3.1 Doping Control Station

The organiser shall provide a doping control station, which must be situated near to the finish area and clearly marked, where urine and blood sampling can be undertaken.

The station must consist of a waiting area, a working room and WC's (men and women).

It is recommended that the doping control station is also equipped with running water, shower and TV set.

Canned refreshments (mineral water, soft drinks, fruit juice, etc.) must be available in the waiting area. These drinks must contain no caffeine or alcohol.

3.2 Equipment

Sample collection equipment should consist of a standard set of the following materials:

- sterile collecting vessels,
- sterile glass or plastic bottles,
- unique sealing device,
- doping control forms,
- dipstick for pH and specific gravity measurements and/or refractometer.

There must be sufficient equipment available to offer the athlete a choice.

3.3 The Doping Control Station shall contain a supply of sterile blood collection kits.

The room(s) for collecting blood samples shall be adequately equipped and facilities to allow the phlebotomist to wash his/her hands and fulfil the standards of "university hospitals".

4. Selection and number of competitors to be controlled

4.1 The method of selecting competitors and the total number to undergo doping control must be decided before the beginning of each competition by the FIS Medical Supervisor or FIS appointed official in conjunction with the competition jury and the representative of WADA if present.

4.2 The selection of the athletes must be carried out on the basis of a previously fixed system (usually top four and one or more at random).

4.3 Athletes selected at random will be drawn by the WADA representative, FIS Medical Supervisor or FIS appointed official with a representative of the jury according to the selection procedure described under point 4.6.

4.4 The selection of the athletes has to be implemented so that the competitors or officials of the participating countries have no warning before the end of the race in which the athlete is scheduled for doping control.

- 4.5 Any competitor in FIS competitions may be subject to doping control at any time during the competitions. This may not however infringe on the actual competition itself and must respect the competitor's pre-competition preparation.
- 4.6 Selection of Random Competitors for Doping Control per Discipline**
The following guidelines for the different disciplines and events are given to assist the doping control officers/WADA representative, FIS Medical Supervisor and jury in determining the selection of random competitors.
- 4.7 In all disciplines, reserve competitors will be drawn in case a random draw finishes in the top 4 positions.
- 4.7.1 Cross-Country**
Competitors are drawn according to their starting numbers (bibs).
- 4.7.2 **Cross-Country Sprint Events**
Competitors are drawn from the finals starting field according to their starting numbers (bibs). If a competitor qualifies for the quarter-finals, semi-finals or finals then he/she will be summoned to the doping control only after elimination from the competition.
- 4.7.3 Ski Jumping**
Competitors are drawn according to their starting numbers (bibs).
- 4.7.4 Nordic Combined**
Competitors are drawn according to their starting numbers (bibs). The summons to the doping control will only be issued after the final part of the competition. In the case of the Mass Start events, the Ski Jumping event is last; in Individual Events, the Cross-Country race is last.
- 4.7.5 Alpine Skiing**
Downhill, Super G
Competitors are drawn according to their starting numbers (bibs). Reserve starting numbers are drawn in case one or more of the previously drawn competitors does not finish the race.
- 4.7.6 **Slalom, Giant Slalom**
Competitors are drawn after the first run according to their starting numbers (bibs). Reserve starting numbers are drawn in case one or more of the previously drawn competitors does not finish the race.
- 4.7.7 **Combined**
Competitors are drawn before the final run according to their starting numbers (bibs). Reserve starting numbers are drawn in case one or more of the previously drawn competitors does not finish the race.

4.7.8 Freestyle Skiing

4.7.9 Moguls

Competitors are drawn according to their starting numbers (bibs).

4.7.10 Dual Moguls

Competitors are drawn from the finals starting field according to their starting numbers (bibs). If a competitor qualifies for the quarter-finals, semi-finals or finals then he/she will be summoned to the doping control only after elimination from the competition.

4.7.11 Aerials

Competitors are drawn according to their starting numbers (bibs).

4.7.12 Snowboarding

4.7.13 Giant Slalom, Slalom

Competitors are drawn after the first run according to their starting numbers (bibs). Reserve starting numbers are drawn in case one or more of the previously drawn competitors does not finish the race. It is also possible to carry out the draw before the first run and include all participants, however if a competitor qualifies for the second run then he/she will be summoned to the doping control only after the end of the competition.

4.7.14 Parallel Giant Slalom, Parallel Slalom, Snowboardcross, Halfpipe

Competitors are drawn from the finals starting field according to their starting numbers (bibs). If a competitor qualifies for the future rounds, quarter-finals, semi-finals or finals then he/she will be summoned to the doping control only after elimination from the competition.

5. Procedure for notification and attendance at the doping control station

5.1 Immediately after the athlete concerned has finished the competition, all athletes selected for doping control shall be notified in writing by an authorised person. They will be informed if blood sampling will be undertaken.

The testing notification shall include the competitor's name, starting number and the statement that a companion (team official, coach, interpreter, or doctor) may be present when the competitor reports to the doping control station.

It shall also point out the possible consequences if an athlete should fail to report for doping control within the given time limit.

5.2 The time of notification shall be entered on the form, and the athlete is required to sign the form in acknowledgement of receipt of notice.

5.3 A copy of the notification form will be handed to the athlete.

5.4 Once an athlete has been given notice, he must be accompanied at all times by an authorised person and must report to the Doping Control Station within the time limit stated on the notification form.

- 5.5 The competitor and any companion shall be attended in the waiting room by a member of the doping control team.
- 5.6 The identity of the athlete will be checked by suitable means (identity card, accreditation, starting number, etc.).
- 5.7 The time of arrival and personal data of the competitor shall be noted in the records.
- 5.8 Only one competitor at a time shall be called into the doping control room.
- 5.9 In addition to the competitor and the companion, only the following persons may be present in the doping control room:
- a) a FIS Medical Supervisor or official medical representative
 - b) a representative of WADA
 - c) the Doping Control Officer
 - d) a male and a female assistant to witness the delivery of the specimen
 - e) an interpreter.
- Photographs may not be taken in the doping control station at any time during doping control. It is recommended that a security officer be positioned outside the doping control station to monitor the flow of people in and out and to keep unauthorised persons from entering the station.
- 5.10 The specimens to be analysed for doping substance or methods is a) urine alone or b) urine and blood. The procedure for urine sampling is described in chapter B6. The procedure for blood sampling is described in chapter B7.

6. Collection of Urine Sample

- 6.1 When the athlete feels he is ready to provide a sample, he shall select a sample collecting vessel from a number of sterile, unused vessels.
- 6.2 The athlete shall urinate into the collecting vessel under the observation of an authorised witness of the same sex. A minimum volume of 75 ml is required. If insufficient urine has been provided by the athlete, the partial sample shall be sealed and coded. The athlete will remain under observation until sufficient urine has been provided and sample taking procedures are complete.
- 6.3 Each athlete selects the bottles to hold the specimen from a selection of sterile, unused bottles provided by the collecting agency or WADA/IOC laboratory. The athlete also selects a unique code number and both bottles are marked with this code number.
- 6.4 The athlete will pour approximately 2/3 of the urine sample into the container bottle marked A, and 1/3 into the container bottle marked B. Both container bottles will be tightly closed and sealed. The code numbers will be recorded and cross-checked.

