Supplementary table S2. Basic characteristics of studies included in the systematic review

No.	Authors	Location	Study design	Sample size	Gender	Age (years)	Level of training
Observational studies							
1.	Arnaoutis et al. 2015	-	cross-sectional	12	males	15.5 ± 0.5	athletes competing in national and international championships
2.	Baranauskas et al. 2013	Lithuania	cross-sectional	52	males (*n* = 39) females (*n* = 13)	18.6 ± 1.8 16.1 ± 0.5	Lithuanian Olympic Team
3.	Baranauskas et al. 2020	Lithuania	cross-sectional	14	females	26.4 ± 4.5	high-performance **deaf** women's players
4.	Barnes et al. 2019	-	retrospective analysis	196	males females	23 ± 5	-
5.	Branderburg and Gaetz 2012	Canada	cross-sectional	17	females	24.2 ± 3	national team
6.	Broad et al. 1996	Australia	cross-sectional	31	males (*n* = 19) females (*n* = 12)	16 – 18	players training at Australian Institute of Sport
7.	Boumosleh et al. 2021	Lebanon	cross-sectional	178	males (*n* = 126) females (*n* = 52)	28.17 ± 4.42 25.13 ± 4.28	1st Division Lebanese Championship
8.	Davis et al. 2021	USA	cross-sectional	119	males	23.8 ± 2.0	players in the National Basketball Association minor league
9.	del Mar Bibiloni et al. 2018	Spain	cross-sectional	183	males (*n* = 96) females (*n* = 87)	21.7 (20.4 ± 25.3)* 22.4 (20.1 ± 24.6)*	amateur players
10.	Dzimbova 2020	Bulgaria	cross-sectional	16	males, females	15.4 ± 1.2	-
11.	Escribano-Ott et al. 2022	Spain	cross-sectional	104	males (*n* = 49) females (*n* = 55)	15 – 18	children involved in sport professionally under 18 years (*n* = 69), professional adult players (*n* = 21), non-professional players (*n* = 14)

No.	Authors	Location	Study design	Sample size	Gender	Age (years)	Level of training
12.	Eskici and Ersoy 2016	Turkey	cross-sectional	22	females	25.5 ± 7.2	national **wheelchair** team
13.	Ferro et al. 2017	Spain	cross-sectional	11	males	30 ± 6	national **wheelchair** team
14.	Gacek and Wojtowicz 2021	Poland	cross-sectional	165	males	23.44 ± 3.74	professionally training basketball (1st and 2nd leagues, as well as the top league)
15.	Gacek 2022	Poland	cross-sectional	48	males	26.6 ± 4.5	professional players
16.	Gorrell et al. 2021	USA	cross-sectional	16	males	18 – 26	10 top-ranked National Collegiate Athletic Association (NCAA) schools in USA
17.	Heishman et al. 2021	USA	retrospective longitudinal analysis	15	males	20.4 ± 1.7	NCAA Division I
18.	Hickson et al. 1986	USA	cross-sectional	13	females	19.4 ± 0.3	intercollegiate team
19.	Hickson et al. 1990	USA	cross-sectional	12	males	16.4 ± 0.7	high-school varsity players
20.	Kampouri et al. 2019	Greece	cross-sectional	53	females	24.30 ± 6.4	elite players
21.	Kostopoulos et al. 2017	Greece	cross-sectional	18	-	24 ± 4	A1 division (1st and 2nd division)
22.	Leinus and Ööpik 1998	Estonia	cross-sectional	14	males (n = 7) females (n = 7)	21.1 ± 2.6 20.6 ± 1.9	4-6 y of training, 90 min/day, 5-6 times/week 8-10 y of training, 90 min/day, 2-4 times/week
23.	Logan-Sprenger and McNaughton 2020	Canada	cross-sectional	11	females	18 – 41	national wheelchair team
24.	Mavra et al. 2014	Croatia	cross-sectional	153	females	21.90 ± 4.89 (1st) 17.30 ± 2.85 (2nd)	Players from the 1st (n = 79) and the 2nd (n = 74) national league

