

## TOUGH MUDDER X – FINALS

If you missed the recap on episodes 1 or 2, click [HERE](#).

The final round of the 2018 Tough Mudder X Championship aired on CBS this past Saturday. Yancy Camp staffer Jack Bauer provides his final detailed breakdown of lead changes, who struggled/dominated certain zones, etc. during the finals. Even though CBS did a great job covering the race in its entirety on TV, in-depth data from the TMX Championship gives readers a deeper understanding about what they may have missed during the finals, including:

- Lead and position changes throughout the race
- Fastest splits for each zone
- Timing mat splits
- Comparison of CrossFit vs. OCR
- Comparison of finals vs. both previous rounds

Just like rounds 1 and 2, this data was delayed a few days to avoid spoiling any of the results for TV viewers. Let's take a look at how the qualifying rounds went down.

### Course Map

Although much of the course remained the same throughout the day, Tough Mudder staff switched up 4/20 stations on the course during the finals (shown in orange text on the map):

- Workout 1 – replaced DB hang clean + jerks (50/35) with one-arm DB snatches (70/50)
- Workout 5 – added 10 KB deadlifts halfway through the farmer's carry (200/140)
- Workout 8 – replaced sandbag overhead press with sandbag thrusters
- Workout 10 – added 10 sandbag shoulder-overs before the atlas carries

Here is a quick review of the timing mat locations that will be referenced repeatedly:

- Zone 1, 400m – after climbing down from Balls to the Wall (#5)
- Zone 2, 800m – just before climbing up Kong Infinity (#11)
- Zone 3, 1100m – just before #14 on the long running stretch
- Zone 4, 1200m – after Leap of Faith (#15) just before starting the sandbag cleans (#16)
- Zone 5, 1400m – just before Rope-A-Dope (#20)
- Zone 6, Finish line

# Course Map



**2018**  
Championship  
Richmond, VA



## Course Sequence:

- = Obstacle
- = Workout Zone



### Workout List: **One-arm snatch (70/50)**

1. Dumbbell ~~Hang Clean and Jerk~~
2. Box Jumps
3. C2B Pull Ups
4. Wall Balls
5. Farmer's Carry + **15 deadlifts**
6. Sled Drag & Pull
7. Sandbag Cleans + **Thrusters**
8. Sandbag ~~Shoulder to Overhead~~
9. Sandbag Lunges
10. Atlas Carry + **10 Shoulder-Overs**

### Obstacle List:

1. Balls to the Wall
2. Berlin Walls
3. Just the Tip
4. Everest
5. Kiss of Mud
6. Kong
7. Skidmarked
8. Funky Monkey
9. Leap of Faith
10. Rope a Dope

## Position Changes

Here are the official results for the finals, in order of finishing time. This was everyone's third race of the day, and it was obvious that the heat and hand blisters finally took their toll on several athletes during the finals. Take a quick look at this then move on, as I'll break down the data into way more detail in the next few sections. Seriously, don't spend too much time on this, as the next few tables are broken down in different ways that will be eye-opening as to how the race unfolded. You'll also see a lot of color-coded columns:

- Blue = fast
- White = average
- Red = slow
- Darker color = very fast/slow

Racer Info					400m (After BTTW)			800m (Before Kong)			1100m (Last Bale Bonds)			1200m (After Leap of Faith)			1400m (Before Rope Climb)			1600m (Finish Line)			Sport										
Rank	Bib	Last	First	Cat.	Timing Mat		Timing Mat		Split	Timing Mat		Timing Mat		Timing Mat		Timing Mat		Timing Mat		Timing Mat													
					Time	Position	Time	Position	Change	Time	Rank	Time	Position	Change	Time	Rank	Time	Position	Change	Time	Rank	Time	Position	Change	Time	Rank							
1	261	McIntyre	Hunter	M	F1	02:40.4	1	05:38.6	1	0	02:58.2	1	07:50.8	1	0	02:12.2	1	08:55.3	1	0	01:04.55	1	12:20.9	1	0	03:25.6	2	13:41.2	1	0	01:20.53	5	OCR
2	262	Heppner	Jacob	M	F2	02:44.1	2	06:05.4	3	-1	03:21.3	5	08:50.9	3	0	02:45.5	5	10:05.1	3	0	01:14.52	6	13:19.0	3	0	03:13.59	1	14:41.6	2	1	01:22.6	6	CrossFit
3	267	Rager	Dakota	M	F3	03:02.6	5	06:16.1	4	1	03:13.55	3	09:00.6	5	-1	02:44.5	4	10:13.7	5	0	01:13.1	4	13:46.1	4	1	03:32.54	4	15:01.1	3	1	01:15.0	1	CrossFit
4	264	Vellner	Patrick	M	F4	03:01.7	4	06:18.1	5	-1	03:16.54	4	08:55.6	4	1	02:37.5	2	10:09.3	4	0	01:13.57	5	13:58.3	5	-1	03:49.0	5	15:14.3	4	1	01:16.0	2	CrossFit
5	268	Noyce	Bobby	M	F5	03:14.3	8	06:57.6	7	1	03:43.3	6	09:58.5	6	1	03:00.59	6	11:23.4	6	0	01:24.59	8	15:39.7	6	0	04:16.3	6	17:04.0	5	1	01:24.53	7	CrossFit
6	269	Hoerner	Streat	M	F6	03:11.6	7	07:00.4	8	-1	03:48.58	8	10:08.5	7	1	03:08.1	8	11:32.0	7	0	01:23.55	7	16:09.2	7	0	04:37.2	8	17:26.5	6	1	01:17.3	4	CrossFit
7	263	Vidal	Isaiah	M	F7	02:51.6	3	05:56.2	2	1	03:04.56	2	08:35.0	2	0	02:38.58	3	09:40.6	2	0	01:05.6	2	13:12.8	2	0	03:32.2	3	17:46.4	7	-5	04:33.56	9	OCR
8	265	Kempson	Matthew	M	F8	03:39.8	10	07:29.3	9	1	03:49.55	9	10:35.9	9	0	03:06.6	7	11:47.7	8	1	01:11.58	3	18:06.5	8	0	06:18.58	9	19:23.2	8	0	01:16.57	3	OCR
9	266	Troyan	Jordan	M	F9	03:03.8	6	06:51.8	6	0	03:48.0	7	10:11.5	8	-2	03:19.57	9	14:41.8	9	-1	04:30.3	10	19:18.9	9	0	04:37.1	7	21:19.3	9	0	02:00.54	8	CrossFit
10	270	Miraglia	Dylan	M	F10	03:32.1	9	07:47.4	10	-1	04:15.3	10	15:56.3	10	0	08:08.59	10	19:40.1	10	0	03:43.58	9	-	-	-	-	-	-	-	-	-	-	OCR

Amazingly, there were only two total instances in the finals in which people moved up/down by more than one place during any single zone: Jordan Troyan during Zone 3 and Isaiah Vidal on the rope climb at the end. Among the top-10 finishers only each round, there were 13 position changes of at least 2 places between zones in the semi-finals and 17 during round 1. People tended to stay in the same position nearly the entire race during the finals.

## Position at End of Zone

This chart shows the relative placement of everyone at various checkpoints. For instance, Jacob Heppner was the 2nd person to finish his wall balls during the qualifying round, but he dropped to 4th place at the 800m mark. Hunter McIntyre lead wire-to-wire. Here are some observations:

- The gap between 1st and 10th after the first workout zone was only 21.6 seconds in round 2, but that nearly tripled to 59.4 seconds during the finals. Keep in mind that Tough Mudder modified this zone for the finals by switching DB hang clean + jerks with one-arm DB snatches.
- During the semi-finals, all of the top-10 racers were still within 1:00 of Hunter at the halfway point. During the finals, only 4 other racers were within 1:00 of Hunter at the 800m checkpoint.
- Hunter's margin of victory during each round proved that no one realistically had a shot at challenging him for the win:
  - Finals – 1:00.4
  - Semis – 0:42.6
  - Qualifiers – 1:04.1
- Isaiah was only 51 seconds behind Hunter before attempting Rope-A-Dope, but he dropped to 4:05 behind Hunter by the time he finally cleared the obstacle. His split was the slowest of the day on this section by 40 seconds. Rather than take the penalty loop after his first fall off the rope climb, Isaiah opted to attempt the rope climb two more times. It's very likely that he would have been in a sprint finish with Dakota Rager for 3rd place on the podium had he taken the penalty loop, but Isaiah later said he didn't want to take the easy way out by doing the penalty loop at that point. His finishing position may have been 7th overall, but he truly left everything on the course in the finals.
- By the time the finals took place, many athletes were already dealing with nasty blisters on their hands. Even though it affected how smoothly they were able to get through workout zones and grip obstacles, virtually everyone in the final two rounds was still able to complete the course before the 20-minute time cap. Here are the number of DNFs by round:
  - Finals – 1
  - Semi-finals – 0
  - Qualifiers – 13

