THE PROTOCOL

The 10-Minute Bike Test.

One number. **Every workout.**

WHERE IT COMES FROM

The test is a shortened version of a classic cycling protocol. Andy Coggan and Hunter Allen popularized 20-minute and 60-minute power tests in *Training and Racing with a Power Meter* (2006). Those tests anchor to threshold, the pace you can hold for an hour.

We use 10 minutes instead. It is more accessible, it is repeatable, and it anchors to a different number: your **VO2 Max Indicator**. A 10-minute max effort on the bike pulls oxygen use to near its ceiling. That is the engine we are measuring.

To turn the raw score into a usable training anchor, we take your 10-minute average watts, divide by bodyweight in kilograms, then scale it by **0.85**. The result sits below your maximum effort and above your easy pace. That is the number every zone scales from.

WHY IT MATTERS

Ten minutes is long enough to break through pacing tricks and short enough that most athletes will actually do it. You cannot sandbag your way into a higher score. **The only way the number goes up is a stronger engine.**

WHAT THE NUMBER DOES

Your **VO2 Max Indicator** anchors Zone 5 on our seven-zone system. Every other zone, recovery through sprint, scales from it.

> **Test once. Hit your zones every workout. Retest every 8 to 12 weeks. Track the trend, not the day.**

LEVELS — MEN

10-MIN AVERAGE WATTS · COMPTRAIN FITNESS SCORE

LVL	CLASSIFICATION	ECHO BIKE	CONCEPT2 BIKEERG	PROFILE
1	Beginner	70 – 235 W	60 – 200 W	Building foundation
2	Intermediate	235 – 310 W	200 – 265 W	Consistent training base
3	Advanced	310 – 380 W	265 – 325 W	Well-conditioned athlete
4	Elite	380 – 455 W	325 – 385 W	Highly trained competitor
5	Pro	470 W +	400 W +	Peak performance level

LEVELS — WOMEN

10-MIN AVERAGE WATTS · COMPTRAIN FITNESS SCORE

LVL	CLASSIFICATION	ECHO BIKE	CONCEPT2 BIKEERG	PROFILE
1	Beginner	45 – 160 W	40 – 135 W	Building foundation
2	Intermediate	160 – 210 W	135 – 180 W	Consistent training base
3	Advanced	210 – 255 W	180 – 215 W	Well-conditioned athlete
4	Elite	255 – 310 W	215 – 265 W	Highly trained competitor
5	Pro	315 W +	270 W +	Peak performance level

Note: Ranges calculated at 185 lb / 84 kg male and 145 lb / 66 kg female, ages 25–29. Like all power-to-weight scoring, absolute wattage shifts with bodyweight. The Beginner band is wide on purpose: it spans true beginners through trained-but-untested athletes. As you move into Intermediate and above, the bands tighten the way real adaptation curves play out.

10-MINUTE BIKE TEST REFERENCE

Echo Bike

Target **RPM** and target **Wattage**

Find your 10-minute Echo Bike test wattage on the left, then read across to find your target RPM and watts for every zone. The left column covers Beginner through Pro across common bodyweights.

