

Returning to Training After a Layoff

How to Gradually Comeback the Right Way

Michael C. Zourdos, Ph.D., CSCS
MASS Vol. 3 Issue 11, November 2019

Today's Objectives

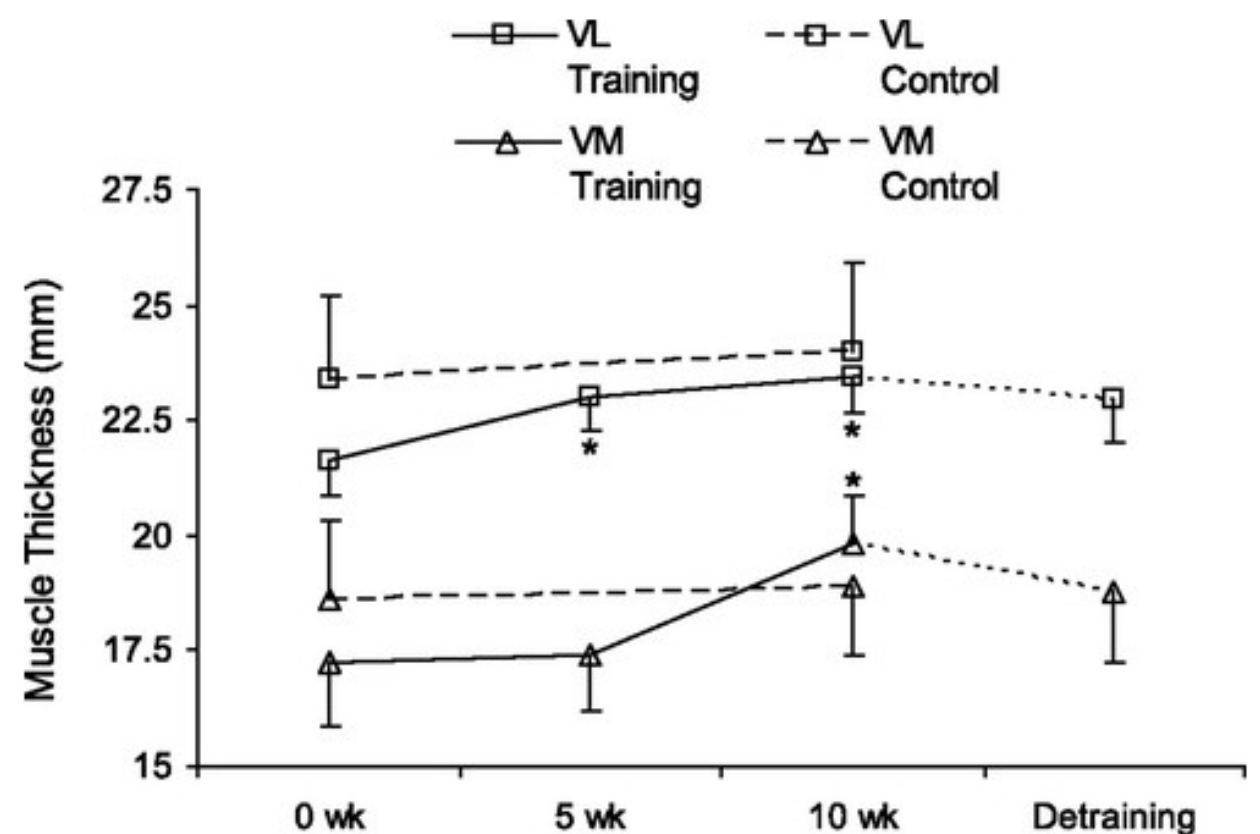
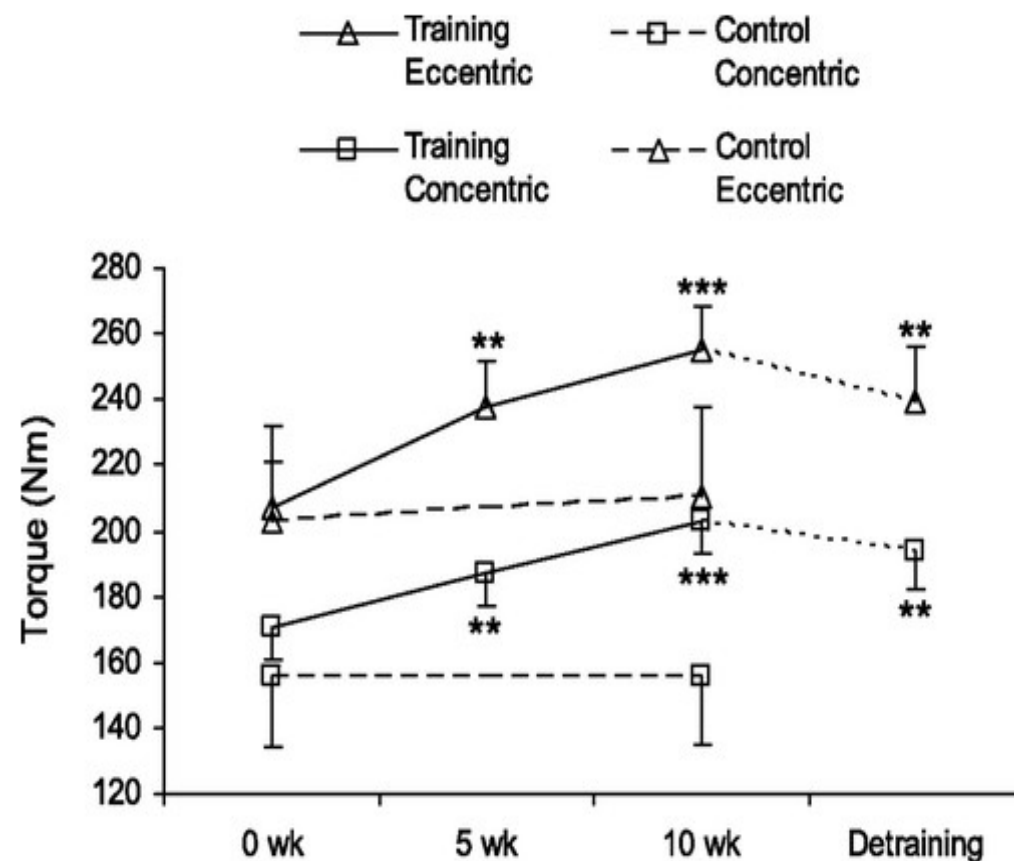
1. Examine the rate of decline in strength/hypertrophy following time off
2. Understand that you are more susceptible to muscle damage and fatigue when first returning to train
3. The decrease in strength in the assistance (or less-skilled) movements may be different than the main lifts
4. How to develop a full program to get you back up to speed that is relative to the pre-layoff program
5. Determine the general guidelines for rebuilding volume, intensity, frequency and where RPEs should be

