CHARLIE McKENNA-PARKER'S 8 WEEK HYPERTROPHY TRANSFORMATION CASE STUDY

BY

DAVE BROCKWAY

PROFILE OF CHARLIE

Name: Charlie Mckenna-Parker
Age: 25
Occupation: Builder
Height : 180.2 cm
Starting Weight : 78.9 kg
Starting Body Fat %: 8.3
Starting LBM : 72.4kg
Finish Weight : 81.1 kg
Finish Body Fat % : 1.5
Finish LBM : 79.9 kg

Charlie has trained for many years but came to me to improve his knowledge of training and nutrition to try and optimise his results. Charlie was already trying 4 to 5 times per week doing a 'Bro' Split Back and bi's, Chest & Tri's, Legs, Shoulders and Abs. He said is willing to commit 4 days per week around the 4pm mark.

Charlie had a pretty healthy diet basing most of his meals around protein and ate a good selection of fibrous and starch carbohydrates although even he agreed that he didn't consume enough fats. He did admit to eating a bit of junk food and a few beers over the weekend but was willing to commit to the program.

Charlie wants to get as big and lean in an 8 week period. Body recomposition.

"I have been going to the gym for many years 4-5 days a week, I used to read all sort of books, articles etc so I always felt I had the knowledge to succeed in the results I wanted in then gym. The past year I had got lazy, I was still eating well and training but I hadn't changed my workouts and was getting stuck in a plateau.
I went to Dave for the past 8 weeks and it's been brilliant and I was shocked myself at how well we progressed. He has taught me so much in the time I trained with him, everything I wanted to know he could tell me every detail. The programmes he did for me made me look forward to training days, I wanted to train extra days but he wouldn't let me! He looked at my diet he didn't change that much to how I eat, but made me change the timing I eat certain foods. Once we introduced to eating all my carbs around training , the impact it had was crazy! It's the little things like that is why it's worth getting Dave as a personal trainer! I would recommend him to everybody, I had always been to stubborn to get a personal trainer, but now I have trained with Dave I wish It was something I did so much earlier as there was so much to learn." - ***Charlie McKenna-Parker***

ASSESSMENT

MOVEMENT

I conducted a movement assessment at the beginning to assess where we could focus improvement. Charlie had a reoccurring **Patella Dislocation** which meant we would have to progress intensity of Squats. Maybe take advantage of tempo as a load perimeter. Plus some reworking of the squat.

Charlie also has some over extension in the phasic upper back and a tight chest. I will address this during the 8 week time frame by prioritising pull movements and looking to select exercises in the full stretch position. Also adding a session focusing on **posterior chain** which includes upper back for multiple exposure to pulling movement.

BIOSIGNATURE

I used the Biosignature system to assess lean tissue and body fat. It also gives use an idea of whats happening with the bodies endocrine system. Just to clarify that the biosignature may not give an accurate bodyfat percentage but it certainly gives us an idea of how composition is progressing.

BioSignature Assessment Comparison

Weight in kg; Height in cm

Date	Age	Height	Weight	% Body Fat	Lean Mass	SUM 10	SUM 12	Priorities	Measured in mm											
									Chin	Cheek	Pectorals	Triceps	Subscapularis	Midaxillary	Supra-illiac	Umbilical	Knee	Calves	Quadriceps	Hamstring
08/26/16	25	180.2	81.1	1.5	79.9	43.8	54.4	1) Calves 2) Umbilical 3) Quadriceps	3.2	5.2	2.4	3.2	6.4	3.6	4.4	5.8	5.8	3.8	5.6	5.0
									12	8	5	7	11	10	9	2	4	1	3	6
08/20/16	25	180.2	81.8	3.6	78.8	46.2	56.0	1) Umbilical 2) Triceps 3) Calves	3.2	6.4	2.4	4.0	6.8	3.8	4.8	6.0	5.6	3.2	5.0	4.8
									12	7	4	2	11	10	9	1	5	3	6	8
08/13/16	25	180.2	81.4	4.6	77.7	48.0	58.6	1) Calves 2) Umbilical 3) Triceps	3.6	6.8	2.6	4.0	6.4	3.8	4.8	6.4	5.6	4.0	5.4	5.2
									11	7	4	3	12	10	9	2	6	1	5	8
08/06/16	25	180.2	79.5	5.5	75.1	50.0	60.6	1) Calves 2) Umbilical 3) Triceps	4.2	6.8	2.8	4.4	6.8	3.4	5.4	6.4	5.8	4.0	5.8	4.8
									10	7	4	3	11	12	8	2	6	1	5	9
06/28/16	25	180.2	78.9	8.3	72.4	58.2	72.2	1) Calves 2) Umbilical 3) Triceps	4.8	7.6	3.2	5.2	7.6	5.0	7.0	7.2	6.0	4.6	6.8	7.2
									11	8	4	3	12	10	7	2	9	1	5	6

