Social Psychology within the anti-doping area
Baseline statistics and profiles of athletes' attitude and knowledge

An empirical presentation

Göran Svedsäter　　　**Ingemar Wedman**
(Post mortem)

Summary

An important objective of the project was to recognize if there are any special attitudes and knowledge profiles between the target groups.

Even though the selection and thereby the database became somewhat smaller than planned, the analyses reveal some interesting tendencies and finds.

The questionnaire confirms that significant differences exist in relation to the age groups junior and senior. This concerns all areas such as attitudes, subjectively experienced knowledge and what is regarded as important in relation to the fight against doping in sport.

In addition, it will be seen that "region" is significantly different in relation to most of the areas in the questionnaire. The clearest is the difference within "personal knowledge", in particular that Asia/Australia/New Zealand consistently score higher than the other regions.

It also appears from the questionnaire that "gender" has no significance for how the respondents experience the various statements. This applies to all areas.

The majority expresses a clear standpoint/attitude against use of doping in sport. In addition, there is distancing from the use of doping for shorter periods, even if the medical side effects are small. The respondents also express that even though the risk of being discovered is small, they would not use prohibited substances. In addition, the majority of athletes were not willing to use prohibited substances to become a well- known top athlete. In this context it is interesting that the group junior has a less clear anti –doping attitude than the senior group. It also appears that the group juniors has a less restrictive attitude to using doping as a one-off, and as a quick way to becoming well-known top athletes.

Even though the results indicate that the athletes have a clear attitude against doping it is both a concern and a challenge that there is still 10 – 15 % of the respondents who are of another opinion.

One of two athletes experience that the incidence of doping in sport is an increasing problem and that drug abuse in society has an impact on doping in sport. At the same time, approximately half express that attitudes in relation to doping can be influenced. This emphasises the necessity that the phenomenon doping should be both analysed and understood in relation to a sociological and social context.

Within "personal knowledge" the results show that the group junior is experienced as having less knowledge in relation to all areas than the group senior. Concerning knowledge about doping controls and regulations, this can probably be explained by the fact that seniors have more experience as athletes.

In relation to knowledge about substances, negative effects, nutrition/supplements and not least ethics and fair play, it is disquieting that juniors experience having less knowledge in relation to these areas than seniors. This is a challenge since it is anticipated that knowledge about these areas can have a preventive effect on attitudes and any use of prohibited substances.

Within the area "Fight against doping in sport" the respondents have given almost identical answers to the questions, and not assigned priorities to the various measures, as was the intention. Probably the respondents answered "how important it (generally) is to do

something", and not how or which measures should be emphasised. This part therefore functions less adequately than desired, and has limited the possibility of analyses.

In spite of this, it appears from the material that many (70 %) of the respondents express that doping controls both in competition and out of competition are very important for the future fight against doping in sport. The senior group states "out of competition controls" as the most important measure.

The conclusion is that there exist differences between the age groups in many of the areas which are included in the questionnaire. Efforts should therefore be concentrated on increasing course / education offers for athletes, particularly in relation to the group juniors.

Content

1. Background

Sports organisations in particular and society in general experience that doping is an increasing problem, and this is in relation to type of substances/techniques, extent and new target groups. The doping problem can no longer be limited to athletics and athletes, but must be analysed, understood and solved in relation to the community mechanisms which athletics are a part of. This concerns young athletes in particular, who, because of their position, enjoy important status in relation to other young people, and therefore have a central model learning function

In spite of the serious nature of the doping problem, there is limited knowledge in relation to the "the underlying causes of the growth in doping". Additional research in this area will contribute to development of strategy and choice of preventive measures.

Based on the premise that intake of preparations to enhance performance in various sport activities is well documented, and that these activities are a threat to the individual performer and, also, a threat to the credibility of the sport itself, it is of interest to document the state of the art concerning knowledge, attitudes and beliefs of sport performers to doping issues. Based on such baseline data it might be possible to get a valid reference point to which groups of performers, coaches, sport managers etc and the interested lay person can be referred to in order to educate various groups, and also to make possible interpretation of changes in knowledge, attitudes and beliefs taking place e.g. due to specific learning activities.

As a result hereof International Doping, Test & Management (IDTM), International Amateur Association (IAAF), European Swimming Association (LEN), Union des Asociations Européens de Football (UEFA) and the Swedish School for Sports and Health (GIH), during the period 2000 – 2005 have through various projects worked with developing an education programme[1] within anti-doping. The main purpose for these projects has been to achieve better knowledge about potential social psychological factors that could influence young athletes' attitudes and behaviour towards doping.

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[1] Anti Doping Education (ADE), Young Athletes Against Doping in Sport(YAADIS)

For two consecutive years, the EU has supported the development of an anti-doping programme. Such programme is being developed[2] and has been further developed afterwards by IDTM.

In 2006, the World Antidoping Agency (WADA) granted a smaller allowance to establish a better knowledge of athletes' attitudes and knowledge within the anti- doping area.

The results of this project are shown in this report.

2. Objective of the project

The main purpose with the project has been to build up a database concerning knowledge, attitudes and beliefs on doping issues among young athletes and top athletes. Based on this data it will be possible to recognize if there are any special attitudes and knowledge profiles between the target groups. In addition, by comparing the results it will be possible to recognise if there will be a need for special anti-doping education and/or awareness campaigns as part of a preventive programme towards a particular group of athletes, and how best to target these campaigns.

The target groups in the project are junior and top athletes in the area of track and field (IAAF). The tests have been carried out during the World Junior Championships in Beijing 2006 and the World Championships in Athletics in Stuttgart 2007.

The project was based on a selection of at least 500 athletes from at least 10 different countries. Because of problems with the project underway it has not been possible to get as many to respond as was planned, and this has limited the possibility of analysis and interpretation of the results. This has entailed that the objective to develop a measure that will encompass several factors to give an overall measure of describing the status of phenomena of interests has not been possible in the project.

