

Program Design

Benjamin Vanderkley



By Travis Pullan



Needs Analysis Checklist

| ATHLETE INFORMATION | | |
|---|--|--|
| Name: Benjamin Vanderkly | Age: 19 | |
| Sex: Male | Height: 5'9" (175.26 cm) | |
| Sport and position: Lacrosse ; Midfield (NCAA) | Weight: 175 lbs (79 kg) | |
| SPORT EVALUATION | | |
| Physiological analysis: | Movement analysis: Active motion at the quads, hamstrings and calf muscles Muscular: Endurance / Power Cardiorespiratory: High Speed: High Power: High Agility: High Injury analysis: Risk of lower body strain from overuse | |
| ATHLETE ASSESSMENT | | |
| Training status: | Program type: Olympic Weightlifting / HIIT Program length: 2+ year training history; ~5 times per week Previous intensity: High Technique experience: High skill performance in Olympic bar movements / free weight exercises Current or past injuries: MCL sprain; released to continue any exercise / resistance training | |
| Physical testing: | | |
| | Primary training goal: Cardiorespiratory Endurance | |



Performance Tests:

#1 : 1 RM Bench Press:

STRENGTH & POWER

This test will determine Ben's maximal strength for the Bench Press movement and give him a Percentile personally and a baseline

This baseline will allow me to use %'s of his max performed to add in progressive overloads to his Resistance Training

| Bench Press Chart | | | | | | | | | | |
|-------------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Weight | Repetitions | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 45 | 47 | 48 | 50 | 51 | 53 | 54 | 56 | 57 | 59 | 60 |
| 55 | 57 | 59 | 61 | 62 | 64 | 66 | 68 | 70 | 72 | 73 |
| 65 | 67 | 69 | 72 | 74 | 76 | 78 | 80 | 82 | 85 | 87 |
| 75 | 78 | 80 | 83 | 85 | 88 | 90 | 93 | 95 | 98 | 100 |
| 85 | 88 | 91 | 94 | 96 | 99 | 102 | 105 | 108 | 111 | 113 |
| 95 | 98 | 101 | 105 | 108 | 111 | 114 | 117 | 120 | 124 | 127 |
| 105 | 109 | 112 | 116 | 119 | 123 | 126 | 130 | 133 | 137 | 140 |
| 115 | 119 | 123 | 127 | 130 | 134 | 138 | 142 | 146 | 150 | 153 |
| 125 | 129 | 133 | 138 | 142 | 146 | 150 | 154 | 158 | 163 | 167 |
| 135 | 140 | 144 | 149 | 153 | 158 | 162 | 167 | 171 | 176 | 180 |
| 145 | 150 | 155 | 160 | 164 | 169 | 174 | 179 | 184 | 189 | 193 |
| 155 | 160 | 165 | 171 | 176 | 181 | 186 | 191 | 196 | 202 | 207 |
| 165 | 171 | 176 | 182 | 187 | 193 | 198 | 204 | 209 | 215 | 220 |
| 175 | 181 | 187 | 193 | 198 | 204 | 210 | 216 | 222 | 228 | 233 |
| 185 | 191 | 197 | 204 | 210 | 216 | 222 | 228 | 234 | 241 | 247 |
| 195 | 202 | 208 | 215 | 221 | 228 | 234 | 241 | 247 | 254 | 260 |
| 205 | 212 | 219 | 226 | 232 | 239 | 246 | 253 | 260 | 267 | 273 |
| 215 | 222 | 229 | 237 | 244 | 251 | 258 | 265 | 272 | 280 | 287 |
| 225 | 233 | 240 | 248 | 255 | 263 | 270 | 278 | 285 | 293 | 300 |
| 235 | 243 | 251 | 259 | 266 | 274 | 282 | 290 | 298 | 306 | 313 |
| 245 | 253 | 261 | 270 | 278 | 286 | 294 | 302 | 310 | 319 | 327 |
| 255 | 264 | 272 | 281 | 289 | 298 | 306 | 315 | 323 | 332 | 340 |
| 265 | 274 | 283 | 292 | 300 | 309 | 318 | 327 | 336 | 345 | 353 |
| 275 | 284 | 293 | 303 | 312 | 321 | 330 | 339 | 348 | 358 | 367 |
| 285 | 295 | 304 | 314 | 323 | 333 | 342 | 352 | 361 | 371 | 380 |
| 295 | 305 | 315 | 325 | 334 | 344 | 354 | 364 | 374 | 384 | 393 |
| 305 | 315 | 325 | 336 | 346 | 356 | 366 | 376 | 386 | 397 | 407 |
| 315 | 326 | 336 | 347 | 357 | 368 | 378 | 389 | 399 | 410 | 420 |