- 6.5 Using a residual volume of urine in the collection vessel, specific gravity and pH of the urine must be measured. These values will be recorded. If the specific gravity is lower than 1.010 then double the volume of urine (minimum 150 ml) must be submitted by the athlete. If measured by refractometer this level may be 1.005.
- 6.6 The athlete shall be asked to declare any medication used in the last ten days prior to the test.
- 6.7 The bottles will be placed in transportation bags.
- 6.8 The doping control forms will be completed by the doping control official. The athlete's identification data, code numbers of the bottles and seal numbers will be cross checked. Any irregularities identified by the athlete or companion should be noted on the doping control forms before signing it.
- 6.9 The athlete shall certify the accuracy of the information by signing that he/she is satisfied with the sample collection procedures. The doping control forms shall also be signed by the sampling officer, the athlete's companion (if present), and the WADA or FIS official representative (if present).
- 6.10 The Doping Control Form should be so devised that duplicate copies are produced at the same time. These should be distributed as follows:
- the original sent to the FIS Office,
 - the first duplicate copy transmitted to the local Organising Committee, to keep on record,
 - the second duplicate copy given to the athlete,
 - the third duplicate copy sent to the laboratory which is to conduct the analysis. This copy shall contain no information on the name or any identifying details of the athlete or companion.
- 6.11 Any modification from the above procedure must be authorised by the FIS to be considered valid.

7. Collection of Blood samples

- 7.1 The competitor shall select one blood control kit, open it, inspect the contents and place these on a table in front of him/her. The blood sampling procedure shall be explained to him by the Doping Control Officer.
- 7.2 **Phlebotomy**
The athlete should be sitting safely and on a comfortable chair with adjustable armrest during phlebotomy.
- 7.3 Samples of venous blood are taken from a superficial forearm vein only.
- 7.4 Phlebotomy will be carried out by the appointed phlebotomist/nurse.
- 7.5 The total number of phlebotomy attempts is limited to 3 on each arm.
- 7.8 Standard procedure for skin cleansing and phlebotomy are to be employed.

- 7.9 Two samples for blood doping control of 3 cc - 5 cc are to be collected into standard tubes containing anti coagulant (e.g. ACD or heparin) and labelled A and B (3 cc - 5 cc in each).
- 7.10 Labelling, Storage and Despatch
The tubes are to be labelled with
- a) Date
 - b) Unique code number
 - c) "A" or "B"
- 7.11 The Doping Control Officer shall check that the code numbers on the sample tubes and shipping containers are identical and record the code number on the Doping Control Official Record. The competitor shall then check that the code numbers on the sample tubes and shipping containers are identical to that recorded on the Doping Control Official Record. The competitor shall place the blood tubes in the respective shipping containers for A and B samples. The competitor shall close the lids on the shipping containers carefully and the Doping Control Officer shall check that these are completely and correctly sealed.
- 7.12 The competitor shall declare to the Doping Control Officer any blood transfusion(s) he may have received in the preceding six months, the date, the reason for the transfusion(s), and the name of the doctor/hospital who administered the transfusion(s). The Doping Control Officer shall record these statements on the Doping Control Official Record.
- 7.13 The athlete shall sign the Doping Control Official Record and will be provided with a copy to keep.
- 7.14 If the competitor refuses to permit blood sampling, the possible consequences shall be explained to him by the Doping Control Officer or FIS Medical Committee representative. If the competitor still refuses, this fact shall be noted in the Doping Control Official Record. This shall be signed by the Doping Control Officer and the FIS Medical Committee representative, if present. The competitor and the companion shall be requested to sign as well. The FIS Medical Committee representative shall be responsible for communicating the refusal to the Chairman of the FIS Medical Committee.

- 7.15 At the end of each group collection, the shipping containers containing the A and B samples shall be placed in the transport container(s). The corresponding laboratory copies of the Doping Control Official Record shall be placed in an envelope. This envelope shall be sealed and placed in the transport container containing the A and B samples. Each transport container shall then be sealed with a unique numbered seal.
If the time from collecting the blood until the samples are received in the laboratory is likely to exceed 24 hours, the transport container(s) should be stored at 0 - 4°C during transport.
- 7.16 For the blood screening, some slight differences exist from the regulations concerning collection of blood samples (pt. 7.1 to 7.9):
- the phlebotomy will be carried out by the nurse arranged by the Organising Committee
 - only one (1) sample of 2.5 cc is collected in a syringe containing EDTA
- This syringe with a code is then handed over to the scientific expert who does the immediate measurements.
- 7.17 In addition to blood screening, the blood samples can be used for research to develop further methods to control of performance manipulation after negative ("not manipulated") results have been received, if the athlete has given (signed) permission for it, providing that the details of the research has been submitted in advance to WADA and/or FIS in writing and that the request to undertake such research has been approved by WADA and/or FIS.
- 8. Analysis of samples**
- 8.1 All samples provided by athletes for the purpose of doping control (urine and/or blood) immediately become the property of FIS.
- 8.2 Only laboratories accredited by the IOC or by WADA may be used to carry out analysis on urine or blood samples taken in connection with doping control. Blood screening shall be carried out on site at the competition venue, hotel, etc. or any other location where out-of-competition blood screening is carried out.
- 8.3 The analysis of samples must be carried out as soon as possible after arrival at the laboratory.
- 8.4 If at any stage, a question or issue arises on the testing or interpretation of results, the person responsible for testing at the laboratory may consult the FIS Medical Supervisor or the Chairman of the FIS Medical Committee for guidance.
- 8.5 If at any stage, a question or issue arises in relation to the sample, the laboratory may conduct any further tests necessary to clarify the fact or issue so raised and such tests may be relied upon by the FIS when deciding whether a sample has tested positive for a prohibited substance or method.

