TRAINING PRACTICES OF FILIPINO ATHLETES DURING THE EARLY COVID-19 LOCKDOWN

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Abstract:

The imposition of COVID-19 lockdown restricted the daily activities of many people, including athletes. This study investigated the training practices of athletes in the Philippines during the early COVID-19 lockdown. A total of 442 athletes answered an online survey (May-July 2020), with questions pertaining to training practices, such as training frequency and duration. Data were analyzed according to: athlete classification (world-class, international, national, state, or recreational), sport category (individual or team), and sex (male or female). During lockdown, significant reductions in training frequency (except recreational, i.e., lower pre-lockdown training) and duration were observed for all athletic classifications. Similarly, training frequency and duration decreased significantly irrespective of sport category and sex. World class athletes appeared to be less affected by lockdown (types of exercise and specific training) as compared to lower-classification athletes. Athletes grouped in accordance with sex and sport category demonstrated little to no difference in training practices during the COVID-19 lockdown. The findings of the current study highlight the challenges experienced by athletes during lockdown, which may aid policy makers in the development of guidelines related to lockdown or lockdown-like situations to establish appropriate support for affected athletes.

Key words: *movement restriction, home training, remote training, sports training, SARS-CoV-2*

Introduction

In December 2019, the novel coronavirus (COVID-19) was reported in Hubei Province, China (Zhu, et al., 2020). The high person-to-person transmission capacity of COVID-19 resulted in a pandemic, affecting 600 million individuals to August 2022 (www.who.int). The pandemic resulted in social restrictions (Ammar, et al., 2020a), including residential isolation and lock-downs, affecting the ability to participate in sports and exercise (Keshkar, et al., 2021; Trabelsi, et al., 2021; Washif, et al., 2022a). These restrictions also resulted in cancellation or postponement of major sporting events (Bok, Chamari, & Foster, 2021; Dergaa, et al., 2021), including the Philippine National Games, Southeast Asian Games, and Association of Southeast Asian Nations Para Games.

The pandemic has presented mental, social, and physical challenges for both athletic groups and wider population (Ammar, et al., 2020b; Pillay, et al., 2020). For example, the time spent completing all physical activity (i.e., vigorous, moderate, and walking) and the metabolic equivalent tasks among the worldwide population has decreased (>25%), during lockdowns (Ammar, et al., 2020c). For athletes, daily routines such as training and recovery were limited or impeded (Romdhani, et al., 2022a; Washif, et al., 2022a), resulting from limited access to specialized facilities, technical coaching, sports science support, and medical professionals (Pillay, et al., 2020; Washif, et al., 2022a, 2022b).

During lockdown, significant changes in training practices were reported among athletes (Pillay, et al., 2020; Washif, et al., 2022a). Team sports activities, where athletes routinely interact with opponents, were no longer possible (Washif, et al., 2022c). Therefore, athletes resorted to home-based physical training (e.g., bodyweight and cardiorespiratory training) to maintain fitness (Hammami, Harrabi, Mohr, & Krustrup, 2020; Washif, Mohd Kassim, Lew, Chong, & James, 2021). Among elite and sub-elite athletes in South Africa, Pillay et al. (2020) reported alterations in training practices that resulted in greater moderate intensity training, compared with typical higher intensities, which may be considered sub-optimal. For highly trained kayakers and canoeists, the lock-down reduced weekly training time, decreased light-to-moderate physical activity, and increased weekly home-based strength training sessions (Hammami, et al., 2020). Manipulation of key training variables to attain training stimulus similar to pre-lockdown during pandemic and lockdown situations and the increased risk of injuries (Seshadri, Thorn, Harlow, Drummond, & Voos, 2021), might have contrib-uted to reduction in neuromuscular performance (Spyrou, et al., 2021). For these reasons, caution must be taken when considering modified training during lockdown.

Furthermore, lockdowns appear to have been particularly challenging to lower classification athletes and male athletes due to limited/precluded facility access (Washif, et al., 2021), and lower frequency of vigorous-intensity training (Hermassi, et al., 2021), respectively. This modification has been associated with increased stress levels (di Fronso, et al., 2022; Washif, et al., 2022b). Compared to males, female athletes reported greater mood disruptions associated with increased perceived stress, and dysfunctional psycho-biosocial states (di Fronso, et al., 2022). Also, more females reported increased anxious feelings and mental vulnerability during lockdown compared to males (Washif, et al., 2022c). Similar outcomes were reported amongst young individuals in the Philippines during the early pandemic (Tee, et al., 2020). The findings mentioned emphasize the importance of under-

standing the challenges experienced by athletes of different classifications and sexes during lockdown, which can help to provide data-driven assistances in future lockdown situations and post-lockdown training resumption.

