

Training Zones

SYMBOL	TRAINING ZONES	DESCRIPTION ENERGY SOURCES	LOADING DURATION (MIN)		RPE	V IN % OF ACT. PB	LACTATE (MMOL/L)	HEART RATE	VO2MAX	PAUSE	RECOVERY	SD 50–100	MD 200–400	LD 800–1500+	METHODS	PARTICULARITIES		
REG	Regeneration/ Compensation	<ul style="list-style-type: none"> For regeneration, training load processing and preparation for training loads Energy supply from carbohydrates, fats, lactate 	–		“very light” Borg < 9	< 75%	< 1,5	Before puberty: <140 after: 100–120	60–70%	–	–	Up to 3,000 easy	Up to 3,000 easy	Up to 3,000 easy	Continuous method	Swimdown after intensive training and after competition up to lactate < 2.5 mmol/l		
AEC1	Aerobic Capacity (aerobic endurance ext./int.)	<ul style="list-style-type: none"> Extensive aerobic capacity Energy supply from carbohydrates (muscle, blood, liver), fats, lactate 	T1	20–40'	“light” Borg 10–12	75–80%	1,5–2,5	Before puberty: 140–150 after: 120–145	70–75%	1,500s → 40–60” 800s → 40–60” 400s → 30–60” 100/200 → 20–30” 50s → 15–30”	6–12 hours	≈ 3,000	≈ 3,000	≈ 5,000	Continuous method, fartlek training	<ul style="list-style-type: none"> Ability to supply energy from fats and lactate Improves buffer capacity Optimizes the refilling speed of the glycogen storage 		
			T2	30–45'		FR frequency:						50–1,500s	50–1,500s	50–1,500s	Extensive interval			
			T3	40–60'		100–31						12–24 hours	50–800s	50–800s			50–800s	Extensive interval
			T4	45–60'		200–30												
			E1+	45–60+		400–27												
AEC2	Aerobic Capacity (aerobic endurance ext./int.)	<ul style="list-style-type: none"> Intensive aerobic capacity Swimming speed at 3 mmol/l Energy supply esp. from carbohydrates (muscle, blood, liver) 	T1	20–40'	“middle” Borg 13–14	80–85%	2,5–3,5	Before puberty: 150–170 after: 145–160	75–80%	800s → 1–2' 400s → 30–60” 100/200 → 20–30” 50s → 15–30” 25s → 10–15”	12–24 hours				≈ 3,000	≈ 3,000		
			T2	30–45'		FR frequency:						12–24 hours	50–800s	50–800s	50–800s	Extensive interval		
			T3	40–60'		100–35												
			T4	45–60'		200–33												
			E1+	45–60+		400–31												
AEP	Aerobic Power (VO2max)	<ul style="list-style-type: none"> VO2max Not mandatory necessary for 100–200 m swimmers Essential for distances > 200 m = “Race Pace” Energy supply esp. from carbohydrates (muscle, blood) 	T1	–	“very hard” Borg 18–20	100%	5–8	Before puberty: 190–210 after: 170–190	95–100%	5–30” (depending on interval distance)/ 3–4' SP (active)	48–96 hours (max. 1–2 x/ week)	–	≈ 1,500 à 2–3 series with 50–100s	≈ 3,000 à 2–3 series with 50–200s	Intensive interval	<ul style="list-style-type: none"> Improves maximum oxygen absorption Improves capillarization, buffering capacity and increases myoglobin and mitochondrial concentration 		
			T2	–		MD–LD												
			T3	4'		“Race Pace”												
			T4	4–12'		FR frequency:												
			E1	4–16'		45–50												
			E2	8–24'														
ANC	Anaerobic Capacity (lactate production/ speed endurance)	<ul style="list-style-type: none"> Anaerobic capacity Under distance sector Energy supply from muscle storage (ATP/CP/glycogen) and carbohydrates (blood) 	T1	2'	“hard” Borg 15–17	100–105%	8–10	Before puberty: 220 after: 180–200	–	20–60” (depending on interval distance)/ 8–10' SP (passive)	24–120 hours (max. 2–3 x/ week)	≈ 800 à 1–3 series with 25–50s (max. 75)	≈ 800 à 1–3 series with 25–50s	≈ 800 à 1–3 series with 25–50s	Intensive interval	<ul style="list-style-type: none"> Ability to supply maximum of energy from anaerobic-lactacid systems 		
			T2	4'		FR frequency:												
			T3	8'		50–55												
			T4	8'														
			E1+	8+														
ANP	Anaerobic Power (lactate tolerance/ competition-specific endurance/stamina)	<ul style="list-style-type: none"> Anaerobic power Lactate tolerance for 50–400 m swimmers = “Race Pace” “Broken Swim”, i.a. for forecast Energy supply from carbohydrates (muscle, blood) 	T1	–	“very hard” Borg 19–20	100%	“Broken Swim” 8–10 ... Accumulation: Max.! (> 16)	Before puberty: 220 after: 180–200	–	“Broken Swim” 5–30” (dep. on interval distance)/ 3–20' SP (active) 40”–10” (dep. on interval distance – active)	72–96 hours (max. 2–3 x/ week)	≈ 400 “BS” à 2–3 series with 25–50s	≈ 600 “BS” à 2–3 series with 25–75s	–	“Broken Swim”	<ul style="list-style-type: none"> Ability to endure high lactate levels To maintain swim technique against fatigue Improves buffer capacity 		
			T2	2–4'		FR frequency:												
			T3	4–6'		50–55												
			T4	4–16'														
			E1+	6–16'														
S	Speed (Sprint)	<ul style="list-style-type: none"> Sprint speed Starts and turns training and mobilization Energy supply from muscle stores (ATP/CP/glycogen) 	T1	2'	“light” Borg 10–12	105–110%	Up to 5 possible	Before puberty: 170–190 after: 160–180	–	1.5–5' (active)	12–72 hours	≈ 300 with 10–40s (max. 15”)	≈ 300 with 10–35s (max. 15”)	≈ 300 with 10–25s (max. 15”)	Repetition method	<ul style="list-style-type: none"> Maximum fast movement programs with optimal technique in the anaerobic-alactacid area 		
			T2	3–4'														
			T3	4–6'														
			T4	4–8'														
			E1+	4–8+														