9. Communications of results

- 9.1 The laboratory report on the analysis of the "A" sample is issued to the FIS Secretary General.
- 9.2 If the analysis of the "A" sample provides evidence of a prohibited substance or method, the FIS President or Secretary General shall immediately inform the athlete's National Ski Association, who shall request an explanation from the athlete within a period determined by FIS.
- 9.3 Once the athlete's National Ski Association has been informed, the laboratory shall arrange a date (within 21 days) for the analysis of the reserve "B" sample. This analysis of the B sample is not compulsory and left to the decision of the National Ski Association of the athlete. If this "B" analysis is requested, the National Ski Association shall be informed of the date and time of the analysis of the "B" sample and the National Ski Association must inform the athlete immediately. Should he choose to do so, the athlete and/or his representative, may be present at the analysis of the "B" sample. A representative of the athlete's National Ski Association may also be present, as may a representative of WADA and/or the FIS Medical Committee. Once testing of the "B" sample is complete, the laboratory report must be sent to the FIS Secretary General.
- 9.3.1 At FIS World Championships, the analysis of the reserve "B" sample must begin within 24 hours of the communication of the positive "A" sample" to the National Ski Association concerned. This analysis of the "B" sample is not compulsory and left to the decision of the National Ski Association of the athlete.
- 9.4 Any costs associated (analysis, own representation) with the analysis of the "B" sample is the responsibility of the National Ski Association of the athlete who provided the positive "A" sample.
If a member of the FIS Medical Committee or another representative is appointed by FIS to attend the analysis of the "B" sample, then FIS covers his travel expenses.
- 9.5 A copy of the report of the positive test will be forwarded immediately by the FIS Secretary General to the athlete's National Ski Association after the result of the "B" sample has been received, if the National Ski Association on behalf of its athlete has requested that the "B" sample is also tested. Otherwise this communication will follow after the National Ski Association has advised FIS that it has waived its right to test the "B" sample. The National Ski Association must also be informed that the athlete has breached the Rules of the FIS and is therefore subject to disciplinary proceedings in accordance with the FIS Doping rules, Disciplinary Procedures for Doping Offences (chapter D).
- 9.6 At all times, details of the investigation should be treated as strictly confidential by all persons connected with doping control.

C. OUT-OF-COMPETITION DOPING CONTROL

1. General

- 1.1 Out-of-competition doping controls are carried out by the World Anti-Doping Agency (WADA). These procedural guidelines for out-of-competition doping controls take into account the FIS doping rules 1 - 8 and the procedures for collecting samples to be analysed for doping substances or methods. The FIS procedural guidelines for doping controls shall be followed as far as reasonable practicable also by WADA. Where appropriate in these guidelines, the masculine shall include the feminine and the singular shall include the plural.
- 1.2 Athletes, coaches and team officials should acquaint themselves with the doping control procedures contained in FIS Doping Rules 1 - 8 as well as these procedural guidelines for out-of-competition doping controls.
- 1.3 These guidelines must be followed as far as reasonably practicable, however, a departure or departures from these guidelines shall not invalidate the finding of a prohibited substance or method, unless it was such as to cast substantial doubt on the reliability of the finding.
- 1.4 The costs for out-of-competition testing organised and carried out by WADA are covered by the World-Anti Doping Agency (WADA) or FIS.
- 1.5 Samples (urine or blood) obtained during out-of-competition testing are currently analysed for anabolic agents (class 1.3), Diuretics (class 1.4), Peptid hormones, mimetics and analogues (class 1.5) and prohibited methods (class 2). Other doping classes or methods may be tested at the request of the FIS Medical Committee.

2. Procedure for registration of competitors that may be selected for out-of-competition doping controls

- 2.1 Before the 1st of May each year, each National Ski Association will provide FIS with a complete list of competitors who are currently competing or who intend to compete internationally using the FIS Out-of-Competition Doping Control forms or the forms provided by the respective National Sports Governing Body. Additionally, the name of any competitor who does not meet the criteria above but has a reasonable probability of being selected for international competition in the coming year should be appended to the list. Each athlete listed shall be informed by their National Association that they are eligible for FIS out-of-competition testing and must provide the National Association with a procedure for contacting them at all times. It should be emphasised that in all cases of holiday, training camps, or foreign travel the National Association must be able to contact each listed athlete within 48 hours. Failure of an athlete to make themselves available for out-of-competition doping control may be viewed as a positive test.

This information is then provided by FIS to WADA. Failure to provide the necessary documentation will lead to WADA taking further action, which will include advising the Sports Governing Body of the nation(s) concerned.

- 2.2 When required to do so, the National Ski Association must be able to provide the following information on all targeted athletes:
- Date of birth
 - Passport (or equivalent document) number
 - Full address and telephone number (home or training site) where the competitor can be contacted during the period of preparation.
 - Number of years competing for National Ski Association and events attended.

- 2.3 Each National Ski Association is required to complete and submit the FIS Doping Control Forms for their respective teams in each discipline. These forms are available from the Rules and Publications section of the FIS website and are included as an appendix at the end of this guide:

Form A: National Team Information

- a list of all competitors with their contact details

Form B: National Team Training Programme

- details of the out-of-competition training programme

Form C: Training Camp Details

- specific information about each training camp, including hotel, contact details etc.

Forms provided by the respective National Sports Governing Body may also be used if the above information is contained.

3. Procedure of Selection of National Ski Associations and Competitors

- 3.1 The World-Anti Doping Agency will select individuals for testing on an annual basis.
- 3.2 Not more than two (2) days before sampling, the National Ski Association may be contacted by an individual or organisation authorised by FIS to carry out out-of-competition testing and the National Ski Association is required to provide all the information listed above (2.2) if necessary.
- 3.3 Contact with the selected athlete is the responsibility of the sample collection or organisation authorised by FIS, and not the responsibility of the National Ski Association.

4. Appointed Sample Collectors

- 4.1 The FIS Council may, on the advice of the Medical Committee, appoint individuals or organisations to conduct out-of-competition doping controls on behalf of the FIS.

4.2 All sample collectors used by the World Anti-Doping Agency or another doping agency appointed by FIS for out-of-competition testing will be in possession of a letter of appointment.

5. Identification

5.1 When an athlete is contacted by the authorised sample collector, this person must provide proof of:

- a) identity
- b) authorisation from WADA or the FIS appointed Doping Agency (letter of appointment)
- c) copy of the appointment of the Doping Agency to conduct Out-of-Competition Doping Controls on behalf of FIS or copy of appointment of the World Anti-Doping Agency (WADA)

6. Procedure for out-of-competition doping control

6.1 The same procedures listed in the FIS Procedural Guidelines for Doping Control during competition shall be followed as far as is reasonable practicable.

6.2 The sample collector will make every effort to collect the specimen for analysis as discretely as possible and with maximum privacy.

6.3 Should a competitor fail to report to the agreed doping control station, the doping official must inform the FIS and the National Ski Association. It is the athlete's responsibility to check prior to the arranged meeting that there is no possible confusion over the arranged date, time and precise location where the meeting will take place. The sample collector will wait up to two (2) hours beyond the time agreed but thereafter the athlete will be declared absent from testing. An appeal on the grounds that the athlete did not fully understand where to go, or went at the wrong time, will not normally be considered. An athlete who is absent from testing will be deemed to have refused to submit to doping control (FIS Doping Rule 2) and may be subject to sanctions under FIS Doping Rule 6.

6.4 If the athlete refuses to provide a urine or a blood sample, the sample collector should explain to the athlete that by refusing to provide a sample, he shall be deemed to have refused to submit to doping control and may be subject to sanctions under FIS Rule 6. If the athlete still refuses to provide a sample, the sample collector should note this on the Doping Control Form, sign his name to the form and ask the athlete to sign the form. The sample collector should also note any other irregularities in the doping control process.

7. Storage and dispatch of samples

7.1 The same procedures listed in the FIS Procedural Guidelines for Doping Control during competition shall be followed as far as reasonable practicable.