Performance Tests (continued)



#2

Push Up Test

This test, performed 3rd in order will be testing my clients Local Muscular Endurance. This is relative to defensive possessions in late areas of the game, or at a fatigued state.

This is also a good test to squeeze between the difficult aerobic and anaerobic testing. Gives a day away from Leg intensity.

Performance Tests (continued)

TABLE 13.9 Descriptive Data for 300-Yard Shuttle Test*

| Group, sport, or position | Number of athletes | Time (s) |
|---|--------------------|------------|
| High school volleyball (women) (98) | 27 | 68.0 ± 6.3 |
| NCAA Division 1 volleyball (women) (98) | 26 | 67.7 ± 3.8 |
| National soccer (men) (107) | 18 | 56.7 ± 1.7 |
| Recreational men and women (121) | 81 | 72.8 ± 9.1 |
| National badminton (men) (120) | 12 | 73.3 ± 3.4 |

*The values listed are means ± standard deviation. The data should be regarded as only descriptive, not normative.

#3 300 Yard Shuttle:

This tests our Athlete's Anaerobic Endurance.

This is a key factor in all aspects of settled Lacrosse as in Offensive / Defensive possessions, Faceoffs and Substitution.

This will show us how fast & agile Ben is from a 25 yard distance.

- COD, Acceleration & Agility

Performance Tests (continued)

#4 1.5 Mile Run:

This will test Ben's Aerobic Fitness, measuring his oxygen uptake during the 1.5 miles as an estimate of VO₂max

VO₂max is measured in METS (Metabolic Equivalents) which measures intensity.

3.5 METS = resting rate

TABLE 13.14 Maximal Rate of Oxygen Consumption, 1.5-Mile (2.4 km) Run Time, Sit-and-Reach Test, and Body Composition: Percentile Rankings for 20- to 29-Year-Old Males

| Percentile rank | $\dot{V}O_2$ max (ml·kg ⁻¹ ·min ⁻¹) | 1.5-mile (2.4 km) run time, min:s | Sit-and-reach test* | | Body fat (%) |
|-----------------|---|--------------------------------------|---------------------|------|--------------|
| | | | in. | cm | |
| 99 | 60.5 | 8:29 | | | 4.2 |
| 90 | 54.0 | 9:34 | 22 | 55.9 | 7.9 |
| 80 | 51.1 | 10:09 | 20 | 50.8 | 10.5 |
| 70 | 47.5 | 10:59 | 19 | 48.3 | 12.6 |
| 60 | 45.6 | 11:29 | 18 | 45.7 | 14.8 |
| 50 | 43.9 | 11:58 | 17 | 43.2 | 16.6 |
| 40 | 41.7 | 12:38 | 15 | 38.1 | 18.6 |
| 30 | 39.9 | 13:15 | 14 | 35.6 | 20.7 |
| 20 | 38.0 | 14:00 | 13 | 33.0 | 23.3 |
| 10 | 34.7 | 15:30 | 11 | 27.9 | 26.6 |
| 01 | 26.5 | 20:58 | | | 33.4 |

Baselines

| 1RM Bench Press | Push Up Test | 300 Yard Shuttle | 1.5 Mile Run |
|--|---|--|--|
| 1RM = 245 lbs | Pushups in 1:00min = 52 push ups | Trial 1 @ 2:02s Trial 2 @ 1:01s | Time Finished @ 10:07 min |
| DATE REC. Nov. 23 2022 | DATE REC. Nov. 25 2022 | DATE REC. Nov. 25 2022 | DATE REC. Nov. 26 2022 |

