

Trainen met hoge frequentie

Einde van de bro-split?



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Monday chest

Tuesday legs

Wednesday back

Thursday shoulders

Friday arms

**That's the way it's always
been done, dammit!**

**You don't question these
things!**



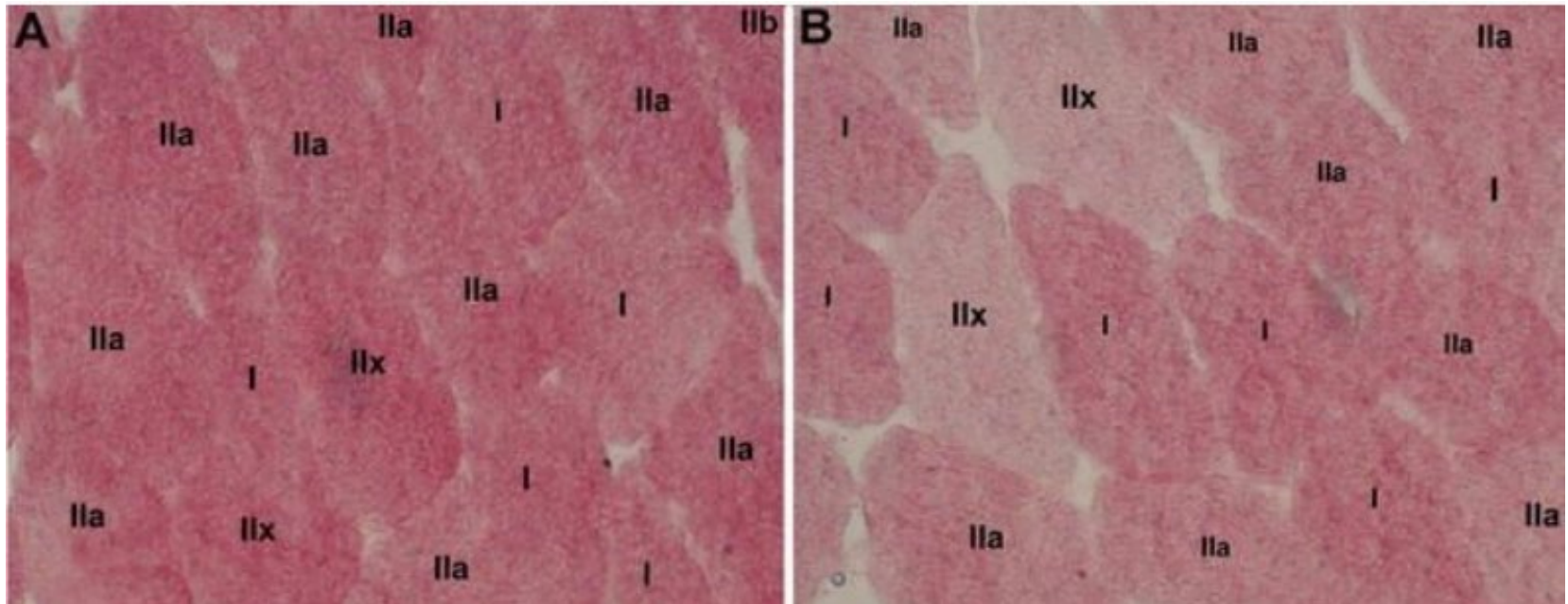
Huidige wetenschap en praktijk

Bodybuilders: 69% 1 x p/w

Niemand meer dan 2 x p/w

ACSM: 2-3 keer per week (48-72u rust)

