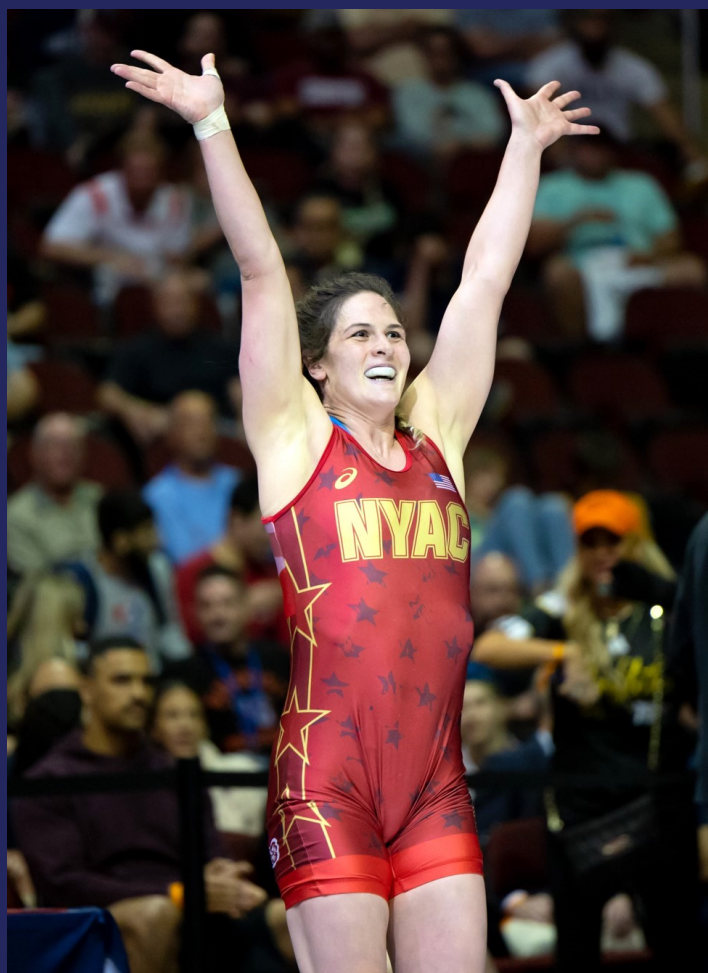


International Journal of
**Wrestling
Science**

Volume 13 Number 1, 2023



INTERNATIONAL NETWORK OF WRESTLING RESEARCHERS (INWR)

ADVANCING OUR SPORT THROUGH KNOWLEDGE

FAIRE PROGRESSER NOTRE SPORT PAR LA CONNAISSANCE

ПРОДВИЖЕНИЕ НАШЕГО СПОРТА ЧЕРЕЗ ЗНАНИЕ

PROGRESO PARA NUESTRO DEPORTE MEDIANTE CONOCIMIENTO

International Journal of Wrestling Science

The official journal of the International Network of Wrestling Researchers (INWR)

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Editor's Comments

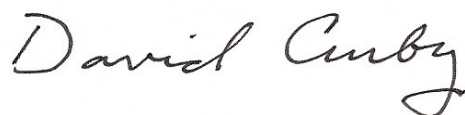
Welcome to the World Championship issue of the International Journal of Wrestling Science!

On the cover is **Adeline Gray**, a six-time world champion and Olympic silver medalist, who returned from having twins last July to make the U.S. World Wrestling Team which will participate in Belgrade, 11 months later! While other women have returned to the mat after childbirth, the speed of Adeline's return is another milestone in the remarkable development of women's wrestling! (Photo courtesy of Larry Slater)

Long-term health of wrestlers is addressed in this issue with articles by Eckart D. Diezemann, MD and Stevan Sikimic, MD. Both have served on the UWW Medical and Anti-doping Commission and discuss aging in wrestlers from the standpoint of the musculoskeletal metabolic systems. Trauma to the neck and back are important issues in the post-competitive lives of wrestlers, and some current training processes should be examined.

Doping continues to be a problem in international sport and wrestling is still in the top 10 of countries with Anti-Doping Rule Violations (ADRV's). Curby's compilation of doping violations in Olympic style wrestling provides a view into this problem. However, there may be a hopeful trend as we have seen a decline in violations year by year since 2018. India faces a large challenge as it leads all countries in the number of violations.

Sincerely yours in the advancement of Wrestling,



David Curby EdD
Director of the International Network of Wrestling Researchers
davcurb@gmail.com



QUALITATIVE STATISTICAL ANALYSIS OF SENIOR WORLD WRESTLING CHAMPIONSHIP 2022 - BELGRADE (SRB)

Milorad Dokmanac, PhD

Sports Academy – Belgrade

milorad.dokmanac@uww.org

INTRODUCTION

By applying a new way of analyzing major world championships (Performance Data Analysis - PDA), a completely different approach is obtained in analyzing the wrestling championship. In the first phase of creating PDA, all video matches at the championship were reviewed and data on all segments of wrestling matches were recorded. In the next phase, a qualitative analysis of the wrestling techniques that were shown at the last senior world championship in 2022 in Belgrade (SRB) was made through a prepared platform called Performance Data Analysis – PDA..

The first steps in the statistical analysis of wrestling matches were made by Prof. Harold Tünnemann, who did pure statistics, without quality analysis of the achieved points. In the past, before the advent of informatics in sports, these analyzes were of great importance to FILA. However, with the advent of the information age, a significant improvement of the wrestling match analysis system has occurred through PDA. The PDA platform provides a completely different "quality dimension" in today's modern wrestling when analyzing wrestling matches.

Based on the data obtained through the prepared Internet PDA platform, we receive exact data on all important elements of wrestling matches. These data are of great importance for at least 7 wrestling subjects, namely:

1. Wrestling coaches,
2. UWW Technical Commission,
3. Wrestling Academy,
4. Media,
5. Scientific commission of UWW,
6. UWW Marketing Commission,
7. Bureau of the UWW.

The PDA analysis contains a total of 12 electronic pages with 34 tables and 29 graphs. Due to the large number of analyzed parameters, only the most important parts of "PDA" were taken for this paper (Belgrade -SRB, Senior WCH 2022), which were presented in a total of 9 units, namely:

1. General data – GR, FS, WW
2. Total points per technical in % (percentage) – GR, FS, WW
3. All matches – standing / parterre points & technical / other points - GR, FS, WW
4. Review all matches points per weight category and wrestling technical and other points - GR, FS, WW
5. Efficiency (wq/min) & standing / parterre in % (percentage) & GR, FS, WW
6. Review total % (percentage) by category – technical and other points / GR, FS, WW
7. Most successful wrestler (msw) / GR, FS, WW
8. National team performance / points win and points lost / GR, FS, WW
9. Individual wrestlers performance – GR, FS, WW / points win – points lost

In this paper, only the most important parts related to wrestling techniques are given, which are performed by weight categories, by national teams, by individual wrestling techniques, the most successful wrestlers in all three styles are shown, and at the end of the analysis, the techniques for each wrestler are shown (which with which techniques did he win points and with which techniques did he lose points).

Due to the limited space to publish all the details of this analysis, only the most significant details are shown, and the complete analysis can be seen on the platform called "Performance Date Analysis" at the Internet address:

<http://uww.io/wpar>

1. GENERAL DATA / SENIOR WCH 2022. – GR, FS, WW

GENERAL DATA (SENIOR WCH - 2022.) - GR

Number of Matches	Total Points/match	All matches Standing/Par terre Points								
314	7.57	53.39%								
Total points scored	WQ/min (Total Points per minute)	All matches Technical/Other Points								
2377	1.60	69.54%								
Most Successful Wrestler		Victory Wins %								
AZIZLI Eldaniz - AZE (GR 55)										
7.74										
		<table border="1"> <thead> <tr> <th>Victory Wins %</th> </tr> </thead> <tbody> <tr> <td>VPO1 168 53.5%</td> </tr> <tr> <td>VSU 68 21.7%</td> </tr> <tr> <td>VPO 30 9.6%</td> </tr> <tr> <td>VFA 20 6.4%</td> </tr> <tr> <td>VSU1 17 5.4%</td> </tr> <tr> <td>VIN 6 1.9%</td> </tr> <tr> <td>VFO 5 1.6%</td> </tr> </tbody> </table>	Victory Wins %	VPO1 168 53.5%	VSU 68 21.7%	VPO 30 9.6%	VFA 20 6.4%	VSU1 17 5.4%	VIN 6 1.9%	VFO 5 1.6%
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The most important data from this table of GR style is the number of technical points per 1 minute of the fight. In the GR style it is 1.60 and is the smallest compared to the other two wrestling styles (FS and WW).

One of the reasons for the lower number of technical points in the GR style is because practically a wrestling match lasts 4.5 minutes, since in 70% of matches the first 90 seconds are waiting for the judges jury decision on the pasivity.

Another reason is that the technical fall is 8 points difference, while in FS and WW it is 10 points difference.

There are only 6.4% of fall, and 27.1% of technical fall (VSU and VSU1). Most of the victories were on points (VPO and VPO1) totaling 63.1%

Other important data from this table will be elaborated in the continuation of the analysis.

GENERAL DATA (SENIOR WCH - 2022.) - FS

Number of Matches	Total Points/match	All matches Standing/Par terre Points								
316	9.51	70.94%								
Total points scored	WQ/min (Total Points per minute)	All matches Technical/Other Points								
3004	1.96	81.96%								
Most Successful Wrestler		Victory Wins %								
HIGUCHI Rei - JPN (FS 61)										
6.58										
		<table border="1"> <thead> <tr> <th>Victory Wins %</th> </tr> </thead> <tbody> <tr> <td>VPO1 148 46.8%</td> </tr> <tr> <td>VSU 76 24.1%</td> </tr> <tr> <td>VPO 42 13.3%</td> </tr> <tr> <td>VSU1 31 9.8%</td> </tr> <tr> <td>VFA 11 3.5%</td> </tr> <tr> <td>VIN 5 1.6%</td> </tr> <tr> <td>VFO 3 0.9%</td> </tr> </tbody> </table>	Victory Wins %	VPO1 148 46.8%	VSU 76 24.1%	VPO 42 13.3%	VSU1 31 9.8%	VFA 11 3.5%	VIN 5 1.6%	VFO 3 0.9%
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VSU1 31 9.8%										
VFA 11 3.5%										
VIN 5 1.6%										
VFO 3 0.9%										

The number of technical points in FS per 1 minute of the fight is 1.96 and is the highest compared to the other two wrestling styles (GR and WW).

There are only 3.5% of fall and it is the lowest percentage of fall compared to the other two styles.

There are 33.9% of technical fall (VSU and VSU1) and it is the largest in comparison with the other two wrestling styles.

As in the other two styles, most victories were achieved on points (VPO and VPO1) and that is 60.6%.

GENERAL DATA (SENIOR WCH - 2022.) - WW

Number of Matches	Total Points/match	All matches Standing/Par terre Points								
226	8.60	71.04%								
Total points scored	WQ/min (Total Points per minute)	All matches Technical/Other Points								
1944	1.89	85.19%								
Most Successful Wrestler		Victory Wins %								
SUSAKI Yui - JPN (WW 50)										
10.94										
		<table border="1"> <thead> <tr> <th>Victory Wins %</th> </tr> </thead> <tbody> <tr> <td>VPO1 90 39.8%</td> </tr> <tr> <td>VSU 50 22.1%</td> </tr> <tr> <td>VFA 46 20.4%</td> </tr> <tr> <td>VPO 27 11.9%</td> </tr> <tr> <td>VSU1 9 4.0%</td> </tr> <tr> <td>VIN 3 1.3%</td> </tr> <tr> <td>VFO 1 0.4%</td> </tr> </tbody> </table>	Victory Wins %	VPO1 90 39.8%	VSU 50 22.1%	VFA 46 20.4%	VPO 27 11.9%	VSU1 9 4.0%	VIN 3 1.3%	VFO 1 0.4%
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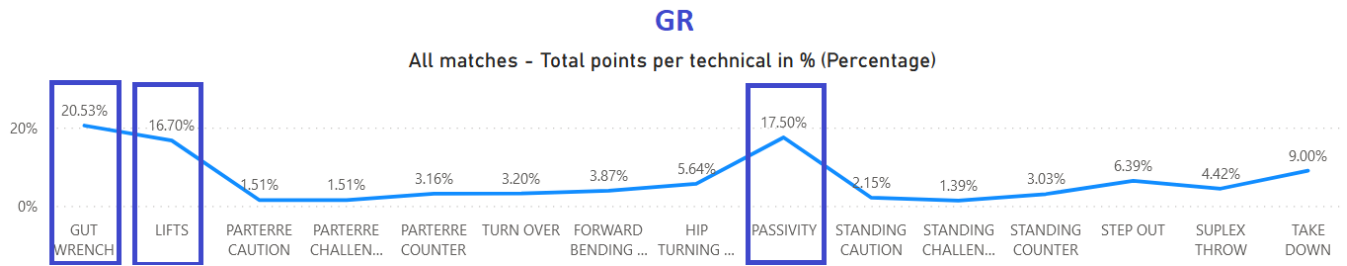
The number of technical points in WW per 1 minute of fight is 1.89.

There are numerous falls with 20.4% of matches that ended with a fall victory. This is a big difference compared to the other 2 wrestling styles. This fall data fall at WCH was a big difference in the quality of WW compared to the other two wrestling styles (GR and FS).

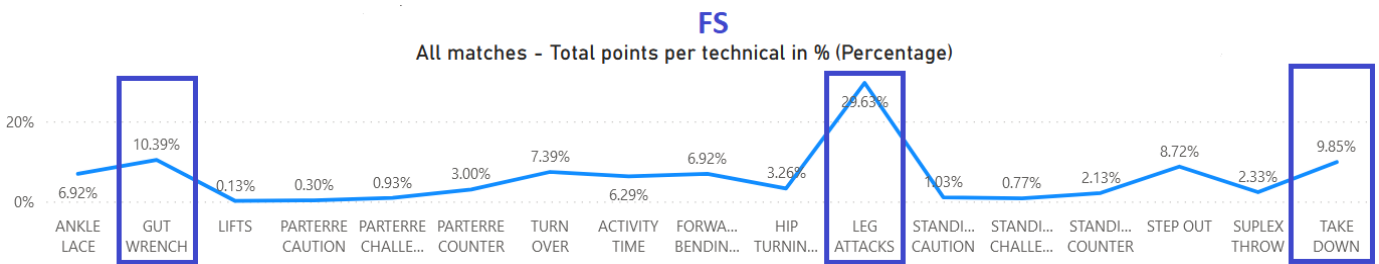
Technical falls (VSU and VSU1) were 26.1% and this number is approximately similar to the other two wrestling styles.

Compared to the other two wrestling styles, the fewest victories were by points (VPO and VPO1) and that was 50.7%, and this is was due to the many victories by fall.

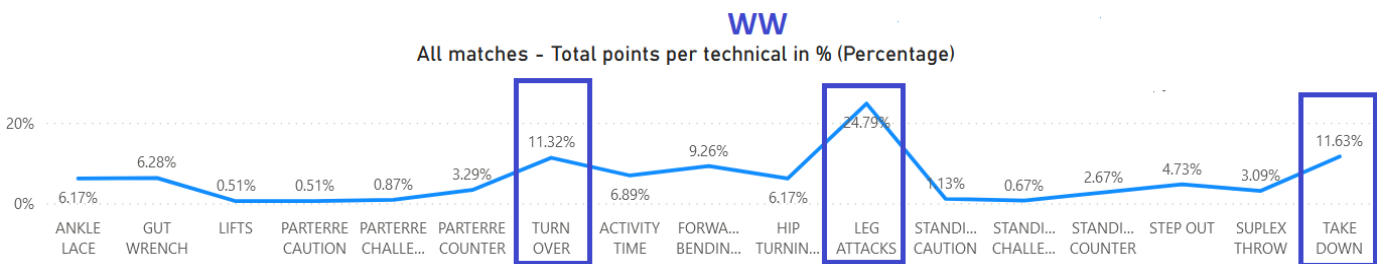
2. TOTAL POINTS PER TECHNICAL POINTS IN % (Percentage) / SENIOR WCH 2022. – GR, FS, WW



In the GR style, two wrestling techniques and points for passivity are distinguished by the number of points made. The most technical points in the GR style were made with the GUT WRENCH technique, 20.53% and the LIFTS technique – 16.70%. A large number of points were decided by the judges because 17.50% of points were awarded to wrestlers for passivity in the first and second rounds.



In FS, three wrestling techniques are distinguished by the number of points made. The most technical points in FS were made: 29.63% with the LEG ATTACK technique, 10.39% with the GUT WRENCH technique and 9.85% with the TAKE DOWN technique. Unlike the GR style where passivity is penalized with 17.50%, in FS only 6.29% points are awarded to the ACTIVITY TEAM for passive wrestling in the first and second rounds.

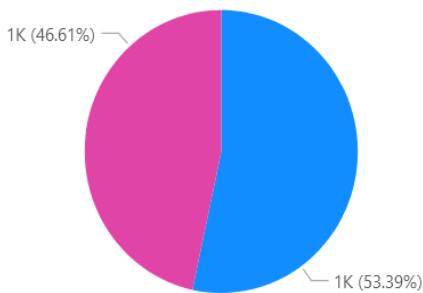


In WW, three wrestling techniques are distinguished by the number of points made. The most technical points in WW were made: 24.79% with the LEG ATTACK technique, 11.63% with the TAKE DOWN technique and 11.32% with the TURN OVER technique. Unlike the GR style where passivity is penalized with 17.50%, in WW only 6.89% points are awarded to the ACTIVITY TEAM for passive wrestling in the first and second rounds.

3. ALL MATCHES – STANDING / PARTERRE POINTS & TECHNICAL / OTHER POINTS & GR, FS, WW

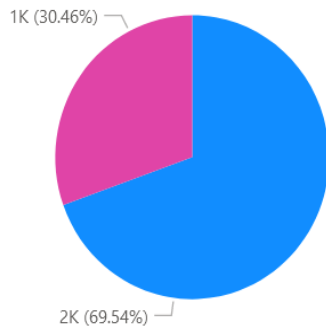
GR

Standing / Parterre points



Position ● standing ● parterre

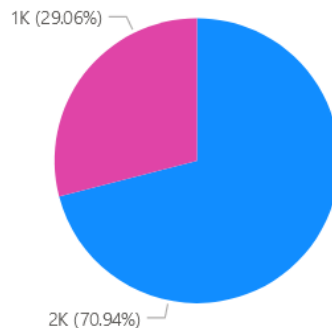
Technical / Other points



Points ● technique ● other

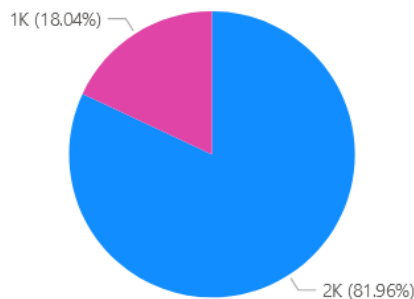
FS

Standing / Parterre points



Position ● standing ● parterre

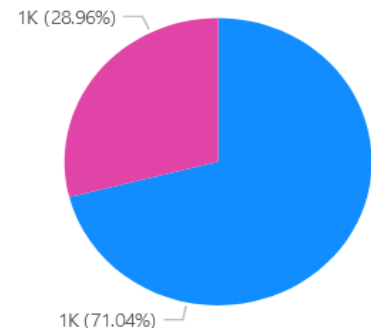
Technical / Other points



Points ● technique ● other

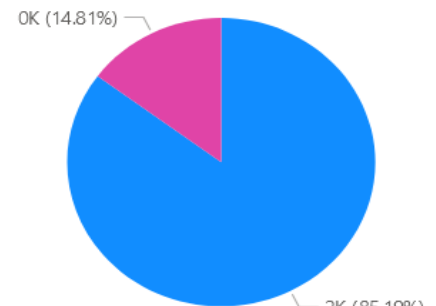
WW

Standing / Parterre points



Position ● standing ● parterre

Technical / Other points



Points ● technique ● other

The data in this graph is very significant to see the ratio of points in the standing position to the parterre position and the ratio of technical points to other points. In GR, there is a significant difference compared to the other two styles (FS and WW) because as many as 46.61% of the points were won in parterre. Likewise, the data for GR show a significant number of other points (points that are not wrestling techniques: passivity, step out, challenge...). In the GR style, almost 1/3 of the points are OTHERPOINTS (30.5%). This indicates that it may be necessary to change the rules to significantly increase the point value for WRESTLING TECHNIQUES in relation to OTHER POINTS.

In FS, unlike the GR style, the number of points in the parterre is significantly lower. In total, the wrestlers won 29.06% of points with parterre techniques.

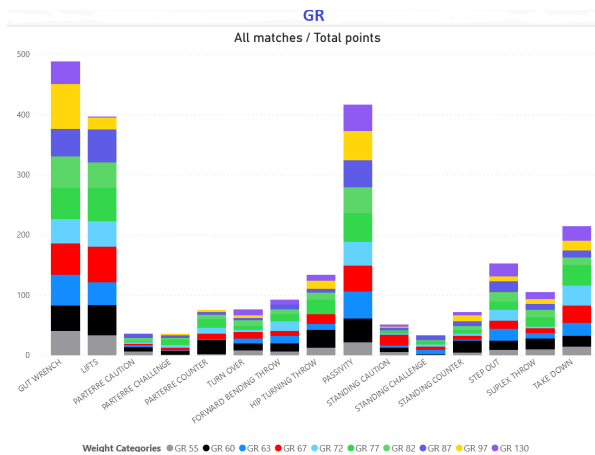
In FS and WW, an equal percentage of technical points were made in parterre compared to GR style.

There are significantly fewer points for OTHER POINTS - 18.04% compared to GR style. However, here too, there is a fairly high percentage of points that are not wrestling techniques.

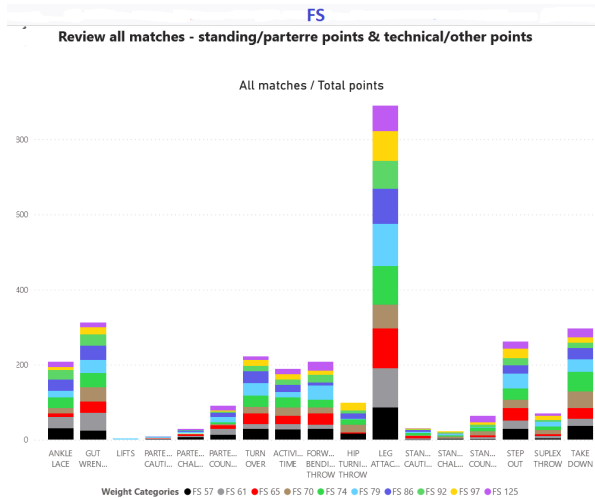
In WW, the most points were won in the standing position, 71.04%, compared to the other two wrestling styles (FS - 70.94% and 53.39% in GR).

WW has the fewest points for OTHER POINTS (activity time, warning, step out, challenge...) - 14.81% compared to FS and GR style.

4. REVIEW OF ALL MATCHES POINTS PER WEIGHT CATEGORY AND WRESTLING TECNICAL AND OTHER POINTS & GR, FS, WW



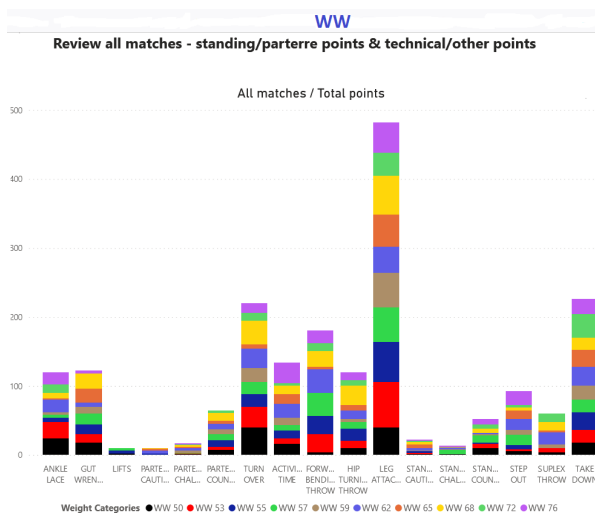
Analyzing the techniques performed in the GR style by weight categories, it is evident that the most points were scored in 97 kg (74). For the GUT WRENCH technique there were 52 points in the categories: 63 kg, 67 kg, 77 kg and 82 kg. For the LIFT technique, the most points (59) were in 67 kg, followed by 56 points in 77 kg and 55 points in 87 kg. The most points for PASSIVITY were in 77 kg and 97 kg - 48 points.



In FS, the LEG ATTACK technique scored the most points, 890 out of 3004 points or 29.63%. The most points were won in the 79 kg category - 112, then in the 65 kg category - 106 points and in the 61 kg category - 104 points.

The second technique with the number of points was the GUT WRENCH with 10.39% of points. The most points with this technique were scored in the 61 kg category - 48 points and in the 70 kg, 74 kg and 86 kg categories - 38 points.

The third technique in terms of points was TAKE DOWN with 9.85 points. The most points with this technique were scored in the category 74 kg - 52 points, 70 kg - 44 points and 57 kg - 36 points.

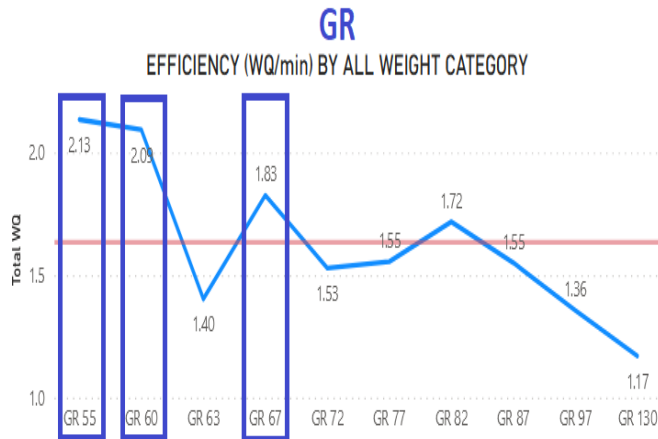


In WW, the LEG ATTACK technique scored the most points, 482 out of 1994 points or 24.79%. The most points were won in the category 53 kg - 66, then in 55 kg - 58 points and in 68 kg - 56 points.

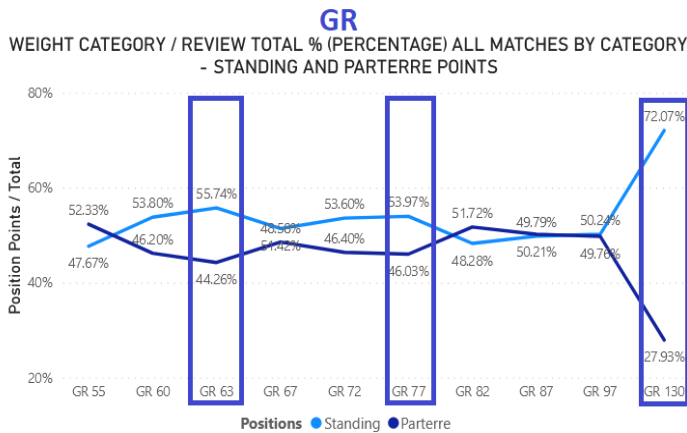
The second technique by the number of points was TAKE DOWN with 11.63% of points. The most points with this technique were scored in the 72 kg category - 34 points, 62 kg - 28 points and 55 kg - 26 points.

The third technique by number of points was TURN OVER with 11.32 points. The most points with this technique were scored in the category 50 kg - 40 points, 68 kg - 34 points and 53 kg - 30 points.