7.2 If at all possible, the outer container should not be opened during transit to the laboratory but the opening of the outer container (e.g. by customs officers) will not, of itself, invalidate the doping control protocol.

8. Analysis of samples and communication of results

The same procedures as listed in the Procedural Guidelines for Doping Control during competition shall be followed.

9. Waiver

The nature of out-of-competition doping control makes it inevitable that little or no prior warning is given to the athlete. Every effort will be made by the authorised sample collector to collect the samples speedily and efficiently with the minimum of interruption to the athlete's training plans and/or to his social or work arrangement. If there is an interruption, however, then no athlete may take action to gain compensation for any inconvenience caused, or loss of earnings.

D. DISCIPLINARY PROCEDURES FOR DOPING OFFENCES

RULE 1 - DISCIPLINARY PROCEDURE

1. Where an "A" sample test is positive, a doping offence has taken place and the following procedure will be undertaken:
 - a) Notification of National Ski Association and athlete
 - b) Analysis of B-sample (if requested)
 - c) Disqualification and suspension
 - d) Hearing
 - e) Confirmation of duration of ban by FIS Council
2. On receipt of a positive sample ("B" sample if requested), the competitor or team will be automatically disqualified from the competition and the competitor suspended forthwith from participating in FIS calendar events until the FIS Council confirms the duration of suspension.
If an athlete who tests positive is a member of a team (jumping, relay, etc.) then the whole team will be disqualified from the competition.
3. Prior to any decision by the FIS Council regarding sanctions, every athlete shall have the right to a hearing by the relevant tribunal of his National Association or FIS, which may also take the form of a written statement. When it is determined that a doping offence has taken place after receipt of a positive sample, the National Association on behalf of its athlete shall be informed of the athlete's right to a hearing. If the National Association on behalf of the athlete does not respond within 28 days of receipt, then it will be deemed to have waived the athlete's right to a hearing.
4. Detailed guidelines regarding the procedure for communication of results for a positive sample are to be found in the section "Procedural Guidelines for Doping Control, Communication of Results".

RULE 2 – SANCTION

1. If an athlete is found to have committed a doping offence after the procedure described in Rule 1. has been carried out, and this is confirmed after a hearing, respectively consideration of the written statement or the National Association on behalf of the athlete waives the right to a hearing, then he shall be sanctioned. The FIS Council decides on the appropriate sanction according to the FIS sanction catalogue. The sanction is valid from the date on which the sample was provided and the athlete's results shall therefore be annulled from all competitions in which he has participated since then.
2. The athlete has the right to appeal the decision of the FIS Council to the Court of Arbitration for Sport (CAS).

FIS Sanction Catalogue

- 1 Deliberate doping
- 1.1 Suspension from participation in all international ski competitions for 2 years for the first offence.
- 1.1.1 Suspension from participation in all international ski competitions for life-time for the second offence.
- 1.2 Inadvertent use of doping
- 1.2.1 Suspension from participation in all international ski competitions for 3 months for the first offence (during a fixed period within the actual or next competition season).
- 1.2.2 Suspension from participation in all international ski competitions for 2 years for the second offence.
- 1.2.3 Suspension from participation in all international competitions for life-time for the third offence.
- 1.3 Infringements by doctors and other officials
- 1.3.1 Suspension from participation and accreditation in all international ski competitions for life-time.

E. EXCEPTIONAL CIRCUMSTANCES

- 1. An athlete may appeal to the Court of Arbitration for Sport (CAS). Any decision made by the statutory bodies of FIS may be submitted exclusively by way of appeal to the Court of Arbitration for Sport in Lausanne, Switzerland, which will resolve the dispute definitely in accordance with the Code of Sports-related Arbitration. The time limit for appeal is twenty-one days after the reception of the decision concerning the appeal.
- 2. According to ICR 203.2.1 the National Ski Association must guarantee that all athletes registered for a FIS Licence accept the rules of the International Ski Federation, in particular the provision which foresees the exclusive competence of the Court of Arbitration for Sport as the court of appeal in doping cases.

F. LIST OF BANNED DOPING CLASSES AND METHODS

The following list is valid as of publication of this Guide. It corresponds to the IOC/WADA approved list valid of 1st September 2001. This list will be valid at least until 31st December 2002. Any subsequent changes to the IOC list shall automatically apply.

Doping contravenes the ethics of both sport and medical science. The FIS Council's definition of doping includes:

Doping is (IOC Definition):

1. the use of an expedient (substance or method) which is potentially harmful to athletes health and/or capable of enhancing their performance.
2. the presence in the athletes body of a prohibited substance or evidence of the use thereof or evidence of the use of a prohibited method.

1. Prohibited classes of substances

- 1.1 Stimulants
- 1.2 Narcotics
- 1.3 Anabolic Agents
- 1.4 Diuretics
- 1.5 Peptide hormones, mimetics and analogues
- 1.6 Alcohol
- 1.7 Cannabinoids

2. Prohibited Methods

- 2.1 Blood doping and administration of artificial oxygen carriers or plasma expanders
- 2.2 Pharmacological, chemical and physical manipulation

3. Classes of drugs subject to certain restrictions

- 3.1 Local anaesthetics
- 3.2 Glucocorticosteroids
- 3.3 Beta-blockers

NOTE: The following list represents examples of the different prohibited classes of substances and prohibited methods to illustrate the doping definition. All substances belonging to the prohibited classes cannot be used even if they are not listed as examples. For this reason, the term "and related substances" is introduced. This term describes drugs that are related to the class by their pharmacological actions and/or chemical structure. If substances of the prohibited classes are identified by an IOC accredited laboratory the relevant authority will act.

A larger list of examples belonging to different pharmacological classes of banned substances can be found in the enclosed Annexe 1.

G. EXAMPLES AND EXPLANATIONS

1. Doping classes

1.1 Stimulants

Stimulants comprise various types of drugs which increase alertness, reduce fatigue and may increase competitiveness and hostility. Their use can also produce loss of judgement, which may lead to accidents in some sports. One group of stimulants is the sympathomimetic amines of which ephedrine is an example. In high doses, this compound produces mental stimulation and increases blood flow. Adverse effects include elevated blood pressure and headache, increased and irregular heart beat, anxiety and tremor. Ephedrine is often present in cold and hay fever preparations which can be purchased in pharmacies and sometimes from other retail outlets without the need of a medical prescription. Ephedrine is banned under FIS Rules but other sympathomimetic amines are subject to monitoring only - see note 2

Thus no product for use in colds, flu or hay fever purchased by a competitor or given to him/her should be used without first checking with a doctor or pharmacist that the product does not contain a drug of the banned stimulant class.

Another group of stimulants is the beta-2 agonists. These drugs are unusual because they are classified as both stimulants and anabolic agents. When taken by mouth or by injection they exert powerful stimulatory and anabolic effects.

Oral and injectable administration of beta-2 agonists is banned.

Of beta-2 agonists only FORMOTEROL SALBUTAMOL, SALMETEROL, and TERBUTALIN are permitted and only by inhalation.