The Philippines was one of the countries that implemented a 'late' lockdown (i.e., locally termed as *community quarantine*), which also affected the preparation of athletes for the Tokyo 2020 Olympics (Edrada, et al., 2020; Official Gazette Philippines, 2020), performed one year later (Bok, et al., 2020). Despite this, the Philippines posted the greatest medal output in the Tokyo 2020 Olympics, since its participation in the quadrennial event. Given the unique situations in the Philippines described above, there is currently limited information regarding athletes' practices during lockdown among different classification athletes (e.g., world class, national, state athletes), sport category (team and individual), and sex (male and female). Such information will help policy makers to consider evidence-informed guidelines related to the training management, and also establish guidance on return to sport and competition preparation during lockdown-like situations. Thus, the current study investigated athletes' training practices in the Philippines during lockdown, including changes in the training frequency and duration (pre-lockdown vs. lockdown) with reference to athlete classification, sport category, and sex.

Methods

Participants

A total of 442 recreational, amateur and elite athletes (≥18 years) from the Philippines, who had experienced lockdown for at least two weeks between March to June 2020, volunteered to participate in the study. All athletes did not miss more than seven days of technical/tactical/physical training due to sickness and/or musculoskeletal injury between March to June 2020. To identify a difference in training practice variable, training frequency, and duration, sample size was calculated using the formula $n = (Z\alpha/2)^2 s^2/d^2$, where "s" is the standard deviation (SD = 4.00%) and "d" is the accuracy of estimate or how close it is to the true mean (= 0.65%) (Kang, Ragan, & Park, 2008). The "s" was collected from a previous related literature (Washif, et al., 2022a), where athletes performing ≥5 sessions/week before lockdown reduced their training volume by -23±4% during lockdown. "Zα/2" is the normal deviate for a two-tailed alternative hypothesis at a level of significance (Zα/2 equal to 3.29 at an error rate of 0.001%). The sample size as N= (3.29)2 42/(0.65) indicated a sample of 410 participants. Athletes were classified based on competition levels with specific criterion outlined elsewhere (Washif, et al., 2022a): (a) world class (WC); (b) international (INT), (c) national (NAT); (d) state (ST); (e) recreational (REC). Athletes were also classified by sport types (individual: e.g. boxing, fencing, athletics, badminton; team: e.g. basketball, handball, soccer, volleyball), and sex (female and male). All participants gave informed consent and proceeded with answering an online survey to establish the training practices of athletes under the first lockdown. The study protocol aligns with the Declaration of Helsinki for Human Experimentation and was approved by Institutional Ethics Committee (Washif, et al., 2022a).

Procedures

This study was part of a global study examining athletes' training practices during lockdown (Washif, et al., 2022a). An online survey using Google Form, disseminated through different platforms (email, personal/group messaging, social media), was answered by the participants between May 17 to July 5, 2020. Data from questions with pre-defined answers (e.g., yes or no) were converted to standardized codes/numbers, with the use of the automated/customized setting in the Excel spreadsheet (Microsoft, USA), for analysis.

Survey. The English version of the "ECBATA survey" (Washif, et al., 2022a) was used in this study. The ECBATA survey was initially developed by sports scientists from the National Sports Institute of Malaysia and ASPETAR (Qatar), and further reviewed by a steering group of >100 researchers and sports scientists from >60 countries. In the current study, the researchers focused on training practices pertaining to questions related to purpose of training, training prescription, training administration, type of exercise, type of specific training, and recovery strategy. Each question contained items answerable by a single response (1 = yes; 0 = no). However, multiple responses can be selected from each training practice theme. Any missing sub-item response or athlete grouping datum were excluded from the analysis.