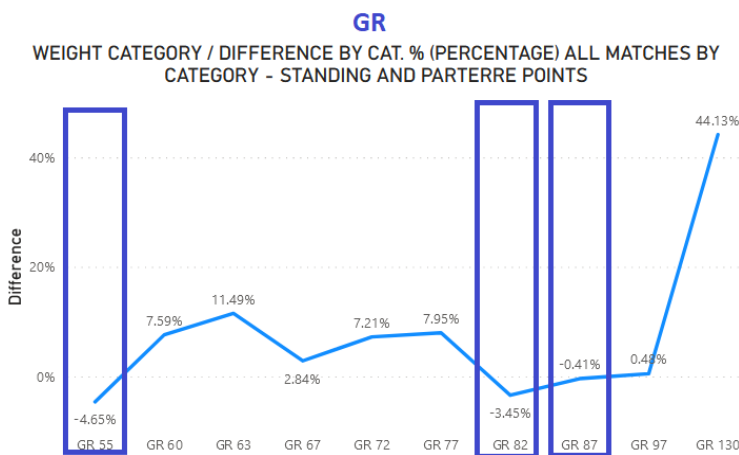
5.1. GR - EFFICIENCY (WQ/min) & STANDING / PARTERRE IN % (PERCENTAGE)



One of the most important indicators of technical efficiency in wrestling matches is the number of points scored per one (1) minute of the match. From the attached graph it is evident that the wrestlers in the lower weight categories are much more effective in the GR style. The first two weight categories stand out in particular: 55 kg and 60 kg, where the WQ/min is 2.13 and 2.09, respectively. The third most effective weight category is 67 kg with 1.83 points per minute of fighting. By far the fewest points were made in the two heaviest categories, namely in 130 kg - 1.17 and 97 kg 1.36 points per minute of the fight. The surprising result is in the 63 kg category, where WQ/min is 1.40.



This graph in GR style shows the ratio of standing and parterre points by weight category in GR style. The biggest deviation from the average is visible in 130 kg, where the ratio of points is 72.07 - 27.93% in favor of points in standing. In all other categories, the number of points is approximately the same in standing and parterre. As can be seen in the attached graph, the greater number of points in the parterre are in three weight categories: 55 kg - 52.33%, 82 kg - 51.72% and 87 kg - 50.21%.



This graph in GR style is directly related to the previous graph and provides data on the percentage difference between points won in standing and parterre. The graph shows that the data in the 130 kg category differ significantly, where a much larger number of points were obtained in the standing position (the difference is 44.13%), because the dominant points are for passivity, take down and step out. In all other categories, there is a very small difference in percentages between the points in the standing and parterre positions and it ranges between plus / minus - 11% - 4%.

5.2. FS - EFFICIENCY (WQ/min) & STANDING / PARTERRE IN % (PERCENTAGE)

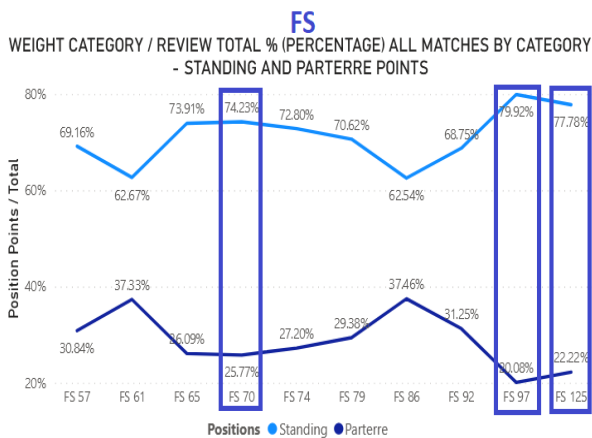


Unlike the GR style where wrestlers in the lower weight categories were much more effective, in the FS style wrestlers from the middle weight categories (with the exception of 86 kg) were much more effective.

The most effective were the wrestlers in 61 kg with an index of 2.29 points per minute of fight (WQ/min). In 79 kg, this index of efficiency is 2.16 points per minute of fight and in third place is 92 kg for an index of 2.13 points per minute of fight.

Very good results in FS, because in 4 categories there were more than 2.0 points per minute of fight.

The fewest points were made in the heaviest category (125 kg) - 1.64 points per minute of fight, but if you compare the heavy category in GR style, where this index in 130 kg was - 1.17, then it is evident that the wrestlers are in the heavy category in FS were much more effective than heavyweight wrestlers in GR.

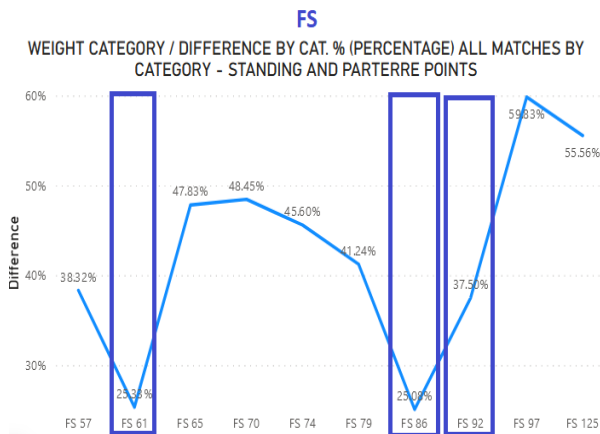


This graph shows the ratio of points in standing and parterre by weight categories in FS style.

If you look at the curve by weight categories in GR and FS, it is clear that in FS there are many more points for techniques in standing, in all weight categories.

The graph is quite uniform in terms of values, and there are slightly more standing points in the categories: 97 kg, 125 kg and 70 kg.

As can be seen in the attached graph, a slightly higher number of points in the parterre are in two weight categories: 61 kg and 86 kg.

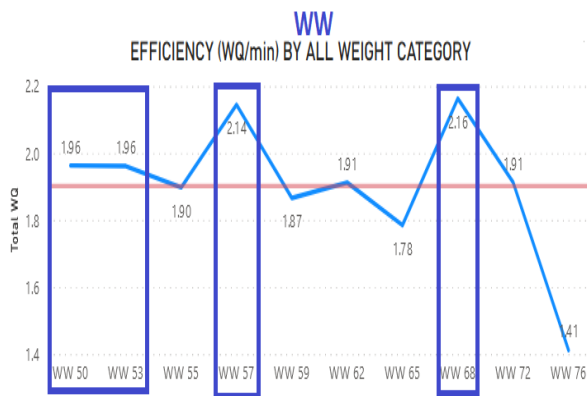


This chart in FS is directly related to the previous chart and provides data on the percentage difference between points won in standing and parterre.

The graph shows that in three categories, a slightly higher percentage of points are in the parterre compared to the other weight categories - 86 kg, 61 kg and 92 kg.

In all other categories, there is a very big difference in percentages between points in standing and parterre, and it ranges between plus / minus - 59% - 41%.

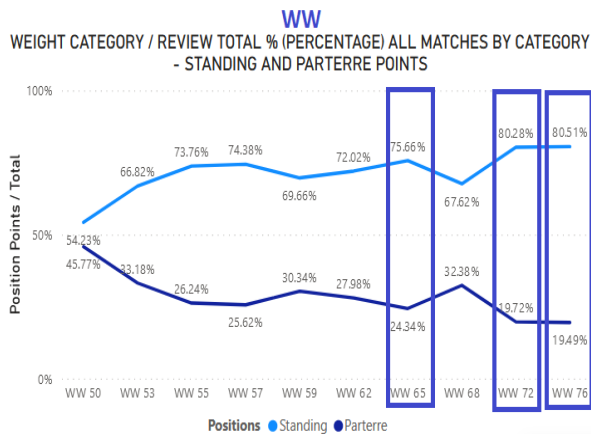
5.3. WW - EFFICIENCY (WQ/min) & STANDING / PATERRE IN % (PERCENTAGE)



In WW, female wrestlers were the most effective in two weight categories: 66 kg (2.16%) and 57 kg (2.14).

What is good about WW is that in as many as 7 weight categories there was an average of 1.90 or more points per minute of fight (WQ/min).

The fewest points were scored in the heaviest category (76 kg) – 1.41 points per minute of the fight. This is expected, because in the other two styles (GR, FS), the lowest number of points was made in heavy categories.

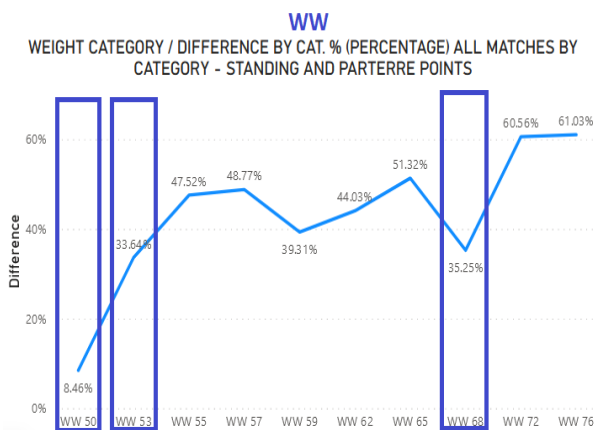


This graph shows the ratio of standing and parterre points by weight class in WW style.

If you look at the curve by weight category in GR and FS, it is visible that the results are similar in WW and FS, but it is significantly different from the results in GR style.

The graph is quite uniform in terms of values, and differs slightly with more parterre points in the category: 50 kg (45.77%).

As can be seen in the attached graph, there is a slightly higher number of points in standing (more than 80%) in two weight categories: 72 kg and 76 kg. In all other categories, the number of points in the standings is around 70%.



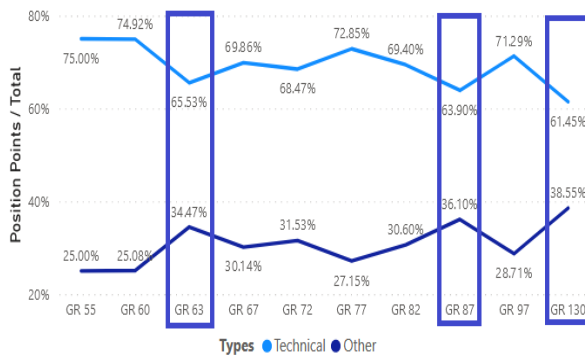
This graph in WW is directly related to the previous graph and provides data on the percentage difference between points won in standing and parterre.

The graph shows that in three weight categories, a slightly higher percentage of points are in the parterre position compared to the other weight categories - 50 kg, 53 kg and 68 kg.

In all other weight categories, there is a very big difference in percentages between points in standing and parterre, and it ranges between plus / minus - 61% - 40%.

6. REVIEW TOTAL % (PERCENTAGE) BY CATEGORY – TECHNICAL AND OTHER POINTS / GR-FS-WW

GR WEIGHT CATEGORY / REVIEW TOTAL % (PERCENTAGE) ALL MATCHES BY CATEGORY - TECHNICAL AND OTHER POINTS



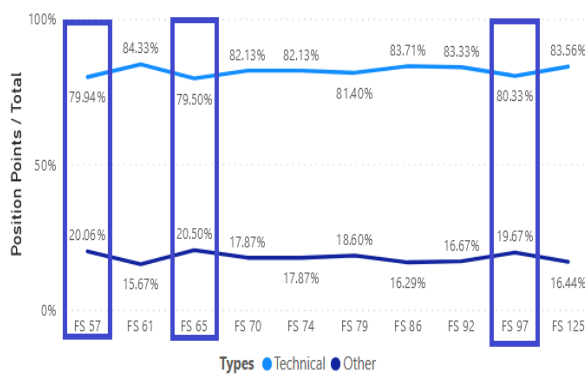
This is one of the more significant analyses that shows the relationship between points given for performed wrestling techniques and points that are not technical points, namely: passivity, step out, challenge, caution. In the GR style, there were a total of 30.46% of points that were not the result of performed wrestling techniques.

In recent years, in the GR style, there is a very high percentage of other points, and this is not good for the image of wrestling, because the referees often have to decide the winner of the match with their decisions (passivity).

In three weight categories, the number of other points is greater than 1/3, namely: 130 kg - 38.55%, 87 kg - 36.10% and 63 kg - 34.47%.

The least other points were in the categories 55 kg and 60 kg - 25%, but even that is a large number, because it is 1/4 of the total number of points in the matches in the GR style of wrestling.

FS WEIGHT CATEGORY / REVIEW TOTAL % (PERCENTAGE) ALL MATCHES BY CATEGORY - TECHNICAL AND OTHER POINTS

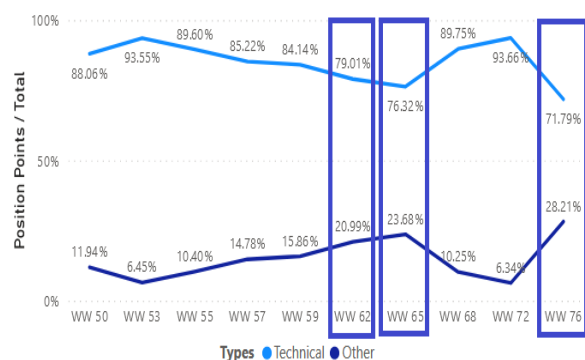


FS matches have much better indicators when it comes to other points compared to GR style. In the FS style, there were a total of 18.04% of points that were not the result of performed wrestling techniques.

Only two categories are above 20% in other points, namely: 65 kg - 20.50% and 57 kg - 20.06%. In all other categories, this percentage is below 20%.

The least other points were in 61 kg - 15.67%, 86 kg - 16.69% and 125 kg - 16.44%.

WW WEIGHT CATEGORY / REVIEW TOTAL % (PERCENTAGE) ALL MATCHES BY CATEGORY - TECHNICAL AND OTHER POINTS



WW matches have much better indicators when it comes to other points compared to GR style and FS.

In WW, there were a total of 14.81% points that were not the result of performed wrestling techniques.

Points above 20% remained in three weight categories: 76 kg - 28.21%, 65 kg - 23.68% and 62 kg - 20.99%. In all other categories, this percentage is significantly below 20%.

The least other points were in 72 kg - 6.34% and 53 kg - 6.45%. Matches in these two categories are a good example, where there are few other points, and a large number of points were awarded for the wrestling techniques performed.

7. MOST SUCCESSFUL WRESTLER (MSW) / GR-FS-WW

Most Successful Wrestler (MSW)

World Championships, September 2022, RS

GR

Wrestler	Team	Weight	Time	# of matches	TP Win	TP Lost	WQ/min (Win)	WQ/min (Lost)	WQ Diff	CP Win	CP Lost	CP Win / # of match	CP Lost / # of match	CP Diff	MSW Index
AZIZLI Eldaniz	AZE	GR 55	0:09:06	4	34	0	3.74	0.00	3.74	16	0	4.00	0.00	4.00	7.74
SHARSHENBEKOV Zholaman	KGZ	GR 60	0:10:40	4	30	2	2.81	0.19	2.63	16	1	4.00	0.25	3.75	6.38
ARSALAN Ali Feizollah	SRB	GR 72	0:21:44	5	39	10	1.79	0.46	1.33	19	3	3.80	0.60	3.20	4.53
MAKHMUDOVI Akzhol	KGZ	GR 77	0:21:57	5	40	9	1.82	0.41	1.41	18	3	3.60	0.60	3.00	4.41
ALEKSANYAN Artur	ARM	GR 97	0:20:02	5	20	3	1.00	0.15	0.85	18	3	3.60	0.60	3.00	3.85
AKBUDAK Burhan	TUR	GR 82	0:20:07	4	28	7	1.39	0.35	1.04	13	2	3.25	0.50	2.75	3.79
NEMES Mate	SRB	GR 67	0:23:26	5	32	9	1.37	0.38	0.98	17	4	3.40	0.80	2.60	3.58
KAYAALP Riza	TUR	GR 130	0:20:16	4	19	5	0.94	0.25	0.69	13	3	3.25	0.75	2.50	3.19
NAD Sebastian	SRB	GR 63	0:30:00	5	24	3	0.80	0.10	0.70	15	3	3.00	0.60	2.40	3.10
DATUNASHVILI Zurabi	SRB	GR 87	0:24:00	4	19	6	0.79	0.25	0.54	12	3	3.00	0.75	2.25	2.79
Total			3:21:18	45	285	54	1.42	0.27	1.15	157	25	3.49	0.56	2.93	4.08

The most successful wrestler in the GR style was AZIZLI ELDANIZ in 55 kg, who won 34 technical points, and not a single opponent managed to score a single point on him. Azizli had 16 classification points and 0 lost classification points in 4 matches. These results put him at the top of the most successful GR wrestlers at WCH 2022.

Most Successful Wrestler (MSW)

World Championships, September 2022, RS

FS

Wrestler	Team	Weight	Time	# of matches	TP Win	TP Lost	WQ/min (Win)	WQ/min (Lost)	WQ Diff	CP Win	CP Lost	CP Win / # of match	CP Lost / # of match	CP Diff	MSW Index
HIGUCHI Rei	JPN	FS 61	0:12:39	4	46	7	3.64	0.55	3.08	15	1	3.75	0.25	3.50	6.58
TAYLOR III David Morris	USA	FS 86	0:13:34	4	40	1	2.95	0.07	2.87	15	1	3.75	0.25	3.50	6.37
BURROUGHS Jordan Ernest	USA	FS 79	0:18:03	5	47	6	2.60	0.33	2.27	18	4	3.60	0.80	2.80	5.07
NARIKUNI Taishi	JPN	FS 70	0:21:17	5	49	15	2.30	0.70	1.60	19	2	3.80	0.40	3.40	5.00
DAKE Kyle Douglas	USA	FS 74	0:20:13	5	32	5	1.58	0.25	1.34	19	3	3.80	0.60	3.20	4.54
ABAKAROV Zelimkhan	ALB	FS 57	0:27:05	5	46	5	1.70	0.18	1.51	18	3	3.60	0.60	3.00	4.51
GHAEMPOUR Kamran Ghorban	IRI	FS 92	0:20:55	4	24	2	1.15	0.10	1.05	13	1	3.25	0.25	3.00	4.05
SNYDER Kyle Frederick	USA	FS 97	0:20:47	4	24	2	1.15	0.10	1.06	13	2	3.25	0.50	2.75	3.81
AMOUZADKHALILI Rahman Mousa	IRI	FS 65	0:27:47	5	49	13	1.76	0.47	1.30	16	4	3.20	0.80	2.40	3.70
AKGUL Taha	TUR	FS 125	0:24:00	4	22	6	0.92	0.25	0.67	12	3	3.00	0.75	2.25	2.92
Total			3:26:20	45	379	62	1.84	0.30	1.54	158	24	3.51	0.53	2.98	4.51

The most successful wrestler in the FS style was HIGUCHI REI in 61 kg, who won 46 technical points and lost 7 points. Higuchi had 4 matches in which he received 15 classification points and only one minus classification point. Mostly because of the high number of points won (46) in 4 matches, this put him in the first place of the most successful wrestlers in FS style at WCH 2022.

Most Successful Wrestler (MSW)

World Championships, September 2022, RS

WW

Wrestler	Team	Weight	Time	# of matches	TP Win	TP Lost	WQ/min (Win)	WQ/min (Lost)	WQ Diff	CP Win	CP Lost	CP Win / # of match	CP Lost / # of match	CP Diff	MSW Index
SUSAKI Yui	JPN	WW 50	0:04:58	4	32	0	6.44	0.00	6.44	18	0	4.50	0.00	4.50	10.94
STOCK MENSAH Tamyra Mariama	USA	WW 68	0:12:08	4	36	0	2.97	0.00	2.97	18	0	4.50	0.00	4.50	7.47
OZAKI Nonoka	JPN	WW 62	0:09:55	4	37	5	3.73	0.50	3.23	16	1	4.00	0.25	3.75	6.98
SHIDOCHI MUKAIDA Mayu	JPN	WW 55	0:17:50	5	48	0	2.69	0.00	2.69	19	0	3.80	0.00	3.80	6.49
ELOR Amit	USA	WW 72	0:09:36	4	27	2	2.81	0.21	2.60	16	1	4.00	0.25	3.75	6.35
SAKURAI Tsugumi	JPN	WW 57	0:22:02	4	27	2	1.23	0.09	1.13	14	1	3.50	0.25	3.25	4.38
NICHITA Anastasia	MDA	WW 59	0:20:08	4	25	8	1.24	0.40	0.84	16	2	4.00	0.50	3.50	4.34
PARRISH Dominique Olivia	USA	WW 53	0:19:42	4	27	3	1.37	0.15	1.22	14	2	3.50	0.50	3.00	4.22
ADAR YIGIT Yasemin	TUR	WW 76	0:19:15	4	24	5	1.25	0.26	0.99	13	2	3.25	0.50	2.75	3.74
MORIKAWA Miwa	JPN	WW 65	0:18:00	3	7	0	0.39	0.00	0.39	9	0	3.00	0.00	3.00	3.39
Total			2:33:34	40	290	25	1.89	0.16	1.73	153	9	3.83	0.23	3.60	5.33

The most successful wrestler in WW was SUSAKI YUI in 50 kg, who won 32 technical points, and not a single opponent managed to score a single point on her. In 4 matches, Susaki had 18 classification points, and not a single lost classification point. These results put her at the top of female wrestlers in WW at WCH 2022.

8. NATIONAL TEAM PERFORMANCE / POINTS WON and POINTS LOST / GR-FS-WW

GR

National Teams Performance - Points WIN

Team	GUT WRENCH	LIFTS	PARTERRE CAUTION	PARTERRE CHALLENGE	PARTERRE COUNTER	TURN OVER	FORWARD BENDING THROW	HIP TURNING THROW	PASSIVI TY	STANDING CAUTION	STANDING CHALLENGE	STANDING COUNTER	STEP OUT	SUPLEX THROW	TAKE DOWN	Total
AZE	44	38	4	3	2	4	4	6	23	4	2	6	15	7	24	186
TUR	26	32	1	3	10	8			31	4	2	6	13	12	8	156
IRI	44	15	2	1		6	2	4	33	7	1	2	11	4	12	144
SRB	44	8		2	4		8	10	20	6	5	8	7		16	138
UZB	26	30	4	2	3	12	4	24	11	2	1	2	2	8	4	135
HUN	22	22	4	1	7	2	16		20	2	4	6	10		18	134
KGZ	14	49	2	5	1	2	4	16	10	2		4	4	8	12	133
KAZ	30	14	4	1	1	6		16	13	2	2	4	5	4	16	118
GEO	18	22		2			4		22	4	3	2	13	8	12	110
UKR	16	12	2	2	5	6	8	2	18	1	1		9		14	96

To display the results according to this parameter from this 2022 World Championship, an overview of the top 10 nations by the number of points won and lost is given.

The points won by national teams were analyzed in GR style. From this table it can be seen that out of the 3 techniques, with the most points, Azerbaijan wrestlers are among the best in all three wrestling techniques (gut wrench, lifts and passivity). The Turkish national team is very good in lifts and passivity. Iran in the technique of gut wrench and passivity. The teams of Serbia (gut wrench) and Kyrgyzstan stand out due to a significant number of points in technique - lifts.

GR

National Teams Performance - Points LOST

Team	GUT WRENCH	LIFTS	PARTERRE CAUTION	PARTERRE CHALLENGE	PARTERRE COUNTER	TURN OVER	FORWARD BENDING THROW	HIP TURNING THROW	PASSIVI TY	STANDING CAUTION	STANDING CHALLENGE	STANDING COUNTER	STEP OUT	SUPLEX THROW	TAKE DOWN	Total
KAZ	12	22	2		5	8	12	4	20	2	2	6	3		14	112
TUR	12	16	2	2	1	4		8	28	9	1	2	7	4	8	104
UKR	14	4	2		6	6	4	8	15	2	3	8	8	12	12	104
CHN	12	17	2		3	6	4	4	13		1	4	5	8	16	95
HUN	14	20		3	1		8	8	14	1	2		4	6	14	95
AZE	18	10	2	1	7		4	4	22	4			6	4	12	94
IND	36	8		1		6	4	10	8	1	1		7	6	4	92
JPN	26	24	1	2	1	4	4		16				4	4	6	92
GEO	16	21	4	2		8		4	18	4		4	4	2	4	91
USA	18	16			1			10	13	1		6	7	4	12	88

In the table of national teams that lost the most points in GR style, the following national teams stand out: Kazakhstan, which lost a lot of points on lifts and passivity, Japan in gut wrench and lifts techniques. Azerbaijan scores poorly in gut wrench and passivity. Japan in gut wrench and lifts. According to one criterion, the following had bad results: Turkey in passivity, Hungary in lifts, India in gut wrench and the USA in gut wrench.

FS

National Teams Performance - Points WIN

Team	ANKLE LACE	GUT WRENCH	LIFTS	PARTERRE CAUTION	PARTERRE CHALLENGE	PARTERRE COUNTER	TURN OVER	ACTIVITY TIME	FORWARD BENDING THROW	HIP TURNING THROW	LEG ATTACKS	STANDING CAUTION	STANDING CHALLENGE	STANDING COUNTER	STEP OUT	SUPLEX THROW	TAKE DOWN	Total
USA	18	42	4	2	3	15	22	19	16		88	3	1	4	45	18	24	324
IRI	2	34		2	1	8	10	14	16	12	74	3	1	8	28		36	249
JPN	30	14		1	1	8	18	3	20	4	52	2	4		7	8	12	184
MGL	16	22				5	12	11	20	4	26			8	11		20	155
GEO	16	16		1	3	6	6	6	4	4	42	2	2		10	4	16	132
AZE	10	16			3	14	8	4	2	34	1	2		9	8	14	125	
TUR		14			1	8	10	11	16		34	1	2	2	9	8	6	120
UZB	6	6	1	1	4	16	8	14	8	34	1	2		8	4	6	119	
IND	22	6		1	4	6	7	8		26	2		2	7		26	117	
UKR	2	14		1	5	8	2	20	8	38		2		9		6	115	

In FS style, the points won by national teams were analyzed. From this table it can be seen that of the 3 techniques that are performed the most (with the most points), in all 3 techniques the best wrestlers are the USA and Iran (leg attacks, gut wrench and take down). The national team of Japan is very good in leg attack, Mongolia in gut wrench and India in take down.

FS

National Teams Performance - Points LOST

Team	ANKLE LACE	GUT WRENCH	LIFTS	PARTERRE CAUTION	PARTERRE CHALLENGE	PARTERRE COUNTER	TURN OVER	ACTIVITY TIME	FORWARD BENDING THROW	HIP TURNING THROW	LEG ATTACKS	STANDING CAUTION	STANDING CHALLENGE	STANDING COUNTER	STEP OUT	SUPLEX THROW	TAKE DOWN	Total
KAZ	16	18			3	6	6	7	20		52	1	2		8		10	149
TUR	26			1	8	18	5	6	6	2	40	5	1	4	7		10	133
GEO	4	18			11	6	7	8			42			6	8	4	10	124
MGL	2	8		1	9	12	12	4			24	3	1		11	6	18	111
CHN		26		1	2	13	4	2	30		30	1	1	6	7	5	12	109
IND	10		1	4	12	3	6	6			42	1	6	12	7		4	108
BUL	14	14		3	6	8	8				30		1	2	7		12	105
CAN	8	8		1	10	4	8	8	6	36			6	6			12	105
UKR	2	10		1	2	10	5	8	4	26			6	12	4		12	102
JPN		10		2	1	8	7	8	4	24		2	2	9	8		16	101

In the table of national teams that lost the most points in FS, the following national teams stand out: Kazakhstan, which lost a lot of points on gut wrench and leg attacks, Georgia in gut wrench and leg attacks, China in gut wrench and take down techniques. According to one criterion, bad results were obtained by: Mongolia in take down, India in leg attacks, Bulgaria, Canada, Ukraine and Japan in take down.

National Teams Performance - Points WIN

Team	ANKLE LACE	GUT WRENCH	LIFTS	PARTERRE CAUTION	PARTERRE CHALLENGE	PARTERRE COUNTER	TURN OVER	ACTIVITY TIME	FORWARD BENDING THROW	HIP TURNING THROW	LEG ATTACKS	STANDING CAUTION	STANDING CHALLENGE	STANDING COUNTER	STEP OUT	SUPLEX THROW	TAKE DOWN	Total
JPN	38	6			1	2	28	16	30		70	2	2		6		26	227
USA	28	2	4	2		6	16	9	24	14	80	1		8	6	4	16	220
CHN	4	30		1	3	5	10	8	14	10	30			2	4	4	12	137
UKR	2	16			2	3	22	4	12	16	34	3			6		6	126
MGL		8				9	16	10	12	10	22	2	2	8	12		10	121
IND	2	6			2	3	16	4	14	4	28	2	1	6	5	4	4	101
CAN	8	6			3	1	6	11	6	6	20			2	2	8	10	89
TUR	12			1		2	6	4	4	4	14				2	8	16	73
ROU		6					6	5	4	2	8	1		2	5		32	71
MDA	2	6		2	1	12	8			14	8		1	2	1	5	8	70

In WW style, points won by national teams were analyzed. From this table, it can be seen that of the 3 techniques that are performed the most (with the most points), in all 3 techniques the best female wrestlers are from Japan and the USA (leg attacks, turn over and take down). The Ukrainian national team has many points in techniques: leg attacks and turn over. The national teams of Mongolia and India are good in turn over, and Turkey and Romania are good in take down.