Herstellen waarvan (1): Glycogeen



voor

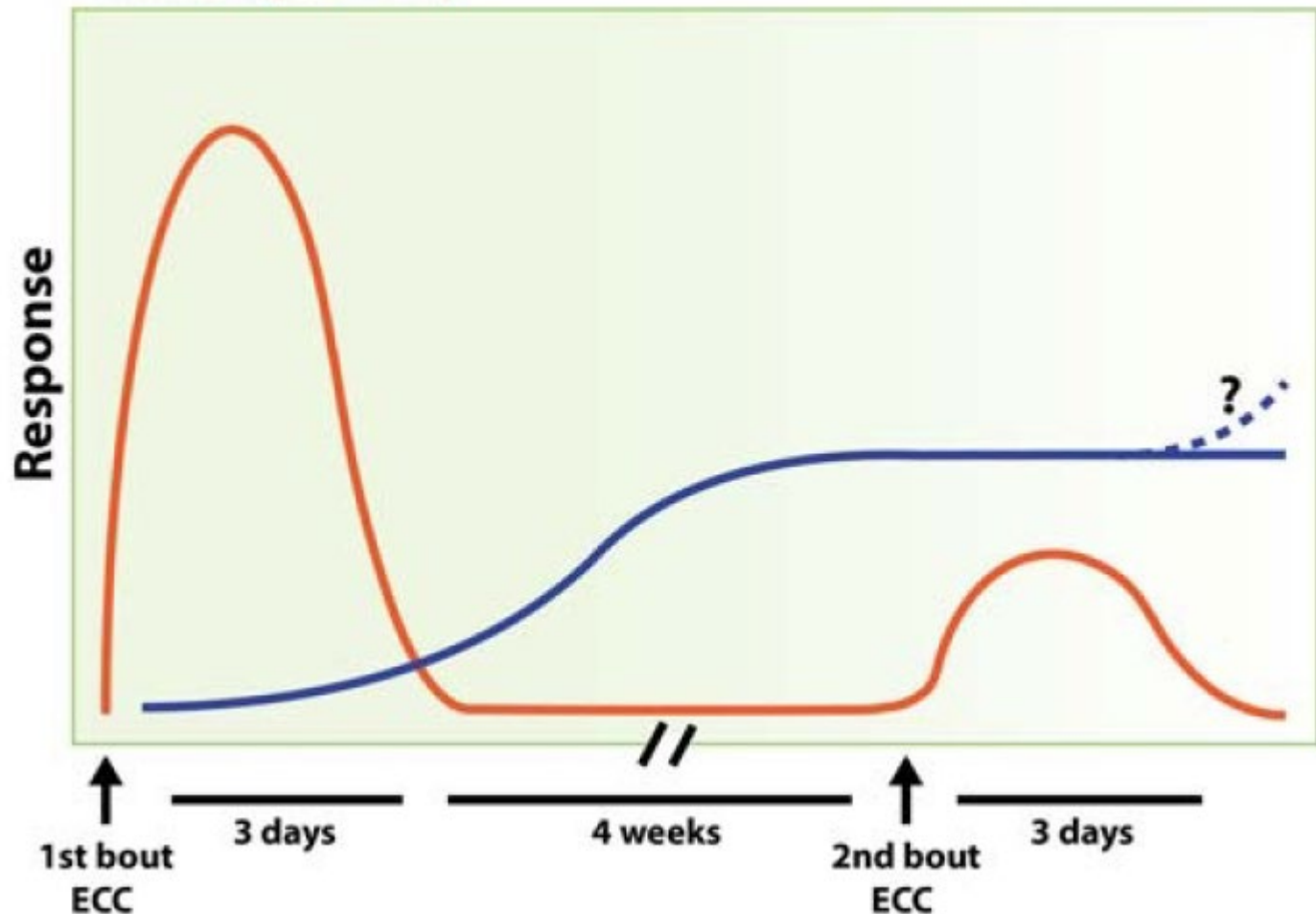
na

Type 1: -23%

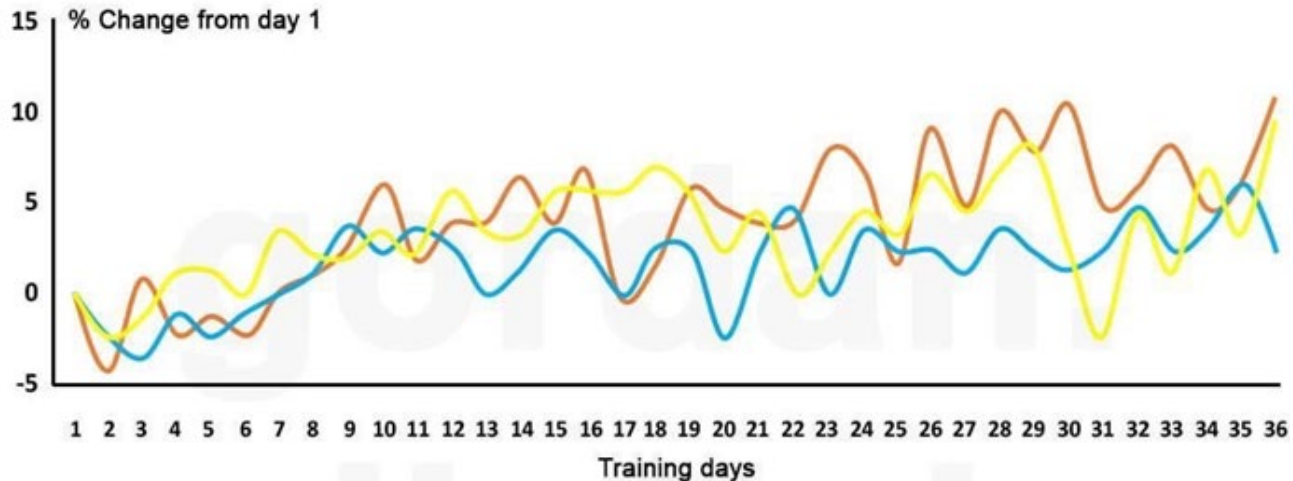
Type 2a: -40%

Type 2x: -44%

Herstellen waarvan (2): Spierschade



DAILY 1RM TRAINING IN TRAINED POWERLIFTERS AND WEIGHTLIFTERS



Participant 1 increased squat 1RM from 215kg to 225kg

Participant 2 increased squat 1RM from 125kg to 138.5kg

Participant 3 increased squat 1RM from 220kg to 241kg

These findings suggests that **daily 1RM squat training** effectively produced