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[2] Report C 116-21: Efficient and time-saving e-learning about ethics, leadership and attitude within doping (2001)

3. Method

3.1 Questionnaire

Since 2002 the questionnaire for collection of data has been developed by the project team from literature review and consultation with experts working in the area of doping and drug use. The questionnaire consists of attitude questions combined with a knowledge questionnaire designed to elucidate actual personal knowledge within the anti-doping area. In addition the questionnaire consists of eleven questions where the respondent has to rank how important the different areas/activities will be for the future fight against doping in sport.[3]

Questionnaire consisting of 3 different parts:
- Attitude questions with 27 questions
- Personal knowledge section with 7 questions
- Fight against doping in sport – 11 questions

The attitude questions were related to a Likert scale with a variance from 1 Strongly disagree to 6 Strongly agree.

For the personal knowledge test the questions were related to a variance from 1 Less knowledge to 6 Sufficient knowledge

For the section "Fight against doping" the questions were related to a variance from1 Less important and 6 Very important.

3.2 Pre – test

During the period 2000 - 2002 the Swedish School for Sports and Health (GIH), together with International Doping Tests & Management (IDTM) and the European Swimming Association (LEN) and later on also with the International Amateur Association (IAAF) as well as the European Football Association(UEFA), has had support from the EU with reference to developing an educational interactive network programme for sports coaches and young people between the ages of 16 and 19.

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[3] Attachment I "Wedman & Svedsater Attitude Questionnaire(WSAQ)

IDTM and GIH have in collaboration gone further in their work with analysing and developing a web-based educational interactive network programme for sports coaches and young athletes. As a part of this work, we have launched the possibility of establishing a procedure which entails that analogically with the instance of IQ measurements in psychology and education we aim at developing an Anti- Doping Quotient procedure.

In the Autumn of 2002 funds were allocated by the "Centrum for Idrottsforskning" for development of an interactive knowledge and attitude test as well as establishing one or more baselines through empirical tests. In addition to this, parallel consecutive analyses shall be performed of data material to find out whether there are measurement technical forms for a combination of knowledge and attitudes. Pre -test of the questionnaire was performed in connection with DN Galan in Stockholm 2006 (25 athletes).

4   Analysis

The investigation contains results from respondents between the ages of 16 and 39. The selection represents 65 countries and most of the types of sport within athletics are contained in the materials.

There is data from 262 (77 %) juniors and 131 (40 %) are women.

The report presents results in relation to the areas of:

- Attitudes
- Personal kowledge
- Fight against doping

In the analysis of the data material, the frequency distribution is cited, variances and mean value. In addition, cross-analyses have been completed in relation to the background variables gender, age group and region. There has been use of ANOVA and factor analyses with a significance level of $p<.01$. Cronbach's Alpha has been used consistently for the reliability test.

The questionnaire was formulated so that the individual respondent would fill in the type of sport. However, the results show that many respondents (70%) have not stated the type of

sport they belong to. There are therefore too few respondents within the various sports to carry out statistical analyses for this background variable.

Age is divided into age groups junior and senior.

The background variable "Nationality" had too few respondents to be able to be used in the analyses. As a consequence of this, the countries[4] which have participated in the survey are collectively/categorised in the variable "region":

- Europe N= 76
- Africa N= 108
- Asia/Australia/New Zealand N= 52
- USA/Canada/Caribbean N= 47
- Former Eastern Europe N= 26

In addition to a general analysis of the variables within the various areas, analyses have been performed in relation to variables such as region, age groups and gender.

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[4] Attachment II Nationality categorised in region

5 Presentation of the results

5.1 Attitudes

The attitude section consists of 27 statements that active athletes should rank their personal views on a scale from 1 "Strongly disagree" to 6 "Strongly agree ". There were no right or wrong answers.
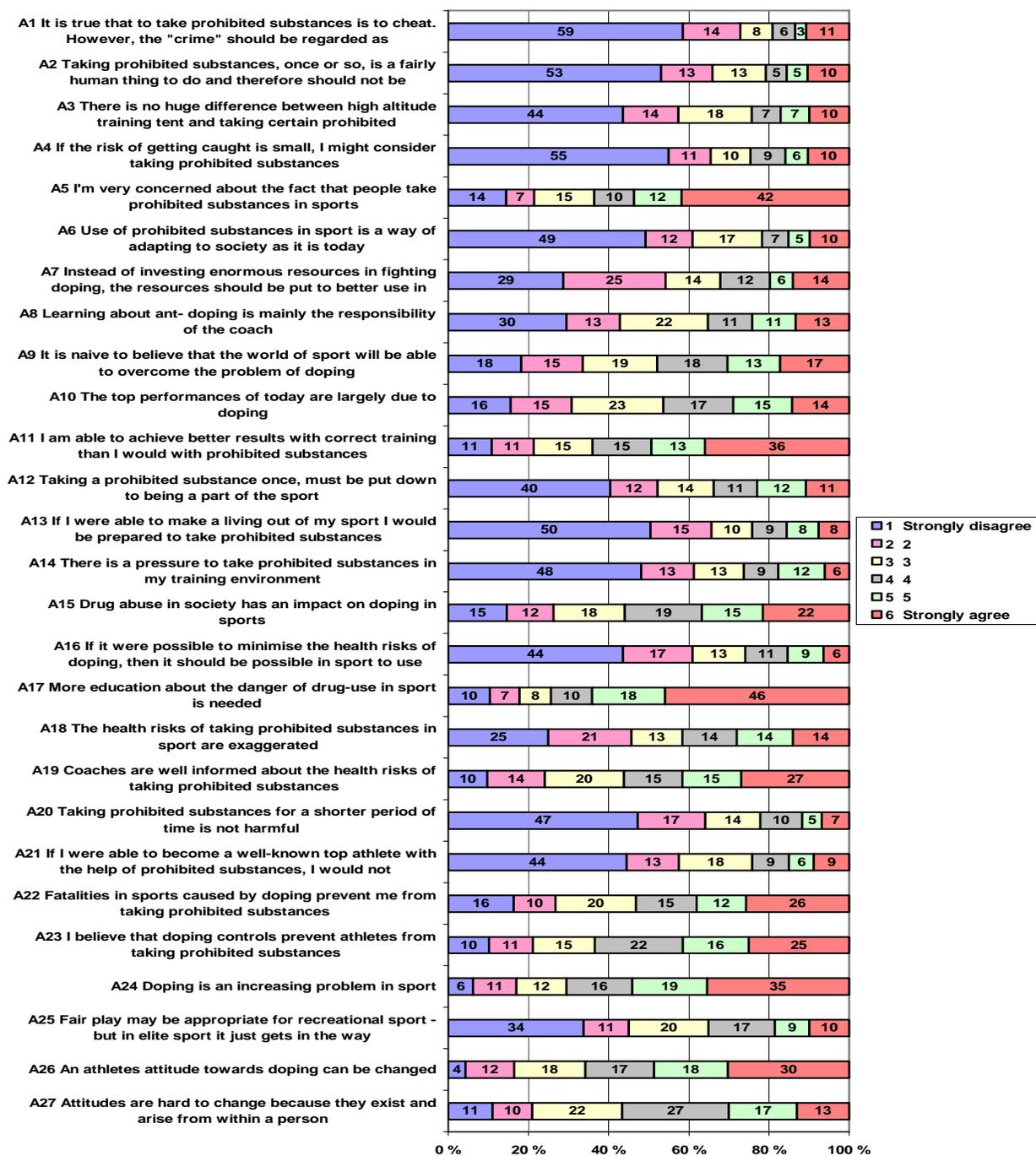

