WINTER TEST SERIES 2013 WRITE UP.

An insight into the testing events, the results & what they mean for your training going forward.

To perform well in a sport, you need to know three things:
1. The requirements of the sport (the 'to be' state)
2. Where you sit right now in terms of those requirements (the 'as is' state); and
3. What you need to do to improve.

The sport of fitness presents an interesting conundrum in that there is not yet a solid, established definition for what the requirements actually are. The exact requirements of the sport change slightly from year to year, as the events change from year to year. So for folks looking to build and improve performance, year on year, the question becomes "how do you train for and continue to progress in a sport with no guaranteed markers for performance? What do you base your training on? You cannot guarantee performance gains year on year by simply doing more of everything, and hoping something pops up in competition season that is in your favour. Especially as training age increases, the need to train more strategically become increasingly imperative**.**

These are questions we've been considering for well over 5 years now, and after observation, clinical experience, and data collection, we have developed a perspective on the markers and testing we believe to produce solid indicators the "as is" state of a person in fitness.

The Winter Test Series events reflect our *current* understanding and perspectives of the requirements for the sport of fitness, mixed in with our view on what represents *balanced fitness.* A body (and mind) structurally sound, strong and able to explode with INTENT, and *move & breathe* efficiently.

We will continue to consider the questions of "what is fitness?" and "what does performance in the sport dedicated to fitness mean?" as we iteratively refine (progressively, without randomisation) our testing events each year to reflect our upgrading perspective.

EVENT DESIGN

The Winter Test Series is timed to fall at the beginning of the 'off season' for CrossFit. For those of you involved in the sport, this enables you to test where you are at in terms of requirements for performance, and apply the results and insights from the WTS to design your training going forward.

Our testing design is based on a detailed framework around our perspectives on competition---day testing and our knowledge around balanced fitness. This framework helps to remove biases that may influence the tests and provides a foundation upon which to upgrade our events from year to year.

Each year we run the B32 Winter Test Series we upgrade the test events to reflect our current understanding of the requirements for both balanced fitness and for performance in the sport of CrossFit.

Our framework and the testers built around it continually evolve to include what we discover via data collection from events like this one, experience with program design, and clinical observations across the wide ranges of folks we work with.

The B32 Winter Test Series allows us to not only collect data on these tests in order to upgrade them, but also provides the community around us the opportunity to assess where your fitness is at.

THE TESTS.

EVENT 1: Short-end, 3 phase

Phase 1: Power Snatch, 1RM in 8min

Phase 2: Reverse OH ball toss for max distance. 3 attempts (12/9kg)

Phase 3: 6RFT: Sprint 50m (shuttle)

THE SHORT END: CREATINE PHOSPHATE (CP) + ANAEROBIC ALACTIC (AAL)

This three phase test looks at strength. Specifically, it assesses speed-strength and whether an athlete tends towards being strong or fast within their short end energy systems.

Phase 1

The power snatch gives us fantastic insight into athletic development as it encompasses tremendous integration of strength, power, speed and athleticism.

The removal of a compulsory squat helps take away some limiters, keeping the test in-line with what we actually want to test: power and speed-strength. If the squat was included we may see more technical issues influencing the result, causing an inaccurate reflection of an athletes capacity in the CP system (in the context of our testing.)

So why a technical lift like a snatch at all if technical factors can negate the validity of the test? We believe that mastery is a part of fitness, given that we see fitness as a journey toward mastery of sorts. Add to that the ability to use a Sinclair coefficient to compare athletes more fairly, rather than just seeing the heavier athlete win due to greater mass.

How to interpret the results from Phase 1:
What is the athlete's 1RM high bar back squat?
What is the athlete's power snatch 1RM?
We would like to see 51% X 1RM HBBSQ = Power Snatch

Eg: .51 x 170kg (BSq 1RM) = 88.7kg (PSn 1RM)

If your snatch is proportionately low, your power is below where it should be and you are stronger than you are fast and/or better at hip flexion athletic movements compared to hip extension athletic movements. If your power snatch is proportionately higher then you're faster than you are strong and/or better at hip extension vs hip flexion. This information gives us some direction with how you should train your CP system to become more balanced athletically.

Phase 2

Throwing is a primal movement. Primal movements like running, jumping and throwing are valid ways to test capacity as it begins to remove ambiguities of movement and creates greater potential to induce the desired stimulus of the energy systems being tested.

The reverse OH toss is compared against the speed-strength of the power snatch to give us extra information about an athlete. Both movements have a huge speed component, however, they both provide differing information on athlete physiology. The combination of this information helps us more accurately assess the nature of an athlete and what they need for improvements in performance. For example, an athlete may be innately fast - demonstrated by a fast turnover and distance covered in the toss, but lack the strength-speed to illicit power in the snatch.