robust changes is maximal strength (1RM) in competitive strength athletes in relative short time.

Weekend warriors

30 ongetrainde mannen

12 weken

3 x 10RM (2' rust)

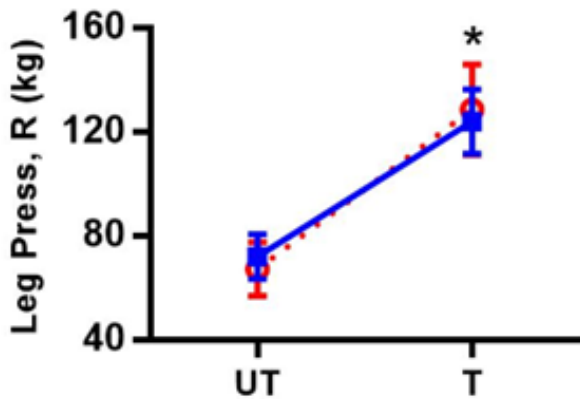
**Leg press, shoulders press, lateral pulldown,
leg curl, leg extension**

Groep 1: 3 x p/w 48-72u rust

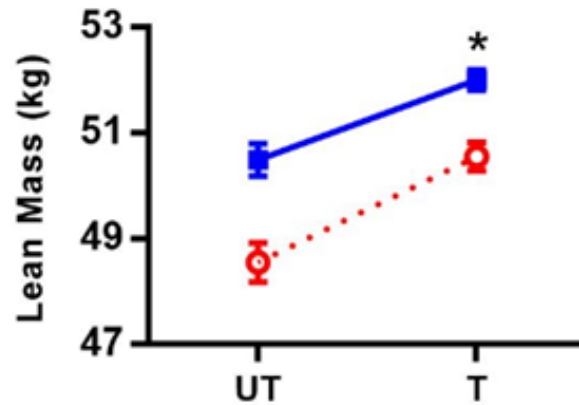
Groep 3: 3 x p/w 24u rust

3 dagen achterelkaar trainen vs 1-2 dagen rust

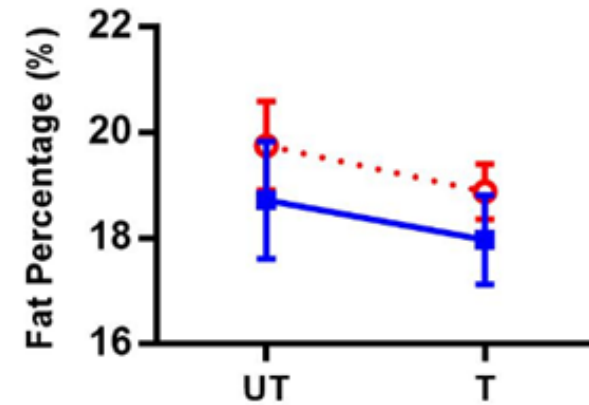
Leg press 1RM



Vetvrije massa (kg)



Vetmassa (%)