Rank	400m (After BTTW)	Behind Lead	800m (Before Kong)	Behind Lead	1100m (Last Bale Bonds)	Behind Lead	1200m (After Leap of Faith)	Behind Lead	1400m (Before Rope Climb)	Behind Lead	1600m (Finish Line)	Behind Lead
1	Hunter McIntyre	02:40.4	Hunter McIntyre	05:38.6	Hunter McIntyre	07:50.8	Hunter McIntyre	08:55.3	Hunter McIntyre	12:20.9	Hunter McIntyre	13:41.2
2	Jacob Heppner	00:03.57	Isaiah Vidal	00:17.56	Isaiah Vidal	00:44.52	Isaiah Vidal	00:45.3	Isaiah Vidal	00:51.59	Jacob Heppner	01:00.4
3	Isaiah Vidal	00:11.2	Jacob Heppner	00:26.58	Jacob Heppner	01:00.1	Jacob Heppner	01:09.58	Jacob Heppner	00:58.51	Dakota Rager	01:19.59
4	Patrick Vellner	00:21.3	Dakota Rager	00:37.55	Patrick Vellner	01:04.58	Patrick Vellner	01:14.0	Dakota Rager	01:25.52	Patrick Vellner	01:33.1
5	Dakota Rager	00:22.2	Patrick Vellner	00:39.55	Dakota Rager	01:09.58	Dakota Rager	01:18.4	Patrick Vellner	01:37.54	Bobby Noyce	03:22.58
6	Jordan Troyan	00:23.4	Jordan Troyan	01:13.2	Bobby Noyce	02:07.57	Bobby Noyce	02:28.1	Bobby Noyce	03:18.58	Streat Hoerner	03:45.3
7	Streat Hoerner	00:31.2	Bobby Noyce	01:19.0	Streat Hoerner	02:17.57	Streat Hoerner	02:36.57	Streat Hoerner	03:48.53	Isaiah Vidal	04:05.2
8	Bobby Noyce	00:33.59	Streat Hoerner	01:21.58	Jordan Troyan	02:20.57	Matthew Kempson	02:52.4	Matthew Kempson	05:45.56	Matthew Kempson	05:42.0
9	Dylan Miraglia	00:51.57	Matthew Kempson	01:50.57	Matthew Kempson	02:45.1	Jordan Troyan	05:46.5	Jordan Troyan	06:58.0	Jordan Troyan	07:38.1
10	Matthew Kempson	00:59.4	Dylan Miraglia	02:08.58	Dylan Miraglia	08:05.55	Dylan Miraglia	10:44.58			Dylan Miraglia	

