

Workplace Health and Safety Queensland

# Assessment of safety during gymnastics activities

## 2011

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## 1.0 Executive summary

In June 2009 a gymnast sustained a fatal injury at a Queensland gymnastics club. Following this incident, the adequacy of safety standards in gymnastics clubs was questioned and the Minister for Industrial Relations asked Workplace Health and Safety Queensland (WHSQ) to assess the adequacy of safety associated with gymnastic activities.

Workplace Health and Safety Queensland developed an assessment process in consultation with the peak industry bodies Gymnastics Australia (GA) and Gymnastics Queensland (GQ) and the Department of Communities, Community and Industry Development, Sport and Recreation Services (SRS).

Workplace Health and Safety Queensland assessed 25% of gymnastics clubs in Queensland that offered mens artistic gymnastics, womens artistic gymnastics or trampoline sports. Workplace Health and Safety Queensland inspectors assessed a total of 26 clubs and conducted 62 site visits.

The assessment reviewed the adequacy of measures that gymnastics clubs have in place to manage safety risks associated with gymnastics activity. The results were reviewed to determine the industry-wide nature of issues and where improvements can be made.

Inspectors issued a total of 37 enforcement notices. Contact with hard surfaces, such as unprotected gymnastics apparatus was the most common notice issue. The next most frequently issued notice was for unaccredited coaches.

Safety during gymnastics activities in Queensland clubs is being managed relatively well. Clubs have a strong awareness of workplace health and safety. Emergency management and incident recording is well managed. Improvement is needed in some areas of gymnastics safety including lesson plans, controlling the risk of contact with hard surfaces, documenting equipment maintenance, controlling the risk of manual task injuries and documenting the skill progression of gymnasts.

Gymnastics Australia and Gymnastics Queensland have a strong membership of gymnastics clubs in Queensland. Affiliated members have access to a comprehensive quality assurance program called Club 10. This provides gymnastics clubs with a strong foundation in workplace health and safety and the areas for improvement can be developed through Club 10.

Sport and Recreation Services provide funding and non-financial support to gymnastics clubs and Gymnastics Queensland. This relationship provides another opportunity to assist clubs to develop their safety systems.

This report tables a number of recommendations on how Gymnastics Australia, Gymnastics Queensland, Sport and Recreation Services and Workplace Health and Safety Queensland can continue to work in partnership with each other and the gymnastics industry to provide safe workplaces for participants and workers.

## 2.0 Summary of recommendations

The following recommendations are made to improve safety during gymnastics activities in Queensland:

1. Gymnastics Australia should review the level of training, assistance and monitoring provided to clubs to implement the Club 10 program. This review should include the methods of monitoring compliance with, and implementation of, the program.
2. Workplace Health and Safety Queensland, Sport and Recreation Services (SRS) and Gymnastics Queensland should research how to link improved safety outcomes in the sport of gymnastics with the funding and non-financial support provided by SRS.
3. Gymnastics Australia should review their GA lesson plan template, in consultation with its members, with the view to developing a lesson plan template that includes coach positioning and key safety controls. Consideration should be given to sample lesson plans for each apparatus and level.
4. Gymnastics Australia should conduct a training needs analysis and ensure that access to coach accreditation and professional development courses is available.
5. Gymnastics Australia should research and develop methods to assist gymnastics clubs to conduct risk assessments, specifically in the use of gymnastics apparatus.
6. Gymnastics Australia should review the Club 10 equipment maintenance policies and procedures with a view to achieving greater compliance with Club 10 documenting processes.
7. Gymnastics Australia should research and develop methods to assist gymnastics clubs in managing the risk of manual task injuries in gymnastic coaches.
8. Gymnastics Australia should review coach knowledge on spotting and provide additional guidance and training where required.
9. Gymnastics Australia should research the viability of a simple method to document skill progression of gymnasts, including injury management. This may vary for high level competitive gymnasts and low level or recreational gymnasts.

### 3.0 Introduction

On 18 June 2009, a gymnast sustained a fatal head injury. The 19 year old had successfully completed a routine and landed on the crash mats positioned at the end of the tumble track. Immediately after that she pushed off, or rebounded, from the mats which propelled her toward the edge of the crash mats. Tragically, her head and torso went over the mats and her head struck the concrete floor.

The matter was investigated by WHSQ and the person conducting the business or undertaking was charged under the *Workplace Health and Safety Act 1995*. The matter proceeded to trial and subsequent appeal. The relevant person was found guilty of the charge and fined.

This incident has raised questions over the adequacy of safety in the gymnastics industry. The Minister for Industrial Relations acknowledged these concerns and in turn requested that Workplace Health and Safety Queensland (WHSQ), in consultation with relevant industry parties, review the need for improvements to safety in the gymnastics industry.

Gymnastics Australia (GA) is the peak industry body for gymnastics in Australia. Gymnastics Queensland (GQ) is the local organisation that delivers GA services to Queensland members. In Queensland, GA benefits from a strong membership of clubs offering mens artistic gymnastics (MAG), womens artistic gymnastics (WAG) or trampoline sports (TRP). Of the 104 clubs in Queensland only two are not affiliated with GA. This strong membership of a single industry association provides a platform for effecting change in the industry. Gymnastics Australia is aware of the need for safety management in the gymnastics industry and has developed a quality assurance program called Club 10.

Club 10 is GA's quality assurance and risk management system for affiliated gymnastic clubs. Gymnastics Australia identifies several benefits of adopting Club 10 including improved management efficiencies, better business systems, greater staff morale and reduced likelihood and impact of liability claims. Another benefit of a quality assurance program is improved workplace health and safety. Affiliated clubs must meet the basic National Affiliation Standards and then can move through the five levels of accreditation achieving a "star rating" ranking.

