



## FICS Report, TWG2022 in Birmingham, Alabama, USA

### Tug of War International Federation (TWIF) Utilisation Report TWG 2022

The following report presents the FICS Sports Chiropractic impact data relating to the utilisation of healthcare services by TWIF athletes, volunteers, and support personnel during The World Games 2022 in Birmingham, Alabama, USA.

This report is based on the observations, clinical experiences, and data collected by the FICS delegation throughout the Games. Its purpose is to provide the federation with an analysis of the healthcare services delivered during the event and to offer insights that may assist in future planning, athlete support strategies, and event healthcare operations.

The report aims to inform the federation on the types of care provided to its athletes and support personnel during the Games, while also identifying opportunities to further enhance athlete wellbeing, recovery, performance support, and integrated healthcare delivery within the sport. FICS highly values its partnership with the International Federations and hopes this report contributes to ongoing discussions regarding the future development of healthcare services and collaborative support at future international competitions and Games environments.

#### Recap: The World Games 2022 overall statistics:

There were **5844** accredited athletes and officials at TWG 2022.

- **3457** athletes, **2387** officials and numerous volunteers.
- The FICS delegation provided **3440** total treatments during the Games (**1690** to athletes, **1750** to non-athletes).
- Analysing the athletes that sought our care, **889** individual athletes were treated or **25.72% of all athletes accredited** for the Games. This is the largest percentage of athletes we have ever treated at TWG. This is most likely due to multiple factors but influenced by the increased number of FICS sports chiropractors (**54**) accredited and working at the games, our location at the venue, and familiarity with sports chiropractors by the Federations and athletes.
- The treatments included those that saw us for the first time (new treatment) and those that came back for additional treatment (follow up). Of the 1690 athletes that were treated, **889** were new treatments and **801** were follow up treatments.
- The gender distribution **889** athletes treated was **492 (55.34%) males and 397 (44.66%) females**.

## Tug of War International Federation (TWIF) Utilisation Report TWG 2022

The following is the FICS report regarding our involvement in TWG2022 in Birmingham, AL. This report is based on the FICS delegations’ experiences and observations during the Games. The intent is to further inform the **TWIF** on the analysis of the data captured at this event by the FICS delegation. We hope this will initiate discussions and inform the **TWIF** and local organisers for future Games. The intent of the information is to inform the **TWIF** of the care their athletes received during these Games and how it may inform and improve your sport. We cherish our partnership with the **TWIF** and hope this will be informative on how we can further develop our involvement with the **TWIF** and support future Games.

### Overall Statistics of Utilisation of FICS Sports Chiropractic by TWIF during TWG 2022

There were **135** accredited **TWIF** athletes at TWG 2022.

- The FICS delegation provided **59** total treatments to TWIF accredited individuals during the Games (**42** to athletes, **17** to non-athletes).
- Analysing the athletes that sought our care, **26** individual athletes were treated or **19.26% of the accredited TWIF athletes** for the Games. This is most likely due to multiple factors but influenced by the increased number of FICS sports chiropractors (**54**) accredited and working at the games, our location at the venue (which was not as close to the venue until we moved and shared with Lacrosse. Would suggest our location be near the field of play but we were limited by the number of sports chiropractors available on some days), and familiarity with sports chiropractors by the Federations and athletes.

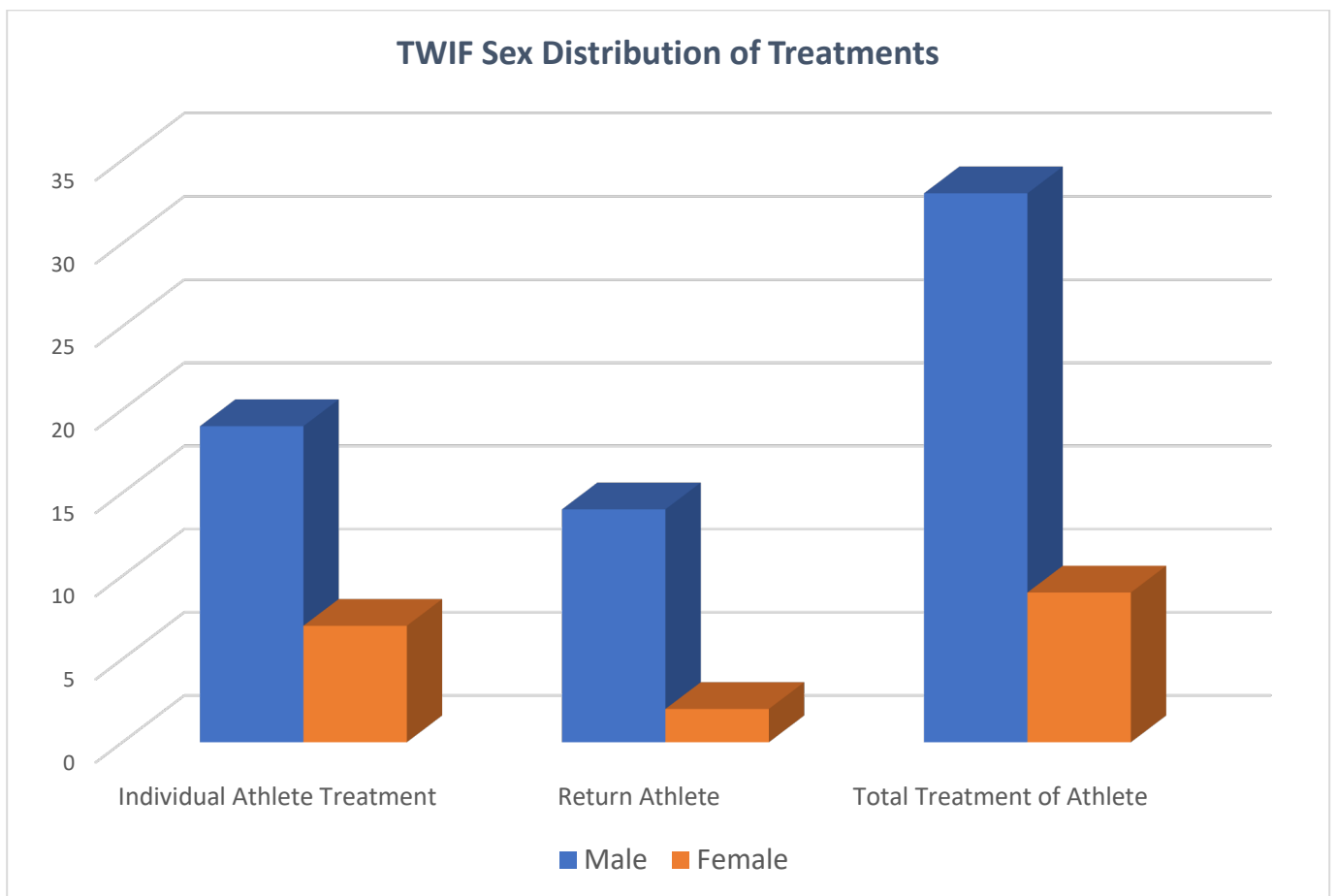
## Athlete Statistics:

The TWIF athletes accessed our treatment areas in the warmup areas near the field of play. This location seemed to allow easy access for the athletes during these games. The treatments included those that saw us for the first time (new treatment) and those that came back for additional treatment (follow up). Of the **135** TWIF athletes that were treated, **26** were new treatments or different individuals and **16** were follow up treatments.

Sport	Total Accredited Athletes	Total Treatments / Sport (Athlete & Non-athlete)	Total Treatments of Athletes	Individual Athlete Treatments	Return Treatments Athletes	% Total Treatments/ # Accredited Athletes	% of Accredited Athletes /Individual Athlete Treatments
TWIF	135	59	42	26	16	31.11%	19.26%

The sex distribution of **42** athlete treatments was **33 (78.57%) males and 9 (21.43%) females**. The individual athletes treated not adding follow up treatments distribution by sex was **19 (73.08%) males and 7 (26.92%)**.

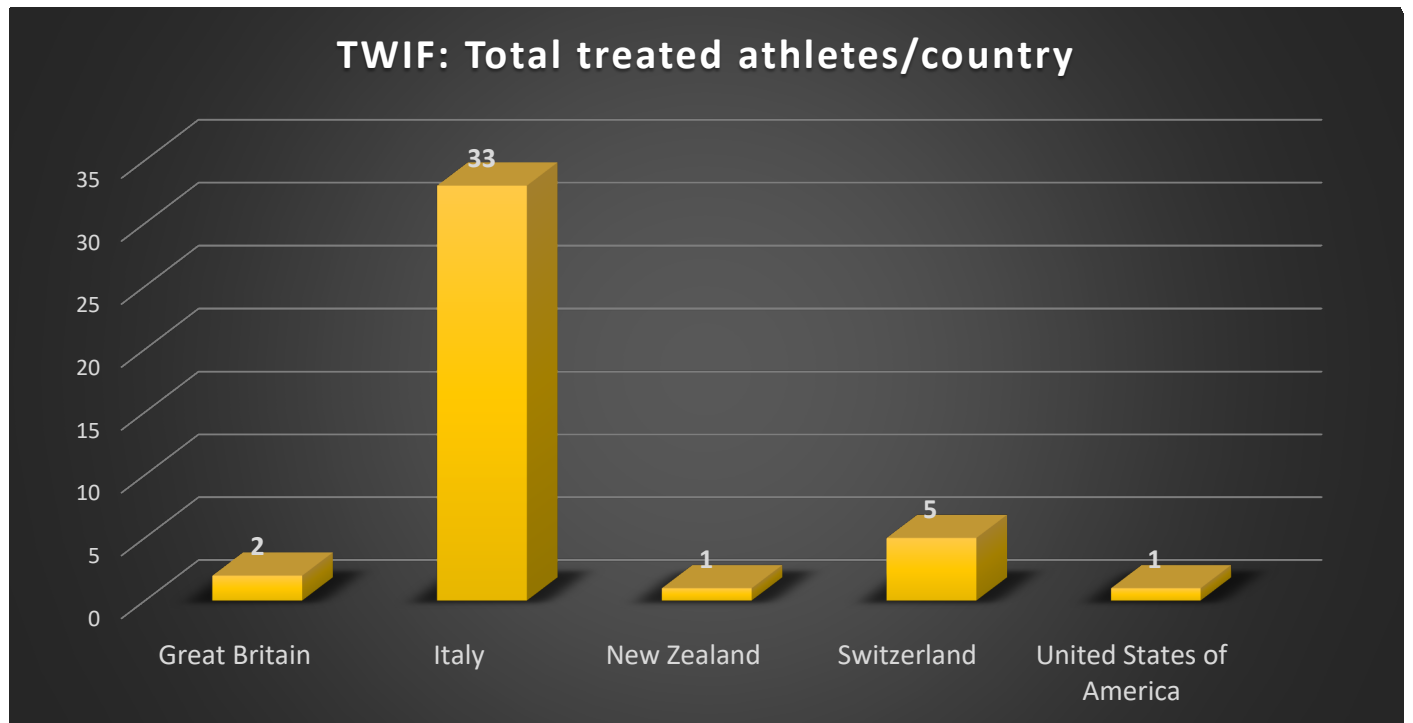
	Individual Athlete Treatment	Return Athlete	Total Treatment of Athlete	% of Total Athletes Treated	% of Total Individual Athletes Treated
Male	19	14	33	78.57	73.08
Female	7	2	9	21.43	26.92