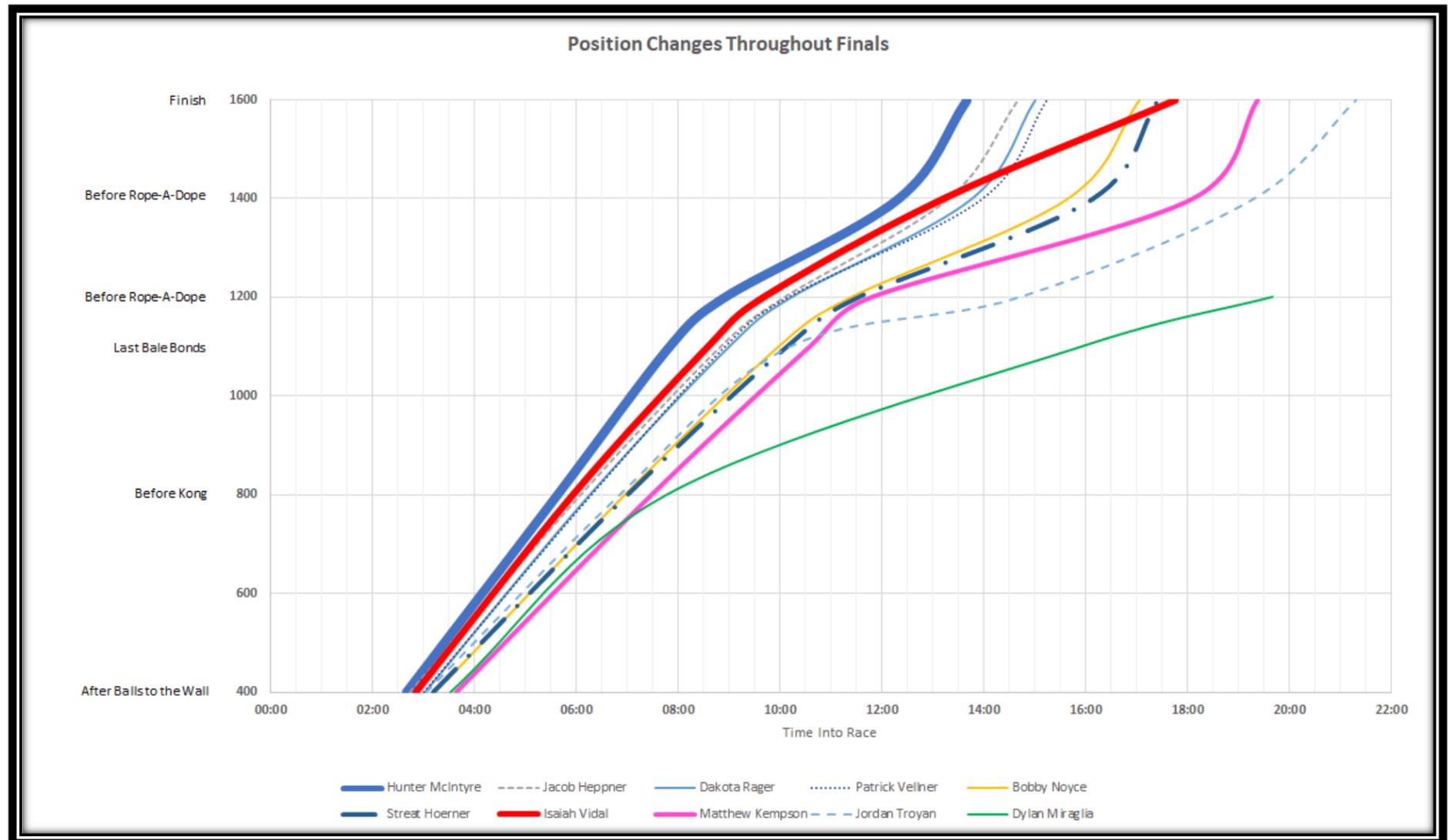
## Lead Changes Visual

Another way of looking at how positions changed throughout the race is shown in the graph below (which may look intimidating but isn't as difficult to follow as you think).

- X-axis – how long it takes someone (minutes) to reach each checkpoint
- Y-axis – distance into the race/checkpoint (meters).
- Whenever lines are very close to each other across multiple checkpoints, that suggest that those athletes were battling neck-and-neck for a while (e.g., Dakota Rager and Patrick Vellner).
- Whenever a line crosses the top, that means that athlete has finished the race.
  - The further to the left, the better you placed (e.g., closer to 1st)
  - The further to the right, the worse you placed (e.g., closer to 10th)

Here are some examples of how to interpret this graph:

- If you look at the thick blue line furthest to the left, you can see that Hunter McIntyre was the first to reach every station, as there are no overlaps with any of his lines. He led wire-to-wire.
- Isaiah Vidal, the thick red line, was in 2nd place until Rope-A-Dope before needing 3 attempts to complete the zone. He ended up getting passed by 5 people and finished in 7th place. Hence, Isaiah's line is the 7th closest to the left line to reach the top.
- Dylan Miraglia, shown in the green line, was in the sandbag zone when time ran out, so that's why his line doesn't reach the top (since he did not finish).



## Comparison of Splits per Round by Competitor

How did each athlete who made it to the finals do each round?

- Only one person finished outside the top-10 overall in any of the 3 rounds, and that was Bobby Noyce in 11th during round 1. Everyone who made the finals deserved to be there based on results from their previous 2 rounds.
- As you can see, Hunter McIntyre was always one of the fastest through each zone in all 3 rounds, as shown by his dark blue cell on the "Average" row. The man had no weaknesses this competition.
- Jacob Heppner was among the best at both workout zones and average during the long running portions. Who am I to tell Jacob how to train differently, but if he wants to close the gap and truly stand a chance of beating Hunter at TMX, the only way that will happen is if he becomes a better runner. Returning to the CrossFit Games is clearly his focus, so I'd be curious to see if he adds more running to his training for TMX.
- Surprisingly, Patrick Vellner only performed average (relative to the rest of the top-10 finishers) during both workout zones, but he was above average in the 3 longest run sections. The stereotype that CrossFit athletes can't run clearly doesn't apply to Patrick.