Department of Communities, Sport and Recreation Services (SRS) provides funding and non-financial support to the sport and recreation industry including organisations delivering gymnastics activities. Since 1 July 1998, the Department has provided \$6.927 million towards the sport of gymnastics, and a further \$20.410 million to multi-sport projects that include gymnastics.

Sport and Recreation Services also support GQ. This includes approved funding of \$870000 over the next three years to GQ under the State Sport and Recreation Organisation Development Program. Sport and Recreation Services do not have any jurisdiction over the operation of GQ and are not able to intervene with decision making or day to day operations.

Eligible gymnastics organisations are able to apply for a variety of funding programs offered by SRS. This includes funding for infrastructure projects and participation and service delivery initiatives. Organisations that are successful in securing funds from SRS are required to formalise a funding agreement. Sport and Recreation Services also provides non-financial support to organisations through a variety of education and training workshops which representatives from gymnastics organisations are able to attend.

### **3.1 Injuries in gymnastics**

Worldwide, reported injuries in the gymnastics industry tend to be among gymnasts at the competitive level. Both acute and chronic injuries to the ankles, knees, wrist, elbows, hand/fingers and spine/trunk are the most common (Hecht & Burton 2009; Caine & Nassar 2005 and Marshall, Covassin, Dick, Nassar & Agel 2007). In womens gymnastics, the majority of injuries occur in the ankle and knee as a result from either landings in floor exercises or dismounts (Marshall et al 2007). Australian injury claim data shows that falls account for 45% of incidents resulting in a gymnastics injury.

In a review of injury data for womens gymnastics from 1988 to 2004, the head and neck were the body parts least likely to be injured (Marshall et al. 2007). This is supported by Australian injury claim data. However, injuries to the head and neck are more likely to result in a catastrophic injury, as compared to the higher incidence of injuries in the ankles and knees. One article credits the decline of acute injuries, especially in the cervical spine and head, to improved supervision (Edlich, Swainston, Dahlstrom, Gubler, Long & Beaton 2010).

Current research into gymnastics injuries tends to be epidemiological in nature and provides little information on injury risk factors and preventative measures outside of individual factors (Edlich et al. 2010; Hecht et al. 2005; Marshall et al. 2007 and Caine et al. 2005). For example, the incidence and severity of injuries is particularly high among advanced level female gymnasts (Caine et al. 2005). The factors that increase the risk of injury among female gymnasts are greater body size and body fat, periods of rapid growth, and increased life stress (Caine et al. 2005).

## **4.0 Project Outline**

The WHSQ assessment of safety during gymnastics activities assessed the level of compliance with the *Workplace Health and Safety Act 1995* among a representative sample of gymnastics clubs in Queensland. It was exploratory in nature to identify the need for improvements and how these improvements might be achieved.

The Terms of Reference (Appendix A) specified the measures that were to be assessed:

- levels of awareness of relevant health and safety obligations;
- risk identification and assessment strategies used to manage safety risks in gymnastics related activities;
- assessments of participant's skill level and ability;
- supervision arrangements;
- the competency of staff, coaches etc., and

- safety associated with the usage of equipment during gymnastics activities.

The project objective was to assess the adequacy of measures used by gymnastics clubs to manage gymnastics activity safety risks. How this was to be achieved is outlined in the Project Proposal (Appendix B).

### **Assessment Sample**

Gymnastics clubs can offer a wide variety of programs, see Table 1. To ensure core gymnastics activities were assessed, only clubs that offered mens artistic gymnastics (MAG), womens artistic gymnastics (WAG) or trampoline sports (TRP) were selected.

**Table 1. Gymnastics programs**

<b>Program</b>	<b>Description</b>
Men's Artistic Gymnastics Rec Lev 1-3 Lev 4-6 Lev 7-10 Int'l	Floor, Pommel Horse, Rings, Vault, Parallel Bars and Horizontal Bar Recreational participation and no levels achieved Level 1, 2 or 3 (National Levels Program) Level 4, 5 or 6 (National Levels Program) Level 7, 8, 9 or 10 (National Levels Program) International Stream (Elite)
Women's Artistic Gymnastics Rec NL 1-3 NL 4-6 NL 7-10 IDP 6/8/10 Jnr Snr	Vault, Uneven Bars, Balance Beam and Floor Recreational participation and no levels achieved National Development Program Level 1, 2 or 3 Level 4, 5 or 6 (National Levels) Level 7, 8, 9 or 10 (National Levels) Level 6, 8 or 10 (International Levels) Junior (International Levels) Senior (International Levels)
Rhythmic Gymnastics Rec Lev 1-3 Lev 4-6 Lev 7-10 Stages Jnr Snr	Rope, Hoop, Ball, Clubs and Ribbon Recreational participation and no levels achieved Level 1, 2 or 3 (National Levels Program) Level 4, 5 or 6 (National Levels Program) Level 7, 8, 9 or 10 (National Levels Program) Junior Int. Development Junior International Senior International
Gymnastics For All  K'gym Children Youth Adults Disability Displays  GymMix Schools	Apparatus Gymnastics; Gymnastics and Dance; Wellness; Fitness and Health Kindergym: a movement-based program for children 5 years and under Participation program for children 5-12 years (Aussie GymFun) Participation program for teenagers Participation program for adults Participation program for people with disabilities Group performance and display gymnastics (Gymfests, Gymnaestrada, etc) Utilises the GymMix resource and potentially the levels program within Delivers programs to schools; at the Club or school
Cheerleading CompCheer TeamCheer  Sport Aerobics Levels Nat A/B Int'l Aeroskools	Sport program involving tumbling, dance, jumps and stunting Competitive cheerleading TeamCheer Level 1, 2 or 3 (National Levels Program)  Individuals, Mixed Pairs, Trios and Groups Level 1, 2 or 3 (National Levels Program) National A or B (National Stream) International Stream School based program
Trampoline Sports Tramp DMT  Tumb. Jnr Snr	Trampoline, Double-Mini Trampoline and Tumbling Trampoline Level 1 to 10 (National Levels Program – PAS) Double-Mini Trampoline Level 1 to 10 (National Levels Program – PAS)  Tumbling Level 1 to 10 (National Levels Program – PAS) Junior Senior
Sports Acrobatics  Lev 1-3 Lev 4-6 Lev 7-10 Jnr Snr	Women's Pairs, Men's Pairs, Mixed Pairs, Women's Trios and Men's Fours Level 1, 2 or 3 (National Levels Program) Level 4, 5 or 6 (National Levels Program) Level 7, 8, 9 or 10 (National Levels Program) Junior Senior

