

IDEA World #464 Progressive Tabata™ for Everyone

Shalaine McLaughlin, NASM CPT, AFAA Master Instructor

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What is Tabata?

- Dr. Izumi Tabata's study of cycling in intervals of 8 bouts of 20-seconds of exercise with a 10-second rest between the exercise bouts at 170% of VO₂Max (RPE 10+) total of 4 minutes, versus 1 hour of moderate intensity (60-70%) cycling 4 times a week over 6-week period on Olympians.¹
- SIT (aka SMIT) – Supramaximal Interval Training, super high intensity is required, to exhaustion!
- Not sustainable (or safe!?) in its original 4-minute form.²
- Trademarked by Dr. Tabata and NBC Universal from 2013-2016.
- From 1 study in October 1996 to 97,051 peer reviewed journal articles as of June 26, 2022!

Why is the Exercise-to-Rest Ratio Important?

- VO₂Max is the max amount of oxygen your body can use during exercise and measured in ml of oxygen per minute, per kilogram; higher number is higher capacity.
- Tabata trains & conditions both aerobic and anaerobic energy systems, to be anaerobic, must have supramaximal interval effort; what energy system is at work?
- Body unable to achieve a steady state with short intense intervals, lactate production exceeds removal. Recovery needs longer time than allotted ->metabolism calorie burn.
- Increases calories burned during and after with decreased length of time to recover from each exercise session i.e., Excess Post-Exercise Oxygen Consumption (EPOC).

Tabata vs HIIT Protocol (Training)

- Both are interval training, earliest attributed to Fartlek training, invented by the Swedish coach Gösta Holmér in the 1930s.³
- High-Intensity Interval Training (HIIT) has numerous protocols, classified into two types:
 - Aerobic HIIT (submaximal) consists of brief, bursts of vigorous activity, usually 70%-90% of VO₂Peak or 85%-95% of the peak heart rate), interspersed with active rest periods.
 - Anaerobic HIIT, supramaximal or sprint interval training (SIT), Wingate-type protocol (all-out, vigorous exercise significantly higher than VO₂Peak⁴) with complete rest.
- Tabata is a type of HIIT, but not all HIIT is Tabata...almost all are not true Tabata Protocol.

Why Tabata Training? It's Effective!⁵

- Dr. Tabata: "Tabata training: one of the most energetically effective high-intensity intermittent training methods"⁶ unbalanced exercise-to-rest ratio forces physiological maximum capacity.
- VO₂max increased by 7ml per kilo per minute, anaerobic capacity increased by 28%.
- HIIT (or Tabata) although shorter in duration has higher exercise load and better performance.⁷
- Small pilot study in 2021 of both body calisthenic & high intensity running with Tabata Protocol both created similar EPOC, however body calisthenic caused much higher fat oxidation.⁸
- 8-week study showed improvement in blood irisin (hormone help manage thermoregulation and insulin resistance⁹), increase in VO₂Max/performance, and reduced body fat.¹⁰
- Study of Russian WTF Taekwondo athletes improved aerobic and anaerobic physical performance, absolute and relative hands muscles strength also significantly increased.¹¹

Why Don't People Continue with Tabata?

- Maybe unsafe or intimidating for beginners, cause mental stress or aversion, even for athletes.
- Greater chance of injury, with speed & exhaustion; beginners unaware of form and limitations.
- Not sustainable at 170% of VO₂Max for more than 4 bouts even for athletes.¹²
- Repetitive & so boring!

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Solution: Progressive Tabata™ for Everyone (especially Beginners)!!

- Format and movement specific warm up (5-10 mins).
- Think of a compound movement (sagittal and/or lateral planes) of large muscles (quads, glutes, lats). Find the basic regression of the first part of the movement and add increasing progressions (see below for example) in 8 bouts (or cycles) of 20 seconds with 10 seconds of rest = 1 Tabata.
- 10 seconds of rest between bouts (use to demo/cue next);30 seconds between Tabata rounds
- Do an additional 7 different exercises/Tabatas (e.g., 2. core (plank), 3. speed, 4. lower body 5. cardio/speed 6. back/shoulders opening unilateral, 7. high speed, 8. rotational) (x 8 = 36 mins).
 - If 30 mins class, do 4 Tabatas of higher intensity compound movements (x4 = 18 mins)
 - Option: 2 or 4 exercises in a Tabata instead of just 1 complex, compound movement
- End with cool down/stretch (5-10 mins).