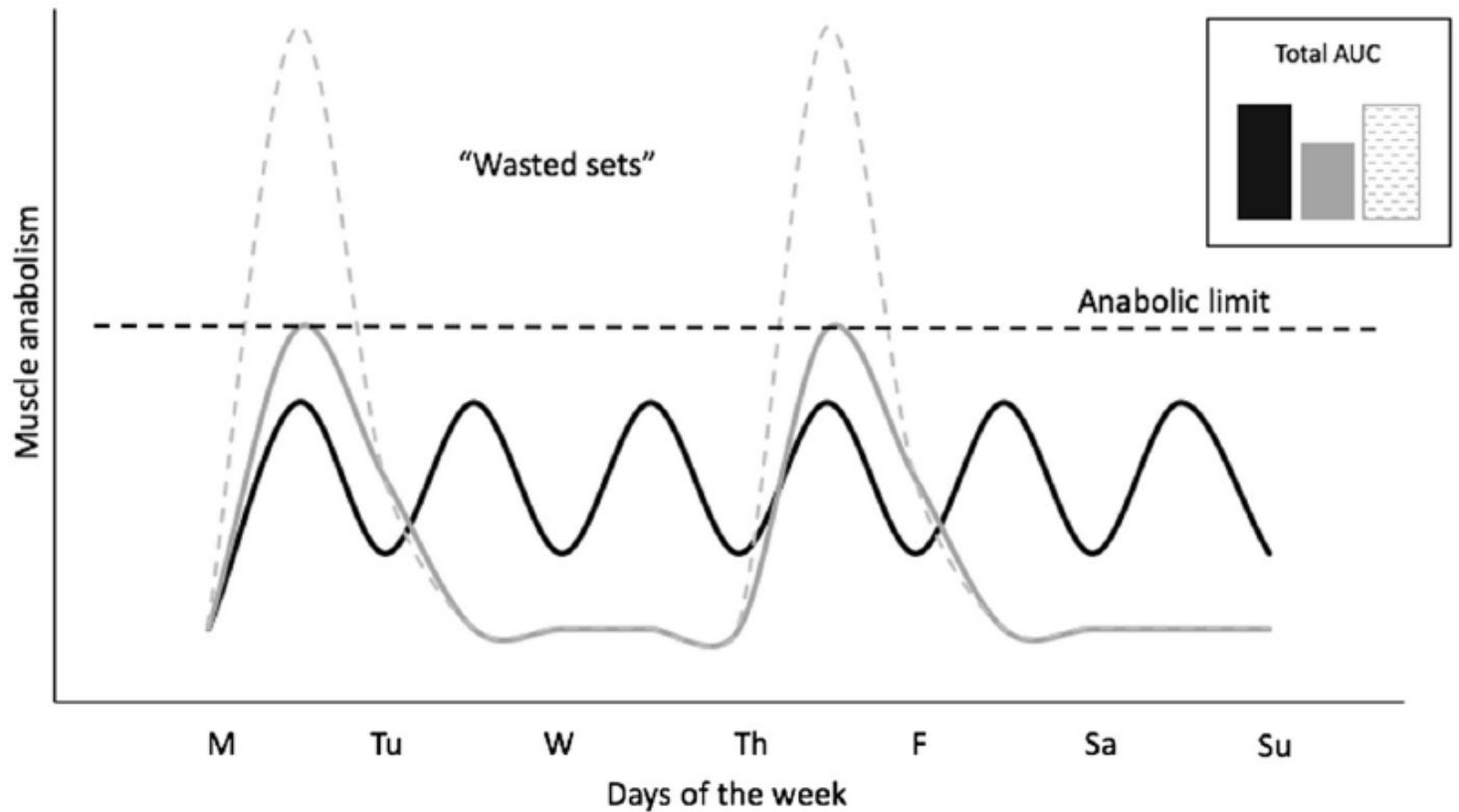


—■— C
···●··· NC
UT = PRE
T = POST



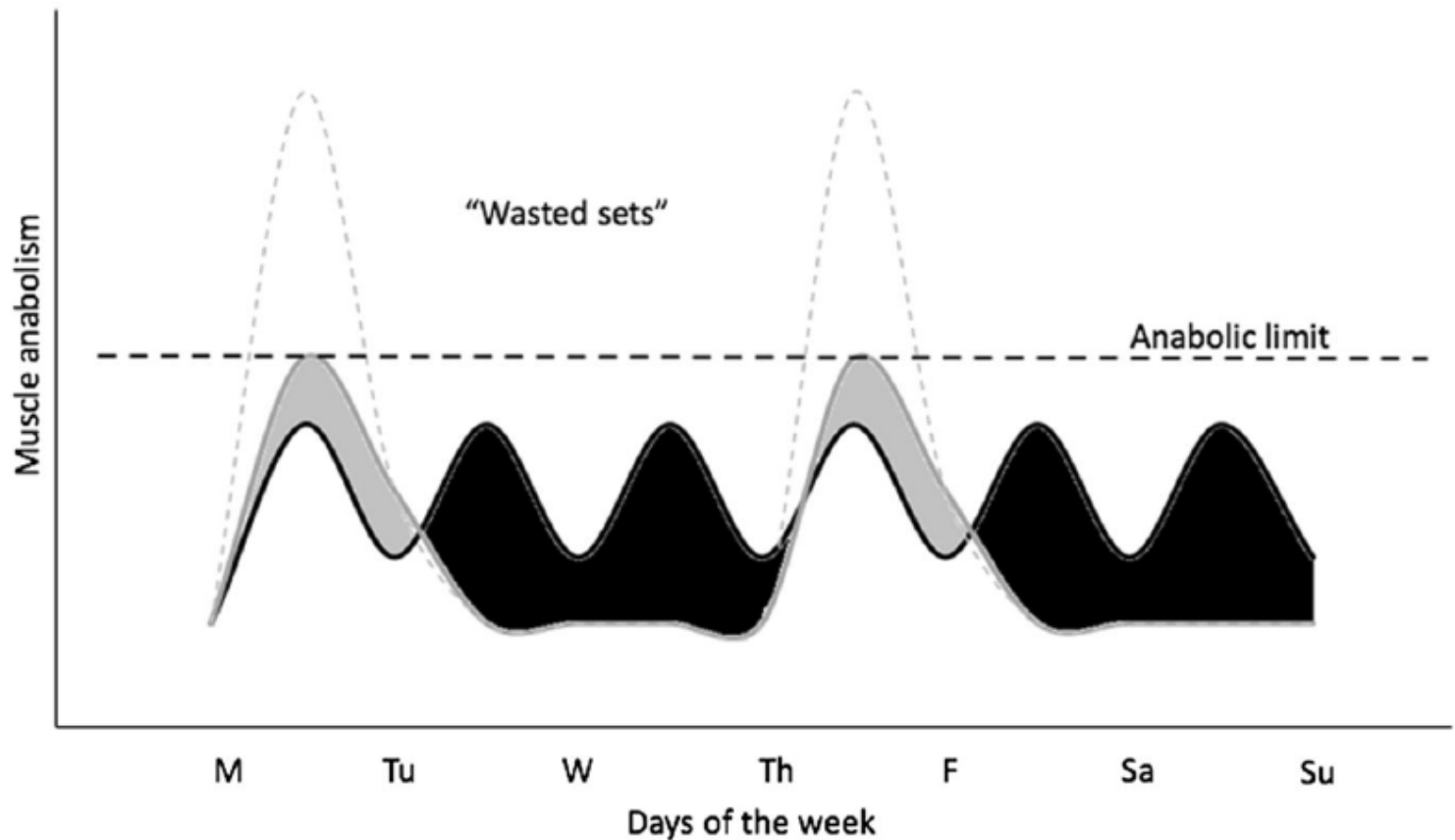
MPS hypothese

- Training 6 days a week with 3 sets per muscle group
- Training 2 days a week with 9 sets per muscle group
- - - Training 2 days a week with 9 sets per muscle group if there was no volume threshold



MPS hypothese

- Greater anabolic potential from training 6 days a week with 3 sets per muscle group
- Greater anabolic potential from training 2 days a week with 9 sets per muscle group



Literatuurstudie

Journal of Sports Sciences

ISSN: 0264-0414 (Print) 1466-447X (Online) Journal homepage: <http://www.tandfonline.com/loi/rjsp20>

How many times per week should a muscle be trained to maximize muscle hypertrophy? A systematic review and meta-analysis of studies examining the effects of resistance training frequency

Brad Jon Schoenfeld, Jozo Grgic & James Krieger

LF-KT vs HF-KT: de studies

Studie	Datum	Populatie	Duur	Ontwerp	Sets, reps	Volume gelijk	Meetinstrument	Resultaat spierkracht	Resultaat spiermassa
