Netherlands

Compliance with commitments project
Auto-Evaluation Report

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Preface

The year 2000 has been an important year for sport in the Netherlands.

Euro 2000, the final rounds of the European Football Championship, was organised by the Netherlands and Belgium in June. It turned out to be a great success, in sporting terms as well as socially and financially.

Last October, we celebrated the successes of the Dutch athletes at the Sydney Olympics. They came back with more medals than ever before.

These two events are examples of the impact of sport in the Netherlands as a social and economic activity. But it also shows the impact that sport has on the enthusiasm of millions of people, who enjoy sport both as participants and as spectators.

However, sporting ideals are threatened by a number of negative issues. One of them is the use of doping. Not only is the use of doping agents an act of unfair play, it also compromises the health of the individual athlete. Doping can therefore pose a danger to sport as a whole, which in time can have an adverse effect on society and public health.

For many years now the Netherlands government has been emphasising the need to prevent the use of doping in sport. The Netherlands government is coordinating its anti-doping policies within the framework of the Anti-Doping Convention (Council of Europe), the European Union and the International Anti-Doping Arrangement (IADA).

In this report, "Anti-Doping Policy in the Netherlands: Report on Compliance with the Anti-Doping Convention by The Netherlands", the Netherlands shows its achievements over recent years in the fight against doping. It also indicates how the fight against doping in sport will be continued in the Netherlands in the years to come.

Margo Vliegenthart,
State Secretary of
Health, Welfare and Sport

Introduction

In this report, the Netherlands will inform the Council of Europe and its member states about its compliance with the Council of Europe's anti-doping convention.
In an agreement between the Ministry of Health, Welfare and Sport (VWS) and the Netherlands Centre for Doping Affairs (NeCeDo), it was decided to write a report on this compliance as the alternative to a visit from an audit commission.
This report focuses on the relevant articles of the convention. For each specific article, the report will set out what has already been done and how the Netherlands complies with the articles. Past developments, the current situation and, where appropriate, future plans are discussed.
Furthermore, the role of the implementing organisation - the Netherlands Centre for Doping Affairs (NeCeDo) - is explained.

The authors would like to thank P.C. de Klerk and J.W. Meerwaldt of the Ministry of VWS, as well as all our colleagues at NeCeDo. Without their help and support this report would not be what it is now. A special thanks goes to Olivier de Hon who provided us with indispensable assistance, writing the appendix to a very tight deadline.

Frans Stoele & Rens van Kleij

Article 1 Aim of the Convention

The Parties, with a view to the reduction and eventual elimination of doping in sport, undertake, within the limits of their respective constitutional provisions, to take the steps necessary to apply the provisions of this Convention.

Since the Convention came into force in March 1990, the Netherlands has been a critical follower of the convention. The Netherlands signed the convention in December of that year.
Since 22 August 1994, the Ministry of Welfare, Health and Cultural Affairs has been known as the Ministry of Health, Welfare and Sport, thereby underlining the importance of sports in the Netherlands in social, economic and health terms. Acting for the first time as the State Secretary for Health, Welfare and Sport, Mrs. Erica Terpstra discussed the Anti-Doping Convention of the Council of Europe with the Lower House of Parliament for the first time on 8 September 1994. The Lower House subsequently approved the Anti-Doping Convention.
On 25 October 1994, the Upper House of Parliament also approved the Convention, thereby completing the constitutional requirements for the ratification of a treaty under Dutch law. The Anti-Doping Convention entered into force for the territory of the Kingdom of the Netherlands on the continent of Europe on 1 June 1995. The State Secretary for Sport has declared the doping issue one of her top priorities and had made it clear that she expects national sports organisations to adhere to the requirements of the Anti-Doping Convention.

The role of the government is based on three basic principles:
- self-regulation of sports federations;
- action against illegal trafficking and counterfeiting of doping substances;
- international cooperation and international agreements with respect to the issue of doping in sport.

The Dutch government has always considered the reduction of the use of doping to be chiefly a matter for the independent sports federations themselves.
In general, anti-doping policy should be based on three cornerstones: anti-doping regulations, doping controls and anti-doping education and information. These three elements should be the basis of any anti-doping policy implemented by sports federations in the Netherlands.
This actually means that a sports federation in the Netherlands should have:

. Up-to-date anti-doping regulations in Dutch recognised by the organisation itself. If sports federations do not apply these regulations, they are liable to a reduction of 5% in government funding.

. A minimum number of doping controls carried out each year. Sports federations are obliged to conduct tests. Sports federations should provide annual reports on the number of tests performed and the test results. If the testing requirement is not fulfilled, sports federations are liable to a reduction of 5% in government funding. The same sanction applies if their approach to positive tests is not considered to be adequate.

. Arrangements for informing their athletes (and especially those athletes who will be subject to doping controls) adequately about the implications of the use of doping. If sports federations do not apply these regulations, they are liable to a reduction of 5% in government funding.

The ministry stands behind organisations which can support the implementation of regulations, doping controls and education.

Firstly, there is the Nederlands Centrum voor Dopingvraagstukken (NeCeDo, *Netherlands Centre for Doping Affairs*). This organisation was founded in 1989 and it is responsible for the co-ordination of policies and the provision of information about doping in sport in the widest sense.

Doping Controle Nederland (DoCoNed, *Doping Control Netherlands*) provides support for doping controls. The sole responsibility of this organisation, which was founded in 1999, is to co-ordinate and implement high quality doping controls in the Netherlands, and therefore to safeguard the correctness of the procedures as well as the rights of the athletes.

Specific information about these organisations, as well as about other participants in the field of doping in the Netherlands, can be found in the sections of this report relating to

the respective articles of the convention.

Within this structure, the ministry plays an important role in terms of facilitating the anti-doping policy and creating conditions in which the sports federations themselves can develop an adequate anti-doping policy.

Another major responsibility of government relates to the issue of legislation against the illegal trade of banned substances and counterfeits. The exact situation and the role of the government here will be explained in detail in article 4.

Furthermore, the ministry is responsible for all issues relating to doping in international perspective. The ministry therefore co-ordinates official international activities, as well as political discussions, on a multilateral or bilateral basis. Examples are contacts with the Council of Europe and the European Union, as well as membership of the International Anti-Doping Arrangement (IADA) and contacts with individual countries.

Summary

By creating conditions in which the different participants in the anti-doping field can act, the Dutch government has developed a framework that complies with the Aim of this Convention. This framework focuses primarily on:
- self-regulation of sports federations;
- action against illegal trafficking and counterfeiting of doping substances;
- international cooperation and international agreements relating to the issue of doping in sport.

Article 2 Definition and scope of the Convention

1. For the purposes of this Convention:
a. "doping in sport" means the administration to sportsmen or sportswomen, or the use by them, of pharmacological classes of doping agents or doping methods;
b. "pharmacological classes of doping agents or doping methods" means, subject to paragraph 2 below, those classes of doping agents or doping methods banned by the relevant international sports organisations and appearing in lists that have been approved by the Monitoring Group under the terms of Article 11.1.b;
c. "sportsmen and sportswomen" means those persons who participate regularly in organised sports activities.

2. Until such time as a list of banned pharmacological classes of doping agents and doping methods is approved by the Monitoring Group under the terms of Article 11.1.b, the reference list in the appendix to this Convention shall apply.

The Dutch government agrees with the definitions used in the Convention. However, one of its concerns is the list of banned pharmacological classes of doping agents and doping methods as approved by the Monitoring Group under the terms of article 11.1.b. The

government is in favour of a thorough discussion of the composition of this list. Their objective is to establish a more balanced list that is mainly based on scientific research and, in principle, deals with substances that are both harmful to the athletes as well as contrary to the principle of fair play.

Article 3 Domestic co-ordination

1) The Parties shall co-ordinate the policies and actions of their government departments and other public agencies concerned with combating doping in sport.

Different departments of the Ministry of VWS as well as other government departments are working closely together on the issue of doping. In the case of the ministry, there is co-operation between the Sports Division and the Division of Public Health. Other Ministries involved in the anti-doping issue are the Ministry of Justice, which is responsible for the legal aspects of the doping trade (for more information see article 4), the Ministry of Foreign Affairs, the Ministry of the Interior, and the Ministry of Agriculture.

With regard to public agencies, there is not only the co-operation with the NeCeDo and DoCoNed referred to above, but also collaboration with the sports federations themselves and with the NOC*NSF, the main representative of the sporting community in the Netherlands.

2) They shall ensure that there is practical application of this Convention, and in particular that the requirements under Article 7 are met, by entrusting, where appropriate, the implementation of some of the provisions of this Convention to a designated governmental or non-governmental sports authority or to a sports organisation.

In the late eighties, several government reports showed that the different doping policies of various sports organisations – both national and international - have not been without problems. Examples here are the inconsistent compilation of lists of banned substances, the uncertain legal status of the sportsmen and sportswomen and the uncoordinated approach of the various organisations involved.

Given this situation, there appeared to be a clear need in the Netherlands to combine the available knowledge and expertise with regard to doping in order to establish a meaningful national approach to the problem of doping in sports.

In addition, the requirements implied by the observance of the European Anti-Doping Convention meant that an authority was needed which would inform and advise the sporting community and the government about the fulfilment of the different requirements of the Convention, without taking over the overall responsibility.

This led to the foundation of NeCeDo in 1989. In order to obtain widespread support for this new organisation, it was decided that the main players in the anti-doping field would

be represented on the board of the organisation.

At the time of the foundation, the following organisations were represented:

- the Nederlands Olympisch Comité (NOC, *Netherlands Olympic Committee*),
- the Nederlandse Sportfederatie (NSF, *Netherlands Sports Confederation*)
(At the time, these were separate organisations. They merged in 1995 under the name NOC*NSF)
- Vereniging voor Sportgeneeskunde (VSG, *Netherlands Association of Sports Medicine*),
- the Koninklijke Nederlandse Maatschappij ter Bevordering van de Geneeskunde (KNMG, *Royal Dutch Medical Association*)
- Topsport in Geding (TIG, *Elite Sports at Stake*), an organisation representing the elite athletes. (Later, this organisation became part of the NOC*NSF as the 'Atletencommissie' (*Athletes Committee.*)

Representatives from the ministry and from the Rijksinstituut voor Volksgezondheid en Milieu (RIVM, *National Institute of Public Health and Environment*) were appointed to advise the board.

The objectives of NeCeDo were (and are) to co-ordinate policies and to provide information about doping in sport in the broadest sense of the word.

NeCeDo intends to realise its aim through:
Information and advice
- NeCeDo provides general information and instruction programmes on all doping issues; this information can be provided at the initiative of the centre as well as at the request of interested parties.
- NeCeDo advises the government, as well as national organisations involved in sports and sports medicine, about national and international developments in the doping field.

Documentation
- NeCeDo constitutes a source of information for the public, in particular for schoolchildren and students, as well as for the media and all other interested parties.
- NeCeDo wants to act as an up-to-date centre for documentation on all aspects of the issue of doping.

Education
- NeCeDo provides education on anti-doping issues based upon education programmes. These education programmes are mainly aimed at two target groups: elite athletes and their environment, and visitors to gyms and fitness centres.

Research
- NeCeDo stimulates and co-ordinates (where necessary and possible) scientific research into the effects of banned substances and methods on health and performance.

Doping control procedures and regulations
- NeCeDo provides advice when sampling and doping control regulations have to be drawn up for national sports organisations. It is of major importance for these regulations to conform to the relevant rules and regulations of the relevant International Federation and of the IOC. Furthermore, all doping control procedures should be carried out in a correct and uniform manner, both before, during and after samples have been taken. Recommendations can be made at the request of national sports organisations, as well as at the initiative of the centre itself. Recent developments in doping control are carefully investigated and coordinated with DoCoNed.

Codes of professional conduct and sanctions
- In collaboration with the Royal Dutch Medical Association (KNMG) and the Netherlands Association of Sports Medicine (VSG), a uniform code of conduct was developed for physicians. The code covers treatment and advice for sportsmen and sportswomen in terms of medication containing banned substances. In addition, NeCeDo provides advice during the drafting of model regulations for coaches.

With the entry into force of the Anti-Doping Convention of the Council of Europe on 1 June 1995 and in accordance with article 3 of the Convention, NeCeDo has become the delegated institution in the Netherlands for the implementation of the provisions of the Convention in the Netherlands. This has, of course, enhanced the status and legal position of NeCeDo within the sporting community in the Netherlands and, at the same time, provided NeCeDo with a stronger framework for the further development of anti-doping policies within the Netherlands.

As can be concluded from the above, sample taking was not included in the aims of NeCeDo. Sports federations themselves were responsible for doping controls. Both national and international pressure meant that there was growing interest from sports federations in testing their athletes. As a result, sports federations came to NeCeDo to ask for assistance in this matter. Over the years, NeCeDo developed a system of providing doping control materials, educating doping control officials and providing doping control officials to do the testing for these sports federations. However, the tests were still done at the request, and under the responsibility, of the sports federations. Some sports federations had developed systems for themselves. By contrast, not all sports federations felt that there was a need for doping controls.
After some discussion, a degree of consensus was established that it might be useful to centralise testing. The "Taakgroep Doping" *(Doping Taskforce*), which included representatives from NeCeDo, NOC*NSF and the Koninklijke Nederlandse Wielren Unie (KNWU, *Royal Netherlands Cycling Union*), was formed in June 1998.
In its final report "*Een voor allen, allen voor een*" (One for all, all for one), which was written by NeCeDo under the supervision of the Taakgroep, it was concluded that levels of testing in the Netherlands were inadequate and that a separate legal entity was needed to conduct more tests. It was recommended that the quality control system developed by NeCeDo should be the standard working procedure. The thinking was that this would ensure consistent test quality and therefore safeguard the rights of both sports federations and athletes.

June 1999 saw the foundation of this new organisation, DoCoNed (*Doping Control Netherlands)*. The three members of the board of DoCoNed are nominated by the Ministry of VWS, NeCeDo and the NOC*NSF.

The main aims of DoCoNed are:

- To increase the number of tests performed in the Netherlands from 1000 in 1999 to 1750 in 2000 and approximately 2500 tests in the year 2001. This would bring up the number of tests to an internationally acceptable level.

- To improve the quality of testing to meet the strictest international standard, the International Standard for Doping Control (ISDC).