**Countries Distribution:**

Country distribution of **TWIF** athletes that requested our care demonstrated some countries that were very familiar to sports chiropractic. However, it is interesting to see other countries where sports chiropractic is underserved (Panama, Austria) have good utilisation rates. One of the goals for FICS is to level the playing field for all athletes by assuring that every athlete has access to sports chiropractic.

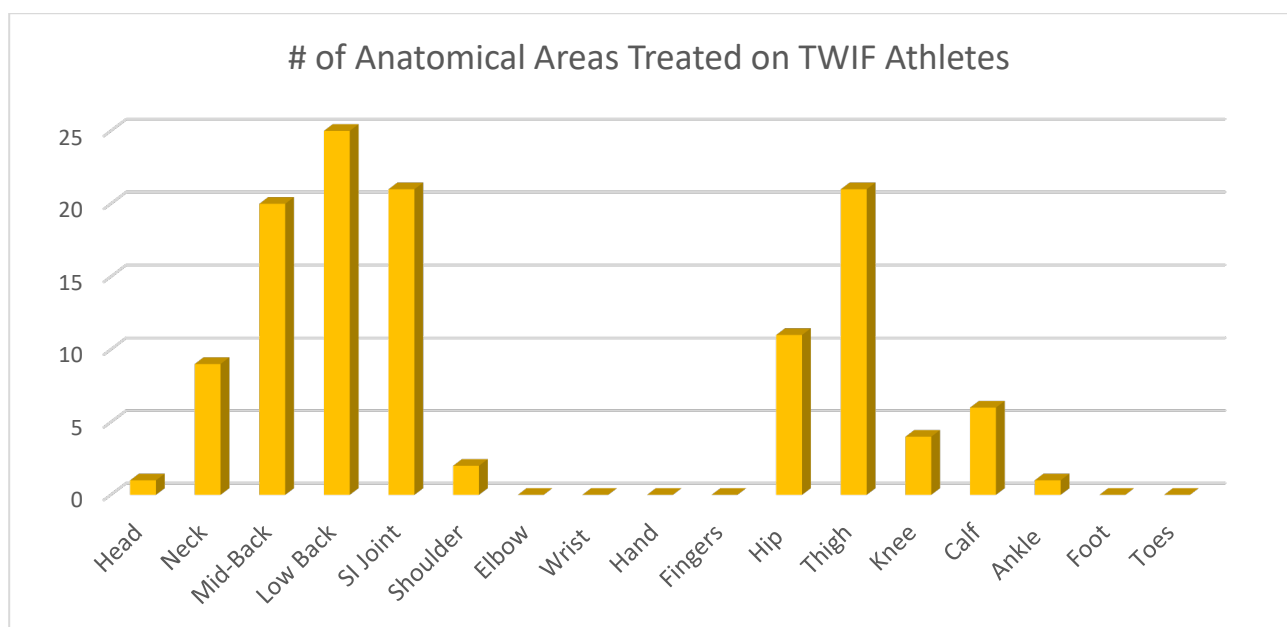
Countries	Total Treatments / Sport (Athlete & Non-athlete)	Total Treatments of Athletes	Individual Athlete Treatments	Return Treatments Athletes	% Individual Athletes Treated	Male	Female
Great Britain	2	2	2	0	7.69%	0	2
Italy	35	33	18	15	69.23%	14	4
New Zealand	1	1	1	0	3.85%	0	1
Switzerland	6	5	4	1	15.38%	4	0
United States of America	4	1	1	0	3.85%	1	0
	<b>48</b>	<b>42</b>	<b>26</b>	<b>16</b>		<b>19</b>	<b>7</b>