Strength/Size Loss Following Long-Term (3 months) of Detraining

4-6 sets X 6 reps of leg extensions for 10 weeks in recreationally active men and women (some training experience)

Concentric = -5.6%
Eccentric = -11.4%

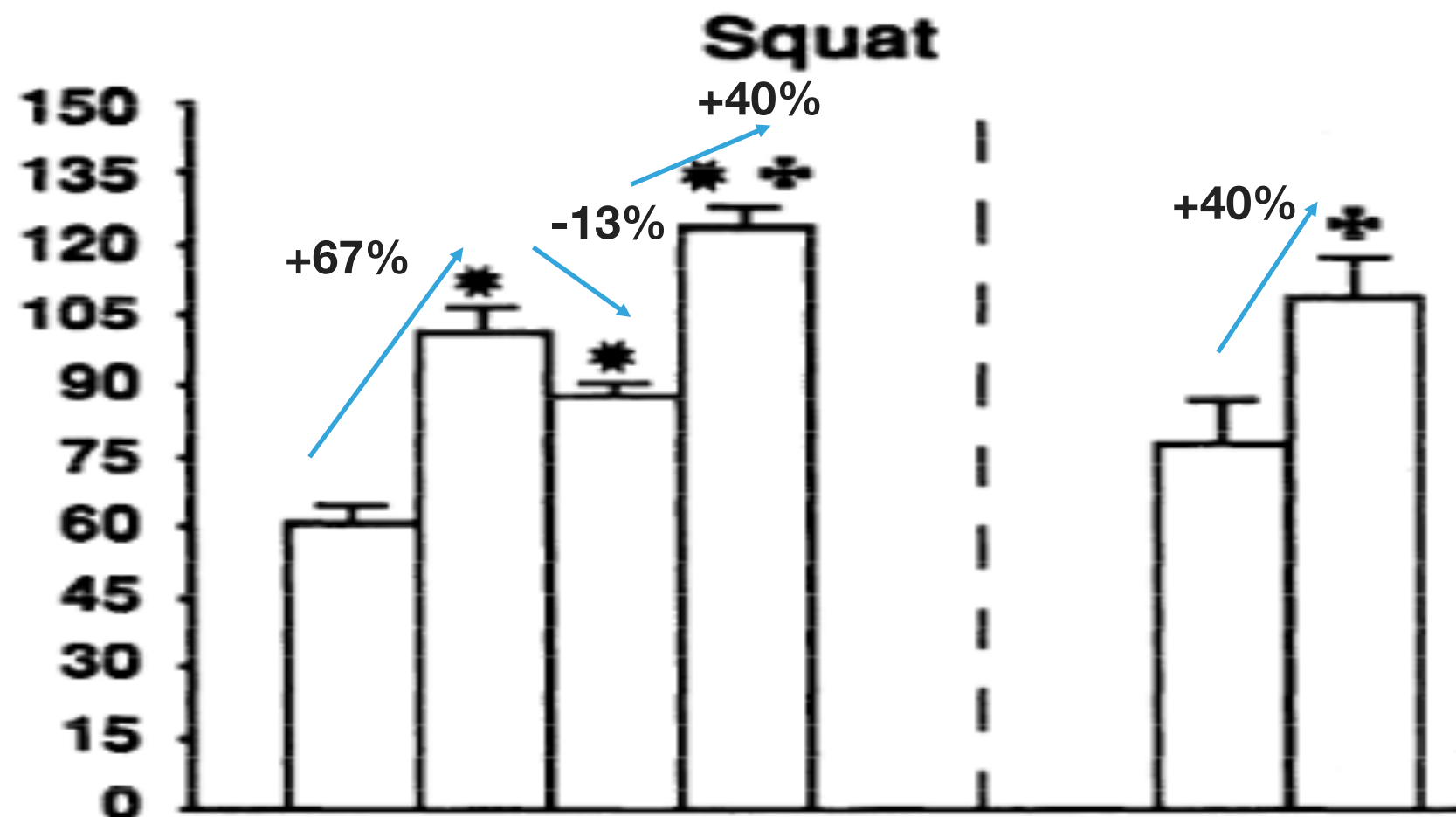
Nonsignificant decrease in hypertrophy