This study also examined the training frequency and duration before and during lockdown. Training frequency was assessed using a rating scale from 1 to 11, where one answer corresponded to once-a-week training frequency and 11 depicted more than 10 sessions a week. Training duration was categorized according to: (a) 1 = <30 min; (b) 2 = 30-59 min; (c) 3 = 60-89 min; (d) 4 = 90-119 min; (e) 5 = >120 min). Any missing datum in training frequency/duration or classification/sex/category were excluded from analysis of training frequency/duration. Each parameter in this study is answerable by single response. Test-retest reliability of the survey questionnaire was rated as good-excellent (Washif, et al., 2022a).

Statistical analysis

The non-parametric Kruskall-Wallis test was carried out to determine any significant between-group differences in training practices, frequency, and duration in the athletic level. Subsequent intergroup pairwise comparisons with a significance level adjusted for the Bonferonni correction were also administered. The Mann-Whitney U test was used to examine any significant intergroup differences in sport category (individual vs. team) and sex (males vs. females). Additionally, within-group analyses of training frequency and duration before and during lockdown in athlete classification, sport category, and sex were conducted using the Wilcoxon-Signed rank test. Any missing/*unclear* categorical variables were not included in the analysis. Statistical analyses were carried out using a commercial statistical package (SPSS version 25, IBM Corp, USA) with an alpha set at 0.05 level.

Results

Athlete classification

Training frequency

Athletes from WC (n = 55, p =.000) and INT (n = 90, p =.000), NAT (n = 85; p =.000), and ST (n = 116, p =.000) demonstrated significant reductions in training frequency. No difference in training frequency was seen in REC (n = 11, p =.787). Before lockdown, there was a significant between-group difference in training frequency (p =.000), with the training frequency of WC > INT (p =.000), WC > NAT (p =.001), WC > ST (p =.000), and WC > REC (p =.013). During lockdown, a significant between-group difference in training frequency existed (p =.000). The WC > INT (p =.000), WC > NAT (p =.006), and WC > ST (p =.034). The training frequency of ST was also significantly higher than INT (p =.026). Figure 1 depicts the training frequency of athletes by classification pre and during lockdown.

Training duration

The training duration of WC (n = 64; p =.000), INT (n = 103; p =.000), NAT (n = 98; p =.000), ST (n = 138; p =.000), and REC (n = 15, p =.035) decreased during lockdown (Figure 2). Before lockdown, there was a significant between-group difference in training duration (p =.001), with pairwise comparisons depicting with significant pairwise differences found in WC > INT (p =.001) and INT > ST (p =.029). There was also a significant between-group difference during lockdown (p =.000) in WC > INT (p =.000) and WC > NAT (p =.021). Figure 2 shows the training duration of athletes according to classification before and during lockdown.

Training practices

Table 1 displays the training practices of athletes in accordance with athlete classification during lockdown.

Training purpose

There was a significant intergroup difference for maintaining/developing skills/technique (p =.028), with NAT > INT (p =.027) at *post hoc*. There was also a significant between-group difference for maintaining/developing power (p =.001), with *post hoc* INT < NAT (p =.029), INT < ST (p =.008), and INT < REC (p =.004). A significant intergroup difference was identified for maintaining/developing muscle balance (p =.033), with *post hoc* NAT > ST (p =.033). While a significant intergroup difference was found in maintaining/developing flexibility (p =.014), subsequent pairwise comparisons exhibited non-significant differences.

Training prescription

A significant between-group difference was identified for own training program (p =.000), with *post hoc* WC < INT (p =.014), WC < ST (p =.002), WC< REC (p =.011), NAT < INT (p =.003), NAT

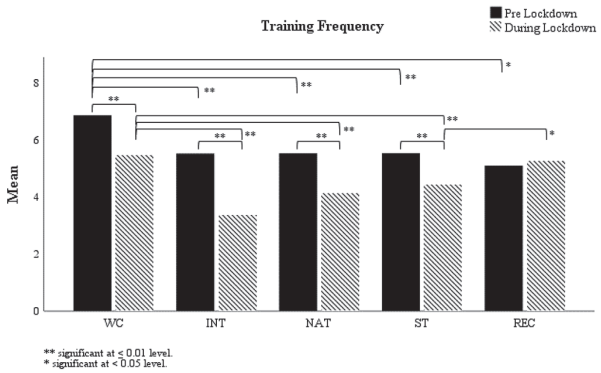

Figure 1. Training frequency of various athletes before and during lockdown. WC – world class; INT – international; NAT – national; ST – state; REC – recreation.