National Teams Performance - Points LOST

Team	ANKLE LACE	GUT WRENCH	LIFTS	PARTERRE CAUTION	PARTERRE CHALLENGE	PARTERRE COUNTER	TURN OVER	ACTIVITY TIME	FORWARD BENDING THROW	HIP TURNING THROW	LEG ATTACKS	STANDING CAUTION	STANDING CHALLENGE	STANDING COUNTER	STEP OUT	SUPLEX THROW	TAKE DOWN	Total
UKR	12	12		2		2	10	4	8	16	38	2		4	1		22	133
CHN		2	4	2		11	16	10	12	10	32	2	1		7		16	125
MGL	4	4			3	4	8	6	8	10	34			4	9	20	6	120
KAZ	16	8				1	4	6	24	6	14	3		4	7		14	107
IND	6	16		4		7	10	5	12	8	26		1		2		8	105
CAN		2				5	8	10	10	4	18			6	10		20	93
AZE	2	4			1	2	6	7	16	4	32	1	1		2	2	8	88
TUR		6	2	1		2	8	3	10	20	18	2		2	2		10	86
USA	14				1	4	6	9	10		20	2		2	6		12	86
POL	14	2				2	4	9			20			6	4	4	10	75

In the table of national teams that lost the most points in WW, the national team of Ukraine has bad results in all three techniques, i.e. many lost points (leg attacks, take down, turn over). China has a lot of lost points turn over and take down. According to one criterion, bad results were obtained by: India in turn over, Canada in take down and Azerbaijan in leg attacks.

9. INDIVIDUAL WRESTLERS PERFORMANCE – GR-FS-WW/ POINTS WIN – POINTS LOST

2022-Sep-10 World Championships (Belgrade - RS)

seniors

gr

TUR

TUR - BEST GR TEAM

Individual Performance - Points WIN

Team	GUT WRENCH	LIFTS	PARTERRE CAUTION	PARTERRE CHALLENGE	PARTERRE COUNTER	TURN OVER	PASSIVTY	STANDING CAUTION	STANDING CHALLENGE	STANDING COUNTER	STEP OUT	SUPLEX THROW	TAKE DOWN	Total
TUR	26	32	1	3	10	8	31	4	2	6	13	12	8	156
AKBUDAK Burhan	4	8				4	5			3	4			28
BASAR Metehan					2		4				1			7
BASAR Yunus Emre	6	12		2	2		4			2	1			29
CAN Selcuk		8					4							12
CENGIZ Ali					2	2	3	2	2	2	2	4		19
FIRAT Murat	6				2		2	2			1	4	4	21
KAMAL Kerem	2	2	1	1	2		4			2			2	16
KAYAALP Riza	8					2	4				5			19
OZTURK Ekrem		2					1						2	5
Total	26	32	1	3	10	8	31	4	2	6	13	12	8	156

Individual Performance - Points LOST

Team	GUT WRENCH	LIFTS	PARTERRE CAUTION	PARTERRE CHALLENGE	PARTERRE COUNTER	TURN OVER	HIP TURNING THROW	PASSIVTY	STANDING CAUTION	STANDING CHALLENGE	STANDING COUNTER	STEP OUT	SUPLEX THROW	TAKE DOWN	Total
TUR	12	16	2	2	1	4	8	28	9	1	2	7	4	8	104
AKBUDAK Burhan							4	1						2	7
BASAR Metehan	4			1				4				2			11
BASAR Yunus Emre		4						4	2					2	12
CAN Selcuk		4						4				1		2	11
CENGIZ Ali		4	2					6							12
FIRAT Murat	2	4			1		4	2	4	1	2			20	
KAMAL Kerem	2			1		2		1	2			1	4	2	15
KAYAALP Riza	2							3						5	
OZTURK Ekrem						2		1	1			2		6	
UYAR Ahmet	2							2				1		5	
Total	12	16	2	2	1	4	8	28	9	1	2	7	4	8	104

To present this analysis, the best national selection in team scoring was selected. Turkey was the most successful in the GR style. For each wrestler, points are shown by wrestling techniques won by each wrestler in the team. Likewise, for each wrestler, points lost by wrestling techniques are shown. Wrestlers are listed alphabetically. Basar (29) and Akbudak (28) scored the most points in the Turkish team. Both wrestlers had the most points won by technique - lifts. Firat (20) and Kamal (15) lost the most points.

USA - BEST FS TEAM

Individual Performance - Points WIN

Team	ANKLE LACE	GUT WRENCH	LIFTS	PARTERRE CAUTION	PARTERRE CHALLENGE	PARTERRE COUNTER	TURN OVER	ACTIVITY TIME	FORWARD BENDING THROW	LEG ATTACKS	STANDING CAUTION	STANDING CHALLENGE	STANDING COUNTER	STEP OUT	SUPLEX THROW	TAKE DOWN	Total
USA	18	42	4	2	3	15	22	19	16	88	3	1	4	45	18	24	324
BURROUGHS Jordan Ernest	10		4	2	3	15	22	19	16	88	3	1	4	45	18	24	324
COX Jden Michael Tborn		6				2		2	4	14				7		4	47
DAKE Kyle Douglas						2	4	1	4	6	1			4	5	2	28
DIAKOMIHALIS John Michael	2	8			1	6	2	2	4	12		1		5		2	42
GILMAN Thomas Patrick		2					2	2	4	2				8		8	26
GROSS Seth Anthony		6				5	8	1		8	1		2	2	4		37
RETFERFORD Zain Allen	2						2	2		16				4			26
SNYDER Kyle Frederick		4						3		6			2	7		2	24
TAYLOR III David Morris		12			2	4	2	1		16				1		2	40
ZILLMER Hayden Nicholas	4	4				4	3	3		4				1		2	22
Total	18	42	4	2	3	15	22	19	16	88	3	1	4	45	18	24	324

Individual Performance - Points LOST

Team	ANKLE LACE	PARTERRE CAUTION	PARTERRE CHALLENGE	PARTERRE COUNTER	TURN OVER	ACTIVITY TIME	FORWARD BENDING THROW	HIP TURNING THROW	LEG ATTACKS	STANDING CAUTION	STEP OUT	TAKE DOWN	Total
USA	12	1	2	12	6	4	4	2	30	2	16	6	97
BURROUGHS Jordan Ernest						1				1	4		6
COX Jden Michael Tborn									2				2
DAKE Kyle Douglas				2		1				1	1		5
DIAKOMIHALIS John Michael				4	2				4		1	2	13
GILMAN Thomas Patrick		1						2	4		3		10
GROSS Seth Anthony	4		2	5	4				14		4		33
RETFERFORD Zain Allen	8								2				10
SNYDER Kyle Frederick										2	2		2
TAYLOR III David Morris						1							1
ZILLMER Hayden Nicholas				1	1	4		4		1	4	4	15
Total	12	1	2	12	6	4	4	2	30	2	16	6	97

USA was the most successful in the FS style. For each wrestler, points are shown by wrestling techniques won by each wrestler in the team. Likewise, for each wrestler, loss points by wrestling techniques are shown. Wrestlers are listed alphabetically. In the USA team, more than 40 points were won by wrestlers: Burroughs (47), Diakomihaus (42) and Taylor (40). All three wrestlers had the most points won by technique - leg attacks. The most points were lost by Gross (33) of which even 14 points – leg attack.

JPN - BEST WW TEAM

Individual Performance - Points WIN

Team	ANKLE LACE	GUT WRENCH	PARTERRE CHALLENGE	PARTERRE COUNTER	TURN OVER	ACTIVITY TIME	FORWARD BENDING THROW	LEG ATTACKS	STANDING CAUTION	STANDING CHALLENGE	STEP OUT	TAKE DOWN	Total
JPN	38	6	1	2	28	16	30	70	2	2	6	26	227
FURUICHI Masako					2	2	4	8	1			2	17
ISHII Ami					2	2	4	12	1		1		23
KAGAMI Yuka						7		4			2		13
MORIKAWA Miwa						3					2	2	7
MOTOKI Sakura		2	1		6	2		10				2	23
OZAKI Nonoka	16				6	1	4	6		1	1	2	37
SAKURAI Tsugumi	2				2	2	4	10		1		6	27
SHIDOCHI MUKAIDA Mayu	4	4			2	2	14	14				10	48
SUSAKI Yui	16					8		6				2	32
Total	38	6	1	2	28	16	30	70	2	2	6	26	227

Individual Performance - Points LOST

Team	GUT WRENCH	PARTERRE CHALLENGE	PARTERRE COUNTER	TURN OVER	ACTIVITY TIME	FORWARD BENDING THROW	LEG ATTACKS	STANDING CHALLENGE	STANDING COUNTER	SUPLEX THROW	TAKE DOWN	Total
JPN	2	1	3	10	5	4	6	1	4	4	10	50
FURUICHI Masako					2		2		4		4	12
ISHII Ami	2			6		4	2			4		18
KAGAMI Yuka		1			3		2					6
MOTOKI Sakura			2	2				1			2	7
OZAKI Nonoka			1	2							2	5
SAKURAI Tsugumi											2	2
Total	2	1	3	10	5	4	6	1	4	4	10	50

The Japanese team was the most successful in the WW style. For each female wrestler, the points by wrestling techniques won by each female wrestler on the team are shown. Likewise, for each female wrestler, losing points by wrestling techniques are shown. Female wrestlers are listed alphabetically. In the Japanese team, more than 30 points were won by female wrestlers: Shidochi (48), Ozaki (37) and Susaki (32). The most points for wrestling techniques were: Shidochi (leg attacks and forward bedding throw), Ozaki (ankle lace) and Susaki (ankle lace). Ishe (18) and Furuichi (12) lost the most points.

FINAL CONSIDERATIONS

In the limited space required by scientific work for the purposes of UWW, it is impossible to display all the data contained in the Performance Data Analysis (PDA). All data can be found in 34 tables and 29 graphs, with numerous exact data for each segment of the wrestling match, namely:

1. Basic information about matches,
2. Review all matches – standing/parterre points & technical/other points
3. Review by weighting category – standing/parterre points and WQ/min,
4. Review by weighting category – technical/other points and WQ/min,
5. Review per national team – basic data (standing/parterre – technical/other points – WQ/min),
6. National Teams Performance – Points WIN / National teams – Points LOST / National teams,
7. Review medal matches (I-II, III-V),
8. Most Successful Wrestler (MSW),
9. Review of % points „All Matches“, „Medal“ matches (Finalist 1-2, 3-5) and all matches of „Winner’s (Gold medalists)“,
10. Review time making points per minute (all matches),
11. Best wrestlers per Technics,
12. Technics per all wrestlers „WIN“ and LOST“

This analysis shows the most important parts of the analysis in all three Olympic styles: GR, FS and WW. Based on the displayed results, wrestling coaches should draw the necessary conclusions for each analyzed segment and, based on that, correct their plans and programs in the following period, and based on the displayed data on the PDA platform –

(<http://uww.io/wpar>).

Based on the success rate of each wrestler (champion), in the future the UWW should introduce a rule that in the senior competitions, the wrestler is who is seen as the most successful wrestler from the Performance Data Analysis, be awarded prize money and is named as the most successful wrestler by style. In the junior age group competitions, it would be good to award a trophy to be awarded to the most successful wrestler in each style.

In the future, the PDA should be of great use to scientists, who can create many scientific works based on the data from the PDA. A very large number of scientific works should be done according to the principle of comparative analysis of one or more wrestling competitions. It is planned to make analyzes in PDA this year, for all major competitions that were held in the period 2020 - 2023. When all the analyzes are finished, the work of scientific workers will be significantly facilitated in the preparation of various types of scientific papers.

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ARE LONG-TERM HEALTH EFFECTS ON THE MUSCULOSKELETAL SYSTEM TO BE EXPECTED FROM OLYMPIC WRESTLING?

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INTRODUCTION

The quote: *“Great sport begins where it has long stopped being healthy”* by Bertold Brecht, German dramatist, poet and storyteller is now irrefutable in sports medicine. We know that high-performance sports can lead to late damage to the motor apparatus. To what extent does this apply to Olympic Wrestling?

Wrestling is one of the oldest forms of sports. Wrestling matches were held even in ancient Egypt around 3999 B.C. It was part of the program in the Olympic Games of antiquity and has remained so to the present summer games. Wrestling demands of the athletes appropriate condition combined with a high level of reactions and speed. This is impossible without a healthy cardiovascular system, healthy metabolism and a healthy motor apparatus. This results to a high level of sports-specific stress in the course of a wrestling career. Can this lead to irreversible late damage?

GENERAL ASPECTS

In order to better classify possible causes of late damage in sports, it has been found helpful to differentiate between two groups of factors (1):

Endogenous Factors, which contribute from the athlete's genetic makeup:

Among these are:

Family Disposition including talent and coordinative capabilities, axis ratio of the extremities, as well as mobility and stability of the joints, including the stress resistance of the cartilage, body weight and height.

They are not always clearly objectified and cannot be measured. Striking findings of examination in the sports orthopedic examination of young wrestlers must be further clarified in order to be able to estimate the risk of sporting activity as early as possible. If we find any abnormality we need to talk to parents and coaches. This article is intended to work out medical facts to enable better estimation of the young athlete's athletic future. Endogenous factors cannot always be separated from exogenous factors and they affect all sports.

Exogenous Factors

Among these are the risk of sports-specific injuries and the sport-specific stress.

SPORT-SPECIFIC ASPECTS

The following descriptions are based on my own many years of experience in clinical and sport-medical activities. I have served as a team physician to the free-style National team of the German Wrestling Federation (DRB) for 18 years, which was followed by 10 years as a member of the Medical Commission of the FILA. In addition, I treated veterans of the Südbadischen Ringerverbandes (SBRV) in my office and thus gained considerable insight into the status of health in athletes after the end of their active careers.

In classifying sports-specific stress, the intensity and duration of exposure must be taken into consideration. A wrestling career usually begins at the age of about 6. It often does not end until the athlete is about 30. Some athletes then enter competitions for veterans at the national and international level. Thus, the motor apparatus is often exposed to stress by training and competitions for 25 years or more. In other types of sports, such as rhythmic sport gymnastics, figure skating and gymnastics, sports careers are often over at a time in which greater international success can be won in wrestling. This must be taken into account when the possible development of late damage is investigated.

A further detail which must be taken into account is that both in training and in competition, the motor apparatus is additionally stressed in some actions and techniques by the weight of the opponent, who in most cases is performing

synchronous movements (Figure1). Thus, the weight is doubled and thereby the movement energy which must be absorbed on landing on the elastic mat. These landings represent intensive stress of the osteoligamentary structures and the joint cartilage. The resultant floor reaction power may be several times the athlete's body weight. We must not forget the explosiveness produced by the strength of the muscles with which the actions take place when wrestling. I do not know what effect these have. I could not find any reference to this problem. As a comparison: in gymnastics, values were measured on landing from a height of 170 cm which exceeded the body weight by 5.1- 6.2-fold (2). The growing motor apparatus of the athletes must slowly become adapted to such mechanical stress.



Figure 1. Synchronous movements with an opponent's weight

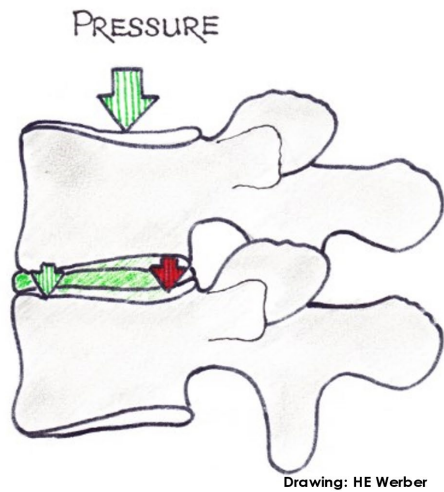
These extreme stresses draw our attention to the following diseases of the motor apparatus: Morbus Scheuermann, Spondylolysis, Spondylolisthesis, Scoliosis and congenital hip luxation. These are contraindications for performance-related training and competition in wrestling. If they are pain-free, they can only be discovered in time by regular sports-orthopedic examinations. This is the only way to eliminate predisposing factors in time to prevent long-term damage (1,3). Sport-medical care must guarantee that only healthy children participate in regular training. Experience has shown that many young athletes often change the type of sports or withdraw completely from sports activities. Thus, the initial examination is meaningful after one year of regular training at the latest (3,4). Prerequisite is cooperation based on trust between parents, the sports-physician and the responsible trainer.

THE SPINE IN WRESTLING

Anatomical aspects

The spine is the central supporting element in the human body. It is not a fixed column but a mobile chain of elements which is stressed both statically and dynamically. In order to cope with the stresses, it is encased in a strong band system which provides stability and limits certain movements. The muscles have the function of keeping the spine upright against gravity and guaranteeing stability and mobility in the torso. This network of stabilizing bands, tendons and muscles tenses the spine like the rigging of a sailing ship which keeps the mast upright. The mobility of the spine differs in the various segments. The increased level of mobility in the cervical and lumbar spine decreases the stability of the spine in these segments, thus increasing the likelihood of injury. Problem zones are especially the areas in which a very mobile spinal segment abuts a considerably less mobile segment (cervico-thoracic, thoraco-lumbar, lumbo-sacral). Signs of attrition are most often observed here due to high mechanical stress.

Biomechanical aspects



The following biomechanical aspects must be taken into account to better understand the demands which wrestling places on the spine. Knowledge of spinal stress resistance make it easier to evaluate possible mechanical overloading. This is the only way for us to understand the mechanisms of damage resulting from sports activities and initiate required changes. The spine prefers to have the stress pressure exactly in the middle of the intervertebral disc, in the form of compression stress. The vertebral body takes over the main load. The vertebral joints only takes over approx. 10%. The lowest resistance is found at the lateral edges of the posterior areas (2, Figure 2).

Figure 2

Increased flexion of the spinal column, lifting and carrying weights, and actions in which the weight of the upper body is greatly accelerated or braked lead to high stress of the spinal structures. The energy necessary to cause a fracture of a vertebra increases considerably from the cervical to the lumbar spine (2). Hyperextension loads in combination with torsion loads appear to lead increasingly over time to degenerative changes in the thoraco-lumbar transition and in the area of the lumbar vertebrae (2,5).

Stress on the spine in everyday life

Confirmed scientific knowledge in orthopedics, biomechanics and industrial science have shown that lifting and carrying loads (everyday burdens) have an effect predominately on the spine. Industrial medicine has developed basic rules for lifting and carrying loads to prevent structural damage to the overall motor apparatus, with emphasis on the spine. These have proven useful in everyday life (Figure 3):

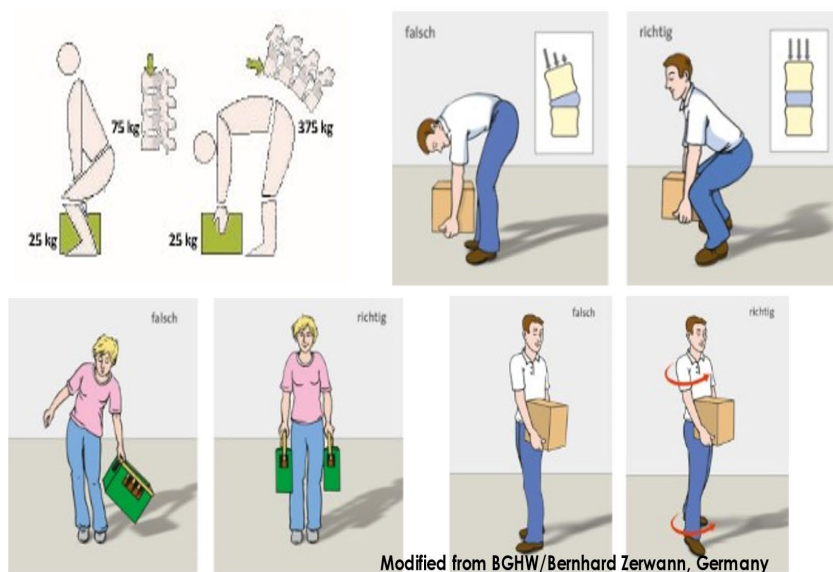
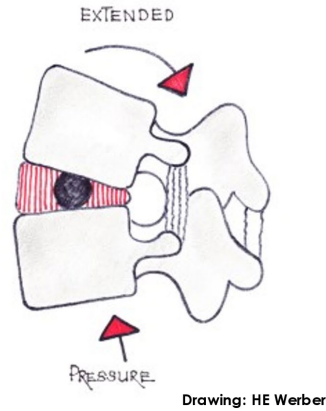


Figure 3. Correct and incorrect loading of the spine in everyday life.

Stress on the spine in wrestling

What sport-specific stress on the spine are to be expected in athletes in wrestling? Can they be coordinated with the basic rules for lifting and carrying in everyday life to prevent structural damage to the motor apparatus? First, let's look at some typical and frequently repeated actions and techniques:

Extension

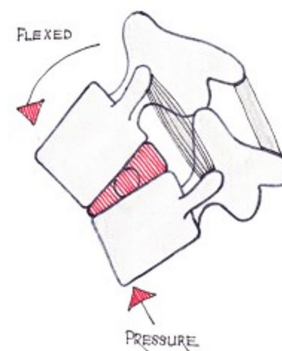


Drawing: HE Werber

Figure 4

In this action the main load is on the posterior part of the vertebral body and the vertebral joints. Remember: The lowest resistance is found at the lateral edges of the posterior areas. There is also increased tensile load on the ventral parts of the intervertebral disc and the ventral ligaments. And we have a double load: Own body weight plus opponent's body weight.

Flexion



Drawing: HE Werber

Figure 5

In this action we also have load on the ventral spinal column structures with double weight, and an increased tensile load on the dorsal parts of the intervertebral disc and dorsal ligaments.

Extension and Rotation



Figure 6

In this action we have not only a hyperextension but also a rotation. A very stressful load on the spine. And we have a double load: Own body weight plus opponent's body weight. Since this situation shown above frequently occurs in wrestling, one can imagine that this may lead to premature degenerative changes of the spine.

Flexion or Extension with Compression



Figure 7

And what about the cervical spine? A head weighs about 5 kg. When tilting forward, the load on the spine increases about six-fold; a situation we often have in wrestling. These are just two examples of many extreme loads on the cervical spine in wrestling.

As shown above, there are actions in wrestling in which maximal extension (Figure 4), maximal flexion (Figure 5) and maximal extension with rotation (Figure 6) of the entire spinal column occur. In the cervical spine, we observe maximal extension, flexions, lateral tilting and compressions (Figure 7), loads which would be very difficult to coordinate with the above basic everyday rules for the prevention of structural damage to the spinal column (Figure 3). To the contrary, various studies underline an increased danger to the spine due to these intensive sports loads (3,5,6). In extreme cases, hyperflexion, coupled with a great axial load can cause a slipped disc, even if there are no apparent degenerative changes. Wrestling has led to paraplegia.

Spinal damage often develops as a consequence of repeated microtraumas, like falls, congestions or compressions. This gives rise to the question: Do the constant unfavorable loads in wrestling “hollow out” the spine over 30 years too? In this connection, we can think of the idiom: *“Constant dripping erodes stone”*. (Or, the US equivalent: *Little strokes fell big oaks*)

What role do the muscles play?

Wrestlers must be able to tolerate enormous opponent forces. So they need a powerful supporting and protective muscle corset (7). This is essential for the stability of the bony spinal skeleton. A good, well-balanced training status of the abdominal and back musculature is better able to withstand unfavorable spinal column stress. This can reduce late damage and the risk of injury (1,3,5). Complaints which may arise are also better tolerated.

Long-term health effects on the spine in wrestling

The spine is involved in all of the wrestler’s actions and techniques. It is a complicated structure and thus susceptible not only to injuries, but also to chronic degenerative diseases. These are observed on age-related increase much more often in the spine (8,9). When I cared for the veterans of the Südbadischen Ringerverbandes (SBRV), I diagnosed and treated many late damages to the spine. Two examples are illustrative (Figure 8, 9).

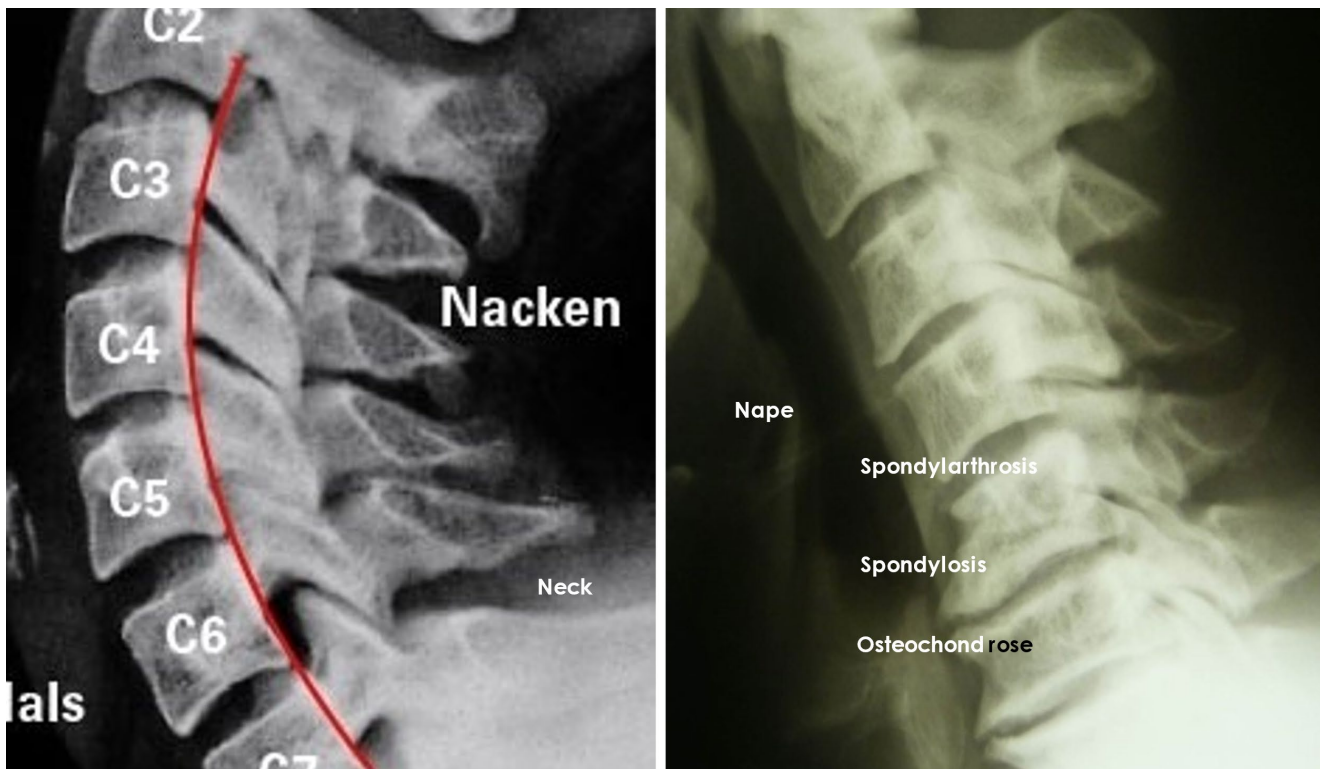


Figure 8

For example, here the cervical spine of multiple German Champion at the age of 50: On the right we see significant degenerative changes, the lordosis is cancelled. mobility is reduced. He also complains permanently about sensitivity disorders in the arms and is regularly treated with physiotherapy. For comparison on the left, an age-appropriate cervical spine (Figure 8).