NOC*NSF is also a player in the anti-doping field, being the main representative of sports federations in the Netherlands. It organises the "Werkgroep Doping" (*Doping Working Party*), which discusses doping issues with experts from different fields of expertise. Under the umbrella of NOC*NSF, the "Audit Commissie Doping" (*Audit Commission Doping*) was established in July 2000.

Its main task is to monitor how sports federations deal with sanctioning athletes who are suspected of breaking the sports federations anti-doping regulations. As a basis, the relevant rules and regulations of the sports federations themselves are taken into consideration as well as the procedures laid down in these rules.

The Commission reports on its findings twice a year to the Algemene Vergadering *(General Meeting)* of NOC*NSF as well as to the Ministry of Sport and to (the board of) NeCeDo.

Summary
There is close cooperation between the different departments that deal with the different aspects of doping. Furthermore, by establishing and subsidising organisations such as NeCeDo and DoCoNed, the Dutch government has applied this Convention in practice. By appointing NeCeDo to implement some of the provisions of this Convention, the Netherlands has complied with this article.

Article 4 Measures to restrict the availability and use of banned doping agents and methods

1) The Parties shall adopt, where appropriate, legislation, regulations or administrative measures to restrict the availability (including provisions to control movement, possession, importation, distribution and sale) as well as the use in sport of banned doping agents and doping methods and in particular anabolic steroids.

Since existing legislation proved to be appropriate, there was no need for a specific law against the misuse of drugs in sport. Existing legislation, such as the "Wetboek van

Strafrecht" (*Netherlands Penal Code*), the "Opiumwet" (*1928 Opium Act*), the "Wet op de Geneesmiddelenvoorziening" (*1958 Medicines Act*), as well as disciplinary law covers the field. Currently, a change to the law is being developed which deals specifically with the economic aspects and the counterfeiting of banned doping agents and doping methods. An overview of the legislation can be found below.

The 1928 Opium Act
In terms of the misuse of drugs in sport, the 1928 Opium Act is relevant insofar as amphetamines and cocaine (stimulants) and/or narcotics (for example, heroin (diamorphine) and morphine) are involved. Since these substances are generally regarded in the Netherlands as substances with an unacceptably high risk, they have been brought under the jurisdiction of the Opium Act.

The Opium Act prohibits both import into, and export out of, the territory of the Kingdom of the Netherlands, as well as the preparation, the manufacturing, the processing, the selling, the delivery, the distribution or transportation and the possession of substances covered by this act.
Those who violate this article by importing into and/or exporting out of territory of the Kingdom of the Netherlands, or by manufacturing, distributing and/or possessing amphetamines and/or narcotic analgesics, commit an offence against the Opium Act and are subject to criminal proceedings involving possible fines and/or imprisonment. The unauthorised import or manufacture of amphetamines and/or narcotic analgesics can, for example, result in a maximum of six months of imprisonment and/or a fourth category fine.

These penalties can be increased substantially if article 2 has been violated intentionally. The term of imprisonment could be raised to four years or a maximum of twelve years and the fine to a fifth category fine.

Persons trying to obtain substances covered by the Opium Act by providing a pharmacist with a false or falsified prescription will be punished in the same way. The enforcement of the Opium Act is the responsibility of the police, customs and the Ministries of Justice and the Interior.

The 1958 Medicines Act
The purpose of the 1958 Medicines Act is to ensure the quality of medicinal products with regard to their safety and effectiveness. To ensure that the marketing of medicinal products is properly regulated, a product licence is needed to market or import a medicine. Only licensed pharmacists are allowed to manufacture and deliver licensed medicinal products.

This act also prohibits both the import and marketing of unlicensed medicinal products or licensed medicinal products for which the licenses have been revoked, as well as the possession of unlicensed medicinal products.

In terms of the abuse of drugs in sport, the 1958 Medicines Act is relevant since it applies to anabolic androgenic steroids, as well as erythropoietin and growth hormone. Those people who are not licensed pharmacists commit offences against the Medicines Act. Offences are

subject to criminal proceedings with fines up to a maximum of NLG 10,000 and/or imprisonment up to a maximum of six months. Enforcement of the act is the responsibility of the Ministries of Health, Welfare and Sport and of Justice.
Various convictions have been obtained in cases concerning the illegal marketing and selling of anabolic steroids and other licensed medicinal products.

The Penal Code
Some articles of the Netherlands Penal Code can apply to certain instances of selling and/or distributing banned classes of substances on the IOC list of pharmacological classes of doping agents and doping methods.

If the sale of doping substances to an athlete leads to the athlete's death, the article that could apply is that of "wrongful death". If the athlete gets ill or needs treatment, section 308 of the Penal Code could apply. This section deals with "wrongful injury".

If someone sells doping substances to an athlete, knowing the harmful effect which those substances may have on life or health without informing the athlete, he could also be charged with violating section 174 of the Penal Code that applies to cases of "selling goods, knowing their harmful nature for life or health, but choosing not to inform the buyer of this".

Persons who are not actively involved but know that goods which are harmful to life or health are being sold, delivered or distributed to a buyer or recipient and that the recipient is ignorant of the harmful nature of these goods, but who chooses not to warn that buyer or recipient could be committing an offence against section 175 of the Penal Code for not having warned that buyer or recipient about the harmful nature of these goods. This section would be applicable to gym-owners who know that anabolic steroids are being sold in their gyms but choose not to do anything about it.
Offences against sections 175 of the Penal Code could be punished by imprisonment up to six months or a fine of the fourth category. If someone dies because the offender chooses not to warn the buyer or recipient of the harmful nature of goods, penalties could be increased to one year of imprisonment or a fine of the fourth category.

Lastly, a lot of doping substances are sold on the black market. On most occasions, buyers receive substances that are not the doping substances they asked for. However, someone who sells foodstuffs, beverages or medicinal products in the knowledge that they are counterfeit without informing his customers or recipients to that effect commits an offence against section 330(1) of the Penal Code. Offences against article 330(1) of the Penal Code are subject to two years' imprisonment or a fine of the fifth category. Section 421 of the Penal Code, which raises the penalties by one third, is also applicable in this case.

Disciplinary Law
The publication in 1993 of NeCeDo's study "*Met of Zonder? Een onderzoek naar de positie van de arts bij het gebruik van dopinggeduide middelen en de wenselijkheid van gedragsregels*" (With or without? An investigation of the position of the medical doctor in relation to the use of doping substances and the desirability of a code of conduct), which

addresses the position of the (sports) physician in relation to drug use in sports and the desirability of guidelines, initiated steps within the Netherlands Association of Sports Medicine (VSG) towards the introduction of a code of conduct for physicians working in sport.

In March 1996, the VSG completed its "*Richtlijnen voor artsen omtrent het sportmedisch handelen*" (Guidelines for physicians engaged in sports medicine). These guidelines also address the issue of doping and explicitly ban the prescription of pharmacological classes of banned substances to athletes for doping purposes. Violation of these guidelines is subject to the disciplinary law of the Royal Dutch Medical Association (KNMG), the umbrella organisation of physicians in the Netherlands.

Recent and future developments
Recently, there was a change in the law relating to the illegal production and trade of medicinal products. The Dutch government has been working on legislation to increase the options available to the Ministry of Justice, the Public Prosecutions Department and the "Inspectie voor de Volksgezondheidzorg" (*Health Care Inspectorate*) for taking action against the illegal production and trade of medicinal products. Since the majority of substances on the IOC doping list are medicinal products, this new legislation will also have an effect on the illegal production and trade of doping substances.

In 1998, NeCeDo published a research study "*Handel in doping; een verkennend onderzoek naar de handel in dopinggeduide middelen in Nederland.* (The doping trade; an exploratory study of the trade in doping substances in the Netherlands). This study will be discussed in greater detail under article 6.

One of the recommendations was to find a way to make a connection between the 1958 Medicine Act and the "Wet Economische Delicten" (*1950 Economic Offences Act*), thus tackling the problem of, in particular, illegal production more effectively.

Such a connection would make it possible to use the privileges and possibilities of the investigation services mentioned in the 1950 Economic Offences Act when a violation of the 1958 Medicine Act is suspected.

It would also make it possible to mobilise the investigative capacity necessary to track down the possible production, trade and distribution of medicinal products, and therefore of doping substances.

For instance, the Economic Offences Act allows confiscation of doping products. This would render the doping trade unprofitable since it would take some time for an illicit dealer in doping to recover from the financial setback of having his goods confiscated by criminal investigators.

In addition, the Economic Offences Act provides criminal investigation agencies with far greater powers with regard to the investigation methods that can be used; a preliminary investigation can be started up earlier or, on another level, telephone lines can be tapped.

This would make it simpler for criminal investigators to make repeat confiscations of the goods of a repeat offender dealing in illicit doping. It can be reasonably assumed that dealers would find it less and less appealing to persist in dealing in doping.

2) To this end, the Parties or, where appropriate, the relevant non-governmental organisations shall make it a criterion for the grant of public subsidies to sports organisations that they effectively apply anti-doping regulations.

Acting on the basis of the requirements of the Anti-Doping Convention, the former State Secretary of Sport, Erica Terpstra, informed the national sports organisations in 1995 that adherence to the requirements of the Anti-Doping Convention with regard to anti-doping regulations, doping controls and anti-doping education and information would become a requirement for receiving public funding in the future. NeCeDo was subsequently asked by the Ministry of VWS to advise the State Secretary in this matter. NeCeDo completed its final report in April 1996. On the basis of this report, it was decided that sports federations should have adequate anti-doping rules and regulations from January 1999 onwards. Current requirements are stricter. From January 2001 onwards, this means that a sports federation in the Netherlands should have:

- Up-to-date anti-doping regulations in Dutch recognised by the organisation itself. Failure to observe these regulations may result in government funding for the offending sports federation being cut by 5%.

- A minimum number of doping controls annually. Sports federations must conduct tests based upon a "Wiskundig verdeelmodel" (*Mathematical Distribution Model*). This is a statistical model developed by NeCeDo that takes into account a wide range of parameters. The result is a minimum number of controls for each sports federation.

- Sports federations are expected to report back the amount of tests performed and the test results annually. Failure to fulfil the testing requirement may result in a cut of 5% in government funding. The same sanction may apply if the federations do not deal with positive cases adequately.

- Facilities for informing athletes (and especially those athletes who will be subject to doping controls) adequately about the different aspects of doping use. This can consist of different types of educational material such as booklets, lectures etc. This may reduce the number of "mistakes" by athletes by informing all athletes who may undergo doping controls what they are allowed to take and what they are not.

- Failure to observe these regulations may result in government funding for the offending sports federation being cut by 5%.

In order establish these conditions, the ministry supports organisations that can assist in facilitating the introduction of regulations, doping controls and education.

3) Furthermore, the Parties shall:

a. assist their sports organisations to finance doping controls and analyses, either by direct subsidies or grants, or by recognising the costs of such controls and analyses when determining the overall subsidies or grants to be awarded to those organisations;

With the foundation of DoCoNed in 1999, the Dutch government started to subsidise the costs of doping controls indirectly. The creation of a central organisation with responsibility for conducting doping controls makes it possible to cut the costs of doping controls. Furthermore, a quality guarantee can be given to sports federations as well as to athletes. In addition, the ministry subsidised, together with NOC*NSF, a certain number of doping controls per sports federation, the "quota" stated in the "Wiskundig Verdeelmodel" (*Mathematical Distribution Model*) (see article 4(2)). Under this arrangement, sports federations were able to use these doping controls (performed by DoCoNed) without having to pay for them directly.

b. take appropriate steps to withhold the grant of subsidies from public funds, for training purposes, to individual sportsmen and sportswomen who have been suspended following a doping offence in sport, during the period of their suspension;

With effect from January 2001, there is a "Fonds voor de topsporter" (*Fund for the Elite Athlete*). This fund guarantees a stipend for athletes as well as payment towards their expenses. To qualify for assistance from this fund, an athlete has to have A-category status, as defined by NOC*NSF. Athletes suspended following a doping offence lose their A-category status immediately and therefore the right to funding.

c. encourage and, where appropriate, facilitate the carrying out by their sports organisations of the doping controls required by the competent international sports organisations whether during or outside competitions; and

d. encourage and facilitate the negotiation by sports organisations of agreements permitting their members to be tested by duly authorised doping control teams in other countries.

With the foundation of DoCoNed, the Netherlands acquired a high-quality instrument for conducting doping controls. Many international sports federations use the knowledge and competence of DoCoNed to perform their required tests, both in and out of competition. Although this is the preferred situation, international sports federations are allowed to conduct tests in the Netherlands if they wish to do so. However, the Netherlands would wish to stress that a quality system, preferably the ISDC (International Standard for Doping Control) should be used to ensure the quality of the tests as well to safeguard the rights of their athletes.
Furthermore, DoCoNed is currently the contract partner for foreign anti-doping organisations for reciprocal testing. At present, there are contracts with the UK Sports Council and the Australian Sports Drug Agency (ASDA), as well as with other members of the International Anti-Doping Arrangement. (IADA). The contracts deal with the

testing of each other's athletes when training and/or performing in each other's country. This guarantees test quality.

4. Parties reserve the right to adopt anti-doping regulations and to organise doping controls on their own initiative and on their own responsibility, provided that they are compatible with the relevant principles of this Convention.

Summary
The Dutch government has taken appropriate steps – in particular the changes to legislation which are taking place at present - to restrict the availability (including provisions to control movement, possession, importation, distribution and sale) as well as the use in sport of banned doping agents and doping methods and in particular anabolic steroids.
Furthermore, an active anti-doping policy is a criterion for the granting of public subsidies to sports organisations. Sports organisations are also provided with financing for the implementation of doping controls and analyses.

Article 5 Laboratories

1. Each Party undertakes:
a. either to establish or facilitate the establishment on its territory of one or more doping control laboratories suitable for consideration for accreditation under the criteria adopted by the relevant international sports organisations and approved by the Monitoring Group under the terms of Article 11.1.b;
b. or to assist its sports organisations to gain access to such a laboratory on the territory of another Party.

The Dutch doping control laboratory in the Netherlands, NIDDR (*Netherlands Institute for Drugs and Doping Research*), received accreditation from the International Olympic Committee but lost this accreditation in the late eighties.
With the support of NeCeDo, the Ministry of VWS, NOC*NSF and the Faculty of Pharmacy of the University of Utrecht (UU), NIDDR applied for IOC accreditation again in 1993 and 1995.