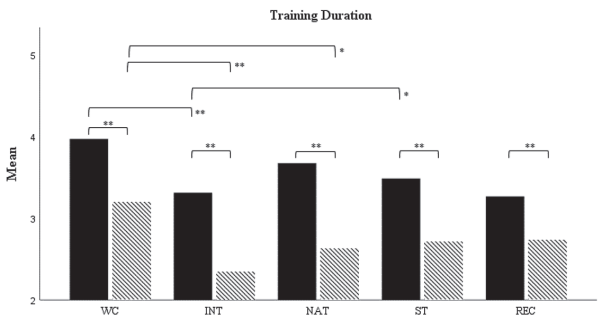

Figure 2. Training duration before and during lockdown of athletes.

Table 1. Training practices of athletes during lockdown (mean rank)

	WC	INT	NAT	ST	REC	*p*
Q1. What are/were your general purpose(s) of training during lockdown? (n = 438; missing = 4)						
	n=65	n=104	n=109	n=143	n=17	
Q1.1. To maintain or develop general fitness and health	212.3	237.6	213.9	215.4	207.4	.062
Q1.2. To maintain or develop skills/technique	230.8	198.8	243.6	210.3	226.1	.028
Q1.3. To maintain or develop strength and power	225.3	183.2	227.1	229.9	283.7	.001
Q1.4. To maintain or develop muscular endurance	230.5	201.5	233.1	214.3	244.2	.174
Q1.5. To maintain or develop abdominal strength	223.5	209.6	231.5	218.6	196.3	.551
Q1.6. To maintain or develop aerobic fitness	228.0	203.5	230.0	215.4	252.3	.249
Q1.7. To maintain or develop general flexibility	249.9	211.2	235.0	204.3	182.9	.014
Q1.8. To improve muscle balance	222.2	209.6	246.5	206.9	202.4	.033
Q1.9. Weight management	205.5	205.9	240.5	218.4	231.1	.133
Q2. Who is prescribing/prescribed the training program during lockdown? (n = 437; missing: n = 5)						
	n=65	n=104	n=109	n=142	n=17	
Q2.1 Own training program	183.1	236.9	184.1	242.2	277.4	.000
Q2.2 Training program from my coach or trainer	243.9	225.4	235.2	193.0	197.3	.004
Q2.3 Combination of own training and my coach/trainer	236.4	206.9	225.7	218.6	186.9	.282
Q2.4 Found training material from an external source: online, TV, a friend, etc.	189.2	219.4	225.1	227.5	220.4	.073
Q3. Do/did you train? (n = 435, missing: n = 7)						
	n= 64	n=103	n=108	n=143	n=17	
Q3.1 Alone	232.5	190.5	216.2	231.5	228.1	.006
Q3.2 In a small group of partners of equal athletic capacity	233.7	259.0	197.8	199.6	193.9	.000
Q3.3 With family members or friends with little athletic capacity	206.6	224.6	226.4	214.0	201.6	.452
Q4. What are the types of exercises that you have been doing consistently (at least twice a week) during lockdown? (n = 432; missing: n = 10)						
	n=64	n=104	n=105	n=142	n=17	
Q4.1. Body-weight based exercises with limited equipment	237.1	206.2	239.9	203.4	166.7	.002
Q4.2. Strength training with appropriate equipment (dumbbells, weights, etc.)	243.5	214.4	191.3	227.9	187.9	.002
Q4.3. Technical skills (sport specific skills training)	210.1	243.6	217.7	202.7	182.5	.028
Q4.4. Imitation or simulation of the techniques of my sport	244.8	205.8	217.8	208.5	234.0	.043
Q4.5. Cardiovascular training (running, cycling, rowing, etc.), including HIIT	240.0	237.9	189.1	211.9	205.1	.004
Q4.6. Plyometric training	226.6	203.0	231.3	215.9	174.4	.098
Q5. What are the types of specific training you could do with the same intensity during lockdown (very similar to pre-lockdown)? (n = 432; missing: n = 10)						
	n=65	n=104	n=106	n=140	n=17	
Q5.1. Warm-up and stretching	212.6	232.1	214.0	208.6	217.1	.124
Q5.2. Weightlifting (strength) training	225.5	204.7	205.9	233.1	184.4	.048
Q5.3. Plyometric training (e.g., repeated jumping)	228.9	200.7	234.2	215.0	167.9	.034
Q5.4. Technical skills (sport-specific)	235.9	197.3	235.1	208.1	213.0	.027
Q5.5. Speed training	253.9	203.2	206.4	219.2	195.6	.008
Q5.6. Speed endurance	224.6	245.4	196.5	210.9	179.6	.004
Q5.7. Long endurance	246.1	255.3	197.8	191.3	190.0	.000
Q5.8. Interval/intermittent training	260.1	213.2	203.7	208.4	216.7	.007
Q5.9. Change of direction	222.7	208.2	228.2	214.2	189.5	.120