20 Weeks of Training, 30 weeks of Detraining, 6 weeks of Retraining

Trained 2x per week at 6-8RM and 10-12RM

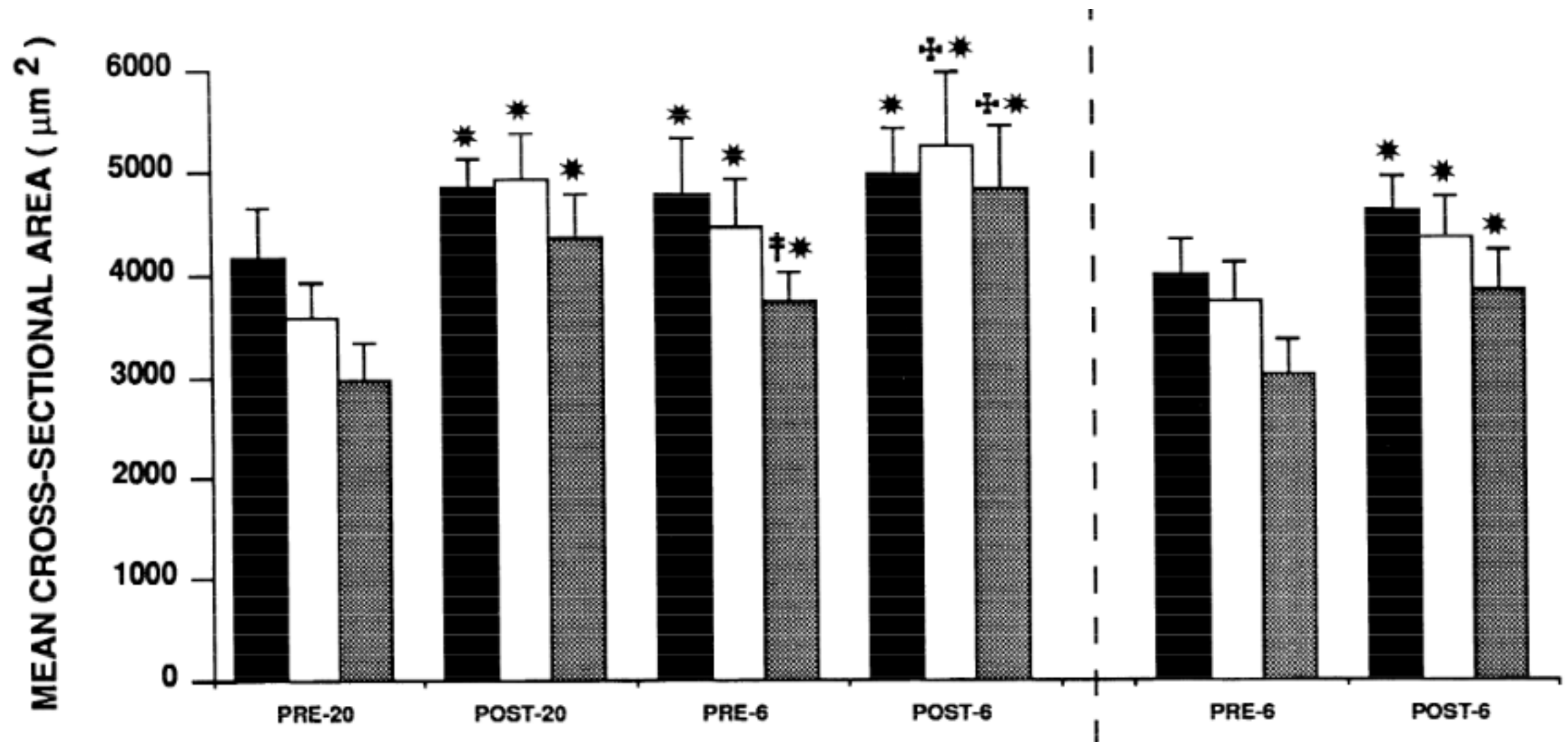
In college-aged women there was a decrease in strength after detraining, but perhaps not as much as you might think