Despite the action taken by the University of Utrecht and the Ministry of VWS the laboratory failed to obtain IOC accreditation. In 1999 the laboratory became part of the University Institute of Pharmaceutical Sciences (UIPS).
As will become clear below, scientific research is continuing in the field of doping control and detection of doping agents.

Given the absence of an IOC accredited laboratory in the Netherlands, samples are analysed abroad. Since 1997, most samples are sent to the IOC accredited doping control laboratory in Los Angeles, the "UCLA Olympic Analytical Laboratory". In some cases, especially in cases where a twenty-four hour turnaround time is required, samples are sent to laboratories closer to the Netherlands such as the Drug Control Centre at King's College London and the laboratory of the Institut für Biochemie at the Deutsche

Sporthochschule in Cologne.

By financing a certain number of doping controls (as explained in article 4 sub 3a), the government indirectly finances access to doping control laboratories for the sports federations in the Netherlands.

2. These laboratories shall be encouraged to:
a. take appropriate action to employ and retain, train and retrain qualified staff;

Although not IOC accredited, the laboratory still has a good reputation, especially for its research. There is good co-operation with IOC accredited laboratories, especially with the Laboratório de Anàlises Doping e Bioquímica of the Instituto do Desporto (INDESP) in Lisbon, Portugal. There has also been an exchange of students with King's College in London.

b. undertake appropriate programmes of research and development into doping agents and methods used, or thought to be used, for the purposes of doping in sport and into analytical biochemistry and pharmacology with a view to obtaining a better understanding of the effects of various substances upon the human body and their consequences for athletic performance;

c. publish and circulate promptly new data from their research.

The UIPS is maintaining its doping research programme and, in this role, it has been a successful participant at meetings of IOC accredited laboratories.
Some of the highlights of the research programme conducted since 1996 are mentioned below.

Profiles of steroids and the origin of epitestosterone
The detection of the use of testosterone is problematic since it is an endogenous steroid. Qualitative analysis is therefore useless. Quantitative analysis is also unsatisfactory, because samples obtained in doping controls are untimed and the ranges of 'normal' and 'abnormal' concentrations are difficult to distinguish. However, the ratio of the glucuronides of testosterone and another endogenous steroid, epitestosterone, (T/E ratio) provides a specific indicator.

Despite of all kinds of endocrinological factors and problems involved in the use of a ratio of this kind, it has still proven very useful. Additional information about the possible abuse of testosterone can be obtained by follow-up studies of a suspected case or by using other ratios and partial steroid profiles. The more potent anabolic dihydrotestosterone is another problem, especially as it is also an endogenous steroid. Research for dihydrotestosterone-specific indicators is in progress.

This project is currently investigating several factors which may influence the steroid profile in general and the T/E ratio in particular. The origin of epitestosterone is also being studied.

TJA Seppenwoolde-Waasdorp, D de Boer, HMJ van Engelen, AD Vrijdag and AA Maes.
Evaluation of endogenous steroid profiles in urine (2). Effects of ethanol intake reinvestigated.
Proceedings of the 13th Cologne Workshop on Dope Analysis 1995, 12th to 17th March, Recent Advances in Doping Analysis (3) pp 157-166, 1996.

Endogenous steroids
Although nandrolone is still considered to be an exogenous steroid, it is actually an endogenous one. However, until now, the low endogenous concentration meant that the presence of nandrolone metabolites in urine samples obtained during doping control was considered to be of exogenous origin.

Currently, the significance of endogenous nandrolone or/and its metabolites for human sport doping control is being evaluated in urine samples of non-pregnant and pregnant women.

Non-invasive techniques
The selection of biological specimens in human sport doping control depends on many factors. At present, urine is the most frequently analysed bodily fluid. The main advantages of using urine are its non-invasive way of collection and the relative high concentrations of the substances to be analysed. The use of blood, however, may provide an excellent correlation with the pharmacokinetics and pharmacodynamics of substances of interest and for some compounds a blood sample is even the only way to detect their abuse. It is obvious that the detection of blood doping requires blood specimens.

The drawbacks to the use of urine are the manipulation possibilities and the undignified procedure. As an invasive technique, the collection of blood also involves a number of restrictions. The size of the specimen is limited; handling requires special precautions and some religious groups may refuse to donate blood.

Recent developments in the field of drug abuse have shown that saliva, hair and also sweat may also be useful as specimens. Hair analysis may not only reveal the identity of the drug, but also the moment of administration, especially when the drug has been cleared from other biological fluids and tissues. Saliva may be of interest as it may reflect the blood concentration of a drug. For doping control however, both hair and saliva still have to be evaluated.

This project is currently looking at the use of saliva samples for the detection of testosterone, beta-blockers, amphetamines and amphetamine-like compounds, ethylphenidate and caffeine, as well as the use of hair samples for the detection of stanozolol and the use of sweat samples for the detection of testosterone.

D de Boer, KM Höld, DJ Crouch, DG Wilkins, DE Rollins and RAA Maes.
The potential use of hair in doping control in general and in the detection of stanozolol in particular.

Proceedings of the 15th Cologne Workshop on Dope Analysis 1997, 23rd to 28th February, Recent Advances in Doping Analysis (5) pp 41-47.

KM Höld, D de Boer, KL Bos, RD van Ooijen, J Zuidema and RAA Maes.
Enantioselective quantitation of (*R*)- and (*S*)-alprenolol by gas chromatography-mass spectrometry
in human saliva and plasma.
Journal of Chromatographic Science 34 13-19, 1996.

D de Boer, KM Höld, B van der Horst-Brigot, M Elhamdi, L van Schaik, J Zuidema and RAA Maes.
Potential role for saliva as a biological specimen in doping analysis.
Proceedings of the 13th Cologne Workshop on Dope Analysis 1995, 12th to 17th March, Recent Advances in
Doping Analysis (3) pp 259-270, 1996.

KM Höld, Wilkins DG, Crouch DJ, Rollins DE and RAA Maes.
Detection of stanozolol in hair by negative ion chemical ionization mass spectrometry.
Journal of Analytical Toxicology 20 345-349, 1996.

J Zuidema J, KM Höld, D de Boer and RAA Maes.
Saliva as a specimen for therapeutic drug monitoring in pharmacies.
Pharmacy & World Sciences 18 193-194, 1996.

KM Höld
Evaluation of non-invasive techniques in bioanalysis and toxicology.
Thesis, Faculty of Pharmacy, University of Utrecht, 1996.

KM Höld, Crouch DJ, Wilkins DG, Rollins DE and RAA Maes.
Detection of alprazolam in hair by negative ion chemical ionization mass spectrometry.
Forensic Science International 84 201-209, 1997.

Chirality
Chirality and the implicit stereoselectivity in pharmacology and toxicology will acquire greater importance in general and in doping analysis in particular. The (S)- and (R)-forms of the stimulant amphetamine, for example, have different potent effects. A more striking difference can be observed for the 4 isomers of (1'RS,1"RS)-labetalol. The (1'R,1"R) form has a strong b-blocking effect, the (1'S,-1"S) form a weak and the (1'S,1'-'R) form a pronounced a-blocking activity. The (1'R,1"S) form of labetalol is virtually inactive. It is possible that, in relevant cases, an ergogenic effect should be coupled quantitatively to a specific enantiomer.
Separation of enantiomers in doping analysis can be essential for a correct interpretation. The separation of enantiomers can be achieved through a chiral derivatisation step to form a pair of diastereomers. Examples of derivatisation reagents are N-trifluoroacetyl-(S)-prolyl or N-heptaflurobutyryl-(S)-prolyl chloride and (S)-a-methoxy-a-(trifluoromethyl)-phenylacetyl chloride. The chiral purity of the reagent is one of the

most critical points.

Non-derivatising methods require chromatographic techniques using a chiral selector, which may be part of the stationary phase or present as a mobile phase additive, as in the case of HPLC. Nowadays, several chiral HPLC columns are commercially available as well as, to a lesser extent, some GC columns.

This project is currently studying the chirality of beta-blockers, amphetamines and amphetamine-like compounds and methylphenidate.

D de Boer, LP Tan, P Gorter, RMA van de Wal, JJ Kettenes-van den Bosch, EA de Bruijn and RAA Maes.
GC/MS Assay for Profiling the Enantiomers of 3,4 Methyl-enedioxymethamphetamine and Its Chiral Metabolites Using Positive Chemical Ionization Ion Trap Mass Spectrometry.
Journal of Mass Spectrometry 32(11) 1236-1246, 1997.

KM Höld, D de Boer, KL Bos, RD van Ooijen, J Zuidema and RAA Maes.
Enantioselective quantitation of (*R*)- and (*S*)-alprenolol by gas chromatography-mass spectrometry in human saliva and plasma.
Journal of Chromatographic Science 34 13-19, 1996.

Miscellaneous subjects
Some topics are not covered by the themes of the main projects, but they are still investigated in relation to doping control in sport because solutions are required for specific problems. These topics are varied in nature and they are not specified.

D de Boer.
In het dopingdilemma loopt de atleet voorop.
Pharmaceutisch Weekblad 132(36) 1352-1359, 1997.

D de Boer, TJA Seppenwoolde-Waasdorp and RAA Maes.
Analytische technieken ingezet bij doping in sport.
Pharmaceutisch Weekblad 132(36) 1373-1387, 1997.

D de Boer, TJA Seppenwoolde-Waasdorp and RAA Maes.
Analytical aspects of doping in sports.
Analytical Toxicology for clinical, forensic and pharmaceutical chemists.
Editors: H Brandenberger and RAA Maes. Berlin, New York: de Gruyter 1997, pp 43-72.

D de Boer, TJA Seppenwoolde-Waasdorp and RAA Maes.
Stimulants.
Analytical Toxicology for clinical, forensic and pharmaceutical chemists.
Editors: H Brandenberger and RAA Maes. Berlin, New York: de Gruyter 1997, pp 663-684.

D de Boer, MLD de Graaf, P Gorter and RAA Maes.
The implementation of the detection of the abuse of 3,4-methylenedioxymethamphetamine and analogues in doping control screening procedures. *Proceedings of the 15th Cologne Workshop on Dope Analysis 1997, 23rd to 28th February, Recent Advances in Doping Analysis (5)* pp 249-258, 1998.

D de Boer, M van Beek, CHJ Bekkers and RAA Maes.
The detection of the administration of salmeterol in urine after inhalation.
Proceedings of the 14th Cologne Workshop on Dope Analysis 1996, 17th to 22nd March, Recent Advances in Doping Analysis (4) pp 357-369, 1997.

D. de Boer, L.J.A.L. dos Reys, N. Pylon, M.J. Gijzels,].J. Bosman and R.A.A- Maes
Preliminary results on the urinary excretion of 2C-B (4-bromo-2,5-dimethoxyphenethylamine) and its metabolites in humans
Proceedings of the British Pharmacological Society Meeting, April 8-9, 1999
British Journal of Pharmacology 127 41 P, 1 999

D.H. van de Kerkhof, D. de Boer and R.A.A. Maes
The position of the hydroxy group in the main bromantane metabolite
Proceedings of the 16th Cologne Workshop on Dope Analysis 1998, 15th to 20th March, Recent Advances in Doping Analysis (6) pp. 361-374, 1999

D. de Boer, T. Egberts and R.A.A. Macr,
Para-methylthioamphetamine, a new amphetamine designer drug of abuse
Pharmacy, World & Science 21(1) 47-48, 1 999

D. de Boer, M.J. Gijzels, I.J. Bosman and R.A.A. Maes
More data about the new psychoactive drug 2C-B
Journal of Analytical Toxicology 23(3) 227-228, 1999

D.H. van de Kerkhof, D- de Boer, J-H-H. Thijssen and R.A.A. Maes
Evaluation of influential factors on the testosteron/epitestosterone ratio as determined in doping analysis *Journal Analytical Toxicology* 24 (in press)

I.J. Bosman, D. de Boer and R.A.A. Maes
Screening for the presence of paramethylthioamphetamine in urine by some commercial immunoassays and confirmation by GC/MS - (in press)

Summary

Although there is currently no IOC accredited doping control laboratory in the Netherlands, various steps have been taken to provide sports federations with access to a laboratory of this kind elsewhere. Furthermore, there are still appropriate programmes of research into analytical biochemistry and pharmacology, which

receive considerable international recognition.

Article 6 Education

1. The Parties undertake to devise and implement, where appropriate in co-operation with the sports organisations concerned and the mass media, educational programmes and information campaigns emphasising the dangers to health inherent in doping and its harm to the ethical values of sport. Such programmes and campaigns shall be directed at both young people in schools and sports clubs and their parents, and at adult sportsmen and sportswomen, sports officials, coaches and trainers. For those involved in medicine, such educational programmes will emphasise respect for medical ethics.

In 1992 it was decided to adopt a systematic approach to education about the use of banned substances and methods in sports. At the request of NeCeDo, the NISG (*Netherlands Institute for Sports and Health*) appraised the extent to which education could make a contribution to the prevention and/or reduction of the use of performance-enhancing drugs and, if relevant, what the best structure would be for education with the aim of preventing and/or reducing the use of performance-enhancing drugs. The problem was analysed by means of literature research, an inventory of educational methods used in other countries and discussions with key individuals. On the basis of this analysis, it was concluded that elite athletes and athletes in fitness centres and gyms were risk groups in terms of the use of performance-enhancing drugs.
In April 1993 the proposed plan of action was published, the first step towards the development of a structured educational campaign for the systematic reduction of the use of doping in sports. In September 1993, the report "*Doping & voorlichting, een gezondheidsvoorlichtingsplan over doping en medicijngebruik in de sport"* (Doping & education; a health education approach to doping and medicine use in sport) was published.

The report identified two important target groups i.e.:
- Elite athletes (and their entourage);
- Athletes in gyms and fitness centres (and their entourage).

This report is still considered to be the basis of all anti-doping education activities in the Netherlands.

In accordance with the different objectives for each of these target groups formulated in the report, various activities have been initiated since. An overview of the different activities will be discussed here.

Elite athletes (and their entourage)

The first step after the publication of the report "*Doping & Voorlichting*" was the organisation of a symposium on doping and education in December 1993. The aim of this symposium was to get all participating parties (government, NOC*NSF, sports

federations, trainers, coaches and athletes) interested in the issue and to provide them with materials for generating interest in their specific environment.