A total of 104 clubs were identified to operate within these parameters throughout Queensland and 25% (26) were selected for assessment. To ensure the sample was representative of the industry, clubs were selected by location (via WHSQ regions), affiliation or non-affiliation with GA and by their Club 10 star rating.

Only two clubs offering MAG, WAG or TRP were not affiliated with GA. Both were included for assessment. Most clubs in the sample were a star 1, 2 or 3 (Table 2). There are no star 5 clubs and only three star 4 clubs in the population.

**Table 2. Club 10 star rating**

Star rating		
1	7	27%
2	8	31%
3	8	31%
4	1	4%
Not affiliated	2	8%
<b>Total</b>	<b>26</b>	<b>100%</b>

To ensure even representations across the state, 25% of clubs located in each WHSQ region were selected (Table 3). More clubs were assessed in the south east corner of Queensland, which was considered appropriate in light of the concentration of gymnastics clubs in this region.

**Table 3. Gymnastics clubs by WHSQ region**

WHSQ Region		
Brisbane North, Sunshine Coast	8	31%
Brisbane South, Gold Coast	7	27%
Central Queensland, Wide Bay	4	15%
North Queensland	5	19%
South West	2	8%
<b>Total</b>	<b>26</b>	<b>100%</b>

Two clubs originally selected for assessment were removed from the sample and replaced by similar clubs in the same regions. This action was taken because one club was no longer operating and the second was a consultation service and did not match the intended profile of the sample.

## 5.0 Assessment process

Assessments were conducted from 23 March to 19 May 2011.

All gymnastics clubs in Queensland were first notified of the campaign via an email (Appendix C). Gymnastics Queensland notified all their members and WHSQ notified the two non-affiliated clubs.

The assessment comprised of two parts:

1. a desktop assessment, and
2. an inspection while classes were being conducted.

The desktop component required access to the club’s documented procedures and a club representative. Therefore, an appointment was made by the inspector to conduct the desktop assessment. The inspection was conducted without advance notice within two weeks (where possible) of the desktop assessment. The assessment process is outlined in Appendix D.

The assessment checklist (Appendix E) was developed in consultation with GQ, GA and SRS. It was developed both as an information gathering tool and as a benchmark for inspectors to determine the level of compliance. The checklist was piloted at two clubs prior to the assessment phase and adjusted in light of issues highlighted in the pilot.

The checklist addresses three key areas:

1. Awareness of workplace health and safety
2. Managing health and safety in gymnastics
3. Emergency management and incident recording

Gymnastics Queensland and GA provided significant support during both the checklist development and assessment process. They assisted by providing specific technical advice and unlimited access to Club 10 resources.

## 6.0 Results

### 6.1 Club demographics

Nearly half (46%) of the clubs assessed had a membership of between 100 and 300 (Table 3).

**Table 3. Membership size of gymnastics clubs**

No. of Members		
<100	5	19%
101 to 300	12	46%
>300	9	35%
Total	26	100%

The majority of clubs (76%) were operating as incorporated associations (Table 4), i.e. a group of volunteers who enter into an agreement to form a committee to accomplish the purpose of running a gymnastics club. Only seven of the 26 clubs were operating on a profit basis.

**Table 4. Legal structure of gymnastics clubs**

Legal structure		
Company	3	12%
Incorporated Association	19	73%
Sole Trader	4	15%
<b>Total</b>	<b>26</b>	<b>100%</b>

Less than half (42%) of clubs owned their own facility and all the clubs, except one, owned their own equipment (Table 5).

**Table 5. Ownership of gymnastics clubs equipment and facility**

	Facility		Equipment	
Leased	15	58%	1	4%
Owned	11	42%	25	96%
<b>Total</b>	<b>26</b>	<b>100%</b>	<b>26</b>	<b>100%</b>

Clubs were selected if they offered MAG, WAG or TRP. These clubs also offered a number of other programs, including adult classes and kinder gym (Table 6).

**Table 6. Programs offered by the gymnastics clubs selected for assessment**

Program		
MAG Recreational	22	85%
MAG Competitive	16	62%
WAG Recreational	23	88%
WAG Competitive	20	77%
Rhythmic Gymnastics Recreational	2	18%
Rhythmic Gymnastics Competitive	2	18%
Kindergym	19	73%
Children	12	46%
Youth	7	27%
Adults	11	42%
Disability	3	12%
Displays	2	8%
GymMix	3	12%
Schools	9	35%
Cheerleading	3	12%
Sport Aerobics	3	12%
Trampoline Sports	11	42%
Sports Acrobatics	1	4%
Other	7	27%

## 6.2 Inspector activity

Inspectors conducted 62 site visits to 26 businesses. A total of 36 improvement notices and one prohibition notice were issued. The most common notice issue was contact with hard surfaces (N17) and accreditation of coaches (N8) (Table 7).