How to interpret the results for Phase 1 and 2 combined:
We would like to see 15% x Power snatch = Reverse OH ball toss distance in meters

Eg: .15 x 85kg (Sn) = 12.75m (OH toss)
If your ball toss distance is proportionately low compared to your power snatch then you are likely to be more strong with speed than you are innately speed responsive/fast. If your ball toss distance is proportionately above your power snatch, then you're likely to be more innately speed responsive/fast than you are strong with speed.

Phase 3

Sprinting is a great way to elicit a response within the Anaerobic Lactic (AAL) energy system. Why? It forces you to dig deep and apply effort to create high turnover (leg speed/power). It's a simple test, and this is what makes it so potent. The acceleration phases at the start of each 50m shuttle means an athlete also has to show their ability to dig into power to keep turnover high.

Compare the response one gets from a 30sec sprint to thruster reps for the same duration, or box jumps for the same duration and you can begin to see the difference in what we call cycle time. The box jump or thruster just doesn't allow a fast enough turnover (or cycle time) for most folks to hit their AAL pathway. Sprinting will almost always have a faster cycle/turnover rate compared to most other movements, which is the key to eliciting power in the lactate pathway.

The benefit of having good lactate capacity in fitness is that it gives you options in athletic endeavours, such as:
1. Ability to gig deep with the CNS - lift heavier/jump higher and sprint faster
2. Ability to surge and sprint with fitness tests and sporting events
3. A higher potential peak power platform to build anaerobic lactate endurance and aerobic power

EVENT 2: Mixed modality work capacity

10min AMRAP:

12 KB swings @ 32/20kg

12 Burpees @ Full ROM/ No push up

MIXED MODALITY WORK CAPACITY

This test gives insight into an athlete's ability to produce power within their anaerobic lactate system in a simple mixed modality scenario. This test pushes past a point where the CP system is the prime fuel substrate and begins to pick up the higher glucose states of the lactate pathway.

This test pushes athletes into the grey areas of the lactate system. Not many folks can go deep into lactate (what we call *"going there")* and use it for fuel with these types of tests if:
1. their short end power phases are too low;
2. the modalities used by the programmer don't match the ability level of the athlete; or
3. the modalities used don't elicit a high enough turnover to get athletes to *"go there"*.

We talk about *going there* all the time at B32. Digging deep into the lactate system is painful and often takes a long time to recover from.

You may notice some folks on the floor writhing in pain, with locked up legs for 30min after testers like these and others will walk away breathing hard but not needing to flop to the floor, appearing 50% recovered with 1-2min. The latter is an example of someone who hasn't *gone there* within this test. They've been predominantly aerobic during the test and not gone into their lactate system. This can be related back to the types of training folks have been doing prior to the test and how they produce speed/strength/power (as seen with the event 1.) If their overall ability to produce speed and power is lower, then their potential to *go there* within a lactate tester will vary greatly on the modalities used, skill level and organ health.

Currently, it is very rare that this amazing aspect of fitness is actually capacity tested in fitness competitions. But our biases of what fitness is and should be urge us to teach athletes the importance of the lactate system, and the ability to use lactate as a fuel source creates options during events, providing a greater suite of gears for the athlete to choose from (eg. surging and racing for home.)

Due to the muddy, ambiguous nature of using combinations of mixed modes to attempt to test the lactate system, how athletes respond to this test observationally is just as valuable information as the reps scored.

More recently, a blend of energy systems and modalities has created the term "work capacity". What is work capacity? Some would say "the ability to do work". What does that mean? Honestly I don't know. But when a whole bunch of exercises (cyclical, self loaded and externally loaded) get thrown together, a whole lot of stuff happens physiologically.

Blends of energy systems and skill sets that require an athlete to react to a situation create scenarios that test an athlete's ability to do the work that's placed before them. What does this test? Numerous things (this is a whole book in and of itself, discussing and delving into the unknown aspects of human physiology in fitness for which there are currently no definitions or descriptions.)

This idea of blending energy systems and modes is relatively new territory for fitness testing and with that comes uncertainty of what we are actually testing in each athlete during events like this one. This creates a flimsy, non-scientific (as yet) means for comparing athletes fairly, as each person has a different part of their physiology tested. The magic then, lies in observing what an individual goes through during the event and discovering what their limiters are.

We devised this 10min test to see if folks can discover what their limiters are within it. This requires some awareness of the situations the athlete is faced with during the test, so the briefing of some possibilities prior to the test was where that magic lay. Some limiters can include:

- Lack of ability to breathe while moving an external object
- Inability to string skill sets together under cardiovascular, neuromuscular and localised muscular duress
- Unable to endure the 10min at the pace chosen
- Emotional and metaphysical realisations that create mental limiters.