In 1995, NeCeDo developed a project plan "*Doping & Topsport*" (doping and elite sports) for the presentation of the educational activities for the next years. This project plan provided for close co-operation with NOC*NSF and the Ministry of VWS, who are the main financiers for the educational activities. The main objective with regard to elite sports was to raise levels of knowledge about doping among elite athletes and their entourages, i.e. trainers and coaches, physicians and other medical personnel, national sports organisations, sports officials and the media.
In the years that followed, a range of methods of distributing information was developed.

Here, specific mention should be made of the NeCeDo "waaierboekje" (*Fan Booklet*). This is an example of a 'good fit' between intervention, goal and target group. The NeCeDo "*Fan Booklet*" is a very compact and clear way of presenting the key information about doping. Every elite athlete should have this information on hand at all times. This is made possible since the "*Fan Booklet*" has a plastic coating so that it can be kept in a sports bag. At present, nine different editions have been published.

Other important materials were developed, for instance a newsletter containing information on current doping issues and the various NeCeDo activities and publications. The "*Receptor*" newsletter is published three times a year and it targets managers and decision makers in all sports federations, sport physicians, trainers, coaches and doping control officials.

In order to evaluate the effectiveness of the educational efforts in those years, a questionnaire was sent to Dutch athletes in 1995 and 1997 in order to determine their attitude and knowledge with regard to doping as well as their awareness of the different information materials.
A comparison of these two questionnaires showed an increase in levels of knowledge about doping-related issues as well as an improvement in attitude. The number of athletes aware of the need to check their medication before using it increased by approximately 17% and awareness of NeCeDo was found in 17% of the athletes questioned. Furthermore, athletes who were familiar with the Fan Booklet were more knowledgeable about doping issues.
The results of this evaluation were used as a basis for the further development of education and information activities.

One of these developments was "*Doping & Sport; voorlichting over doping ten behoeve van de georganiseerde sport in Nederland 2000-2003*" (Doping and Sports; information about doping for organised sports in the Netherlands 2000-2003).
This plan was developed with the aim of establishing a more precise structure for anti-doping education. It will be used as a basis for anti-doping educational activities until 2004. A new questionnaire is planned for 2003 for the purposes of evaluating the educational activities.
There are two main target groups, a primary target group and an intermediary target

group:

- the primary target group consists of the elite athletes. This group includes the A-category athletes, B-category athletes and talented young athletes as defined by NOC*NSF.

- the intermediary target group consists of the entourage of the athletes, trainers, coaches, sports physicians, physicians, general practitioners and physiotherapists. Sports officials in general and people in sports federations with responsibility for elite sports are considered to be part of this target group. The success of the educational activities for the primary target group depends to a large extent on the co-operation and enthusiasm of this intermediary target group.

The main principles addressed are:
- the ethics of sport (the use of doping is against the principle of fair play);
- the risks of the use of doping (not only health risks but also the risk of a ban);
- the negative influence on non-elite sport and on youth (an athlete who uses doping is a bad role model);
- the negative effect on the popularity of sport in general, as well on the image of sport.

The main targets are:
With regard to knowledge:
- to increase the understanding of doping (banned and permitted substances) among elite athletes;
- to inform elite athletes about the doping control procedure and their rights and duties in this respect;
- to inform elite athletes where they can obtain the information in question.

With regard to attitude:
- to establish an attitude of disapproval towards doping among athletes.

With regard to behaviour:
- elite athletes do not use doping and they are aware of their role as models for young people and non-elite athletes.

The following educational materials and activities will be developed or developed further and used in this educational programme:

(Mainly targeting elite athletes)
- new editions of the fan booklets (mailed directly to the elite athletes);
- development of an information package with information about the doping control procedure, the different categories of substances and methods, a list of permitted substances, information about NeCeDo, information about other ways to enhance performance, information about supplements;
- a poster showing the doping control procedure;
- articles on doping issues that can be used in the official magazines of sports federations.

(mainly targeting intermediaries)
- the NeCeDo newsletter "Receptor";
- information meetings (targeting specific situations within sports federations);
- the *"Partner in Clean Sport Service package"*.

The *Partner in Clean Sport Service package* was specially designed to support sports federations in the development, implementation and realisation of the cornerstones of anti-doping policy.

Other activities will also be developed. Examples here are the continued development of a website, the organisation of symposia and special activities for sports federations.

In this context, there will be a particular emphasis on education for people involved in anti-doping activities in sports federations themselves. This group will be approached actively with information designed specifically for them, involving them more and more as an intermediate group. Examples here are distributing "Receptor", organising symposia targeting these people (a symposium on how to deal with a positive case for instance) and keeping this group informed about the doping issue.

Athletes in gyms and fitness centres (and their entourage).

One of the conclusions of the "*Doping en Voorlichting*" report was that more information was needed to find out whether education could influence the attitude and behaviour of visitors to fitness centres and gyms. It was suggested that there should be further analysis of the use of performance-enhancing drugs, followed by a pilot public information project in order to gain experience with this group.

It was concluded that athletes in gyms and fitness centres should be a special target group, distinct from the elite athletes, since they require a specific approach and different information from the other target groups.

The name used for the programme of educational activities targeting this group is "Lijf, Sport & Middelen". This can best be translated as "*Body, sport and agents*". Here, the term 'agents' is not restricted to performance-enhancing drugs; it also covers, for example, nutrition and food supplements as well as 'good diet' and 'effective training'. These are the resources required to shape the body that athletes strive after. A concise survey will be provided here of the educational activities for the prevention and reduction of the use of performance-enhancing drugs by athletes in fitness centres and gyms in the Netherlands.

In 1994, the *Netherlands Institute of Preventive Health Care* (NIPG-TNO) and the NISG, in close co-operation with the Regional Health Services (GGD) of the towns of Rotterdam and Amersfoort conducted an exploratory study of the use of performance-enhancing drugs among young people in the Netherlands. One of the aims of this study started was to obtain up-to-date information about the use of doping in gyms and fitness centres. There were many rumours, but a study of this kind had not been conducted

previously in the Dutch setting.

The aim of the study was to answer the following questions:
- To what degree do young visitors (aged 16 to 25) to fitness centres and gyms use performance-enhancing drugs?
- What are the characteristics of the users of these drugs? What are their motives for using these drugs? Which cultural or subcultural factors are relevant?
- Which performance-enhancing drugs are used? How do young visitors obtain these drugs? What is the background behind the use of these drugs and what is the role of the gyms?
- What recommendations can be made for effective prevention of the use of performance-enhancing drugs?

The following method was used: fourteen gyms of different sizes and involving different sports were visited by interviewers. As regular visitors entered the gym, they were asked about their age, sport(s) practised and attendance frequency and asked to complete a questionnaire. Approximately 66% of all the regular visitors who were contacted completed a questionnaire. All the gym managers in the city of Rotterdam and the Amersfoort area (101) received a questionnaire as well. About 50% of all gym managers completed and returned the questionnaire.

The results of this study were useful: one third of all gym managers were not aware of visitors using performance-enhancing drugs. About 50% of the others knew or suspected that some visitors used anabolic steroids. About 6% of the visitors claimed that they had used performance-enhancing drugs in the past. The levels of use of these drugs were highest among bodybuilders: 16% of all bodybuilders have a history of use of performance-enhancing substances.

The main predictors of actual use were: 'Interest in performance-enhancing drugs', 'Knowing other users', 'Non-conforming peer groups' and 'practising bodybuilding'. The most popular drugs are anabolic steroids followed by amphetamines, growth hormone and clenbuterol. The motives given for using these drugs are rather straightforward: the desire for a stronger, larger body with more muscle.

On the basis of the results of the study, the following recommendations were made:
- When designing preventive programmes one should take into consideration the specific characteristics of the target group. Their behaviour has strong social and cultural or subcultural roots. The credibility of prevention workers - real acceptance on their part of the specific sporting performance goals - should be important elements in prevention.
- Information about effective training and good nutrition and the support of experts should be important elements of prevention, probably even more important than information about health risks.
- Considering the health risks, low-threshold access to medical advice should be provided when users have drugs-related and/or health-related problems.

The 'Lijf, Sport & Middelen' pilot project in the Eemland region (1993-1995)

The “Lijf, Sport & Middelen” pilot information project carried out by NeCeDo, NOC*NSF and the Regional Health Services in the Eemland region (GGD Eemland) represented the first attempt to approach athletes in fitness centres and gyms by means of an information campaign. This project was designed to counteract the recognized lack of knowledge among athletes about training, nutrition and performance-enhancing drugs. With the help of authorities in power sports and bodybuilding, group and individual information activities and the written information were used to educate athletes in fitness centres and gyms, as well as managers, trainers and coaches.

The evaluation of this pilot project showed that target group understanding of performance-enhancing drugs had increased. After an information meeting, 50% of the non-using athletes explicitly stated that they felt their own opposition to the use of performance-enhancing drugs had been confirmed. Of the athletes with a use history who attended an information meeting; 50% stated that they wished to look into the alternatives first before starting to use again; 20% stated a wish to reduce their use and 10% stated a wish to stop use.

“Lijf, Sport & Middelen” nationwide (1995-1998)

The results of the pilot project in the Eemland region led the NeCeDo and NOC*NSF to initiate a national follow-up project in the period 1995 - 1998.

The aim of the national follow-up was a substantial reduction of the use of performance-enhancing drugs by power athletes and the ‘cosmetic athletes’ (athletes whose aim is a cosmetic (lean, muscular) body as in body-styling, bodybuilding). The educational activities and written information concentrated on good diet and effective training as alternatives for the use of performance-enhancing drugs.

The national project consisted of:
1. the establishment of regional public information projects;
2. educational activities for GPs, together with the development and implementation of a guideline for physicians and sports physicians for discouraging the use of anabolic steroids, and
3. national educational activities and publicity.

1. Regional projects
On the basis of the experiences and results with the pilot project, an educational model was developed to set up regional public information projects about the use of performance-enhancing drugs by power athletes and cosmetic athletes. This educational model comprised group and individual information activities, the provision of written information and a regional press conference. In 1996, the model was implemented in the Tilburg region in close co-operation with the Midden Brabant Regional Health Service. In spite of considerable interest from Regional Health Services, it was not until 1998 that the educational model was implemented again, this time in co-operation with the Regional Health Services Zaanstreek and Waterland. The last regional project was a

public information project in the region of Friesland, in collaboration with a Regional Sports Service.

During implementation, the educational model failed to live up to the expectations of NeCeDo and NOC*NSF to establish nine regional public information projects in the period 1995 - 1998. A lack of familiarity with the use of performance-enhancing drugs by power athletes and cosmetic athletes and its consequences for public health seems to be an important cause, as well as the rather rigid structure of this project.

2. Education of GPs, together with the development and implementation of a guideline for physicians and sports physicians for discouraging the use of anabolic steroids

It emerged that there was a lot of demand among GPs for information. They did not feel that they were well-informed about doping. On the other hand, this group proved to be one of the main sources of information for visitors to gyms and sports centres. An educational campaign was therefore developed for the GPs, the main aim of which was to discourage the use of anabolic steroids.

3. National education activities and publicity
Three brochures were developed to provide the athletes with written information:
- "*Basic Nutrition*" (about good diet);
- "*Workout*" (about effective training) and
- "*Drug-info*" (objective and more detailed information on the different kinds of performance-enhancing drugs). Currently, a fourth brochure is being developed - *"Slim Fit"* - which provides information on weight reduction.

The Dutch muscle magazine "*Sport & Fitness*" provided NeCeDo with a column from January 1997 onwards so that it could supply continuous information about these matters. This magazine appears every two months and has a Dutch readership of 15,000. The evaluation conducted by the TNO Institute for Prevention and Health showed that the column "*Lijf, Sport & Middelen*" was much appreciated by the readers and led to a decrease in the amount of people interested in using performance-enhancing drugs.

In response to the increasing number of telephone calls about performance-enhancing drugs, not only to NeCeDo but also to the Drugs Information Hotline (DiL) in the Netherlands, NeCeDo has established an information hotline on performance-enhancing drugs.

In addition, NeCeDo will be setting up an Internet site to cater to the growing demand for instant information.

"Het Gezonde Fitnesscentrum" (T*he Healthy Fitness Centre)* (2000-)

An evaluation by experts in public health education of the Lijf, Sport & Middelen regional projects and the rest of the "Lijf, Sport & Middelen" project has led to a new formula "Het Gezonde Fitnesscentrum" (*The Healthy Fitness Centre; a multi-component*

programme for the prevention and reduction of the use of performance-enhancing drugs at the level of individual fitness centres).

The Healthy Fitness Centre will partially replace the regional projects of the "Lijf, Sport & Middelen" project.
The aim of the Healthy Fitness Centre is, by developing a multi-component prevention programme, to prevent and reduce the use of performance-enhancing drugs among visitors to fitness centres and sport centres. The programme will be designed to cater as well as possible to the expected variations in situational characteristics, the policies of managers and identified categories of visitors in accordance with the transtheoretical "stages of change" model.

2. The Parties undertake to encourage and promote research, in co-operation with the regional, national and international sports organisations concerned, into ways and means of devising scientifically based physiological and psychological training programmes that respect the integrity of the human person.

Apart from those mentioned above, there have been other studies of different fields related to doping. These research projects were mostly based on requests of the ministry to look at issues requiring research.

Mind Sports and doping (2000)
In 1999, the ministry asked NeCeDo to investigate whether pharmacological substances can be used to enhance performance in mind sports.

The reason for this was that mind sports (chess, draughts, bridge, and Go) have provisionally been exempted from having their own anti-doping regulations because there are doubts about the relevance of this policy to these sports.

The main purpose of this investigation was to determine whether there are pharmacological substances that may enhance performance in mind sports. In addition, it also looked at the question of whether the use of such substances is detrimental to the user's health. In the context of this study, a substance that both enhances performance and is detrimental to health is considered a doping agent. The issue of whether a certain substance might harm the image of a sport was not addressed.
Since there is little literature available on the direct pharmacological manipulation of performance in mind sports, it was decided to consult experts. These experts were past and present leading mind sport competitors, representatives of the Dutch sports federations of various mind sports, neuroscientists, pharmacologists and other experts in the field. These experts were first consulted individually and then they took part in an expert meeting to bring the available expertise together.

Mind sports require completely different skills than physical sports. The main difference lies in the dominant role played by mental processes in determining performance in mind sports. This primary role of cognitive factors is the same for the sports of chess, draughts, bridge, and Go. This justifies a special position for these mind sports within the existing

anti-doping regulations.

The experts from the world of mind sports had the impression that pharmacological substances were used only sporadically to enhance performance. The general belief is that these substances are more harmful than beneficial to performance in mind sports. However, on the basis of the proven effects of such substances, it can be assumed that they could be used to improve performance in mind sports.