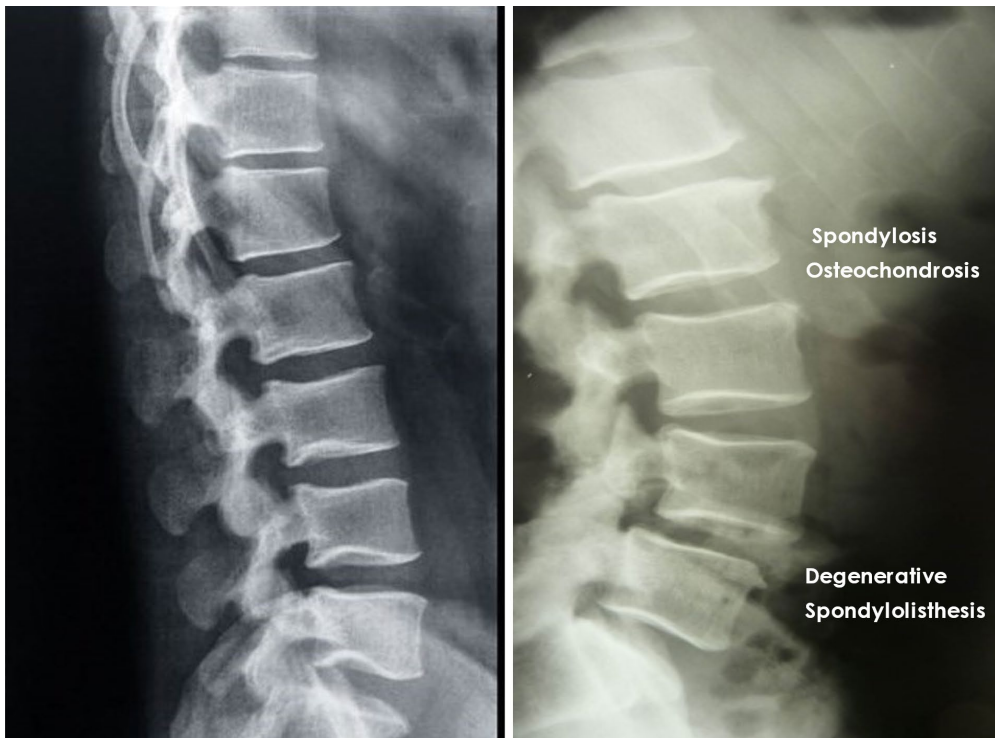


Figure 9

The same former German elite athlete and his lumbar spine: The 4th vertebra glides ventrally, there is instability, degenerative spondylolisthesis and osteochondrosis. Remember: In sports with hyperextension load combined with rotational load, degenerative changes are found in the area of lumbar spine, which can show a progression even after the end of the sports activities (Figure 9).

The next question we need to answer is: **Do former wrestlers really have degenerative changes in the spine more often than the normal population of the same age?**

We know that quite a few wrestlers complain of back problems during and even more after their career. But back problems are also widespread in the rest of the population. Studies of degenerative changes of the spine in former elite wrestlers are not well documented in the literature. I found only these few literature references on the topic:

Ludin, Hellstrom et al. (8,10) report: "In male wrestlers, gymnastics, soccer and tennis (age 27 – 39 years), radiologically degenerative changes were found more frequently compared to a control group (28 non-athletes of comparable age) particularly in the area of breast and lumbar spine. Despite significantly more radiological abnormalities among the athletes, they did not report higher frequency of back pain than the non-athletes". Athletes generally have a well-balanced torsal musculature which is capable of compensating these bony "weaknesses". This explains the fewer complaints. After the end of the career, this can change rapidly with a weakening musculature. Former wrestlers also have a different pain tolerance. They are used to tolerating certain complaints in everyday life, too.

Granhed et al. (11) evaluated and compared 32 retired wrestlers (ages 39 – 62 years) with low back pain and 13 retired heavyweight lifters (ages 40 to 61 years) to a corresponding group of 716 men (ages 40 - 47 years). Low back pain was higher among the wrestlers (59%) compared to both the lifters (23%) and the control group (31%).

Rossi et al. (6) found 390 cases of lumbar spondylolysis in 3132 competitive athletes. 29.82 % of these were wrestlers.

Grant (cited in Bowerman, 12) describes degenerative spondylosis in the cervical spine of male wrestlers ages 31 to 68.

Sudzilovskii and Khromov (13) also describe morphological changes in the cervical segment of the spine in subjects practicing wrestling.

So, I would like to add my personal experience. I think we should take the results of these studies seriously. And in my opinion, this not surprising because of what we have just read. Further studies in active or former elite wrestlers are necessary to assess the individual athlete's risk of degenerative changes of the spine and to recommend preventive measures.

The goal of our sports medicine activities should be to accompany the athletes through their sporting careers, keeping injuries and the risk of late damage as low as possible. **But what options are there to prevent late damage to the spine in wrestling? What influence do we have as sports physicians?**

We must insist that sports-orthopedic examinations are performed regularly in order to disclose possible endogenous factors early on. We have only limited influence on the exogenous factors, or on injuries of the motor apparatus. The athletes need a well-trained torsal musculature without dysbalances. Injuries must be completely healed before normal training is recommenced.

Our **youngsters** have to be slowly introduced to wrestling-specific loads by experienced coaches. The tissues of the growing organism need time to adapt. The youngsters need coaches who are able to assess the resilience of each youngster and so carry out well-dosed training. A trainer entrusted with youngsters also needs basic knowledge of the shape and function of the musculoskeletal system. He should consider the mechanical stresses of the musculoskeletal system caused by sporting activities and their possible consequences (2,14). Age-appropriate individual load limitations in training is only possible in this way. Sports injuries and late damage can be prevented when prevention exercised are also included in training.

If we wanted to forbid all the unfavorable loads on the spine in wrestling, it would be the end of this sport. No-one wants that, so we have to find another way. In my opinion only **training remains**. About 2/3 of sport activities fall within training. A large part of training contents are sport-specific with a corresponding proportion of unfavorable loads on the spine, as described above. Thus, these considerations are logical.

Here are some examples of extreme loads on the spine in **training** provided by David Curby, Editor-in-Chief, International Journal of Wrestling Science, INWR (Figure10). The exercises serve as warm-up and preparation for training and competition. On the one hand, this trains mobility and on the other, enables increasing strengthening of the muscles under sport-specific conditions.

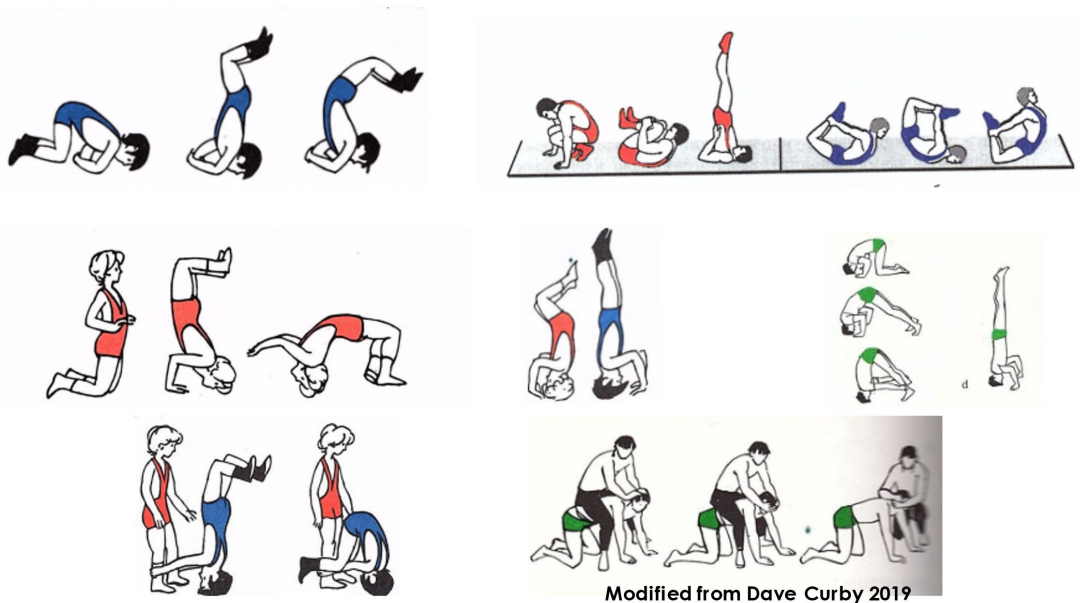


Figure 10

We should ask ourselves: Are these exercises still up-to-date? **Do we really need them or are there alternatives nowadays?** We should consider alternatives. What has been good for decades does not always have to be so. Reduction of spine loads in training by alternative strength & flexibility training on suitable equipment is necessary to develop strength of the musculature. In this way abnormal loads on the spine in wrestling can be reduced. We

should try, in cooperation with sports-scientists and coaches, to question the old, so that new things can arise. We should try to develop recommendations for the creation and implementation of an age-appropriate program of neck and back strength and flexibility development that is based on science and medicine.

I found these pictures in: "Das große Buch der Kraft" (The Great book of strength) from the former GDR (1990, Figure11). Have the authors thought yet about alternative methods for strengthening the muscles? (15)



Modified from Hartmann, Tünnemann: Das große Buch der Kraft, Sportverlag Berlin

Figure11

The modern strength training machines developed by Kieser are a further development of the ideas of Hartmann and Tünnemann (Figure12,16). Unlike in the exercise shown in Figure 10, the shoulder-neck musculature is strengthened and stretched in sitting. This cancels additional weight load of the neck by one's own body weight or the body weight of the training partner. Abnormal loads on the cervical spine like those in competition can thus be reduced.



Modified from Kieser: Ein starker Körper kennt keinen Schmerz, Heyne München, Germany

Figure12

THE EXTREMITIES IN WRESTLING

Anatomical aspects

Unlike the central supporting element of the human body, the spine, the extremities have various tasks. The upper extremities represent maximum mobility; the lower extremities guarantee an upright position and motion.

The shoulder girdle connects **upper extremities** with the torso via three joints. Of these, the shoulder joint is our most mobile joint. It is controlled and stabilized exclusively by the musculature. This makes it susceptible to injury and late damage can arise from this. The elbow joint consists functionally of three joint parts. The forearm can be flexed and extended toward the upper arm. The unique types of movement of the joint construction enables the supination and pronation of the hand. The wrist consists of several joint parts which form a functional unit. They enable flexion, extension and spreading movements. The complex design of the upper extremities in connection with muscles and tendons, guarantees a broad scope of movements. This is what makes many of the techniques in wrestling possible.

The pelvic girdle connects the **lower extremities** with the torso. Thanks to its hardness and stability, it gives the human body a safe stance and upright posture. The pelvic girdle, hip joint, along with the knee joint, bear the greatest part of our body weight and are most frequently affected by arthrosis. The body weight is distributed in the feet among the ankle, the middle foot and the forefoot. The foot arches act like shock absorbers and provide for appropriate pressure distribution in the joints. Without these joints, people could neither jump, run, stand or walk, capabilities which are important not only in everyday life, but in sports as well. All of these movements are coordinated by interactions between muscles in the upper and lower thighs. This is particularly important for the knee joint, since it is very unstable due to its bony construction.

What applies for the torso is also important for the extremities; a well-trained musculature stabilizes, reduces shocks and thus protects against injuries and resultant late (2).

Biomechanical aspects

Landings, even when they are cushioned by the wrestling mat are – as already discussed – a high mechanical stress to the biological structures in wrestling, not only for the lower but also for the upper extremities (see Figure 14). These intensive stresses affect the bones just as much as the joint cartilage and muscle-tendon complex. The opponent's weight makes things worse. For this reason, the degree of mechanical stress, as already pointed out, should be borne by physiologically adapted structures. The adaptation processes need time, even for the structures of the extremities. If this is not taken into account, there is a danger of exceeding the failure boundary with injuries and resultant late damage (2,14).

Mechanical stress on the upper extremities and long-term health effects in wrestling

The upper extremities, which do not have to bear loads, only rarely show pronounced attrition after the end of an athletic career (1). Reports on late damage are rare in the literature. *Steinbrück* (17) analyzed ca. 35000 sports injuries in all disciplines over 25 years. 21.8% of the athletes reported complaints in the upper extremities, 44.9% of these were wrestlers. This comes as no surprise, when one considers the stress to which the upper extremities are exposed in wrestling (Figure13,14).

The shoulder joints are exposed in wrestling to extreme tension loads due to overextension (Figure13). If leverage stress is added, luxations may result. Moreover, the athlete attempts to reduce the fall to the mat with outstretched arms as a reflexive protective function. This results in compression loads (Figure14). And again we have a double load: Own body weight plus opponent's body weight. **AC-joint arthrosis** may appear as a late sequela of these frequent contusions in the shoulder girdle area. These may lead to persistent and therapy-resistant complaints. If the possibilities offered by conservative therapy have been exhausted, *Jägemann* recommends resection arthroplasty of the lateral Claviculapoles under preservation of the Lig. Coraco-claviculare (18). In addition, insertion tendopathies in the shoulder girdle area are also observed as late sequela, which often are subsumed under the general term „Periarthritis humero scapularis“. They are the result of frequent microtraumas in the form of sprains and contusions during training and competition (see Figure 13, 14).



Photos: UWW



Figure13

As a result of falls and fall-prevention reactions (see Figure14), we find distortions, fractures and luxations in the **elbow joint** (see chapter 17). It is the wrestler's problem joint in the upper extremities (18). In addition to osteochondrosis dissecans, we also find arthrosis with concomitant limitation of mobility as late sequelae.

Chronic complaints in the **hand- and finger joints** are found mostly in the base joint of the thumb. A result of falls with fall-defense reactions are often ligament injuries, which may lead to chronic complaints with a tendency for swelling (18).



Photo: UWW

Figure 14

Mechanical stress on the lower extremities and long-term health effects in wrestling

Intensive physical loads, coupled with a high risk of injury, lead to attrition in the large joints of the lower extremities (19,20). The loads consist primarily in high axial compressions combined with rotation loads. Another factor is that the athlete often engages in this sport for more than 25 years. Remember: these joints bear doubled body weight

in many actions. Studies by *Lequesne* support this assumption (21). Logically, *Böhm* and *Kiahashemi* found chronic damage in the large joints of the lower extremities with an age-dependent increase in the 54 wrestlers in their follow-up examinations (9).

The influence of endogenous factors which were not promptly recognized is not inconsiderable, especially in the hip. The same applies for axis deviations of the extremities. They are considered to be prearthrotic deformities (22). Figure15 shows the leg axes of wrestlers recorded during medical controls prior to WM and EM. The question arises whether the intensive sport-specific load during growth, when growth seams were not yet closed have an influence on the axis ratios or are there other causes? To what extent wrestling activities actually influence the leg axes can only be clarified by prompt and regular sport-orthopedic examinations.



Figure15

Hip joint:

Jägemann (18) reports on secondary Coxarthrosis, which he found among wrestlers as a result of Epiphysioysis capitis femoris lenta. The typical age at disease onset is between 10 and 14, boys are three times more affected than girls. Coxarthrosis in former wrestlers were also found among my patients. There is little in the literature about whether Coxarthrosis occurs more frequently in wrestlers than in the normal population (19). In various throwing techniques, the athlete is lifted and lands from whatever height on his pelvis, often on the Trochanter major. Remember (see page 2): on contact, floor reaction strengths may arise, despite the elastic mat, which can exceed the body weight by a considerable margin (2). These massive mechanical loads, which occur more frequently in training may lead to microtraumas in the hip joint (joint cartilage). It is plausible that Coxarthrosis may develop.

Knee joint:

As in other types of sports, the knee joint is the problem joint in the lower extremities due to its anatomy. A lot of factors point out that injuries to the knee joint may play a decisive role in the development of late damage (see chapter 18). As overload damage, we observe Chondropathia patellae as an early precursor of knee arthrosis. *Nolte-Löffler* found Chodropathia patellae in 26.3 % of 57 wrestlers in follow-up examinations (23). This is not unexpected when we think of the extreme loads of the knee joint in many repetitive actions (Figure16).

A study of former Finnish national team athletes concluded that Cox- and Gonarthroses predominate in strength sports (19,20). *Böhm* und *Kiahashemi* came to similar results (9). Nonetheless, we must ask ourselves: **Do former wrestlers really have degenerative changes of the knees more often than the normal population of the same age?** The literature mentioned give some hints. Further scientific studies would be desirable.



Figure16

CONCLUSIONS

A lot makes it appear that the quote from Bertold Brecht applies even to Olympic Wrestling. It can result in late damage to the motor apparatus. In wrestling, there is unfavorable loading of the motor apparatus, especially the spine and the joints of the lower extremities. These loads are not limited to competitions. They occur much more frequently during training. **What possibilities do we have to reduce these loads?** (24)

A healthy motor apparatus is prerequisite to wrestling. This should be checked by regular sport-orthopedic examinations. A well-trained, balanced muscle apparatus can offset many of the unfavorable loads. Such unfavorable loads cannot be avoided in competition. This places additional responsibility on the referees. They must recognize forbidden actions which might cause injury in split second timing. Even a move in that direction must be recognized and immediately stopped (see chapter 13). Late damage can, after all, result from such injuries.

Training remains. Some suggestions have been put forth. What additional possibilities we may have must be disclosed by further studies. Sports- physicians, sports-scientists, coaches and athletes should look for solutions together.

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Conflict of interest

There is no conflict of interest.

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HISTORY OF DOPING VIOLATIONS IN OLYMPIC WRESTLING

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BACKGROUND

Doping is not new in sport and has ancient origins. From the moment in which individuals began to practice physical activity in competition with others, they have sought to improve their own performance by taking mixtures of various types of plants, mushrooms and meats. The ancient Greek athletes drank wine potions, and used hallucinogens and ate animal hearts or bull or sheep testicles in search of potency. Roman gladiators used stimulants and hallucinogens to prevent fatigue and injury. Gladiators ingested strychnine to stave off fatigue and injury and to improve the intensity of their fights (Mazzeo, Altavilla, D'Elia, & Raiola, 2018). Like many Olympic competitors, Nero drank a potion of the ashes of wild-boar dung in water, to refresh himself. (Pliny the Elder, *The Natural History* (Book 28)), (Bowers, 1998).

Modern History

- 1967 – The International Olympic Committee (IOC) institutes its Medical Commission and sets up its first list of prohibited substances
- IOC tests 2049 athletes at the 1972 Munich Olympics
- IOC tests 211 athletes at the 1972 Sapporo Winter Games
- IOC Medical Commission announces that anabolic steroids will be tested in 1976 in Montreal
- Aug 1984 Tomas Johansson, wrestling superheavyweight silver medalist, is the first medal winner to test positive for steroids (Kreminik, Onodera, Nagao, Yuzuki, & Yonetan, 2007).
- World Anti-Doping Agency (WADA) was established in 1999 as an international independent agency composed and funded by the sport movement and governments of the world.
- 2004 The World Anti-Doping Code (the Code) was first adopted in 2004 and is the document that unifies regulations regarding anti-doping across all sports and all countries.
- 2019, United World Wrestling partners with the International Testing Agency (ITA) for the implementation of Testing (in and out-of-competition), Biological Passport Management and Results Management.

The ITA is an international organization constituted as a not-for-profit foundation, based in Lausanne, Switzerland. Its mission is to offer comprehensive anti-doping services, independent from sporting or political powers to International Federations It was created to separate the antidoping activities from sports organizations and strengthen the independence of the fight against doping (Roy, 2019).

Wrestling is among the sports having the highest number of Anti-Doping Rules Violations (ADRV's)

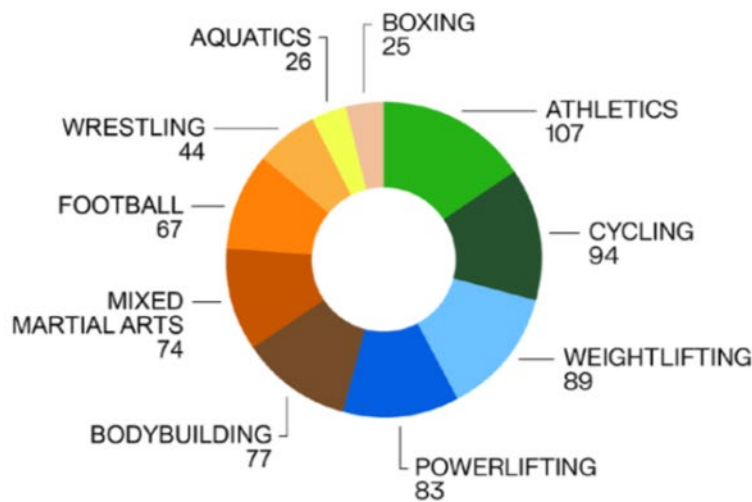


Fig. 1. Sports with the highest number of ADRVs committed by athletes. (2020 Anti-Doping Rule Violation (ADRV) Report Executive Summary of the 2020 ADRVs Report (https://www.wada-2020_adrv_report (May 2023)))

Wrestling is listed at number 8 in the top 10 from 2020. These figures include violations made by wrestlers from traditional wrestling styles such as belt and oil wrestling.

WADA Anti-Doping Rule Violation Types

- 2.1 Presence of a Prohibited Substance or its Metabolites or Markers in an Athlete's Sample
- 2.2 Use or Attempted Use by an Athlete of a Prohibited Substance or a Prohibited Method
The success or failure of the Use or Attempted Use of a Prohibited Substance or Prohibited Method is not material. It is sufficient that the Prohibited Substance or Prohibited Method was Used or Attempted to be Used for an anti-doping rule violation to be committed.
- 2.3 Evading, Refusing or Failing to Submit to Sample Collection by an Athlete Evading Sample collection; or refusing or failing to submit to Sample collection without compelling justification after notification by a duly authorized person.
- 2.4 Whereabouts Failures by an Athlete
Any combination of three missed tests and/or filing failures, as defined in the International Standard for Results Management, within a twelve-month period by an Athlete in a Registered Testing Pool.
- 2.5 Tampering or Attempted Tampering with any Part of Doping Control by an Athlete or Other Person
- 2.6 Possession of a Prohibited Substance or a Prohibited Method by an Athlete or Athlete Support Personnel
- 2.7 Trafficking or Attempted Trafficking in any Prohibited Substance or Prohibited Method by an Athlete or Other Person
- 2.8 Administration or Attempted Administration by an Athlete or Other Person to any Athlete In-Competition of any Prohibited Substance or Prohibited Method, or Administration or Attempted Administration to any Athlete Out-of-Competition of any Prohibited Substance or any Prohibited Method that is prohibited Out-of-Competition
- 2.9 Complicity or Attempted Complicity by an Athlete or Other Person
Assisting, encouraging, aiding, abetting, conspiring, covering up or any other type of intentional complicity or Attempted complicity involving an antidoping rule violation.
- 2.10 Prohibited Association by an Athlete or Other Person

The World Anti-Doping Code 2021 (https://www.wada-ama.org/sites/default/files/resources/files/2021_wada_code.pdf)

Substances & Methods Prohibited at All Times The Prohibited List is updated annually and has approximately 350 substances listed. They are classified in the following manner:

S0 Non-approved substances

Any pharmacological substance which is not addressed by any of the subsequent sections of the List and with no current approval by any governmental regulatory health authority for human therapeutic use (e.g. drugs under pre-clinical or clinical development or discontinued, designer drugs, substances approved only for veterinary use) is prohibited at all times.

- S1 Anabolic agents
- S2 Peptide hormones, growth factors, related substances, and mimetics
- S3 Beta-2 agonists
- S4 Hormone and metabolic modulators
- S5 Diuretics and masking agents

Methods prohibited at all times (in- and out-of-competition)

M1. Manipulation of blood and blood components. Those methods are defined as blood doping. The following methods are prohibited at all times:

1. Administration or reintroduction of any quantity of autologous, allogenic (homologous) or heterologous blood, or red blood cell products of any origin into the circulatory system.
2. Artificially enhancing the uptake, transport or delivery of oxygen is also another form of blood doping and this can be done for example with the use of perfluorochemicals and other modified hemoglobin products.
3. Any form of intravascular manipulation of the blood or blood components by physical or chemical means.

M2. Chemical and physical manipulation

1. Tampering, or Attempting to Tamper, to alter the integrity and validity of Samples collected during Doping Control. This category of prohibited methods includes but is not limited to sample substitution and /or adulteration.
2. Intravenous infusions and/or injections of more than a total of 100 mL per 12-hour period except for those legitimately received in the course of hospital treatments, surgical procedures or clinical diagnostic investigations.

M3. Gene doping

Gene doping is defined as the non-therapeutic use of nucleic acids, nucleic acid analogues and normal or genetically modified cells with the purpose of enhancing athletic performance. More specifically the following methods are prohibited.

Substances & Methods Prohibited In-Competition

- S6 Stimulants
- S7 Narcotics
- S8 Cannabinoids
- S9 Glucocorticoids
- P1 Beta-blockers

World Anti-Doping Code International Standard Prohibited List, 2023

https://www.wada-ama.org/sites/default/files/2022-09/2023list_en_final_9_september_2022.pdf

Testing Strategy

Adopting anti-doping policies that consider doping as a practice is strongly influenced by the characteristics of each sport and it might be more effective to accommodate the differences in doping behavior among different sports. This approach should then consider what prohibited substances and methods are more commonly used or found in each sport to increase the pressure to specifically pursue them in anti-doping control testing.

Physical performance in most sports might be defined as the combination of four major components: skill, strength, endurance and recovery. There are drugs that have the capacity of improving these four dimensions and thus, the use of banned substances in each sport might be dictated by these dimensions of sports performance. For sports requiring maximal force and explosive power are most susceptible to androgen doping through their effect on increasing muscle mass and strength. Sports requiring aerobic endurance capacity are likely most susceptible to blood doping or other strategies to artificially increase the blood's oxygen carrying capacity to exercising muscle. Contact sports and those involving intense physical activity or training may also be enhanced by growth hormone and glucocorticoids because of their effect on enhancing tissue recovery from injury. Finally, sports that are influenced by skill and concentration may benefit from drugs that reduce anxiety, tremor, inattention or fatigue (Aguilar, Salinero, Muñoz Guerra, Plata, & Juan; 2020) (Handelsman, 2015). However, wrestling is a multifaceted sport with a wide range of demands.

The approach taken by United World Wrestling has been to establish a Doping Risk Assessment in Wrestling & Test Distribution Plan. Several indicators have been selected and combined to evaluate the risk of doping:

- Physical demands (power & strength, Cardio endurance, muscular endurance, speed)
- Performance enhancing substances (based on laboratories reports 2010-2018)
- Other factors (country risk, doping history in a country, level of anti-doping education)
- Individual risks (World ranking, individual testing history, additional individual intelligence)

Trends in the use of performance enhancing drugs show 3 main substances Anabolic Agents, Diuretics & Masking Agents and Stimulants. No specific trends between styles or categories, although in Women's Wrestling, Diuretics & Masking Agents switch places with Anabolic Agents as the number one doping substance. Country risk is a combination of 3 indicators: (1) Prevalence of political or economic corruption within society (Transparency International Corruption Perception Index 2018) combined with the (2) ratio between ADRV & number of tests in a given country and (3) Doping history in Wrestling in a given country = country risk assessment 1 to 3. This risk assessment is applied to the 20 highest ranked wrestlers in each style and weight class = 600 wrestlers. (Roy, 2019)

METHODS

The list of international, Olympic style wrestlers who have been sanctioned was collected through a variety of sources:

Anti-doping Rules Violations-Result Management Authority: UWW

Internet websites

Doping Irregularities at the Olympics <https://www.olympedia.org/lists/75/manual>

https://en.wikipedia.org/wiki/List_of_doping_cases_in_sport

<https://www.sportsintegrityinitiative.com>

https://www.wada-ama.org/sites/default/files/resources/files/WADA_LaboStatistics_2003.pdf

National Anti-doping Agencies

Newspaper accounts from the internet

Methodological Problems and Limitations

- There is no one repository for all wrestling cases.
- The procedures for testing and sanctioning have changed over the years of testing.
- Some older cases listed on the internet are incomplete with references which are no longer accessible.
- The websites of some National Anti-doping Agencies (NADO) do not list the drug.
- Not all National Cases are listed with UWW
- Some dates are missing and have been approximated
- Some NADO's do not list the name of the violator.
- Violators from wrestling also come from traditional forms of wrestling e.g. belt and oil wrestling.
- Must differentiate between Adverse Analytical Finding (AAF) and Anti-Doping Rule Violation (ADRV)

To illustrate the last limitation in gathering information violations, a total of 149,758 samples were collected by anti-doping organizations (ADOs) in 2020, and were subsequently analyzed by WADA accredited Laboratories. Of these samples, 1,007 samples (0.67%) were reported as AAFs.

Based on a compilation of the information received by WADA, of the 1,007 AAFs, only 672 of samples (66%) resulted in an ADRV (resulting in sanctions). Of the AAF's not adjudicated as ADRV's were:

- 113 samples (11%) were closed because of a valid medical reason. These include included a valid Therapeutic Use Exemption (TUE) that justified the presence of the prohibited substance in the athlete's sample.
- 138 samples (14%) were categorized as "no case to answer" (i.e. case closed for a valid reason other than medical reasons including permitted route of administration)
- 4 samples (1%) resulted in "no sanction" because the athlete was found not to have committed an ADRV
- 80 samples (8%) are still pending.