Table 5.1   Frequency distribution for all statements A1 – A27

The table shows great variation in the way in which the respondents have evaluated the statement. The mean values and standard deviations are often high, as well as that approximately half of the statements have a concentration of respondents either in relation to *"strongly disagree"* or *"strongly agree."* The reliability of the 27 statements is high. (Alpha .801)

The age groups and region have significant differences in many statements and this is interesting since an important objective of the project was to recognise if there are any special attitudes and knowledge profiles between junior and senior athletes.

In addition, it appears that the variable "gender" has insignificant variations where only the statements A4 and A13 have significant differences.(p<.01)

In the analysis of the statements the score for 1 and 2 are joined in "*Strongly disagree"* and score 5 and 6 in "*Strongly agree*"

Beginning with this, it appears from the table that the majority of the respondents "*strongly disagree*" with statements such as:

1. It is true that to take prohibited substances is to cheat. However, the "crime" should be regarded as acceptable because the world of sports is so unfair anyway.
2. Taking prohibited substances, once or so, is a fairly human thing to do and therefore should not be punished
3. If the risk of getting caught is small, I might consider taking prohibited substances
4. Use of prohibited substances in sport is a way of adapting to society as it is today.
5. If it were possible to minimise the health risks of doping, then it should be possible in sport to use prohibited substances freely.
6. If I were able to become a well-known top athlete with the help of prohibited substances, I would not worry about possible health risks.

At the same time it appears from the data material that the majority of the respondents "strongly agree" with statements such as:

1. They are very concerned about the fact that people take prohibited substances in sports.
2. Able to achieve better results with correct training than they would with prohibited substances.
3. More education about the danger of drug-use in sport is needed.
4. That doping controls prevent athletes from taking prohibited substances.
5. Athletes' attitude towards doping can be changed.

Statements A1 –A27 have been factor analysed. The analysis shows that several statements show in respective factors and which therefore can be used as the basis for defining the contents of the factors[5] (Attachment III)

5.1.1 "Against doping"(factor I)

The statements which show in Factor I deal to a great extent with circumstances where the athletes express a clear standpoint/attitude against use of doping in sport. If the scores for 1 and 2 are joined on the answer scale, the frequency distribution will show that very many athletes *"strongly disagree"* with the statements which result in Factor 1.
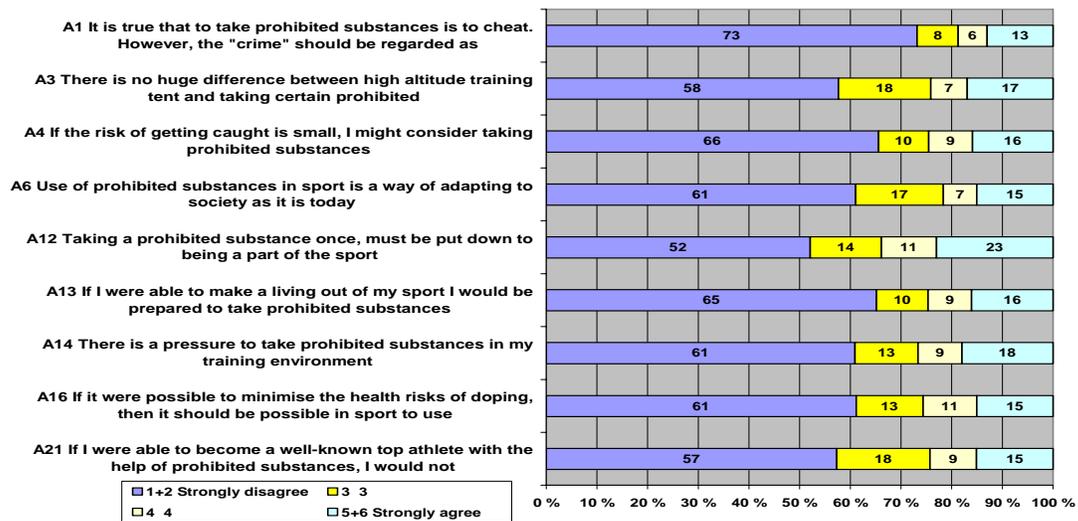
Table 5.2   Frequency distribution for statements which lead to Factor I.