ECHO BIKE AIR RESISTANCE / FAN BIKE

TEST WATTS	ZONE 1 Recovery	ZONE 2 Endurance	ZONE 3 LT1 Tempo	ZONE 4 LT2	ZONE 5 VO2 Max	ZONE 6 Anaerobic	ZONE 7 Sprint
	RPE 1	RPE 2-3	RPE 4-5	RPE 5-6	RPE 7-8	RPE 9-10	RPE 10
70W	28 RPM 25 W	33 RPM 39 W	36 RPM 50 W	38 RPM 60 W	40 RPM 70 W	43 RPM 91 W	49 RPM 130 W
80W	29 RPM 28 W	34 RPM 44 W	37 RPM 58 W	40 RPM 69 W	42 RPM 80 W	45 RPM 104 W	51 RPM 148 W
90W	30 RPM 31 W	36 RPM 50 W	39 RPM 65 W	41 RPM 77 W	43 RPM 90 W	47 RPM 117 W	53 RPM 167 W
100W	32 RPM 35 W	37 RPM 55 W	40 RPM 72 W	43 RPM 86 W	45 RPM 100 W	49 RPM 130 W	55 RPM 185 W
110W	33 RPM 39 W	38 RPM 61 W	41 RPM 79 W	44 RPM 95 W	46 RPM 110 W	50 RPM 143 W	57 RPM 204 W
120W	34 RPM 42 W	39 RPM 66 W	43 RPM 86 W	45 RPM 103 W	48 RPM 120 W	52 RPM 156 W	58 RPM 222 W
130W	35 RPM 46 W	40 RPM 72 W	44 RPM 94 W	47 RPM 112 W	49 RPM 130 W	53 RPM 169 W	60 RPM 241 W
140W	35 RPM 49 W	41 RPM 77 W	45 RPM 101 W	48 RPM 120 W	50 RPM 140 W	55 RPM 182 W	62 RPM 259 W
150W	36 RPM 53 W	42 RPM 83 W	46 RPM 108 W	49 RPM 129 W	51 RPM 150 W	56 RPM 195 W	63 RPM 278 W
160W	37 RPM 56 W	43 RPM 88 W	47 RPM 115 W	50 RPM 138 W	52 RPM 160 W	57 RPM 208 W	64 RPM 296 W
170W	38 RPM 59 W	44 RPM 94 W	48 RPM 122 W	51 RPM 146 W	53 RPM 170 W	58 RPM 221 W	66 RPM 315 W
180W	38 RPM 63 W	45 RPM 99 W	49 RPM 130 W	52 RPM 155 W	55 RPM 180 W	59 RPM 234 W	67 RPM 333 W
190W	39 RPM 67 W	46 RPM 105 W	50 RPM 137 W	53 RPM 163 W	56 RPM 190 W	61 RPM 247 W	68 RPM 352 W
200W	40 RPM 70 W	46 RPM 110 W	51 RPM 144 W	54 RPM 172 W	56 RPM 200 W	62 RPM 260 W	69 RPM 370 W
210W	41 RPM 74 W	47 RPM 116 W	51 RPM 151 W	55 RPM 181 W	57 RPM 210 W	63 RPM 273 W	70 RPM 389 W
220W	41 RPM 77 W	48 RPM 121 W	52 RPM 158 W	55 RPM 189 W	58 RPM 220 W	64 RPM 286 W	72 RPM 407 W
230W	42 RPM 81 W	49 RPM 127 W	53 RPM 166 W	56 RPM 198 W	59 RPM 230 W	65 RPM 299 W	73 RPM 426 W
240W	42 RPM 84 W	49 RPM 132 W	54 RPM 173 W	57 RPM 206 W	60 RPM 240 W	65 RPM 312 W	74 RPM 444 W
250W	43 RPM 88 W	50 RPM 138 W	55 RPM 180 W	58 RPM 215 W	61 RPM 250 W	66 RPM 325 W	75 RPM 463 W
260W	43 RPM 91 W	50 RPM 143 W	55 RPM 187 W	59 RPM 224 W	62 RPM 260 W	67 RPM 338 W	76 RPM 481 W
270W	44 RPM 95 W	51 RPM 149 W	56 RPM 194 W	59 RPM 232 W	62 RPM 270 W	68 RPM 351 W	77 RPM 500 W
280W	45 RPM 98 W	52 RPM 154 W	57 RPM 202 W	60 RPM 241 W	63 RPM 280 W	69 RPM 364 W	78 RPM 518 W
290W	45 RPM 102 W	52 RPM 160 W	57 RPM 209 W	61 RPM 249 W	64 RPM 290 W	70 RPM 377 W	78 RPM 537 W
300W	46 RPM 105 W	53 RPM 165 W	58 RPM 216 W	61 RPM 258 W	65 RPM 300 W	71 RPM 390 W	79 RPM 555 W
310W	46 RPM 109 W	54 RPM 171 W	59 RPM 223 W	62 RPM 267 W	65 RPM 310 W	71 RPM 403 W	80 RPM 574 W
320W	47 RPM 112 W	54 RPM 176 W	59 RPM 230 W	63 RPM 275 W	66 RPM 320 W	72 RPM 416 W	81 RPM 592 W
330W	47 RPM 115 W	55 RPM 182 W	60 RPM 238 W	63 RPM 284 W	67 RPM 330 W	73 RPM 429 W	82 RPM 611 W
340W	47 RPM 119 W	55 RPM 187 W	60 RPM 245 W	64 RPM 292 W	67 RPM 340 W	74 RPM 442 W	83 RPM 629 W
350W	48 RPM 122 W	56 RPM 193 W	61 RPM 252 W	65 RPM 301 W	68 RPM 350 W	74 RPM 455 W	84 RPM 648 W
360W	48 RPM 126 W	56 RPM 198 W	62 RPM 259 W	65 RPM 310 W	69 RPM 360 W	75 RPM 468 W	84 RPM 666 W
370W	49 RPM 130 W	57 RPM 204 W	62 RPM 266 W	66 RPM 318 W	69 RPM 370 W	76 RPM 481 W	85 RPM 685 W
380W	49 RPM 133 W	57 RPM 209 W	63 RPM 274 W	67 RPM 327 W	70 RPM 380 W	76 RPM 494 W	86 RPM 703 W
390W	50 RPM 137 W	58 RPM 215 W	63 RPM 281 W	67 RPM 335 W	71 RPM 390 W	77 RPM 507 W	87 RPM 722 W
400W	50 RPM 140 W	58 RPM 220 W	64 RPM 288 W	68 RPM 344 W	71 RPM 400 W	78 RPM 520 W	87 RPM 740 W
410W	51 RPM 144 W	59 RPM 226 W	64 RPM 295 W	68 RPM 353 W	72 RPM 410 W	78 RPM 533 W	88 RPM 759 W
420W	51 RPM 147 W	59 RPM 231 W	65 RPM 302 W	69 RPM 361 W	72 RPM 420 W	79 RPM 546 W	89 RPM 777 W
430W	51 RPM 151 W	60 RPM 237 W	65 RPM 310 W	69 RPM 370 W	73 RPM 430 W	80 RPM 559 W	89 RPM 796 W
440W	52 RPM 154 W	60 RPM 242 W	66 RPM 317 W	70 RPM 378 W	73 RPM 440 W	80 RPM 572 W	90 RPM 814 W
450W	52 RPM 158 W	61 RPM 248 W	66 RPM 324 W	70 RPM 387 W	74 RPM 450 W	81 RPM 585 W	91 RPM 833 W
460W	53 RPM 161 W	61 RPM 253 W	67 RPM 331 W	71 RPM 396 W	75 RPM 460 W	81 RPM 598 W	91 RPM 851 W
470W	53 RPM 165 W	62 RPM 259 W	67 RPM 338 W	71 RPM 404 W	75 RPM 470 W	82 RPM 611 W	92 RPM 870 W
480W	53 RPM 168 W	62 RPM 264 W	68 RPM 346 W	72 RPM 413 W	76 RPM 480 W	83 RPM 624 W	93 RPM 888 W
490W	54 RPM 172 W	62 RPM 270 W	68 RPM 353 W	72 RPM 421 W	76 RPM 490 W	83 RPM 637 W	93 RPM 907 W
500W	54 RPM 175 W	63 RPM 275 W	69 RPM 360 W	73 RPM 430 W	77 RPM 500 W	84 RPM 650 W	94 RPM 925 W

