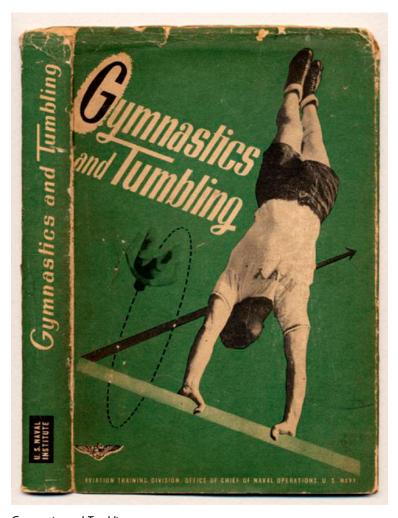


Gymnastics & Tumbling

Greg Glassman



Gymnastics and Tumbling Issued by the Aviation Training Division, Office of the Chief of Naval Operations, U.S. Navy. Copyright 1944 by The United States Naval Institute

This month we review a small yet dense out-of-print book titled *Gymnastics and Tumbling*. First published by the U.S. Navy in 1944, Gymnastics and Tumbling is today an obscure reference in danger of extinction. We believe it is an indispensable resource for CrossFitters and intend to keep it alive.

Shortly after the United States' entrance into World War II, the United States Navy implemented a physical training program for future pilots based on training and practicing various sports: "Successful coaches were commissioned so that the Navy might have the best instruction available." The successes, methods, and refinements of these coaches-turnedofficers culminated in the issuance of the Naval Aviation Physical Training Manuals by the U.S. Navy in 1944.

The manuals were prepared by and for the newly commissioned officers from their experiences in teaching thousands of aviation cadets. Their titles include: Handto-Hand Combat; Boxing; Wrestling; Football; Gymnastics and Tumbling; Soccer; Basketball; Swimming; Mass Exercise, Games, Tests; The Sports Program; Labor Engineering; and Military Track.

While our focus this month is on the *Gymnastics and Tumbling* manual in particular, much of its virtue may lie in the fact that the U.S. Naval Aviator's physical

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training program in total was inspired by war; modeled from successful sport practice, not science; designed and implemented by coaches, not professors; considers sport in the military training sense of physical and mental development and not for the sake of sport or recreation alone; and, finally, was successfully taught to young men of ordinary physical capacity.

The unique and essential contribution of gymnastics to fitness, and by extension to war fighting, is brilliantly articulated in *Gymnastics and Tumbling* (G&T). At the end of the chapter titled "Brief History of Gymnastics," we find the powerful statement that "gymnastics and tumbling contribute in large measure to the demands of a democracy at war."

British author D.W. Brogan said of America's entry into WWII, "For Americans war is almost all of the time a nuisance, and military skill is a luxury like Mah-jongg. But when the issue is brought home to them, war becomes as important, for the necessary period, as business or sport. And it is harder to decide which is likely to be the more ominous for the Axis – an American decision that this is sport, or that it is business." That we turned to sport and not science to forge defenders was a wise move at a critical moment. It is also pure CrossFit to let successful practice trump more academic approaches.

The link between the values and physical benefits developed through sport training and the demands of war are demonstrated pointedly throughout G&T. The doubleedged benefit of mind and body development through fitness and sport are also well noted:

• "It is our duty to train the cadets to be superior to that enemy, mentally and physically. Rigorous, tough, competitive sports offer an excellent medium to fulfill this mission. Records have proven that mental improvement of the cadets goes hand in hand with better physical condition" (v).

• "Basedow...regarded physical activities as a means to a complete education embracing both the body and mind" (4).

• "Pestalozzi...believed that methodical exercising trained the pupil intellectually, morally and aesthetically" (5).

• "Jahn, the father of German gymnastics... wanted to create "liberty loving, social and independent thinking... by strengthening the degenerated muscle groups of

Sports Program Stunts and Record Performance

For complete descriptions and diagrams, refer to pages: 322-334 of the book.