**Table 7. Enforcement notice issues**

Notice Issue	Total
Accreditation	8
Contact with hard surfaces	17
Emergency evacuation systems	3
Manual tasks	1
Pit retrieval system	1
Quality of matting	1
Slips, trips and falls	2
Supervision	3
Unsafe apparatus	1
<b>Grand Total</b>	<b>37</b>

### 6.3 Checklist Analysis

#### Awareness of workplace health and safety

Indicators in the assessment tool (Appendix E) were used to verify the awareness of workplace health and safety among gymnastics clubs. Most clubs are aware of workplace health and safety (Table 8). However, less than half the clubs (46%) allocated adequate time or money to meet safety responsibilities, while 42% partially met this requirement (Item 1.3).

**Table 8. Awareness of workplace health and safety**

Item	Issue	Result
1.1	Are workplace health and safety obligations understood by the PCBU?	Yes Partially No
1.2	Are workplace health and safety obligations understood by workers (staff, volunteers, coaches)?	Yes Partially No
1.3	Is time/money allocated to meet safety responsibilities?	Yes Partially No
1.4	What processes does the club have to ensure health and safety?	Many Some Little or none
1.5	Does the club have safety rules and are participants, staff, volunteers and visitors aware of them?	Yes No
1.6	Are managers and workers involved in all safety decisions and developing safety initiatives?	Yes Partially No

#### Managing health and safety in gymnastics

Lesson plans were being used by 25 of the 26 clubs (table 9). However, only 31% of lesson plans stated the level of supervision or coach positioning. A total of three (12%) affiliated clubs were knowingly using coaches not accredited with GA. Eighteen clubs taught saltos (somersaults) and of these, three (16%) used coaches who were not accredited to teach this skill.

During the inspection, most lessons were supervised (96%) and participants were behaving in a controlled manner (92%).

Less than half the clubs (46%) outlined safety considerations of the layout of equipment in lesson plans and even less clubs consulted manufacturer’s instructions (23%) or equipment suppliers (38%) for advice on equipment layout.

About half the clubs (54%) had measures in place to control the risk of injuries from manual tasks.

Less than half the clubs (46%) had well developed policies and procedures to maintain their equipment. However, during the inspection most clubs (92%) had equipment that appeared well-maintained and safe to use.

The risk of contact with all hard surfaces was not controlled in most clubs (8% compliance). Hard surfaces can include unprotected components of apparatus such as the feet of a beam, walls, floor and other equipment located in close proximity that may be contacted during gymnastics activities. However, most clubs (73%) had appropriate matting in designated landing areas and on areas surrounding these landing areas.

Most clubs (77%) had their equipment set up permanently but less than half (42%) had the entire facility flooring completely covered with matting.

Only half the clubs (50%) evaluated their gymnast’s capacity/ability.

**Table 9. Managing health and safety in gymnastics**

<b>SUPERVISION/POSITIONING</b>			
<b>Item</b>	<b>Issue</b>	<b>Result</b>	
2.1	A lesson plan is prepared for every lesson.	Yes No	96% 4%
2.2	The lesson plan outlines adequate positioning of the coach and/or what level of supervision is required.	Yes No	31% 69%
2.3	All supervision is conducted by an accredited coach.	Yes No	88% 12%
2.4	Participant behaviour is managed.	Yes Partially No	92% 4% 4%
INS1	Are all groups supervised during lessons, whether general or specific, as per the lesson or supervision plan?	Yes No	92% 8%
INS2	Are there any volunteers or non-accredited coaches supervising groups?	Yes No	15% 85%
INS3	Are there any unsupervised groups?	Yes No	4% 96%
INS4	Are groups behaving in a controlled manner and remaining in the area/apparatus they are required to be in?	Yes No	92% 8%
INS7	Accredited coaches are teaching classes as assigned on the Club’s session plan?	Yes No blank	88% 8% 4%
INS8	Coaches are coaching groups they are qualified to coach?	Yes No blank	88% 8% 4%
<b>COACHING</b>			
2.5	The club uses accredited coaches to run its programs and classes	Yes Some	88% 12%

		No	0%
2.6	Accredited coaches are assigned to programs and classes they are qualified to teach.	Yes Some No	85% 15% 0
	Saltos are only taught by L2 coaches or L1 coaches who have completed the Salto Bridging Course. (Response only for clubs that teach saltos (N 18).)	Yes No	83% 16%
2.7	On employment coaches are inducted and receive regular training by the club.	Yes No	88% 12%
<b>FACILITY AND EQUIPMENT</b>			
2.8	A risk assessment has been conducted to identify any risk of injury due to the layout of equipment.	Yes	42%
	A risk register identifies the risk of injury due to the layout of equipment and control measures are implemented.	Yes	15%
	The club session plan identifies where equipment is to be placed and the sequence in which it will be used to minimize injuries	Yes	62%
	The lesson plan identifies any safety considerations of the layout of equipment and supervision required.	Yes	46%
	There are designated walkways	Yes	65%
	Manufacturer's instructions/specifications are used to guide the layout.	Yes	23%
	Equipment suppliers (e.g. Acromat) are consulted to provide advice on layout.	Yes	10%
	The layout is inspected by the head coach before classes begin.	Yes	73%
2.9	The risk of manual task injuries has been controlled.	Yes No	54% 46%
2.10	Equipment is maintained and safe to use.	Yes Partially No	46% 35% 19%
INS9	Do the apparatus, mats and other equipment appear to be maintained and safe to use?	Yes No	92% 8%
INS10	The risk of contact with hard surfaces has been controlled? (This analysis includes all possible hard surfaces)	Yes	8%
	The risk of contact with hard surfaces has been controlled? (This analysis includes all hard surfaces that could be contacted through the gymnast's use of a particular apparatus)	Yes	73%
INS11	Access to unsupervised equipment is restricted?	Yes No	96% 4%
INS12	Is the facility:	Purpose built and apparatus and mats remain static	77%
		Equipment is moved around and set-up for each lesson	23%
		Other	0
INS13	Is the facility flooring:	Concrete/hard surface, with areas not covered by matting	58%
		Concrete/hard surface and completely covered with matting	42%
		Fixed soft landing material e.g. rubber	0
		Other	0
<b>PARTICIPANTS</b>			
2.11	Gymnasts are evaluated for capacity/ability.	Yes Partially No	50% 50% 0
2.12	Gymnasts are informed of the safety risks.	Yes Partially No	50% 15% 35%