Rank	Round	Name	400m (After BTW)*	800m (Before Kong)*	1100m (Last Bale Bonds)	1200m (After Leap of Faith)	1400m (Before Rope Climb)*	1600m (Finish Line)
1	Finals	Hunter McIntyre	02:40.4	02:58.2	02:12.2	01:04.55	03:25.6	01:20.53
1	Semi-Finals		02:49.5	02:32.1	02:18.55	01:04.4	02:11.58	01:12.5
1	Qualifiers		03:05.4	02:32.57	02:16.6	01:06.0	02:23.0	01:19.53
-	Average		02:51.24	02:41.0	02:15.41	01:05.0	02:40.1	01:17.37
2	Finals	Jacob Heppner	02:44.1	03:21.3	02:45.5	01:14.52	03:13.59	01:22.6
2	Semi-Finals		02:58.3	02:55.4	02:33.57	01:06.59	02:05.0	01:12.4
8	Qualifiers		03:01.6	03:04.3	03:08.55	01:16.0	02:27.58	01:22.0
-	Average		02:54.23	03:06.43	02:49.19	01:12.37	02:35.39	01:18.43
3	Finals	Dakota Rager	03:02.6	03:13.55	02:44.5	01:13.1	03:32.54	01:15.0
7	Semi-Finals		03:08.6	03:00.2	02:44.55	01:14.59	02:12.3	01:20.56
3	Qualifiers		03:27.6	03:00.58	02:37.4	01:11.54	02:12.1	01:18.4
-	Average		03:12.26	03:04.58	02:42.1	01:13.18	02:38.59	01:18.0
4	Finals	Patrick Vellner	03:01.7	03:16.54	02:37.5	01:13.57	03:49.0	01:16.0
4	Semi-Finals		03:08.9	02:57.0	02:31.59	01:13.58	02:05.1	01:13.57
4	Qualifiers		03:21.7	02:47.53	02:31.5	01:18.59	02:30.2	01:24.3
-	Average		03:10.8	03:00.36	02:33.23	01:15.38	02:48.1	01:18.0
5	Finals	Bobby Noyce	03:14.3	03:43.3	03:00.59	01:24.59	04:16.3	01:24.53
8	Semi-Finals		03:17.2	02:55.6	02:47.54	01:23.6	02:27.53	01:15.3
11	Qualifiers		03:13.9	03:02.0	03:04.55	01:26.3	02:52.54	01:21.8
-	Average		03:14.45	03:13.23	02:57.56	01:24.43	03:12.17	01:20.21
6	Finals	Streat Hoerner	03:11.6	03:48.58	03:08.1	01:23.55	04:37.2	01:17.3
9	Semi-Finals		03:11.3	03:16.59	02:52.2	01:19.59	02:26.2	01:11.58
9	Qualifiers		03:07.8	03:13.59	02:56.58	01:25.3	02:25.59	01:18.1
-	Average		03:09.46	03:26.39	02:59.0	01:22.59	03:09.41	01:15.41
7	Finals	Isaiah Vidal	02:51.6	03:04.56	02:38.58	01:05.6	03:32.2	04:33.56
3	Semi-Finals		02:58.4	02:44.0	02:45.59	01:08.58	02:08.7	01:22.58
5	Qualifiers		03:23.4	02:50.56	02:39.5	01:21.59	02:16.5	01:26.59
-	Average		03:04.5	02:53.17	02:41.21	01:12.1	02:38.45	02:27.58
8	Finals	Matthew Kempson	03:39.8	03:49.55	03:06.6	01:11.58	06:18.58	01:16.57
5	Semi-Finals		03:07.4	02:35.1	02:36.3	01:08.57	02:34.58	01:19.2
7	Qualifiers		03:16.8	02:48.1	02:44.52	01:10.7	02:41.57	01:22.1
-	Average		03:20.47	03:04.19	02:49.0	01:10.21	03:51.58	01:19.20
9	Finals	Jordan Troyan	03:03.8	03:48.0	03:19.57	04:30.3	04:37.1	02:00.54
6	Semi-Finals		03:07.8	03:13.55	02:41.5	01:21.56	02:02.0	01:13.56
6	Qualifiers		03:09.2	03:02.5	02:39.2	01:25.58	02:19.53	01:24.5
-	Average		03:06.26	03:21.20	02:53.21	02:25.59	02:59.38	01:32.58
10	Finals	Dylan Miraglia	03:32.1	04:15.3	08:08.59	03:43.58	---	00:00.0
10	Semi-Finals		03:05.4	03:09.4	02:55.1	01:21.53	02:20.3	01:27.2
10	Qualifiers		02:59.8	03:03.0	03:01.1	01:21.51	02:45.6	01:36.55
-	Average		03:12.4	03:29.2	04:41.40	02:09.14	02:32.34	01:01.19

\* Finals featured modification of a workout station within this zone vs. format during semi-finals and qualifying rounds

## Fastest Splits

You'll see where everyone made up ground or faded for each zone:

- The gap between the top-5 vs. bottom-5 in each zone was more apparent during the finals than in either of the two previous rounds. The splits indicated that you either struggled or did very well during a zone, with little in between.
- Tough Mudder changed the first workout zone by switching from 50-lb DB hang clean + jerks to 70-lb one-arm DB snatches. This 20-lb increase surprisingly resulted in 8/10 finalists getting through this first workout zone faster than both of their splits during the first 2 rounds. Increased adrenaline during the finals with cash on the line may have led to everyone powering through zone 1 faster than expected, but it appears that DB snatches are a faster movement despite a larger range of motion vs. DB clean + jerks.
- Every athlete ran their slowest split of the day by at least 13 seconds from 400m-800m during the finals, but those figures are significantly affected by the added 15 KB deadlifts halfway through the farmer's walk zone.
- Hunter McIntyre and Isaiah Vidal were the only two to run their fastest split of the day during the long running section from 800m-1100m during the finals.
- Jacob Heppner's best split during the 3 zones prior to the sandbag zone was 5th fastest, but he was nearly 12 seconds faster than anyone else with the sandbags. His dominance in this zone helped Jacob get into a virtual tie with Isaiah as they both approached the last rope climb.
- Despite looking like he was struggling more than everyone else on TV, Isaiah Vidal actually had the 3rd fastest split in the sandbag zone during the finals. However, Jacob Heppner closing in on him may have caused Isaiah to redline slightly too early before the rope climb. Had he taken a few extra seconds to lower his heart rate, Isaiah may have been able to find just enough strength for one more pull up the rope climb. Isaiah's hands were also extremely torn at this point, so that also added to his difficulty on the rope climb.
- Patrick Vellner was the best CrossFit runner during each of the three run-heavy zones (2, 3, and 6). He had either the fastest or 2nd fastest split out of all CrossFitters from 400m-800m, 800m-1100m, and 1400m-finish during all 3 rounds, too.
- After averaging results from all 3 rounds, the top-3 fastest athletes during the sandbag zone (in order) were Jacob Heppner, Isaiah Vidal, and Dakota Rager.