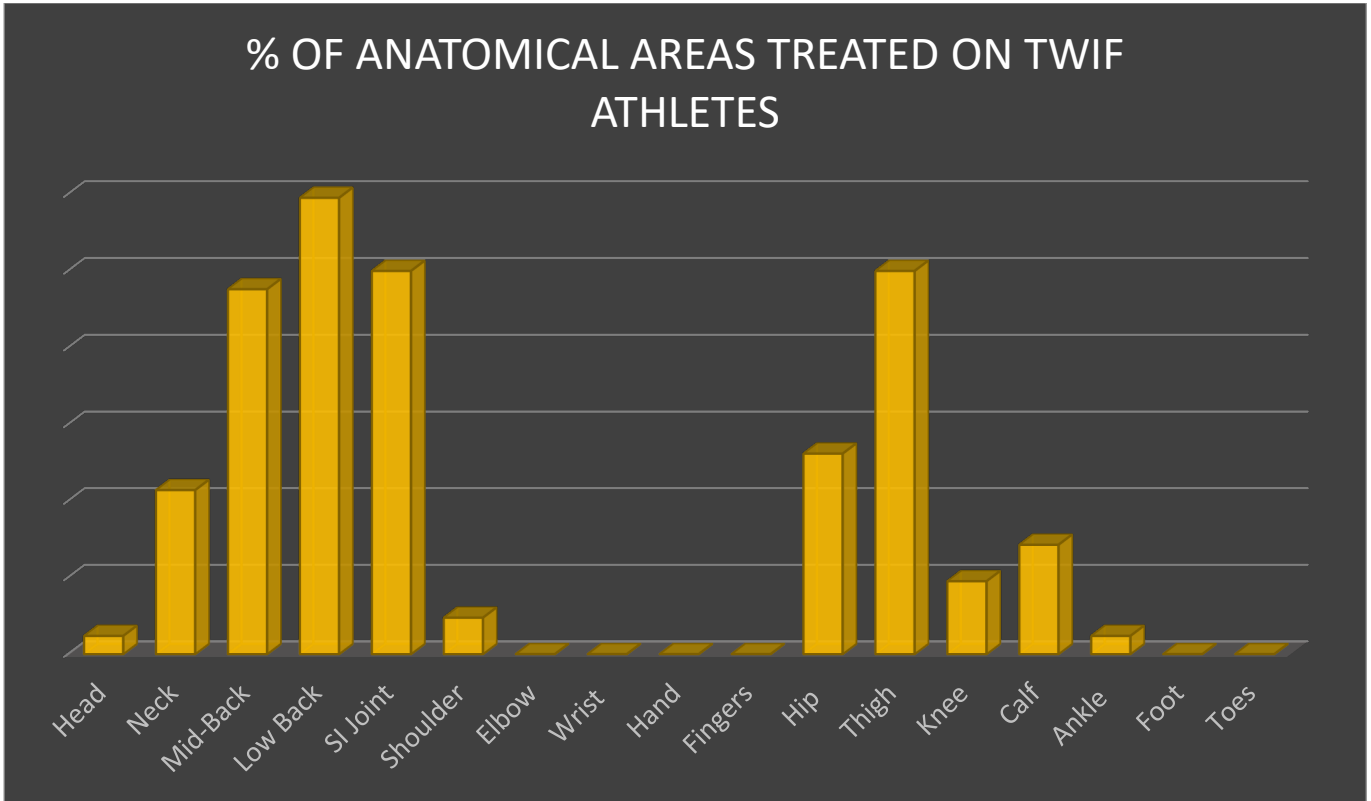


**Anatomical Areas Treated of TWIF Athletes:**

The various anatomical areas treated on the **TWIF** athletes demonstrated the spine was the most common area followed by the thigh, ankle, calf, and hip. The spine and lower extremities are in high demand for this sport and our data indicates treatments for these key areas.

Athlete area treated		% Tot Athlete treatments
Head	1	2.38%
Neck	9	21.43%
Mid-Back	20	47.62%
Low Back	25	59.52%
SI joint	21	50.00%
Shoulder	2	4.76%
Elbow	0	0.00%
Wrist	0	0.00%
Hand	0	0.00%
Fingers	0	0.00%
Hip	11	26.19%
Thigh	21	50.00%
Knee	4	9.52%
Calf	6	14.29%
Ankle	1	2.38%
Foot	0	0.00%
Toes	0	0.00%

