

A close-up photograph of a lit sparkler against a dark background. The sparks are bright orange and yellow, radiating outwards in all directions. The image is partially obscured by a semi-transparent grey rectangle on the left side.

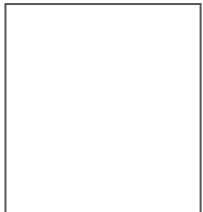
OGQ-Swimming

Benchmarking India to other Swimming Nations (UK, Australia, USA)

APRIL 2020

Agenda

1. Evolution of Swimming in Olympics
 - Events and Medals
 - How have different countries performed
2. How do the swimming facilities differ in countries that do well? e.g.
 - At what age do swimmers enrol into structured coaching programs
 - When do they start participating in competitions
 - How many swimming pools are available for competitive swimmers to train at
 - How many coaches are available to train them?
 - What sort of formal coaching do these coaches undergo?
 - Are there different coaches for different age groups?
 - Are the coaches focused on particular strokes or all coaches teach all strokes?
 - Any information on use of Sports Science and Technology for improving performance of the Swimmers?



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All Events in Olympics

Summer Olympics

- ARCHERY
- **ARTISTIC SWIMMING**
- ATHLETICS
- BADMINTON
- BASEBALL AND SOFTBALL
- BASKETBALL
- BASKETBALL 3X3a
- BEACH VOLLEYBALL
- BOXING
- **CANOE SLALOM**
- **CANOE SPRINT**
- CYCLING BMX
- CYCLING MOUNTAIN BIKE
- CYCLING ROAD
- CYCLING TRACK
- **DIVING**
- EQUESTRIAN/DRESSAGE
- EQUESTRIAN/EVENTING
- EQUESTRIAN/JUMPING
- FENCING
- FOOTBALL
- GOLF
- GYMNASTICS ARTISTIC
- GYMNASTICS RHYTHMIC
- HANDBALL
- HOCKEY
- JUDO
- KARATE
- **MARATHON SWIMMING**
- MODERN PENTATHLON
- ROWING
- RUGBY
- SAILING
- SHOOTING
- SKATEBOARDING
- SPORT CLIMBING
- **SURFING**
- **SWIMMING**
- TABLE TENNIS
- TAEKWONDO
- TENNIS
- TRAMPOLINE
- TRIATHLON
- VOLLEYBALL
- **WATER POLO**
- WEIGHTLIFTING
- WRESTLING FREESTYLE
- WRESTLING GRECO-ROMAN

Winter Olympics

- ALPINE SKIING
- BIATHLON
- BOBSLEIGH
- CROSS COUNTRY SKIING
- CURLING
- FIGURE SKATING
- FREESTYLE SKIING
- ICE HOCKEY
- LUGE
- NORDIC COMBINED
- SHORT TRACK SPEED SKATING
- SKELETON
- SKI JUMPING
- SNOWBOARD
- SPEED SKATING

Swimming (Men's) | Events have been stable over the last 3-4 Olympics, with only one event being added for 2020 (800m freestyle)

Current program																														
Event	96	00	04	08	12	20	24	28	32	36	48	52	56	60	64	68	72	76	80	84	88	92	96	00	04	08	12	16	20	Years
50 metres freestyle			X ^[1]																		X	X	X	X	X	X	X	X	10	
100 metres freestyle	X		X ^[1]	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	28
200 metres freestyle		X	X ^[1]													X	X	X	X	X	X	X	X	X	X	X	X	X	X	15
400 metres freestyle			X ^[1]	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	27
800 metre freestyle			X ^[1]																									X	2	
1500 metre freestyle			X ^[1]	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	27
100 metre backstroke			X ^[1]	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	26
200 metre backstroke		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	16
100 metre breaststroke																X	X	X	X	X	X	X	X	X	X	X	X	X	X	14
200 metre breaststroke				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	26
100 metre butterfly																X	X	X	X	X	X	X	X	X	X	X	X	X	X	14
200 metre butterfly													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
200 metre individual medley																X	X			X	X	X	X	X	X	X	X	X	X	12
400 metre individual medley															X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	15
4 × 100 metre freestyle relay															X	X	X			X	X	X	X	X	X	X	X	X	X	13
4 × 200 metre freestyle relay				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	26
4 × 100 metre medley relay														X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	16
Marathon 10 km																									X	X	X	X	4	
Events	4	7	9	6	7	7	6	6	6	6	6	6	7	8	10	15	15	13	13	15	16	16	16	16	16	17	17	17	18	

Swimming (Women's) | Events have been stable over the last 3-4 Olympics, with only one event being added for 2020 (1500m freestyle)