NUTRITION

I used the **Katch-McArdle Formula** to establish **BMR** (Please check Formula below). I use this formula because it takes advantage of lean mass. If recomposition is the goal then total mass may not change a great deal. This can be readjusted as lean body mass increases or the client gets lean or both.

Charlie only trains 4 days a week on this program but has a very active job in construction so I set his **Physical Activity Level (PAL)** at 2.0 the low end of active PAL scale. This would account **Total Daily Energy Expenditure (TDEE).**

We set calories at 10% excess of daily requirement for **muscle gain**. On non training day we set calories at baseline which accounted for Charlie's lack of appetite on non trying days. This seemed to worked optimally for recomposition

During the **weeks 1 to 4** I said just keep protein the same and just try to hit calories. I did not want to make too much of a massive change to Charlie's existing diet and as long as the strength improved I was happy. Consistency is the key to long term success. Monitor on **MyFitnessPal**. The last Phase I made charlie weigh food in the first week and then work from eye. Making sure he **hit all his numbers**.

Protein was set at 3g x LBM and that number doesn't move. This is to take advantage of the thermogenic effects of protein. Some studies have shown protein can raise metabolism 20-30% due to the energy requirement it takes to break down proteins. Mixing slow and quick releasing proteins. I also suggested to take a few protein meals in via shakes. Maybe 1 liquid then 1 solid protein sources.

Charlie is almost a pure Mesomorph and has always had a large carb tolerance. I used the system **Carb Back Loading** approach to nutritional programming. This way we can take advantage of driving **Carbohydrates** around **Peri-Workout** window when the body is most sensitive to uptake glucose into cells. Plus carbohydrate isn't as anabolic as once thought although it is A**nti-Catabolic**. Charlie trains around 4pm and most of charlie meals before training are **Protein + Fats** with maybe salad or fibrous veg as a carb source. Dividing 40% of carbs from total calories on training days and 30% on non training days. As time went on in the program charlie struggled to take in the required amount of carbs around trying and we decided to supplement with maltodextrin rather than solid foods.

Fats makes up the remaining calories. keeping a ratio **1:1 Omega 3 to 6**. Fats shouldn't be taken around the Peri-Workout nutrition as it impedes blood flow and it can slow digestion. Fats was something lacking in Charlie's diet previously but has many hormonal benefits for training like being a precursor to mTor. I've advised getting fats from not only animal but plant sources.

Peri-Workout Nutrition is the window around training. **Pre workout** we want to optimise stable blood sugars and increase **Muscle Protein Synthesis (MPS).** We then added **Essential Amino Acids (EAA)** these optimise MPS. These are 9 amino acids the body cannot synthesis from scratch. These are **Phenylalanine, Valine, Threonine, Tryptophan, Methionine, Leucine, Isoleucine, Lysine and Histidine**. About 1.5 to 2 hours before working out you should have a meal containing a Lean protein, starchy carb and some Low GI carbs. This should contain some **Essential Fatty Acids (EFA)** or some **Medium Chain Triglycerides (MCT).** About 20 mins before training 10-15g of **Branch Chain Amino Acids (BCAA)** or EAA. As Charlie is quite lean for **Post Workout Shake (PWO)** should contain a Whey Protein roughly about 0.5g per kilo of LBM and a

carbs powder like Maltodextrin about 1- 1.5kg of LBM plus sodium or electrolyte powder. **Post Workout Meal (PWM)** should be a lean protein and starch carbs plus some fibrous carbs or fruit. I'm periodising using a 4 week **Linear Periodisation** which is ideal for someone as lean as Charlie for **Mass Gain.** After the initial 4 week phase I will assess and readjust each week for increases in lean mass in a Linear fashion. In week 8 before the final pictures I will use a **Biphasic Phase** week of **Baseline calories** and a **20% caloric deficit** during non training days to taper calories back down.