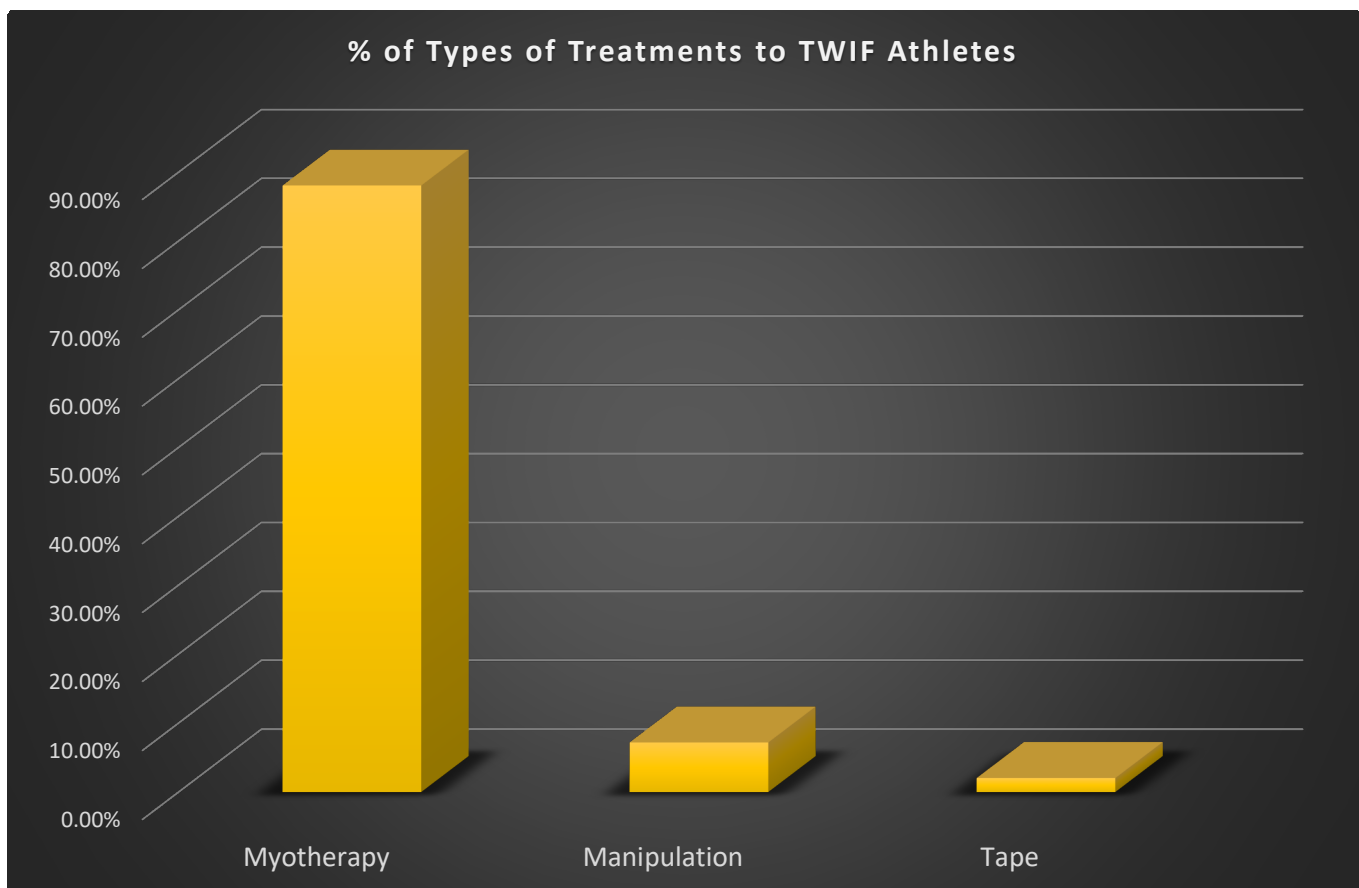
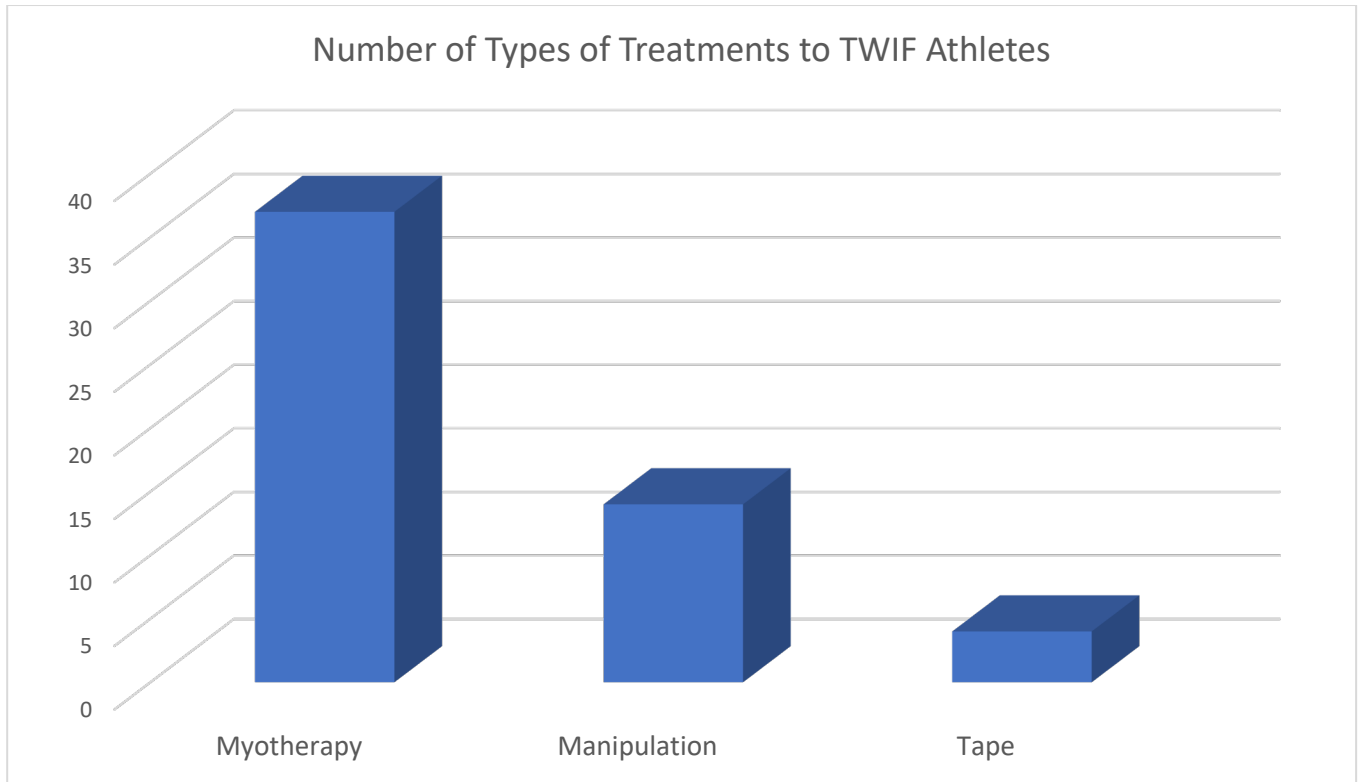




**Types of Treatment:**

The various types of treatment provided to the athletes consisted of myotherapy (muscle work, stretching), manipulation, mobilisation, taping, and ice. The TWIF athletes required considerable myotherapy and manipulation as the primary treatment types to assist with their preparation and recovery for competition.