Schoenfeld et al. J Strength Cond Res.	Juli 2015	20 getrainde mannen	8 weken	SPLIT 1xp/w vs TOTAL 3xp/w	2-3, 8-12 Totaal 18	Ja	1RM BS + BP Ultrasound	+/-	Triceps + VL +/- Biceps +
Thomas & Burns Int J Exerc Sci.	April 2016	Getrainde mannen (12) en vrouwen (7)	8 weken	SPLIT 1xp/w vs TOTAL 3xp/w	3, 8-12 Totaal 9	Ja	1RM HS + CP DXA	+/-	+/-
Gomes et al. J Strength Cond Res.	Februari 2018	23 getrainde mannen	8 weken	SPLIT 1xp/w vs TOTAL 5xp/w	10, 8-12 Totaal 10-15	Ja	1RM BS + BP DXA	+/-	+/-
Colquhoun et al. J Strength Cond Res.	Mei 2018	28 getrainde mannen	6 weken	SPLIT 3xp/w vs TOTAL 6xp/w	4x8, 4x5, 4x3 Totaal 12	Ja	1RM BS + BP +DL Ultrasound	+/-	+/-
Zaroni et al. J Strength Cond Res.	Juni 2018	18 getrainde mannen	8 weken	SPLIT 1xp/w vs TOTAL 5xp/w	3, 10-12 Totaal 15	Ja	1RM BS + BP + SR Ultrasound	+/-	Triceps +/- Biceps + VL +
Saric et al. J Strength Cond Res.	Oktober 2018	27 getrainde mannen	6 weken training	SPLIT 3xp/w vs TOTAL 6xp/w	3, 6-12 Totaal 15	Ja	1RM BS + BP Ultrasound	+/-	Triceps + VI + RF +/- Biceps -