Executive Summary of the 2020 ADRVs Report (May 2023)

RESULTS

In the present study there were 342 cases of doping violations in the international wrestling styles of Freestyle, Greco-roman and Women's Wrestling, identified through 2022. These are listed in table 1.

Significant Violations

Olympic Games

Loss of 3 Gold Medals

Loss of 7 Silver Medals

Loss of 1 Bronze Medal

World Championships

Loss of 3 Gold Medals

Loss of 1 Silver Medal

Violations by Year

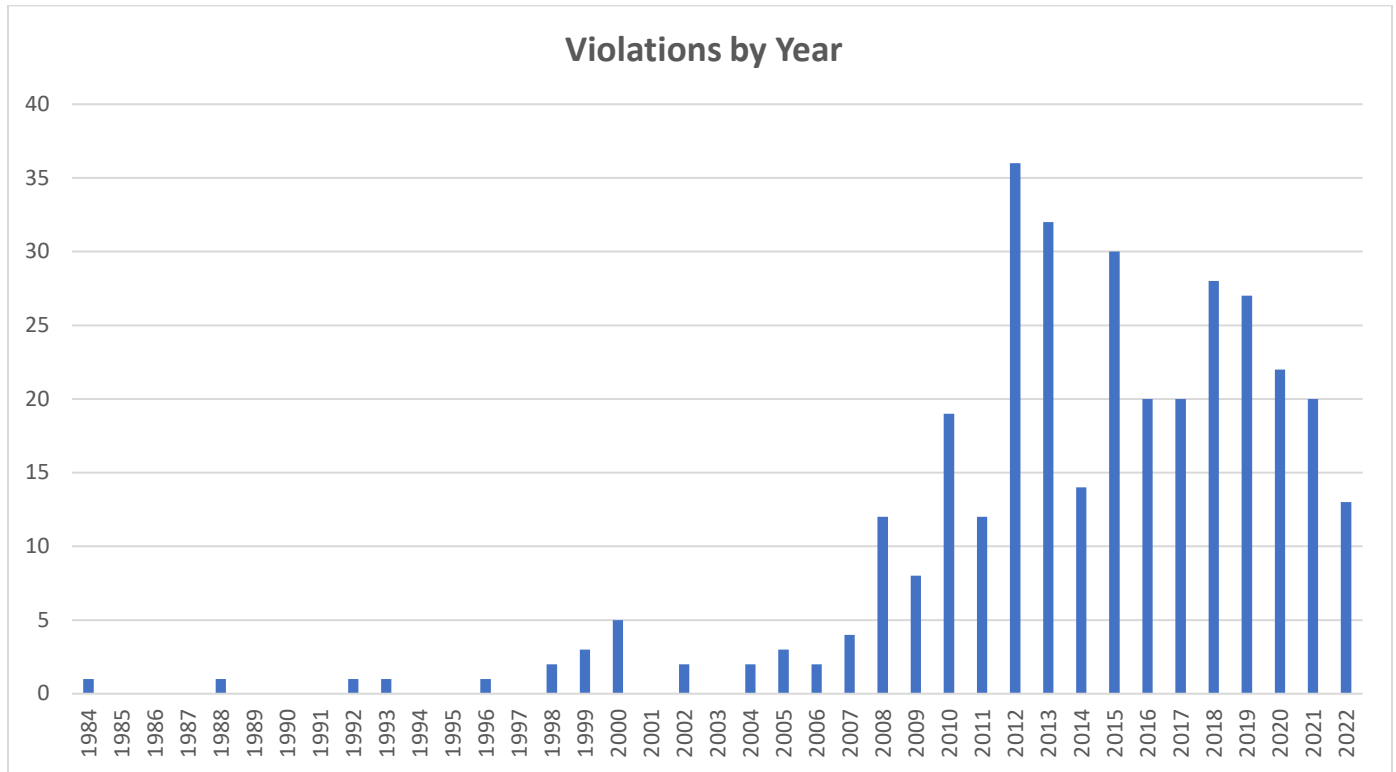


Fig. 2

As the amount of testing has grown, the of course has been an increase in the number of violators detected. There have been spikes because of particular situations. The reanalysis of samples from the 2008 Beijing Olympics and 2012 London Olympics caused a jump in violations for these years. The decline in violations since 2018 seems to be a positive trend for wrestling. The role of COVID is difficult to explain.

Drug Violations by Country

57 Countries have had violations. Shown here are the highest countries with surprising India leading all violations.

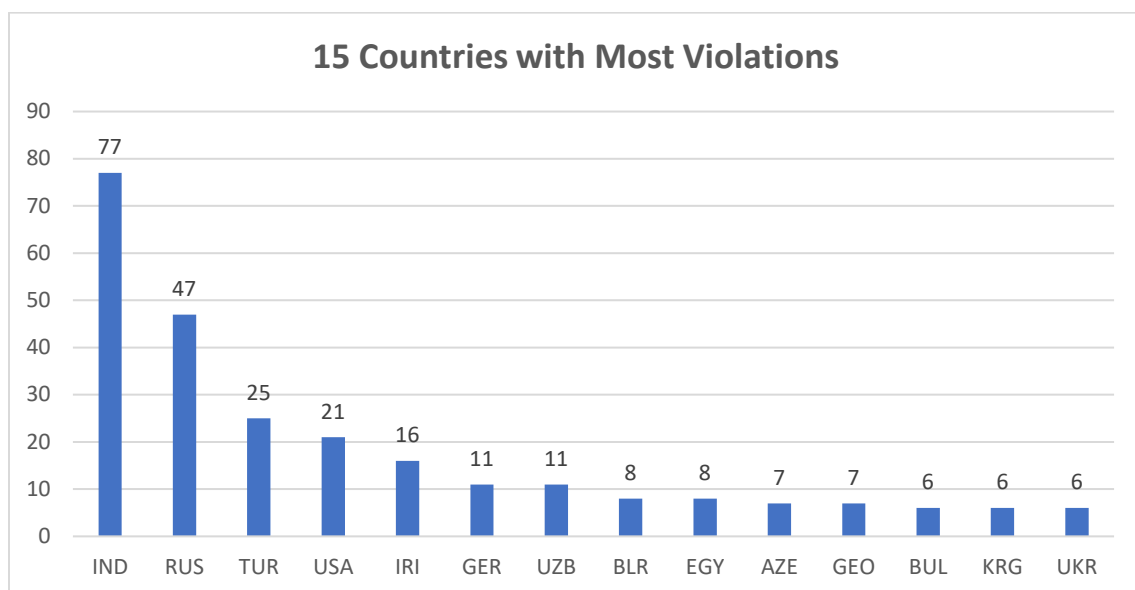


Fig. 3. Countries with the highest number of violations

Drug Class

Violations in each drug class are shown in fig. 4. Anabolic agents comprise almost one half of all violations.

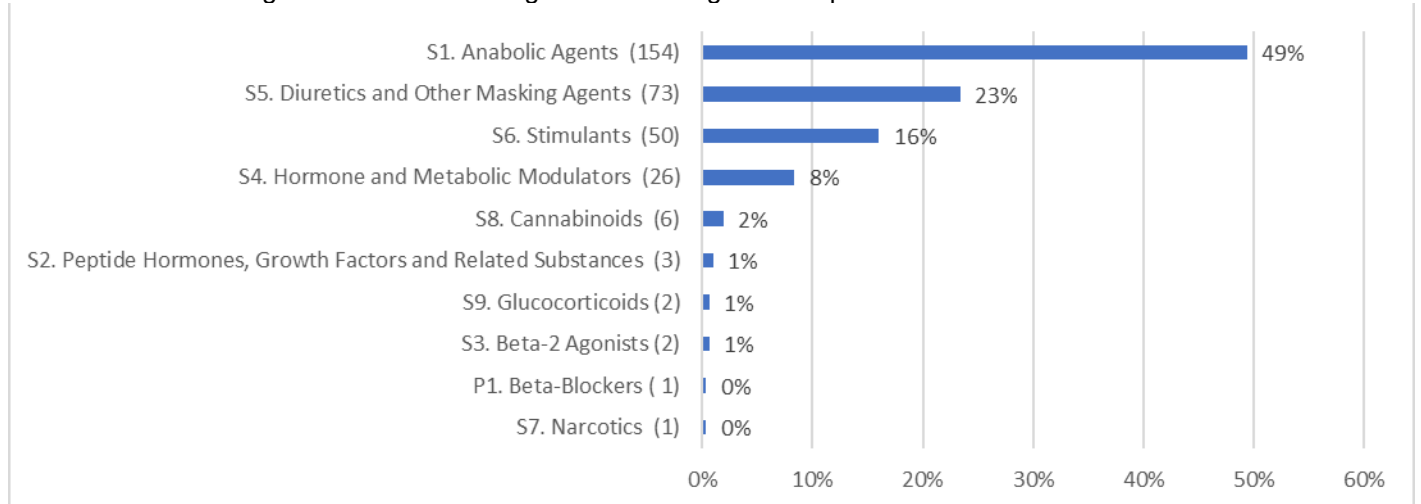


Fig. 4. Violations by Drug Class

Gender Comparisons of Violations and Substances Used

Violations by gender are shown in figures 5 and 6. Females comprised 13% of all violations in this study. The first world championship for women was held in 1987. The first woman wrestler with a positive test was during the first Olympics with wrestling for women. Mabel Fonseca (PUR) tested positive for the Anabolic Agent-Stanozolol at the 2004 Athens Olympic Games. 51% of violations were from S5-Diuretics and Masking Agents and 33% Anabolic Agents

Men comprise 87% of all violations with 52% for Anabolic Agents and for 18% for Diuretics and Masking Agents.

From the 2020 Anti-Doping Rule Violation (ADRV) Report Executive Summary, mentioned earlier, of the 672 ADRVs in all sports, there were 508 male (76%) Athletes and 163 female (24%).

Of the 134 total wrestling ADRV'S found for this report since 2016, only 18 were for women (13%). Women wrestlers would seem to be doping at a lower rate than men, and also lower than the average of females in other sports.

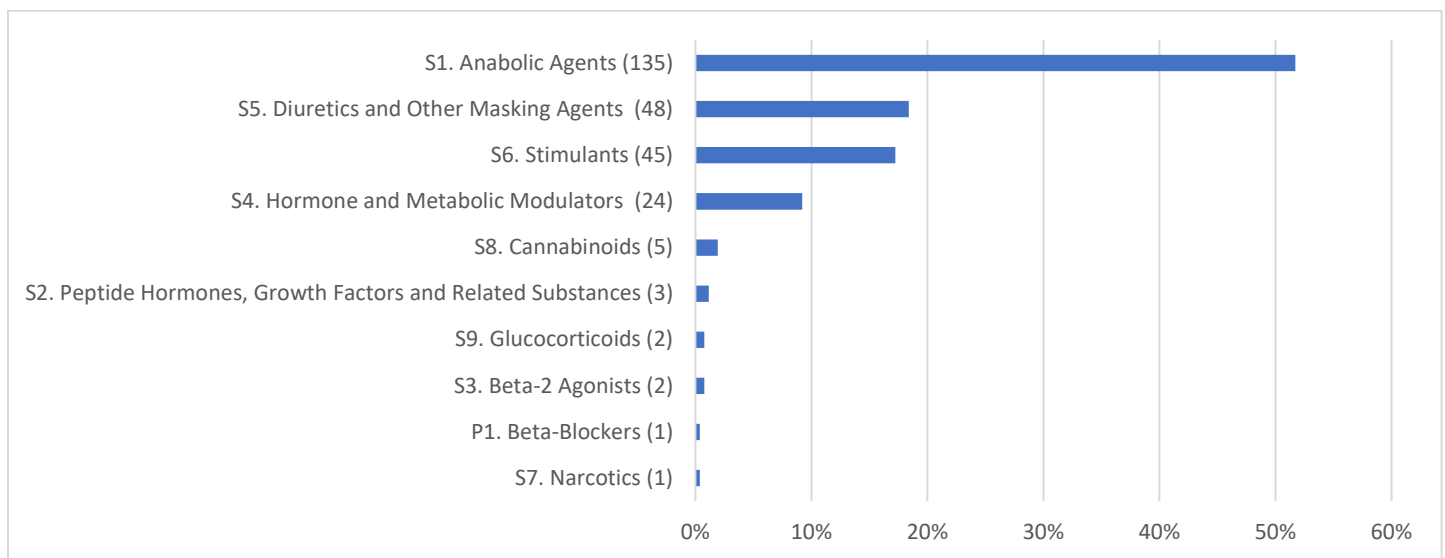


Fig. 5 Violations by Drug Class - Men

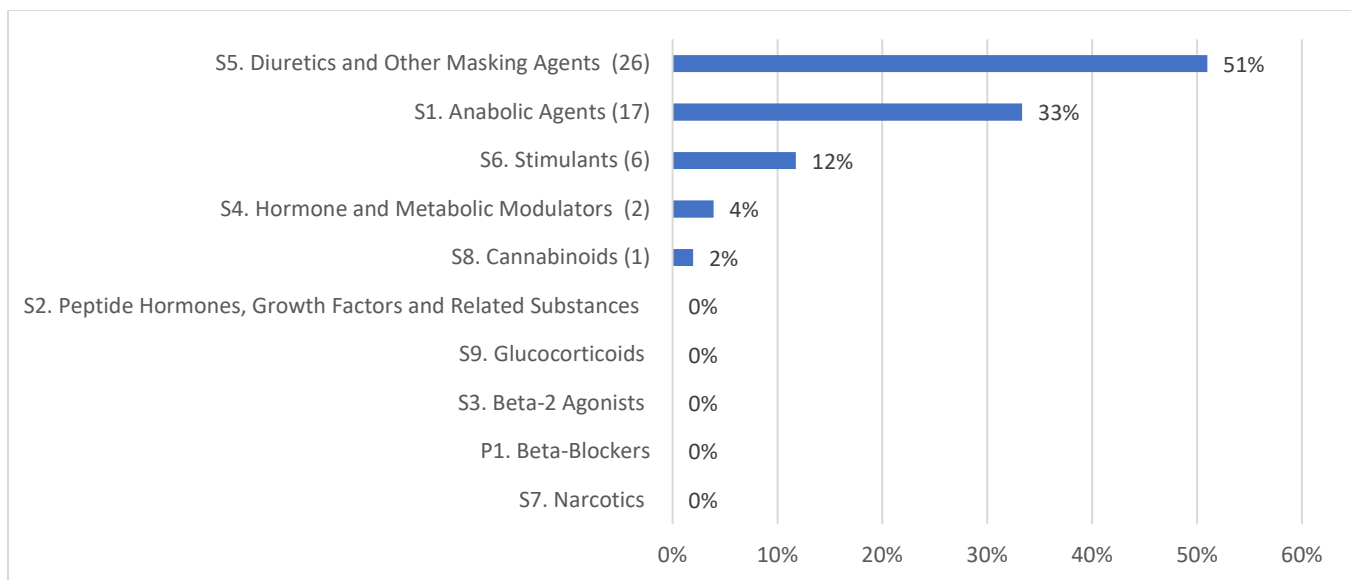


Fig. 6 Violations by Drug Class - Women

23% of all violation are from the presence of diuretics and masking agents. In women it comprises 51%. Diuretics are commonly prescribed in clinical medicine to treat hypertension and other cardiovascular disorders. These compounds are also frequently encountered illicitly in sports. Diuretics are banned in all sports because they can cause rapid weight loss and can also act as masking agents (to hide the effects of other prohibited substances) both in and out of competition.

Around 20% of weight-category athletes indicate the use of diuretics or other pharmacological methods for reducing weight (Berkovich et al., 2019). In general, athletes can use diuretics in a single dose some hours before a competition (i.e. wrestlers or sportsmen for masking purposes) or chronically abuse them for months (i.e. female gymnasts). It is important to note that the diuretics most abused by athletes (furosemide, hydrochlorothiazide and triamterene) have a short half-life and are therefore undetectable in urine if samples are not collected within 24–48 hours after the last administration (Cadwallader, et al., 2010).

The vast majority of coaches/trainers do not ever endorse the use of extreme methods for rapid weight loss. However, one must consider that one in five surveyed said they do recommend high risk methods, albeit, rarely. This is of concern because there are coaches that view the use of controlled substances, such as diuretics as legitimate under certain circumstances (Crighton et al, 2016).

Imran Anzorov (RUS) in 2015 was added to WADA's "The Prohibited Association List - Lifetime Coaching Ban.

Special Cases of Note

Clenbuterol In 2019 at Junior Pan American Championships in Guatemala 15 wrestlers tested positive for Clenbuterol, but were then waived. In several countries it is used in beef production which can cause a positive test in consumers of meat that has residues remaining. In 2019, the World Anti-Doping Agency's (WADA's) Foundation Board decided to amend Article 7.4 of the World Anti-Doping Code (Code) to allow WADA-accredited Laboratories (Laboratories) to report Atypical Findings (ATFs) for the Prohibited Substance clenbuterol. The purpose of this amendment is to provide ADOs with the possibility of conducting an investigation when low concentrations of identified Prohibited Substances that are known meat contaminants are detected by Laboratories and reported as ATFs. This will ensure that valid meat contamination cases are dealt with fairly and, notably, may prevent athletes from having their competition results disqualified as a result of eating contaminated meat.

Stakeholder Notice regarding meat contamination WADA, 2019

Meldonium A substance that was first added to the 2016 Prohibited List', prompting at least 172 failed tests worldwide. But the World Anti-Doping Agency changed its guidance, saying athletes could be cleared if only minute traces of the drug were found in their system. Many athletes who tested positive had argued they stopped taking meldonium, which is typically recommended for heart disease patients, before it was banned. WADA had published an earlier clarification on meldonium, leading to criticism of the governing body as some claimed they had handled the situation poorly. It followed uncertainty over how long the substance stayed in the body.

Retesting (Turinabol) The International Olympic Committee (IOC) funded a World Anti-Doping Agency (WADA) investigation to retest hundreds of frozen doping samples from the 2008 and 2012 Summer Olympics. The announcement came less than five months to go before the opening ceremonies in the 2016 Summer Olympic Games in Rio de Janeiro. The IOC and WADA identified the countries to target, especially targeted the athletes who competed in Beijing or London who were also likely to compete in Rio. Nearly all of the violations, across nationalities, were for the anabolic steroids Stanozolol or Dehydrochloromethyltestosterone (oral Turinabol). The drugs were not detected by the Olympic committee's drug-testing lab years ago, during the Games, because the science at the time was not sensitive enough to detect such small residual concentrations. The following wrestlers were cited:

Vitaliy Rahimov (AZE) 2016 reanalysis of samples from Beijing 2008 resulted in a positive test for Turinabol and loss of the silver medal.

Asset Mambetov (KAZ) 2016 reanalysis of samples from Beijing 2008 resulted in a positive test for Stanozolol and loss of the bronze medal.

Taymuraz Tigiyev (KAZ) In 2016 after a re-test from 2008, he was stripped of his Olympic silver medal.

Vasyl Fedoryshyn (UKR) 2016 reanalysis of samples from Beijing 2008 resulted in a positive test for Turinabol and loss of the silver medal.

Soslan Tigiev (UZB) 2016 reanalysis of samples from Beijing 2008 resulted in a positive test for Turinabol and loss of the silver medal; also, the loss of the bronze medal from London 2012 for use of Methylhexanamine.

Artur Taymazov (UZB) On 5 April 2017 it was announced that as a result of retesting samples he had been disqualified from the 2008 Olympics for presence of Turinabol, and the loss of the gold medal. On 23 July 2019 it was announced that as a result of retesting samples he had also been disqualified from the 2012 Olympics for presence of Turinabol, and again the loss of the gold medal.

Besik Kudukov (RUS) 2016 reanalysis of samples from London 2012 resulted in a positive test for Turinabol. The IOC Issued a statement "Disciplinary proceedings, which could have resulted in the establishment of the anti-doping rule violation and the consequences resulting therefrom cannot be conducted against a deceased person. Consequently, these proceedings must be filed." Kudukov had won the silver medal in London.

Davit Modzmanashvili (UZB) Announced in 2020 that London Olympic Games sample retested positive for Turinabol and the loss of the silver medal.

Further retesting of athlete's samples, and adjudicated in 2023, were based on investigations conducted by WADA's Intelligence & Investigations Department (WADA I&I) and by Professor Richard McLaren into allegations of systemic doping practices in Russian sport as well as in the Moscow Laboratory Information Management System (LIMS) data retrieved by WADA I&I over time. The evidence was provided by WADA I&I to the ITA in 2021 and 2022 for further assessment. In particular, these investigations uncovered LIMS data indicative of the of banned substances in samples provided by the athletes in 2012.

The international testing agency (ITA), leading an independent anti-doping program for United World Wrestling (UWW), has successfully prosecuted nine Russian wrestlers for the use of prohibited substances based on data retrieved from the Moscow laboratory. All were positive for furosemide.

ITA Report, 2023

AN INTERESTING "DOPING" DISQUALIFICATION IN WRESTLING AT THE 1968 OLYMPICS

In the USA Olympic Yearbook 1968, in the wrestling section there was a description of the 57 kg category in Greco-Roman wrestling and it stated:

"Hristo Traykov of Bulgaria was disqualified by the International Amateur Wrestling Federation Health Commission. In his match against the American David Hazewinkel, Traykov was found with ammonia in his uniform."

I emailed my colleague in Bulgaria, Dr. Sylvia Bakalova, who is a wrestling history expert. She replied that the official information is missing and that Hristo Traykov died in 2014. She spoke to Ognyn Makaveev, who is one of the managers in Bulgarian wrestling. He said that in the Olympic games in 1968, during a between period wrestling break in the match between Traykov and Hazewinkel, the towel had been soaked with ammonia, and this resulted in the disqualification.

Ammonia inhalants are commonly referred to as smelling salts. These ammonia capsules, have historically have been used for the prevention and treatment of fainting, dizziness, and lightheadedness. Their use was widespread by athletes as a possible means of temporarily enhancing athletic performance during training or competition.

United States Olympic Book 1968. Fliegner, Frederick: Ed. Published by International Olympic Editions, New York, 1969.

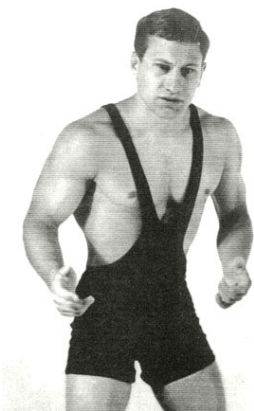


Table 1. All Wrestling Violations in Chronological Order

Last Name	First Name	Gender	Country	Substance	Drug Class	Year	Violation Type	Competition	Sanction	Note
Johansson	Tomas	M	SWE	Primobolon	S1	1984	2.1	Los Angeles Olympic Games	18 month ban	Loss of Silver Medal
Dzidi	Alidad	M	AFG	Furosemide	S5	1988	2.1	Seoul Olympic Games		Disqualification
Ivanov	Dobri	M	BUL	Methandienone, Clenbuterol	S1	1992	2.1			
Jadidi	Abbas	M	IRI	Nandrolone	S1	1993	2.1	World Championships	2 year ban	Loss of Gold Medal
Guliyev	Zafar	M	RUS	Clenbuterol	S1	1996	2.1	Atlanta Olympic Games	Reprimand	Medal was allowed
Kodaei	Mazid	M	IRI	Nandrolone metabolites	S1	1998	2.1	Junior World Championships	2 year ban	
Weldon	Barry	M	USA	Nandrolone	S1	1998	2.1	Freestyle World Cup	2 year ban	
Romero	Joel	M	CUB	Xylocaine		1999	2.1	World Championships	Warning	
Abeddi	Bahram	M	IRI	Anabolic steroids	S1	1999	2.1	Junior World Championships	2 year ban	
Behrouz	Jamsidi	M	IRI	Nandrolone metabolites	S1	1999	2.1	World Championships	2 year ban	
Nikmanesh	Mehdi	M	IRI	Anabolic steroids	S1	1999	2.1	Junior World Championships	2 year ban	
Brea	Anyelo	M	DOM	Furosemide	S5	2000	2.1			
Leipold	Alexander	M	GER	Norandrosterone/noretiochlanolone	S1	2000	2.1	Sydney Olympic Games	2 year ban	Loss of Gold Medal
Purevbaatar	Oyunbuleg	M	MGL	Furosemide	S5	2000	2.1	Sydney Olympic Games	2 year ban	
Aanes	Fritz	M	NOR	Norandrosterone & Norethandrolone	S1	2000	2.1	Sydney Olympic Games	2 year ban	
Peterson	Tipton	M	USA	Testosterone, Stanozololone	S1	2000	2.1		2 year ban	
Doğan	Haran	M	TUR	Norpseudoephedrine	S6	2002	2.1	World Championships	2 year ban	Loss of Gold Medal
Gulhan	Ahmet	M	TUR	Norpseudoephedrine	S6	2002	2.1	World Championships	2 year ban	
Fonseca	Mabel	F	PUR	Stanozolol	S1	2004	2.1	Athens Olympic Games	2 year ban	
Sahin	Faruk	M	USA	Phentermine	S6	2004	2.1	National Championships	2 year ban	
Kotchev	Krasimir	M	BUL	Stanozolol	S1	2005	2.1			
Stoyanov	Nikola	M	BUL	Carboxy-THC	S8	2005	2.1	European Championships	4 month ban	Loss of Silver Medal
Doğan	Haran	M	TUR	Metenolone	S1	2005	2.1	Turkish National Championships	Lifetime Ban	
Stadnyk	Maria	F	AZE	Furosemide	S5	2006	2.1	European Championships	2 year ban	
Lebedev	Viktor	M	RUS	Boldenone	S1	2006	2.1	Junior World Championships	2 year ban	
		F	NOR	Non-Analytical		2007	2.4		1 year ban	
Høie	Gudrun	F	NOR	Non-Analytical		2007	2.4		6 month ban	
Piasecki	Nathan	M	USA	6a-hydroxyandrostendione	S1	2007	2.1	Out of Competition test	2 year ban	
Warren	Joe	M	USA	Cannabinoids	S8	2007	2.1	US World Team Trials	2 year ban	
Rahimov	Vitaliy	M	AZE	Dehydrochloromethyltestosterone (Turinabol)	S1	2008	2.1	Beijing Olympic Games	2016 reanalysis	Loss of Silver medal
Meng	Lu	M	CHN	Diuretic	S5	2008	2.1	Out of Competition test	lifetime ban	
Gharibi	Alireza	M	IRI	D-methamphetamine	S6	2008	2.1	Iran National Championships	lifetime ban	
Mambetov	Asset	M	KAZ	Stanozolol	S1	2008	2.1	Beijing Olympic Games	2016 reanalysis	Loss of Bronze Medal
Tigiyev	Taymuraz	M	KAZ	Dehydrochloromethyltestosterone (Turinabol)	S1	2008	2.1	Beijing Olympic Games	2016 reanalysis	Loss of Silver medal
Blonski	Kamil	M	POL	Methyltestosterone	S1	2008	2.1	Out of Competition test	2 year ban	
Zieziulewicz	Wojciech	M	POL	Methyltestosterone	S1	2008	2.1	Out of Competition test	2 year ban	
Baroiev	Khasan	M	RUS	Dehydrochloromethyltestosterone (Turinabol)	S1	2008	2.1	Beijing Olympic Games	2016 reanalysis	Loss of Silver medal
Fedoryshyn	Vasyl	M	UKR	Dehydrochloromethyltestosterone (Turinabol)	S1	2008	2.1	Beijing Olympic Games	2016 reanalysis	Loss of Silver medal
Zadik	Mike	M	USA	Triamcinolone acetoneide	S9	2008	2.1	Pan American Championships	Public Warning	Loss of Results
Taymazov	Artur	M	UZB	Dehydrochloromethyltestosterone (Turinabol) and stanozolol.	S1	2008	2.1	Beijing Olympic Games	2016 reanalysis	Loss of Gold medal
Tigiev	Soslan	M	UZB	Dehydrochloromethyltestosterone (Turinabol)	S1	2008	2.1	Beijing Olympic Games	2016 reanalysis	Loss of Silver medal
Ngadi Edouka	Irène	F	CMR	Furosemide	S5	2009	2.1	In competition - Senior African Championship 2009	2 year ban	
Valverde Irua	Caroline	F	ECU	Metabolites of Cocaine	S6	2009	2.1	Bolivian Games	2 year ban	