Type of Treatment	Number of Treatments	% of Type of Treatments / Total Athletes Treated
Myotherapy	37	88.10%
Manipulation	14	7.22%
Tape	4	2.06%





**Satisfaction Survey:**

We asked the athletes to complete a satisfaction survey immediately following their treatment. The survey was composed of five questions that the athletes answered on a 5-point scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree, NA).

	Responses	Response Rate	Average Score
My chiropractor thoroughly explained the treatment(s) I received.	21	50.00%	4.91
My chiropractor treated me respectfully.	20	47.62%	5
My chiropractor answered all my questions.	18	42.86%	5
Overall, I am completely satisfied with the services I received from my chiropractor.	20	47.62%	5
I would return to FICS chiropractors for future services or care.	18	42.86%	5

The response of the athletes averaged a **4.98** or they strongly agreed with each statement with a strong response rate. This evidence would indicate the athletes were very satisfied with the care of their FICS sports chiropractors.

**Conclusion:**

The TWIF athletes at TWG 2022 sought the care of the FICS sports chiropractors at a high rate of utilisation. They represented various countries and a distribution between sexes. There is evidence of high utilisation by TWIF athletes by several countries that may not have full medical services thus providing equable sports chiropractic to all athletes. The spine was the primary area followed by the lower extremities treated with myotherapy and manipulation the primary form of treatment. There was a statistically significant change in the TWIF athletes numerical pain scores following their sports chiropractic treatments signifying clinical improvement. The athletes perceived a strong global change and were very satisfied with their care from the FICS sports chiropractors.

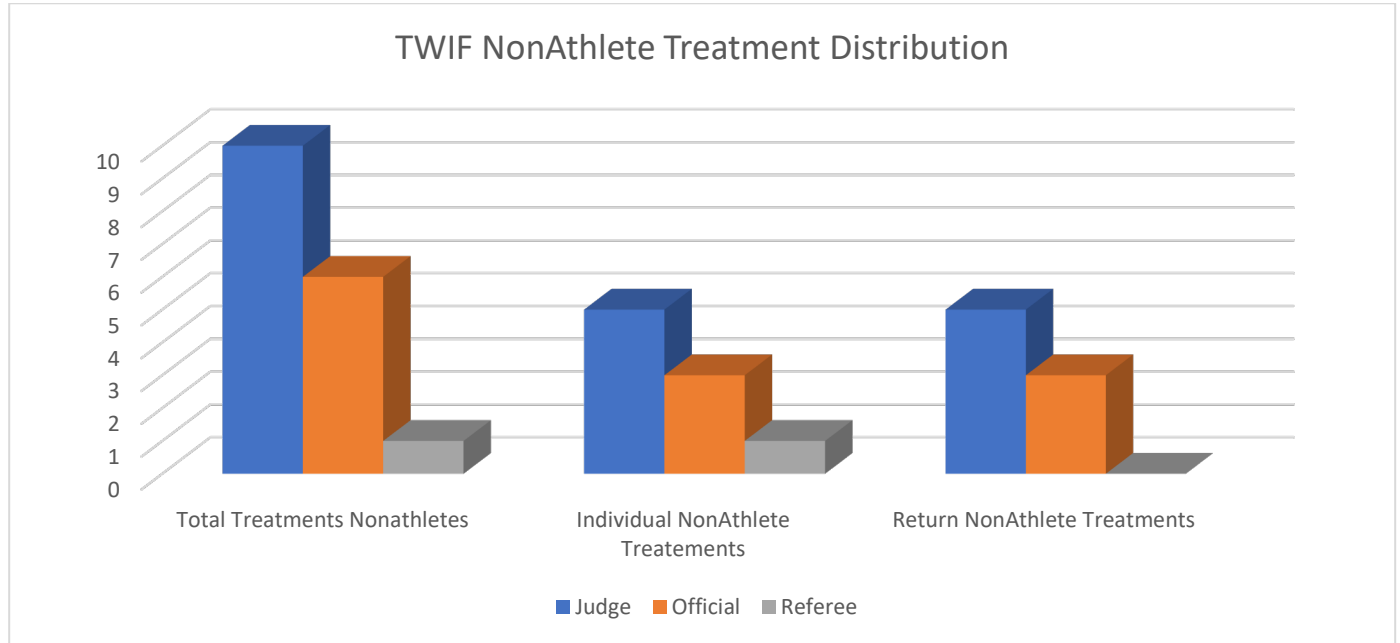
## TWIF Accredited Non-Athletes:

Data was captured on the treatments provided to the accredited non-athletes that requested care by the FICS sports chiropractors. The accredited non-athletes are composed of judges, officials, and referees.