TABLE 2. Training protocols for TOTAL and SPLIT.*

	Monday	Tuesday	Wednesday	Thursday	Friday
TOTAL (<i>n</i> = 9)	Incline dumbbell press 3 × 10–12 RM	Incline bench press 3 × 10–12 RM	Bench press 3 × 10–12 RM	Incline bench press machine 3 × 10–12 RM	Bench press machine 3 × 10–12 RM
	Biceps curl 3 × 10–12 RM	Dumbbell incline curl 3 × 10–12 RM	Dumbbell preacher curl 3 × 10–12 RM	Barbell preacher curl 3 × 10–12 RM	Dumbbell hammer curl 3 × 10–12 RM
	Parallel back-squat 3 × 10–12 RM	Leg press 3 × 10–12 RM	Barbell split squat 3 × 10–12 RM	Hack squat 3 × 10–12 RM	Deadlift 3 × 10–12 RM
	Lat pull-down 3 × 10–12 RM	Machine lat pull-down 3 × 10–12 RM	Neutral-grip lat pull-down 3 × 10–12 RM	Machine close-grip seated row 3 × 10–12 RM	Machine wide-grip seated row 3 × 10–12 RM
	Cable triceps 3 × 10–12 RM	Nosebreaker 3 × 10–12 RM	Cable overhead triceps extension 3 × 10–12 RM	Cable triceps press-down 3 × 10–12 RM	Cable triceps kickback 3 × 10–12 RM
SPLIT (<i>n</i> = 9)	Incline dumbbell press 3 × 10–12 RM	Biceps curl 3 × 10–12 RM	Parallel back-squat 3 × 10–12 RM	Lat pull-down 3 × 10–12 RM	Cable triceps 3 × 10–12 RM
	Incline bench press 3 × 10–12 RM	Dumbbell incline curl 3 × 10–12 RM	Leg press 3 × 10–12 RM	Machine lat pull-down 3 × 10–12 RM	Nosebreaker 3 × 10–12 RM
	Bench press 3 × 10–12 RM	Dumbbell preacher curl 3 × 10–12 RM	Barbell split squat 3 × 10–12 RM	Neutral-grip lat pull-down 3 × 10–12 RM	Cable overhead triceps extension 3 × 10–12 RM
	Incline bench press machine 3 × 10–12 RM	Barbell preacher curl 3 × 10–12 RM	Hack squat 3 × 10–12 RM	Machine close-grip seated row 3 × 10–12 RM	Cable triceps press-down 3 × 10–12 RM
	Bench press machine 3 × 10–12 RM	Dumbbell hammer curl 3 × 10–12 RM	Deadlift 3 × 10–12 RM	Machine wide-grip seated row 3 × 10–12 RM	Cable triceps kickback 3 × 10–12 RM

*TOTAL = total-body routine group; RM = repetition maximum; SPLIT = split-body routine group.



Mogelijke verklaring effect hoge frequentie



Conclusie

HF-KT en bro-split beide effectief

Spiergroep 4 - 6 keer per week trainen reële optie

Een spiergroep 3 dagen achter elkaar trainen reële optie

Totaal volume verdelen over aantal dagen gebaseerd op:

- **persoonlijke voorkeur**
- **periodisering**

Praktische aanbevelingen

Alleen weekend tijd: ook dan full body mogelijk

Verhogen frequentie: eerst huidige volume verdelen over 5 - 6 dagen

Veeleisende oefeningen afwisselen met lichtere

Lichte met zware dagen afwisselen (DUP)

Maak je op dit moment progressie met lage frequentie: geen aanpassingen

“Although training is science-based, it remains an art”



DANK VOOR UW AANDACHT!

Welkom bij

HAN Sport en Bewegen



TABLE 1. Training protocols.

Protocol	Day 1	Day 2	Day 3
SPLIT	Bench press ×3 Incline press ×3 Hammer chest press ×3 Lat pulldown (wide grip) ×3 Lat pulldown (close grip) ×3 Seated row ×3	Squat ×3 Leg press ×3 Leg extension ×3 Stiff-leg deadlift ×3 Hamstrings curl ×3 Good morning ×3	Shoulder press ×2 Hammer shoulder press ×2 Upright row ×2 Hammer curl ×2 Barbell curl ×2 Preacher curl ×2 Cable pushdown ×2 Skull crusher ×2 Dumbbell overhead extension ×2
TOTAL	Squat ×3 Stiff-leg deadlift ×3 Bench press ×3 Lat pulldown (wide grip) ×3 Shoulder press ×2 Hammer curl ×2 Cable pushdown ×2	Leg press ×3 Hamstrings curl ×3 Incline press ×3 Lat pulldown (close grip) ×3 Hammer shoulder press ×2 Barbell curl ×2 Skull crusher ×2	Leg extension ×3 Good morning ×3 Hammer chest press ×3 Seated row ×3 Upright row ×2 Preacher curl ×2 Dumbbell overhead extension ×2



Table 2. High frequency training routine.