The FIS Medical Committee, WADA and the IOC are concerned with the high incidence of the use of asthma medication in athletes. Therefore skiers using anti-asthmatic medication (beta-2 agonists and/or corticosteroids) are requested to possess a medical certificate stating the diagnosis and the need for medication by a respiratory specialist. This procedure is compulsory for the validity of a medical certificate.

Some examples of prohibited stimulants are:

- amineptine
- amiphenazole
- amphetamines
- bromantan
- caffeine*
- carphedon
- cocaine
- ephedrines**
- fencamfamin
- formoterol***
- mesocarbe
- pentetrazol
- pipradol
- salbutamol***

- salmeterol***
 - terbutaline***
- ...and related substances

* For caffeine the definition of a positive is a concentration in urine greater than 12 micrograms/ml.

** For cathine, the definition of a positive is a concentration in urine greater than 5 micrograms per millilitre. For ephedrine and methylephedrine, the definition of a positive is a concentration in urine greater than 10 micrograms per millilitre. For phenylpropanolamine and pseudoephedrine, the definition of a positive is a concentration in urine greater than 25 micrograms per millilitre.

*** Permitted by inhaler only to prevent and/or treat asthma and exercise-induced asthma. Written notification of asthma and/or exercise-induced asthma by a respiratory specialist or team physician is necessary on the FIS medical notification form, a copy of which is to be sent to the FIS Headquarters and a copy to be retained by the athlete to submit at any doping control.

At the Olympic Winter Games, athletes who request permission to inhale a permitted beta agonist will be assessed by an independent medical panel.

NOTE 1: All imidazole preparations are acceptable for topical use. Vasoconstrictors (e.g. adrenaline) may be administered with local anesthetic agents. Topical preparations (e.g. nasal, ophthalmological, rectal) of adrenaline and phenylephrine are permitted.

1.2 Narcotic analgesics

The drugs belonging to this class, which are represented by morphine and its chemical and pharmacological analogues, act fairly specifically as analgesics for the management of moderate to severe pain.

There exists evidence indicating that narcotic analgesics have been and are abused in sports, and therefore the FIS has issued a ban on their use. The ban is also justified by international restrictions affecting the movement of these compounds and is in line with the regulations and recommendations of the World Health Organisation regarding narcotics.

Some examples of prohibited narcotic analgesics are:

- buprenorphine
- dextromoramide
- diamorphine (heroin)
- methadone
- morphine
- pentazocine
- pethidine

...and related substances

NOTE: Codeine, dextromethorphan, dextropropoxyphen, dihydrocodeine, diphenoxylate, ethylmorphine, pholcodeine, propoxyphene and tramadol are permitted.

1.3 Anabolic agents

The Anabolic class includes anabolic androgenic steroids (AAS) and beta-2 agonists.

1.3.1 Anabolic androgenic steroids (AAS)

The AAS includes testosterone and substances that are related in structure and activity to it. They have been misused in sport to increase muscle strength and bulk, and to promote aggressiveness. The use of AAS is associated with adverse effects on the liver, skin, cardiovascular and endocrine system. They can promote the growth of tumors and induce psychiatric syndromes. In males AAS decrease the size of the testes and diminish sperm production. Females experience masculinization, loss of breast tissue and diminished menstruation. The use of AAS by teenagers can stunt growth.

Some examples of AAS are:

a.

clostebol, fluoxymesterone, metandienone, metenolone, nandrolone, 19-norandrostenediol, 19-norandrostenedione, oxandrolone, stanozolol ... and related substances.

b.

androstenediol, androstenedione, dehydroepiandrosterone (DHEA), dihydrotestosterone, testosterone* and related substances.

Evidence obtained from metabolic profiles and/or isotopic ratio measurements may be used to draw definitive conclusions.

The presence of testosterone (T) to epitestosterone (E) ratio greater than six (6) to one (1) in the urine of a competitor constitutes an offence unless there is evidence that this ratio is due to a physiological or pathological condition, e.g. low epitestosterone excretion, androgen production by a tumor, enzyme deficiencies.

In the case of T/E higher than 6, it is mandatory that the responsible authority (NSA) conduct an investigation before the sample is declared positive. A full report must be written and will include a review of previous tests, subsequent tests and any results of endocrine investigations. In the event that previous tests are not available, the athlete should be tested unannounced at least once per month for three months. The results of these investigations should be included in the report. Failure to co-operate in the investigations will result in declaring the sample positive.

1.3.2 Beta-2 agonists

When administered orally or by injection, beta-2 agonists may have powerful anabolic effects, and their use is therefore banned (See also section 1.1).

Some examples of beta-2 agonists are:

- bambuterol
- clenbuterol

- fenoterol
 - formoterol*
 - reproterol
 - salbutamol*
 - salmeterol*
 - terbutaline*
-and related substances

* Formoterol, salbutamol, salmeterol and terbutaline are permitted by inhalation only (see 1.1)

For salbutamol the definition of a positive sample under the anabolic agent category is a concentration in urine greater than 1000 nanograms per millilitre.

1.4 **Diuretics**

Diuretics have important therapeutic indications for the elimination of excess body fluids from the tissues in certain pathological conditions and for management of high blood pressure.

Diuretics are sometimes misused by competitors for two main reasons, namely: to reduce weight quickly in sports where weight categories are involved and to reduce the concentration of banned substances by diluting the urine. Health risks are involved in such misuse because of serious side-effects which might occur.

Furthermore, deliberate attempts to dilute urine constitute clear manipulation which is unacceptable on ethical grounds. Therefore the FIS Medical Committee has decided to include diuretics on its lists of banned classes of drugs.

Some examples of prohibited diuretics are:

- acetazolamide
- bumetanide
- chlortalidone
- ethacrynic acid
- furosemide
- hydrochlorothiazide
- mannitol¹⁾
- mersalyl
- spironolactone
- triameterene

....and related substances

¹⁾ prohibited by intravenous injection

1.5 **Peptide hormones, mimetics and analogues**

- Chorionic Gonadotrophin (hCG-human chorionic gonadotrophin)

It is well known that the administration to males of Human Chorionic Gonadotrophin (hCH) and other compounds with related activity leads to an increased rate of production of endogenous androgenic steroids and is

considered equivalent to the exogenous administration of testosterone. hCG is prohibited in males only.

- **Pituitary and synthetic gonadotrophins (LH).**

Prohibited in males only.

- **Corticotrophins (ACTH, tetracosactide)**

Corticotrophins have been misused to increase the blood levels of endogenous corticosteroids notably to obtain the euphoric effect of corticosteroids. The application of Corticotrophins is considered to be equivalent to the oral, intra-muscular or intravenous application of corticosteroids (See section 3.4).

- **Growth hormone (hGH, somatotrophin)**

The misuse of Growth Hormone in sport is deemed to be unethical and dangerous because of various adverse effects, for example, allergic reactions, diabetogenic effects, and acromegaly when applied in high doses for a long period of time.