	Total Treatments Nonathletes	Individual Non Athlete Treatments	Return Non Athlete Treatments
Judge	10	5	5
Official	6	3	3
Referee	1	1	0
Totals	17	9	8

There were **12,768** accredited non-athletes at TWG 2022. Unfortunately, we do not have the exact number of accreditations for TWIF of their non-athletes. We provided **17** total treatments provided to TWIF accredited non-athletes. Of the 17 total treatments, **9 (52.94%)** were to new individuals and **8 (47.06%)** follow-up treatments. The gender distribution of the **9** individual non-athletes was **7 (77.78%) males** and **2 (22.22%) females**. Understanding the distribution of the non-athlete group will assist us in our planning and is evidence of the further support

by the delegation to TWG 2022. The accredited TWIF non-athletes represented various groups that supported TWG 2022. We first categorised into 4 large groups (Judge, Official, Referee). The following is the distribution of treatments for each group.

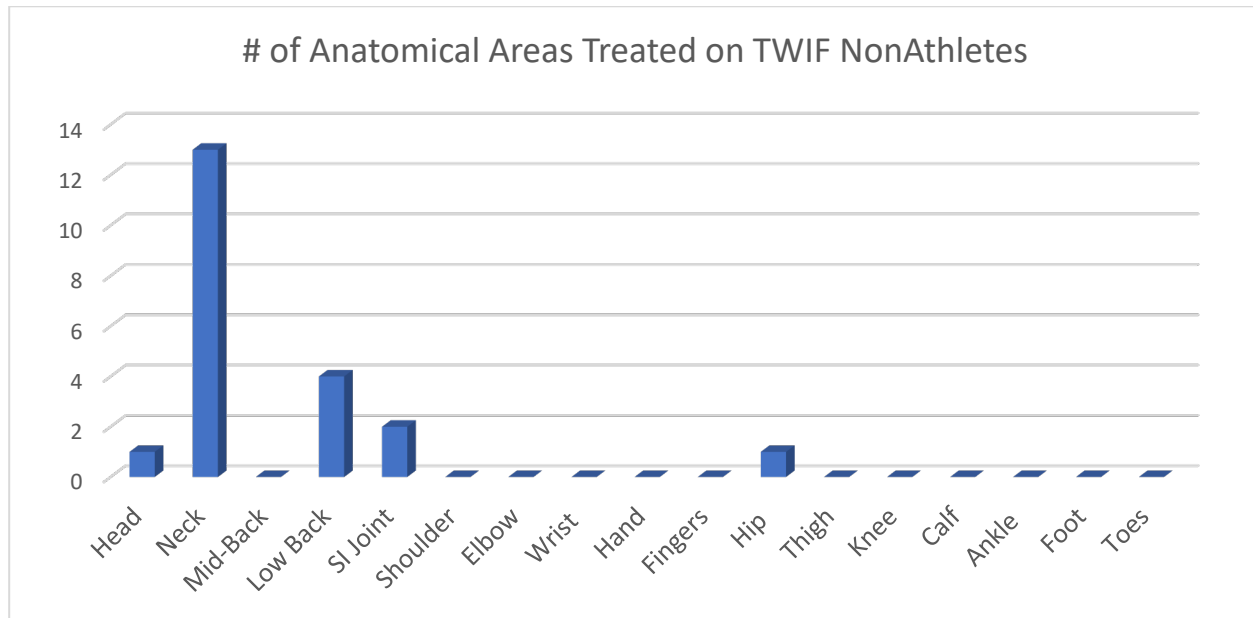


The results demonstrate good utilisation from judges, officials, and referees. FICS strives to integrate with the other medical services during an event and to see other medical individuals request our care is a very positive result. Additionally, the number of judges, officials, and referees that requested care is helpful to support them during the games and experience and understand the care we are providing their athletes. We are hopeful that this utilization by non-athletes of the FICS services further supports TWIF and the success of the event. This is evidence that an added benefit of the FICS delegation is supporting all aspects of the games including those individuals that are responsible for organising and promoting this event.

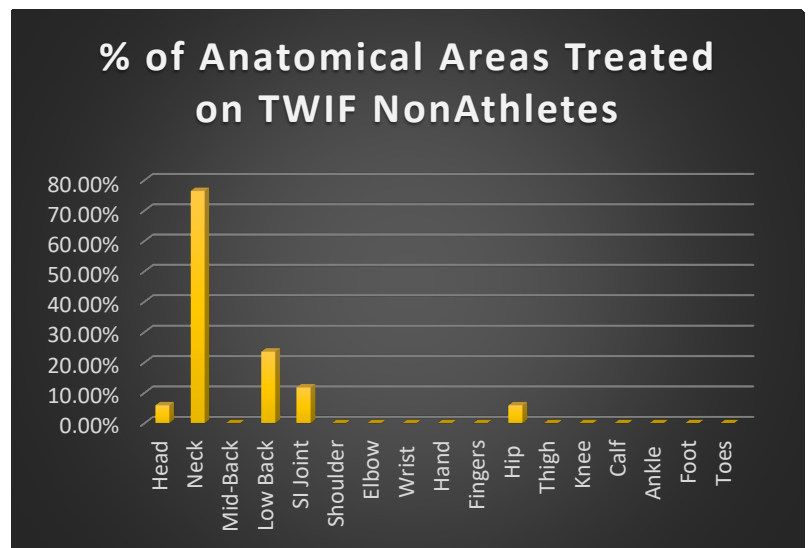
	Total Treatment Nonathlete	Individual Non-Athlete Treatments	Return Non-Athlete Treatments	Male	Female
Belgium	2	1	1	1	0
Chinese Taipei	1	1	0	1	0
Germany	4	2	2	1	1
Ireland	1	1	0	1	0
Italy	2	1	1	1	0
South Africa	3	1	2	0	1
Switzerland	1	1	0	1	0
United States of America	3	1	2	1	0
<b>Totals</b>	<b>17</b>	<b>9</b>	<b>8</b>	<b>7</b>	<b>2</b>

**Anatomical Areas Treated of TWIF Non-Athletes:**

Analysis of the areas treated to the TWIF non-athletes demonstrates a similar pattern to that of the athletes. The spine and lower extremities were the primary area treated.