INS14	Is the group learning skills outlined in the lesson plan?	Yes No blank	96% 0 4%
INS15	Does the coach explain and demonstrate the nature of risks e.g. safe landing techniques, pathways and “no go” zones.	Yes No blank	96% 0 4%
INS16	Is there any signage used to communicate risks?	Yes No blank	42% 52% 4%

### Emergency management and incident recording

Emergency and incident management is generally managed well by clubs. During the inspection, most clubs had measures in place to manage this. However, this was frequently not documented.

**Table 10. Emergency management and incident recording**

Item	Issue	Result	
3.1	Injuries and incidents are managed.	Yes Partially No	46% 54% 0
3.2	First aid is managed.	Yes Partially No	46% 50% 4%
3.3	The risks associated with emergencies are managed.	Yes Partially No	69% 31% 0
INS17	Are staff, volunteers, visitors and gymnasts aware of the emergency evacuation procedure and the assembly point?	Yes No blank	88% 8% 4%
INS18	Is there a first aider at the facility?	Yes No	100% 0
INS19	Are emergency procedures on display at the facility?	Yes No blank	92% 4% 4%
INS20	Are emergency exits accessible?	Yes No	92% 8%
INS21	Is the first aid kit appropriately stocked?	Yes No blank	92% 0 8%
INS22	Is incident recording paperwork available?	Yes	100%

### Affiliation with Gymnastics Australia

When safety performance was compared across clubs by their Club 10 star rating, there was not a consistent improvement in performance with higher star ratings. In some instances the star 1 clubs performed as well as the star 2 and 3 (Table 11).

Non-affiliated clubs accounted for only two of the 26 clubs. This is not a large enough sample to be representative of non-affiliated clubs. These clubs did not show a reportable difference in performance when compared with the GA affiliated clubs (Table 11).

**Table 11. Comparison of average compliance results against Club 10 star ratings**

	<b>Total sample</b>	<b>Star 1</b>	<b>Star 2</b>	<b>Star 3</b>	<b>Non-affiliated</b>
Awareness of workplace health and safety	67%	54%	54%	75%	50%
Managing health and safety in gymnastics	60%	56%	61%	56%	73%
Emergency management and incident recording	53%	43%	67%	59%	67%

A high percentage of compliance was achieved for most of the GA National Affiliation Standards that translate to workplace health and safety requirements (Table 12). However, compliance was only approximately 50% for items 11 and 16 – “fire drills are conducted at least twice a year” and “equipment is checked at least once per month using an equipment safety checklist” (Table 12).

**Table 12. Compliance with GA National Affiliation Standards relevant to workplace health and safety**

<b>GA National Affiliation Standard</b>		<b>Checklist Issue</b>	<b>Compliance</b>
2a.	All classes are conducted by an Accredited Coach registered with GA.	2.3A	88%
2b.	All trainee/unqualified coaches are directly supervised by an Accredited Coach	2.3C	79%
8.	Safety Rules for participation are on display within all club venues.	2.4D	75%
9a.	Documented Injury Procedures	3.1A	75%
9b.	Injury report forms accessible during class	3.1B, INS22	96%, 100%
10.	Documented emergency procedures are on display	INS19	92%
11.	Fire Drills are conducted at least twice per year	3.3D	58%
12.	First Aid Kit is on site and accessible during all classes	3.2E	100%
13.	A working telephone is on site	3.3G	100%
14.	At least one current First Aider is on site and accessible during all classes.	3.2D, INS18	100%, 100%
16.	The equipment used by the club’s participants is checked at least once per month using an equipment safety checklist	2.10F	50%

## **7.0 Discussion**

### **7.1 Safety management and the Gymnastics Australia Club 10 program**

The Club 10 quality assurance program provides gymnastics clubs, most of which are volunteer run associations, with a framework that addresses issues of service delivery, organisation, financial management and safety. Club 10 allows clubs to move through the five levels of accreditation via self-assessment, external assessment and endorsement. The levels are rated through a star system (star 1 to 5). All affiliated clubs are rated as star 1 and must meet the basic National Affiliation Standards (Appendix F).

To reach higher star ratings, clubs must demonstrate higher level compliance through documented policies and procedures and increasing levels of evaluation. However, the results of the current assessment program did not demonstrate that clubs with higher star ratings had better management of safety issues (Table 11) or even that all clubs met the base level National Affiliation Standards (Table 12).