Last Name	First Name	Gender	Country	Substance	Drug Class	Year	Violation Type	Competition	Sanction	Note
Abdelsadek	Ahmed	M	EGY	Nandrolone metabolite of 19-norandrosterone	S1	2009	2.1	African Championship 2009	2 year ban	
Ragab	Fatma Mohamed	M	EGY	Nandrolone metabolite of 19-norandrosterone	S1	2009	2.1	African Championship 2009	2 year ban	
Vahedi	Masoud	M	IRI	Norandrosterone	S1	2009	2.1	In competition - Sari (Iran)	2 year ban	
Asiah	Blessing	F	NGR	Furosemide	S5	2009	2.1	African Championship 2009	2 year ban	
Güngör	Abdullah	M	TUR	Anabolic steroids	S1	2009	2.1	In competition - National	2 year ban	
Can	Aysel	F	TUR	Anabolic steroids	S1	2009	2.1	Out of Competition test	2 year ban	
Pilay	Johnny	M	ECU	Furosemide	S5	2010	2.1	Youth Olympic Games	2 year ban	
Abdelaal	Walid	M	EGY	Stanozolol	S1	2010	2.1			
Belmadani	Tarik	M	FRA	Non-Analytical		2010	2.4		3 months	
Rahkra	Jatinder Singh	M	GBR	Stanozolol metabolites	S1	2010	2.1	Out of Competition test	2 year ban	
Kiss	Balasz	M	HUN	Androstatrienedione	S1	2010	2.1	Out of Competition test	1 year ban	
Sudhir		M	IND	Stanozolol	S1	2010	2.1		2 year ban	
Patatare	Sachin	M	IND	Furosemide	S5	2010	2.1		2 year ban	
Khatri	Masuum	M	IND	Methylhexanamine	S6	2010	2.1	2010 Asian Games	2 year ban	Loss of Bronze Medal
Tomar	Rajiv	M	IND	Methylhexanamine	S6	2010	2.1			
Kaur	Gursharanpreet	F	IND	Methylhexanamine	S6	2010	2.1	Out of Competition test		
Krupnyakov	Alexei	M	KGZ	Nandrolone metabolites, 19-norandrosterone, 19-noretiocholanolone	S1	2010	2.1	World Championships	2 year ban	
Moulla	Said	M	MOR	Stanozolol, Boldenone	S1	2010	2.1			
Button	Simone	F	RSA	Hydrochlorothiazide	S5	2010	2.1		9 month ban	
Gazimagomedov	Anvar	M	RUS	Atenolol	P1	2010	2.1	Junior European Championships	2 year ban	
Askanokov	Rodion	M	RUS	Furosemide	S5	2010	2.1	Out of Competition test	2 year ban	
Petkovic	Radimir	M	SRB	Methandienone	S1	2010	2.1	Serbian Championships	2 year ban	
Fris	Kristijan	M	SRB	Furosemide	S5	2010	2.1	Serbian Championships	2 year ban	
Bilici	Rahman	M	TUR	Sibutramine	S6	2010	2.1	World Cup Yerevan	2 year ban	
Hakkulov	Nurkek	M	UZB	Furosemide	S5	2010	2.1	Youth Olympic Games	2 year ban	
Iglesias	Fernando	M	ARG	Clenbuterol, Furosemide	S1 & S5	2011	2.1	Pan American Games	Disqualification	Loss of Bronze medal
Kumar	Mukesh	M	IND	Stanozolol	S1	2011	2.1		2 year ban	
Rinku		M	IND	Boldenone, Prednisone, Prednisolone	S1	2011	2.1		2 year ban	
Surender		M	IND	Stanozolol	S1	2011	2.1		2 year ban	
Vinod		M	IND	19-Norandrosterone	S1	2011	2.1		2 year ban	
Aliakbari	Amir	M	IRI	Anabolic steroids	S1	2011	2.1		2 year ban	
Ghorbani Goldasteh	Babak	M	IRI	Anabolic steroids	S1	2011	2.1		2 year ban	
Imchek	Babak Hosseinali	M	IRI	Norandrosterone	S1	2011	2.1			
Kitamura	Katsuya	M	JPN	Drostanolone	S1	2011	2.1	Japan Nationals	2 year ban	
Shimonaka	Takahiro	M	JPN	Tamoxifen	S4	2011	2.1	Japan National Championships	2 year ban	
Goosen	Sloane	M	RSA	Furosemide	S5	2011	2.1	National Championships	18 mos.	
Lorenz	John	M	USA	Clomiphene	S4	2011	2.1		2 year ban	
Malvino	Daniel	M	BRA	Anabolic steroids	S1	2012	2.1	Pan American Championships	2 year ban	
Dykun	Myroslav	M	GBR	Methamphetamine	S6	2012	2.1	British Senior Championships	2 year ban	
Goshashvili	Besarion	M	GEO	Furosemide	S5	2012	2.1		2 year ban	
Jitender	Jitender	M	IND	19-Norandrosterone	S1	2012	2.1	National Championship	2 year ban	
Thoudam	Jiten Singh	M	IND	19-Norandrosterone, Nandrolone	S1	2012	2.1		2 year ban	
Patel	Gagan Kumar	M	IND	Furosemide	S5	2012	2.1		1 year ban	
Pawar	Pankaj	M	IND	Furosemide	S5	2012	2.1		1 year ban	

Last Name	First Name	Gender	Country	Substance	Drug Class	Year	Violation Type	Competition	Sanction	Note
Khatri	Mausam	M	IND	Methylhexanamine	S6	2012	2.1		2 year ban	
Mann	Rahul	M	IND	Methylhexanamine	S6	2012	2.1		2 year ban	
Rana	Pankaj	M	IND	Phentermine (Metabolite of Mephentermine)	S6	2012	2.1		2 year ban	
Sehrawat	Sumit	M	IND	Methylhexanamine	S6	2012	2.1		2 year ban	
Singh	Parwinder	M	IND	Methylhexanamine	S6	2012	2.1		2 year ban	
Singh	Joginder	M	IND	Methylhexanamine	S6	2012	2.1		2 year ban	
Sombir		M	IND	Methylhexanamine	S6	2012	2.1		2 year ban	
Tomar	Rajeev	M	IND	Methylhexanamine	S6	2012	2.1		2 year ban	
Chaudhary	Anju	F	IND	Furosemide	S5	2012	2.1		2 year ban	
Gursharanpreet	Kaur	F	IND	Methylhexanamine	S6	2012	2.1		2 year ban	
Jyoti		F	IND	Methylhexanamine	S6	2012	2.1		2 year ban	
Al Saedi	Mohamed	M	IRQ	Sibutramine	S6	2012	2.1			Banned from Olympic Games
Kudukhov	Besik	M	RUS	Dehydrochloromethyltestosterone	S1	2012	2.1	London Olympic Games	Retest from 2012	
Shchekov	Aleksey	M	RUS	Furosemide	S5	2012	2.2	ITA Review of Moscow lab reports in 2021	2 year ban	Adjudicated in 2023
Fatkulina	Margarita	F	RUS	Furosemide	S5	2012	2.1	ITA Review of Moscow lab reports in 2021	2 year ban	Adjudicated in 2023
Getta	Elena	F	RUS	Furosemide	S5	2012	2.1	ITA Review of Moscow lab reports in 2021	2 year ban	Adjudicated in 2023
Kataeva	Anzhela	F	RUS	Furosemide	S5	2012	2.1	ITA Review of Moscow lab reports in 2021	2 year ban	Adjudicated in 2023
Kulkova	Elena	F	RUS	Furosemide	S5	2012	2.1	ITA Review of Moscow lab reports in 2021	2 year ban	Adjudicated in 2023
Leksina	Daria	F	RUS	Furosemide	S5	2012	2.2	ITA Review of Moscow lab reports in 2021	2 year ban	Adjudicated in 2023
Lisitsina	Alevtina	F	RUS	Furosemide	S5	2012	2.1	ITA Review of Moscow lab reports in 2021	2 year ban	Adjudicated in 2023
Shchavinskaya	Anastasiya	F	RUS	Furosemide	S5	2012	2.1	ITA Review of Moscow lab reports in 2021	2 year ban	Adjudicated in 2023
Vostrikova	Elena	F	RUS	Furosemide	S5	2012	2.2	ITA Review of Moscow lab reports in 2021	1 year ban	Adjudicated in 2023
Gunthar	Mathias	M	SWE	Furosemide	S5	2012	2.1	European Championships	Disqualification	
Andrus	Steven	M	USA	Cannabinoids	S8	2012	2.1	U.S. Olympic Trials	1 year ban	
Lee	Stephany	F	USA	Cannabinoids	S8	2012	2.1		1 year ban	
Abdullaev	Muminjon	M	UZB	Nandrolone	S1	2012	2.1		2 year ban	
Modzmanashvili	Davit	M	UZB	Dehydrochloromethyltestosterone (Turinabol)	S1	2012	2.1	London Olympic Games	8 year ban	Loss of Silver medal.
Taymazov	Artur	M	UZB	Dehydrochloromethyltestosterone (Turinabol)	S1	2012	2.1	London Olympic Games	Reanalysis	Loss of Gold Medal
Tigiev	Soslan	M	UZB	Methylhexanamine	S6	2012	2.1	London Olympic Games	Reanalysis	Loss of Bronze medal
Kilou	Kazbek	M	BLR	Metenolone	S1	2013	2.1			
Hamdiev	Guray M.	M	BUL	Boldenone	S1	2013	2.1	Out of Competition test	2 year ban	
Manukhov	Ilya	M	CAN	Letrozole, trenbolone	S1	2013	2.1	in competition test	2 year ban	
Gerhart	Amanda	F	CAN	Non-Analytical		2013	2.3	Out of Competition test	2 year ban	
Amit		M	IND	Non-Analytical		2013	2.3		4 year ban	
Bhupender		M	IND	Non-Analytical		2013	2.3		4 year ban	
Rahul		M	IND	Non-Analytical		2013	2.3		2 year ban	
Singh	Balaraj	M	IND	Furosemide	S5	2013	2.1		2 year ban	
Deepak		M	IND	Methylhexanamine	S6	2013	2.1		2 year ban	
Kanboj	Ranjeet	M	IND	Methylhexanamine	S6	2013	2.1		1 year ban	
Kumar	Anil	M	IND	Methylhexanamine	S6	2013	2.1		2 year ban	
Manish		M	IND	Methylhexanamine	S6	2013	2.1		2 year ban	
Manoj		M	IND	Methylhexanamine	S6	2013	2.1		2 year ban	
Parvish		M	IND	Methylhexanamine	S6	2013	2.1		2 year ban	
Yadav	Suresh Kumar	M	IND	Methylhexanamine	S6	2013	2.1		2 year ban	

Last Name	First Name	Gender	Country	Substance	Drug Class	Year	Violation Type	Competition	Sanction	Note
Nagar	Rishu	F	IND	19-Norandrosterone, Nandrolone	S1	2013	2.1		1 year ban	
Aliakbari	Amir	M	IRI	Anabolic steroids	S1	2013	2.1	World Championships	Lifetime ban	Loss of Gold Medal
Odrina-Urbova	Kristine	F	LAT	Oxandrolone	S1	2013	2.1	Out of Competition test	2 year ban	
Turcan	Elena	F	MDA	Dehydrochloromethyltestosterone	S1	2013	2.1	Junior European Championships	2 year ban	
Munteanu	Virgil	M	ROM	Furosemide	S5	2013	2.1	in competition test	2 year ban	
Dobre	Estera	F	ROM	Furosemide	S5	2013	2.1	European Championships	2 year ban	
Malykhin	Anatoliy	M	RUS	Non-Analytical		2013	2.3	Out of Competition test	2 year ban	
Anzorov	Adam	M	RUS	Nandrolone	S1	2013	2.1	RUSADA 2013		
Belkhoroev	Ruslan	M	RUS	Stanozolol	S1	2013	2.1	Russian National Championships	2 year ban	
Rasuev	Tamerlan	M	RUS	Stanozolol	S1	2013	2.1	Out of Competition test	2 year ban	
Tsarikaev	Felix	M	RUS	Hydroxystanozolol	S1	2013	2.1	In competition	2 year ban	
Uguev	Zavur	M	RUS	Furosemide	S5	2013	2.1	Junior World Championships	2 year ban	
		M	TUR	Methandienone	S1	2013	2.1		2 year ban	
		F	TUR	Clenbuterol	S1	2013	2.1		2 year ban	
		F	TUR	Furosemide	S5	2013	2.1		2 year ban	
Ogannesyan	Gor	M	UKR	Methylhexanamine	S6	2013	2.1	Junior European Championships	2 year ban	
Bradley	Dominique	M	USA	Methylhexanamine	S6	2013	2.1	U.S. Open	8 month ban	
Atia	Ali Mohamed	M	EGY	Canrenone	S5	2014	2.1	African Championships	2 year ban	
Hosseinpoor	Vahid	M	GBR	Tamoxifen	S4	2014	2.1	British Senior Wrestling Championships	2 year ban	
Edisherashvili	Giorgi	M	GEO	Anabolic steroids	S1	2014	2.1	European Nations Cup	2 year ban	
Petriashvili	Geno	M	GEO	Trimetazidine	S4	2014	2.1	Junior World Championship	6 month ban	
Singh	Jaskaran	M	IND	Stanozolol	S1	2014	2.1		2 year ban	
Deepak		M	IND	Methylhexanamine	S6	2014	2.1		2 year ban	
Apoorva		F	IND	Furosemide	S5	2014	2.1		2 year ban	
Tyagi	Apoorva	F	IND	Furosemide	S5	2014	2.1	India National Championships	2 year ban	
Nematpour	Taleb	M	IRI	Trenbolone	S1	2014	2.1	World Cup	8 year ban	
Shakhrudinov	Magomed	M	RUS	Non-Analytical		2014	2.3	Stepan Sargsyan Cup (ARM)	4 year ban	
Erdogan	Samil	M	TUR	Stanozolol	S1	2014	2.1	2014 World Championships	2 year ban	
Blanc	Obenson	M	USA	Ostarine	S1	2014	2.1	U.S. World Team Trials	2 year ban	
Perkins	RaVaughn	M	USA	Furosemide	S5	2014	2.1		6 mos. ban	
Otamurodova	Zuhra	F	UZB	Furosemide	S5	2014	2.1	Junior Asian Championships	2 year ban	
Ouakali	Abdelkrim	M	ALG	Furosemide	S5	2015	2.1	Algerian National Championships	4 year ban	
Ouakali	Abdelkrim	M	ALG	Furosemide	S5	2015	2.1	Algerian National Championships	4 year ban	
Vazquez	Luz	F	ARG	GW501516	S4	2015	2.1	Pan American Games	4 year ban	
Varuzhan	Grigoryan	M	ARM	Clenbuterol	S1	2015	2.1	Junior European Championships	4 year ban	
Gurbanov	Turkhan	M	AZE	Non-Analytical		2015	2.3	Junior European Championships	4 year ban	
Bittencourt	Juan	M	BRA	Drostanolone metabolite	S1	2015	2.1	Pan-American Championships	4 year ban	
Georgiev	Radoslav	M	BUL	Metenolone	S1	2015	2.1	Junior European Championships	4 year ban	
Pliev	Khetag	M	CAN	Dehydrochloromethyltestosterone	S1	2015	2.1	Out of Competition test	4 year ban	
Gaber	Mohammed	M	EGY	Non-Analytical		2015	2.4		2 year ban	
		M	GER	Non-Analytical		2015	2.2		1 year ban	
		M	GER	Furosemide	S5	2015	2.1		2 year ban	
		M	GER	Benzoyllecgonine	S6	2015	2.1		1 year ban	
		M	GER	Oxlofrine	S6	2015	2.1		1 year ban	

Last Name	First Name	Gender	Country	Substance	Drug Class	Year	Violation Type	Competition	Sanction	Note
		M	GER	Amphetamine	S6	2015	2.1		1 year ban	
Yadav	Gargi	F	IND	Betamethasone	S1	2015	2.1		1 year ban	
Mohammadian	Mohammad Hossein	M	IRI	Methasterone metabolite	S1	2015	2.1	Out of Competition test	4 year ban	
Ainagulov	Mirambek	M	KAZ	Furosemide	S5	2015	2.1			
Mukashev	Marlan	M	KAZ	Furosemide	S5	2015	2.1	Cadet Asian Championships	4 year ban	
Kurmanbek	Uulu Ermek	M	KGZ	Furosemide	S5	2015	2.1	Junior Asian Championships	4 year ban	
Silva Rios	Rene	M	NCA	Boldenone & metabolites	S1	2015	2.1	Pan-American Games	4 year ban	
Jimenez Zepeda	Eiverina	F	NCA	7-keto-DHEA	S1	2015	2.1	Pan-American Games	4 year ban	
Heller	Stephanie Bragayrac	F	PAR	Furosemide	S5	2015	2.1	Pan-American Championships	4 year ban	
Herrera	Abel	M	PER	19-norandrosterone, 19-noretiocholanolone	S1	2015	2.1	Pan-American Championships	4 year ban	
Anzorov	Imran	M	RUS	Non-Analytical		2015	2.8		Lifetime Coaching Ban	
Munapov	Adlan	M	RUS	Nandrolone	S1	2015	2.1	RUSADA 2017 following Dec 2016 McClaren Report	4 year ban	
Khatuev	Turpal	M	RUS	Furosemide	S5	2015	2.1	RUSADA 2017 following Dec 2016 McClaren Report	2 year ban	
Yusupov	Zelimkhan	M	TJK	1,3 dimethylbutylamine	S6	2015	2.1	Asian Championships	4 year ban	
		M	TUR	Furosemide	S5	2015	2.1		4 year ban	
		M	TUR	Furosemide	S5	2015	2.1		3 year ban	
Oleksenko	Ruslan	M	UKR	Cannabinoids	S8	2015	2.1	Approximate date		
Kumar	Vinod	M	AUS	Methylhexanamine and ostarine.	S1, S6	2016	2.1	African/Oceania Olympic Qualifier	4 year ban	
Dibirov	Zubair	M	AZE	Stanozolol	S1	2016	2.1	Junior World Championships	4 year ban	
Rusev	Evelin	M	BUL	Drostanolone metabolite; Methandienone metabolite and stanozolol metabolite	S1	2016	2.1	Martyrs Cup in Tehran	4 year ban	
Tagziev	Tamerlan	M	CAN	Meldonium	S4	2016	2.1	In competition	4 year ban	
HOGAČ	SINIŠA	M	CRO	Stanozolol	S1	2016	2.1		8 year ban	
		M	GER	Ephedrine	S6	2016	2.1	in competition	1 year ban	
Min	Bania	M	IND	Nandrolone	S1	2016	2.1		4 year ban	
Parvesh		M	IND	Stanozolol	S1	2016	2.1		4 year ban	
Sarvade	Vansanth Damaji	M	IND	Nandrolone	S1	2016	2.1		4 year ban	
Yadav	Narsingh	M	IND	Metandienone	S1	2016	2.1	Out of Competition test	4 year ban	
Yadav	Narsingh	M	IND	Methandienone	S1	2016	2.1		4 year ban	
Yogesh		M	IND	Furosemide	S5	2016	2.1		4 year ban	
Hussain	Sadiq	M	IND	Mephentermine	S6	2016	2.1		4 year ban	
More	Nidhi	F	IND	Nandrolone	S1	2016	2.1		4 year ban	
Babajanzadeh	Asgari	M	IRI	Testosterone	S1	2016	2.1	Greco-Roman World Cup	4 year ban	
Sever	Huseyin	M	TUR	Methenolone	S1	2016	2.1		8 year ban	
		M	TUR	Clenbuterol	S1	2016	2.1		4 year ban	
		M	TUR	Clenbuterol, Metenolone	S1	2016	2.1		4 year ban	
		M	TUR	Furosemide	S5	2016	2.1		2 year ban	
Dunkum	Michael	M	USA	Non-Analytical		2016	2.2		4 year ban	Possession (Peptides)
Zohier	Iftene	M	ALG	Stanozolol metabolites	S1	2017	2.1	African Championships	4 year ban	
Asgarov	Toghrl	M	AZE	Higenamine	S3	2017	2.1	Out of Competition test	12 mos.	
Dadov	Islambek	M	AZE	Clomiphene	S4	2017	2.1	U23 European Championships	1 year ban	
Badawi	Mahmoud Said	M	EGY	19-noretiocholanolone, 19-norandrosterone	S1	2017	2.1	African Championships	4 year ban	
Hosseinpoor	Vahid	M	GBR	Non-Analytical		2017	2.5		Extended 12 months in 2017	
		M	GER	Clomiphene	S4	2017	2.1	in competition	14 mos. ban	
Yadav	Sandeep Tulsi	M	IND	Methandienone	S1	2017	2.1		4 year ban	

Last Name	First Name	Gender	Country	Substance	Drug Class	Year	Violation Type	Competition	Sanction	Note
Manish	Manish	M	IND	Meldonium	S4	2017	2.1	Junior Asian Championship	4 year ban	
Nisha		F	IND	Meldonium	S4	2017	2.1		4 year ban	
Sydeybekov	Anarabek	M	KGZ	Furosemide	S5	2017	2.1	Junior Asian Championships	2 year ban	
		M	NOR	Clomiphene	S4	2017	2.1		2 year ban	
Waithe Marin	Rodolfo Enrique	M	PAN	Triamterene	S5	2017	2.1	Central American & Caribbean Games	2 year ban	
Egorov	Daniil	M	RUS	Non-Analytical		2017	2.3		4 year ban	
Yakubanya	Vitaliy	M	RUS	Non-Analytical		2017	2.3		4 year ban	
Boltukaev	Anzor	M	RUS	Higenamine	S3	2017	2.1	European Championship	2 year ban	CAS reduced to 10 mos.
Visaitov	Aslan	M	RUS	GW1516	S4	2017	2.1	U23 European Championships	4 year ban	
Chekhirkin	Alexander	M	RUS	Triamcinolone acetonide	S9	2017	2.1	World Championships	4 months	
		M	TUR	19-Norandrosterone, Boldenone, Methandienone, Methandriol	S1	2017	2.1		4 year ban	
		M	TUR	Furosemide	S5	2017	2.1		4 year ban	
		F	TUR	Furosemide	S5	2017	2.1		2 year ban	
Lomadze	Iuri	M	GEO	Hydrochlorothiazide	S5	2018	2.1	European Championships	10 month ban	Loss of Bronze Medal
		M	GER	Benzoyllecgonine (Cocaine)	S6	2018	2.1		16 month ban	
Sehrawat	Sumit	M	IND	Non-Analytical		2018	2.3		4 year ban	
Amit		M	IND	Stanozolol	S1	2018	2.1		4 year ban	
Ravi		M	IND	Norandrosterone	S1	2018	2.1		2 year ban	
Bhagwan	Shri	M	IND	19-Norandrostolone & Meldonium	S1 & S4	2018	2.1		4 year ban	
Abhimanyu		M	IND	Furosemide	S5	2018	2.1		1 year ban	
Dahiya	Rohit	M	IND	Furosemide	S5	2018	2.1		1 year ban	
Kumar	Rahul	M	IND	Furosemide	S5	2018	2.1		1 year ban	
Rohkade	Jagdish	M	IND	Furosemide	S5	2018	2.1		6 month ban	
Salehizadeh	Seyedmostafa	M	IRI	Stanozolol metabolites	S1	2018	2.1	Asian Championships	4 year ban	
Althaalbi	Husham Majeedali	M	IRQ	Testosterone	S1	2018	2.1	Asian Championships	4 year ban	
Usupov	Aibek	M	KGZ	Non-Analytical		2018	2.3	Asian Championships	4 year ban	
Usupov	Saiakbai	M	KGZ	Non-Analytical		2018	2.9	Asian Championships	2 year ban	
Evloev	Muslim	M	KGZ	Dehydrochloromethyl-testosterone	S1	2018	2.1	Out of Competition test	4 year ban	
Purevdorj	Orkhon	F	MGL	Stanozolol	S1	2018	2.1	Asian Championships	4 year ban	Loss of Gold medal
Sarban	George Emilian	M	ROM	Dehydrochloromethyl-Testosterone	S1	2018	2.1	Out of Competition test	4 year ban	
Aladzhev	Vadim	M	RUS	Non-Analytical		2018	2.3		3 year ban	
Gamzatov	Gadji	M	RUS	Non-Analytical		2018	2.4	European Youth Championships	4 year ban	
Elkanov	Dimitrii	M	RUS	Dehydrochloromethyl-testosterone	S1	2018	2.1	Cadet World Championships	4 year ban	
Trifonova	Valeriya	F	RUS	Furosemide	S5	2018	2.1	RUSADA	2 year ban	
Nazarov	Rustem	M	TKM	Furosemide	S5	2018	2.1	Out of Competition test	2 year ban	
		F	TUR	Mesterolone	S1	2018	2.1		4 year ban	
Semkiv	Ilona	F	UKR	Methandienone	S1	2018	2.1			
Oliver	Jordan	M	USA	Amphetamine	S6	2018	2.1		1 year ban	
Oliver	Jordan	M	USA	Amphetamine	S6	2018	2.1		1 year ban	
Francis	Victoria	F	USA	Ostarine	S1	2018	2.1	Out of Competition test	1 year ban	
Nematov	Asilbek	M	UZB	19-norandrosterone	S1	2018	2.1	Cadet Asian Championships	4 year ban	
Keballi	Mouttaieb	M	ALG	Furosemide	S5	2019	2.1	African Championships	3 year ban	
Muslimov	Murtazali	M	AZE	Drostanolone metabolite, oxandrolone metabolites	S1	2019	2.1	Yasar Dogu Ranking Series	4 year ban	
Grishchenko	Kirill	M	BLR	Dehydrochloromethyl-testosterone	S1	2019	2.1		4 year ban	

Last Name	First Name	Gender	Country	Substance	Drug Class	Year	Violation Type	Competition	Sanction	Note
Hryshchanka	Kiryl	M	BLR	Dehydrochloromethyltestosterone	S1	2019	2.1	European Games	4 year ban	
Starodub	Sergey	M	BLR	Dehydrochloromethyl-testosterone	S1	2019	2.1		4 year ban	
Nightingale	Andrey	M	BLR	Furosemide	S5	2019	2.1		4 year ban	
Ahmed	Hala Wael Imbabi	F	EGY	Bumetanide	S5	2019	2.1	Out of Competition test	3 year ban	
Khadjiev	Zelimkham	M	FRA	Trimetazidine	S4	2019	2.1	World Championships	4 year ban	
		M	GER	Non-Analytical		2019	2.5		3 year ban	
		F	GER	Furosemide	S5	2019	2.1		1 year and 4 mos. ban	
Ahire	Rohit	M	IND	Boldenone	S1	2019	2.1		4 year ban	
Kumar	Vikas	M	IND	Testosterone	S1	2019	2.1	Khelo India Youth Games	4 year ban	
Kumar	Sunil	M	IND	Boldenone	S1	2019	2.1		4 year ban	
Kumar	Ravinder	M	IND	19-Norandrosterone and Buprenorphine	S1 & S7	2019	2.1	Narcotics (in competition)	4 year ban	
Reena	Reena	F	IND	Metenolone metabolite, trenbolone metabolite, phentermine metabolite, mephentermine	S1 and S6	2019	2.1	U23 Asian Championships	4 year ban	
Batsuuri	Otgonbayar	M	MGL	19-norandrosterone	S1	2019	2.1	U23 Asian Championships	4 year ban	
Temengil	Florian	M	PLW	Tamoxifen	S4	2019	2.1	in competition	2 year ban	
Skaskiewicz	Kamil	M	POL	Clomiphene, Dehydrochloromethyltestosterone	S4	2019	2.1		4 year ban	
Sarban	George Emilian	M	ROM	Testosterone	S1	2019	2.1	Out of Competition	2 year ban	
Labazanov	Chingiz	M	RUS	Non-Analytical		2019	2.4		1 year ban	
Labazanov	Ibragim	M	RUS	Non-Analytical		2019	2.4		1 year ban	
Dolaev	Rustam	M	RUS	Meldonium	S4	2019	2.1	European Youth Oly. Festival	4 year ban	
Khutaba	Badzha	M	SYR	5-methylhexan-2-amine	S6	2019	2.1	World Championships	2 year ban	
Avcı	Durali	M	TUR	Etiocolanone, Testosterone	S1	2019	2.1		4 year ban	
		M	TUR	Clenbuterol	S1	2019	2.1		3 year ban	
Rakhimov	Khasanboy	M	UZB	Clomifene & metabolites	S4	2019	2.1	World Championships	2 year ban	
Villegas	Shalom	M	VEN	Furosemide	S5	2019	2.1	Pan American Games	2 year ban	
Ech Chabki	Zineb	F	ALG	Canrenone	S5	2020	2.1	Junior African Championships	4 year ban	
Koliev	Georgy	M	BLR	Dehydrochloromethyl-testosterone	S1	2020	2.1		4 year ban	
Etinger	Dominik	M	CRO	GW1516	S4	2020	2.1	Out of Competition test	3 year ban	
Wehib	Shady Ibrahim	M	EGY	Metandienone metabolite, 19-norandrosterone, 19-noretiocholanone & tamoxifen metabolite	S1 and S4	2020	2.1	African Championships	4 year ban	
Nayakal	Vivek Bharat	M	IND	19-Norandrosterone	S1	2020	2.1		4 year ban	
Singh	Jasdeep	M	IND	19-Norandrosterone	S1	2020	2.1		4 year ban	
Yadav	Arjun	M	IND	Metandienone	S1	2020	2.1		4 year ban	
N.	Kiran	M	IND	Mephentermine	S6	2020	2.1		4 year ban	
Hedayat	Behrooz	M	IRI	Stanozolol and trenbolone	S1	2020	2.1	Takhti Cup	4 year ban	
Arthur	Angus Patrick	M	JAM	Dehydrochloromethyltestosterone metabolites	S1	2020	2.1	Pan American Championships	4 year ban	
		M	NOR	Sibutramine	S6	2020	2.1		1 year ban	
Abdulaev	Ruslan	M	RUS	Oxandrolone	S1	2020	2.1		4 year ban	
Bogomoev	Alexander	M	RUS	Meldonium	S4	2020	2.1		4 year ban	
Kaitmazov	Rashid	M	RUS	Meldonium	S4	2020	2.1		4 year ban	
Sayidov	Eldar	M	RUS	Methylhexanamine	S6	2020	2.1	Out of Competition test	2 year ban	
Fransson	Jenny	F	SWE	Methyltestosterone	S1	2020	2.1	Out of Competition test	4 year ban	
Simsek	Oguzhan Cemil	M	TUR	Methandienone	S1	2020	2.1		3 year ban	
		M	TUR	Furosemide	S5	2020	2.1		1 year ban	
		M	TUR	Furosemide	S5	2020	2.1		1 year ban	
Kirichenko	Yevgeny	M	UKR	Stanozolol	S1	2020	2.1			