On Floor

- I. Balance on toes record: 49 sec.
- 2. Forearm balance record: 1 min. 47 sec.
- 3. Hand balance record: I min. 50 sec.
- 4. Hand walk (floor) record: 186 ft.
- 5. Hand walk (low parallels) record: 6 trips
- 6. Kneeling back-bend record: 64
- 7. Leg lifts and sit-ups record: 500/500
- 8. Left side support record: 130
- 9. Right side support record: 130
- 10 Extension press-up record: 4 min. 15 sec., no. of times 25
- 10 a. One-arm extension press-up record: 2 mins.
- II. Push-ups on hands record: 325
- 12. Push-ups on fingers record: 84
- 13. Push-ups slapping chest record: 75
- 14. Push-up with 9 lb. medicine ball record: 305
- 15. One-arm push-ups record: 84
- 16. One-half lever record: 80 sec.
- 17. Sit-ups (feet not anchored) record: 2326
- 17 a. Sit-ups back arched record: 75
- 18. Skip forward and backward over leg record: 21
- 19. Squat (right leg forward) record: 47
- 20. Squat (left leg forward) record: 41
- 20 a. Jump over stick record: 30
- 21. Wrestler's bridge record: 33
- 22. Eight-foot jump agility test record: 2.5 sec.

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the body, thus liberating man from the shackles of an environment that made him feeble, that allowed his muscles, and consequently his mental vigor, to decay" (5).

• "It is of interest to note throughout history, the rise and fall of nations has seemed to coincide with the rise and fall of the physical stamina of their people" (7).

• "Athletic professionalism for the few and a lack of strenuous participation among the many brought about a decline in the national physical stamina and a consequent decline in the power of Greece" (7).

Inspired by the demands of a world at war, these historically conscious authors denounce the thencurrent (1944) level of gymnastics instruction in the U.S. and blame the declining use of gymnastics apparatus in American public schools and colleges on the trend toward "mild recreational activities for the majority while strenuous competition was encouraged for the small minority." Ironically this complaint came at a time when there were 100,000 American members in one gymnastics organization alone; today there may be fewer than 1,000 American male gymnasts over ten years old.

The Navy utilized gymnastics for the discipline's training effects, not to make competitive gymnasts. This, in the words of Captain F.T. Ward, the Director of Aviation Training in 1943, "is the reason that the books are unlike other sports publications." This distinction drives the program's practical approach and explains why the authors of G&T might have stated the value of gymnastics to physical development and general physical preparedness better than most modern authors.

In the introduction to G&T the authors explain that "Gymnastics and Tumbling is included in the Naval Aviation Physical Training Program because of the strength and skills that are developed through participation in this sport. These include improvement of upper body strength, and training in quick and correct decision and action. Since there is no other activity to develop full upper body strength, agility and balance this sport occupies a prominent place in the Naval Aviation Training Program."

The brief and powerful chapter titled "Values of Gymnastics and Tumbling" provides a list of further benefits derived from gymnastic training:

Sports Program Stunts and Record Performance contid

- 23. Elbow lever on deck record: 3 min. 46 sec.
- 24. Forearm balance walk for distance - record: 43 ft. 9 in.
- 25. Hand walk fifty feet for time record: 8.3 sec.
- 26. Hand walk with 9-lb. medicine ball - record: 132 ft.
- 27. Head balance to hand-balance record: 8
- 28. Head balance, straight leg lifts record: 45
- 29. Push-ups, crab position record: 91
- 30. Squat balance touch knees record: 45
- 31. Squat jumps record: 156
- 32. Wrestler's turnover on medicine ball - record: 33
- 33. Wrist twist -record: 9 1/2
- 34. Diving roll -record: 14 ft. 4 in.
- 35. Number of sit-ups in 5 min.; feet unanchored - record: 132
- 36. Number of sit-ups in 5 min.; feet anchored - record: 157
- 37. "V" position record: 20 min. 25 sec.
- 38. Forearm balance to hand balance record: 2
- 39. V-Roll record: 32
- 40. Burpees record: 40 in 30 sec.