More than half of the National Affiliation Standards are workplace health and safety requirements and were assessed during the current campaign. A high percentage of compliance was achieved for most areas. However, compliance was only at about 50% for items 11 and 16 – “fire drills are conducted at least twice a year” and “equipment is checked at least once per month using an equipment safety checklist” (Table 12). Non-compliance with the National Affiliation Standards is likely to be a reflection of the limitations of self-reporting on compliance.

Compliance at the star 1 and 2 level is by self reporting and at the star 3, 4, and 5 level by external audit of a club’s documented policies and procedures. However, there appears to be no monitoring or assessment of how the documented systems are implemented. The external auditing occurs every four years for star 3 and 4 clubs. Clubs operating as incorporated associations may change committee members, and consequently operating systems, many times in four years.

The Club 10 program provides a substantial number of example policies and procedures, fact sheets, manuals and checklists to assist clubs to implement the program. Generally, the content of Club 10 documents is good quality and inspectors made extensive use of these during the assessment to assist clubs to improve their systems. However, it was noted that some documents are past their review dates and that some clubs are not aware of the Club 10 resources available or how to access them.

Generally, the Club 10 program is a well resourced quality assurance program that assists gymnastics clubs to meet their requirements under the *Workplace Health and Safety Act 1995*. However, uptake and implementation of the program appears inconsistent. Clubs need more training and assistance to implement the program and compliance monitoring should be more frequent and comprehensive.

### ***Recommendation 1***

Gymnastics Australia should review the level of training, assistance and monitoring provided to clubs to implement the Club 10 program. This review should include the methods of monitoring compliance with, and implementation of, the program.

## **7.2 Funding for the gymnastics organisations**

Sport and Recreation Services provide funding and non-financial support to eligible gymnastics clubs/organisations and GQ. Funding available to clubs/organisations is focussed on the development of infrastructure, delivery of participation initiatives and improved service delivery. A limited amount of funding is available under one of these programs (when the program is active) for the purchase of equipment, including safety equipment. It is noted however that the program has a limited budget and is run on a competitive application basis, while sporting equipment is not an eligible item under the larger Sport and Recreation Infrastructure Program. The non-financial

support that SRS provide to organisations may be another avenue through which clubs/organisations can consider safety aspects of their activities and potential responses e.g. risk management workshops.

***Recommendation 2***

Workplace Health and Safety Queensland, Sport and Recreation Services and Gymnastics Queensland should research how to link improved safety outcomes in the sport of gymnastics with the funding and non-financial support provided by SRS.

### **7.3 Awareness of workplace health and safety**

Gymnastics clubs in Queensland have a moderately strong awareness of workplace health and safety including the general obligations of the club to ensure workplace health and safety of its workers and other persons, including gymnasts. This awareness does not always translate into well-developed and implemented policies and procedures. This is evidenced by the use of non-accredited coaches and the lack of manual tasks policies and procedures and risk assessments on the use of apparatus.

A key finding of the audits revealed adequate time and/or money is not allocated to meet safety responsibilities in more than half the clubs (Table 8). This is likely to be a reflection on the corporate structure of most clubs as incorporated associations. Volunteers are donating their own time to conduct all areas of running the business. The clubs that partially met this criterion allowed head coaches to prepare lesson plans during paid time or paid an administration officer to prepare Club 10 documentation. No clubs allocated money to meet safety responsibilities.

### **7.3 Managing health and safety in gymnastics**

#### **Lesson plans**

Lesson plans are an essential coaching tool and a requirement to obtain accreditation as a coach. All but one of the 26 clubs had documented lesson plans (Table 9). The club that did not document lesson plans had only one coach who suggested that he had coached for so long that there was no value in documenting what he did.

Although lesson plans were prepared, the format and quality of the content varied considerably. Some clubs used notice boards to set out what skills the gymnasts will be applying during that week or class while others kept detailed notes set out as per the sample lesson plan supplied by GA (Appendix G).

The content varied according to a number of factors including the defined level of the class, the size of the class and the gymnastics program. Classes defined as high level often had skills for individual gymnasts documented. The more comprehensive plans would include details about individual gymnasts, such as injuries or areas for development. Whereas lesson plans for lower level classes, with greater numbers of participants, were typically more general in their content and often lacking in detail.

The two key areas most lesson plans missed were the level of supervision required and key safety controls. Key safety controls require the coach to conduct a risk assessment of the skill and/or apparatus and note controls for any high risk areas. For

example, key safety controls may include “ensure gymnasts keep legs bent as they dismount”, “line up remaining gymnasts against the wall while they take turns to use the vault” or “ensure landing mats are placed on either side of the mini tramp”.

The USA Gymnastics Safety Handbook and Gymnastics Safety Manual (1979) emphasises the importance of supervision by a coach. Gymnastics Australia refers to this as “positioning” of the coach. The positioning of the coach can change depending on the skill being taught, the ability of the gymnast and the age of the gymnast. It is important for coaches to position themselves correctly during coaching. However, only 31% of lesson plans stated the position of the coach (Table 9). It has been suggested that more experienced coaches may instinctively apply positioning techniques and consequently do not record it on their lesson plans. However, regardless of coach experience, clubs should ensure coach positioning is documented to manage the risk of injury to both their coaches and gymnasts. Documenting coach positions allows clubs to review and monitor the adequacy of coach positioning and it can also be used to develop trainee coaches.

One of the clubs with a high safety performance had coach positioning and key safety controls documented on their lesson plans (Appendix H). The lesson plan author is an experienced coach. These lesson plans were one of the most comprehensive in terms of format and quality of content.