It appears from the table that there is little tolerance for prohibited substances being used to achieve better results even though they are only used once and the risk of being discovered is small. There is a significant difference in relation to gender in that men in contrast to women are more inclined to use prohibited substances if the risk of being discovered is small and it can contribute to making a living out of the sport.(p<.01)

In addition, many people express that even if the negative health-related consequences are small, one dissociates oneself from using prohibited substances as a short cut to becoming a well-known top athlete.

The data material also shows that the statements which show in Factor I are in general significantly different in relation to age groups. It will be seen from the table 5.3 that the group senior to a greater degree than the group junior, dissociates itself from the statements which are included in Factor I. This difference is greatest in relation to using doping as a one-off and short cut to becoming well-known top athletes.
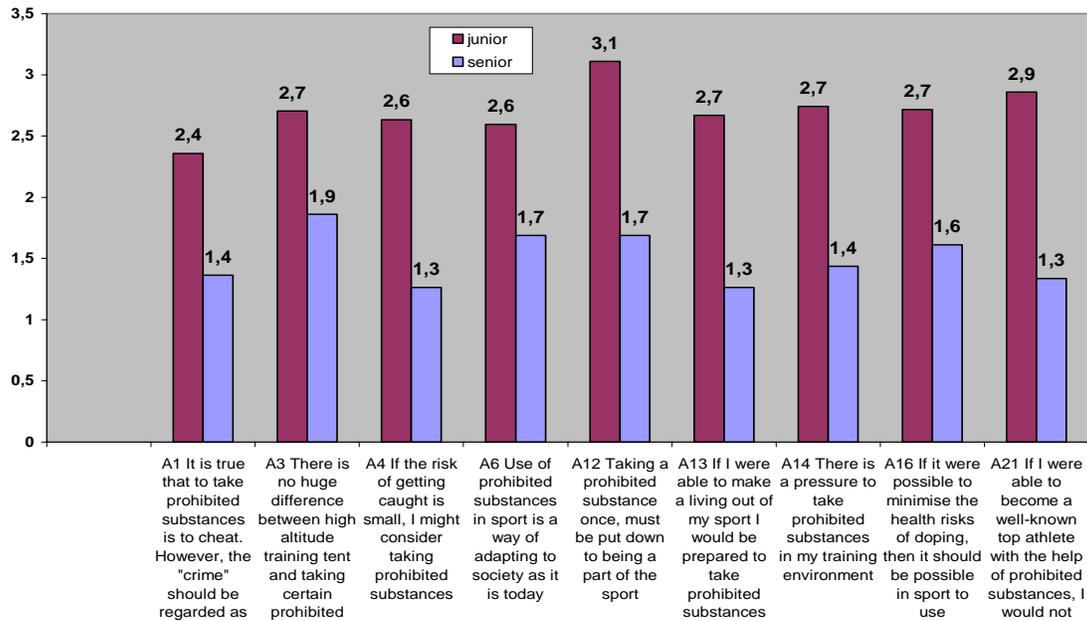
Table 5.3   Mean value Factor I and junior/senior

Region:

All statements which result in Factor I are significant in relation to the variable region. (p<.01). It will be seen from the table below that it is especially the region US/Canada/Caribbean which to a greater degree than the other regions "strongly disagree" with the statements which show in Factor I. The mean difference is greatest between the US/Canada/Caribbean and former Eastern Europe/Asia.

Region	A1	A3	A4	A6	A12	A13	A14	A16	A21
Europe	2,1	2,2	2,0	2,1	2,3	2,0	1,8	2,3	2,1
Africa	2,0	2,4	2,5	2,3	2,8	2,7	2,7	2,6	2,7
Asia/Australia/New Zealand	2,9	3,1	2,9	3,0	3,6	2,7	2,7	2,2	3,2
USA/Canada/Caribbean	1,3	2,0	1,5	1,7	1,8	1,6	1,7	1,7	1,7
Former Eastern Europe	2,8	3,2	2,4	2,6	3,3	2,8	2,9	3,3	2,6

Table 5.4   Mean value region and factor I

5.1.2 Doping in sport (factor II)

The statements that show in Factor II deal with doping in sport and how far attitudes can be influenced. If one joins scores 5 and 6 on the answer scale, the frequency distribution shows that approximately 50 % of the athletes *"strongly agree"* with the statements which show in Factor II.
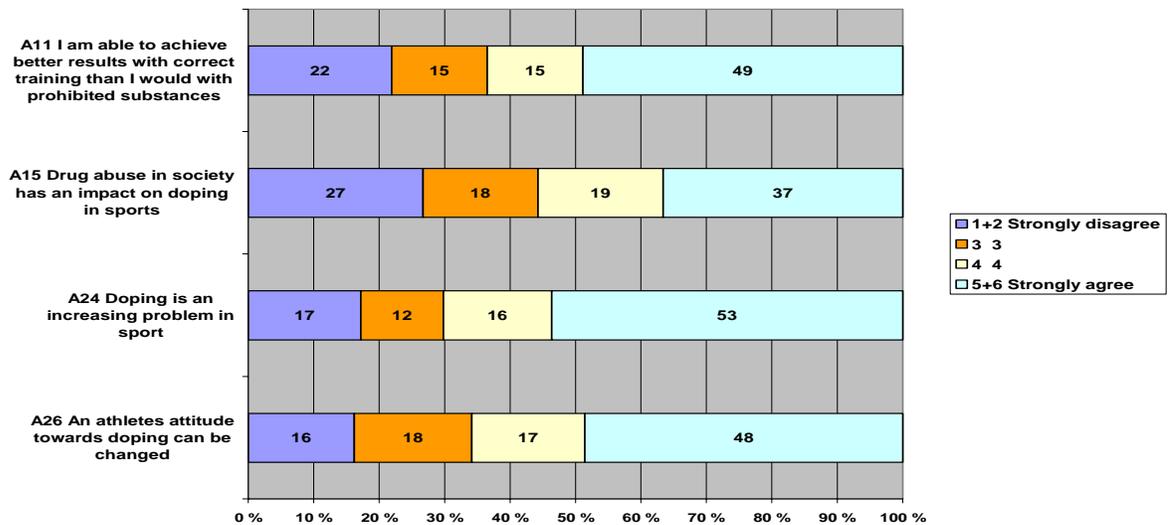
Table 5.5   Statements which show in Factor II