Last Name	First Name	Gender	Country	Substance	Drug Class	Year	Violation Type	Competition	Sanction	Note
Bey	Kamal	M	USA	Non-Analytical		2020	2.4		1 year ban	
Fix	Daton	M	USA	Ostarine	S1	2020	2.1	Out of Competition test	1 year ban	
Rashitkhanov	Surkho	M	BLR	Dehydrochloromethyl-testosterone	S1	2021	2.1		8 year ban	2.5, 2.1, 2.2
Lachinau	Asadulla	M	BLR	Erythropoietin (EPO)	S2	2021	2.1	National Championships	4 year ban	
Romes	Pereira Ramos	M	BRA	Androstanolone	S1	2021	2.1		8 year ban	
unidentified		M	CRO	Human Chorionic Gonadotrophin	S2	2021	2.1	Out of Competition test		
Nabi	Heiki	M	EST	Letrozole	S4	2021	2.1	Out of Competition test	2 year ban	
Malik	Satinder	M	IND	Non-Analytical		2021	2.3		4 year ban	
Phalswal	Kapil	M	IND	Stanozolol	S1	2021	2.1		4 year ban	
Ranawade	Viraj	M	IND	Drostanolone	S1	2021	2.1		4 year ban	
Dahiya	Bijender	M	IND	Metabolic Modulator	S4	2021	2.1		4 year ban	
Malik	Sumit	M	IND	Methylhexanamine	S6	2021	2.1	Olympic Qualifier in Sofia	2 year ban	
Kaur	Manpreet	F	IND	Higanamine	S6	2021	2.1		2 year ban	
Dilmukhamedov	Askhat	M	KAZ	Methasterone, oxymetholone	S1	2021	2.1	Out of Competition test	3 year ban	
Dobicki	Bartosz	M	POL	Clomiphene	S4	2021	2.1		1 year ban	
Erasmus	Martin	M	RSA	Non-Analytical		2021	2.4		18 months	
Makhov	Bilyal	M	RUS	Growth Hormone	S2	2021	2.1		4 year ban	
Kuzhuget	Belek-ool	M	RUS	Meldonium	S4	2021	2.1		4 year ban	
Yaremenko	Andriy	M	UKR	Torasemide	S5	2021	2.1		2 year ban	
Coleman	Ellis	M	USA	Dehydroepiandrosterone (DHEA)	S1	2021	2.1	Out of Competition test	2 year ban	
Coleman	Ellis	M	USA	Dehydroepiandrosterone (DHEA)	S1	2021	2.1	Out of Competition test	2 year ban	
Usmonjonova	Madina	F	UZB	Furosemide	S5	2021	2.1	Asian Championships	2 year ban	
Bains	Jasonpreet	M	CAN	Dehydrochloromethyl-testosterone	S1	2022	2.1	U SPORTS	2 year ban	
Gagnidze	Bagrat	M	GEO	Dehydrochloromethyl-testosterone	S1	2022	2.1		3 year ban	
Skhulukhia	Mirza	M	GEO	Clenbuterol	S1	2022	2.1		3 year ban	
Khodzrevanidze	Rati	M	GEO	Furosemide	S5	2022	2.1	GEO Anti-Doping Agency	1 year ban	
Indu	Tomar	F	IND	Methyltestosterone	S1	2022	2.1			
Pushpa		F	IND	Furosemide	S5	2022	2.1		2 year ban	
Chamizo	Frank	M	ITA	Tetrahydrocannabinol (THC)	S8	2022	2.1	World Championships	3 month ban	Loss of Bronze Medal
Bekbulatov	Ilyas	M	RUS	Non-Analytical		2022	2.5		4 year ban	
Erdogan (Akhmedov)	Shamil	M	RUS	Non-Analytical		2022			lifetime ban	
Gusarov	Valery	M	RUS	Oxandrolone	S1	2022	2.1		4 year ban	
Antonova	Aykhana	F	RUS	Drostanolone	S1	2022	2.1		3 year ban	
Dakhlaoui	Haithem	M	TUN	Testosterone	S1	2022	2.1	Out of Competition test	3 year ban	
Provisor	Ben	M	USA	Amphetamine	S6	2022	2.1	World Team Trials	16 month ban	

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Commentary

THE IMPACT OF SPORTS DIPLOMACY ON INTERNATIONAL LAW AND THE INTERFACE OF GOVERNMENTS

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Abstract:

After massive and enormous wars in the world, such as World War I and World War II, human civilization tries to show its power in the sports field, however over the years, usually tension between governors was irresistible, tensions between governments have two emotional and rational aspects. After the subsidence of tension between the countries, sport diplomacy starting point has begun. During this research and in this article, it has been tried to challenge this 'Sport diplomacy'. Furthermore, it can be said that whenever politicians face the dead-end, sports diplomacy can be the course for politics to open a new way.

Keywords: *Sport diplomacy, international sport law, governments, international relation, team sport, sport conflicts, sport diplomats*

INTRODUCTION:

Over the years, sport has shifted from a purely recreational to an important international issue. Undoubtedly the increase of the popularity of sports among people and a comprehensive coverage of the mass media as the focus of attention, on the one hand, and on the other hand, the transformation of ordinary athletes into advertising celebrities and brand representatives has added another layer on this issue.

Nowadays a phenomenon called sport is in front of us, offering a complete package of everything for youngsters to get excited about, and also provide many idols for a teenager to copy in his or her behavior. Furthermore, it is also a wonderful hobby for a middle-aged person to relax their minds after a long hard day. It should be noted that not only in this modern time, but also from the very past years, we see that footballers who are one step ahead of the others become a superstar and become the heart of attention. Yet the question is, was there any preparation for them, while being raised to develop the characteristics to be a role model?

Today, the presence of a hairdresser in football training camps can be a necessity for football player. Some of them conceive they have to set a new hair style and make-up before appearing in public or their special courts, hall or fields, just like an actor preparing itself for a weekly TV program. Although the resumption of this discussion is not included in this text, it is the author's point of view that this type of phenomenon is vital to understand the position and importance of sports in today's world.

But another point that is actually important for this part of today's world is the political relations of the states. In today's world international law traces of the order of countries, and their desire to international law can sometimes be observed (although the existence or non-existence of international law is still a matter of debate among some scholars). Therefore, if we imagine the international community as a society consisting of underdeveloped and small states that are eager to be part of this international community, and also large and developed governments that are thinking of controlling and taking over this process, political clashes, cultural differences and conflict of views and many other factors can push the governments away from this newly formed friendly assembly. The result the continuation of political attacks and international conflicts might lead to huge wars and uncontrollable struggle.

On the other hand, we have sports as a powerful, emotional and understandable tool for the public community, whose international dimension has been highly valued in the new society. To the extent that most of the sports fans are highly informed about competitors in their country and also sometimes they try to know more about other sportsmen from each corner of the world. They follow them in their social networks and they carefully monitor their performances to keep abreast of these sportsmen in their favorite field.

American middleweight wrestler Jordan Burroughs, who has formed a close relationship with his Iranian fans over the years, could be a perfect example of this aforementioned relation of wrestling fans. He is often seen to be a

supporter of Iranians on social networks, He sometimes even expresses his longing for them. He has always tried to defend the rights of Iranians in his friendly and social groups, whereas until previous competition none of Iranian wrestlers could defeat him. (after 15 years of beating all of his Iranian adversaries, in December 2022, Ali Savad Kouhi managed a win over this experienced American wrestler).

In other sport fields the story remains the same and there are more examples of good relationships. When the Iranian rock climber Alipour broke the rock-climbing speed record, and was introduced as the fastest vertical man in the world, many non-Iranians sincerely congratulated him. In football, it is witnessed in an extreme form. The formation of fan bases from a foreign team inside an oversea country has become a common phenomenon in recent years. Most of the prominent European football teams are also supporting this development. They have welcomed and even given them the official permission to follow their activities under the supervision of the main club. Apart from the sponsorships, one of the main reasons for the presence of the English Premier League teams in American pre-season tours and pre-season tours of Southeast Asian countries, is the same strange passion of football fans for their favorite footballers.

In each of the cited cases, what happens is that there is a strange social excitement and passion in the heart of the society that excites all the interested people and fills them with pure feelings. This is an ideal environment for presence and visibility of advertising brands and commercial sponsors. But is this the only result of this matter? No, in the author's point of view the that among these sports and economic affairs, the footprints of politicians can also be seen when we witness the minister of sports or even higher officials welcome a counterpart from other country to the tournament. The host country officials get to work and even appreciates their presence. at the level of countries that have good relations with each other, this is not too far from the mind, even with an optimistic view, it can also be seen amongst countries that have no specific political problems with each other. It seems normal and reasonable, but in the case of countries that are openly hostile and constantly issuing political slogans against each other, and public warnings and threats can be frequently observed, these kinds of receptions are less likely.

For those who are not familiar with this strange feature of world of sports, it can be a bit incomprehensible and far-fetched that country A, which always attacks country B politically and issues many political statements against it, during a tournament, that the international athletes of that country should be invited and all the athletes of the host country attend and even appoint a regular welcoming committee for them!

Is such an example possible in the real world? Yes, definitely, with this hypothetical example, the sports enthusiasts have unconsciously turned their minds towards so many sport events, thus the purpose of this discussion was only to investigate the possibility of this occurrence.

Obviously, if we consider this sports reception project, which definitely happened with the coordination of the senior political officials of country A, as a mere sports matter and leave other dimensions out of our sight, it must be add that in the mentioned tournament even one of the most senior political officials personally might go to the camp of team B to welcome them and spoke with them in perfect friendship with much appreciation and thanks.

In this situation, what happens is that there is no room for unacceptable behaviors in this sequence of disputes between the two countries, because at the sports level, which is greatly under the media's magnification, if two countries do not deal properly together it will easily be transmitted and shared with the world. Therefore, they welcome the opposite country in a reasonable and friendly manner and respond to the friendly gesture with the same attitude; This is where you can feel the pressure of the media on the leaders and powerful officials. Furthermore, officials while confirming what happened, should seek to justify the sports opacity created before it, and this process, which might be corrected in a few years, might improve the sports relations, while it will automatically affect other relations such as economical ones as well.

Since the media and the people, are main internal actors of the governments, once they realize the benefits of this healthy relationship in sports, they might demand it in other dimensions such as the cultural, economic and political fields as well, which with its evolution it can become a huge turning point from the old diplomacy. They can use this strategy to put aside the past relations and start to think from a new beginning. In the meantime, what is important is the power and flexibility of the decision makers in both countries. It is crucial to have a balance at the top of the power of the two countries. In other words, if all the necessary conditions were met and the presidents of the sports federations, who are seeking to improve relations have agreed, if the head of one government is from a radical party that does not accept any kind of leniency or flexibility, we will face huge trouble that will not be easy to tackle.

Although this is not far-fetched and seems obvious, what is seen is the lack of simultaneity of the opposing president's terms. It might be witnessed that if the overall structure of an authoritarian and radical system is extreme, a friendly relationship can never be formed, or at least as long as the foundation of a structure is built on the basis of enmity with one side. But where sports as a catalyst can intercede, it only needs a spark from both sides to put this injured relationship on a new path this could be considered as a one of peaceful, and modern methods of resolving international disputes.

If this softening is created on the one hand, we consider the entry of new domestic strategies based on negotiation and open doors, but on the other hand, we may face an extremist who is in no way in agreement with the generalities of the situation. Not only this way to enter sports as something that might help negotiation may go down, but also it is even possible that opposing party consider this establishing a relationship as a sign of weakness of the ruling party. A simultaneity and balance of power between the two government who are seeking to establish a friendly relationship between the two countries, is the vital point of it. What is essential here is only the simultaneity at these times might make it possible to predict a way. This sports diplomacy should open the way and facilitate the entry of all members of the governments.

Considering sport as a negotiation hub in the difficult paths of international law is something that not only does not believe to be an abuse of sports, but also this importance and influential of sports can be used with an open mind to make new ways. In this regard, an important issue comes up, it is the position of team sports. From the sports person or a sports fan point of view, there is no difference between individual sports and team sports in terms of importance. But in this article, team sports get a higher value.

In team sports, which the main example of which is football, the structure of sports teams on the field is easily reminiscent of a country, the soldiers are divided into three main lines in the field: forwards, midfielders, and defenders. The goalkeeper who has to guard the gate. It all seems just like the soldiers who are ready for a battle, and the head coach who is the brain of the command is the head and president of this structure.

This proximity to war, which was not far from Freud's view that compared football to a tribal war over an important issue, is a key. In the match between Iran and US in the 1998 World Cup, all the issues seem strangely important, and everyone focuses on every single second, and every mistake by every player is condemned. However, in the 2022 match between Iran and US, the same thing did not happen. It might be considered because of the interior problems of Iran that does not allow the players and nation to be united. But all this does not make individual sports lose their place in this category. Rather, it is witnessed that a new structure in individual sports has been made, which has given a new beautiful shape to individual sports with a team nature.

In a challenging and very tense sport like wrestling, we have always seen two wrestlers who go to the mat and fight for their honors. Like a boxer who goes into the cage in the UFC to fight for his name and get his championship belt and is faced with this sentence: "Fight for yourself and win." But what is needed the most is the ability to stimulate the collective spirit and draw the attentions towards the relationship between the countries with a sport that has higher value and it got the potential to make every member of a society to see themselves as an athlete the compete in the field as symbol of that nation. Therefore, it should be a sport that has a more team structure.

In wrestling, team competitions seem to be a more suitable platform for this, where the athlete is faced with these words instead of the previous proposition: "Go fight to win yourself, but the victory of your country's team also depends on your victory."

Here it can be seen that an individual sport like wrestling turns into a team sport where the results of each bout have an impact at the end of the fight, so that even if the wrestler loses, the type of loss can make a difference in the final team result. Now, by considering wrestling as a team sport, we can wait for an opportunity for the purpose of this article which is practicing sport as a new way to open a new form of diplomacy. In 2016 World Cup of Freestyle Wrestling in Los Angeles, there was that opportunity for the Iranian national team, which under the presidency of the wrestling federation, Dr. Rasul Khadem, the Iranian national team set foot on American soil, holding symbols of Iran showed its goodwill to everyone.

Maybe the politicians were secretly familiar with this issue in some way, but they saw the effect of this issue on the huge population who faced it live and directly in various ways. Considering a country that is constantly referred to as a country that violates human rights, a country that supports terrorism, has come to you with hands full of gifts and has brought you gifts that reflect the culture of that country. This is the first bell, perhaps to create the same

spark that was talked about and to continue it requires more follow-up and care, which will only happen if the synchronicity mentioned earlier does not happen and we witness mutual good fortune.

The fruits of this planting can cause changes not only in sports, but also in various levels, which were not expected from sports, yet on the other hand, in the World Cup of Freestyle held in Iowa 2022, the threats and talks before the competition regarding obtaining visas and even during the event, inside the competition hall also show that the other side of coin can even make some trouble.

CONCLUSIONS:

- All in all, in sports diplomacy, the importance and status of team sports is much higher than individual sports.
- In order to make sports diplomacy more effective, it is necessary to establish the same coordination and homogeneity between the heads of the country's executive branch and sports diplomats.
- Sports with a higher social status and more popularity have a greater impact on sports diplomacy.
- Sports diplomacy has been shown to act as an important factor for improving relations between governments. Although different ways to prevent war are suggested by experts today, sports diplomacy can also be considered as one of the most efficient of these cases.
- Sport is considering to be a two-way highway, and just as in the previous years it could be a steady road, now it can be seen that it can create problems and help to intensify the fire of conflict between the two countries, whereas it also could bring new ways and a bright path to open a new negotiation route.

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HEAVYWEIGHT LIMITS FOR MEN

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Beginning with the 1985 world championships, FILA instituted a maximum weight of 130 kg (286 lbs.) for the highest weight class. In past days the heavyweight division was also called “unlimited,” since there were no upper limits. As a matter of fact, in the first modern Olympic Games, there was only one class for everyone. Throughout the 20th century there was a gradual increase in the number of weight classes used in the Games. It can be a bit confusing since some of the early Games did not always have competition in both Greco-Roman and Freestyle. Sometimes, even when there were both styles, they had different weight classes. The number of classes grew, as well as the minimum weight used for the heavyweight class. These classes are listed in following Table 1.

Table1. Weight Classes in the Olympic Games

Olympic Games	# Classes	Classes (kg)
1896	1	One Class
1904 FS only	7	47.6, 52.1, 56.7, 61.2, 65.2, 71.6, +71.6
1906 GR only	3	75, 85, +85
1908 FS	5	54, 60.3, 66.6, 73, +73
1908 GR	4	66.6, 73, 93, +93
1912 GR only	5	60, 67.5, 75, 82.5, +82
1920 WC- same both styles	5	60, 67, 75, 82.5, +82.5
1924 & 1928 GR	6	58, 62, 67.5, 75, 82.5, +82.5
1924 & 1928 FS	7	56, 61, 66, 72, 79, 87, +87
1932, 1936, 1952, 1956, 1960	8	52, 57, 62, 67, 73, 79, 87, +87
1964 & 1968	8	52, 57, 63, 78, 87, 97, +97
1972, 1976, 1980, 1984	10	48, 52, 57, 62, 68, 74, 82, 90, 100, +100
1988, 1992, 1996	10	48, 52, 57, 62, 68, 74, 82, 90, 100, 130
2000	8	54, 58, 63, 69, 76, 85, 97, 130
2004, 2008 & 2012	7	55, 60, 66, 74, 85, 96, 120
2016	6	GR: 59, 66, 75, 85, 98, 130
		FS: 57, 65, 74, 86, 97, 125
2021	6	GR: 60, 67, 77, 87, 97, 130
		FS: 57, 65, 74, 86, 97, 125

It can be a bit confusing since some of the early Olympic Games did not always have competition in both Greco-Roman and Freestyle. Sometimes, even when there were both styles, they had different weight classes. Beginning in 1932, FS and GR weight classes were the same in the Olympic Games and World Championships.

The imposition of a limit of 130 kg on the uppermost class was first made for the 1985 World Championships and ran through 2003. Beginning in 2004, it was further reduced to 120 kg.

Beginning with the 2014 World Championships, weight classes were different between the two styles, and the limits were changed with again with Greco Roman returning to the 130 kg limit and Freestyle having a limit of 125 kg. These same limits hold with the 10 weight classes that are now used for World Championships.

Athletes, along with the regular population have gradually grown larger. It is not clear how the 130 kg limit was established by FILA beginning with the 1985 World Championships. A doctor on the FILA Medical Committee stated that it was due to the disparate sizes seen when the huge Chris Taylor (200 kg) wrestled for the US in the 1972 Olympic Games. “I was the main source for limiting the upper limit of the super heavyweight class to 130 kg after the Olympic Games of 1972. The USA had a wrestler who was 200 kg and I made the recommendation at a meeting of the Medical Commission that there should be a limit put in place. We all agreed to 130 kg.” (Fazlollah Nickhah

MD, personal communication, 2003). While there are some athletes who lost weight to wrestle in this class, most of these huge athletes probably just quit the sport.

A similar limitation was made for US collegiate wrestlers in 1986, when the NCAA established the 275 lb. class (123.8 kg). Health and safety of the participants was cited by the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports in the development of this rule change. This entailed concern for the potential mismatches in size, as well as the health risks present in when an athlete is in the 135-180 kg range. In regard to the former, there was no data cited that documented excessive weight difference causing injuries in the heavyweight class. The concern for the health of the athlete outside of competition centered around the following: 1) encourage the athletes who were obese to move towards a lower, and healthier weight and lifestyle; 2) discourage the practice of artificially inflating the athlete's size by way of tremendous caloric intake; and 3) discourage the use of ergogenic aids, such as anabolic steroids, in their quest to become larger. There is no data that has tracked the success of the rule change in achieving the stated goal in #1.

Possible negative effects of this weight class restriction include 1) a reduced pool of potential athletes, and 2) going against the trend for larger athletes one sees in many sports. One can look at the National Football League in the USA and see that 145 kg are now the norm. While some of these men are obese, because of sophisticated weight training programs, one can see many who possess minimal fat, along with great speed and quickness. Mass in open-ended sports (or highest weight classes) provides advantages, especially if the additional mass is fat-free mass. A review of the weights of world and Olympic wrestling champions is shown in Table 2.

Table 2: Heavyweight Champions – Sizes in World and Olympic Championships until 120 kg Maximum was Imposed in 2004

Year	Greco-Roman	Weight (Kg)	Height (cm)	Freestyle	Weight (kg)	Height (cm)
1896	Karl Schumann (GER)	71	175			
1904	Rudolf Arnold (AUT)			Bernhoff Hansen (USA)		
1905	Soeren Marinus Jensen (DEN)					
1907	Hans Heinrich Egeberg (DEN)					
1908	Hans Heinrich Egeberg (DEN)			George Cornelius O'Kelly (USA)	100	
1909	Anton Schmidt (AUT)					
1910	Gustav Sperling (GER)					
1911	Yrjoe Erik Mikael Saarela (FIN)	91	182			
1912	Yrjoe Erik Mikael Saarola (FIN)	91	182			
1913	Anders Ahlgren (SWE)	82.5 kg in 1912	191			
1920	Heinrich Bock (GER) WC			Robert Roth (SUI)		
1920	Adolf Valentin Lindfors (FIN) OG	95.5	176.5			
1921	Johan Salila (FIN)	100	176			
1922	Ernst Nilsson (SWE)	82.5 kg in 1913	189			
1924	Henri Deglane (FRA) OC	100		Harry Dwight Steel (USA)		

1928	Rudolf Svensson, (SWE)	87 kg in 1928	191	Johan Cornelius Richthoff (SWE)		194
1932	Carl Oscar Westergren, (SWE)	75 kg in 1922	178			
1936	Kristjan Palusalu (EST)	110	185	Kristjan Palusalu (EST)	110	185
1948	Ahmet Mersinli Kirecci (TUR)	79 kg in 1936		Gyula Bobis (HUN)	130	189
1950	Bertil Antonsson (SWE)	93	188			
1951				Bertil Antonsson (SWE)	93	188
1952	Johannes Kotkas (URS)	110	185	Arsen Mekokishvili (URS)	120	186
1953	Bertil Antonsson (SWE)	93	188			
1955	Alexander Masur (URS)	119	183	Arsen Mekokishvili (URS)	120	186
1956	Anatoli Parfjonow (URS)	110	190	Hamit Kaplan (TUR)	115	188
1957				Hamit Kaplan (TUR)	115	188
1958	Ivan Bogdan (URS)	114	186	Ljutvi Dshilber Akhmedev (BUL)	115	180
1960	Ivan Bogdan (URS)	114	186	Wilfried Dietrich (GER)	122	189
1961	Ivan Bogdan (URS)	114	186	Wilfried Dietrich (GER)	122	189
1962	Ivan Bogdan (URS)	114	186	Alexander Ivanizki (URS)	106.5	190
1963	Anatoli Roschtshin (RUS)	125	191	Alexander Ivanizki (URS)	106.5	190
1964	Istvan Kozma (HUN)	135.5	202	Alexander Ivanizki (URS)	106.5	190
1965	Nikolai Schmakow (URS)	120	197	Alexander Ivanizki (URS)	106.5	190
1966	Istvan Kozma (HUN)	135.5	202	Alexander Ivanizki (URS)	106.5	190
1967	Istvan Kozma (HUN)	135.5	202	Alexander Medved (URS)	120	190
1968	Istvan Kozma (HUN)	135.5	202	Alexander Medved (URS)	120	190
1969	Anatoli Roschtshin (RUS)	125	191	Alexander Medved (URS)	120	190
1970	Anatoli Roschtshin (RUS)	125	191	Alexander Medved (URS)	120	190
1971	Alexander Tomov (BUL)	126	192	Alexander Medved (URS)	120	190
1972	Anatoli Roschtshin (RUS)	125	202	Alexander Medved (URS)	120	190
1973	Alexander Tomov (BUL)	126	192	Soslan Andiev (URS)	116	198
1974	Alexander Tomov (BUL)	126	192	Ladislau Simon (TUR)	114	183
1975	Alexander Tomov (BUL)	126	192	Soslan Andiev (URS)	116	198
1976	Alexander Koltshinski (URS)	119	193	Soslan Andiev (URS)	116	198
1977	Nikola Dinev (BUL)	130	184	Soslan Andiev (URS)	116	198

1978	Alexander Koltschinski	119	193	Soslan Andiev (URS)	116	198
1979	Alexander Tomov (BUL)	126	192	Salman Khasimikov (URS)	118	180
1980	Alexander Koltschinski	119	193	Soslan Andiev (URS)	116	198
1981	Refik Memisevic (YUG)	112	188	Salman Khasimikov (URS)	118	180
1982	Nikola Dinev (BUL)	130	184	Salman Khasimikov (URS)	118	180
1983	Jewgeni Artjuchin (RUS)	108	189	Salman Khasimikov (URS)	118	180
1984	Jeff Blatnick (USA)	110	189	Bruce Baumgartner (USA)	126	185
1985	Igor Rostorotzki (RUS)	128	195	David Gobedischvili (RUS)	110	200
1986	Tomas Johansson (SWE)	132	193	Bruce Baumgartner (USA)	126	185
1987	Igor Rostorotzki (RUS)	128	195	Aslan Chadarzev (URS)	110	183
1988	Alexander Karelin (RUS)	128	191	David Gobedischvili (RUS)	110	200
1989	Alexander Karelin (RUS)	128	191	Ali-Reza Soleimani (IRI)	121.5	190
1990	Alexander Karelin (RUS)	128	191	David Gobedischvili (RUS)	110	200
1991	Alexander Karelin (RUS)	128	191	Andreas Schroeder (GER)	105	192
1992	Alexander Karelin (RUS)	128	191	Bruce Baumgartner (USA)	126	185
1993	Alexander Karelin (RUS)	128	191	Bruce Baumgartner (USA)	126	185
1994	Alexander Karelin (RUS)	128	191	Mahmut Demir (TUR)	120	184
1995	Alexander Karelin (RUS)	128	191	Bruce Baumgartner (USA)	126	185
1996	Alexander Karelin (RUS)	128	191	Mahmut Demir (TUR)	120	184
1997	Alexander Karelin (RUS)	128	191	Zekeriya Gueclue (TUR)	125	180
1998	Alexander Karelin (RUS)	128	191	Alexis Rodriguez-Valera CUB)	124	188
1999	Alexander Karelin (RUS)	128	191	Stephen Neal (USA)	120	196
2000	Rulon Gardner (USA)	125	191	David Musulbes (RUS)	113	186
2001	Rulon Gardner (USA)	125	191	David Musulbes (RUS)	113	186
2002	Dremiel Byers (USA)	130	188	David Musulbes (RUS)	113	186
2003	Khassan Baroev (RUS)	120	188	Artur Taimazov (UZB)	110	190



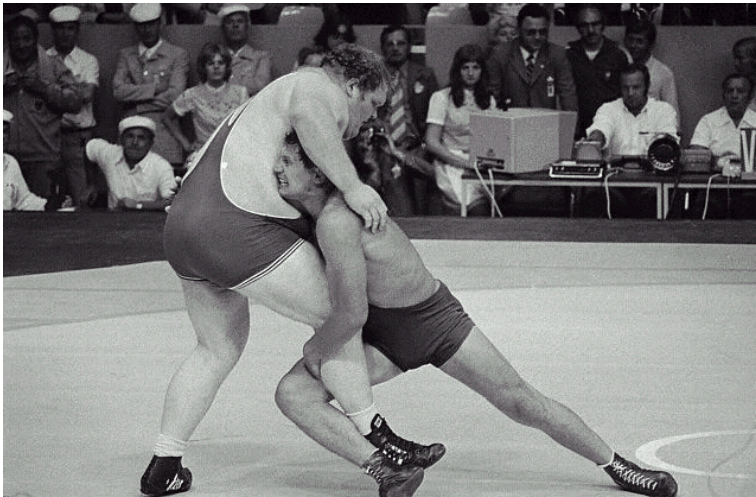
The first modern Olympic wrestling champion was Karl Schumann of Germany. There was only one class. Schumann also won three gold medals in the gymnastics competition.