What's interesting about these somewhat unknown tests is that they create separators. Athletes that have innate or trained attributes that reduce their limiters result in more 'work' done.

What's even more interesting is that everyone has a different experience within a test like this. It's all well and good to find separators, but with no definition of fitness, work capacity and no standard experience across athletes, it can by no means be taken as a conclusive result of who is fitter or who truly achieves the most work capacity.

Running is primal. It's humbling and a real way to test ones sustainability within aerobic endurance and efficient power.

EVENT 3: Sustainability

Run, “The Wombat Trail”

SUSTAINABILITY

A definition of aerobic capacity in fitness is: sustainably hard and cyclical. Movements selected, time duration and a reduction of potential limiters are needed to begin designing the testing of this system.

It is our view that a good fitness test requires running. It is a primal skill that can elicit the right dose response across various energy systems (i.e. can be used for short end, lactate and longer end energy system testing.)When it comes to utilisation of the aerobic pathways, running is near spot on.

The idea with testing the aerobic system is to keep it simple. More movements or more weight reduce the potential to see and assess fitness in the aerobic system by creating limiters.

Compare the stimulus of running with something like deadlifting, (even if it’s light and relatively cyclical) and you can begin to see the differences. If you were to attempt to create an aerobic setting for deadlifting, eventual postural fatigue would set in creating a limiter and the athlete would need to stop-start the movement, reducing the essential cyclical nature of the test.

We chose running for its sheer simplicity and its ability to humble the athlete, creating another layer of testing around mental and emotional elements.

PROGRESSING PERFORMANCE.

PROGRAM CONSIDERATIONS

Stronger than fast

This situation calls for a theme within training design that teaches the body the skill of producing more speed and power (that is, moving faster.) For example, jumping, throwing, olympic lifting and dynamic effort lifting. This stimulus needs to build upon a foundation of absolute and relative strength of the slower, more strength based lifts like heavy/tough deadlifts, squats and presses.

While a focus on speed and power is needed, it is important to not move completely away from the foundation of strength when developing these factors. Rather, change the main priority within the training session to create more impetus on speed and power. This can be done most effectively with innate and primally-based movements like throwing and jumping layered with counter movements at heavier loads to pre-activate and liven the central nervous system in preparation for power and speed production. It's not about the glamour movements, it's about the INTENT to be fast on concentric movements or the concentric portion of a movement.

Session set up:
Done after a rest day so the body and mind is fresh and ready to absorb the session.

CP speed/athletic development for lower body bending priority:
A. Reverse OH ball toss @ 9kg 1 max effort rep every 30sec for 5min
B1. Hang power clean, 3 tough reps; rest 10sec x 5
B2. Max effort vertical jump cluster, 1.1.1.1; rest 90sec x 5
B3. Rack dip, AMRAP @ 30X0; rest 90sec x 5
C. 20 russian KB swings; rest 2min x 3

CP speed/athletic development for squatting priority:
A. Jump squat @ 25% RM, 3reps; rest 1:30 x 3
B. Speed front squat, 20X1 @ 60% RM 3reps; rest 1min x 8
C1. Pause box jump @ challenging height, 3 max effort reps; rest 10sec x 5
C2. AMRAP strict pull ups @ 3010; rest 2min x 5

Faster than strong

The theme required to improve strength is the opposite to speed and power. A training session and training week needs to be created to potentiate strength as opposed to potentiating speed and power. While speed is about the INTENT to be fast, strength has more to do with the 'grinding' of loads, a training stimulus that induces higher time under tension in both concentric contraction and eccentric contraction.

Session set up:
Done after a rest day so the body and mind is fresh and ready to absorb the session.

CP strength development for bending priority:
A. Clean grip DL @ 31X1, 3 reps; rest 4min x 5 - each set tough
B1. Back ext drop set @ 30X0, 6.6.6; rest 1:30 x 3 - drop load by 10% per 6reps
B2. Sled drag 45sec @ grinding effort; rest 1:30 x 3
C. FLR on rings with feet elevated - accumulate 180sec

CP strength development for squatting priority
A. Back squat @ 30X1, 4-5 reps; rest 5min - each set tough
B1. Glute ham raise @ 30X0, 8-10reps; rest 20sec x 3
B2. DB walking lunge @ 30X1, 20,18,16 steps; rest 2min x 3 - add load per set
D. Side bridge - accumulate 2min/side

Poor Anaerobic Alactic capacity

The anerobic alactic energy pathway builds on strength, speed and power (athletic development). Usually folks who show an inability to 'go there' in short end scenarios (as discussed above) often lack the athletic expression of the combination of all three factors.