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Every second athlete experiences that the incidence of doping within sport is an increasing problem and that drug abuse in society has an impact on doping in sport. At the same time, approximately half express that attitudes in relation to doping can be influenced. This emphasises the need that the phenomenon doping should both be analysed and understood in relation to a society context.

In addition, it will be seen from the table that approximately half of the athletes state that they can achieve better results with correct training than with prohibited substances. At the same time it is alarming that every five athlete does not share this opinion.

Factor II shows no significant differences in relation to region, gender and age group.

5.1.3 Doping and health risks (factor III)

The statements that show in Factor III deal with doping and health risks as well as using prohibited substances for a shorter period of time.

Table 5.6   Statements leading to Factor III

Very many athletes are in disagreement that it is acceptable to use prohibited substances sometimes for shorter periods. In addition, it is expressed that even if it were possible to minimise the health risk, it should still be prohibited to use drugs.

In spite of this, it is a challenge that approximately 15 % do not share this opinion and that 1 in 5 are in agreement that fair play may be appropriate for recreational sport – but in the elite sport it just gets in the way.
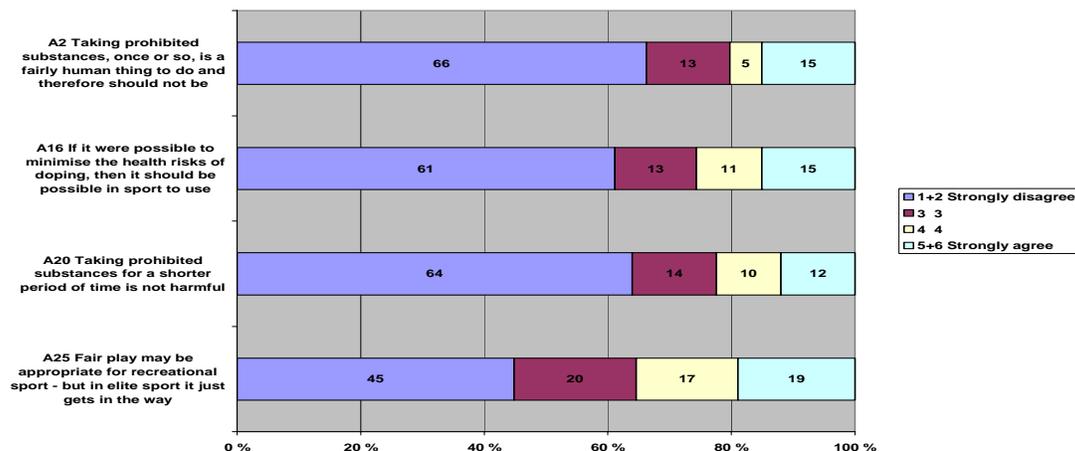
Respondents from the region USA/Canada/Caribbean are more in disagreement with the statements than the other regions. (p<.01 apart from A20)

In addition, it appears from the data that the group seniors to a greater degree than juniors are in disagreement with the statements which show in Factor III (p<.01 apart from A20)

Group	A2	A16	A20	A25
Junior	2,6	2,7	2,4	3,1
Senior	1,4	1,6	1,9	2,1

Table 5.7   Mean value junior/senior and the statements which show in Factor III

5.1.4 Responsibility of Coaches (factor IV)

Statements A8 and A19 show in Factor IV and deal with the coach's role in relation to anti-doping. Even though nearly half of the respondents experience that the coaches are well informed about the health risks of taking prohibited substances, there is also disagreement that learning about anti-doping is mainly the responsibility of the coach.

Juniors (m= 2.2) express to a lesser degree than seniors (m=3.3) that learning about anti-doping is mainly the responsibility of the coach.(p<.01)
In addition, it appears that athletes from former Eastern Europe are less in agreement that coaches are well informed about the health risks of taking prohibited substances.(p<.01)

Region	A19
Europe	3,7
Africa	4,0
Asia/Australia/New Zealand	4,8
USA/Canada/Caribbean	4,1
Former Eastern Europe	3,4

Table 5.8   Mean value region and Factor IV

5.2   Personal knowledge

There are seven questions in the questionnaire were the purpose is to map the athletes subjective experience of how much knowledge they have in relation to the area in question within anti-doping work. A scale of 1 – 6 where "*less knowledge*" and "*sufficient knowledge*" form the outer points.