As far as is known, it is not possible to enhance mind sport performance directly with pharmacological substances. However, it is probably possible to do so indirectly. Pharmacological substances can be used to improve several cognitive functions, such as alertness, attention, vigilance, memory, information processing, speed of thought, and the ability to perform a certain cognitive task for a long time. These cognitive functions support cognitive processes, which in turn determine the way complex tasks, such as playing mind sports, are performed. Statements about this final step can only be based on assumptions because of a lack of sufficient knowledge regarding the relationship between cognitive processes and performance in mind sports.

Since the cognitive effects of pharmacological substances are generally minor, the effects on mind sport performance are expected to be minor as well.

In consultation with the experts and on the basis of the scientific literature, a list was drawn up of substances that might be expected to enhance performance in mind sports. This broad approach was chosen in order not to exclude any potentially relevant substance. The differences in the factors that determine performance in mind sports and physical sports meant that this list was different from the existing list of prohibited substances and methods prepared by the International Olympic Committee (IOC).

The potential performance-enhancing substances in mind sports were broken down into three categories. The first category comprises substances and substance groups that can be expected to enhance performance in mind sports and which have harmful effects on health. These substances are nicotine and other cholinergics, amphetamines, ephedrine, cocaine, beta-blockers, and substances that increase the availability of oxygen in the brain. On the basis of the definition of doping used in this study, these substances should be regarded as doping agents.
The substances caffeine, MDMA analogues (such as ecstasy, or XTC), cannabinoids, opiates, alcohol, and benzodiazepines do not meet the definition of doping used in this study.

At present, on the basis of scientific knowledge, it is not clear whether certain substances, for example 5-HT_{1A} agonists, the neuropeptides, and growth hormone, oestrogens and testosterone, can improve performance in mind sports. It is therefore not possible at this time to determine whether these substances should be regarded as doping agents in the context of mind sports.

The main conclusions of this report were:

- The factors that determine performance in mind sports are substantially different from those in physical sports, and this justifies separate anti-doping regulations.
- In the world of mind sports itself, the impression exists that pharmacological substances are used only sporadically to enhance performance.
- It can be expected that performance in mind sports can be enhanced by means of pharmacological substances. However, the expected effect of such substances is minor.
- Some of the possible performance-enhancing substances may be harmful to health, which means that these substances should be considered to be doping agents.

It has been recommended that the mind sports federations should formally prohibit doping and that these sports federations should draw up regulations that enable sanctions to be imposed when prohibited substances are used in mind sports.

If it is decided to prohibit doping in mind sports, a specific list of prohibited substances is recommended. The current (IOC) list of prohibited substances should not be used without adaptations.

It is important for national and international anti-doping regulations for mind sports to be consistent. This investigation may contribute to the harmonisation of these regulations.

The Doping Trade (1998)

In response to media interest in the use by athletes of biologically-derived growth hormones, written questions were submitted to Minister Borst-Eijlers of Health, Welfare and Sport (VWS) concerning the increasing use of anabolic steroids. Due to the lack of information about how performance-enhancing drugs are brought into circulation, her response to questions from the Dutch Parliament was to ask NeCeDo to conduct an exploratory study into the situation.

It was decided to limit the study to the largest group of doping users: athletes who work out at fitness centres and gyms. The emphasis of the study came to be the "illicit supply" of performance-enhancing drugs on the "black market." The study looked at substances, users, sources and dealers, with most emphasis being placed on the dealers.

The study resulted in the publication of "*Handel in doping, een verkennend onderzoek naad de handel in dopinggeduide middelen in Nederland*"("The Doping Trade, an explanatory study into the trade of performance-enhancing drugs in the Netherlands").

A qualitative research strategy was chosen in order to map out the market for performance-enhancing drugs. This choice was based on the illegal nature and negative connotations of the subject matter. Information was gathered from the following sources: publications from the cosmetic sports field (especially body building magazines, but autobiographical material was also used), journalism, and previous studies of the use of performance-enhancing drugs (both in the Netherlands and other countries). The main source of information, however, consisted of the various interviews which were conducted. To gather information, interviews were conducted with users and dealers of

performance-enhancing drugs, and key figures in the world of bodybuilding and other sports . In addition, various interviews were conducted with criminal investigators, for instance at the National Criminal Intelligence Service (CRI) division, customs, the Health Care Inspectorate, the Economic Surveillance Department (ECD) and private detectives working for agencies such as the Pharmaceutical Security Institute (PSI) who assist the pharmaceutical industry. In addition to these groups, interviews were conducted with physicians, journalists, researchers and representatives of the pharmaceutical industry. The information gathered in this way was checked, organised and incorporated into this study.

Conclusions with regard to substances

The core of the performance-enhancing drugs used in fitness centres and gyms consists of the "classic" anabolic steroids that were developed in the fifties and sixties. Anabolic steroids, or, as they are officially called, androgenic anabolic steroids, are modifications of testosterone, the male sex hormone, and can be divided into dozens of types of chemicals. Different versions of virtually every kind of anabolic steroid (different dosages and manufacturers) are available in the fitness circuit and can range on a scale from "relatively mild" to "relatively aggressive". Almost all users of performance-enhancing drugs in fitness circuits take one or more of these products, often in combination with other drugs which are used to control the side effects of the anabolic steroids, to augment the desired effect of the anabolic steroids or to burn off unwanted fat. The first category of these additional drugs includes "activators" (such as clomiphene citrate or Clomid ®), diuretics, corticosteroids or anti-oestrogens (such as tamoxifen or Nolvadex ®). The second category includes drugs such as growth hormone, insulin and IGF-1. Drugs in the third category include thyroid hormones, clenbuterol and amphetamine-based weight-loss drugs (such as phentermine or fenfluramine).

Conclusions with regard to users

The users of performance-enhancing drugs can be divided into five different categories:
- *Type I users*: the conservative, careful users who limit their consumption to infrequent use of the 'classic' anabolic steroids, and who only use "light" dosages. These users "only" spend about 500 US dollars on performance-enhancing drugs a year.
- *Type 2 users*: the conservative, large-scale users, who do not go beyond the classic, tested drugs (anabolic steroids), but who take these frequently, in high dosages. People in this category also tend to use more aggressive steroids. These users spend about a few thousand US dollars a year on performance-enhancing drugs.
- *Type 3 users*: the experimental and careful users, who use the more experimental drugs in addition to anabolic steroids, such as growth hormone, insulin and IGF-1, but who use these fairly infrequently and in low dosages. These users generally spend thousands and thousands dollars on performance-enhancing drugs every year.
- *Type 4 users*: users who do not balk at using both classic and more experimental drugs frequently and in high dosages. These users spend tens of thousands of US dollars a year on performance-enhancing drugs.
- *Type X users*: users of amphetamine-based weight-loss drugs who do not use anabolic steroids. Initially, these products were used primarily by female cosmetic athletes, who wanted to lose body weight by taking drugs such as phentermine purchased on the black

market, and who do not use other drugs. According to dealers, users and key figures in the fitness world, trade in these drugs is extending to groups who have nothing to do with the fitness and gym circuit. The trade in weight-loss drugs is also emerging in non-sporting establishments such as cafes. This category of users of performance-enhancing drugs does not fit in with any of the four types mentioned above, so this group is called "Type x."

Predictors of use

Three factors can be identified which prompt athletes to use performance-enhancing drugs. Firstly, there is the dream of having the perfect body, at least as perceived by members of the fitness circuit. The desire for that perfect body is much stronger than their fear of the risks, and outweighs the financial sacrifices that must be made. Secondly, there is a correlation between being acquainted with someone using performance-enhancing drugs and beginning to use or being interested in using such drugs oneself. It seems that knowing users is a prerequisite for being able to obtain these drugs. Thirdly, previous use of performance-enhancing drugs appears to be an important factor in repeat use. This seems to be due in particular to the fear of losing muscle mass and strength.

Dealers

Most of the consumers buy the performance-enhancing drugs from dealers. It is very rare now for any of them to receive performance-enhancing drugs from physicians or sports physicians who, since 1995, are officially prohibited to provide medicines for doping purposes. However, there are still a few general practitioners (GPs) who do not take much notice of the law. In comparison with the dealers discussed below, their role is only a minor one.

Dealers in performance-enhancing drugs who operate in the Netherlands can be divided into different categories. In the Netherlands, as far as we know, there are a dozen major dealers who actively deal in performance-enhancing drugs. These big-time dealers can be divided into two smaller categories: the dealers who have built up an organization around themselves, and the dealers who mostly work alone. The big dealers sell a portion of their performance-enhancing drugs directly to consumers, but also sell a significant portion to other dealers. The organizations and solo operators can also be seen as the primary port of entry through which the substances reach other Dutch dealers. The other dealers include relatively large-scale dealers (referred to as "middlemen" below) and also "small-scale dealers." Middlemen sell performance-enhancing drugs at their gym, or work as "house dealers" in one or more gyms. Small dealers tend to be users themselves who sell the performance-enhancing drugs they have left over to friends and acquaintances. It is estimated that there are a few dozen middlemen. Total annual sales of performance-enhancing drugs in the Netherlands are estimated at a minimum of 100 million US dollars.

Sources

There are many who claim that the pharmaceutical industry - the conglomeration of pharmaceutical companies, wholesalers and pharmacies - was the main source of performance-enhancing drugs in the Dutch dealing network until the late eighties. There

are known cases of pharmacists, wholesalers and pharmaceutical manufacturers selling performance-enhancing drugs directly to dealers. In almost all of the cases, these were foreign organizations. There are also cases of deliveries to small-scale dealers - consumers who sometimes traffic in the performance-enhancing drugs on a small scale. These are almost always pharmacies located in a resort area where the sale of these supplements is not regulated. There are indications that at least one Dutch pharmacy has engaged in the sale of performance-enhancing drugs. However, this situation changed radically in 1998. The market share of illegal producers on the black market for performance-enhancing drugs has risen dramatically since the mid-eighties. At present, we can assume that the bulk of performance-enhancing drugs in the fitness circuit originates from this group of producers. Insiders in the fitness circuit believe that 60 to 70 per cent of all drugs are made by illegal producers.

These producers come in all shapes and sizes. For instance, there are plants that "cut" existing substances obtained from the pharmaceutical industry. There is also the manufacture of performance-enhancing drugs that do not contain any active ingredients, or the manufacture of performance-enhancing drugs that contain completely different active ingredients than indicated on the packaging. There are also illegal labs that actually produce the active ingredients that are stated on the packaging of the contraband drugs. The basic ingredients that are required come from three different sources: there are cut substances, obtained from the pharmaceutical industry; there are ready-made active ingredients and fillers that are obtained from the pharmaceutical industry and then pressed into tablets or capsules; and, finally, there are illegal labs where the active ingredients are produced completely independently. Most of these labs are located in countries with lax laws governing pharmaceuticals, such as Thailand, Nigeria, India and Vietnam. Criminal investigation agencies have reason to believe that there is also illegal production of performance-enhancing drugs in the Netherlands.

Judging from the supply on the black market, some of the performance-enhancing drugs are unlawfully sold under the name of an existing brand. That constitutes fraud. Fake brands are also produced. The "fake brands" and "counterfeit brands" can be found throughout the illegally produced supply chain. For instance, counterfeit versions of Organon's Deca-Durabolin® are in circulation which have either no active ingredients at all or nandrolone decanoate or a completely different active ingredient altogether.

In certain cases, these are operations that are part of the drugs world; in other cases, people who make performance-enhancing drugs also make counterfeit versions of other kinds of drugs.

The replacement of authentic substances by products from illegal circles has gone hand in hand with the rise of international organizations of dealers in performance-enhancing drugs since the eighties. Their market function is twofold: in certain cases, these kinds of organizations deal in substances produced by the pharmaceutical industry, and in others, organizations produce performance-enhancing drugs themselves. They are also active in the Netherlands and supply to large-scale dealers. This study has not revealed any cases where these international organizations supplied to middlemen, small-scale dealers or

consumers themselves. A number of Dutch organizations have become established international organizations. In other words, the processes of "globalisation" have not passed by the trade in performance-enhancing drugs.

The study revealed that there are a number of users in the Netherlands who buy their performance-enhancing drugs from the Internet. A substantial number of dealers are now active on the Internet. The majority of these are "mail-order businesses" that use the Internet as their medium. In most cases, these mail-order businesses buy their goods from the pharmaceutical industry. In other cases, they are dealers who are active in newsgroups and bulletin boards specifically geared towards fitness, bodybuilding and weightlifting.

Conclusions

On the basis of interviews, mostly with members of the cosmetic sports world, the conclusion that can be drawn is that doping has reached alarming proportions. There are three reasons:

- First of all, the use of performance-enhancing drugs has apparently spread over the years to groups who did not use them formerly.

- Secondly, athletes turn more readily to performance-enhancing drugs than they did in the past, using higher dosages and riskier drugs. The people interviewed for this study spoke of a "pill-popping mentality."

- The third reason for concern is the increase in the number of counterfeit brands on the market for performance-enhancing drugs and the concomitant drop in quality.

What we know about the trade in performance-enhancing drugs gives rise to the same conclusion. There is an extensive national and international network engaged in the trade and production of performance-enhancing drugs. There are signs of new, risky developments in these networks. We are referring to the degree to which this network is intertwined with other criminal networks and all the associated problems (threats, intimidation, drug-related murders). In addition, as mentioned above, this has a detrimental effect on the quality of the performance-enhancing drugs on the black market.

Recommendations

There are laws in the Netherlands that could be enforced to prosecute illegal producers of performance-enhancing drugs[1]. There are also criminal investigation agencies that have

[1] The Dutch government advocates a separate approach to the doping problem and the drugs problem, mainly because of the fundamental differences in the reasons for use and the user groups. Penalizing doping is considered to be a responsibility that rests with the sport and not the government. At the time of this study, most action taken against the production and trade of performance-enhancing drugs was based on the Medicines Act. Offences against the Medicines Act are not punishable by any sentence that exceeds six months of imprisonment or a fine of NLG 10,000. These are relative light sentences that yield limited opportunities for whatever potential criminal investigation methods are applied.

some resources, authority and expertise in this area. Yet interviews with detectives revealed that the Public Prosecutions Department's policy is to drop charges against those charged with dealing in and producing performance-enhancing drugs. This policy may have been justified in the mid-eighties, but that is no longer the case. It is therefore recommended that legal action should be taken where excesses are apparent. It is also recommended that a task force be created which brings together expertise and resources. This task force could move on to catch those who are counterfeiting performance-enhancing drugs, and to pinpoint and stop up "leaks" in the supply of pharmaceuticals, and to function as a national and international contact point about the trade in performance-enhancing drugs. Finally, we recommend the registration of all known performance-enhancing drugs in a database that could be consulted by all police departments.