Current program																							Years							
Event	96	00	04	08	12	20	24	28	32	36	48	52	56	60	64	68	72	76	80	84	88	92	96	00	04	08	12	16	20	Years
50 metre freestyle																					X	X	X	X	X	X	X	X	X	9
100 metre freestyle					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	25
200 metre freestyle																X	X	X	X	X	X	X	X	X	X	X	X	X	14	
400 metre freestyle					X ^[2]	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	24	
800 metre freestyle																X	X	X	X	X	X	X	X	X	X	X	X	X	14	
1500 metre freestyle																												X	1	
100 metre backstroke							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	23	
200 metre backstroke																X	X	X	X	X	X	X	X	X	X	X	X	X	14	
100 metre breaststroke																X	X	X	X	X	X	X	X	X	X	X	X	X	14	
200 metre breaststroke							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	23	
100 metre butterfly													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17	
200 metre butterfly																X	X	X	X	X	X	X	X	X	X	X	X	X	14	
200 metre individual medley																X	X			X	X	X	X	X	X	X	X	X	12	
400 metre individual medley																X	X	X	X	X	X	X	X	X	X	X	X	X	15	
4 × 100 metre freestyle relay					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	25	
4 × 200 metre freestyle relay																							X	X	X	X	X	X	7	
4 × 100 metre medley relay														X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	16	
Marathon 10 km																										X	X	X	4	
Events					2	3	5	5	5	5	5	5	6	7	8	14	14	13	13	14	15	15	16	16	16	17	17	17	18	

Total medal tally (2016)

Category	Medals
Artistic Swimming	6
Canoe Slalom	12
Canoe Sprint	36
Diving	24
Swimming	104
Rowing	45
Sailing	30
Surfing	6
Marathon Swimming	6
Water Polo	6

Rank	Nation	Gold	Silver	Bronze	Total
1	United States	16	8	9	33
2	Australia	3	4	3	10
3	Hungary	3	2	2	7
4	Japan	2	2	3	7
5	Netherlands	2	0	0	2
6	Great Britain	1	5	0	6
7	China	1	2	3	6
8	Canada	1	1	4	6
9	Italy	1	1	2	4
10	Sweden	1	1	1	3
11	Denmark	1	0	1	2
	Spain	1	0	1	2
13	Kazakhstan	1	0	0	1
	Singapore	1	0	0	1
15	South Africa	0	3	0	3
16	Russia	0	2	2	4
17	France	0	2	1	3
18	Belgium	0	1	0	1
	Greece	0	1	0	1
20	Belarus	0	0	1	1
	Brazil*	0	0	1	1
Totals (21 nations)		35	35	34	104

In swimming, most medals were won by United States, Australia, Hungary, Japan, and Netherland

Swimming | Total medal tally of all time (1912-2016)

Men

Rank	Nation	Gold	Silver	Bronze	Total
1	United States (USA)	143	100	71	314
2	Australia (AUS)	33	31	38	102
3	Germany (GER)	18	22	26	66
4	Japan (JPN)	17	22	21	60
5	Hungary (HUN)	16	17	13	46
6	Great Britain (GBR)	10	14	14	38
7	Soviet Union (URS)	9	14	18	41
8	Sweden (SWE)	9	11	10	30
9	Canada (CAN)	6	8	12	26
10	Unified Team (EUN)	5	3	0	8

Women

Rank	Nation	Gold	Silver	Bronze	Total
1	United States (USA)	95	68	61	224
2	Germany (GER)	37	38	44	119
3	Australia (AUS)	27	26	23	76
4	Netherlands (NED)	15	15	14	44
5	Hungary (HUN)	13	7	6	26
6	China (CHN)	10	15	9	34
7	Great Britain (GBR)	6	13	14	33
8	Japan (JPN)	5	4	11	20
9	Ukraine (UKR)	4	1	0	5
10	Soviet Union (URS)	3	7	8	18

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Differentiating factors for the countries

United States: America's team-first philosophy manifests itself at all life stages-summer leagues introduce it; the collegiate system reinforces it; the Olympic Games cement it. A platform to professional career paths, the National Collegiate Athletic Association (NCAA) is often hailed for breeding such unique talent. NCAA equips student-athletes with vital life skills, including a well-honed sense of team camaraderie and mental fortitude. These constitute the key ingredients to sporting success, never to be dismissed or downplayed in the pursuit of excellence.

Germany: During the Cold War, the communist East German government hailed sport as a "nation-building" tool: a force for patriotism, unification and international prestige. As such, billions of Deutsche Marks were channeled towards the inauguration of grand athletic facilities and elite training centers. Historian **James Riordan** adds that no nation exhibited as much reverence for "Olympism" as the East Germans, a life philosophy that exalted ardor and uncompromising sporting excellence.

Australia: Public policy requires 100% of Australian kids taught to swim as part of state law. This is primarily a product of the nation's favorable geography, with 85% of the population residing near the coastline.