OFF SEASON

| SUN. | MON. | TUES. | WED. | THURS. | FRI. | SAT. |
|--|--|--|---|--|---|---|
| Active Rest (stretch / light-mod. cardio) | PUSH | PULL | LOWER BODY | HIIT | UPPER BODY | LOWER BODY |
| 1 mile walk Full body stretch CARB UP | Bench (%'s) Heavy ~90% Shoulder / Chest movements | Deadlift (%'s) Heavy ~90% Upper / Lower back movements | Squat (%'s) Quad / Hamstring movements | SEE SLIDE #10 | BENCH (%'s) lower* Shoulder / Back (higher volume) | Squat (%'s) lower* Quad / Hamstring (higher volume) |
| LOAD = N/A | Bench 60-89% 6-8 reps | Deadlift 60-89% 6-8 reps | Squat 60-89% 6-8 reps | Target HR zones 60-89% HRmax Push to Fatigue | Bench 50-75% 8-12 reps | Squat 50-75% 8-12 reps |

OFF SEASON cont'd

Percentage work with COMPOUND LIFTS will be done in segments each week with incorporation of progressive overload. We want to increase these numbers over this time period and during the first week we will gather 1RM's for the other lifts being Deadlift and Squat. The OFF SEASON is perfect for maximizing intensity.

| Bench Press 245 1RM Percentage Prog. | Deadlift 385 1RM Percentage Prog. | Back Squat 335 1RM Percentage Prog. |
|--|---|--|
| Initial Warmup Set 1 @ 8 x 60% 125 lbs ; 1000lbs Set 2 @ 4 x 70% 170 lbs ; 680lbs Set 3 @ 3 x 80% 195 lbs ; 585lbs Set 4 @ 1 x 85% 205 lbs ; 205lbs | Initial Warmup @ 135 lbs Set 1 @ 8 x 60% 230 lbs ; 1840lbs Set 2 @ 4 x 70% 270 lbs ; 1080lbs Set 3 @ 3 x 80% 305 lbs ; 915lbs Set 4 @ 1 x 85% 325 lbs ; 325lbs | Initial Warmup @ 135 lbs Set 1 @ 6 x 60% 200 lbs ; 1200lbs Set 2 @ 4 x 70% 235 lbs ; 940lbs Set 3 @ 2 x 80% 270 lbs ; 540lbs Set 4 @ 1 x 85% 285 lbs ; 285lbs |

OFF SEASON cont'd

| Push Workout | Pull Workout | Lower Body Workout |
|---|---|---|
| Incline DB Press 70lbs 3 x 6-8 (2:30m rest) <i>1260-1680lbs</i> | Lat Pulldown (machine) 130lbs 4 x 6-8 (2:00m rest) <i>3120-4160lbs</i> | Leg Press 270lbs 3 x 6-8 (2:30m rest) <i>4860-6480lbs</i> |
| Standing BB Military Press 115lbs 3 x 6-8 (2:30m rest) <i>2070-2760lbs</i> | Standing DB Row 60lbs 3 x 6-8 (2:30m rest) <i>1080-1440lbs</i> | DB RDL's 80lbs 3 x 6-8 (2:30m rest) <i>1440-1920lbs</i> |
| Cable Chest Fly 40lbs 3 x 8-10 (1:30 rest) <i>960-1200lbs</i> | Pull ups BW 3 x AMRAP (1:30m rest) | Bulgarian Split Squat 45lbs 3 x 6-8 (3:00m rest) <i>810-1080lbs</i> |
| Lateral Shoulder Raise 25lbs 3 x 8-10 (1:30 rest) <i>600-750lbs</i> | Seated Row (machine) 130lbs 3 x 8-10 (1:30m rest) <i>3120-3900lbs</i> | Hamstring Curl (machine) 90lbs 3 x 8-10 (1:30m rest) <i>2160-2700lbs</i> |
| Landmine Press 95lbs 4 x 12 (1:00 rest) <i>4560lbs</i> | Cable Face-Pull 60lbs 3 x 8-10 (1:00m rest) <i>1440-1800lbs</i> | Quad Extensions 100lbs 3 x 8-10 (1:30m rest) <i>2400-3000lbs</i> |