Education for General Practitioners (1998)
Before starting educational activities for general practitioners, NeCeDo carried out an explanatory study in 1996 to determine how often they are consulted about doping and to obtain information about how this was done. In addition, the study "*General Practitioners and Doping; An exploratory study of the use of performance-enhancing substances and the role of the general practitioner*" was intended to investigate how general practitioners rate their knowledge of doping and what their attitudes are towards doping use. On the basis of the outcome it was concluded that at least 9 to 18% of the general practitioners have, in the year preceding the study, been consulted with regard to doping. Over 70% of the general practitioners felt they needed to learn more about doping, probably by means of a short and practical review. A vast majority of the respondents stated that they discouraged the use of performance-enhancing drugs in all circumstances.

On the basis of the outcome, it was recommended that a short review article should be drafted about doping. The aim was to tailor the review to the requirements of the general practitioners. An additional recommendation was the inclusion of information about doping in pharmacological guides for general practitioners (*Farmacotherapeutisch Kompas*). Furthermore, it was suggested that existing institutes already involved in organizing training programs for general practitioners should be approached with the request to include doping in their programmes. In accordance with these recommendations, a review article about doping was published in *Geneesmiddelen Bulletin*, and doping was added to the "*Medicine and Sports*" programme which is being developed for GP training institutes in the Netherlands.

***Performance enhancement* (1998)**
As a part of the NOC*NSF Body of Knowledge (BOK) project, a study was conducted of various training methods and practices intended to enhance the athlete's performance. This study resulted in 1998 in the publication (in Dutch) of *Performance-enhancing methods; an informational brochure in the context of a Body of Knowledge (BOK) project about methods for improving athletic performance*.

"*Heiligt het doel de Middelen? Een onderzoek naar de positie van de trainer/coach bij*

het gebruik van dopinggeduide middelen en de wenselijkheid van gedragsregels" (1995)
As a result of the study into the position of team physicians and the subsequent decision of the Netherlands Association of Sports Medicine (VSG) to introduce the *"Code of conduct for physicians working in sports"* (see also article 4, Disciplinary Law), the Netherlands Federation of Sports Employees (NFWS) decided with NeCeDo to initiate a study into the legal position of trainers and coaches in terms of the doping problem. The reason for this decision was the fact that national and international sport organisations, as well as certain provisions within the Anti-Doping Convention, advocate the punishment of trainers and coaches when there is a positive test result for one of the athletes trained or coached by them. A first edition of the final report "*Heiligt het doel de Middelen? Een onderzoek naar de positie van de trainer/coach bij het gebruik van dopinggeduide middelen en de wenselijkheid van gedragsregels*" ("Does the end justify the means? An investigation of the position of the trainer/coach in doping cases and the need for a code of conduct") was published in December 1995. An educational programme based on this report has now been developed.

Doping use among bodybuilders (1995)
In 1995, "O*nderzoek naar het gebruik van prestatieverhogende middelen bij bodybuilders in Nederland*" (Evaluation of the use of performance-enhancing substances among bodybuilders in the Netherlands" was published.

The aim of the study was to evaluate the use and handling of doping by bodybuilders in the Netherlands. Twelve hundred questionnaires were completed by bodybuilders attending the Dutch Championship of Bodybuilders in 1994. Twenty-four percent of the questionnaires (291 participants) were returned to the investigators with acceptable information.

The number of male and female participants was 227 (79%) and 59 (21%) respectively and the average age was 28 years. Forty-four percent of the participants had a history of use of androgenic anabolic steroids (AAS). Stratification for competitive versus recreational bodybuilders showed a history of use by 77% and 37% respectively.

Forty-seven different proprietary AAS preparations were mentioned by the participants, and male bodybuilders in particular often switched between different compounds.
The substances compounds were usually obtained from the black market (more than 70%) and most bodybuilders who had used AAS had no medical guidance (less than 30%). The average duration of regular use of AAS was 3.5 years. The doses per week for all AAS varied from 10 to 800 mg. The route of administration was oral in 18% and parenteral in 9%, while 71% used both routes. The average duration of a course of AAS was 8.6 weeks and the average number of courses per year was 2.0. Fifty-seven percent reported having used more then one AAS concomitantly ('stacking'). The combination of a methandrostenolone and nandrolone preparation was reported most often. Between courses, 12% reported using AAS as maintenance therapy. Methonolone (Primobolan®) was used most for this purpose (73%). Part of the maintenance therapy was to overcome withdrawal symptoms after an AAS course. Six percent of the male bodybuilders reported an addiction to AAS.

Almost 90% of the bodybuilders who used AAS reported side effects with these compounds. Most often reported were increased sexual drive (51%) and aggressiveness (47%), hypertension (21%) and fluid retention (37%). Women reported acne (50%) and increase in body hair (30%). Twenty-three percent of the male and 17% of the female participants had used doping other then AAS at some time. They reported using chorionic gonadotrophin, clenbuterol, Ionamin®, tamoxifen and clomiphene citrate in particular.

For a number of determinants there was a statistically significant association with the AAS use history, such as: gender, age, motivation for bodybuilding and competitive versus recreational bodybuilding. Intensity of bodybuilding, body weight and the use of dietary supplements were also strongly associated with AAS use. Among the bodybuilders who had used AAS at some time, the use of soft and hard drugs was increased compared to non-users of steroids. Users of AAS were twice as likely to have smoked as bodybuilders who had never used steroids. There was no association between the use of alcohol and steroid use. The use of doping other than AAS was reported 6.3 times as often among users of AAS. This risk behaviour was more pronounced among male bodybuilders.

In conclusion, although the representativeness of this study is not known, the use of doping appears to be widespread among bodybuilders in the Netherlands. A lack of knowledge about the source of the compounds, the lack of medical guidance and other risk behaviour among AAS users mean that these bodybuilders are at an increased risk of suffering health problems.

NeCeDo's research programme on the physiological effects of banned substances
NeCeDo's scientific research efforts are being co-ordinated by its research and science co-ordinator. This co-ordinator is also engaged in a scientific research programme with Maastricht University on the physiological effect of banned substances, more specifically androgenic anabolic steroids. The research programme has resulted in a variety of publications. A list of publications and abstracts is included in appendix 1.

Article 7 Co-operation with sports organisations on measures to be taken by them

1. The Parties undertake to encourage their sports organisations and through them the international sports organisations to formulate and apply all appropriate measures, falling within their competence, against doping in sport.

As mentioned earlier (article 4.2) sports federations are obliged to have:

- Up-to-date anti-doping regulations in Dutch which are recognised by the organisation itself. If sports federations do not apply these regulations, they are liable to a reduction of 5% in government funding.
NeCeDo can assist in keeping these regulations up to date. However, the sports organisations

remain responsible for the quality of their regulations.

- Sports federations are obliged to conduct tests. Sports federations should provide annual reports on the number of tests performed and the test results. If the testing requirement is not fulfilled, sports federations are liable to a reduction of 5% in government funding. The same sanction applies if their approach to positive tests is not considered to be adequate.

- Arrangements for informing their athletes (and especially those athletes who will be subject to doping controls) adequately about the implications of the use of doping. If sports federations do not apply these regulations, they are liable to a reduction of 5% in government funding.

All the other provisions in place, as well as the other instruments already mentioned in this report, mean that sports organisations are in a position to take all the appropriate measures against doping in sport.

2. To this end, they shall encourage their sports organisations to clarify and harmonise their respective rights, obligations and duties, in particular by harmonising their:
a. anti-doping regulations on the basis of the regulations agreed by the relevant international sports organisations;

In order to assist the various national sports organisations with the development of adequate anti-doping regulations, NeCeDo was asked by the Ministry of Health, Welfare and Sport to develop model anti-doping regulations for implementation by the various national sports organisations involved.

There was a lot of interest in this project. However, while working on a standard doping control regulation for sports federations, it turned out that simple standard doping regulations were not sufficient: sports federations needed to adopt these regulations and adapt them to the current structure and organisation as laid down in their regulations. Most sports federations were not capable of doing this alone, so NeCeDo provided support for the updating of the sports federations' regulations since the standard doping control regulations are based on a number of principles which require implementation in the regulations of the federations.

Currently, almost all sports federations have anti-doping regulations and they therefore comply with the requirements of the ministry.

The "doping regulations assistance programme" referred to above has become one of the basic provisions of NeCeDo. It is now used for new sports federations that are recognised by the NOC*NSF as elite sports federations, as well as for the other sports federations. They are informed on a regular basis about required changes to regulations and procedures based upon international legislation, international jurisprudence and changes in general anti-doping practice. Information on these issues is gathered by contacting

DoCoNed to ask about their practical experience, contacting the sports federations regularly for the same purpose and by collecting international jurisprudence and contacting legal experts in this field.

b. lists of banned pharmacological classes of doping agents and banned doping methods, on the basis of the lists agreed by the relevant international sports organisations;

The doping list of the International Olympic Committee (IOC) is currently the list which is used most internationally. Most national sports federations have to adopt the list of their respective international federation so they use this list as a basis.

The sports federations in the Netherlands need a Dutch version of the list so NeCeDo provides a translation of the IOC list on a yearly basis.

Furthermore, the IOC list is not considered practical because it only gives examples of the prohibited substances. As a result, NeCeDo and the Royal Netherlands Pharmacists Association (KNMP) have drawn up a more exhaustive list. This list includes all the substances available in the Netherlands as well as the examples given by the IOC. This list, together with the translation, is widely distributed among sports federations as well as to all sports physicians in the Netherlands. Furthermore, it is available on the NeCeDo website.

Most sports federations in the Netherlands accept this list and also include it in their regulations as their “list of banned substances”.

c. doping control procedures;

Since its foundation in 1999, DoCoNed has conducted most doping controls in the Netherlands. This means that a high standard is ensured and that all athletes are tested in the same way.

A few years ago, NeCeDo underwent an ISO certification programme and became one of the first anti-doping organisations in the world to be ISO certified.

This certification was not confined to the doping controls and it also applied to the other activities of NeCeDo. With the foundation of DoCoNed, the ISO certification was monitored again and the certification for the doping control programme was transferred to DoCoNed. NeCeDo remained certified as well.

NeCeDo also became involved in ISO certification at the same time as the member countries of the International Anti-Doping Arrangement (IADA). Currently, DoCoNed is engaged in the process of adopting the International Standard for Doping Control (ISDC).

With DoCoNed being responsible for doping controls, the sports organisations in the Netherlands meet the most stringent quality requirements as far as doping control

procedures are concerned. The fact that doping controls are conducted is such a way that quality is certified is also highly valued by the athletes.

As mentioned earlier, NeCeDo is responsible for the training of new doping control officials. This training course is officially recognised as a sports training course by the Ministry of VWS.

This means that the quality of the doping control officials is safeguarded as well. These training activities also include special training for doping control officials which allows them to qualify as senior DCOs. This means that they are qualified to audit and educate doping control officials themselves. Furthermore, special meetings are organised for senior DCOs in order to inform them about new developments in the field of doping controls and sample taking.

d. disciplinary procedures, applying agreed international principles of natural justice and ensuring respect for the fundamental rights of suspected sportsmen and sportswomen; these principles will include:
(i) the reporting and disciplinary bodies to be distinct from one another;
(ii) the right of such persons to a fair hearing and to be assisted or represented;
(iii) clear and enforceable provisions for appealing against any judgment made;

The disciplinary procedures after a positive test are the responsibility of the sports federations themselves. However, the points mentioned in this article - the reporting and disciplinary bodies to be distinct from one another; the right of sportsmen and sportwomen under suspicion to a fair hearing and to be assisted or represented and finally clear and enforceable provisions for appealing against any judgment made - are carefully laid down in the standard doping regulations that have been drawn up by NeCeDo.

These points are also important guidelines for the “Doping Audit Commission”. The sole task of this commission, which was established by NOC*NSF, is to monitor the way sports federations deal with the sanctioning of athletes who are suspected of breaking a sports federation’s anti-doping regulations. The basis for assessment are the relevant rules and regulations of the sports federations themselves, as well as the procedures laid down in those rules.

The Commission reports on their findings twice annually, both to the General Meeting of NOC*NSF as well as to the Ministry of VWS and NeCeDo.

e. procedures for the imposition of effective penalties for officials, doctors, veterinary doctors, coaches, physiotherapists and other officials or accessories associated with infringements of the anti-doping regulations by sportsmen and sportswomen;

As mentioned earlier, the responsibility for action against officials, doctors, trainers and coaches resides with the professional organisations.

In case of physicians and sports physicians, these are the Netherlands Association of Sports Medicine (VSG) and the Royal Netherlands Medical Association (KNMG). These organisations have drawn up guidelines that forbid the prescription of banned substances by physicians.

The Netherlands Federation of Sports Employees (NFWS) is currently in the process of developing such guidelines.

f. procedures for the mutual recognition of suspensions and other penalties imposed by other sports organisations in the same or other countries.

The procedures for the mutual recognition of suspensions and other penalties imposed by other sports organisations in the same or other countries are laid down in the standard regulations of the sports federations.

3. Moreover, the Parties shall encourage their sports organisations:
a. to introduce, on an effective scale, doping controls not only at, but also without advance warning at any appropriate time outside, competitions, such controls to be conducted in a way which is equitable for all sportsmen and sportswomen and which include testing and retesting of persons selected, where appropriate, on a random basis;
b. to negotiate agreements with sports organisations of other countries permitting a sportsman or sportswoman training in another country to be tested by a duly authorised doping control team of that country;
c. to clarify and harmonise regulations on eligibility to take part in sports events which will include anti-doping criteria;
d. to promote active participation by sportsmen and sportswomen themselves in the anti-doping work of international sports organisations;
e. to make full and efficient use of the facilities available for doping analysis at the laboratories provided for by Article 5, both during and outside sports competitions;

The Dutch government considers these points to be very important. As mentioned above, sports federations are obliged to have an active anti-doping programme. Most of these points have been addressed elsewhere in this report in the discussion of the relevant articles.
However, the Dutch government believes that these points should mainly be addressed at the international level, and particularly by the World Anti-Doping Agency (WADA) and the International Olympic Committee.

f. to study scientific training methods and to devise guidelines to protect sportsmen and sportswomen of all ages appropriate for each sport.