Anatomical Area	NonAthlete area treated	% Total NonAthlete treatments
Head	1	5.88%
Neck	13	76.47%
Mid-Back	0	0.00%
Low Back	4	23.53%
SI Joint	2	11.76%
Shoulder	0	0.00%
Elbow	0	0.00%
Wrist	0	0.00%
Hand	0	0.00%
Fingers	0	0.00%
Hip	1	5.88%
Thigh	0	0.00%
Knee	0	0.00%
Calf	0	0.00%
Ankle	0	0.00%
Foot	0	0.00%
Toes	0	0.00%



**Types of Treatment Provided to TWIF Non-Athletes:**

The treatment or therapies provided to the TWIF non-athlete was similar that provided to the athletes. Myotherapy was the most common of the therapies provided. The physical, emotional, long hours and stress of organising and supporting the athletes and games was evident in the number of muscle and joint problems we treated in this population. We are hopeful that this care to so many of the support personnel of the games is an added benefit and assist with the success of each event and the games.

TWIF Non-Athlete Type of Treatment	# of Treatments	% of Type of Treatments / Total TWIF Non-Athletes Treated
Myotherapy	17	100.00%
Manipulation	0	0.00%
Tape	0	0.00%

**Changes Following Treatment to TWIF Non-Athletes:**

Everyone was asked to rate their pain or discomfort (Numerical Pain Score, NPS) prior to their treatments. This method is commonly used to evaluate change following treatment or care. The TWIF non-athlete was asked to rate their pain or discomfort from 0 (no pain/discomfort) to 10 (worse pain they have ever experienced). The TWIF non-athletes were asked to then complete the same rating immediately following their treatment. This provides information on their perceived improvement in pain or discomfort. From the 17 treatments provided to the non-athletes, 15 (88.24%) completed the form which is a high completion rate.

# TWIF Non-Athletes	NPS Completion Rate	Pre NPS Average	Post NPS Average	Change	% Change
15	88.24%	4.87	2.67	2.20	45.17%

It is interesting to note that the TWIF non-athletes had a similar average initial pre-treatment rating (4.87) compared to the athletes rating (4.12). The post-treatment rating was also similar with the average post-treatment rating of non-athletes was 2.20 and athletes was 3.12. The percentage of change was **45.17%** for the non-athletes and **75.73%** for the athletes.

Clinically, a 30% change in this rating is significant for the individual’s perceived improvement, clinical indication of improvement, and has correlation to less pain and better function.

## TWIF Non-Athlete’s Global Perception of Change:

The TWIF non-athletes were also asked to rate their perceived global perception of change. This is a commonly used indicator of how an individual perceives change has occurred due to the treatment or their perceived effectiveness of their treatment by the sports chiropractor. This is scored from -5 to +5 rating. A total of **28 (65.12%)** of the **43** treatments provided to the TWIF non-athletes completed this report.

Rate the change in how you feel now compared to before this treatment?										
Much Worse			No Change					Much Better		
-5	-4	-3	-2	-1	0	1	2	3	4	5

Global Perception of Change	TWIF Non-Athletes	# of TWIF Non-Athletes Completed Form	% of Form Completion to Total # of TWIF Non-Athletes Treated	Average Score out of Maximum of 5
	17	8	47.06%	4.00

The results demonstrated an average score of **4.00** with the highest score possible of a 5. The TWIF non-athletes perceived a dramatic change from the treatment of the FICS sports chiropractors.

## Satisfaction Survey:

We asked the non-athletes to complete a satisfaction survey immediately following their treatment. The survey was composed of five questions that the athletes answered on a 5-point scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree, NA).

	Responses	Response Rate	Average Score
My chiropractor thoroughly explained the treatment(s) I received.	21	50.00%	4.91
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Overall, I am completely satisfied with the services I received from my chiropractor.	20	47.62%	5.00
I would return to FICS chiropractors for future services or care.	18	42.86%	5.00

The response of the non-athletes averaged a 4.98 or they strongly agreed with each statement. This evidence would indicate the TWIF non-athletes were satisfied with the care of their FICS sports chiropractors.

**Conclusion:**

The TWIF non-athletes at TWG 2022 sought the care of the FICS sports chiropractors at a high rate of utilisation. They represented various categories of the TWIF non-athlete accreditation with a high rate of referees utilising sports chiropractic care. The spine was the primary area treated with myotherapy was the primary form of treatment. The TWIF non-athletes perceived a strong global change and were very satisfied with their care from the FICS sports chiropractors.

It is our hope that these reports will be viewed as positive feedback on a developing relationship with the World Flying Disc Federation. We look forward to furthering our association with TWIF and we may be an asset to the TWIF and their events. We make ourselves available for further discussion and resolution.

Yours truly,  
Dr Brian C Nook  
FICS ExCo and EMT Member  
FICS IWGA Chef de Mission WG 2022  
FICS IWGA Liaison