OFF SEASON cont'd

| HIIT Workout 3 ROUNDS (5:00 rest - each round) | Upper Body Volume | Lower Body Volume Seek Intensity off RPE* |
|--|--|--|
| Medicine Ball Throw 1 x 8 / 30lbs <i>240lbs</i> | Hang Clean / Jerk 4 x 8 (3:00m rest) 115lbs <i>3680lbs</i> | BB Front Squat 4 x 8-10 (3:00m rest) 135lbs <i>4320-5400lbs</i> |
| Toe to Bar 1 x 12 / BW | Flat DB Press 4 x 8-12 (2:30m rest) 60lbs <i>1920-2880lbs</i> | Walking DB Lunge 3 x 6 each leg (2:00m rest) 40lbs <i>1440lbs</i> |
| Kettlebell Swing 1 x 12 / 35lbs <i>1260lbs</i> | Lat Pulldown (alt. machine) 4 x 10-12 (2:00m rest) 100lbs <i>4000-4800lbs</i> | BB RDL (light) 3 x 12-15 (2:00m rest) 135lbs <i>4860-6075lbs</i> |
| Jump Rope 1 x 60 singles 3rd round @ x 20 double unders | Single Arm DB ROW 4 x 10-12 (2:00m rest) 45lbs <i>1800-2160lbs</i> | DB Goblet Squat 4 x 12 (1:30m rest) 50lbs <i>2400lbs</i> |
| Stretch / Cooldown | Lateral Shoulder Raise 4 x 8-12 (2:00m rest) 20lbs <i>640-960lbs</i> | Calf Raise 3 x 12 (1:00m rest) 90lbs <i>3240lbs</i> |

OFF SEASON CONCLUSION / GOALS

This program is designed to **BUILD** muscle, **INCREASE** strength and introduce athleticism through plyometrics & HIIT Training.

There is a variety of Heavy Resistance Training, High Volume Resistance Training & Explosive / High Intensity based workouts all in one.

Goal here is to push as much muscle growth & strength adaptation as possible and really come back to the pre season a stronger athlete. The pre season program will include more aerobic training to get in proper condition to the gain.

PRE SEASON

| SUN. | MON. | TUES. | WED. | THURS. | FRI. | SAT. |
|--|---|---|--|--|--|---|
| Pass Drills Stretch & Reco. | PRACTICE Upper Body | OFF Lower Body | PRACTICE HIIT x PLYO. | OFF Upper Body | PRACTICE Lower Body | PRACTICE Stretching |
| Wall Ball Total Body Stretch Ice Bath x 8-12 min | Lacrosse x 2hrs Upper Body HEAVY | Lower Body High Vol. | Lacrosse x 2hrs CrossFit | Upper Body High Vol. | Lacrosse x 2hrs Lower Body HEAVY | Lacrosse x 2hrs 30 min Total body stretch |
| LOAD N/A | Bench @ 60-89% 1RM 6-8 rep vol. Free Weights | Deadlift light / high vol. 10-12 rep vol. rest Machine Focus | Total Body BW exercises 3 rds. AMRAP for time Target HR zone 60-89% HRmax | Push Press light / high vol. 10-12 rep vol. Rest DB focus | Back Squat 60-89% 1RM 6-8 rep vol. Free Weights | Light bike (leg bloodflow) Static Stretches |

PRE SEASON cont'd

| Upper Body HEAVY | Lower Body High Vol. | CrossFit | Upper Body High Vol. | Lower Body HEAVY | STRETCHES |
|--|---|---|--|---|---|
| Bench (warmup) 60% x 8 ; 145lbs 70% x 4-6 ; 170lbs 85% x 2-3 ; 205lbs 90% x 1-2 ; 220lbs | Deadlifts 50% x 10 ; 190lbs 60% x 8 ; 230lbs 75% x 8-12 ; 285lbs | Stretch / Warmup 3 x 3:00 min 1 min/ segment AMRAP @ 1:00m | Push Press 95lbs x 10 105 lbs x 8 135 x AMRAP Increase if easy.. | Squat (warmup) 60% x 8 ; 200lbs 70% x 4 ; 235 lbs 80% x 2 ; 270lbs 90% x 1-2 ; 300lbs | 30 seconds hold each STATIC Total 30 mins w/ breaks |
| DB Push Press 3 x 8 ; 50lbs 1200lbs | Quad Extension 4 x 8-10 ; 70lbs 2240-2800 | 10 Pushups 20 BW Squats | Lat Pull through 4 x 10-12 80lbs 3200-3840lbs | DB Goblet Squat 3 x 6-8 rep ; 70lbs 1260-1680lbs | 5 hamstring stretches |
| Single Arm DB Row 3 x 8-10 ; 60lbs 1440-1800lbs | Hamstring Curl 4 x 10 ; 90lbs 3600lbs | 60 jump rope 8 Burpee | Rear Delt fly 4 x 8-10 ; 25lbs 800-1000lbs | BB RDL 3 x 8-10 ; 135lbs 3240-4050lbs | 5 Back stretches |
| BW Dips 3 x 10-12 | Hip Adductor 4 x 10-12 70lbs 2800-3360lbs | 12 KB Swing ; 30lbs 1080lbs 10 Toe to Bar | Lateral Raises 4 x 10-12 ; 20lbs 800-960lbs | DB Lunge 3 x 8 each leg 40lbs 960lbs | 5 Quad stretches |