- **Insulin – like Growth Factor (IGF-1)**

and all the respective releasing factors and their analogues;

- **Erythropoietin (EPO)**

EPO is the glucoprotein hormone produced in human kidney which regulates red blood cell production. Synthetic EPO is currently available and has been demonstrated to induce changes similar to blood doping. Use of EPO is banned by FIS.

- **Insulin;**

permitted only to treat insulin-dependent diabetes. Written notification of insulin-dependent diabetes by an endocrinologist or team physician is necessary.

The presence of an abnormal concentration of an endogenous hormone or its diagnostic marker(s) in the urine of a competitor constitutes an offence unless it has conclusively documented to be safety due to a physiological or pathological condition.

1.6 Alcohol

Alcohol is prohibited, in all skiing events. Breath and/or blood alcohol levels may be determined at the request of the FIS Medical Committee. The FIS require a "zero" level of alcohol during competition and positive results may lead to sanctions.

1.7 Cannabinoids (marijuana, Hashis)

Marijuana is prohibited in all FIS skiing and snowboarding disciplines. A concentration in urine of 11. nor-delta-9-tetrahydrocannabinol-9-carboxylic

acid (carboxy-THC) greater than 15 nanograms per millilitre is prohibited and constitutes doping.

2. Prohibited Methods

2.1 Blood doping and administration of artificial oxygen carriers or plasma expanders

In endurance sport, performance can be markedly improved by increasing the amount of circulating red blood cells and/or improving oxygen transport.

The effect of blood transfusions have been known for several decades and the published data suggests that blood doping can produce a significant increase in VO₂ max. and performance.

There are several ways to increase the red cell mass and/or oxygen transport, which include

- a) heterologous transfusion (HT)
- b) autologous transfusion (AT) and
- c) erythropoietin (EPO) administration.
- d) artificial oxygen carriers
- e) related blood products
- f) plasma expanders

Analysis of blood samples enables the measurement of haemoglobin, and other appropriate indicators to establish evidence of blood doping. The results of these tests provides the FIS Medical Committee with the necessary information to identify the manipulation of blood constituents.

2.2 Pharmacological, chemical and physical manipulation

The FIS bans the use of substances and methods which alter the integrity and validity of urine samples used in doping control. Examples of banned methods are the administration of diuretics catheterisation, urine substitution and/or tampering, inhibition of renal excretion, e.g. by probenecid and related compounds and alterations of testosterone and epitestosterone measurements such as by epitestosterone or bromantan administration. If the epitestosterone concentration is greater than 200 ng/ml, it will have to be investigated as in article 1.3.1. The FIS requires that under these circumstances further investigations be conducted.

The success or failure of the use of a prohibited substance or method is not material. It is sufficient that the said substance or procedure was used or attempted for the infraction to be considered as consummated.

3. Classes of drugs subject to certain restrictions

3.1 Local anaesthetics

Injectable local anaesthetics are permitted under the following conditions:

- a. that bupivacaine, lidocaine, mepivacaine, procaine, etc. can be used but not cocaine. Vasoconstrictor agents (e.g. adrenaline) may be used in conjunction with local anaesthetics;
- b. only local or intra-articular injections may be administered;
- c. only when medically justified (e.g. the details including diagnosis; dose and route of administration must be submitted immediately in writing to

the representative of the FIS Medical Committee or the designated official in charge of the Doping Controls (See annex 2: "Notification Form").

3.2 Glucocorticosteroids

The naturally occurring and synthetic corticosteroids are mainly used as anti-inflammatory drugs. They influence circulating concentrations of natural corticosteroids in the body. They produce euphoria and side-effects such that their medical use, except when used topically, require medical control.

The systemic use of corticosteroids is banned except:

- a) for topical use (anal, aural, ophthalmological, nasal and dermatological); but not rectal
- b) by inhalation;
- c) by intra-articular or local injections.

Under no circumstances may injections of corticosteroids be given within 3 hours of competition. Rectal use of corticosteroids is banned.

Any team doctor wishing to administer corticosteroids by local or intra-articular injection, or by inhalation to a competitor must give written notification to the representative of the FIS Medical Committee or the designated official in charge of the Doping Controls (See annex 2: "Notification form") prior to competition.

3.3 Beta-blockers

Due to the continued misuse of beta-blockers in some sports where physical activity is of no or little importance, the FIS Medical Committee reserves the right to test when it seems appropriate. The testing for beta-blockers is unlikely to take place in endurance events which necessitate prolonged periods of high cardiac output and large stores of metabolic substrates. In this activities beta-blockers would severely decrease performance capacity.

Some examples of beta-blockers are:

- acebutolol
 - alprenolol
 - atenolol
 - labetalol
 - metoprolol
 - nadolol
 - oxprenolol
 - propranolol
 - sotalol
- ...and related substances

SUMMARY OF FIS REGULATIONS FOR DRUGS WHICH NEED PHYSICIAN WRITTEN NOTIFICATION

SUBSTANCES	PROHIBITED	AUTHORISED WITH NOTIFICATION	AUTHORISED WITHOUT NOTIFICATION
Selected beta-agonists*	- Oral - Systemic injections	- Inhalatory	
Corticosteroids	- Oral - Systemic injections - Rectal	- Local injections - Intra-articular injections - Inhalation	- Topical (anal, aural, dermatological, nasal, ophthalmological)
Local anaesthetics**	- Systemic injections	- Local injections - Intra-articular injections	- Dental

* formoterol, salbutamol, salmeterol; terbutaline, all others beta-agonists are prohibited

** except cocaine, which is prohibited

SUMMARY OF URINARY CONCENTRATIONS ABOVE WHICH IOC ACCREDITED LABORATORIES MUST REPORT FINDINGS FOR SPECIFIC SUBSTANCES

caffeine	> 12 micrograms/ millilitre
carboxy-THC	> 15 nanograms/ millilitre
cathine	> 5 micrograms / millilitre
ephedrine	> 10 micrograms / millilitre
epitestosterone	> 200 nanograms / millilitre
methylephedrine	> 10 micrograms / millilitre
morphine	> 1 microgram / millilitre
19 – norandrosterone	> 2 nanograms / millilitre in males
19 – norandrosterone	> 5 nanograms / millilitre in females
phenylpropanolamine	> 25 micrograms / millilitre
pseudoephedrine	> 25 micrograms / millilitre
salbutamol (as a stimulant)	> 100 nanograms / millilitre
salbutamol (as anabolic agent)	> 1000 nanograms / millilitre
T/E ratio	> 6

G. MEDICAL ASPECTS OF SKIING

In this short chapter we would like to handle a few particular subjects that are very specific to skiing. The intention of this new part of the Medical Guide of the FIS is to make all those people, team doctors, physiotherapists, trainers and coaches aware of special situations encountered in the different disciplines of ski sport. Obviously, the following paragraphs don't have the pretention of being complete, but even so should make the reader aware of their existence. The full information can be found in the scientific literature.

1. Concussion

When a skier falls, hitting her/his head against the snow, the possibility of a concessive injury must be explored by the examining physician. These injuries may occur in training and free skiing, as well as during competition, and the ski doctor, NSA doctor or event physician must be vigilant in diagnosing this potentially serious condition.