As a part of the NOC*NSF Body of Knowledge (BOK) project, a study was conducted of various training methods and practices intended to enhance the athlete's performance. This study resulted in 1998 in the publication (in Dutch) of *Performance enhancing methods; an informational brochure in the context of a Body of knowledge (BOK) project*

about methods for improving athletic performance.

Summary
In the Netherlands there is close co-operation between government and sports federations and sports organisations.
Sports federations are obliged to have an anti-doping policy, to take action against the use of doping in sports, to have an adequate doping list based on that of the IOC or their respective international federations, and to establish disciplinary procedures that respect the fundamental rights of athletes.

Article 8 International co-operation

1. The Parties shall co-operate closely on the matters covered by this Convention and shall encourage similar co-operation amongst their sports organisations.

International co-operation, especially with regard to education, has always been an important issue. The Netherlands has therefore always participated actively in a number of the Working Parties of the Council of Europe.
As a member of the Education Working Party of the Monitoring Group of the Anti-Doping Convention of the Council of Europe, the Netherlands Centre for Doping affairs (NeCeDo) contributed to the development of the "*Clean Sport Guide; an education and information guide on sport without doping*". The European Union, the Council of Europe and several of the member states funded the development of this guide to provide assistance in systematically planning and developing education on sport without doping.

Copies of the "*Clean Sport Guide. An education and information guide on sport without doping*" were presented at the seventh meeting of the Council of Europe's Monitoring Group in May 1996 in Strasbourg.

Furthermore the Netherlands participated actively in the Working Party on Legal Issues as well as in the Working Party on Science.

Furthermore, the Netherlands hosted the first meeting of the so-called International Project Team II (IPT II) group in Amsterdam in March 1999. This team was established by the IADA and includes countries which assist other countries to implement the International Standard for Doping Controls (ISDC) as part of their existing doping control system. This group consisted of Portugal, South Africa, Austria, Denmark, Finland and the Netherlands.

The Dutch government has expressed its commitment to the World Anti-Doping Agency (WADA). They consider WADA to be an important instrument for the implementation of measures against doping on an international level.

2. The Parties undertake:
a. to encourage their sports organisations to operate in a manner that promotes application of the provisions of this Convention within all the appropriate

international sports organisations to which they are affiliated, including the refusal to ratify claims for world or regional records unless accompanied by an authenticated negative doping control report;
b. to promote co-operation between the staffs of their doping control laboratories established or operating in pursuance of Article 5;

Since 1997, the Netherlands has been a member of the International Anti-Doping Arrangement (IADA).
Prior to that time, there was bilateral cooperation on various issues with the anti-doping agencies in the UK, Canada and Australia.
Furthermore, there is an agreement with South Africa in which that country is provided with assistance on different issues relating to the fight against doping. This consists of assistance with the implementation of the International Standard for Doping Control (ISDC) as well as the education and training of doping control officials.

c. to initiate bilateral and multilateral co-operation between their appropriate agencies, authorities and organisations in order to achieve, at the international level as well, the purposes set out in Article 4.1.

Since the foundation of DoCoNed, contracts have been signed with several IADA member countries which provide for reciprocal testing of each other's athletes. The basis for these tests is recognition of the high quality of testing between the respective countries.

3. The Parties with laboratories established or operating in pursuance of Article 5 undertake to assist other Parties to enable them to acquire the experience, skills and techniques necessary to establish their own laboratories.

Summary
The Dutch government considers international cooperation to be very important. It can be found in three different fields: multilateral cooperation with other countries, bilateral cooperation with other countries and international cooperation with organisations active in the field of doping.

Article 9 Provision of information

Each Party shall forward to the Secretary General of the Council of Europe, in one of the official languages of the Council of Europe, all relevant information concerning legislative and other measures taken by it for the purpose of complying with the terms of this Convention.

Every year since 1990, NeCeDo has published a national report which addresses the national anti-doping policy in the Netherlands in general as well as the specific aspects relating to NeCeDo activities.

In this national report, the Netherlands provides the contracting parties, as well as the

observers, with a better understanding of the situation in the Netherlands with regard to the different anti-doping activities which have been undertaken by the Ministry of VWS, NeCeDo, NOC*NSF and the national sports organisations.

After 1995, when the national report was replaced by the Anti-Doping Database, NeCeDo continued to write a national report, because it was felt that more information could be published than using the database. Nevertheless, completion of the Anti-doping Database has continued since.

In order to make the information generated by research projects available to a large number of countries, most NeCeDo publications are either translated into English or include an English summary.

EPILOGUE

At the end of 1999, the Ministry of VWS was asked by the Council of Europe either to allow a delegation to visit the Netherlands or to write a report on compliance with the Anti-Doping Convention.

After an evaluation of the request it was decided to write a report on compliance.

At the beginning of 2000, the Ministry of VWS asked NeCeDo, as the designated organisation for the implementation of this convention, to write such a report.

The report was written from October 2000 onwards. Several meetings with experts from the Ministery have taken place.

Given that:

- the Dutch government has developed a framework that complies with the Aim of this Convention, by creating conditions in which the different participants in the anti-doping field can act. This framework focuses primarily on self-regulation of sports federations, action against illegal trafficking and counterfeiting of doping substances and international cooperation and international agreements relating to the issue of doping in sport;

- there is close cooperation between the different departments that deal with the different aspects of doping;

- by establishing and subsidising organisations such as NeCeDo and DoCoNed, the Dutch government has applied this Convention in practice, especially by appointing NeCeDo to implement some of the provisions of this Convention;

- Dutch government has taken appropriate steps – in particular the changes to legislation which are taking place at present - to restrict the availability (including provisions to control movement, possession, importation, distribution and sale) as well as the use in sport of banned doping agents and doping methods and in particular anabolic steroids;

- an active anti-doping policy is a criterion for the granting of public subsidies to sports organisations. Sports organisations are also provided with financing for the implementation of doping controls and analyses;

- although there is currently no IOC accredited doping control laboratory in the Netherlands, various steps have been taken to provide sports federations with access to a laboratory of this kind elsewhere;

- there are still appropriate programmes of research into analytical biochemistry and pharmacology, which receive considerable international recognition;

- in the Netherlands there is close co-operation between government and sports federations and sports organisations. Sports federations are obliged to have an anti-doping policy, to take action against the use of doping in sports, to have an adequate doping list based on that of the IOC or their respective international federations, and to establish disciplinary procedures that respect the fundamental rights of athletes;

- the Dutch government considers international cooperation to be very important. It can be found in three different fields: multilateral cooperation with other countries, bilateral cooperation with other countries and international cooperation with organisations active in the field of doping

it can be concluded that the Netherlands complies with the Anti-Doping Convention of the Council of Europe.

APPENDIX I

To get a better idea of projects and publications published by NeCeDo a full list of publications with regard to the different aspects of doping in the recent years can be found in appendix I.

It is divided into six groups of publications:

General publications
Results of research projects, evaluation reports and texts with regard to congresses can be found here, as well as some of the educational material used for athletes, sports federations and visitors to gyms and fitness centres.

Publications in scientific journals
This section provides an overview of the publications in scientific journals. This group consists mainly of the results of medical scientific research as conducted by the Medical Scientific department.

Fan Booklets
An overview of the different fan booklets published by NeCeDo. Not only the general ones are mentioned here but also the special fan booklets for specific sports federations (tennis, football).

Videotapes
The only two videotapes produced by NeCeDo; a video on the doping control procedure for the Royal Netherlands Football Federation, as well as a video showing how urine samples are processed in a laboratory

News bulletins
The newsletter Receptor and the publications that preceded it. It targets managers and decision makers in all sports federations, sport physicians, trainers, coaches and doping control officials.

1) General publications

Bijen C., Nooyen Kooy C. van., Kleij R. van & R. Tevreden. *Lijf, Sport & Middelen; Evaluatieverslag. Een preventieproject met betrekking tot dopinggebruik in sportscholen en fitnesscentra in de regio Zaanstreek-Waterland.* [Lijf, Sport & Middelen[2]; evaluation report. A prevention project relating to the use of doping substances in fitness centres and gyms in the Zaanstreek/Waterland region] (2000).

Sitsen A. & F. Hartgens. *Geneesmiddelen en doping.* [Drugs and doping] In: Mosterd W.L. et al. (red.). Het Sport-Medisch Formularium. Bohn Stafleu Van Loghum, Houten (2000).

Hon O.M de & F. Hartgens. *Mind sports & doping; an investigation of pharmacological substances that may enhance performance in mind sports* (2000).

Hon O.M de & F. Hartgens. *Denksport & Doping; een verkennend onderzoek naar farmacologische stoffen die de prestatie bij denksporten kunnen verbeteren.* [Mind sports & doping; an investigation of pharmacological substances that may enhance performance in mind sports; with English summary] (2000).

Kleij R. van, D. Sterman & R. Tevreden. *Drug-info; harde feiten over doping.* [Drug info; cold facts about doping] (2000).

Koert W., H. Wassink & R. van Kleij. *Basic-Nutrition; de voedingsbasis.* [Basic Nutrition; the dietary basis] (1999).

Hartgens F. *Dopinggebruik en sport* [Doping use and sports] In: Adriaansen A. et al. (red.). Grote geneesmiddelen encyclopedie (5e editie). Health Base, Houten, pp 32-34 (1999).

Groot S. de, F. Hartgens & M.F. Zweers. *Enquête onder topsporters over doping,*

[2] "*Lijf, Sport & Middelen*" can best be translated as "*Body, sport and agents*". Here, the term 'agents' is not restricted to performance-enhancing drugs; it also covers, for example, nutrition and food supplements.

dopingcontroles en medicijngebruik in de sport; evaluatie van de kennis en houding van topsporters over doping, dopingcontroles en medicijngebruik in de sport, alsmede hun oordeel over het voorlichtingsprogramma hieromtrent. [A survey of elite athletes in relation to doping, doping tests and medicine use in sports; evaluation of the knowledge and attitude of elite athletes in relation to doping, doping tests and medicine use in sports and their assessment of the educational programme in this area; with English summary] (1999).

Kleij R. van. "*Doping & Sport; voorlichting over doping ten behoeve van de georganiseerde sport in Nederland 2000 – 2003*" [Doping and Sports; information activities about doping for organised sports in the Netherlands 2000 - 2003] [1999].

Hartgens F., G. Rietjens, S.F. van Haren, T. Vogels & E.N. Vrijman. *Huisarts en doping; een onderzoek naar de aard en omvang van consulten over doping bij huisartsen en naar de kennis en attitude van huisartsen over doping.* [General practitioners and doping; a study of the nature and extent of consultation of general practitioners regarding doping issues; with English summary] (1998).

Zweers M.F. *Prestatiebevorderende methoden; een informatiebrochure in het kader van een Body of Knowledge (BOK) project waarin aandacht wordt geschonken aan methoden ter verbetering van de sportprestatie.* [Performance-enhancing methods; an informational brochure in the context of a Body of Knowledge (BOK) project about methods for improving athletic performance] (1998).

Koert A.W.A. & Kleij, R. van. *Handel in Doping; een verkennend onderzoek naar de handel in dopinggeduide middelen in Nederland.* [The doping trade; an exploratory study of the trade in doping substances in the Netherlands] (1998).

Simons C., C. Cools, J. Prompers & Kleij, R. van. *Lijf, Sport & Middelen; Evaluatierapport. Voorlichtingsproject voor krachtsporters, bodybuilders en sportschoolhouders in de regio Midden-Brabant* [Lijf, Sport & Middelen[3]; evaluation report. An educational project targeting power athletes, bodybuilders and owners of fitness centres in the region of Midden-Brabant] (1997).

Kleij R. van. *Drug-info; harde feiten over doping.* [Drug info; cold facts about doping] (1997).

Koert W. *Basic-Nutrition; de voedingsbasis.* [Basic Nutrition; the dietary basis] (1997).

Halderen M. van & W. Koert. *Work-out; groot worden clean blijven* [Work-out; getting large, staying clean] (1997).

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[3] "*Lijf, Sport & Middelen*" can best be translated as "*Body, sport and agents*". Here, the term 'agents' is not restricted to performance-enhancing drugs; it also covers, for example, nutrition and food supplements.

Bakker H. *Doping geregeld? Actuele thema's en knelpunten in de huidige dopingregelgeving.* [Doping settled? Modern themes and bottlenecks in today's doping regulations] (1997)

Kleij R. van & E. Vrijman. *Dopage pour la forme... un problème de santé?* [Body image and doping... a health problem?] (1997).

Kleij R. van & E. Vrijman. *Body image and doping... a health problem?* (1997).

Kleij R. van *Doping voor de vorm... een gezondheidsprobleem?* [Body image and doping... a health problem?] (1996).

Kleij R. van. *Lijf, sport & Middelen; Werkplan 1995-1998. Voorlichting over dopinggeduide middelen voor beoefenaren van een kracht- en/of cosmetische sport.* [Lijf, Sport & Middelen^2 1995-1998. Information activities about doping substances for power and cosmetic athletes] (1996).

Kleij R. van & E. van. Kernebeek. *Lijf, Sport & Middelen; Voorlichtingsmodel. Model voor gezondheidsorganisaties ten behoeve van een regionaal voorlichtingsproject over dopinggeduide middelen gericht op sporters in fitnesscentra en sportscholen.* [Lijf, Sport & Middelen^2; Educational model. Model for health organisations for a regional educational project about performance-enhancing substances aimed at athletes in fitness centres and gyms] (1996).

Boer A. de, S.F. van Haren, F. Hartgens, D. de Boer & A.J. Porsius. *Onderzoek naar het gebruik van prestatieverhogende middelen bij bodybuilders in Nederland* [Evaluation of the use of doping among bodybuilders in the Netherlands; with English summary] (1996).

Kleij R. van & E. van Kernebeek. *Lijf, Sport & Middelen; Evaluatierapport. Voorlichtingsproject voor krachtsporters, bodybuilders en sportschoolhouders in Eemland van september 1993 tot en met april 1995.* [Lijf, Sport & Middelen^2; evaluation report. An educational project for power athletes, bodybuilders and owners of fitness centres in the region of Eemland from September 1993 until April 1995] (1995).