Muscle Group	Monday	Wednesday	Friday
Pectoralis	Flat Presses	Flat Presses	Incline Presses
Upper Back	Pulldowns	Pulldowns	Rows
Quadriceps	Leg Press	Lunges/Squats	Hack Squats
Gastrocnemius	Standing Calf Raises	Standing Calf Raises	Standing Calf Raises
Deltoids	Shoulder Press	Lateral Raises	Lateral Raises
Biceps	Seated Dbell Curls	Seated Dbell Curls	1 Arm Bench Curls
Triceps	Tricep Pushdown	Tricep Pushdown	1 Arm Tricep Ext.
Hamstrings	Seated Leg Curl	Seated Leg Curl	Back Extension
Sets x Reps	3x8-12 all ex.	3x8-12 all ex.	3x8-12 all ex.

Table 3. Low frequency training routine.

Monday	Wednesday	Friday
Pectoralis, Deltoids, Triceps (sets)x8-12 reps	Upper Back, Biceps (sets)x8-12 reps	Quadriceps, Hamstrings, Calves (sets)x8-12 reps
Incline Press (3)	Pulldowns (6)	Hack Squats (3)
Flat Press (6)	Rows (3)	Leg Press (3)
Shoulder Press (3)	Seated Dbell Curls (6)	Lunges/Squats (3)
Lateral Raises (6)	1 Arm Bench Curls (3)	Seated Leg Curl (6)
Pushdowns (6)	Crunches (3)	Back Extension (3)
1 Arm Extensions (3)		Standing Calf Raise (9)

Note. Workouts were performed with 48 hours rest between each workout, three days per week.

Dbell=dumbbell, Ext=extension

TABLE 1. Training protocol

GROUPS	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY	
	<u>Sets</u>		<u>Sets</u>		<u>Sets</u>		<u>Sets</u>		<u>Sets</u>	
LFRT	Bench press	10	Squat	5	Seated row	10	Hamstring curl	10	Lateral Raises	5
	Triceps extension	5	Leg press 45°	5	Barbell curl	5	Calf standing	10	Abdominal crunch solo	10
									Lower back bench	10
HFRT	Leg press 45°	1	Bench press	2	Hamstring curl	2	Lateral raises	1	Calf standing	2
	Squat	1	Seated row	2	Bench press	2	Triceps extension	1	Abdominal crunch	2
	Bench press	2	Leg press 45°	1	Seated row	2	Barbell curl	1	Lower back bench	2
	Seated row	2	Squat	1	Leg press 45°	1	Squat	1	Seated row	2
	Hamstring curl	2	Hamstring curl	2	Squat	1	Leg press 45°	1	Hamstring curl	2
	Barbell curl	1	Barbell curl	1	Barbell curl	1	Seated row	2	Barbell curl	1
	Triceps extension	1	Triceps extension	1	Triceps extension	1	Bench press	2	Triceps extension	1
	Lateral Raises	1	Lateral Raises	1	Lateral Raises	1	Hamstring curl	2	Lateral Raises	1
	Calf standing	2	Calf standing	2	Calf standing	2	Calf standing	2	Leg press 45°	1
	Abdominal crunch	2	Abdominal crunch	2	Abdominal crunch	2	Abdominal crunch	2	Squat	1
	Lower back bench	2	Lower back bench	2	Lower back bench	2	Lower back bench	2	Bench press	2

TABLE 1. Resistance training program, as represented by sets \times reps for each of the main lifts.*

	Squat		Bench press		Deadlift	
	3 \times	6 \times	3 \times	6 \times	3 \times	6 \times
Monday	4 \times 8	2 \times 8	4 \times 8	2 \times 8		
Tuesday		2 \times 5		2 \times 5		
Wednesday	4 \times 5	2 \times 3	4 \times 5	2 \times 3		2 \times 3
Thursday		2 \times 8		2 \times 8		
Friday	4 \times 3+	2 \times 5	4 \times 3+	2 \times 5	4 \times 3+	
Saturday		2 \times 3+		2 \times 3+		2 \times 3+

*+ Autoregulated progressive resistance exercise sets completed.