In many contact sports, when a competitor is knocked out, she/he will be subject to an automatic 28 day suspension and even in sports that require the compulsory use of protective helmets (e.g. horse racing) the period of suspension for concussion is between 2 - 21 days.

If a skier has suffered a transient episode of concussion, the examining doctor should suspend him/her from competition for no **less than 48 hours**. If the skier has suffered a short period of unconsciousness (less than 60 seconds) or has any degree of post traumatic amnesia, the examining doctor should suspend him/her from competition for **no less than 7 days**.

In any case where unconsciousness lasts for more than 60 seconds, the examining physician is to suspend the skier for **no less than 21 days**.

In any World Championship or World Cup event attended by a FIS Medical Supervisor, he has absolute authority to suspend a competitor should she/he suffer a concessive injury during the competition.

2. Anterior Cruciate Ligament Injury

Knee injuries from alpine skiing have remained relatively constant in the related statistics, but the distribution has significantly changed: the MCL injuries have decreased while the Anterior Cruciate Ligament injuries have increased dramatically.

The reason of this vulnerability of the Anterior Cruciate Ligament is to be found in several factors such as the equipment, the new skiing techniques, the physical conditions and the slopes.

High and stiff boots have a fulcrum which places direct forward pressure on the Anterior Cruciate Ligament. This fulcrum is particularly significant during backward position and falls where the skiers centre of gravity is falling back while the ski and the boot are moving forward. This creates forward displacement on the upper tibia in relationship to the femur, placing the cruciate at risk.

The reversing of the camber of the ski, and the use of special device under the bindings are other factors which have been implicated.

There have also been technique changes which may affect knee biomechanics (parallel turns with increased acceleration through the turn). Fatigue of the hamstrings as an agonist of Anterior Cruciate Ligament has been suggested as an injury cause.

Finally, higher speed can lead to more difficulty in maintaining control of the skis.

The recognition of these injuries of the Anterior Cruciate Ligament is very important, and even if it is usually obvious, it occasionally may be difficult. A careful physical examination, the use of x-rays, MRI or arthroscopy should always allow a proper and exact diagnosis.

Treatment of Anterior Cruciate Ligament injuries in competitive athletes usually includes repair and reconstruction of the ligament. A good rehabilitation with early mobilisation is very important.

It is important that physicians looking after competitive skiers are aware of the frequency of this injury, its assessment and appropriate treatment.

3. Protective Equipment

The wearing of protective equipment is common to many sports and skiing is no exception. Helmets have been worn in downhill competition since the sixties and in ski jumping since 1980. In addition skiers wear goggles, gloves, forearm protectors (slalom), back protectors (downhill), gumshields etc. to reduce the risk of significant injury during training and competition.

The FIS require that all children competing in FIS races must wear a helmet specifically designed for skiing. The European Community is currently considering a standard for ski helmets and all EEC countries currently require helmets to carry the appropriate 'CE Mark'.

The FIS require helmets to be worn by all competitors in

- Speed Skiing
- Downhill
- Super-G
- Aerials
- Snowboardcross

Individuals in these disciplines should also wear a gumshield during competition and training.

Goggles should be worn by all competitors with the exception of those taking part in Acro and Cross-Country skiing.

Gloves should be worn by all competitors.

4. Medical Considerations in Assessing a Skier's 'Fitness to Race'

Ski racing is a sport that requires each and every participant to exercise physical skills and judgement of an extremely high order. Any failure in a skier's performance may put him/her at risk of serious injury, permanent disability or death.

The FIS requires that all ski racers applying for a FIS Licence, or wishing to participate in any FIS event, undergo a medical examination to assess their physical fitness to compete. This medical examination may be conducted by the individual's personal physician (general practitioner) or the NSA doctor. Particular care is required when an individual is taking regular medication and in certain instances (e.g. epilepsy and insulin dependant diabetes) it may be necessary to refuse medical clearance to participate. In this regard it

is also extremely important that the personal and NSA insurance policy is checked to confirm if the competitor qualifies for insurance cover whilst skiing.

If a FIS licence holder, medical practitioner or NSA has any concern about a competitor's medical fitness and in **all cases of epilepsy and insulin dependant diabetes** they should contact the Chairman of the FIS Medical Committee immediately:

The Chairman FIS Medical Committee
FIS Office
Blochstrasse 2
CH-3653 Oberhofen
Tel +41 (33) 244 61 61
Fax +41 (33) 244 61 71

5. **Sport at Low Temperatures**

Disciplines of skiing are practised in cold to extreme cold temperatures, a situation that can lead to hypothermia. Team doctors, trainers and others responsible for the health of the athletes must be aware of this fact.

Although advances in technology have produced improvements in sportswear, this in some cases does not provide adequate protection against cold. Other improvements in ski equipment and technique as well as higher speeds, enhance the effect of cold in the same way the wind does, producing a greater number of cold injuries.

Team doctors, physiotherapists and trainers must know the symptoms of hypothermia (shivering, sensation of cold, lack of concentration, poor coordination with loss of hand control, pale skin with reddish or pink areas, etc.), the treatment of this serious situation, and the prevention of it (proper clothing, extra protection for the face and the eyes, etc.).

Organisers also should accept recommended temperature limits, e.g. - 15° C for Cross-Country skiing over long distance (30 km and more), - 18° C for shorter races than 20 km. Finally, high speed competitions such as alpine skiing and ski jumping should not take place at temperatures below - 20° C. And it is important to take into consideration the fact that wind increases the danger of hypothermia by lowering the effective temperature.

Finally, the athletes themselves must learn to recognise weather conditions that may lead to hypothermia.

6. **Danger of Anorexia Among Ski Jumpers**

The transition from the classic ski jumping to the V-style has increased the aerodynamic efficiency of the jumps.

To balance this aspect with the physical requirements of the athlete, the ski jumping regulations have been adapted several times to promote an athletic type of ski jumper. However the National Ski Associations and the coaches themselves are advised to be aware of the psychological aspects of anorexia nervosa.

7. **Medical Aspects of Cross-Country Ski Races at High Altitude**

According to art. 312.4.2 of the International Ski Competition Rules the highest point of a Cross-Country course may not exceed 1800 m.

Several physiological and medical problems are involved with altitude competitions.

There are individual variations in the response to acute and prolonged hypoxia, and examinations at sea level do not reveal how well the high altitude is tolerated.

In elite athletes the risk and symptoms of acute mountain sickness start to increase at altitudes higher than 2000 m. Decrease of plasma volume due to sweating and prolonged training at altitude may increase the risk and influence the risks related to blood clotting especially in female athletes using contraceptives.

In elite athletes sporadic physiological changes during extremely demanding ski races may also increase the possibility of pulmonary edema and other health problems the more the higher the altitude. Elite athletes may suffer from these problems more than untrained persons.

8. Alcohol

The use of alcohol is prohibited by the FIS Doping Control Regulations in all FIS events. Breath and/or blood alcohol levels may be determined at the request of the FIS Medical Committee, and positive results may lead to sanctions.