Q6. What are the modes of physical recovery that you use consistently (at least once a week) during lockdown? (n = 442)	n= 65	n = 104	n = 110	n = 144	n = 19	
Q6.1. Not applicable	207.7	263.4	194.6	212.7	261.9	.000
Q6.2. Ice bath	226.9	219.3	228.6	217.2	206.5	.309
Q6.3. Massage	260.3	213.1	219.7	214.7	197.1	.001
Q6.4. Acupuncture	220.5	222.6	220.5	222.0	220.5	.797
Q6.5. Sauna	249.8	223.9	215.0	213.6	209.0	.000
Q6.6. Stretching	230.1	195.3	236.3	230.8	179.8	.006
Q6.7. Meditation/relaxation	230.0	208.8	229.4	224.8	191.5	.373
Q6.8. Foam rolling	225.7	219.8	217.5	224.7	215.5	.384
Q6.9. Electronic pulse therapies	227.6	220.4	220.0	220.1	225.6	.716

WC - world class; INT - international; NAT - national; ST - state; REC - recreational; HIIT - high intensity interval training.

< ST (p =.000), and NAT < REC (p =.008). Similarly, a significant intergroup difference was also detected for the training program from the coach/trainer (p =.004), with *post hoc* NAT > ST (p =.019) and WC > ST (p =.015).

Training administration

The intergroup difference for training alone was significant (p =.006), with *post hoc* ST > INT (p =.005) and WC > INT (p =.036). There was also a significant between-group difference for training in a small group of partners of equal athletic ability (p =.000), with *post hoc* INT > NAT (p =.000) and INT > ST (p =.000).

Type of exercise

A significant between-group difference in weightlifting (strength) training with appropriate equipment (p =.002) existed, with *post hoc* ST > NAT (p =.024) and WC > NAT (p =.004). A significant intergroup difference for technical skills (p =.028) was also identified, wherein INT > ST (p =.032) at *post hoc*. A significant intergroup difference was seen in for cardiovascular training (p =.004), with *post hoc* WC > NAT (p =.020) and INT > NAT (p =.007). Significant group differences in bodyweight exercises with limited equipment (p =.002) and imitation or simulation of techniques of my sport (p =.043) were found, but *post hoc* revealed no significant differences.

Type of specific training

There was a significant intergroup difference for speed training (p =.008), with *post hoc* WC > INT (p =.009) and WC > NAT (p =.018). Also, a significant between-group difference for speed endurance (p =.004) was seen, with INT > NAT (p =.006) at *post hoc*. A significant intergroup difference was found for long endurance (p =.000), with *post hoc* WC > ST (p =.006), WC > NAT (p =.040), INT > ST (p =.000), and INT > NAT (p =.001). The interval/intermittent training was significantly different across groups (p =.007), with *post hoc* WC > NAT (p =.005), WC > ST (p =.008), and WC > INT (p =.040). While significant between-group differences were demonstrated in weightlifting (p =.048), plyometric training (p =.034), and technical skills (p =.027), no significant pairwise difference was identified.

Recovery strategy

In modes of physical recovery, there was a significant intergroup difference in not applicable (p =.000), with *post hoc* REC > NAT (p =.016) and INT > NAT (p =.000). The massage was also significant across groups (p =.001), with *post hoc* WC > REC (p =.030), WC > INT (p =.003), WC > ST (p =.002), and WC > NAT (p =.015). Significant between-group differences were also identified for sauna (p =.000), with *post hoc* WC > REC (p =.022), WC > ST (p =.000), WC > NAT (p =.000), and WC > INT (p =.013). The stretching was significantly different between groups (p =.006), with *post hoc* NAT > INT (p =.027).

Sport category

Training frequency

Training frequency of individual (n = 164; p =.000) and team sports athletes (n = 133; p =.000) decreased during lockdown. No group differences were observed between individual and team sports for training frequency before (p =.903) and during (p =.618) lockdowns.