TABLE 2. Training protocols for TOTAL and SPLIT.*

	Monday	Tuesday	Wednesday	Thursday	Friday
TOTAL (n = 9)	Incline dumbbell press 3 × 10–12 RM	Incline bench press 3 × 10–12 RM	Bench press 3 × 10–12 RM	Incline bench press machine 3 × 10–12 RM	Bench press machine 3 × 10–12 RM
	Biceps curl 3 × 10–12 RM	Dumbbell incline curl 3 × 10–12 RM	Dumbbell preacher curl 3 × 10–12 RM	Barbell preacher curl 3 × 10–12 RM	Dumbbell hammer curl 3 × 10–12 RM
	Parallel back-squat 3 × 10–12 RM	Leg press 3 × 10–12 RM	Barbell split squat 3 × 10–12 RM	Hack squat 3 × 10–12 RM	Deadlift 3 × 10–12 RM
	Lat pull-down 3 × 10–12 RM	Machine lat pull-down 3 × 10–12 RM	Neutral-grip lat pull-down 3 × 10–12 RM	Machine close-grip seated row 3 × 10–12 RM	Machine wide-grip seated row 3 × 10–12 RM
	Cable triceps 3 × 10–12 RM	Nosebreaker 3 × 10–12 RM	Cable overhead triceps extension 3 × 10–12 RM	Cable triceps press-down 3 × 10–12 RM	Cable triceps kickback 3 × 10–12 RM
SPLIT (n = 9)	Incline dumbbell press 3 × 10–12 RM	Biceps curl 3 × 10–12 RM	Parallel back-squat 3 × 10–12 RM	Lat pull-down 3 × 10–12 RM	Cable triceps 3 × 10–12 RM
	Incline bench press 3 × 10–12 RM	Dumbbell incline curl 3 × 10–12 RM	Leg press 3 × 10–12 RM	Machine lat pull-down 3 × 10–12 RM	Nosebreaker 3 × 10–12 RM
	Bench press 3 × 10–12 RM	Dumbbell preacher curl 3 × 10–12 RM	Barbell split squat 3 × 10–12 RM	Neutral-grip lat pull-down 3 × 10–12 RM	Cable overhead triceps extension 3 × 10–12 RM
	Incline bench press machine 3 × 10–12 RM	Barbell preacher curl 3 × 10–12 RM	Hack squat 3 × 10–12 RM	Machine close-grip seated row 3 × 10–12 RM	Cable triceps press-down 3 × 10–12 RM
	Bench press machine 3 × 10–12 RM	Dumbbell hammer curl 3 × 10–12 RM	Deadlift 3 × 10–12 RM	Machine wide-grip seated row 3 × 10–12 RM	Cable triceps kickback 3 × 10–12 RM

*TOTAL = total-body routine group; RM = repetition maximum; SPLIT = split-body routine group.



TABLE 1. Resistance training protocols.*

Group	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
RT3	Cross cable fly × 4 Bent-over barbell row × 4 Lateral raises × 4 Overhead dumbbell extensions × 4 Machine biceps curl × 4 Leg press × 4 Lying leg curl × 4	Off	Dumbbell fly × 4 Seated cable row × 4 Face pulls × 4 Lying triceps press × 4 Dumbbell biceps curl × 4 Leg extension × 4 Stiff-leg deadlift × 4	Off	Pec-dec fly × 4 Lat-pulldown × 4 Dumbbell shoulder press × 4 Triceps extension × 4 Barbell biceps curl × 4 Squat × 4 Lying leg curl × 4	Off
RT6	Cross cable fly × 2 Bent-over barbell row × 2 Lateral raises × 2 Overhead dumbbell extensions × 2 Machine biceps curl × 2 Leg press × 2 Lying leg curl × 2	Dumbbell fly × 2 Seated cable row × 2 Face pulls × 2 Lying triceps press × 2 Dumbbell biceps curl × 2 Leg extension × 2 Stiff-leg deadlift × 2	Pec-dec fly × 2 Lat-pulldown × 2 Dumbbell shoulder press × 2 Triceps extension × 2 Barbell biceps curl × 2 Squat × 2 Lying leg curl × 2	Cross cable fly × 2 Bent-over barbell row × 2 Lateral raises × 2 Overhead dumbbell extensions × 2 Machine biceps curl × 2 Leg press × 2 Lying leg curl × 2	Dumbbell fly × 2 Seated cable row × 2 Face pulls × 2 Lying triceps press × 2 Dumbbell biceps curl × 2 Leg extension × 2 Stiff-leg deadlift × 2	Pec-dec fly × 2 Lat-pulldown × 2 Dumbbell shoulder press × 2 Triceps extension × 2 Barbell biceps curl × 2 Squat × 2 Lying leg curl × 2

*RT3 = resistance training 3 times per week; RT6 = resistance training 6 times per week.