On High Bar

- I. Back lever record: 53 sec.
- 2. Front lever record: 19.5 sec.
- 3. Belly grinds record: 26
- 4. Chins:
- a. Ordinary grasp, no kip record: 46
- b. Reverse grasp, no kip record: 46

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I. Gymnastics contributes to the development of upper body strength. Over fifty percent of the cadets admitted to the pre-flight schools have been found to be deficient in the upper body strength, especially in the muscles of the shoulder girdle, the triceps, the abdomen, and the back.

2. Gymnastics provides opportunity for the development of power. Rope climbing, throwing the medicine ball for distance, and gymnastic routines require maximum effort and hence develop power.

3. Gymnastics provides for the development of muscular coordination or neuromuscular control. The fundamental activities of running, climbing, and jumping are combined in a unique way in gymnastic routines. Twisting or turning, bending, circling, and swinging movements occur in rapid succession during the routines in the upright or standing position, in the hang, the support, and in various other positions. Perhaps no athletic activity other than gymnastics and tumbling provides the opportunity for the development of maximum muscular coordination and neuromuscular control and perhaps no war activity demands the acme of muscular coordination and neuromuscular control as much as aviation.

4. Gymnastics contributes to the development of suppleness, elasticity, litheness, and flexibility, permitting full range of body movement and control.

5. Gymnastics develops a sense of relocation. A series of fast forward rolls on the mats, or hip circles on the horizontal bar, or a workout on the aerowheel or trampoline, leaves the cadet extremely dizzy at first. Two weeks of practice, however, conditions him effectively so that he makes satisfactory adjustment in a short time. Both the poise and equilibrium are outcomes of the sense of re-location, which affords an awareness on the part of the aviator that he is inverted when he is flying upside down.

6. Gymnastics develops agility – quick, easy, dexterous movements. Vaulting in a variety of positions teaches the fundamental principles of body control. The naval aviator or paratrooper may be called upon to overcome unforeseen hazards and obstacles during landing operations; hence he must be adept in vaulting and in jumping. He must have overlearned the art of vaulting to the side, in a squat position, in a straddle, end-over-end, or in a dive, easily and with minimum effort. Gymnastics, then, dovetails with training on the obstacle course

Sports Program Stunts and Record Performance contid

- c. Reverse grasp, weighted with 50 lbs. record: 11
- d. Reverse grasp, weighted with 9-lb. medicine ball - record: 21
- e. Ordinary grasp, wide grasp and touch back of neck record: 20
- f. Forearm grasp record: 21
- g. Bicep grasp record: 6
- h. Ordinary grasp; raise legs to half lever – record: 21
- i. One finger record: 14
- j. One arm record: 2
- k. Chin dips record: 15
- 5. Pull-up both hands leading record: 12
- 6. Fence vault record: 6ft. 3 in.
- 7. Monkey hang record: 20
- 8. Skin the cat record: 25
- 9. Drop kips record: 25
- 10. Free hip circles record: 19
- II. Forward hip circles record: 42
- 12. Giant swings –record: 20

On Side Horse

- I. Giant hip circles record: 28
- 2. Scissors, ordinary record: 58

On Low Bar

I. Short underswing dismount for distance – record: 10 ft. 3 in.

Parallels

- I. Dips
- a. Ordinary record: 34
- b. Reverse grasp record: 20

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since the most effective runner is the one who can skillfully, safely, and quickly adapt his gymnastics vaulting experience to the difficulties of the course.

7. Tumbling teaches falling safely. Practically every phase of his life as a cadet, or aviator, (or as a civilian, for that matter) may be materially aided by a knowledge of tumbling. When he first takes "boot" training, when he takes conditioning hikes when he participates in football, basketball, or any other sports activity, the cadet who can tumble is that much better equipped to save himself from injury caused by falling than one who cannot tumble.

8. The cadet who is temporarily incapacitated by minor injuries may participate in specially selected gymnastics, thus keeping in condition despite his handicap.