Training themes need to accommodate both athletic development and specific energy system intervals to teach both skill and induce the stimulus of this power producing pathway.

Session set up:
Done either after a rest day or day after a strength training session.

Athletic development>>AAL power development:
A. Power snatch, 3 TNG reps/min for 7min
B. 50m run acceleration to 90% speed; walk back rest x 3
+
5 sets:
5 Burpees, AFAP
Run sprint 10sec @ near all out
Rest 2-3min

Mixed modal: KBS the limiter

Breathing and moving simultaneously with an external object is challenging due to the many layers of physical expression.

CP/strength, oxygen uptake, lactate and high muscular endurance are traits heavily needed in fitness tests. The themes this creates are both skill of breathing with an external load as well as immense posterior chain capacity, grip, hip extension movement options and scapular stability.

Session set up:
Done either after a rest day or the day after a strength training session.

LB bending capacity >>AER>> musc endurance
A. Speed DL @ 21X0, 55RM, 2reps; rest 45sec x 10
B. 1-15 Burpee breathing ladder @ moderate load; rest 1-15 breaths b/t sets only
C1. Back ext @ 4014, 8reps; rest 1:30 x 3
C2. DB posterior shoulder flys on 45deg bench @ 1010, 8-10reps; rest 1:30 x 3
D. Heavy dual KB standing hold - accumulate 5min in no more than 3 sets

Mixed modal: burpees/breathing the limiter

Breathing and moving with your own bodyweight poses similar limiters as breathing with external load, however, the prone nature of a burpee can create even higher oxygen requirements, athletic expression via jumping and a unique blending of body postures of the anterior and posterior dynamic and static chains.

Session set up:

Done either after a rest day or the day after a strength training session.

LB bending capacity >>AER>> musc endurance

A. Speed bench press @ 20X1, 5reps @ 50% RM; rest 1min x 6
B. Burpee breathing ladder, 1-10-1; rest 1-10-1 breaths b/t sets
C. AMRPA ring push ups @ 2020; rest 2min x 3
+
10 sets:
Skipping 30sec @ 85% aerobic
walk 30sec @ 50%

Poor sustainability/aerobic capacity

The theme for a training session to increase your aerobic sustainability is just that: sustainability. As soon as you can't sustain effort your body will maneuver itself to use other fuel substrates that are less efficient than oxygen, and not conducive to adapting your aerobic system (muscle *and* mind) to greater sustainability. At times, boredom should set in before fatigue in these kinds of training sessions.

Session set up:

Done as last session in a given sequence. i.e after strength and lactate work.

Cyclical aerobic sustainability development:

5min dynamic hip mobility
+
Row 10min @ 60-70% aerobic
+
Rest 2min
+
Ride 10min @ 60-70% aerobic
+
Rest 2min
+
5 sets @ 80% aerobic:
1min Run
1min walk

Mixed aerobic sustainability development

Every 3min for 30min @ 70% aerobic:
Run 250m
5 Ball slams @ light loading
5 OHS @ light loading

TRAINING MULTIPLE ELEMENTS AT ONCE

If you're like most people then you would notice that you are in need of more than one elemental theme change in your training design. However, going after all elements that need changes all at once in a hope to quash your shortfalls poses a huge challenge on your system. Attempting this without any priority, order or strategic programming certainly doesn't catch all, and may in fact be deleterious to your performance and health long term.

The delicate interconnection of the art and science of programming comes into its own to align your session, week, month and year around how each element affects the other, in combination with your lifestyle, available time and other life priorities. This blend requires individualisation and a deeper understanding of how movements, loading, intensity and volume affect *your* body systems in the cauldron that is mixed modality fitness.

A simple place to start with this is a read of B32 Program design Commandments. This can give you some insight into how energy systems, stimulus and volume can be molded at each step along the way.

WHERE TO GET HELP

At B32 we have a service called Individual Program Design (IPD). IPD is intelligent training combined with nutrition and lifestyle prescriptions, customised solely for you. It's a tailored program to focus on what you need to do to develop and move forward to achieve your goals.

Using a variety of testing mechanisms to assess where your current performance, fitness and health status are, including:

- A detailed physiology assessment, functional movement screening, structural balance testing
- Specific event and capacity testing
- An integrative health consultation to assess hormonal status, gut function and fuelling requirements

These assessments enable us to determine the optimal way forward for you and design customised training and fuelling prescriptions to help you reach your goals.

For more info, drop us a line at info@b32athletics.com.au

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