No.	Authors	Location	Study design	Sample size	Gender	Age (years)	Level of training
25.	Michou and Costarelli 2011	Greece	cross-sectional	74	females	24.92 ± 3.81	national and international level
26.	Monthuy-Blanc et al. 2012	France	cross-sectional	41	females	13.59 ± 1.32	non-elite players
27.	Musaiger and Ragheb 1994	Bahrain	cross-sectional	39	-	-	1st class clubs
28.	Nepocatych et al. 2017	USA	cross-sectional	10	females	18 – 22	NCAA Division I
29.	Nikić et al. 2014	Serbia	cross-sectional	57	males	15.6 ± 0.9	elite junior
30.	Nowak et al. 1988	USA	cross-sectional	26	males (n = 16) females (n = 10)	18.9 ± 1.29 19.4 ± 0.97	National Association of Intercollegiate Athletics – Division II
31.	Osterberg et al. 2009	USA	cross-sectional	29	males	-	National Basketball Association
32.	Papandreou et al. 2007	Greece	cross-sectional	21	males (n = 8) females (n = 13)	20 ± 4 25 ± 5	professional players
33.	Quintas et al. 2003	Spain	cross-sectional	26	females	17.2 ± 2.1	-
34.	Sánchez-Diaz et al. 2021	Spain	cross-sectional	23	males (n = 13) females (n =10)	13.5 ± 0.3 12.7 ± 0.5	highest competitive level for the U-14 category
35.	Schröder et al. 2004	Spain	cross-sectional	50	males	25.1 ± 4.0	1st Spanish Basketball League
36.	Shimizu et al. 2019	Japan	cross-sectional data	13	females	28.9 ± 8.1	national wheelchair team
37.	Silva et al. 2012	Portugal	longitudinal approach (~34 weeks)	9	males (n = 7) females (n = 2)	16.0 ± 0.5 16.3 ± 0.5	junior national team
38.	Silva et al. 2013	Portugal	cross-sectional	19	males (n = 12) females (n = 7)	17.0 ± 0.7 16.9 ± 0.7	junior national team
39.	Silva et al. 2017	-	8 months observation	24	-	-	-

No.	Authors	Location	Study design	Sample size	Gender	Age (years)	Level of training
40.	Szczepańska and Spałkowska 2012	Poland	cross-sectional	107	males (n = 89) females (n = 18)	17 – 33	-
41.	Thigpen et al. 2014	USA	cross-sectional	22	males (n = 11) females (n = 11)	21 ± 1 19 ± 1	NCAA Division II
42.	Toti et al. 2021	Italy	cross-sectional	15	males	28.5 ± 1.5	national wheelchair team
43.	Vukasinović-Vesić et al. 2015	International	cross-sectional	96	males	19 ± 0.79	elite players during official International Basketball Federation (FIBA) Europe U20 Championship
44.	Wells et al. 2015	USA	cross-sectional	8	females	-	varsity players from Campbell University team
45.	Zanders et al. 2021	USA	cross-sectional	13	females	19.8 ± 1.3	NCAA Division II
	Experimental studies						
46.	Abbasi et al. 2021	USA	controlled laboratory study/dietary counseling intervention	10	females	-	NCAA Division II
47.	Afman et al. 2014	United Kingdom	randomized, counterbalanced crossover placebo-controlled study	10	males	20 ± 1	from university to international level competition
48.	Baker et al. 2007a	USA	six arms randomized cross-over placebo controlled trial (double blind with respect to euhydration trials)	11	males	21 ± 3	-