9. Gymnastics and tumbling develop body balance which is useful to the individual throughout life. Together with climbing, vaulting and falling, these skills are directly useful in various emergency situations.

10. Gymnastics teaches the cadet how to ascend, descend, and rest on a rope, - skills which are of paramount importance from a practical standpoint.

II. Gymnastics develops a sense of daring and courage, yet discourages foolhardiness.

12. Gymnastics develops attitudes vital to the successful naval aviator: fearlessness, initiative, decisiveness, courage, perseverance, presence of mind, selfconfidence, as well as an analytical outlook and the ability to size up a situation quickly.

The intended audience for *Gymnastics and Tumbling*, aviator cadets, were more physically ordinary than might be presumed. Pre-Flight School standards included 20 push-ups, 6 pull-ups, and a 16-inch vertical leap. The endurance and agility tests were similarly lax. Most CrossFitters would easily qualify. The G&T curriculum is designed so that "even the inexperienced officer may do a commendable job in gymnastics if he studies and follows the manual and the lesson program thoroughly."

If the pretest qualifications are too tough, Chapter XII, "Supplementary Programs," offers "Sub-Squad" programs designed to bring the cadet up to snuff. A program is offered so that "an inferior cadet may be brought up to the standards of the base within a five-week period." The sub-squad activities listed

Sports Program Stunts and Record Performance contid

- c. Ordinary, weighted with 50 lbs. record: 15
- d. Swinging dips backward record: 30
- e. Swinging dips forward record: 43
- f. Swinging dips forward and backward record: 31
- 2. Grasshopper walk forward and dips - record: 29
- 2 a. Grasshopper walk backward and dips - record: 31
- 3. Grasshopper jump and dips record: 29
- 4. Grasshopper walk forward and backward dips - record: 22
- 5. Lion's crawl and dips record: 16
- 6. Pirouettes record: 8

Low Parallels

- I. Hand balance record: 2 min. and 16 sec.
- 2. Hand balance on one bar record: 60 sec.
- 3. Push-ups record: 202
- 4. Parrot hand balance on parallel bars record: 24 sec.
- 5. Shoulder balance to hand balance record: 6
- 6. Push-up (back) record: 89
- 7. Tune-table (legs in half lever) record: 31
- 8. Elbow lever record: 3 min. 30.5 sec.
- 8 a. One-hand elbow lever
- 9. Pirouettes record: 9
- 10. Straight-leg, bent-arm press to hand balance

Ropes

- I. Rope climb 19 feet record: 4.9 sec.
- 2. Double rope climb record: 7.3 sec.

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by apparatus on pages 271- 277 provide hundreds of spectacular drills on the horizontal bar, side horse, stall bars, rings, parallel bars, and medicine balls. Remember, these drills are used to ramp you up to 20 push-ups and 6 pull-ups. Most of the exercises here could be done by anyone. How long have we searched for interesting regimens preparatory to basic calisthenics?

In 450 pages, nearly one thousand exercises, and hundreds of photographs there isn't one exercise of advanced or even intermediate difficulty. The progressions are gentle, sweet, and easy. They were designed for full-grown men of moderate fitness and ability, largely inexperienced and quite possibly terrified, and, as likely as not, disinclined to falling or being upended or inverted. We say the progressions are "gentle" or "universal."

The aviation cadets' training attention was split among eleven "conditioning departments" of which gymnastics and tumbling was but one. Gymnastics was "one period" each day. Not every facility had adequate equipment, so a section titled "When Regulation Equipment Cannot Be Secured" describes homemade substitutions for mats, horizontal bars, parallel bars, vaulting box, springboard, and beat boards. The spirit of G&T is one of inclusiveness and "can-do" resourcefulness.

Mining gymnastics for even fractions of the adaptations of the gymnast and not for artistic expression; employing doable progressions; coupling and compromising gymnastic training with other fitness goals and efforts; and emphasizing the mental and character demands of training are all fundamental to the aims of Gymnastics and Tumbling and a near perfect match to the CrossFit charter.