	1 Less knowledge	2 2	3 3	4 4	5 5	6 Sufficient knowledge
B1 The history of doping (M=3,4)	16 %	21 %	18 %	16 %	12 %	17 %
B2 Information about prohibited substances and techniques (M=3,6)	14 %	12 %	21 %	22 %	18 %	13 %
B3 Negative effects and possible health risks with performance- enhancing drugs/doping substances (M=3,8)	12 %	12 %	16 %	24 %	21 %	15 %
B4 Nutrition and supplements (M=3,7)	10 %	13 %	18 %	23 %	24 %	12 %
B5 Regulations and concequences within the anti-doping area (M=3,9)	14 %	11 %	12 %	20 %	26 %	18 %
B6 Doping control procedures (M=4,1)	10 %	14 %	9 %	14 %	24 %	29 %
B7 Ethics and fair play (M=4,3)	7 %	9 %	10 %	19 %	26 %	28 %

Table 5.9   Frequency and mean value for B1 – B7

The table shows that there is relatively little variation between the different variables. In addition, the mean value is fairly alike apart from statements B6 and B7 which have a higher mean value than the other areas.

There is also high reliability between B1 – B7.(Alfa .831)

If we join the score 1+2 in "*Less knowledge*" and 5+6 in "*Sufficient knowledge*" , then over half of the respondents express that they have sufficient knowledge within the areas B6 "*doping control and procedures*" and B7 "*ethics and fair play.*"

In addition, data shows that 1/3 of the respondents experience that they have sufficient knowledge within the areas "*Information about prohibited substances and techniques*",

"Negative effects and possible health risks with performance- enhancing drugs/doping" and *"Substances Nutrition and Supplements".*

The results also show that 37 % of athletes experience that they have less knowledge in relation to the area *"The history of doping."*

Gender has no significance for experience of knowledge.

5.2.1 Age groups
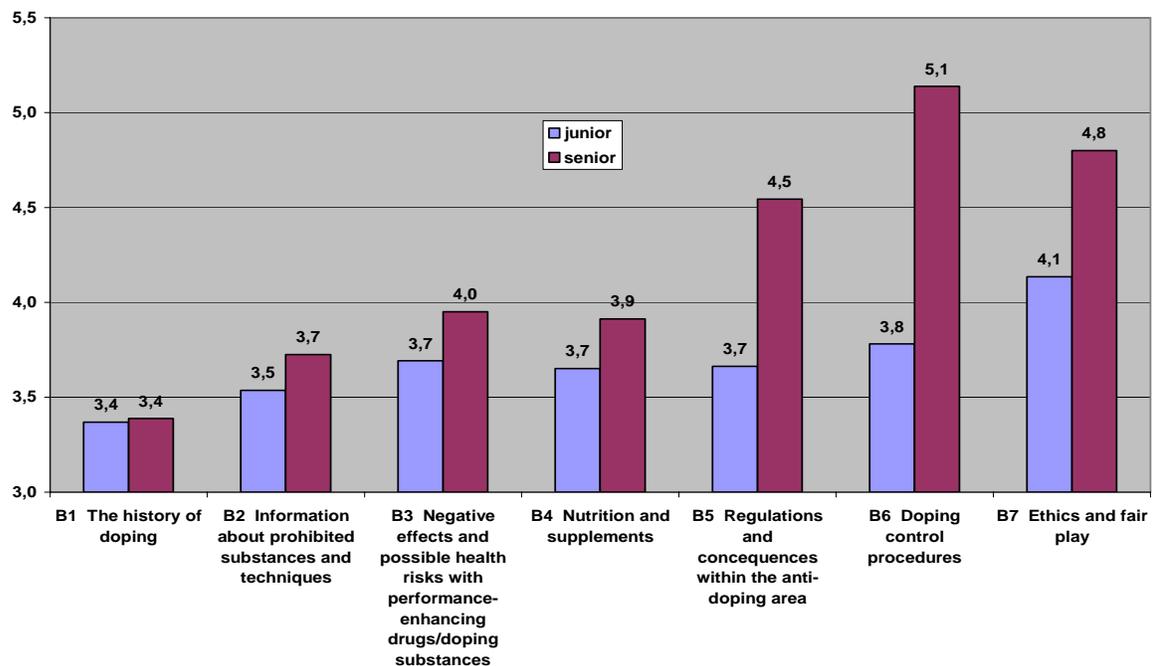
Table 5.10   Mean value for statement B1- B7 in relation to age groups

If we compare the results with "age group" the results show that the group juniors experience having less knowledge than the senior group in relation to all statements. The difference is greatest and of significance for the areas B5, B6 and B7.(p<.01)

The mean values for B1 – B4 do not indicate the large variations. The senior group has a higher score for most areas apart from B1 *"History of doping"* where there is no difference.

That senior athletes experience having greater knowledge in relation to the areas B5 and B6 is natural because they probably have greater experience with completed doping controls. On

the other hand it is not completely problem-free that the junior group experiences having less knowledge in relation to"*ethics and fairplay.*"

5.2.2 Region

The data material shows that the region Asia/Australia/New Zealand scores higher than the other regions on all questions in the personal knowledge part. It is also shown that there are significant differences for area B1 between the region Asia and the regions Europe, Africa as well as former Eastern Europe.(p<.01)

In addition, athletes from Europe experience that they have better knowledge about doping control procedures than athletes from Africa.(sign p<.01)

In relation to experienced knowledge about *"Ethcs and fair play"* it is interesting to note the relatively large differences between Asia/Australia/New Zealand and Africa. (mean diff. 1.4)

Region	B1 The history of doping	B2 Information about prohibited substances and techniques	B3 Negative effects and possible health risks with performance-enhancing drugs/doping substances	B4 Nutrition and supplements	B5 Regulations and concequences within the anti-doping area	B6 Doping control procedures	B7 Ethics and fair play
Europe	3.2	3.6	3.5	3.9	4.1	4.6	4.6
Africa	2.9	3.3	3.6	3.4	3.5	3.6	3.6
Asia/Australia/New Zealand	4.5	4.2	4.5	3.9	3.9	4.1	5.0
USA/Canada/Caribbean	3.5	3.6	4.0	3.8	4.1	4.2	4.5
Former Eastern Europe	2.7	3.3	3.5	3.8	4.3	4.5	4.5

Table 5.11   Mean value region versus B1 –B7

5.2.3 Knowledge

There is a high connection between the questions in the *personal knowledge* part(Alpha .831). Questions B1 – B7 are joined in a common variable "knowledge". (Mean value 3.8.)