BMR Katch-McArdle Formula
(21.6 x LBM) + 370 = calories

<u>WEEK 1 STATS</u>

Weight : 78.9 kg
Biosignature Body Fat % : 5.5%
Lean Body Mass (LBM) : 72.4 kg

BMR Katch-McArdle Formula
(21.6 x 72.4kg) + 370 = 1934 calories
Physical Activity Level (PAL) Training Day (Calories x 2.0= 3868) + 10% = 4255 calories
Physical Activity Level (PAL) Rest Day (Calories x 2.0= 3868) Baseline = 3868 calories
MACROS

TRAINING DAY

Physical Activity Level (PAL) Training Day (Calories x 2.0= 3868) + 10% = 4255 calories
Protein (3.0g x 72.4 kg(LBM)= 217.2g
Carbohydrates (40% 4255) ÷ 40% = 425.5g
Fats - 4255 Calories - (Protein 217.2 + Carbs 425.5 x 4 = 2571) = 1684 ÷ 9 = 187.1 g

REST DAY

Physical Activity Level (PAL) Rest Day (Calories x 2.0= 3868) Baseline = 3868
Protein (3.0g x 72.4 kg(LBM)= 217.2g
Carbohydrates (30% 3868) ÷ 30% = 290.1g
Fats - 3868 Calories - (Protein 217.2 g+ Carbs 290.1g x 4 = 2029.2) = 1838.8 ÷ 9 = 204.3 g

<u>WEEK 5 STATS</u>

Weight : 79.5 kg
Biosignature Body Fat % : 5.5%
Lean Body Mass (LBM) : 75.1 kg

BMR Katch-McArdle Formula
(21.6 x 75.1kg) + 370 = 1992 calories
Physical Activity Level (PAL) Training Day (1992 Calories x 2.0= 3984) + 10% = 4382 calories
Physical Activity Level (PAL) Rest Day (1992 Calories x 2.0= 3984) Baseline = 3984 calories

TRAINING DAY

Physical Activity Level (PAL) Training Day (Calories x 2.0= 3984) + 10% = 4382 calories
Protein (3.0g x 75.1kg(LBM)= 225.3g
Carbohydrates (40% 4382) ÷ 40% = 438.2 g
Fats - 4382 Calories - (Protein 225.3g + Carbs 438.2 x 4 = 2654) = 1674 ÷ 9 = 186 g

REST DAY

Physical Activity Level (PAL) Rest Day (Calories x 2.0= 3984) Baseline = 3984 calories
Protein (3.0g x 75.1kg(LBM)= 225.3g
Carbohydrates (30% 3984) ÷ 30% = 298.8 g
Fats - 3984 Calories - (Protein 217.2 g+ Carbs 298.8g x 4 = 2064) = 1920 ÷ 9 = 213.3g

WEEK 6 STATS

Weight : 81.4 kg
Biosignature Body Fat % : 4.6%
Lean Body Mass (LBM) : 77.7 kg

BMR Katch-McArdle Formula
(21.6 x 77.7kg) + 370 = 2048 calories
Physical Activity Level (PAL) Training Day (2048 Calories x 2.0= 4096) + 10% = 4506 calories
Physical Activity Level (PAL) Rest Day (2048 Calories x 2.0= 4096) Baseline = 4096 calories

TRAINING DAY

Physical Activity Level (PAL) Training Day (2048 Calories x 2.0= 4096) + 10% = 4506 calories
Protein (3.0g x 77.7kg(LBM)= 233.1g
Carbohydrates (40% 4506) ÷ 40% = 450.6 g
Fats - 4506 Calories - (Protein 233.1g + Carbs 450.6 x 4 = 2735) = 1771 ÷ 9 = 196.7 g

REST DAY

Physical Activity Level (PAL) Rest Day (2048 Calories x 2.0= 4096) Baseline = 4096 calories
Protein (3.0g x 77.7kg(LBM)= 233.1g
Carbohydrates (30% 4096) ÷ 30% = 307.2 g
Fats - 4096 Calories - (Protein 233.1 g+ Carbs 307.2g x 4 = 2161) = 1935 ÷ 9 = 213.3g