Rank	400m (After BTTW)	Slower	800m (Before Kong)	Slower	1100m (Last Bale Bonds)	Slower	1200m (After Leap of Faith)	Slower	1400m (Before Rope Climb)	Slower	1600m (Finish Line)	Slower
1	Hunter McIntyre	02:40.4	Hunter McIntyre	02:58.2	Hunter McIntyre	02:12.2	Hunter McIntyre	01:04.55	Jacob Heppner	03:13.59	Dakota Rager	01:15.0
2	Jacob Heppner	00:03.57	Isaiah Vidal	00:06.54	Patrick Vellner	00:25.3	Isaiah Vidal	00:00.11	Hunter McIntyre	00:11.7	Patrick Vellner	00:01.0
3	Isaiah Vidal	00:11.2	Dakota Rager	00:15.53	Isaiah Vidal	00:26.56	Matthew Kempson	00:07.3	Isaiah Vidal	00:18.3	Matthew Kempson	00:01.57
4	Patrick Vellner	00:21.3	Patrick Vellner	00:18.52	Dakota Rager	00:32.3	Dakota Rager	00:08.6	Dakota Rager	00:18.55	Streat Hoerner	00:02.3
5	Dakota Rager	00:22.2	Jacob Heppner	00:23.1	Jacob Heppner	00:33.3	Patrick Vellner	00:09.2	Patrick Vellner	00:35.1	Hunter McIntyre	00:05.53
6	Jordan Troyan	00:23.4	Bobby Noyce	00:45.1	Bobby Noyce	00:48.57	Jacob Heppner	00:09.57	Bobby Noyce	01:02.4	Jacob Heppner	00:07.6
7	Streat Hoerner	00:31.2	Jordan Troyan	00:49.58	Matthew Kempson	00:54.4	Streat Hoerner	00:19.0	Jordan Troyan	01:23.2	Bobby Noyce	00:09.53
8	Bobby Noyce	00:33.59	Streat Hoerner	00:50.56	Streat Hoerner	00:55.59	Bobby Noyce	00:20.4	Streat Hoerner	01:23.3	Jordan Troyan	00:45.54
9	Dylan Miraglia	00:51.57	Matthew Kempson	00:51.53	Jordan Troyan	01:07.55	Dylan Miraglia	02:39.3	Matthew Kempson	03:04.59	Isaiah Vidal	03:18.56
10	Matthew Kempson	00:59.4	Dylan Miraglia	01:17.1	Dylan Miraglia	05:56.57	Jordan Troyan	03:25.8				

### Completion Time vs. Fastest Split Per Zone

Here's how to interpret this chart:

- 1.00 – this person had the fastest split in this zone
- Every number above 1.00 is how much extra time it took someone to complete that zone compared to the fastest split
- For instance, Hunter McIntyre had the fastest split in the “800m” column since his value is 1.00. Jacob Heppner, 2nd fastest qualifier, has a 1.13 value, meaning it took him 1.13 times longer (or 13% longer) to complete Zone 2 than Hunter.
- If your value is 2.00, it took you twice as long to complete a zone as the fastest person that round.
- Blue = fast, red = slow

Some observations from the final round data:

- Hunter McIntyre had the fastest overall split during each of the first 4 stations and the 2nd fastest split during the sandbag zone. His worst split came during his jog to the finish line, but that was only 5.5 seconds slower than the fastest during that zone. Hunter dominated a field full of some of the fittest people on the planet from start to finish...and it wasn't even close.
- CrossFit athletes claimed 5 of the top-6 spots during the finals, suggesting that strength endurance was more important than speed endurance during the TMX Championship.
- Many of the dark red cells are the result of hand injuries sustained during the earlier rounds, with blisters making it extremely tough during the finals for some athletes to complete obstacles like Kong or hang on the bar for pull-ups.
- Of the 10 people who qualified for the finals, 6 were CrossFit athletes and 4 were OCR athletes. Note: I'm counting Hunter and Isaiah as OCR athletes, although they are both transitioning more towards CrossFit at this stage in their career.