20 Weeks of Training, 30 weeks of Detraining, 6 weeks of Retraining

Trained 2x per week at 6-8RM and 10-12RM

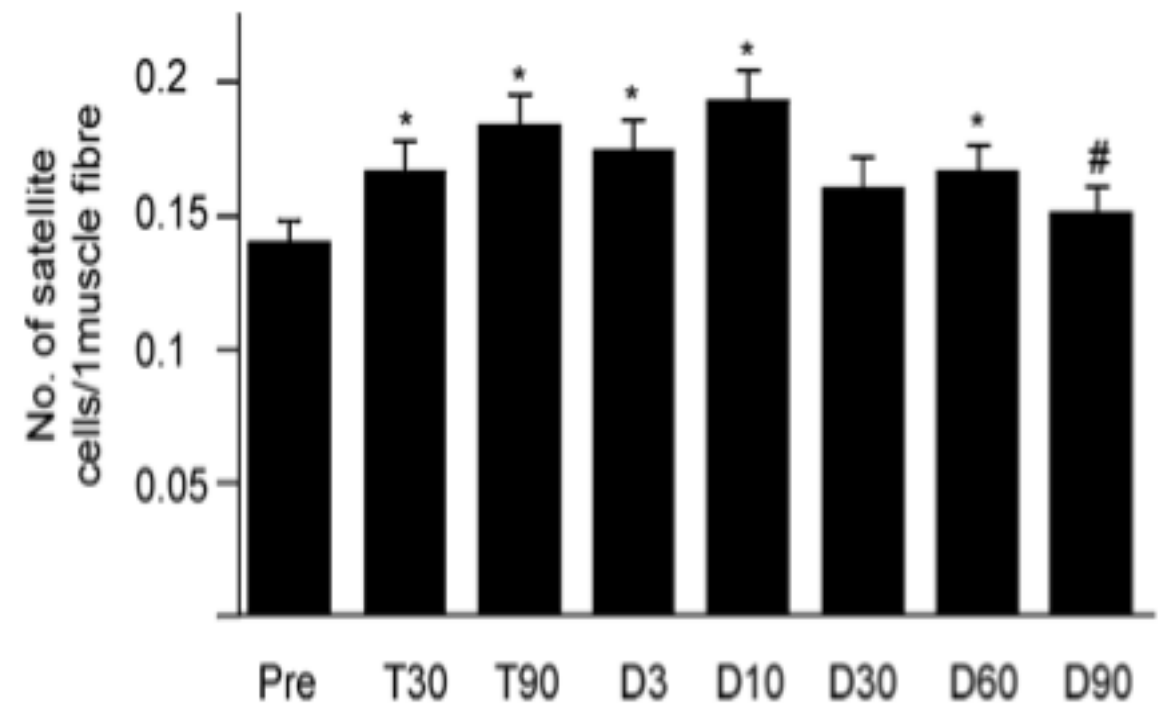
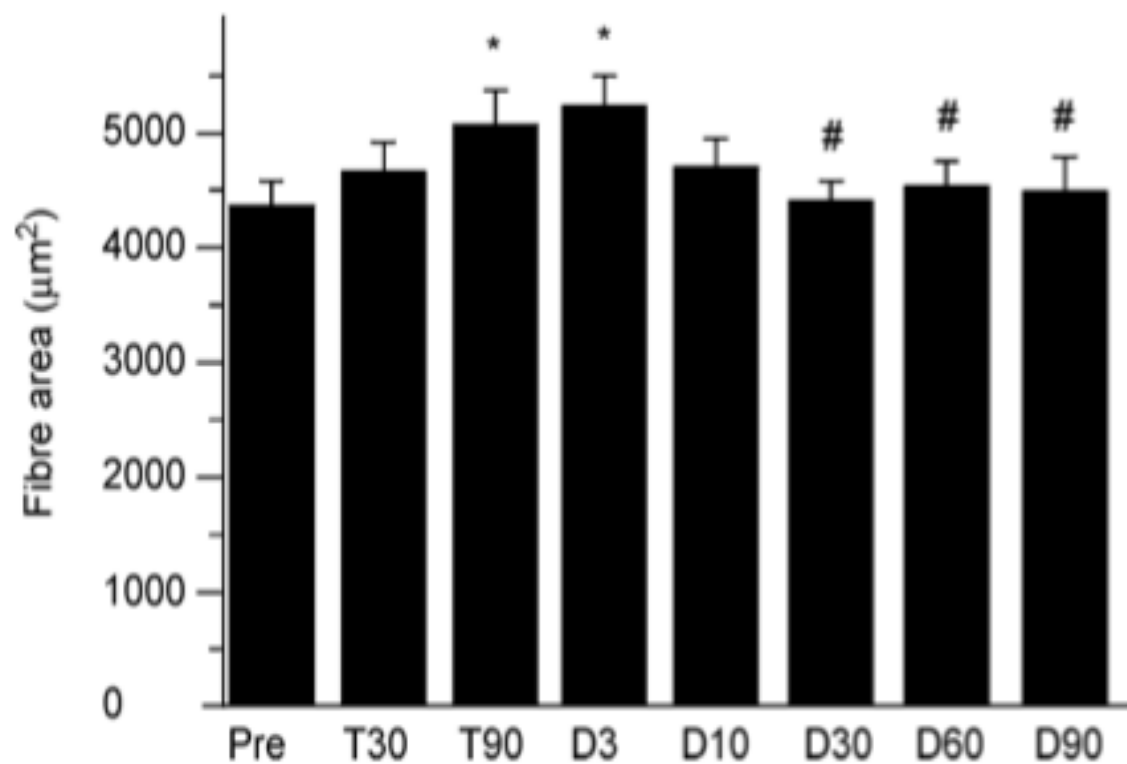
Cross-Sectional Area: +15, +39, +47% / -1, -10, -14 / +4, +18, +30%