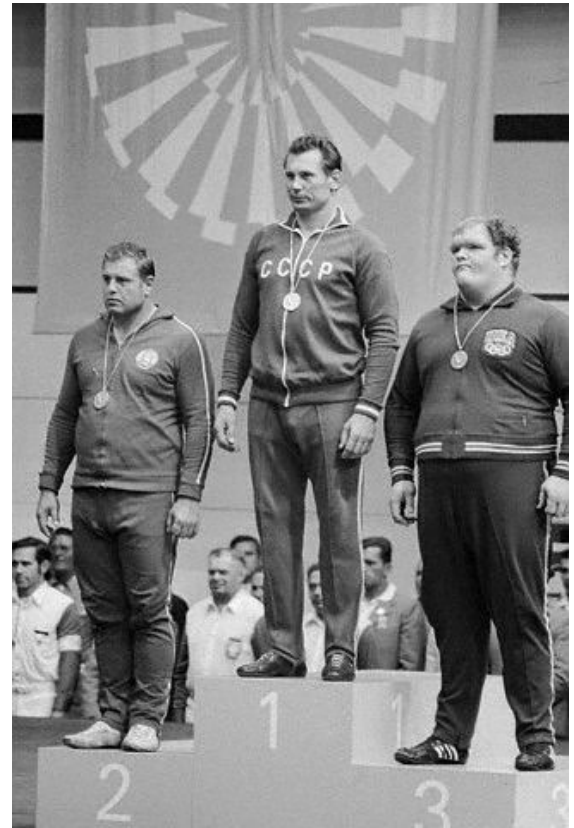
Anatoli Parfjonow (URS) was 1956 GR Olympic Champion at a lean 110 kg.



Wilfred Dietrich of Germany was a Freestyle wrestling champion and Greco-Roman wrestling silver medalist of the 1960 Olympic Games in Rome, shown performing a bend-back throw in the bout with American heavyweight wrestler Chris Taylor (200 kg) in the Greco-Roman portion of the 1972 games. All newspapers and journals reported this famous throw, seemingly demonstrating “the impossible,” yet it is evidence that mass is not always the most important factor in heavyweight competition.



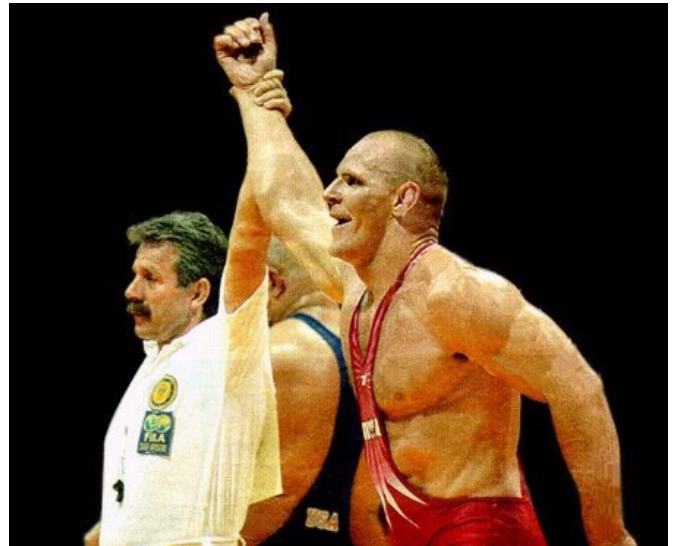
Chris Taylor vs Alexander Medved in freestyle competition at the 1972 Olympics. Medved won a somewhat controversial decision, when the referee refused to call Medved for passivity. The official was sent home from the games and Medved won the gold and Taylor the bronze (right).



Bruce Baumgartner (USA) leads all FS heavyweights in the number world medals. A stocky athlete, he competed at just under 130 kg. He was 1984 Olympic Freestyle Gold Medalist, 1988 Olympic Freestyle Silver Medalist, 1992 Olympic Freestyle Gold Medalist, & 1996 Olympic Freestyle Bronze Medalist.



Istvan Kozma of Hungary was the heaviest of champions, weighing 135.5 kg. He is on the right in this photo from the 1964 Olympic Games as he defeated Anatoli Roschtshin (USSR)



Alexander Karelin of Russia (128 kg) was a 12-time world and Olympic champion.

While only one champion from the list exceeded 130 kg, 17 champions weighed in excess of the current limit of 120 kg. The average and median values are listed below.

Greco-Roman	Weight (Kg)	Height (cm)
mean	117.4	185.1
median	125	191
Freestyle		
mean	116.1	188.9
median	117	189.5
Both Styles Combined		
mean	116.8	189.2
median	119.5	190

Athletes can change weight categories during their careers. Some of these heavyweight champions wrestled at a lower weight class earlier in their careers. Several of the wrestlers from the early 20th century, for whom their competition weight is missing, wrestled and won championships at the last weight for which there was a limit. For instance, Anders Ahlgren (SWE) and Ernst Nilsson (SWE) both wrestled at the 82.5 kg limit class;

Rudolf Svensson, (SWE) wrestled at 87 kg in 1928; Carl Oscar Westergren, (SWE) wrestled at 75 kg in 1922; and Ahmet Mersinli Kirecci (TUR) wrestled at 79 kg in 1936. Alexander Medved won several world championships at the 97 kg weight class before moving up to the unlimited category. Alexander Medved won his first of 3 gold medals in the 97 kg (213 pounds) in 1964. The weight listed for him reflects a more mature size from later in his career. Ahmet Mersinli Kirecci weight in 1948 could not be found, but he was not huge, since he won a previous gold at 79 kg.

Istvan Kozma of Hungary was the heaviest of champions, weighing 135.5 kg (300 lbs). Other athletes of interest include: Adam Sandurski (Pol) who was 213 cm tall (7 feet) and weighed 135.5 kg (300 pounds). Between 1977 and 1986, he earned 2 silvers and a bronze in the freestyle World Championships, and a bronze in the 1980 Olympics (he did make the 130 kg limit in 1985, placing 4th in the WC); and Chris Taylor (USA) who weighed a huge 200 kg (440 pounds). Taylor won a bronze medal in the 1972 Olympic FS competition. He wrestled the great Alexander Medved, with Medved winning a somewhat controversial decision when the referee refused to call Medved for passivity. The official was sent home from the games and Medved won the gold and Taylor the bronze.

Outside of Olympic and FILA organized competition, there are some notable heavyweight competitors from professional wrestling from the late nineteenth, and early 20th centuries. Prior to 1896 revival of the Olympic Games, professional wrestling was well established. The early Olympic Games did not always have the best heavyweights represented. Because the professionals won prize money, de Coubertin cast them in a negative light. This, along with disagreements on the rules between French Rules and those used in Great Britain and the US, resulted in the world's best wrestlers ignoring the Athens Games. Schumann of Germany won the wrestling competition and was actually a gymnast.

In 1900, the Paris Games did not include wrestling, perhaps acknowledging the World Championships that were to take place. Many of the outstanding professional wrestlers were not huge by today's standards and in fact were on the smaller side. Some names of note, for whom we have sizes (Fleisher -*From Milos to Londos: the story of wrestling through the ages*, 1936) are:

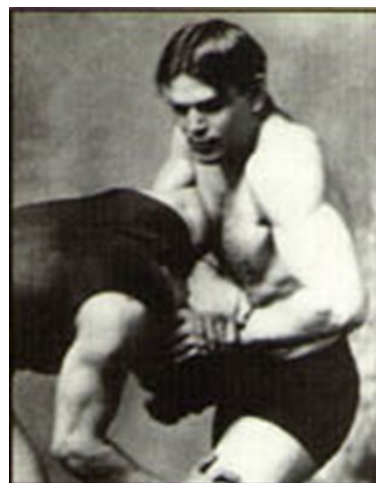
- Frank Gotch: 95 kg
- George Hackenschmidt: 98 kg
- Ivan Poudubny: 113 kg
- Halil Adali ("a Turk of gigantic proportions") 130 kg
- Paul Pons: 115 kg
- Stanley Zbyszko: ranged between 109 and 125 kg

Other athletes of interest include: Adam Sandurski (Pol) who weighed 135 kg and was 214 cm tall. Between 1977 and 1986, he earned 2 silvers and a bronze in the freestyle World Championships, and a bronze in the 1980 Olympics (he did make the 130 kg limit in 1985, placing 4th in the WC); and the aforementioned Chris Taylor (USA) who weighed a huge 200 kg.

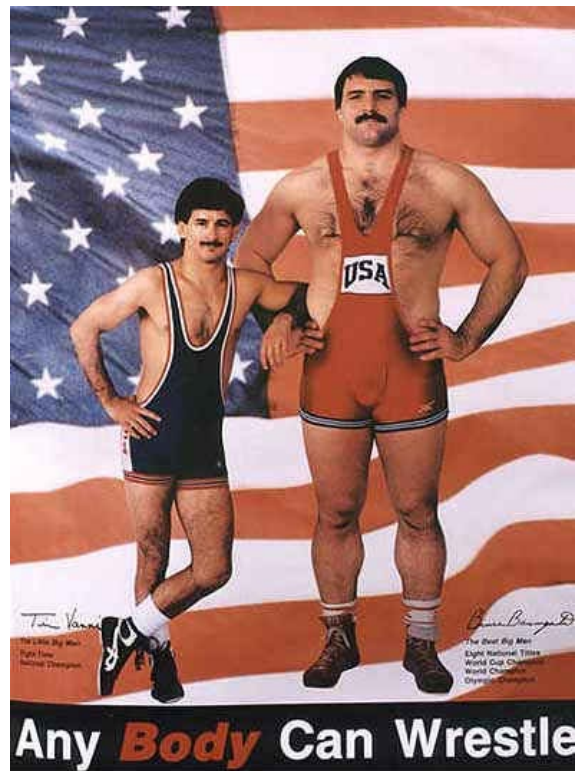
Huge American NCAA heavyweight champions included Chris Taylor (Iowa State -'72 and '73), 170 kg Jimmy Jackson (Oklahoma State -'76, '77, and '78), and 200 kg Tab Thacker (North Carolina State - '84). Pete Lee (USA) was a longtime national Greco team member and '76 Olympian, who regularly tipped the scale at over 180 kg.



George Hackenschmidt



Frank Gotch



Summary

No longer can wrestling advocates say with 100% truthfulness that, as the above promotional poster says, "Any Body Can Wrestle!" Athletes adapt to rules changes and we still have great heavyweights.

The imposition of a limit of 130 kg on the uppermost class was first made for the 1985 World Championships and ran through 2003. Beginning in 2004, it was further reduced to 120 kg. The sport will lose some potential athletes. 17 World or Olympic champions weighed in excess of the initial limit of 120 kg.

Beginning with the 2014 World Championships, weight classes were different between the two styles, and the limits were changed with again with Greco Roman returning to the 130 kg limit and Freestyle having a limit of 125 kg. These same limits hold with the 10 weight classes that are now used for World Championships. Some may have to cut some weight to make the heavyweight limit.

AGING IN WRESTLERS: ARE LONG-TERM HEALTH EFFECTS TO BE EXPECTED FROM WRESTLING?

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Aging is a normal process in the development of any individual. It has its biological, psychological and social characteristics. Abilities of each individual change throughout life. They gradually develop, reach their culmination and begin to decline after some time. A symbolic name for the old age is the "third age", and it is a phase of life, and not a phase of a disease. From the biological point of view, the old age is characterized by disturbed homeostatic function, declining psychophysiological possibilities and changes at the biological and molecular level.

The answer to the question "When does a person become old?" is very difficult. If it is measured by chronological age, mistakes are often made because individual characteristics of each individual are very different. There are people who are "old" at the age of 50, as well as those who are 80 years old, but they are essentially biologically younger. However, according to the attitude of the United Nations, people over the age of 60 are defined as old. These views cannot be fully accepted and differ depending on the economic and social development of the countries. In science, people are classified as the "young-old" from the age of 65 to 74, the "middle-old" from 75 to 84 and the "oldest-old" over 85. From a practical point of view, regarding the economic, social and health issues, there are 2 groups of the elderly:

- The first group are those who have "successfully aged" and do not require any help from others;
- The second group are those who need someone else's help and increased care.

Within the group of younger than 75, the largest number of members belong to the 1st group, but the number of those from the 2nd group is also increasing because all possible medical and social measures are being applied increasingly, and thus they achieve a satisfactory quality of life.

The characteristics and consequences of the aging process refer to the slowing down and decline of all vital functions. This starts already in the middle age, but the consequences are most visible in the old age. It has been discovered that the functional capacity of all organs decreases in the eighties. Thus, the weight of the brain is reduced by 10%, the speed of the conduction of nerve fibers by 15%, the muscle strength by 15%, the cardiac output by 15%, the vital capacity by up to 40%, the speed of reaction to light and sound by up to 50%. The old age should not be considered to be a disease, but a stage in an individual's life. Numerous theories about aging try to clarify this phenomenon, but none of them has fully satisfied all characteristics. However, what is common is the following:

- aging leads to a decline in all functions,
- it makes a gradual progress,
- it is mostly influenced by the endogenous factors, but the exogenous ones cannot be ignored either,
- It is universal and affects all individuals.

What determines the life expectancy of each individual is a very difficult and complex question, to which it is impossible to give a simple answer. In principle, it depends on the genetic and molecular factors of an individual, i.e. the type of environment and the external influences from the environment. Right now, the length and quality of life cannot be influenced through genetic or molecular factors, but the factors from the external environment can be influenced on. In order to implement this, certain changes need to be made at the social level, such as the improvement of environmental awareness, as well as changes at the individual level.

At the individual level, a lot can be done by changing one's diet, being constantly physically active, avoiding contact with harmful substances, without the use of: alcohol, tobacco, narcotics, and similar. In addition, certain aids can be used that have a task to improve the motor function of one's body or the sensitivity of senses.

What is most important is:

- to regulate one's body weight,
- to avoid the use or abuse of harmful substances,
- to correct functional deficiencies,
- to carry out an early rehabilitation – i.e. to do physical exercises in order to maintain the functional state of the locomotor system,

The purpose of this is:

1. To enable a normal and healthy life that corresponds to the age,
2. To conduct prophylaxis in the form of trainings in order to maintain one's mental and physical health,
3. To optimize the therapy that is necessary due to concomitant illnesses that can exist at any age,
4. To conduct training for people with advanced diseases in order to adapt to new conditions. This primarily refers to measures of physical rehabilitation, prosthetics, etc.

The term successful ("normal") aging is often mentioned in the literature. Successful aging is characterized by the absence of diseases and any disability, preserved mental and cognitive functions and constant engagement in social environment with significant creative energy. This is what quality aging is, while satisfying all motor, psychological, social and creative functions and pleasures. Therefore, the "third age" is a phase in the life of an individual, and not a disease.

At the same time, this indicates that the "treatment of the old age" is unnecessary. The disease shall be cured. The old age is a stage of life. The question which is often asked is how the quality of the old age can be improved. It has been shown that certain exercises which are continuously done can improve physical and mental condition. Age is not a contraindication for certain surgical procedures or medical procedures in general. All issues that occur in the old age are not a consequence of the old age, but of a disease, and the disease should be treated.

The most common health problems and diseases in the old age

With age, certain functions are gradually lost:

- First there are changes at the level of senses, such as the weakening of taste, smell, decrease in the number of active salivary glands. The senses of sight and hearing weaken with age and worsen the quality of life, but they can be corrected thanks to new medical techniques or devices. Disorders of nasal function that lead to obstruction, rhinorrhea, epistaxis and olfactory dysfunction are common at this age.
- Gait instability is most often the result of neurological, cardiovascular disorders and osteoporosis and it can be the cause of severe trauma with bone fractures that lead to further deterioration.
- Urinary dysfunction is most often the result of benign prostatic hyperplasia or urinary incontinence.
- The most common issues of the gastrointestinal tract are incontinence, obstetrics and irritable bowel syndrome.
- Anorexia and senile malnutrition lead to a very noticeable weakening of the body with the loss of strength and the appearance of pressure sores.
- Cardiovascular diseases are most often presented in the form of hypertension and coronary heart disease.
- Diabetes mellitus is manifested as insulin dependent or insulin independent, as well as glucose intolerance.
- Respiratory issues are a consequence of chronic bronchitis or lung emphysema.

These are the most common problems that occur in the old age and require multidisciplinary treatment. These conditions significantly worsen other diseases which occur, complicate their treatment and significantly reduce therapeutic possibilities.

How to improve the quality of life in the old age?

The question arising is how to improve physical and mental health and the quality of life, so that the aging process "is slowed down" and is not accompanied by any disease. This is very popular, especially for people who deal with anti-aging activities and therapies. Age-appropriate physical exercises, a diet without unnecessary and harmful amounts of nutrients and the regulation of work and rest are applied within these processes. It has been shown that people who adhere to this lifestyle have a better quality of life in the old age. If we accept this as a ready-made fact, it leads to the conclusion that active athletes will have the best quality of life in the old age. - Is that really true?

Health consequences for former wrestlers

For professional athletes, one of the conditions for achieving better results is a very responsible way of life, training, nutrition and rest. Wrestling belongs to the group of the most difficult sports. It is widespread and very popular all over the world. Wrestling is a physically highly demanding combat sport, where two competitors fight against each other in an attempt to get the superior position.

The sport requires wrestlers' whole body muscle involvement and thus, high energy consumption.

A game consists of 2 sessions of 3 minutes, with a 30-second break between the sessions.

The techniques of wrestling include: throws, takedowns, pins and grappling holds. Wrestling techniques are not only widely applied in other martial art sports, but they are also applied in daily practical uses, especially in military hand-to-hand combat systems and in safe-defense techniques.

Wrestling has a positive impact on overall personal development.

In the first place, wrestling leads to the improvement in physical fitness of a wrestler by enhancing their speed, agility, muscular endurance, stamina, strength and flexibility.

Obesity and rapid weight loss

Wrestling belongs to the group of weight-restricted sports. There are several categories (Olympic and non-Olympic) where there are very strict rules for participating in the tournament. For this reason it is very important to have the appropriate body weight permanently, so that they would not have to lose it immediately before the competition. Unfortunately, a large number of wrestlers belong to this second category and they are in a serious problem to lose weight in a short time. This cannot be done evenly in a short period. Therefore, they start to reduce the intake of food, especially fluids, followed by intensive training and sweating. That way they manage to lose weight for a competition, but they lose it at the expense of losing a large amount of fluids and minerals. Repeated and long-term dehydration of the body can affect kidney function with the later appearance of more severe kidney diseases. It is believed that the weight loss of up to 1% does not cause any consequences for the health of wrestlers. Any major weight loss can be associated with different health consequences. Uncontrolled weight loss through dehydration can be very life threatening. Three deaths have been recorded in wrestlers who lost 15% of their body weight in a short time. This led to acute impairment of cardiovascular function and thermoregulatory mechanisms, and to death as a consequence.

There is no convincing evidence that this method of weight loss can affect other organs, but it deserves additional prospective research. In addition to this, the general health condition can be affected by the continuous stress to which they are subjected in order to achieve the goals set. The hypothesis that former wrestlers have an increased risk of obesity in the old age is not entirely correct. Studies have shown that there have been no significant deviations from other athletes. It has also been shown that wrestlers who have stopped being actively engaged in this sport after the age of 40 do not have a higher risk of developing cardiovascular diseases. Uncontrolled dehydration in order to lose weight can be life threatening.

The question of whether training and physical exercise can have a detrimental effect on the health of athletes in the old age has shown that this fear is unjustified. A meta-analysis done by Adam Runacres and his associates has shown that physical exercise is one of the methods which improves health and reduces the risk of cardiovascular and malignant diseases. The results of the meta-analysis of 38,047 articles published in English have shown that the profiles Endurance (END), Mixed/Tem, Standard Mortality Ratio (SMR) and Standard Proportional Mortality Ratio (SMPR) have shown that athletes live significantly longer than the common population who do not do sports and that they have lower mortality rate from CVD and malignancies. Since we know that sports trainings are extremely hard and take place in various, often very unfavorable, atmospheric and climatic conditions, then what is the reason for this? The reason for this should probably be sought in a neat lifestyle, proper diet, and not-using harmful substances such as tobacco, alcohol, narcotics. Elite athletes have a longer life expectancy compared to the other part of population by 7.2 years. Morbidity from cardiovascular and arteriosclerotic diseases as well as malignancies is significantly lower compared to the control population who do not do sports.

Former athletes have a habit of leading a healthy lifestyle which they have adopted since early childhood, which gives them an advantage over the risk factors to which they are exposed. Physical activity in childhood and adolescence has a positive impact on the quality of life in the old age. Physical exercises enable functional compensation of possible physical defects. Physical activity can support psychological and physical well-being in the old age. Former athletes who still exercise have a lower prevalence of chronic diseases which occur within the aging process.

Metabolic syndrome and disease-causing

The metabolic syndrome is a group of metabolic risk factors which can lead to the development of the cardiovascular disease (CVD). Physical activity is directly related to the lower frequency of CVD and diabetes mellitus. This takes place through the control of the cardiovascular apparatus, due to which they have a lower prevalence in the occurrence of CVD, hypertension and diabetes. The metabolic syndrome is characterized by the following parameters: waist size equal to or larger than 94cm, including any two of the following factors: triglycerides higher than or equal to 1.7 mmol/l and HDL lower than 1.03. Systolic blood pressure higher than 130 mmHg, diastolic blood pressure higher than 85 mmHg, glucose higher than 5.6 mmol/l.

Former athletes have a great advantage compared to others because they apply a healthy lifestyle, which gives them an advantage and reduces the possibility of getting the metabolic syndrome. Physical activity contributes to a significant reduction of harmful visceral adipose tissue and glucose metabolism.

Diabetes mellitus

Diabetes mellitus is increasingly appearing as a disease around the world. It is estimated that in 2030, there will be more than 490 million people suffering from this disease. Diabetes can be insulin dependent or insulin independent. Physical activity and weight loss have a significant impact on the treatment of insulin-independent diabetes, which is of great importance for athletes who have a prominent metabolic syndrome.

Cardiovascular diseases

The term "athlete's heart" is often mentioned in everyday life and literature. It means a constellation of functional, structural, electrical cardiac adaptations which occur as a result of long-term intensive training. The type and extent of these changes is directly dependent on the length and intensity of physical trainings. Intense repetitive training leads to concentric left ventricular hypertrophy. Athletes who continue to exercise after they stop doing sports actively are less likely to develop coronary heart diseases. In case they stop doing sports actively, the chances are the same as with non-athletes. It has been shown that more than 60% of athletes continue to exercise after they end their active sports career, so that they have a significantly lower prevalence

Consequences of unrecovered injuries in the old age

During the wrestling process, either while training or in an active competition, various injuries can occur. Injuries are most often the result of the use of illegal moves. The most common ones are epistaxis, arcade injuries, damage to teeth and tongue, and cuts on the head. Contusions of various parts of body as a consequence of excessive squeezing or blows, represent relatively mild changes which can be stopped quickly. Distortions of a knee, elbow, shoulder, ankle, spine, and hip joints are common and are usually resolved conservatively with physical treatment, and less often surgically. Repeated injuries of the same parts of body can lead to functional disorders in the later period, which require longer and more complex treatment. Loss of consciousness due to asphyxia occurs during illicit wrestling moves, due to strangulation, and they can be immediately life-threatening.

Repeated injuries which are inadequately cared for in the later period can cause numerous difficulties and worsen the quality of life. Therefore, any injury during active sports must be taken very seriously and treated properly, so that its consequences in the old age are as little as possible.

Conclusion

All of this raises the question of whether wrestling is a sport dangerous for life and health, and whether in the "old age" more serious diseases which are difficult to cure can be expected. Does heavy physical exercising has a positive effect on health in the old age or does it worsen diseases which can occur in the old age? Numerous tests have been done regarding this with different results. However, the dominant attitude is that exercising actively in the everyday life of athletes, former athletes and other people has very good preventive medical results. It has been proven that they have much less occurrence of obesity, CVD, diabetes, hypertension, coronary and malignant diseases. This justifies the continuation of physical activity in all people, especially former athletes. Diseases which occur as a consequence of frequent and repeated injuries to bones and muscles are solved by physical therapy or surgery.

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Letter to the Editor

Rationale for using the Profile of Mood States in Amateur Wrestlers

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To the Editor,

By the nature of international wrestling, overtraining would appear to be a major problem for youth and adult wrestlers. With the demands of aerobic conditioning, anaerobic conditioning, strength training, and technique training in addition to poor nutritional habits for “making weight” overtraining and under nutrition would appear to be pervasive.

Physiologically, overtraining manifests itself in psychological disruption of mood states (Morgan 1988). It is this Physiologists opinion that monitoring psychological mood with the Profile of Mood States (POMS; McNair 1971) can detect overtraining and potentially manage overtraining (Morgan et al. 1988, Raglin et al. 1991). This is suggested by data in swimmers that indicate that excessive training results in disrupted mood as assessed by POMS (Morgan et al. 1988, Raglin et al. 1991).

Morgan et al. (1988) studied 12 male swimmers who more than doubled their training volume for 10 days while keeping exercise intensity at 94% of maximal oxygen consumption. Three swimmers out of the 12 were unable to maintain the increased volume. Close agreement between the psychological measures and physiological measures was achieved in this study suggesting that the alterations in physiology manifest themselves on psychological disruption (89% agreement). Over the course of the 10 days statistically significant increases in ratings of muscle soreness, exercise intensity, depression, anger, fatigue, and global mood disturbance and a reduction in general sense of well-being.

Raglin et al. (1991), assessed POMS over a four-year period of training, in 84 females and 102 male swimmers. These investigators found that, with the exception of tension, the measures of POMS were sensitive to the changes in training volume.

It would behoove the wrestling coach to monitor POMS on a weekly basis in wrestlers to pin- point wrestlers at risk for overtraining. Once it is determined that they are overtraining the intensity and/or volume of training could be appropriately reduced. A free application is available at www.BrianMac.co.uk where the 65 item POMS can be quickly assessed (~5 min) and scores for different constructs are calculated immediately. Of particular importance is to have high vigor scores and low fatigue scores. *The POMS should be assessed prior to practice at the same time of day and same day every week.* This should be done for all athletes and the mean graphed weekly for the team. Also, individual athlete scores with low vigor and high fatigue should be evaluated for overtraining and their training adjusted appropriately.

Assessing POMS is a simple but effective way to curtail overtraining and support optimal exercise performance around key competitions during the season.

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