Rank	Bib	Last	First	Cat.	Wave	400m (After BTTW)	800m (Before Kong)	1100m (Last Bale Bonds)	1200m (After Leap of Faith)	1400m (Before Rope Climb)	1600m (Finish Line)	Sport
1	261	McIntyre	Hunter	M	F1	1.00	1.00	1.00	1.00	1.06	1.08	OCR
2	262	Heppner	Jacob	M	F2	1.02	1.13	1.25	1.15	1.00	1.09	CrossFit
3	267	Rager	Dakota	M	F3	1.14	1.09	1.24	1.12	1.10	1.00	CrossFit
4	264	Vellner	Patrick	M	F4	1.13	1.11	1.19	1.14	1.18	1.01	CrossFit
5	268	Noyce	Bobby	M	F5	1.21	1.25	1.37	1.31	1.32	1.13	CrossFit
6	269	Hoerner	Streat	M	F6	1.19	1.29	1.42	1.29	1.43	1.03	CrossFit
7	263	Vidal	Isaiah	M	F7	1.07	1.04	1.20	1.00	1.09	3.65	OCR
8	265	Kempson	Matthew	M	F8	1.37	1.29	1.41	1.11	1.95	1.03	OCR
9	266	Troyan	Jordan	M	F9	1.14	1.28	1.51	4.16	1.43	1.61	CrossFit
10	270	Miraglia	Dylan	M	F10	1.32	1.43	3.70	3.45			OCR

### OCR vs. CrossFit

Qualifying rounds stats are combined with semi-finals stats to see how well OCR athletes did compared to CrossFit athletes in each zone during all 3 rounds:

AVG SPLIT -- ALL						
Sport	400m (After BTTW)	800m (Before Kong)	1100m (Last Bale Bonds)	1200m (After Leap of Faith)	1400m (Before Rope Climb)	1600m (Finish Line)
Finals						
OCR	03:10.35	03:31.59	02:39.2	01:46.29	04:25.22	02:23.55
CrossFit	03:02.35	03:31.59	02:55.52	01:50.8	04:01.0	01:25.59
Semis						
OCR	03:13.58	03:11.7	02:41.0	01:12.52	02:41.44	01:22.23
CrossFit	03:21.11	03:14.50	03:01.3	01:29.5	02:41.44	01:21.49
Qualifiers						
OCR	03:39.7	03:17.36	03:12.8	01:21.58	03:51.59	01:34.59
CrossFit	03:34.57	03:39.36	03:45.26	01:46.21	03:20.54	01:26.33
COMPLETION TIME vs. FASTEST SPLIT PER ZONE -- ALL						
Sport	400m (After BTTW)	800m (Before Kong)	1100m (Last Bale Bonds)	1200m (After Leap of Faith)	1400m (Before Rope Climb)	1600m (Finish Line)
Finals						
OCR	1.04	1.00	1.00	1.00	1.10	1.67
CrossFit	1.00	1.00	1.11	1.03	1.00	1.00
Semis						
OCR	1.00	1.00	1.00	1.00	1.00	1.01
CrossFit	1.04	1.02	1.12	1.22	1.00	1.00
Qualifiers						
OCR	1.02	1.00	1.00	1.00	1.15	1.10
CrossFit	1.00	1.11	1.17	1.30	1.00	1.00

- CrossFit athletes completed the 2 workout zones faster (on average) than OCR athletes, while OCR athletes completed the 3 sections involving lots of running faster than CrossFit athletes every round. You'd think that OCR athletes would have performed better as a whole then since 3 > 2. At the end of the day, however, CrossFit athletes finished in 5 of the top-6 spots during the finals. Bottom line: strength endurance was more of a factor for success than speed endurance.
- OCR athletes and CrossFit athletes had the same exact average split from 400m-800m during the finals.
- CrossFit athletes completed the sandbag zone 24.2 seconds faster than OCR athletes during the finals.

## Checkpoints

Here's another visual of the data and where people ranked throughout the race. The further to the right that a cell is blue, the more likely that they would finish in the top half of the 10 finalists. Similarly, the further to the right that a cell is red, the more likely that they would finish in the bottom-5 of the 10 finalists.

- For example, Isaiah Vidal is blue for most of the race until the last zone, meaning he was on track to finish on the podium until his struggle on Rope-A-Dope.
- Bobby Noyce and Streat Hoerner benefited from Isaiah's slip-up, as they went from darker red to a neutral color during the last zone, launching them to 5th and 6th place finishes, respectively.

Rank	Bib	Last	First	Cat.	Wave	400m (After BTTW)	800m (Before Kong)	1100m (Last Bale Bonds)	1200m (After Leap of Faith)	1400m (Before Rope Climb)	1600m (Finish Line)
1	261	McIntyre	Hunter	M	F1	02:40.4	05:38.6	07:50.8	08:55.3	12:20.9	13:41.2
2	262	Heppner	Jacob	M	F2	02:44.1	06:05.4	08:50.9	10:05.1	13:19.0	14:41.6
3	267	Rager	Dakota	M	F3	03:02.6	06:16.1	09:00.6	10:13.7	13:46.1	15:01.1
4	264	Vellner	Patrick	M	F4	03:01.7	06:18.1	08:55.6	10:09.3	13:58.3	15:14.3
5	268	Noyce	Bobby	M	F5	03:14.3	06:57.6	09:58.5	11:23.4	15:39.7	17:04.0
6	269	Hoerner	Streat	M	F6	03:11.6	07:00.4	10:08.5	11:32.0	16:09.2	17:26.5
7	263	Vidal	Isaiah	M	F7	02:51.6	05:56.2	08:35.0	09:40.6	13:12.8	17:46.4
8	265	Kempson	Matthew	M	F8	03:39.8	07:29.3	10:35.9	11:47.7	18:06.5	19:23.2
9	266	Troyan	Jordan	M	F9	03:03.8	06:51.8	10:11.5	14:41.8	19:18.9	21:19.3
10	270	Miraglia	Dylan	M	F10	03:32.1	07:47.4	15:56.3	19:40.1	-	--