Training duration

The training duration for individual (n = 155; p =.000) and team athletes (n = 142; p =.000) significantly reduced during lockdown. No group differences were observed between individual and team sports for training duration before (p =.307) and during (p =.384) lockdowns.

Training practices

Training prescription

Team sports athletes reported a significantly greater propensity for combination of own training program and from coach/trainer than individual sports athletes (p =.001).

Sex

Training frequency

The training frequency of females (n = 139; p =.000) and males (n = 161; p =.000) decreased during lockdown (Figure 3). No between-group differences were observed in training frequency before (p =.465), and during lockdown (p =.695).

Training duration

The training duration of females (p =.000) and males (p =.000) decreased during lockdown. Comparison between sexes demonstrated non-significant differences before (p =.079) and during (p =.241) lockdowns.

Training practices

Training purpose

Females demonstrated higher scores for improving muscle balance compared to males (p =.007).

Table 2 displays the practices of athletes during lockdown, in accordance with sport category and sex.

Table 2. Training practices of individual and team, and female and male athletes during lockdown (mean rank)

	Ind	**Team**	**p**	**Female**	**Male**	***p***
Q1. What are/were your general purpose(s) of training during lockdown?						
	n=220	n=200		n=192	*n=243*	
Q1.1. To maintain or develop general fitness and health	209.3	211.8	.716	220.7	215.9	.480
Q1.2. To maintain or develop skills/technique	201.1	220.9	.052	221.1	215.6	.600
Q1.3. To maintain or develop strength and power	204.5	217.1	.214	224.8	212.6	.239
Q1.4. To maintain or develop muscular endurance	207.0	214.4	.468	227.2	210.7	.115
Q1.5. To maintain or develop abdominal strength	206.6	214.8	.428	228.4	209.8	.076
Q1.6. To maintain or develop aerobic fitness	215.5	205.1	.306	221.6	215.2	.542
Q1.7. To maintain or develop general flexibility	208.5	212.8	.675	226.9	211.0	.129
Q1.8. To improve muscle balance	202.7	219.1	.099	233.3	205.9	.007
Q1.9. Weight management	208.4	212.9	.659	224.4	212.9	.268
Q2. Who is prescribing/prescribed the training program during lockdown?						
	n=219	n=202		n=192	n=242	
Q2.1 Own training program	216.5	205.0	.251	216.9	218.0	.912
Q2.2 Training program from my coach or trainer	206.9	215.5	.389	215.6	219.0	.744
Q2.3 Combination of own training and my coach/trainer	195.4	227.9	.001	220.9	214.8	.550
Q2.4 Found training material from an external source: online, TV, a friend, etc.	215.9	205.7	.240	214.3	220.0	.520
Q3. Do/did you train?						
	n=216	n=201		n=191	n=241	
Q3.1 Alone	209.0	207.9	.897	214.7	217.9	.717
Q3.2 In a small group of partners of equal athletic capacity	207.9	209.2	.890	220.6	213.3	.438
Q3.3 With family members or friends with little athletic capacity	213.1	203.5	.240	214.1	218.4	.601
Q4. What are the types of exercises that you have been doing consistently (at least twice a week) during lockdown?						
	n=215	n=198		n=191	n=238	
Q4.1. Body-weight based exercises with limited equipment	208.5	205.4	.739	217.3	212.8	.607
Q4.2. Strength training with appropriate equipment (dumbbells, weights, etc.)	205.4	208.7	.707	215.4	214.7	.935
Q4.3. Technical skills (sport specific skills training)	202.4	212.0	.343	218.0	212.6	.609
Q4.4. Imitation or simulation of the techniques of my sport	203.4	210.9	.361	220.7	210.5	.233