The intention of the authority is to protect the athlete as well as the spectators, as it is well known, that alcohol consumption amends co-ordination capacity, therefore enhancing the risks of loss of control of skis launched at very high velocity. It also should be considered that alcohol can increase the risks of hypothermia (see above).

ANNEXE 1

Expanded list of examples

The following list is valid as of 1st September 2001. Any subsequent changes to the IOC list shall automatically apply.

CAUTION: This is not an exhaustive list of banned substances. It is provided only to give the reader a more comprehensive list of banned substances. Many substances that do not appear on this expanded list are considered banned under the term "and related substances".

Stimulants

amfepramone
amineptine
amiphenazole
amphetamine
bambuterol
bromantan
caffeine
carphedon
cathine
cocaine
cropropamide
crothetamide
ephedrine
etamivan
etilamphetamine
etilefrine
fencamfamin
fenetylline
fenfluramine
formoterol
heptaminol
mefenorex
mephentermine
mesocarbe
methamphetamine
methoxyphenamine
methylen-
dioxyamphetamine
methylenphedrine
methylphenidate
nikethamide
norphenfluramine
parahydroxyamphetaïne
pemoline
pentetrazol
phendimetrazine

phentermine
phenylephrine
phenylpropanolamine
pholedrine
pipradol
prolintane
propylhexedrine
pseudoephedrine
reproterol
salmeterol
salbutamol
salmeterol
selegiline
strychnine
terbutaline

Narcotics

buprenorphine
dextromoramide
diamorphine (heroin)
hydrocodone
methadone
morphine
pentazocine
pethidine

Anabolic agents

androstenediol
androstenedione
bambuterol
boldenone
clenbuterol
clostebol
danazol
dehydrochlormethyltest
dehydroepiandroesterone
(DHEA)

dihydrotestosterone
drostanolone
fenoterol
fluoxymesterone
formebolone
formoterol
gestrinone
mesterolone
metandienone
metenolone
methandriol
methyltestosterone
mibolerone
nandrolone
19-norandrostenediol
19-norandrostenedione
norethandrolone
oxandrolone
oxymesterone
oxymetholone
reproterol
salbutamol
salmeterol
stanozolol
terbutaline
testosterone*
trenbolone

Beta blockers

acebutolol
alprenolol
atenolol
betaxolol
bisoprolol
bunolol
carteolol
celiprolol

esmolol
labetalol
levobunolol
metipranolol
metoprolol
nadolol
oxprenolol
pindolol
propranolol
sotalol
timolol

Diuretics

acetazolamide
bendroflumethiazide
bumetanide

canrenone
chlortalidone
etacrynic acid
furosemide
hydrochlorathiazide
indapamide
mannitol (by intravenous
injection)
mersalyl
spironolactone
triameterene

Masking agents

bromantan
diuretics (see above)
epitestosterone

probenecid

Peptide Hormones

ACTH
clomiphene*
cyclofenil*
erythropoietin (EPO)
hCG*
hGH
insulin
LH*
tamoxifen*

* prohibited in male only

ANNEXE 2



**FEDERATION INTERNATIONALE DE SKI
INTERNATIONAL SKI FEDERATION
INTERNATIONALER SKI VERBAND**

Blochstrasse 2, CH-3653 Oberhofen/Thunersee

Medical Notification Form

for the administration of local anaesthetics and corticosteroids
(according to chapter F. 3., classes of drugs subject to certain restriction)

From: _____
(Name of physician & team or country)

To: _____
(FIS Medical or Technical Authority of the event)

The undersigned confirms that he/she has administered a restricted medical product as follows:

Competitors name: _____

Event: _____

Name of restricted substance: _____

Dosage: _____

Route and date of administration: _____

Diagnosis: _____

Date: _____

Name of physician: _____

Signature:

National Ski Association: _____



**FEDERATION INTERNATIONALE DE SKI
INTERNATIONAL SKI FEDERATION
INTERNATIONALER SKI VERBAND**

Blochstrasse 2, CH-3653 Oberhofen/Thunersee

Doping Control Form

INSTRUCTIONS FOR USE

Report (original)

The report is sent immediately by the FIS Medical Supervisor (FMS) or FIS Appointed Official (FAO) to the FIS Office. The results from the laboratory must also be sent directly to the FIS Office.

Copy 1 Referral

Forwarded together with the urine or blood sample to the testing laboratory.

Copy 2 Summons to the doping test

The person summoned signs an acknowledgement of the summons to the doping test on the original and the retains copy 2.

Copy 3 Report-doping test

Submitted to the local organising committee.

Copy 4 Report-doping test

Submitted to the test subject following the test.

National Team Information

Nation:

Discipline:

- Alpine Ladies
 Alpine Men
 Cross-Country Ladies
 Cross-Country Men
 Nordic Combined
 Jumping
 Snowboard Ladies
 Snowboard Men
 Freestyle Ladies
 Freestyle Men
 Other (pls indicate) _____

FIS Code No.	Last Name	First Name	Date of birth	Sex	Phone	Mobile	Address	Postal Code	City	Country

Name of responsible coach/discipline director: _____ Function: _____

Contact details: _____

Return this form to the Headquarters: E-mail: erb@fisski.ch Fax: +41 (33) 244 61 71

National Association Training Programme

Nation:

Discipline:

- Alpine Ladies
 Alpine Men
 Cross-Country Ladies
 Cross-Country Men
 Nordic Combined
 Jumping
 Snowboard Ladies
 Snowboard Men
 Freestyle Ladies
 Freestyle Men
 Other (pls indicate) _____

Date	May	June	July	August	September	October	November	December
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

Return this form to the Headquarters: E-mail: erb@fisski.ch Fax: +41 (33) 244 61 71

TRAINING CAMP

TO WHOM IT MAY CONCERN

Further to the team's yearly planning, please forward two weeks in advance of any training camp planned, all necessary details regarding the location, hotels, training schedules, time of arrival and departure. One form per discipline and category.

This information is to be forwarded to the FIS Head Office by fax or e-mail no later than two (2) weeks prior to any training camp.

FIS FAX NO: +41 (33) 244 61 71 **FIS E-MAIL:** erb@fisski.ch

Discipline:

- Alpine Ladies Alpine Men
 Cross-Country Ladies Cross-Country Men Nordic Combined Jumping
 Snowboard Ladies Snowboard Men Freestyle Ladies Freestyle Men
 Other (pls indicate)

Contact person at the National Ski Association: Phone:

Nation: Category of team:.....

Name of coach/trainer: Mobile phone :

Phone (area code/number): Fax (area code/number):

Venue of training camp: Country:.....

Name & address of hotel/apartment:

Time & date of arrival: Time & date of departure:.....

TRAINING SCHEDULE

Training Site

Name & address:

Training Time (from-to)

Day	Monday	Tuesday	Wednes- day	Thursday	Friday	Saturday	Sunday
AM							
PM							

Return this form to the Headquarters: E-mail: erb@fisski.ch Fax: +41 (33) 244 61 71