## Splits Between Timing Mats

This is essentially the same thing as the table in the "Checkpoints" section above, except that it lists split times (rather than finishing time) in order of overall finishing place in the qualifying rounds.

- Patrick and Dakota had a split difference of less than 3 seconds for 4/6 zones during the finals, meaning they were basically side-by-side for most of the race. Dakota Rager's split during the sandbag zone was 17 seconds faster than Patrick Vellner's, though, which made the difference in Dakota ending up on the podium, just 13 seconds ahead of Patrick.
- Even with 10 added shoulder-overs and it being his 3rd race of the day, Jacob Heppner's split during the sandbag zone of the finals was faster than 28/44 racers during round 1. Jacob was so effortless that it looked like he was lifting a pillow, not 95+ lbs of sand.

Rank	Bib	Last	First	Cat.	Wave	400m (After BTTW)	800m (Before Kong)	1100m (Last Bale Bonds)	1200m (After Leap of Faith)	1400m (Before Rope Climb)	1600m (Finish Line)	Sport
1	261	McIntyre	Hunter	M	F1	02:40.4	02:58.2	02:12.2	01:04.55	03:25.6	01:20.53	OCR
2	262	Heppner	Jacob	M	F2	02:44.1	03:21.3	02:45.5	01:14.52	03:13.59	01:22.6	CrossFit
3	267	Rager	Dakota	M	F3	03:02.6	03:13.55	02:44.5	01:13.1	03:32.54	01:15.0	CrossFit
4	264	Vellner	Patrick	M	F4	03:01.7	03:16.54	02:37.5	01:13.57	03:49.0	01:16.0	CrossFit
5	268	Noyce	Bobby	M	F5	03:14.3	03:43.3	03:00.59	01:24.59	04:16.3	01:24.53	CrossFit
6	269	Hoerner	Streat	M	F6	03:11.6	03:48.58	03:08.1	01:23.55	04:37.2	01:17.3	CrossFit
7	263	Vidal	Isaiah	M	F7	02:51.6	03:04.56	02:38.58	01:05.6	03:32.2	04:33.56	OCR
8	265	Kempson	Matthew	M	F8	03:39.8	03:49.55	03:06.6	01:11.58	06:18.58	01:16.57	OCR
9	266	Troyan	Jordan	M	F9	03:03.8	03:48.0	03:19.57	04:30.3	04:37.1	02:00.54	CrossFit
10	270	Miraglia	Dylan	M	F10	03:32.1	04:15.3	08:08.59	03:43.58	---	---	OCR

## CONCLUSION

Hopefully this data gives you a better perspective on how racers performed in each of the various zones throughout the qualifying rounds since it would have been impossible to realize all of this info watching on TV or even as a spectator at the event. After looking through the data, here are some of my takeaways:

- All 10 finalists deserved to be there. Only one person finished outside the top-10 overall in any of the 3 rounds, and that was Bobby Noyce in 11th during round 1. The 10 most prepared athletes who showed up to Virginia ended up making the finals, period.
- Three racers finished in the same exact order during all 3 rounds:
  - Hunter McIntyre – 1st
  - Patrick Vellner – 4th
  - Dylan Miraglia – 10th
- You can make a very valid argument that Hunter McIntyre is the fittest person on the planet if running ability was appreciated more than simply lifting heavy weights. The overall depth of top-level athletes competing at the 2018 TMX Championship was far superior than the 2017 field, and Hunter was just as dominant in his second victory. He had the fastest split in 4/6 zones during both the semi-finals *and* finals against increasingly more difficult competition as slower racers were eliminated.
- Even though Hunter got the win, CrossFit athletes performed better than OCR athletes. To be honest, Hunter and Isaiah had been training more like CrossFit athletes than true OCR athletes heading into TMX, and their years of running background was what helped them even the field against the best CrossFit athletes who showed up. That means essentially the top-7 overall were all CrossFit athletes. True OCR athletes thinking of making the switch to TMX next year better start spending some serious time in the weight room. There's a huge difference between "OCR strong" and "CrossFit strong."

*Note: Thank you Tough Mudder HQ for providing the split data so I could nerd-out on race results and help athletes tweak their training for the 2019 TMX season. Also, if you liked this data analysis, give some feedback (good or bad) so the next data analysis article will be even better. It's always nice knowing it was worth the time providing content like this, too.*