Q4.5. Cardiovascular training (running, cycling, rowing etc.), including HIIT	214.2	199.2	.122	207.8	220.8	.193
Q4.6. Plyometric training	209.3	204.5	.615	215.4	214.7	.943
Q5. What are the types of specific training you could do with the same intensity during lockdown (very similar to pre-lockdown)?						
	n=217	n=199		n=191	n=238	
Q5.1. Warm-up and stretching	204.3	213.1	.189	214.1	215.8	.801
Q5.2. Weightlifting (strength) training	211.0	205.8	.569	217.4	213.1	.637
Q5.3. Plyometric training (e.g., repeated jumping)	210.8	206.0	.627	220.1	210.9	.352
Q5.4. Technical skills (sport-specific)	205.4	211.9	.485	224.4	207.5	.081
Q5.5. Speed training	208.1	208.9	.926	215.5	214.6	.920
Q5.6. Speed endurance	209.8	207.1	.779	211.9	217.5	.571
Q5.7. Long endurance	207.8	209.3	.879	210.9	218.3	.467
Q5.8. Interval/intermittent training	209.8	207.1	.787	220.4	210.7	.332
Q5.9. Change of direction	211.7	205.0	.324	218.3	212.3	.387
Q6. What are the modes of physical recovery that you use consistently (at least once a week) during lockdown?						
	n=216	n=204		n=193	n=246	
Q6.1. Not applicable	216.7	204.0	.117	228.4	213.4	.067
Q6.2. Ice bath	212.1	208.9	.532	220.9	219.3	.758
Q6.3. Massage	206.1	215.1	.240	222.7	217.9	.543
Q6.4. Acupuncture	211.4	209.5	.169	219.0	220.8	.210
Q6.5. Sauna	212.1	208.8	.461	221.2	219.0	.676
Q6.6. Stretching	205.2	216.1	.229	220.0	220.0	.992
Q6.7. Meditation/relaxation	206.9	214.3	.457	223.6	217.2	.521
Q6.8. Foam rolling	212.3	208.6	.284	218.6	221.1	.452
Q6.9. Electronic pulse therapies	206.9	214.3	0.051	221.6	218.8	.457

Ind- individual; HIIT, high intensity interval training.

Discussion and conclusion

The current study investigated the training practices of athletes in the Philippines during the early COVID-19 lockdown. Compared to before-lockdown, decreased (lower) training frequency and duration was observed during lockdown in all classification athletes (except recreational), sport category, and sex. In the same period, differences within athlete classification were evident in various aspects of training practices (e.g., training purpose, prescription, type of exercise, and specific training) we investigated, favoring world class athletes. During lockdown, team sports athletes used a larger proportion of combination of self-training program and from coach/trainer compared to individual sports athletes. In another light, female athletes appeared to focus more on maintaining muscle balance training than males. These changes highlight the challenges and behavioral responses by Filipino athletes in maintaining their training practices during lockdown.

Lockdown-enforced changes in training practices by athlete classification

Differences in training practices were found between athlete classifications. During lockdown, reduced training frequency was evident in all classification athletes, except recreational athletes (i.e., lower pre-lockdown training). The training duration of all athlete classifications was also lower during lockdown. World class athletes demonstrated the highest training frequency and duration before and during lockdown, which may be linked to their established training routines in preparation for major competitions such as the Olympic Games (Pillay, et al., 2020). It is possible that some of the top Filipino athletes were relatively "unaffected" by the lockdown as compared to lower-classification athletes, as also evidently showed in our global study (Washif, et al., 2022a). In particular, we postulate that a small number of top Filipino athletes (e.g., weightlifters and boxers) were able to effectively organize their lockdown training (including perfor-

mance supports) during the early COVID-19 lockdown. Around the world, it has been reported that higher classification athletes (e.g., WC) were able to access specialist training and recovery facilities (Washif, et al., 2021), via specific training arrangements including the "bubble" training camps, that enable "normal" training (Washif, et al., 2021) or even "bubble" competitions (Pedersen, et al., 2021). There have also been instances whereby higher-classification athletes acquired "expensive" training equipment for home-based training during lockdown, usually with the provisions of clubs or sponsors (Peña, et al., 2021). These opportunities and assistances from sports organizations might have contributed to reduced training challenges (i.e., amplifies training) during lockdown and likely resulted in positive "post-lockdown" sport performance.