Bottom Line: *There are hypertrophy and strength decreases, but it's not as much as you might think and they can be regained, relatively quickly.*

90 days of training and 90 days of detraining in men

Trained 3x per week at 6-12RM, Lower Body



Bottom Line: The hypertrophy results are somewhat paralleled by the decrease in satellite cell number per fiber.

-There is conflicting evidence on the maintenance of myonuclei following detraining

Where this Leaves You?

▶ ***Following Months of Detraining and Retraining***

- ▶ *Decreased muscle size, but not back to baseline and then regained quickly*
- ▶ *Decrease strength, but not back to baseline and then regained quickly*
- ▶ *Although the data shows quicker regaining, I would take into account training status and be cautious and say 4-5 months off, takes about 2-4 months to regain...really not that much time in the grand scheme of things*

▶ ***Mechanisms***

- ▶ *Neuromuscular changes / fiber type adaptations*
- ▶ *Loss of Skill*
- ▶ *Satellite Cell and Myonuclei Number?*

Where this Leaves You?

- ▶ ***Physiologically When You Return***
 - ▶ *More Susceptible to Muscle Damage*
 - ▶ *Greater fatigue can occur immediately*
- ▶ *Neural Adaptations have diminished (but can be regained quickly)*
- ▶ ***Overall Training Strategy as You Return***
 - ▶ *Start with VERY LITTLE*
- ▶ *If you did nothing and now you do SOMETHING, you will make progress*
 - ▶ *Previous Numbers don't matter*
 - ▶ *Don't use percentages*
- ▶ *Use RPE or even just an absurdly light load at first*

Our Goal

- ▶ Let's put together a 13-week retraining program following 12 weeks of detraining
 - ▶ 13 weeks may or may not get you all the way back, this is just one example

Pre-Detraining Program

- ▶ Bench Press – 3 times per week (12 sets)
- ▶ Squat = 3 times per week (10 sets)
- ▶ Deadlift = 2 times per week (8 sets)
- ▶ Then, appropriate assistance work for each lift and muscle group, which maybe adds about 10 more sets per muscle group