WEEK 7 STATS

Weight : 81.8 kg
Biosignature Body Fat % : 3.6%
Lean Body Mass (LBM) : 78.8 kg

BMR Katch-McArdle Formula
(21.6 x 78.8kg) + 370 = 2072 calories

Physical Activity Level (PAL) Training Day (2072 Calories x 2.0= 4144) + 10% = 4558 calories
Physical Activity Level (PAL) Rest Day (2072 Calories x 2.0= 4144) Baseline = 4144 calories

TRAINING DAY

Physical Activity Level (PAL) Training Day (2072 Calories x 2.0= 4144) + 10% = 4558 calories
Protein (3.0g x 78.8kg(LBM)= 233.1g
Carbohydrates (40% 4558) ÷ 40% = 455.8 g
Fats - 4506 Calories - (Protein 233.1g + Carbs 455.8 x 4 = 2756) = 1750 ÷ 9 = 194.4 g

REST DAY

Physical Activity Level (PAL) Rest Day (2072 Calories x 2.0= 4144) Baseline = 4144 calories
Protein (3.0g x 78.8kg(LBM)= 233.1g
Carbohydrates (30% 4144) ÷ 30% = 341.8 g
Fats - 4144 Calories - (Protein 233.1g + Carbs 341.8 x 4 =2300) = 1844 ÷ 9 = 204.8g

WEEK 8 STATS (LAST WEEK PHOTOSHOOT)

Weight : 81.1 kg
Biosignature Body Fat % : 1.5%
Lean Body Mass (LBM) : 79.9 kg

BMR Katch-McArdle Formula
(21.6 x 79.9kg) + 370 = 2096 calories
Physical Activity Level (PAL) Training Day (2096 Calories x 2.0= 4192) + Baseline = 4192 calories
Physical Activity Level (PAL) Rest Day (2096 Calories x 2.0= 4192) - 20% = 3354 calories

TRAINING DAY

Physical Activity Level (PAL) Training Day (2096 Calories x 2.0= 4192) + Baseline = 4192 calories
Protein (3.0g x 79.9kg(LBM)= 239.7g
Carbohydrates (40% 4192) ÷ 40% = 419.2 g
Fats - 4192 Calories - (Protein 239.7g + Carbs 419.2 x 4 = 2636) = 1556 ÷ 9 = 172.8 g

REST DAY

Physical Activity Level (PAL) Rest Day (2096 Calories x 2.0= 4192) - 20% = 3354 calories
Protein (3.0g x 79.9kg(LBM)= 239.7g
Carbohydrates (30% 3354) ÷ 30% = 314.4 g
Fats - 4144 Calories - (Protein 239.7g + Carbs 314.4 x 4 = 2216) = 1928 ÷ 9 = 214.2 g

TRAINING WEEK 1 - 4 (BLOCK) PHASE

Weeks 1 to 4 Progress

Charlie was already strong and pretty mobile through the upper body although the lower body was below average with some hip mobility issues. During this **Intensification Phase** I used the **Heavy Light Training Method** to improved strength and muscle size in the upper body. This training strategy utilises a superset for the same body part with two very different strength qualities worked.This really utilising the **40 to 70 seconds Time Under Tension for Hypertrophy**. Plus it starts with a more neurally demanding exercise to fire the nervous system to develop strength and density with the second set increase blood flow and capillary development. Hence, you develop both sarcomere and Scarcoplasmic hypertrophy in your muscles.

I used slow **tempos** focusing on the eccentric and an isometric hold at the contractile position. For example **5011** for pull ups.

Start with a weight that is roughly 82-88% of your 1RM and complete 4-8 reps depending on body part and finish with an exercise that can be completed with good form for 8-15 reps roughly 50 to 72% of 1RM. perform heavy sets to develop strength and muscular density, then perform light pumping sets to increase blood flow and capillary development. Hence, you develop both sarcomere and scarcoplasmic hypertrophy in your muscles. This was mainly for upper body.

Lower body I took a **single series approach** using **Functional Hypertrophy and Hypertrophy** rep ranges to lower pressure on the knee. I used tempo as a load perimeter. Charlie found this particularly taxing on the quads. We also focused on **Full Range of Motion (ROM)** working the weak **VMO** and improving hip mobility. After 4 weeks the technique was textbook. On the posterior chain day I priorities Hamstrings as I want to focus on making knee structure stronger. Then included upper back work.