No.	Authors	Location	Study design	Sample size	Gender	Age (years)	Level of training
49.	Baker et al. 2007b	USA	six-arm randomized cross-over placebo controlled trial (double blind with respect to euhydration trials)	17	males	21.1 ± 2.4	highly skilled players ranged from high school (n = 9) to college (Division III, n = 4; Division I, n = 4)
50.	Baranauskas et al. 2011	Lithuania	single arm interventional study	10	females	16.2 ± 0.4	Lithuanian Olympic Sport Centre players
51.	Carvalho et al. 2011	Portugal	three-arm randomized cross-over trial	12	males	14.8 ± 0.45	U-15 national team
52.	Čabarkapa et al. 2020	USA	two-arm cross-over design	18	males	27.5 ± 10.6	considerable amount of playing experience
53.	Daniel et al. 2019	Brazil	two-arm randomized cross-over design	9	males	18.0 ± 0.7	high-performance
54.	Dougherty et al. 2006	USA	double blind randomized placebo-controlled cross-over trial	15	males	13.5 ± 1.3	first-team member of either their school or district Amateur Athletic Union team or both in the central Pennsylvania region
55.	Gentle et al. 2014	New Zealand	two-arm randomized cross-over design	10	males	22 ± 2	well-trained
56.	Ghiasvand et al. 2010	Iran	randomized double blind placebo-controlled clinical trial	34	males	24 (17 – 35)‡	well-trained

No.	Authors	Location	Study design	Sample size	Gender	Age (years)	Level of training
57.	Grams et al. 2016	Spain	interventional study (dietary counseling)	17	males	30 (21 – 40)	national wheelchair team
58.	Ho et al. 2018	Taiwan	two-arm randomized, placebo-controlled counterbalanced cross-over design	15	-	18 – 20	Division I collegiate players
59.	Hoffman et al. 1995	Israel	two-arm balanced cross-over design	10	males	17.3 ± 0.9	players in regional youth team
60.	Hoffman et al. 2012	USA	four-arm double blind cross-over design	10	females	21.2 ± 1.6	NCAA Division I
61.	Louis et al. 2018	-	two-arm randomized cross-over trial	9	males	16.2 ± 0.7	U-18 of the basketball academy of the National team
62.	Marques et al. 2015	Brazil	single arm study	8	males	33.8 ± 8.3	wheelchair athletes participating in national championships
63.	Minehan et al. 2002	Australia	three-arms randomized cross-over design	15	males (n = 8) females (n = 7)	-	players training at Australian Institute of Sport
64.	Michalczyk et al. 2018	Poland	single-arm dietary intervention	11	males	24.27 ± 2.6	1st Division of the Polish Basketball League
65.	Michalczyk et al. 2019	Poland	single-arm dietary intervention	15	males	23.5 ± 2.2	1st Division of the Polish Basketball League
66.	Ronghui 2015	China	two-arm randomized parallel	10	-	-	university professional players

No.	Authors	Location	Study design	Sample size	Gender	Age (years)	Level of training
			group placebo-controlled study				
67.	Shi 2005	China	two-arm parallel-group study	10	males	19 – 23	CUBA athletes
68.	Taim et al. 2021	Singapore	parallel group randomized between-subject design	18	males	23.4 ± 1.4 (experimental) 22.8 ± 1.2 (control)	national varsity league
69.	Taylor et al. 2016	USA	two-arm randomized placebo-controlled double blind parallel group study	14	females	20 ± 2 (experimental) 21 ± 3 (control)	NCAA Division III
70.	Toti et al. 2021	Italy	interventional study (dietary counseling)	37	males (n = 16) males (n = 12) females (n = 9)	27 (24 – 31) 19 (18 – 21) 26 (19 – 30)	national wheelchair team
71.	Tsoufi et al. 2017	Greece	interventional study (dietary counseling)	15	males	-	elite players
72.	Wilborn et al. 2013	USA	Two-arm randomized double blind parallel group study	16	females	20.0 ± 1.9 (whey protein) 21.0 ± 2.8 (casein protein)	NCAA Division III

Abbreviations: NCAA, National Collegiate Athletic Association. Note: * values are median (interquartile range); ǂ values are median (range)