Wimersma Greidanus Tj.B. van. *Sport en doping; hoe, wat en waarom niet.* [Sports and doping; how, what and why not?] Sportgezondheidszorg in de praktijk. Bohn, Stafleu & van Loghum, Houten, pp 2302-1 - 2302-30 (1995).

Vrijman, E.N. *Harmonisation: Can it ever be really achieved?* (1995)

Bockom Maas, B.J. van, E.N. Vrijman & C.T. Jansen. *Heiligt het doel de middelen? Een onderzoek naar de positie van de trainer/coach bij het gebruik van dopinggeduide middelen en de wenselijkheid van gedragsregels.* [Does the end justify the means? An investigation of the position of the trainer/coach in doping cases and the need for a code of conduct] (1995).

Vogels T., E. Brugman, B. Coumans, M.J. Danz, R.A. Hirasing & E. van Kernebeek. *Lijf, Sport & Middelen; Een onderzoek naar het gebruik van prestatie verhogende middelen bij jonge mensen.* [Lijf, Sport & Middelen[4]; an investigation of the use of performance-enhancing drugs among young people] (1994).

Kernebeek E. van, P.L.S. van Steen, H. Holdhaus & E.N. Vrijman. *Europack project. Clean sport, an education and information guide on sport without doping* (1994).

Steen P.L.S. van. *Doping en voorlichting, een handleiding voor sportbonden.* [Doping and education; a guideline for sport federations] (1993).

Faro L.M.C. & L.M. Niessen. *Met of zonder? Een onderzoek naar de positie van de arts bij het gebruik van dopinggeduide middelen en de wenselijkheid van gedragsregels.* [With or without? An investigation of the position of the medical doctor in relation to the use of doping substances and the desirability of a code of conduct] (1993).

Kernebeek E. van *Drugs & Sports, a health education approach in the Netherlands* (1993).

Stoele F.W.J. *Informatiepakket "doping" Albertville.* [Information package "doping" Albertville] (1992).

Kernebeek E. van. *Doping & voorlichting, een gezondheidsvoorlichtingsplan over doping en medicijngebruik in de sport.* [Doping & education; a health education programme in relation to doping and drug use in sports] (1992).

Timmermans I.T.F. & E.N. Vrijman. *Doping in de sport; verboden en toegestane middelen.* [Doping in sports; prohibited and permitted approaches] (1992).

Wimersma Greidanus Tj.B. van. *Dopinggeduide middelen.* [Performance-enhancing substances] In: Hendriks E.R.H.A., F.J.G. Backx & W.L. Mosterd (red.). Leerboek Sportgeneeskunde. Bohn Stafleu Van Loghum, Houten/Zaventem, pp. 814-824 (1992).

Wimersma Greidanus Tj.B. van & V.S. Wallage. *Farmaca in de muziekwereld versus doping in de sport.* [Pharmaceutics in the world of music versus doping in sports] In: Dekker J.B. den, I. van Ham, G.M. van Meerwijk, P. Vaes & A. de Wijer (red.). Jaarboek Fysiotherapie, Bohn Stafleu Van Loghum, Houten/Antwerpen, pp. 51-65 (1992).

Wimersma Greidanus Tj.B. van & P.A.G.M. De Smet. *Geneesmiddelen en doping.* [Medicines and doping] In: Medicatiebegeleiding (P.A.G.M. de Smet, A.C. Van Loenen, L. Offerhaus & E. Van der Does, eds.). Bohn, Stafleu & Van Loghum, Houten/Antwerpen, pp. 412-419 (1990).

[4] "*Lijf, Sport & Middelen*" can best be translated as "*Body, sport and agents*". Here, the term 'agents' is not restricted to performance-enhancing drugs; it also covers, for example, nutrition and food supplements.

2) Publications in medical journals

a) Complete articles

Hartgens F., W.D. Van Marken Lichtenbelt, N. Vollaard, S. Ebbing & H. Kuipers. *Body composition and anthropometry in bodybuilders: regional changes due to nandrolone decanoate use.* Accepted for publication in International Journal of Sports Medicine (2000).

Hartgens F., W.D. van Marken Lichtenbelt, S. Ebbing, N. Vollaard & H. Kuipers. *Androgenic-anabolic steroids induced alterations of body composition in strength athletes.* Accepted for publication in The Physician and Sportsmedicine (2000).

Baak M.A. van, L.H.J. Mayer, R.E.S. Kempinski & F. Hartgens. *Effect of salbutamol on muscle strength and endurance performance in non-asthmatic men.* Medicine and Science in Sports and Exercise 32(7): 1300-1306 (2000).

Hartgens F.& J. Verstuyft. *Doping.* Bijblijven 15(10): 17-26 (1999).

Hon O.M. de, F. Hartgens, M.A. Van Baak, L.J.R.M. Buisman & G. Rietjens. *De invloed van een eenmalige toediening van een supratherapeutische dosis salbutamol op de longfunctie en duurprestatie van niet-astmatische sporters.* [The effect of a single supratherapeutic dose of salbutamol on lung function and endurance performance in non-asthmatic athletes; with English summary] Geneeskunde en Sport 32(5): 9-15 (1999).

Wimersma Greidanus Tj.B. van. *Farmacologische achtergronden van doping.* [Pharmacological background to doping] Pharmaceutisch Weekblad 132(36): 1360 - 1365 (1997).

Kuipers H. & F. Hartgens. *Gebruik van geneesmiddelen voor het verbeteren van sportprestaties.* [medicine use for the enhancement of athletic performance] Nederlands Tijdschrift voor Geneeskunde 141: 1965-1968 (1997).

Hartgens F. *Misbruik van androgene-anabole steroiden in de sport.* [Misuse of androgenic anabolic steroids in sports] Patient Care 24(2): 14-24 (1997).

Hartgens F. *Hoe lang duurt het voor verschijnselen van anabolengebruik bij een vrouw zijn verdwenen ?* [How long does it take for the effects of the use of anabolics to disappear in women?] Vademecum 15(4): 21 January (1997).

Pernot C., F. Hartgens, H.A. Keizer, H. Kuipers & K. Hamulyak. *Effects of self-administration of high doses androgenic-anabolic steroids on fibrinolytic activity in non elite bodybuilders.* Fibrinolysis 10 (suppl 2): 53-54 (1996).

Hartgens F., H. Kuipers, J.A.G. Wijnen & H.A. Keizer. *Body composition, cardiovascular risk factors and liver function in long term androgenic-anabolic steroids using bodybuilders three months after drug withdrawal.* International Journal of Sports Medicine 17(6): 429-433 (1996).

Hartgens F. *Doping anno 1996.* [Doping in 1996] Geneesmiddelenbulletin 30(11): 125-132 (1996).

Hartgens F., H. Kuipers, J.A.G. Wijnen & H.A. Keizer. *De effecten van intermitterend gebruik van androgene-anabole steroiden bij bodybuilders.* [The effects of intermittent use of androgenic anabolic steroids in bodybuilders] Geneeskunde en Sport 28(2): 38-42 (1995).

Wimersma Greidanus Tj.B. van. *Doping in de sport; definities en middelen.* [Doping in sports; definitions and substances] TGO 1 (maart): 4-10 (1991).

Wimersma Greidanus Tj.B. van. *25 Jaar doping.* [25 Years of doping] Geneeskunde en Sport 23: 214- 215 (1990).

Wimersma Greidanus Tj.B. van. *Astma en doping.* [Asthma and doping] Chroniek en Bewegen 3: 14-15 (1990).

b) Abstracts

Wimersma Greidanus Tj.B. van. *De structuur van het nationale anti-dopingbeleid in Nederland.* [The structure of the national anti-doping policy in the Netherlands] Congresboek "19th Congress of Sports Medicine of the Sint Jan Academic Hospital", Bruges, Belgium, pp 139-142 (2000).

Hon O.M. de, F. Hartgens, M.A. van Baak, L.J.R.M. Buisman & G. Rietjens. *Acute inhalation of salbutamol increases endurance performance in well-trained non-asthmatic athletes.* Medicine and Science in Sports and Exercise 31(5, suppl.): S402 (1999).

Hartgens F. *Doping.* [Doping] In: Van der Poel B.N.M. & R.F.A. Weber. Ontwikkelingen in de geneeskunde 1998 (congress report): 6-9. Rotterdam (1998).

Baak M.A. van, L.H.J. Mayer, R.E.S. Kempinski & F. Hartgens. *Effect of salbutamol on muscle strength and endurance performance in non-asthmatic men.* Medicine and Science in Sports and Exercise 30(5 suppl.): S323 (1998).

Rietjens G.J., F. Hartgens, V. Visser, M.A. van Baak &, H. Kuipers. *The effect of salbutamol on lung function and exercise performance in endurance athletes.* Medicine and Science in Sports and Exercise 30(5 suppl.): S323 (1998).

Hartgens F., G. Rietjens, E. Cheriex, K. Hamulyak, B. Wolffenbuttel, H.A. Keizer & H. Kuipers. *Effects of an anabolic steroid on cardiovascular risk factors and the left*

ventricle in bodybuilders. Medicine and Science in Sports and Exercise 29(5 suppl.): S292 (1997).

Stubenitsky K., W.D. van Marken Lichtenbelt & F. Hartgens. *The four component model for estimating body composition in bodybuilders.* Medicine and Science in Sports and Exercise 29(5 suppl.): S215 (1997).

Marken Lichtenbelt W.D. van, K. Stubenitsky & F. Hartgens. *Effect of androgenic-anabolic steroids on weight, body fat, and hydration of the fat free mass.* Medicine and Science in Sports and Exercise 29(5 suppl.): S294 (1997).

Wolffenbuttel B.H.R., F. Hartgens, G. Rietjens, H.A. Keizer & H. Kuipers. *Effects of androgenic-anabolic steroids (AAS) on apolipoproteins and lipoprotein(a).* Presented at the annual meeting of the International Atherosclerosis Society, Paris (1997).

Wolffenbuttel B.H.R., F. Hartgens, G. Rietjens, H.A. Keizer & H. Kuipers. *Nandrolone decanoate reduces lipoprotein(a) levels without effect on other lipid parameters.* Presented at the annual meeting of the International Atherosclerosis Society, Paris (1997).

Baak M.A. van, L. Mayer, R. Kempinski & F. Hartgens. *The effect of salbutamol on muscle strength and endurance exercise performance in non-asthmatic men.* Congress of the Dutch College of Clinical Pharmacology, Utrecht, (1996).

Pernot C., F. Hartgens, H.A. Keizer, H. Kuipers & K. Hamulyak. *Effects of self-administration of high doses androgenic-anabolic steroids on fibrinolytic activity in non elite bodybuilders.* Fibrinolysis Congress, Leiden (1996).

Cheriex E., F. Hartgens, T. Gordijn, K. Depuydt, H.A. Keizer & H. Kuipers. *Cardiac dimensions and function are not affected by eight weeks androgenic-anabolic steroid use.* Medicine and Science in Sports and Exercise 28(5, suppl.): S35 (1996).

Hartgens F., K. Depuydt, T. Gordijn, H.A. Keizer & H. Kuipers. *Effect of eight weeks androgenic-anabolic steroids use on circumferences in non elite bodybuilders.* Medicine and Science in Sports and Exercise 28(5, suppl.): S36 (1996).

Hamulyak K., F. Hartgens, C. Pernot, H.A. Keizer & H. Kuipers. *Eight weeks use of androgenic-anabolic steroids increases fibrinolytic activity in bodybuilders.* Medicine and Science in Sports and Exercise 28(5, suppl.): S36 (1996).

Bortel L.M. van, J.A. Wijnen, F. Hartgens, H. Kuipers & M.A. van Baak. *Effect of carvedilol on endurance exercise performance.* European Heart Journal 16(abstract supplement): 60 (1995).

Hartgens F., K. Hamulyak, C. Pernot, K. Depuydt, T. Gordijn, H.A. Keizer & H. Kuipers. *The effects of high doses androgenic-anabolic steroids on haematologic parameters in*

bodybuilders. Abstract book FIMS congress: 80. Granada, Spain (1995)

3) Fan booklets

KNVB dopingcontrole/KNVB Dopinglijst [Royal Dutch Football Association doping control/ Royal Dutch Football Association doping list] (2000)

Dopingcontrole editie Sydney 2000/Dopinglijst editie Sydney 2000 [Doping control edition Sydney 2000/ Doping list edition Sydney 2000] (2000)

De dopingcontrole/De dopinglijst [The doping control/ The doping list] (2000)

De dopingcontrole/Doping?! [The doping control/Doping?!] (1999)

KNLTB Dopingcontrole/KNLTB Dopingpreventie [Royal Dutch Lawn Tennis Association doping control/ Royal Dutch Lawn Tennis Association doping prevention] (1997)

De dopingcontrole/NeCeDo dopinginfo & preventie [The doping control/ NeCeDo doping information & prevention] (1997)

De KNVB dopingcontrole/KNVB Dopingpreventie [The Royal Dutch Football Association doping control/ Royal Dutch Football Association doping prevention] (1996)

De dopingcontrole/Doping, dopingcontroles & medicijngebruik in de sport [The doping control/ Doping, doping controls and drug use in sports] (1995)

Doping & Sport. Information on rules, procedures and allowable medications in the countries of the European Union (1994)

Dopage & Sport. Informations et medications autorisées dans les pays de la Union Européenne [Information on rules, procedures and allowable medications in the countries of the European Union] (1994)

Dopingcontrole stap voor stap/Doping, dopingcontroles & medicijngebruik in de sport [Doping control step by step/ Doping, doping control and drug use in sports] (1993)

4) Video tapes

Dopingcontrole/laboratoriumprocedure [Doping control/ laboratory procedure] (± 15 min.; 1996).

Dopingcontrole procedure voetbal [Doping control procedure football] (± 17 min.; 1996).

5) News bulletins

Receptor, no. 5. August 2000.
Receptor, no. 4. May 2000.
Receptor, no. 3. January 2000.
Receptor, no. 2. September 1999.
Receptor, no. 1. June 1999.

Doping & sport, no. 4. June 1998
Doping & topsport [Doping & Elite sport], no. 3. November 1996
Doping & topsport [Doping & Elite sport], no. 2 (Atlanta special). March 1996
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NeCeDo nieuwsbrief [NeCeDo news bulletin], April 1994
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NeCeDo nieuwsbrief [NeCeDo news bulletin], October 1993
NeCeDo nieuwsbrief [NeCeDo news bulletin], August 1993