Even though Charlie was lean his abdominals were not visible. I programmed 2 abs sessions. One with Heavy eccentrics in the form of Rocky's targeting **Type 2b fibres** and a **6-12-25** for **Type 1 & 2a** fibres.

We peaked weight with a 2-4% increase over 3 weeks then deloaded on the third week via intensity. Charlie hit all the numbers except for Deltoids which we prioritised in Phase 2 (Block 2)

TRAINING PROGRAM PHASE 1 (BLOCK 1)

	EXERCISE	SETS	REPS	TEMPO	WEIGHT 1	WEIGHT 2	WEIGHT 3	WEIGHT 4	REST
DAY 1	**Back and Chest Push / Pull**								
A1	Pull Up	4	6-8	5010	8kg	8kg	12kg	8kg	10
A2	Rope Pull	4	8-10	5011	33.75	35.25	37.75	33.75	90-120
B1	Dips	4	4-8	3010	Bw	Bw	8 kg	Bw	10
B2	Db Flat Bench Press supinated Iso Hold	4	8-10	4013	18	20	22	18	90-120
C1	Lat Pulldown Elbows Forward	3	6-8	3011	40	45	50	40	10
C2	90 Degree Bent Rows	3	10-12	2010	14	14	16	14	90
D1	45 Degree Incline Pronated Bench	3	8-10	4010	22	22	24	22	10
D2	Incline Flyes with Rotation	3	10-12	3021	8	8	8	10	90
DAY 2	**Quads & Abs**								
A1	High Bar Squat	4	8-10	4010	60	62.5	65	60	120
B1	Front Elevated Split Squat	3	8es	4010	Bw	Bw	8	Bw	90
C1	Step Up	3	10 Es	3010	8	10	12	8	90
D1	Leg Press Calf Raises	6-10	10	2110	80	90	100	80	10-15
E1	Knee Raises	3-4	6	6012	Bw	Bw	Bw	Bw	10
E2	Bosu Spider-Man	3-4	12	3030	Bw	Bw	Bw	Bw	10
E3	Swissball	3-4	25	3012	Bw	Bw	Bw	Bw	60
DAY 3	**Shoulders / Biceps / Triceps**								
A1	Neutral Grip Seated 45 Degree Press	4	10-12	3010	20	22	24	20	90
B1	Poliquin Lateral Raises	3	8-10	4011	6	6	6	8	60
C1	Cable Single Arm Reverse Flyes	3	8-10	3011	2.5	2.5	5	5	60
D1	Incline Skull Crushers	4	8-10	2010	12	14	16	12	0
D2	French Press	4	8-10	3010	6	8	10	6	75
E1	Spider Curl	4	6-8	4010	20	22.5	25	20	0
E2	Comber ford	4	6-8	4010	8	8	8	8	60
DAY 4	**Posterior Chain Abs**								
A1	Deadlift	4	6/5/4/3	3010	110	115	120	110	120
B1	Half Extension	3	8-10	3011	Bw	Bw	5	5	90
C1	Neutral Grip 45 Wide Grip Pulldown	3	8	4013	30	35	40	30	90
D1	Db Shrugs	3	8-10	2011	32	34	36	32	90
E1	Ricky's	4	6	6010	Bw	Bw	Bw	Bw	60

TRAINING WEEK 5 - 8 (BLOCK) PHASE

WEEKS 5 TO 8 PROGRESS

At this stage Charlie worked with me more closely. In fact every workout was done with me. I focused a bit more closely on the diet making sure charlie hit his numbers exactly to get the final result.

This phase was more an A**ccumulation Phase** where volume became the stressor and **sets were between 20-38** per workout. There was still an increase of intensity and a **super compensation week** during the **3rd week** of the block followed by a taper of intensity and some volume during the last week where most of the transformation and adaptation took place in my opinion. This was also aided by making **workout days Iso Caloric** and **Rest days** in a **caloric deficit of -15%.** We would also be reducing intensity in the final week. **Lower body single series** and **upper body apposing supersets.**

I also kept the **rep range** around **8-15** focusing on **Maximal TUT between 40-70.** As we all know elicit muscle gain we need the most mechanical tension and metabolic stress. I focused on form and angles with **iso metric** holds at a **disadvantages** point of the movement and getting the muscle to squeeze. Charlie had a very high tolerance to metabolic stress and great recovery. I actually cut back one day of training from 5 days per week to 4 days to add more stress and greater recovery.