Sample progression of burpee (e.g., compound movement):

- Hands to bench & return to standing
- Hands to bench, step back alternating right & left legs & return
- Hands to bench, step back alternating right & left legs, return & raise hands overhead
- Hands to bench, jump back to plank, return & raise hands overhead
- Light weights to bench, jump back to plank, return & raise hands overhead
- Light weights to bench, jump back to plank, return, raise hands overhead, & lift alt. knees
- Heavy weights to bench, jump back to plank, return, raise hands overhead, & lift alt. knees
- Light/heavy weights to floor, jump back to plank, return, raise hands overhead, & lift alt. knees

Sample progression of weighted movement (amping up of intensity/effort/speed):

1. **Both feet/no weights** rear lunge (60-65%) CHECK FORM/Kinetic Chain; Cue “adding on”
2. **Both feet/light weights** rear lunge & side squat (65-70%)
3. **Both feet/heavier weights** rear lunge & side squat (65-70%)
4. **Light weights alternating legs** rear lunge & side squat (65-75%)
5. **Heavy weights alternating legs** rear lunge & side squat (70-80%)
6. **Light/heavy weights right leg** rear lunge, side squat, & **rotate** right elbow to right knee (80-85%)
7. **Light/heavy weights left leg** rear lunge, side squat, & **rotate** left elbow to left knee (80-95%)
8. **Light/heavy weights alternating legs** rear lunge, side squat, & **rotate** extend arms (90-100%+)

What Rate of Perceived Exertion (RPE) is needed for Progressive Tabata?

- Typical used is Borg (1-20) or RPE Scale (1-10), on activity level and breathing.¹³
- Easier with wearables is using the 1-5 heart rate zones.¹⁴
- Easiest is 3 intensity zones: 1. Easy 65-75% HR_{max}, deep breathing, RPE 4-6. 2. Moderate/threshold 75-85% HR_{max}, labored breathing, RPE 7-8. 3. High intensity, 85-100%+ HR_{max}, breathless, RPE 9-10+, e.g., by Dr. Seiler.¹⁵ For beginners, try stage training for slightly lower HR_{max} zones.¹⁶
 - They should be breathless after the last bouts, minimum 4 of the Tabatas (15-20% of class)
 - To learn more about pushing past cardio into anaerobic, see this NASM article¹⁷

Why People Will Continue with Progressive Tabata™?

- Functional training for beginners, teaching the movement, effective.
- Lowers chance of injury, beginners can learn form and feel physical limitations.
- Modified to be sustainable at 60-85% effort for 80% of the class.
- Fun & fast paced!

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Class Design—the Whys?

Ask yourself when programming & communicate to your class:

- What do I want this CLASS to achieve?
- What do I want this BOUT/CYCLE (set) to achieve?
- What do I want this TABATA (round) to achieve?

Tabata Format Ideas Depending on Your Facility

1. HIIT/Bootcamp/MetCon
2. Weighted/Resistance: Dumbbells, bars, plates, kettle bells
3. Circuit (great for holidays, use cones/ sticky notes to designate order)
4. Aqua/pool
5. Equipment: cycle/bikes, treadmill, row machine, trampoline, heavy bags
6. Sport based drills: Kickboxing/jump rope/tennis/basketball/soccer
7. SAQ/speed drills (ladder, line, hurdle, battle rope)
8. Barre (using chairs)/Pilates (active Yoga)
9. Specific body part: Core, glutes, legs, back
10. Props: Gliders, Penalty Box, medicine balls, Vipers, bands, etc.

Progressive Tabata™ Class Programming Ideas

1. PROGRESSION
2. Alternating Strength/Cardio
3. Alternating Upper/Lower Body
4. Agility focused
5. Speed focused
6. Unilateral
7. Traveling
8. ROM Variability (S – M – L – XL movements)
9. Gait concentrated
10. Balance/stability

Movement Progression Ideas:

- Increase ROM
- Increasing levers/lengthen limbs (knee to extended leg/elbow to full arms)
- Increase weight/load
- Add planes of motion (lateral & rotational movements)
- Increasing speed (caution on safety, idea is to start ½ tempo to regular tempo)
- Decrease distance to floor/gravity/resistance (using wall/chair/step/bench)
- Decreasing stability (2 legs stable->1 leg stable->1 leg unstable->2 legs unstable)

Always cue for Kinetic Chain alignment, option for progression/regression, & intensity (RPE)!

If you found value in this session, please fill out the survey ASAP so I may return next year! ★★★★★

Feel IG: @ShalaineMac or my FB Page: ShalaineFit with questions or any ideas you'd like to learn about!