Japan: Japan's unrelenting pursuit of perfectionism pervades all walks of life. Whether it be in cuisine, manufacturing or sport, Japan will always be hailed for its unrivaled precision and efficiency. This custom manifests itself most prominently in the pool, with swimmers known for their immaculate technique.

Hungary: Communist party played a pivotal role in the popularization of sport throughout the 1980s. Currently, Hungarian Swimming Association's "Talent Selection System" has constituted a formidable path to Olympic success. This program monitors swimmers from an early age, classifying individuals into six distinct age categories based on times achieved at national championships. It has paid particular attention to the development of 11-12-year-old students

Australia



Training Methods and Facilities

- Foundations, Talent, Elite and Mastery (FTEM) framework to align the pathway stages
- Beyond the Black Line: Focuses on sharing life experiences of elite swimmers
- Laid out some facility requirement recommendations for competition pool dimensions, blocks, walls etc.



Formal Training for Coaches

Swimming Australia has designed 3 levels of formal training for Coach Accreditation:

- Development (help swimmers with technical and tactical development)
- Advanced (focus on individual skill development)
- Performance Course (help sustain success for swimming)

Statistics

Swimming pools available for competitive swimmers	No. of coaches available	Formal training age	Participation age
~600 SA affiliated clubs in Australia	92 coaches selected by Swimming Australia since 2000 for major international games	Not defined; an Olympic swimmer started at the age of 9	Ranges between 16-19 years for country's top 10 swimmers



United States of America



Training Methods and Facilities

- There is a specific Facilities Standard that indicates requirements (for pool, ledges, walls etc.) for each competition, mentioned in Article 103 of 2020 Rulebook Update



Formal Training for Coaches

USA Swimming has designed a two-part Foundations of Coaching (FoC) courses and recommends to first register as a “coach member”:

- Foundations 101 (for new coaches)
- Foundations 201 (more comprehensive course)

They are also required to complete some additional trainings on Rules and Regulations, Safety and Protocol

Statistics

Swimming pools available for competitive swimmers	No. of coaches available	Formal Training and Participation age
USA Swimming has over 3,100 affiliated clubs	26 Olympic Swimming Team Head Coaches (1924-present)	After the age of 12, athletes embark on a path focusing primarily on competitive performance over two subsequent stages (13-15 and 16+).



Germany



Training Methods and Facilities

- Youth Development Concept Swimming 2020 Framework: Divided into 6 chapters as Basics, Education of swimmers on different levels, talent selection, training control, talent development and coaches
- Federal training centers receive annual budgetary support for coaches, technical equipment, physio and mental therapists.



Formal Training for Coaches

- DSV (German Swimming Federation) awards swimming coaches an A-License or B-License basis their performance level
- Some trainers also undergo a diploma training at regional training academies

Statistics

Swimming pools available for competitive swimmers	Formal training age	Participation age
2292 indoor pools (including both professional and public)	Not defined; ranges from 7-11 years for country's major swimmers	Starting from the age of 12, swimmers start participating in national competitions



United Kingdom



Training Methods and Facilities

- Historically competitive swimmers have trained to improve swim performance by swimming frequently, for long durations at various intensities
- Recently elite swimmers have looked outside the pool for training methods which may offer additional benefits to performance, such as strength training



Formal Training for Coaches

- Amateur Swimming Association has designed 3 levels of qualifications to progress through:
- Level 1 (actively support a more senior qualified or licensed coach)
 - Level 2 (to coach on one's own)
 - Level 3 (senior coach who plans, implements, analyses and revise annual coaching programs)

Statistics

No. of coaches available	Formal training age	Participation age
8 head coaches	Talented swimmers in age group 10-13 years are exposed to formal trainings	Minimum age to participate in Olympics, for Great Britain is 13+



Japan



Training Methods and Facilities

- Japan Institute of Sports Sciences was established to support the strengthening and training of national team athletes from scientific, medical and information prospective
- Training under low oxygen conditions and High-altitude trainings are designed to improve physical endurance and efficiency



Formal Training for Coaches

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Statistics

Swimming pools available for competitive swimmers	No. of coaches available	Formal training age	Participation age
-	-	-	Year-round competitive swimming starts at a very young age in Japan

Technology for improving performance of the Swimmers

- **Velocity Meter (VM)**-measures swimmer's velocity, acceleration, and deceleration at each.02 seconds during the stroke cycle. Synchronized to a swimmer's video, it can help in determining the peak and trough velocities, differences between peak and trough velocities for both arms or for pull and kick, and peak and trough accelerations and decelerations.
- **Underwater Video Cameras**-Shows what swimmers are doing underwater, meaning that some flaws could be discovered, which the coach cannot otherwise see
- **Motion tracking**-Compared to running apps and accessories, swimming accessories need to monitor for other forms of movement, which are not really similar to running. This is why special watches were developed, which can gather and transmit data about swimming to a phone or tablet, making things a lot easier.
- Some more examples [here](#).