PRE SEASON CONCLUSION / GOALS

With this Pre Season program Ben will be getting every aspect of work required as far as:

Lacrosse Drills / Resistance Training / Anaerobic Endurance

& most importantly RECOVERY.

TOTAL VOLUME FOR % CLIMBS:

| Bench Press | Deadlift | Push Press | Back Squat |
|--|--|----------------------------------|---|
| 60% ; 1160lbs 70% ; 680-1020lbs 85% ; 410-615lbs 90% ; 220-440lbs | 50% ; 1900lbs 60% ; 1840lbs 75% ; 2280-3420lbs | Set 1 ; 950lbs Set 2 ; 840lbs | 60% ; 1600lbs 70% ; 940lbs 80% ; 540lbs 90% ; 300-600lbs |

IN SEASON

| SUN. | MON. | TUES. | WED. | THURS. | FRI. | SAT. |
|---|--|--|----------------------------|---|--|-------------|
| OFF ICE BATH 8-12 min STRETCHING | PRACTICE 2:00 hours *Plyometric Training* | PRACTICE 2:00 hours Team Lift (intense) | PRACTICE 2:00 hours | PRACTICE 2:00 hours Team Lift (light) | PRACTICE 2:00 hours (light) ICE BATH 10:00 min | GAME DAY |
| OFF ICE BATH 8-12 min STRETCHING | PRACTICE 2:00 hours *Plyometric Training* | PRACTICE 2:00 hours Team Lift (intense) | PRACTICE 2:00 hours | PRACTICE 2:00 hours Team Lift (light) | PRACTICE 2:00 hours (light) ICE BATH 10:00 min | GAME DAY |
| OFF ICE BATH 8-12 min STRETCHING | PRACTICE 2:00 hours *Plyometric Training* | PRACTICE 2:00 hours Team Lift (intense) | PRACTICE 2:00 hours | PRACTICE 2:00 hours Team Lift (light) | PRACTICE 2:00 hours (light) ICE BATH 10:00 min | GAME DAY |

IN SEASON cont'd

| PLYOMETRIC TRAINING 15s rest / exercise (3 rounds) | TEAM LIFT (INTENSE) | TEAM LIFT (LIGHT) |
|---|---|--|
| Burpees 45s | Banded Resisted Bench Press 4 x 8 EXPLOSIVE @ 95lbs <i>3040lbs</i> | Resistance Band monster walk 3 x 15 ; small green band |
| Jump Rope 45s | DB Curl to Press 3 x 15 ; 25lbs <i>1125lbs</i> | DB Push Press 3 x 8-10 ; 40lbs <i>960-1200lbs</i> |
| Box Jump to Pushup 45s | Pull ups x Band Face Pull 3 x 12 ea. ; purple band | Assisted Pull ups 3 x 8 |
| Squat Jump 45s | Flat DB Bench (pause reps) 3 x 8 EXPLOSIVE ; 65lbs <i>1560lbs</i> | DB Box Step up 3 x 5 each leg (light) ; 25lbs |
| Plank *2:00 min* 3:00 min rest before next round | GHD Curl(1) x Box Jumps(2) 3 x 12 (1) 3 x 5 (2) | Light Jog 0.5 miles ~2 laps x 400m |

IN SEASON CONCLUSION / GOALS

During the season it is heavy dedication to the time with athletics. Personal time training is nearly non existent due to Team Influenced structured activity.