Pre-Detraining Program

Design: Block 1		Week of November 4th, 2019		
DAY	LIFT	SETS X REPS	WEIGHTS	RPE
MONDAY	BENCH	4X8 @6-8RPE		
	SEATED DB MILITARY	4 X 12 @6-8RPE		
	DB FLY	3X10-15 @6-8RPE		
	STANDING DB LATERAL RAISE	25LBS. X 30 REPS, STOP EACH SET AT 8-9RPE		
TUESDAY	SQUAT	3X8 @6-8RPE		
	DEADLIFT	5X1 @80%		
	PULLUPS	BODYWEIGHT X 30 TOTAL REPS		
	SEAL ROW (W)	5 sets w/ 50s		
	BAR CURL	3X15 @7-9RPE		
	STANDING DB ALT HAMMER CURL	4X10 @7-9RPE		
	LEG EXTENSION	3X15 @7-9RPE		
WEDNESDAY	BENCH	4X6 @6-8RPE		
	CLOSE GRIP BENCH	3 SETS WITH 90KG, STOP @8-9RPE		
	DB BENCH	4X8 @6-8RPE		
	DB FRONT RAISE	3 SETS WITH 25s STOP EACH SET AT 8RPE		
	EZ BAR TRICEPS	4X8-12 @7-9RPE		
THURSDAY	SQUAT	3X6 @6-8RPE		
	HACK SQUAT	3X8 @6-8RPE		
	CHINUPS	X20		
	LAT PULLDOWN	4X8 @6-8RPE		
FRIDAY	BENCH	4X4+ (PLUS SET) @82.5%		
	CLOSE GRIP BENCH	3X3 @7-9RPE		
	SEATED MILITARY PRESS	3X6 @7-9RPE		
	DB TRICEPS EXTENSION	3 SETS WITH 30S, STOP EACH SET @8-9RPE		
SATURDAY	SQUAT	3X4 @7-9RPE		
	DEADLIFT	3X1 @85%		
	INCLINE ROW	5X6-8 @8-10RPE		
	BAR CURL	2X8 @7-9RPE		
	DB BILATERAL INCLINE CURL	3X8-12 @7-9RPE		
1RM: Squat: 225kg, Bench: 140kg, Deadlift: 230kg				

First 2 weeks:

- ▶ Just doing something
- ▶ Nothing strenuous at all
- ▶ **What We Will Do**
- ▶ Three total training days
- ▶ Frequency of once and then twice on the main lifts
- ▶ Programming absolute loads in week 1 and conservative changes in week 2

Just Doing Something (Weeks 1-2)

<u>Design: Block 1</u>	<u>Week of November 4th, 2019</u>	WEEK 1		
DAY	LIFT	SETS X REPS	WEIGHTS	RPE
MONDAY	SQUAT	3X5	65	
	CHEST SUPPORTED ROW	2X10 @4-5RPE		
WEDNESDAY	BENCH	3X5	50	
	PULLUPS	2X5		
	BAR CURL	2X10 @4-5RPE		
FRIDAY	DEADLIFT	4X1	70	
	LEG EXTENSION	2X8 @4-5RPE		
	DB LATERAL RAISE	1X12 @4-5RPE		

<u>Design: Block 1</u>	<u>Week of November 11th, 2019</u>	WEEK 2		
DAY	LIFT	SETS X REPS	WEIGHTS	RPE
MONDAY	SQUAT	3X6	80	
	BENCH	3X6	65	
	CHEST SUPPORTED ROW	3X10-12 @4-5RPE		
WEDNESDAY	DEADLIFT	3X1	60, 80, 100	
	PULLUPS	3X5		
	BAR CURL	3X10-12 @4-5RPE		
FRIDAY	SQUAT	2X2, 1X2 @4-5RPE	100	
	BENCH	2X2, 1X2 @4-5RPE	85	
	LEG EXTENSION	2X8 @4-5RPE		
	DB LATERAL RAISE	2X12 @4-5RPE		

Just Doing Something (Weeks 1-2)

- ▶ Take 75% of the old numbers (225, 140, 230) as a tentative 1RM
- ▶ So: 170, 105, 172.5
- ▶ This is probably a conservative calculation
- ▶ Now you are working between 30-60% in weeks 1-2 with the exception of one double @5 RPE in week 2
 - ▶ Remember, you were doing nothing...this is not too light

Progressing to Real Training (Weeks 3-4):

- ▶ Training 4 total times a week
- ▶ What We Will Do
- ▶ Working frequency up to 2X per week on everything
- ▶ Added a assistance work
- ▶ Gradually increasing intensity

Progressing to Real Training (Weeks 3-4)

<u>Design: Block 2</u>	<u>Week of November 18th, 2019</u>	WEEK 3		
DAY	LIFT	SETS X REPS	WEIGHTS	RPE
MONDAY	SQUAT	3X7	100	
	DEADLIFT	3X1	100	
	CHEST SUPPORTED ROW	3X10-12 @4-5RPE		
TUESDAY	BENCH	3X7	85	
	PULLUPS	3X5		
	BAR CURL	3X10-12 @4-5RPE		
THURSDAY	SQUAT	3X1	105, 120, 135	
	DEADLIFT	3X1	135	
	LEG EXTENSION	3X8 @5-7RPE		
	RDL	2X5 @4-6RPE		
FRIDAY	BENCH	3X1	90, 95, 97.5	
	SEATED DB MILITARY PRESS	2X10 @5-7RPE		
	DB LATERAL RAISE	3X12 @4-5RPE		
	STANDING ALTERNATE DB CURL	2X8-12 @5-7RPE		