The analysis shows a significant difference in relation to age groups in that junior athletes (M=3.7 N= 79) experience having less knowledge than senior athletes (M=4.2 N=206).

In addition. there is variation between the "regions" and the clearest is the difference between Africa and the region Asia/Australia/New Zealand (p<.01).

Region	Mean	N
Europa	3.9	74
Africa	3.5	83
Asia/Australia/New Zealand	4.5	31
USA/Canada/Caribbean	3.9	44
Former East Europa	3.8	24

Table 5.12   Mean value region in relation to the variable "knowledge"

Linear regression of the variable "knowledge " shows that knowledge is connected to some of the attitude variables. However, the connection is weak and regression shows that 70 % of the variation in knowledge is explained outside attitudes (r2 = . 323). Thereby there are no clear indications that attitudes can be explained by volume or type of knowledge.

5.3 Fight against doping in sport

In this section different areas/activities were specified which were relevant for the future fight against doping in sport. The athletes were asked to rank how important they thought the different areas/activities would be. Scale from 1 "Less important" to 6 "Very important".

Fight against doping

	1 Less important
	2
	3
	4
	5
	6 Very important

C1 In Competition Doping Controls M=4,9 — 7% 5% 10% 10% 13% 57%
C2 Out of Competition Doping Controls M=5 — 4% 5% 10% 11% 12% 58%
C3 Information about Prohibited Substances and techniques M=4,7 — 3% 9% 10% 17% 16% 46%
C4 Information about negative effects and possible health risks with performance- enhancing drugs/doping substances M=4,7 — 3% 9% 11% 13% 17% 47%
C5 Knowledge about nutrition and supplements M=4,7 — 3% 6% 17% 11% 16% 47%
C6 Knowledge about regulations and consequences within the anti-doping area M=4,7 — 5% 6% 10% 13% 18% 47%
C7 Information about Doping control procedures M=4,8 — 4% 6% 13% 12% 18% 49%
C8 Ethics and attitudes M=4,7 — 4% 8% 12% 12% 19% 46%
C9 Education within the anti-doping area M=4,8 — 4% 5% 11% 13% 21% 46%
C10 Awareness campaigns M=4,7 — 3% 7% 13% 18% 18% 42%
C11 Police/authorities should be more involved in the anti- doping work M=4,6 — 7% 7% 12% 13% 17% 45%
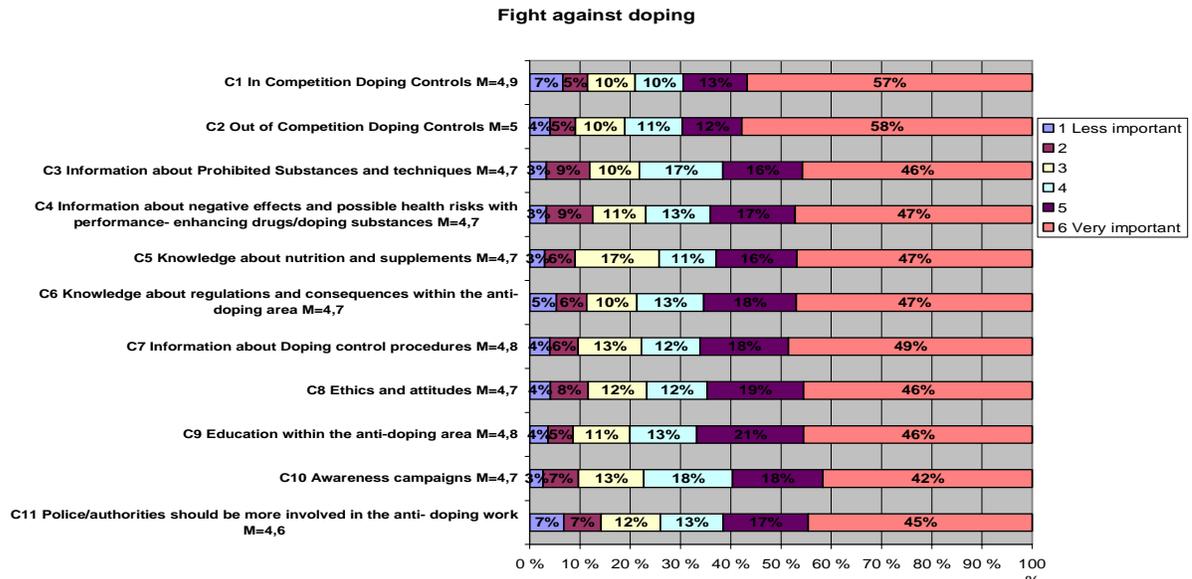
Table 5.13   Frequency and mean value for C1 –C11

Mean value for the various areas/ activities is relatively high and with little or no variation. From the statement "*Police/authorities should be more involved in the anti- doping work*" (4.6) to "*Out of Competition Doping Controls*" (5.0) In addition, the reliability for the questions is high. (Alfa .92)

This means that the respondents have answered the different questions almost identically, and not assigned priority to the different measures, such as was the intention. Probably the respondents have answered "how important it (generally) is to do something", and not how or which measure should be emphasised. Therefore, Part C functions less suitably than desired and limits the possibility of analyses.