While the comparisons of training practices did not reveal many differences, we found that many training aspects were in favor of world class athletes. For example, world class athletes were the least to use a self-designed training program, as they have received more assistance from their coaching staff. Additionally, a greater number of world class athletes included speed training and intermittent/interval training during their sport-specific activities, during lockdown, which provided a means to improve physiological capacities for competitions (McMaster, Gill, Cronin, & McGuigan, 2013; Pedersen, et al., 2021; Washif, et al., 2022a), and probably also mitigates the risk of injuries upon return to play (Zinner, et al., 2020). Furthermore, world class athletes implemented more recovery strategies, such as massage and sauna, possibly due to increased training demands. It is important that, during lockdown, athletes might have also experienced stress for various reasons (Washif, et al., 2022b). Therefore, optimizing recovery may take on greater importance for performance improvement (Doherty, Madigan, Nevill, Warrington, & Ellis, 2021). These findings agree with other studies reporting the ability of higher classification athletes to preserve their training and recovery during lockdown (Washif, et al., 2021, 2022a). Still, there are discrepancies in training practices, which magnify the need to aid athletes, irrespective of their classifications, to continue training while in lockdown. This would allow athletes to safely prepare for competitions or return to play, while also considering the "welfare" of the athletes who may need support and assistance.

Lockdown-enforced changes in training practices according to sport category

Both individual and team sports athletes displayed reduced training frequency and duration, during lockdown. Such reductions may reflect limited or no access to training facilities, leading to decreased tactical/technical training and other physical training interventions (Haddad, Abbes, Mujika, & Chamari 2021; Pillay, et al., 2020). Even so, team sports athletes utilized the combination of own training program and from coach/trainer to a greater extent than individual athletes. Such discrepancy was not influential in discriminating the physical exercises and sport-specific training carried out by both groups during lockdown. In this study, while both groups exhibited similar training frequency and duration before and during lockdown, information in regard to utility of equipment/facility is unknown. Maintenance of sport-specific training practices was reported to be easier in individual and less equipment-dependent sports (e.g., endurance), compared with more interactive or technically demanding sports (e.g., team; field sports), which were more dramatically impacted during lockdown (Washif, et al., 2022c). Including other factors related to equipment/facility usage of individual and team athletes during lockdown in future studies may help elucidate other valuable information in training practices under pandemic-enforced confinement. Generally, the lockdown affected both individual and team athletes comparably.

Lockdown-enforced changes in training practices according to sex

Males and females demonstrated reduced training frequency and duration in the Philippines. These findings somehow support the global trend during COVID-19 lockdown (Washif, et al., 2022c). In regard to purpose of training, females demonstrated a greater tendency for maintenance of muscle balance as a training priority than males. This result was not observed in a global study (Washif, et al., 2022c) that found more female athletes prioritizing fitness/health maintenance, abdominal strength, and flexibility. These data indicate an influence of country-specific related to training priority when considering sex difference. The training focus of females on muscle balance may be linked to inferior postural control of females as compared to males (Heo, Jeon, Jeon, Cho, & Eom, 2020), which warrants further investigation. Overall, lockdown in the Philippines affected the training practices of male and female athletes similarly.

Limitations

While this study provides novel information for facilitating the levels of support for athlete training during lockdown-like situations, limitations are acknowledged. First, training contents or interventions the athletes performed during lockdown were not documented. Next, questions related to mental health and sleeping habits (Pillay, et al.,

2020; Romdhani, et al., 2022b) may offer additional perspectives regarding the impact of COVID-19 lockdown on athletes in the Philippines (Leyton-Román, de la Vega, & Jiménez-Castuera, 2020). Furthermore, Ramadan intermittent fasting, which has taken place during the lockdown, could have influenced the lockdown effects among Muslim athletes, which we addressed elsewhere (Washif, et al., 2022d). Additionally, the data covered the early COVID-19 pandemic, depicting relatively short-term practices and effects. Lastly, despite our efforts to largely spread the survey across the Philippines and a relatively high number of athletes reached, our channels to reach the athletes did not ensure that the sample of athletes was representative of the athletes in the whole country. Results should therefore be interpreted with caution.

In conclusion, the current study highlights differences in training practices of athletes in the Philippines, in terms of athlete classification, sport category, and sex. During lockdown, reductions in training frequency and duration were observed across athlete classification, from state to world class athletes. Decreases (pre- to during-lockdown) in training frequency and duration were not affected (i.e., similar) by sport category and sex. World class athletes preserved their training practices (e.g., specific training, recovery strategies) during lockdown, to a greater extent than lower-classification athletes. Overall, little to no difference in training practices were observed in the comparisons between team and individual sports as well as male and female athletes. Information in the current study may assist policy makers in the Philippines in supporting athletes in managing of training during lockdown (or lockdown-like situations), establishing return to play guidelines, and/or adjusting of competition schedules.

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