Each cell shows two targets: RPM · W (watts)

Zone 5 VO2 Max column = your test wattage.

10-MINUTE BIKE TEST REFERENCE

Concept2 BikeErg

Target **Split** per 1 kilometer

Use this page when the BikeErg monitor is set to **split mode** and the workout calls for distance or minutes per 1km. Find your 10-minute BikeErg test wattage on the left, then read across for your target split per zone.

CONCEPT2 BIKEERG

DAMPER / FLYWHEEL · SPLIT MODE (MIN:SEC / 1KM)

TEST WATTS	ZONE 1 Recovery	ZONE 2 Endurance	ZONE 3 LT1 Tempo	ZONE 4 LT2	ZONE 5 VO2 Max	ZONE 6 Anaerobic	ZONE 7 Sprint
	RPE 1	RPE 2-3	RPE 4-5	RPE 5-6	RPE 7-8	RPE 9-10	RPE 10
60W	4:15	3:40	3:21	3:09	3:00	2:45	2:27
70W	4:01	3:28	3:11	3:00	2:51	2:37	2:19
80W	3:52	3:20	3:02	2:52	2:44	2:30	2:13
90W	3:44	3:11	2:55	2:46	2:37	2:24	2:08
100W	3:35	3:05	2:49	2:40	2:32	2:19	2:04
110W	3:28	2:59	2:44	2:34	2:27	2:15	2:00
120W	3:23	2:54	2:40	2:30	2:23	2:11	1:56
130W	3:17	2:49	2:35	2:26	2:19	2:07	1:53
140W	3:13	2:46	2:31	2:23	2:16	2:04	1:51
150W	3:08	2:42	2:28	2:19	2:13	2:02	1:48
160W	3:04	2:38	2:25	2:16	2:10	1:59	1:46
170W	3:01	2:35	2:22	2:14	2:07	1:57	1:44
180W	2:57	2:32	2:19	2:11	2:05	1:54	1:42
190W	2:54	2:29	2:17	2:09	2:03	1:52	1:40
200W	2:51	2:27	2:14	2:07	2:01	1:50	1:38
210W	2:48	2:25	2:12	2:05	1:59	1:49	1:37
220W	2:46	2:22	2:10	2:03	1:57	1:47	1:35
230W	2:43	2:20	2:08	2:01	1:55	1:45	1:34
240W	2:41	2:18	2:06	1:59	1:53	1:44	1:32
250W	2:38	2:16	2:05	1:58	1:52	1:43	1:31
260W	2:37	2:15	2:03	1:56	1:50	1:41	1:30
270W	2:34	2:13	2:02	1:55	1:49	1:40	1:29
280W	2:33	2:11	2:00	1:53	1:48	1:39	1:28
290W	2:31	2:10	1:59	1:52	1:46	1:38	1:27
300W	2:29	2:08	1:57	1:51	1:45	1:36	1:26
310W	2:28	2:07	1:56	1:49	1:44	1:35	1:25
320W	2:26	2:06	1:55	1:48	1:43	1:34	1:24
330W	2:25	2:04	1:54	1:47	1:42	1:33	1:23
340W	2:23	2:03	1:53	1:46	1:41	1:33	1:22
350W	2:22	2:02	1:52	1:45	1:40	1:32	1:21
360W	2:21	2:01	1:51	1:44	1:39	1:31	1:21
370W	2:19	2:00	1:50	1:43	1:38	1:30	1:20
380W	2:18	1:59	1:49	1:42	1:37	1:29	1:19
390W	2:17	1:58	1:48	1:41	1:36	1:28	1:19
400W	2:16	1:57	1:47	1:41	1:36	1:28	1:18