Essential to the CrossFit concept is balanced competency in the ten general physical skills: cardiovascular/ respiratory endurance, stamina, strength, flexibility, power, speed, coordination, agility, balance, and accuracy. Gymnastics has no peer among training modalities for developing the four neurological components of the ten skills—coordination, agility, balance, and accuracy.

In our Santa Cruz, CA, facility, our better athletes play with and practice basic gymnastics movements regularly if not daily. We have parallel bars, rings, mats, and a pommel horse set up at all times. Unfortunately, this aspect of our local athletes' training hasn't carried over strongly to our Internet friends following the WOD (Workout of the Day). A lack of equipment and

Sports Program Stunts and Record Performance contid

- 3. Rope climb with 27.5-lb. pack record: 8.2 sec.
- 4. Inverted rope climb record: 7 sec.

Rings

- I. Hand balance record: 45 sec.
- 2. Pull-ups both hands leading record: 9
- 2 a. Inverted hang record: 36
- 2 b. Chins with legs in half-lever record: 20

Stall Bars

- I. Flags record: 23 sec.
- 2. Leg lifts record: 81 times
- 3. Half lever with 9-lb. medicine ball record: 41 sec.

Medicine Ball

- I. Throw for distance 9-lb. ball record: 50 ft.
- 2. Throw for distance 6-lb. ball record: 63 ft. 6 in.

general unfamiliarity with the fundamental exercises of gymnastics within our larger community has resulted in the neurological skills development of the CrossFit community not keeping pace with the other components of fitness.

To remedy this, i.e., to increase our community's coordination, agility, accuracy, and balance, we commit to the following:

- Familiarizing the CrossFit community with the U.S. Navy's Gymnastics and Tumbling book (G&T).
- Encouraging those following the WOD to practice and train one of the basic movements from G&T before each workout as part of an extended warm-up.
- Encouraging CrossFitters everywhere to acquire access to parallel bars, rings, mats, etc.
- Posting pictures of athletes' efforts and successes with the basic movements.

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• Generally fostering stronger gymnastics awareness, participation, and instruction through the CrossFit website We want you to use *Gymnastics* and Tumbling for inspiration, as a checklist for movements learned, as a means to discover new lowchallenge bodyweight exercises, and as a contextual reference for greater gymnastics involvement and communication.

There is so much right about G&T. It exists solely to quickly and efficiently extract the gymnastic advantage, was tested and proven with fullgrown adults, contains nearly 1,000 exercises, many of which anyone can do (check-out the Squad D and C stunts), and is well illustrated and cleverly diagrammed. The stick figures are wonderful, the aviator records for various stunts are motivating, and the spirit and tone is pure CrossFit—serious yet fun, pragmatic, and challenging.

Sadly, our raving about G&T over the past few months has quickly removed enough copies from the market that the few that remain available have risen nearly 400% in price to over \$40. We don't relish *Gymnastics and Tumbling* reaching \$500, but there will always be more CrossFitters than copies—unless we are able to persuade the US Naval Institute to commission another printing. Until that time, we have resolved to share our copy with everyone.

We scanned our copy of Gymnastics and Tumbling, sacrificing one book for the cause, and we're making it available chapter by chapter for everyone to download free of charge.

Get to work! Post your frustrations, wounds, and successes to comments.

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Up Vertical, Down Vertical, Up Vertical, Down Incline
Up Vertical, Down Incline, Up Incline, Down Vertical
Vp Incline Feet First, Return Down Incline
SWINGING ROPE
Swing, Dismount with One-half Turn, Hold Balance on Dismount
Swing for Distance with One-half Turn
Swing. Over Standards with One-half Turn
CLIMBING SHELF
Back Hip Circle,
Muscle Up
Sit. Push Off. Dismount
Sit, One-half Turn to Hang, Dismount



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Greg Glassman is the founder (with Lauren Glassman) of CrossFit, Inc. and CrossFit Santa Cruz and is the publisher of the *CrossFit Journal*.

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