It will also be seen from the material that very many (70 %) of the respondents express that doping controls both in competition and out of competition are very important for the future fight against doping in sport.(score 5+6) In addition, "*Ethics and attitudes*" and "*Police/authorities should be more involved in the anti- doping work*" receive the lowest total score. Gender has insignificant or little influence on the results.
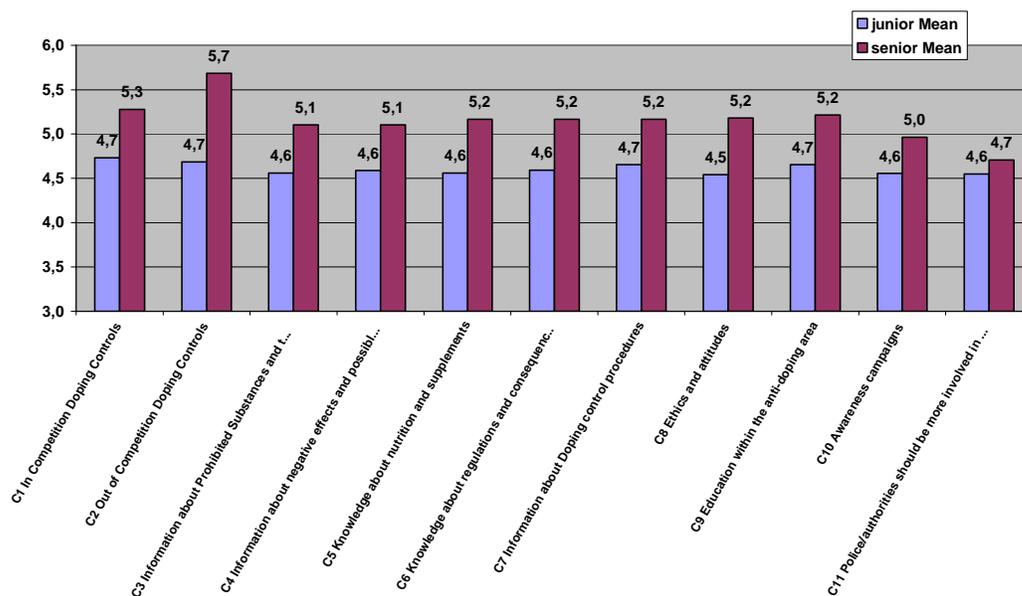
5.3.1 Age groups

Table 5.14   Mean value statements C1 – C11 in relation to age groups.

Comparison of the groups junior and senior athletes shows that juniors score lower than the senior group for most of the variables. The difference is significant for all variables apart from C10 and C11.(p < .01)

Both groups express that all areas are almost just as important apart from that the senior group states *"out of competition controls"* as the most important measure.

We join together the different questions in relevant categories such as:

- Doping controls (C1 + C2)
- Information (C3 + C4 + C7)
- Knowledge/education (C5 + C6 + C9)
- Ethics/attitudes/awareness (C8 + C10)

The analysis shows that both groups evaluate all categories as important, where *"doping controls"* are somewhat more important than *"ethics/attitudes and awareness campaigns"*. In addition, there are significant differences in all statements in that seniors score higher than juniors. (p<.01)

5.3.2 Region

All statements are evaluated as important, but it is not possible to discover whether the respondents have assigned priority to the various measures.

Analysis of the results show significant differences for the variables C1. C2. C7 and C11.(p<.01)

Athletes from the region Asia/Australia/New Zealand express to a greater degree than the other regions that "*in competition and out of competition controls*" are important for the fight against doping.
The greatest significant differences are for variable C1 between the region Asia/Australia/New Zealand and Africa (mean diff. 1.0) and for variable C7 and C11 between Asia and former Eastern Europe.(mean diff. 1.3 & 1.9)

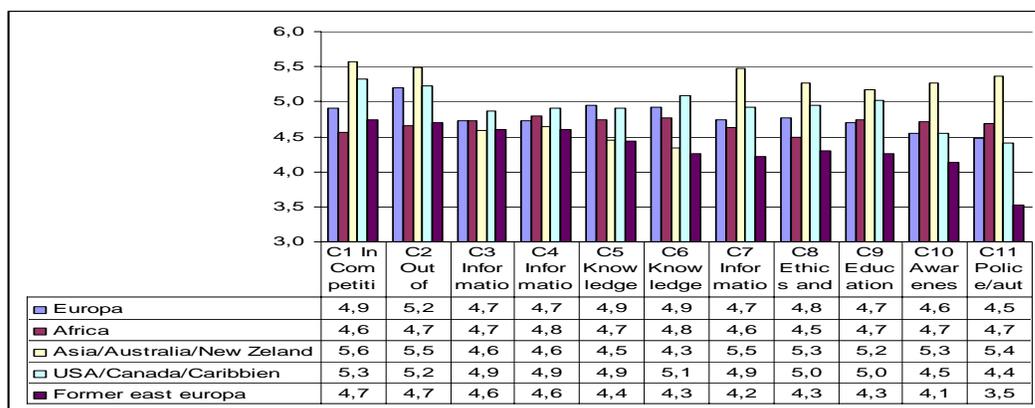|	C1 In Com petiti	C2 Out of	C3 Infor matio	C4 Infor matio	C5 Know ledge	C6 Know ledge	C7 Infor matio	C8 Ethic s and	C9 Educ ation	C10 Awar enes	C11 Polic e/aut
Europa	4,9	5,2	4,7	4,7	4,9	4,9	4,7	4,8	4,7	4,6	4,5
Africa	4,6	4,7	4,7	4,8	4,7	4,8	4,6	4,5	4,7	4,7	4,7
Asia/Australia/New Zeland	5,6	5,5	4,6	4,6	4,5	4,3	5,5	5,3	5,2	5,3	5,4
USA/Canada/Caribbien	5,3	5,2	4,9	4,9	4,9	5,1	4,9	5,0	5,0	4,5	4,4
Former east europa	4,7	4,7	4,6	4,6	4,4	4,3	4,2	4,3	4,3	4,1	3,5

Table 5.15   Mean value C1 –C11 and region