Each cell: **/1km split** in minutes:seconds

Zone 5 VO2 Max column = your test wattage.

10-MINUTE BIKE TEST REFERENCE

Concept2 BikeErg

Target **Calories per Hour**

Use this page when the BikeErg monitor is set to **calorie mode** and the workout calls for calories. Find your 10-minute test wattage on the left, then read across for your target cal/hr rate per zone.

CONCEPT2 BIKEERG DAMPER / FLYWHEEL · CALORIE MODE (CAL/HR)

TEST WATTS	ZONE 1 Recovery	ZONE 2 Endurance	ZONE 3 LT1 Tempo	ZONE 4 LT2	ZONE 5 VO2 Max	ZONE 6 Anaerobic	ZONE 7 Sprint
	RPE 1	RPE 2-3	RPE 4-5	RPE 5-6	RPE 7-8	RPE 9-10	RPE 10
60W	384	432	472	508	540	612	744
70W	400	456	500	540	580	664	820
80W	412	476	532	576	620	716	892
90W	424	500	560	608	660	768	968
100W	440	520	588	644	700	820	1,040
110W	456	544	616	680	740	872	1,116
120W	468	564	644	712	780	924	1,188
130W	484	588	676	748	820	976	1,264
140W	496	608	704	780	860	1,028	1,336
150W	512	632	732	816	900	1,080	1,412
160W	524	652	760	852	940	1,132	1,484
170W	536	676	788	884	980	1,184	1,560
180W	552	696	820	920	1,020	1,236	1,632
190W	568	720	848	952	1,060	1,288	1,708
200W	580	740	876	988	1,100	1,340	1,780
210W	596	764	904	1,024	1,140	1,392	1,856
220W	608	784	932	1,056	1,180	1,444	1,928
230W	624	808	964	1,092	1,220	1,496	2,004
240W	636	828	992	1,124	1,260	1,548	2,076
250W	652	852	1,020	1,160	1,300	1,600	2,152
260W	664	872	1,048	1,196	1,340	1,652	2,224
270W	680	896	1,076	1,228	1,380	1,704	2,300
280W	692	916	1,108	1,264	1,420	1,756	2,372
290W	708	940	1,136	1,296	1,460	1,808	2,448
300W	720	960	1,164	1,332	1,500	1,860	2,520
310W	736	984	1,192	1,368	1,540	1,912	2,596
320W	748	1,004	1,220	1,400	1,580	1,964	2,668
330W	760	1,028	1,252	1,436	1,620	2,016	2,744
340W	776	1,048	1,280	1,468	1,660	2,068	2,816
350W	788	1,072	1,308	1,504	1,700	2,120	2,892
360W	804	1,092	1,336	1,540	1,740	2,172	2,964
370W	820	1,116	1,364	1,572	1,780	2,224	3,040
380W	832	1,136	1,396	1,608	1,820	2,276	3,112
390W	848	1,160	1,424	1,640	1,860	2,328	3,188
400W	860	1,180	1,452	1,676	1,900	2,380	3,260

Each cell: **calories per hour** (rate, not total)

Zone 5 VO2 Max column = your test wattage.

HOW TO USE THIS REFERENCE

- **Find your row.** The left column is your 10-minute test wattage. Round to the nearest 10.
- **Match the zone to the workout.** Zone 2 Endurance for sustained breathing pace. Zones 3 and 4 (LT1 Tempo, LT2) for race-pace efforts. Zones 6 and 7 (Anaerobic, Sprint) for short bursts.
- **Hold the number.** Each cell tells you exactly where to live for that piece of work.
- **Zone 6 Anaerobic and Zone 7 Sprint are ceilings,** not averages. Pulled from short-burst physiology, not sustained capacity.

METHODOLOGY

BikeErg split (per 1 km):

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t = 1000 × (2.8 / W)^(1/3)
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BikeErg cal/hr:

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cal/hr = 4 × W + 300
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Echo Bike RPM:

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RPM = (900 × W)^(1/3)
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