The same club has a lesson plan for each apparatus at each level. For example, beam level 1 and parallel bars level 9. The lesson plans are a form of risk assessment for each apparatus. This is an appropriate way to manage the risks of coaching each apparatus and level. These principles could also include recommended matting and layout of apparatus. Many clubs requested more guidance on suggested matting requirements. Combining risk assessment principles and recording control measures on lesson plans could address this need.

### ***Recommendation 3***

Gymnastics Australia should review their GA lesson plan template, in consultation with its members, with the view to developing a lesson plan template that includes coach positioning and key safety controls. Consideration should be given to sample lesson plans for each apparatus and level.

### **Coach accreditation**

Gymnastics Australia has a regime for accreditation of coaches in Queensland. Accreditation is an affiliation, and insurance requirement for GA affiliated clubs. It ensures clubs employ coaches with the appropriate skills and experience to teach gymnastics.

Coaches can obtain a level 1 or 2 accreditation in any of the gymnastics programs. Gymnastics Australia develops and GQ deliver the training for accreditation. A level 1 coach must complete a course and associated assessment, prepare a 10 week unit plan, prepare three lesson plans and have a record of 40 hours supervised practical coaching experience. A level 2 coach must complete a higher level course with at least 200 hours of practical coaching experience.

To maintain accreditation, coaches must continue their professional development through training and workshops each year. This can include online training, workshops conducted by GQ, attendance at Congress (an annual gymnastics conference held in Brisbane) or training organised at a local club level by approved trainers.

A salto, or somersault, is a forward or backward complete revolution with the feet coming over the head. This is a high risk manoeuvre and GA recommends that level 1 coaches only teach saltos if they have completed a Salto Bridging Course/Salto Workshop. This provides level 1 coaches with the skills required to teach saltos. Level 2 coaches have already gained these skills.

Not all gymnastics clubs teach saltos and they are usually only taught at the higher levels of training required for competitive gymnastics. During the assessment, 18 clubs claimed to teach saltos and three of these clubs (16%) did not have appropriately qualified coaches.

Some clubs claimed it is difficult to gain access to salto workshops. Records from GQ show that 11 Salto Workshops were conducted across the State in 2009, 2010 and 2011 (Appendix I). In response to the current campaign, a number of extra workshops were conducted, or are to be conducted. A club can request a workshop to be conducted. Some clubs in northern and central Queensland stated that courses are often cancelled because enough participants can not be found.

Three clubs knowingly operated with non-accredited GA coaches or trainee coaches not directly supervised by an accredited coach. These clubs stated the coaches were experienced. However, in the event of an incident the club's insurance is compromised and it may be more difficult to demonstrate how the club has ensured workplace health and safety. These clubs were all located in the north Queensland region.

The north Queensland clubs without accredited coaches claimed that it was difficult to gain access to coaching courses to maintain or obtain their accreditation. Coaching is a form of secondary employment for most gymnastics coaches and this limits their availability to attend training. In north Queensland, GQ conducts courses on request and when enough attendees are available. They have consistently conducted coach accreditation courses over the last three years. .

#### ***Recommendation 4***

Gymnastics Australia should conduct a training needs analysis and ensure that access to coach accreditation and professional development courses is available.

#### **Supervision**

Gymnastics classes were well supervised and participants were behaving in a controlled manner during inspections (Table 9). One class, observed during the inspection, was not adequately supervised and an improvement notice was issued. The class was an adult gymnastics class. There was no lesson plan available and participants selected their own apparatus. The inspector observed participants using apparatus in an unsupervised manner. The club made the decision to cancel this class on the grounds of difficulty in getting participants to follow instruction, the loss of

one of the three coaches taking this class and the high risk nature of adults using gymnastics equipment unsupervised.

### **Apparatus and facility safety**

Many gymnastics clubs had not conducted a risk assessment on the safe use of their apparatus, including the layout of apparatus (Table 9). Further, not many clubs had sought guidelines from equipment manufacturers and suppliers (Table 9).

The lack of risk assessment is the likely reason that the risk of contact with hard surfaces was poorly controlled (Table 9). This is evidenced by the large number of enforcement notices issued for the uncontrolled risk of contact with hard surfaces (Table 7). Only two clubs had controlled all risks of contact with hard surfaces. When the data was analysed to consider the risk of contact with a hard surface in an incident similar to that sustained by the deceased gymnast, 73% of clubs had controlled the risk. This includes matting on all floor surfaces that could be contacted, appropriate matting in designated landing areas and appropriate matting on areas surrounding landing areas.

Less than half the clubs had facility flooring completely covered with matting (Table 9). However, it is contact with hard surfaces, other than the floor, that presented the greatest risk in the assessment sample. This included contact with unprotected components of the apparatus, unprotected walls and the close proximity of other apparatus. A risk assessment on the use of each apparatus would have identified these factors.

Most clubs own their own gymnastics apparatus, but less than half own the facility where they conduct gymnastics (Table 5). Often the layout of a facility is dictated by the size and shape of the building. A risk assessment would consider this limitation and allow clubs to set up their apparatus in the safest manner.

Prescriptive guidelines on competition apparatus and layout is specified in the International Gymnastics Federation (FIG) norms, the Gymnastics Safety Manual (1979) and European Standards. These documents specify technical information on the ratings of apparatus, the size and thickness of matting and layout distances. However, these are high level competition standards and the majority of gymnastic clubs do not have a facility large enough to set up in accordance with these.

A risk assessment on the use of each apparatus is the best method to control the risk of injury. It would allow clubs to assess the apparatus specific to their environment and use. Further, other factors that must be used to control the risk of injury can also be considered. These include the capacity of the gymnast, skill progression and supervision.