The legs I still have the approach slow and steady winds the race. I really want to keep Charlie injury free. Thats not to say we can't add stress with other variables like tempo, rest and adjustment of the exercises mechanics Plus **isolation**.

On all upper body we did apposing supersets to get the Maximal **Motor Unit Activation (MUA).** Between the superset is just 60 secs to get the right amount of metabolic stress.

Charlie found that in the final taper it was hard as calories were reduced to a 15% deficit and iso caloric on training days.

You can probably see I changed the workout order in week 4 for push pull. this was trying to bring the upper chest out a little bit more. Something to prioritise in future programs.

	EXERCISE	SETS	REPS	TEMPO	WEIGHT 1	WEIGHT 2	WEIGHT 3	WEIGHT 4	REST
DAY 1	**Back and Chest Push / Pull**								
A1	Weighted Pull Ups	4	8-10	3010	8	8	12		60
A2	Weighted Dips	4	8-10	3010	8	8	12		60
B1	Db Bent Over Row Reverse	4	10-12	3011	18	20	22		60
B2	Flat Supinated Chest	4	10-12	4010	24	24	26		60
C1	Row Machine with Isometric Hold	3	8-12	3012	40	45	50		60
C2	30 Degree Incline Press with Pronation	3	8-12	3012	20	20	22		60
D1	45 Lateral Pulldown	3	12-15	2010	30	35	40		0-10
D2	Pec Machine	3	12-15	2010	40	42.5	45		60-90
E1	Knee Raises	4	10	3030	Bw	Bw	Bw		0
E2	Bosu Spiderman	4	10	3030	Bw	Bw	Bw		60
	Week 4 Adjustment								
A1	Weighted Pull Ups	4	8-10	3010				8	60
A2	30 Degree Incline Press with Pronation	4	8-12	3012				20	60
B1	Db Bent Over Row Reverse	4	10	3011				18	60
B2	Weighted Dips	4	8-10	3010				8	60
C1	Row Machine with Isometric Hold	3	8-12	3012				40	60
C2	Flat Supinated Chest	3	10-12	4010				24	60
D1	45 Lateral Pulldown	3	12-15	2010				24	0-10
D2	Pec Machine	3	12-15	2010				40	60-90
E1	Knee Raises	4	10	3030				Bw	0
E2	Bosu Spiderman	4	10	3030				Bw	60
DAY 2	**Quads & Abs**								
A1	High Bar Squat	4	8-10	4010	65	67.5	70	65	120
B1	Single Leg Press	4	10 es	4010	30	35	40	30	90
C1	Leg Extensions	4	12	3011	35	37.5	40	35	90
D1	Leg Press Calf Raises	10	10	2110	90	100	110	90	10-15
E1	Incline Rockys	4	8	6020	Bw	Bw	Bw	Bw	60-75
DAY 3	**Shoulders / Biceps / Triceps**								
A1	Seated Behind the Neck Press	4	8-10	3010	35	37.5	40	35	90
B1	Rope Pull with Rear Delt Press	3	8-10	3011	8.75	8.75	8.75	11.25	0
B2	60 Degree Cable Lateral Raises	3	8-10	3011	3.75	3.75	3.75	3.75	60
C1	Close Grip Bench	4	8-10	4010	50	26Db	24db	22	0
C2	Incline Db Myotactic Skull Crushers	4	10-12	3010	17	19.5	14 Db	17	90
D1	Unilateral Db Scotts Curl Twist	4	8-10	4010	12	12	14	12	0
D2	BB Drag Curl	4	10-12	4010	30	30	30	20	60
DAY 4	**Posterior Chain Abs**								
A1	Deadlift	4	6/5/4/3	3010	115	120	125	115	120
B1	Db Upright Row	4	8-10	3011	14	16	18	14	90
C1	Hamstring Curls	3	8-10	30X2	30	40	45	30	90
D1	Wide Grip Seated Row Machine	3	12	3011	35	40	45	35	60
E1	Swissball Crunches	4	10	3011	Bw	8	8	8	60