High Performance Athletic Testing & Biomechanical Report

Introduction

Dear parent,

This is the report for : **Jordan Munyard** aged **18** on the date of testing **11 Nov 2018**

Thank you for taking the opportunity to have your child tested by SMASH & EDGE. The report is track & field specific with carefully selected tests designed to assess your child's athletic performance.

This report is a snap shot of your child's performance as tested on the day. It is not a complete assessment or screen and the coaches / clinicians may recommend a detailed review or clinical appointment in one or more areas if the circumstances warrant. Temperature, wind, rain & athlete condition will effect performances.

Many physical changes occur during childhood & especially puberty and addressing basic running mechanics, fundamental movements, strength, power, postural, flexibility, mobility, gait, nutritional, core strength and stability concerns is important for junior athletes.

Testing is conducted regularly throughout the year. EDGE can design & implement testing programs for schools, sporting clubs & individual athletes. When athletes get tested regularly, results are compared against previous testing.

The staff conducting the testing are all qualified & experienced coaches & clinicians assisted by parents where practical.

Many important & fundamental physical attributes and capabilities are tested in our program enabling an all around performance assessment of your child which is presented in the report below. Allowance is made for age & sex where appropriate.

ATHLETE TESTS

Basic Biometrics	**Height, arm span, height to span ratio, weight *& BMI*** *Particularly during puberty, rapid changes occur in adolescents* *BMI is a frequently used measure to assess obesity. Body type is taken into account.* *We use a long term athletic development (LTAD) model where training & load is appropriate to the age & development of the athlete*
Vertical Leg Strength & Power	**Standing double leg vertical leap & 3 step single leg running leap** *This is a good predictor of ability to accelerate* *Running leap should be higher than the double leg standing jump but can be effected by experience*
Horizontal Leg Strength & Power	**Standing horizontal jumps (hip & arm swing) & standing single leg jump from each leg** *This is a also good predictor of ability to accelerate* *Athletes should be able to jump their height in the standing long jump.* *Standing jump (using arms) should be further than the hip jump (hands on hip)*
Upper Body Strength & Power	**3kg medicine ball underarm & overarm throws** *This is a good measure of an athlete's ability to coordinate their whole body* *Overarm throw should be further than the underarm throw as the ball is accelerated over a longer distance*
Sprint Performance*	**Acceleration 0 - 20 - 30 - 60m** **Max Velocity between 30-40, 40-50 & 50-60m** (see detailed information on the testing page) *Derived results : left, right & average cadence, cadence imbalance right to left, av stride length over 10m* *These tests measure an athlete's ability to accelerate & achieve their maximum velocity (sprint fast!)* *A detailed biomechanical analysis is done using a sprint kinogram*
Clinical Screens	A variety of ankle, hip, spine & shoulder mobility, stability, balance & range of motion assessments are performed by the attending physiotherapist & podiatrist
Imbalances	In most cases an imbalance between left & right sides is normal as the body is rarely symmetrical. Some of the single sided tests, particularly the 3 step running leap are strongly side dominant & experience dependent so an imbalance is acceptable. < 5% : ideal 5-10% : normal 10-15% : may be an issue > 15% : warning & potential injury risk

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If you have any questions regarding the testing process or results please contact me directly.

* Note **:** *Timed using Fusion PT Speed Gates accurate to 0.02s*

Mike Donato

Director of Coaching SMASH / EDGE

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SMASH PERFORMANCE ACADEMY

EDGE ATHLETE TESTING

Test Date	11/11/18	Weather	Sun, warm, dry
Location	Knox Aths Track	Temp	
Frequency	Monthly	Rain	Dry
Season	Comp Oct-Dec	Wind	Crosswind

Sex	Name						Sided	Sport	Specialty
M	Jordan	Munyard	Test Age 18	Height (cm) 181	Weight (kg) 63.2	Hand Right	Primary Athletics	Sprints
			DoB 19/03/00	Span (cm) 188	BMI 19.3	Foot RIght	Secondary	
				H/S Ratio 96%				

Horizontal Jumps

Hip Jump	SLJ	Hip vs SLJ	Height vs SLJ	Hop Left	Hop Right	L vs R	Better Foot
236	292	124%	161%	232	215	108%	Left