The goal is to now use the off season growth and strength gains and the pre season conditioning / maintenance to put this training to its potential and perform with it during heavy practice loads and recovery prior to game times.

POST SEASON

| SUN. | MON. | TUES. | WED. | THURS. | FRI. | SAT. |
|---|---|---|--|---|---|--|
| Aerobic Cardio <i>Light - Moderate</i> Outdoor Activity | Shoulder / Trap YOGA | Back / Bicep | Full Leg Focus Light Cardio | Chest / Tricep | Outdoor Activity YOGA | Recovery |
| Track Workout Tempo work | Higher Volume 10-12 rep range RPE 7-8 | Higher Volume 10-12 rep range RPE 7-8 | Higher Volume 10-12 rep range RPE 7-8 Bike / Walk | Higher Volume 10-12 rep range RPE 7-8 | Higher Volume 10-12 rep range RPE 7-8 | Light Dynamics Cold Plunge EAT |
| 400m X 4 | Focus on bloodflow / tear & repair | Focus on bloodflow / tear & repair | Focus on bloodflow / tear & repair | Focus on bloodflow / tear & repair | Focus on bloodflow / tear & repair | Long days of rest, keep training sessions intense |

POST SEASON VOLUME / WORKOUTS

| Shoulders/Traps | Back/Biceps | Legs | Chest/Triceps | Aerobic Endurance |
|--|--|--|---|---|
| DB Military Press 3 x 10-12 ; 50lbs <i>1500-1800lbs</i> | Barbell Row 3 x 8-10 ; 135lbs <i>3240-4050lbs</i> | Back Squat 3 x 8-10 ; 185lbs <i>4440-5550lbs</i> | BB Bench Press 3 x 8-12 155 lbs <i>1320-5580lbs</i> | Track option 1 4 x 400 >7:00 min/mile |
| Side Lateral Raise 3 x 12+ ; 20lbs <i>720lbs</i> | Lat Pulldown 3 x 12 ; 100lbs <i>3600lbs</i> | Leg Press 3 x 10-12 ; 225lbs <i>6750-8100lbs</i> | Incline Press (machine) 3 x 12 145lbs <i>5220lbs</i> | Track option 2 1.5 miles (6 laps) ~8:00 min/mile |
| Seated Front Raise 3 x 8-10 ; 20lbs <i>480-600lbs</i> | Seated Row 3 x 10-12 ; 100lbs <i>3000-3600lbs</i> | Quad Extensions 3 x 10-12 70lbs <i>2100-2520lbs</i> | Landmine Press 3 x 12 90lbs <i>540lbs</i> | Outdoor Activity 1 Wall ball (lacrosse) |
| Rear Delt Fly 3 x 8-12 ; 20lbs <i>480-720lbs</i> | EZ Bar Curl 3 x 8-12 ; 40lbs <i>960-1440lbs</i> | Hamstring Curl 3 x 12 90lbs <i>3240lbs</i> | Tricep Pulldown 3 x 10-12 60lbs <i>1800-2160lbs</i> | Outdoor Activity 2 Light hike / walk ~3000 steps |
| SA Landmine Press 2 x 15 ; 45lbs <i>1080</i> | Cable Bicep Curl 3 x 12 ; 50lbs <i>1800lbs</i> | Bodyweight Squat 3 x 20-25 | Skullcrusher (bar) 3 x 12-15 60lbs <i>2160-2700lbs</i> | STRETCHES |

POST SEASON CONCLUSION / GOALS

The Post Season is destined for recovery, return to old range of motion and muscular endurance. This is a program to get Ben back into the regimen of muscle tear & repair to recondition his muscles.

Still incorporating aerobic activity behind the track workouts and giving exposure to outdoor regular activities which can include personal favor like hiking or bikes etc. This keeps the heart healthy after being in game day shape. Preparing Ben's body for the upcoming Off Season of hard work.

REFERENCES

Haff, G., & Triplett, N. T. (2016). Essentials of strength training and conditioning. Fourth edition. Champaign, IL, Human Kinetics