Contact me, I'd love to hear your feedback! Link to my handouts, pdf, & cheat sheets:

idea.shalainefit.com. **Thank YOU for spending your time with me!**

Sweaty hugs!

Shalaine

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References

- 1 Tabata I, Nishimura K, Kouzaki M, Hirai Y, Ogita F, Miyachi M, Yamamoto K. Effects of moderate-intensity endurance and high-intensity intermittent training on anaerobic capacity and VO₂max. *Med Sci Sports Exercise*. 1996 Oct; 28(10):1327-30. doi: 10.1097/00005768-199610000-00018. PMID: 8897392. <https://pubmed.ncbi.nlm.nih.gov/8897392/>
- 2 Viana, R., et al. (2018). Defining the Number of Bouts and Oxygen Uptake During the “Tabata Protocol” Performed at Different Intensities. *Physiology & Behavior*, 189, 10–15. <https://doi.org/10.1016/j.physbeh.2018.02.045>
- 3 (<https://en.wikipedia.org/wiki/Fartlek>). Accessed June 26, 2022.
- 4 Burgomaster, K.A., et al. Six sessions of sprint interval training increases muscle oxidative potential and cycle endurance capacity in humans. *J Appl Physiol* (1985) 2005; 98:1985–1990.
- 5 Viana, R., et al. (2019). Tabata Protocol: A Review of Its Application, Variations and Outcomes. *Clinical Physiology and Functional Imaging*, 39(1), 1–8. <https://doi.org/10.1111/cpf.12513>
- 6 Tabata, Izumi. (2019). Tabata training: one of the most energetically effective high-intensity intermittent training methods. *The Journal of Physiological Sciences*, 69(4), 559–572. <https://doi.org/10.1007/s12576-019-00676-7>
- 7 Alansare, A., Alford, K., Lee, S., Church, T., Jung, H.C. The Effects of High-Intensity Interval Training vs. Moderate-Intensity Continuous Training on Heart Rate Variability in Physically Inactive Adults. *Int J Environ Res Public Health*. 2018 Jul 17;15(7):1508. doi: 10.3390/ijerph15071508. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6069078/>
- 8 Rowe, Pate, L., & Buckley, D. J. (2021). A Comparison of High-intensity Interval Running and Tabata on Post-exercise Metabolism: A Pilot Analysis: 903. *Medicine and Science in Sports and Exercise*, 53(8S), 298–299. <https://doi.org/10.1249/01.mss.0000762604.94320.2c>
- 9 Arhire, L. I., Mihalache, L., & Covasa, M. (2019). Irisin: A Hope in Understanding and Managing Obesity and Metabolic Syndrome. *Frontiers in endocrinology*, 10, 524. <https://doi.org/10.3389/fendo.2019.00524>
- 10 Murawska-Cialowicz, E., et al. (2020). Effect of HIIT with Tabata Protocol on Serum Irisin, Physical Performance, and Body Composition in Men. *International Journal of Environmental Research and Public Health*, 17(10), 3589–. <https://doi.org/10.3390/ijerph17103589>
- 11 Mischenko, N. et al. (2021). Endurance Development in Taekwondo According to the Tabata Protocol. *Journal of Physical Education and Sport*, 21, 3162–3167. <https://doi.org/10.7752/jpes.2021.s6421>
- 12 Viana, R., et al. (2018). Defining the Number of Bouts and Oxygen Uptake During the “Tabata Protocol” Performed at Different Intensities. *Physiology & Behavior*, 189, 10–15. <https://doi.org/10.1016/j.physbeh.2018.02.045>
- 13 <https://blog.nasm.org/rate-of-perceived-exertion>
- 14 <https://www.polar.com/blog/running-heart-rate-zones-basics/>
- 15 Seiler, Stephen, Tønnessen, Espen. (2009) Intervals, Thresholds, and Long Slow Distance: the Role of Intensity and Duration in Endurance Training. *Sportscience* 13, 32-53, 2009 (sportsci.org/2009/ss.htm). <https://sportsci.org/2009/ss.htm>. Interesting “Polarized Training” says most athletes train 80% in Zone 1 (moderate) & 20% Zone 3 (High Intensity).
- 16 <https://blog.nasm.org/uncategorized/using-stage-training-to-improve-cardiorespiratory-endurance-3>
- 17 <https://blog.nasm.org/fitness/metabolic-conditioning-moving-beyond-cardio>