Comments Horizontal Jumps

Excellent results
SLJ > hip jump : good, SLJ > height : good
L vs R < 10% : good

Vertical Jumps

Vert Leap	3 Step Single Leg Leap L	3 Step Single Leg Leap R	Peak Power (Watts)	L vs R	Better Foot
76	73	65	5421	112%	Left

Comments Vertical Jumps

Excellent results
3 step should be better than double leg jump

Medicine Ball Throws

Under	Over	Over / Under
12.0	14.5	121%

Comments Medicine Ball Throws

Very good results
Good : over > under

Sprint Acceleration

20m	30m	40m	60m		(m/s) Avg 30-60
2.878	3.890		6.930	sec	9.868

Comments Acceleration

Excellent results, but still lacking explosive acceleration

Max Velocity

Max Velocity (m/s)

30-40m	40-50m	50-60m
9.58	10.12	9.68

% from 30-40 to 40-50	% from 40-50 to 50-60
5.4%	-4.6%

(m/s) Avg 30-60: 9.794

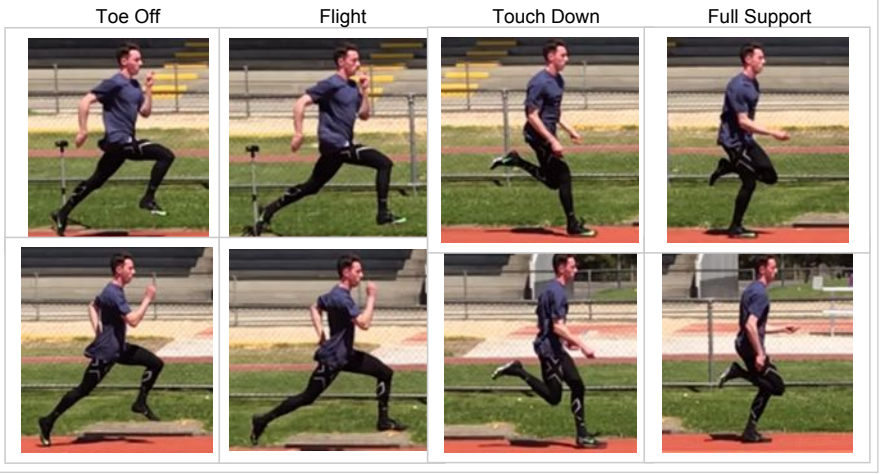
(m/s) Best Max V			100m Race Est	
10.12	@	40-50m	10.69	sec

Comments Max Velocity

Imbalance in mechanics left to right (not cadence)
Right leg slower to come through than left
Needs to improve heel recovery, currently too slow

Sprint Kinogram - Max Velocity

<<< Running R to L | Running L to R >>>



Max Velocity Analysis

Cadence (Strides / sec)

L to R	4.52
R to L	4.44
Average	4.48
Imbalance L vs R	2%

Optimal cadence is 4.5-5 per sec

Stride Length	2.26	m
Stride vs Height	125%	%
Max V @ All	10.12	m/s
"Speed Index"	1.16	derived value

(the higher above 1.0 the better)

Biomechanical Analysis

Air Gap	Good : 0-10°	*There should be no air gap between the legs at foot contact*
Arms	Excellent	*Front of body <90°, next to body > 135°, behind body ~90°, driving back straight, similar left to right*
Cadence	Good : 4.25-4.49	*Cadence should ideally be between 4.5-5 strides per second*
Foot Strike	Forefoot : Good	*First contact at touchdown should be forefoot / midfoot*
Heel Recovery	High & Behind Glute : Average	*The heel should snap under the glute by touchdown*
Knee Lift	Close to Horizontal : Good	*Ideally the knee lift should be high immediately prior to the shin driving down*
L to R Balance	Excellent : 0-5%	*The closer to and even cadence between legs the better, <10% is fine, >15% is a potentially a concern*
Overstride	Minimal : Good	*Overstriding : heel strike in front of body, torso twist, slow cadence, large airgap will reduce max velocity*
Posture	Slight Lean : Very Good	*Max V posture should be upright or with a slight forward lean allowing best vertical force production*
Torso Twist	Slight : Good	*Torso twist should be minimal reducing energy leaks / overstriding*
Shin Angle	Slight : Good	*Shin angle at foot contact should ideally be close to vertical*

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