<u>Design: Block 2</u>	<u>Week of November 25th, 2019</u>	WEEK 4		
DAY	LIFT	SETS X REPS	WEIGHTS	RPE
MONDAY	SQUAT	3X7	100, 100, 105	
	DEADLIFT	3X1	105	
	CHEST SUPPORTED ROW	3X10-12 @4-5RPE		
TUESDAY	BENCH	3X7	90	
	DB INCLINE BENCH	2X8 @4-6RPE		
	PULLUPS	3X5		
	BAR CURL	3X10-12 @4-5RPE		
THURSDAY	SQUAT	2X1, 1X1 @6-7RPE	120, 130 (180)	
	DEADLIFT	1X1 @6-7RPE	135 (190)	
	LEG EXTENSION	3X8 @5-7RPE		
	RDL	2X5 @4-6RPE		
FRIDAY	BENCH	2X1, 1X1 @6-7RPE	90, 95, 105	
	SEATED DB MILITARY PRESS	3X10 @5-7RPE		
	DB LATERAL RAISE	3X12 @4-5RPE		
	STANDING ALTERNATE DB CURL	3X8-12 @5-7RPE		

Progressing to Real Training (Weeks 3-4)

- ▶ Twice per week frequency on the main lifts, but one time per week is **LIGHT**
- ▶ Working up to a 6-7RPE single at the end of week 4
- ▶ We took our time even working up to this single over 4 weeks
- ▶ This will also give you a gauge of where your numbers are to begin a “real training” block, a 4-week block with a true 2x per week frequency (2 volume days)
- ▶ Gradually building assistance work

The First Real Block, 4 Weeks Away from Normalcy (Weeks 5-8):

- ▶ Training 4 total times a week
- ▶ What We Will Do
- ▶ A TRUE 2x per week frequency...meaning 2 full volume days
- ▶ More of a challenging intensity
- ▶ Beginning to use RPE now instead of always exact loads on the main lifts

1st Real Training Block (Weeks 5-8)

Design: Block 2	Week of December 2nd, 2019	WEEKS 5-8		
DAY	LIFT	SETS X REPS	WEIGHTS	RPE
MONDAY	BENCH	3X8 @5-8RPE		
	SEATED DB MILITARY	3X10-15 @6-8RPE		
	DB FLY	2X10-15 @5-8RPE		
TUESDAY	SQUAT	3X8 @6-8RPE		
	DEADLIFT	3X1 @70-80% OF NEW PROJECTED MAX		
	PULLUPS	BODYWEIGHT X 20 TOTAL REPS		
	SEAL ROW (W)	3 sets using weight you can do for 20, stop each set at 5-7RPE		
	BAR CURL	3X15 @6-8RPE		
	LEG EXTENSION	3X15 @7-9RPE		
THURSDAY	BENCH	4X4 @6-8RPE, 1X1 @8RPE		
	CLOSE GRIP BENCH	3X3 @6-8RPE		
	STANDING DB LATERAL RAISE	4X8 @6-8RPE		
	EZ BAR TRICEPS	3X8-12 @7-9RPE		
FRIDAY	SQUAT	4X4 @6-8RPE, 1X1 @8RPE		
	DEADLIFT	3X1 @80-90% OF NEW PROJECTED MAX		
	RDL	2X8 @6-8RPE		
	CHINUPS	X20		
	LAT PULLDOWN	4X8 @6-8RPE		
	DB BILATERAL INCLINE CURL	3X8-12 @7-9RPE		

1st Real Training Block (Weeks 5-8)

- ▶ Two full volume days per lift
- ▶ Removing exactly loads and allowing yourself/your lifter to train to an appropriate RPE (could use velocity, of course)
- ▶ Heavy single @8 at the end of the block will truly show progress at this point

Week 9 (Taper/Intro)

- ▶ Not a week off, just taper/intro to prepare you for the first block that will be similar (3 full days of frequency per squat/bench) to before the detraining
- ▶ What We Will Do
- ▶ First week of 3X per week frequency...one day is a power or light day
- ▶ Preparing for the next block

Taper/Intro (Week 9)