### ***Recommendation 5***

Gymnastics Australia should research and develop methods to assist gymnastics clubs to conduct risk assessments, specifically in the use of gymnastics apparatus.

### **Equipment maintenance**

Less than half the clubs had documented policies and procedures on equipment and equipment maintenance (Table 9). However, during the inspection most clubs had

equipment that appeared to be maintained and safe to use (Table 9). Club 10 provides a lot of guidelines, example policies and checklists for managing equipment safety. It appears that the importance of documenting and recording systems is not apparent to many gymnastics clubs. The procedures suggested in Club 10 are onerous including daily, monthly and quarterly inspections with corresponding checklists. A review of the Club 10 processes could simplify, and in turn improve, the equipment maintenance policy, procedure and checklist/s, and increase compliance with the documentation requirements.

***Recommendation 6***

Gymnastics Australia should review the Club 10 equipment maintenance policies and procedures with a view to achieving greater compliance with Club 10 documenting processes.

**Manual tasks**

Gymnastics coaches are required to move gymnastics equipment, including apparatus and matting. Twenty-three percent of clubs use a facility where they must set up and pull down apparatus every time classes are conducted (Table 9). Even in clubs where apparatus is set up permanently, coaches still move some apparatus and mats to suit lessons.

The risk of manual task injuries amongst gymnastics coaches must be controlled. However, only 54% of clubs are doing this. Other than the general risk assessment material, Club 10 does not provide information on controlling manual task risks in gymnastics. Clubs need more guidance and information in this area.

***Recommendation 7***

Gymnastics Australia should research and develop methods to assist gymnastics clubs in managing the risk of manual task injuries in gymnastics coaches.

**Spotting**

Spotting is a method of coaching that may or may not be used. Spotting can be used for minor assistance and to support confidence or for the safety of a gymnast. It should not be used when manoeuvres have been rushed as there is inadequate physical preparation, unsuitable apparatus or a substitute for proper sequence of progressions.

During the assessments it was established that coaches use a wide variety of different techniques to spot a gymnast. For example, some coaches look to catch a gymnast if they fall or physically “hold” them through a manoeuvre the first time they perform it so the gymnasts can “feel” the manoeuvre. For this reason, data collected on spotting was not consistent and was not used analysed. However, it is apparent that guidance on correct spotting techniques and when to use spotting should be provided to gymnastic coaches.

***Recommendation 8***

Gymnastics Australia should review coach knowledge on spotting and provide additional guidance and training where required.

### **Gymnast capacity**

Determining a gymnasts' capacity or ability to perform a manoeuvre is a key skill of a coach and essential to control the risk of injury to a gymnast. Most coaches claim to know their gymnasts' abilities through working with them. This was most apparent at the higher levels of competitive gymnastics where the classes are smaller and gymnasts are training for many hours every week. However, at the lower levels, or in recreational classes, knowing the ability of every gymnast in the class was less likely.

Only 50% of clubs comprehensively assessed their gymnasts' capacity and ability and recorded this information (Table 9). Nearly all clubs had a process, although not documented, to assess new gymnasts. Very few recorded what skills a gymnast had achieved or provided a record of achievement to gymnasts. Some clubs use the National Flexibility and Strength test to assess the skills and abilities of their gymnasts, but only for the higher levels.

Assessing the capacity and ability of a gymnast is an important part of managing the risk of injury. Recording this is also important because if a coach takes leave, the relieving coach needs to be informed on the ability of each gymnast, or at least those gymnasts that are not yet at the same level of the class. Recording skill progressions could be made simple through a checklist and used to inform lesson plans.

#### ***Recommendation 9***

Gymnastics Australia should research the viability of a simple method to document skill progression of gymnasts, including any injuries suffered. This may vary for high level, competitive gymnasts and low level or recreational gymnasts.

## **7.4 Emergency management and incident recording**

Emergency management and incident recording was managed well by the majority of clubs, though most clubs did not have documented policies or procedures.

The areas that clubs could improve include:

- Developing a pit retrieval process in the event of a serious injury. It is important to not enter a pit when someone is seriously injured as disturbing the foam may cause further injury (Gymnastics Safety Manual, 1979). Clubs should have a process that includes a cantilever device that enables access the injured person.
- Developing a procedure to include the stabilisation of persons suffering fractures, cerebral and spinal injuries. While most clubs commented that they would phone 000, it is still important to ensure coaches and others are aware of the initial first aid techniques to apply in the interim. The USA Gymnastics Safety Handbook (1994) provides advice on this.
- Conducting regular fire drills. As foam matting burns quickly emitting a toxic smoke, it is important to evacuate quickly. Conducting a fire drill twice yearly is a GA National Affiliation requirement, however, only 50% of clubs were compliant.
- Understanding the requirement to notify WHSQ in the event of a “notifiable event”. Most clubs were not aware of this requirement and inspectors provided advice to nearly all the assessed clubs.

## **8.0 Conclusion**

Safety during gymnastics activities is being managed through a combination of the commitment of club coaches, volunteers and industry associations. Gymnastics clubs have a strong awareness of workplace health and safety and emergency management and incident recording. There is room for improvement in the areas of lesson plans, risk management, equipment maintenance, manual tasks and documenting skill progression.

Gymnastics Australia enjoys a strong membership in Queensland and deliver a comprehensive quality assurance program called Club 10. Club 10 is a valuable program that has ensured gymnastics clubs have a strong foundation to implement workplace health and safety systems. This program should be reviewed to ensure that it better meets the safety requirements of clubs and focuses more on implementation rather than documentation.

Sport and Recreation Services provide funding and non-financial support to GQ and gymnastics clubs. These services provide another opportunity to assist clubs to improve their safety systems.

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