Design: <i>TAPER</i>	<i>Week of December 30th, 2019</i>	WEEK 9 - TAPER		
DAY	LIFT	SETS X REPS	WEIGHTS	RPE
MONDAY	SQUAT	3X5 @5, 6, 7RPE		
	BENCH	3X5 @5, 6, 7RPE		
	DEADLIFT	3X1 @80% OF PROJECTED MAX		
	SEATED DB MILITARY	3X10-15 @6-8RPE		
WEDNESDAY	SQUAT	3X1 @75% OF PROJECTED MAX		
	BENCH	3X1 @75% OF PROJECTED MAX		
	PULLUPS	BODYWEIGHT X 20 TOTAL REPS		
	SEAL ROW (W)	3 sets using weight you can do for 20, stop each set at 5-7RPE		
	BAR CURL	3X15 @6-8RPE		
FRIDAY	SQUAT	3X3 @5-7RPE		
	BENCH	3X3 @5-7RPE		
	STANDING DB LATERAL RAISE	4X8 @6-8RPE		
	LAT PULLDOWN	4X8 @6-8RPE		
	DB BILATERAL INCLINE CURL	3X8-12 @7-9RPE		

Back to Normal Training (Weeks 10-13):

- ▶ Training 6 total times per week
- ▶ What We Will Do
- ▶ A TRUE 3x per week frequency
- ▶ Adding in some integrated periodization to allow for heavier work to hopefully push 1RMs back to pre-detraining levels following this block

Back to Normal (Weeks 9-13)

Design: Block 3	January 6th - February 1st, 2020	WEEKS 10-13		
DAY	LIFT	SETS X REPS	WEIGHTS	RPE
MONDAY	BENCH	4X8 @6-8RPE		
	SEATED DB MILITARY	4X12-15 @6-8RPE		
	DB FLY	3X10-15 @5-8RPE		
	DB TRICEPS EXTENSION	3X10-15 @5-8RPE		
TUESDAY	SQUAT	4X8 @6-8RPE		
	DEADLIFT	4X1 @80% OF NEW PROJECTED MAX		
	PULLUPS	BODYWEIGHT X 20 TOTAL REPS		
	SEAL ROW (W)	4 sets using weight you can do for 20, stop each set at 7-9RPE		
	BAR CURL	4X15 @6-8RPE		
	LEG EXTENSION	3X15 @7-9RPE		
WEDNESDAY	BENCH	4X5 @6-9RPE		
	CLOSE GRIP BENCH	3 SETS WITH 95KG, STOP @8-9RPE		
	DB BENCH	4X8 @6-8RPE		
	DB LATERAL RAISE	3 SETS WITH 25s STOP EACH SET AT 8RPE		
THURSDAY	SQUAT	4X5 @6-9RPE		
	HACK SQUAT	3X8 @6-8RPE		
	CHINUPS	X30		
	LAT PULLDOWN	4X8 @6-8RPE		
	STANDING ALTERNATE DB HAMMER CURL	3X10 @6-8RPE		
FRIDAY	BENCH	X2 @8-9RPE, 3X2 @87.5% of double		
	CLOSE GRIP BENCH	3X3 @7-9RPE		
	SEATED MILITARY PRESS	5X6 @7-9RPE		
	EZ TRICEPS EXTENSION	3 SETS WITH 10KG PER SIDE, STOP EACH SET @8-9RPE		
	DB PUSHUPS	2 SETS TO NEAR FAILURE		
SATURDAY	SQUAT	X2 @8-9RPE, 3X2 @87.5% of double		
	DEADLIFT	3X1 @85%		
	RDL	3X8 @6-8RPE		
	INCLINE ROW	5X6-8 @8-10RPE		
	BAR CURL	4X8 @7-9RPE		
	DB BILATERAL INCLINE CURL	3X8-12 @7-9RPE		

Back to Normal (Weeks 10-13)

- ▶ 3X per week frequency
- ▶ Mostly back to normal
- ▶ If the goal is to get strength fully back here is how I would progress the heavy squat, bench, deadlift days
 - ▶ Week 11: Squat/bench: X1 @8-9RPE, Deadlift: 3X1 @87.5%
 - ▶ Week 12: Squat/bench X1 @8-9RPE, Deadlift: X1 @8-9RPE
 - ▶ Week 13: Squat/bench X 1 @8.5-9.5RPE, Deadlift X1 @9-9.5RPE

Thoughts and Wisdom

- *Overall and Expectations*
 - Just doing something will cause progress
 - You will progress quickly, thus you will want to do more...
 - DON'T DO IT
 - Once you are done with the early stages of the comeback, don't expect the same progress in the next block

Applications and Takeaways

- ❖ Following months of detraining you will lose size and strength, but perhaps not as much as you think
- ❖ When you start back, work gradually and understand that your previous numbers do not apply
- ❖ **DO NOT do more than you need to, even though you will want to**
- ❖ Stay calm and focused, your adaptations will come back and it won't take that long, just be patient

If you are coming back from injury, certainly there are other factors to consider and other adjustments to make, but the recommendations here are for non-injured time off