

Local Metabolic Continuum

Drop Sets

In Order:
-Load
-Mechanical
-ROM
-Tempo

Agonist
paired Sets

Synergist
paired Sets

Rest Drop

Rest
Pause

REST
Pause

Cluster Set

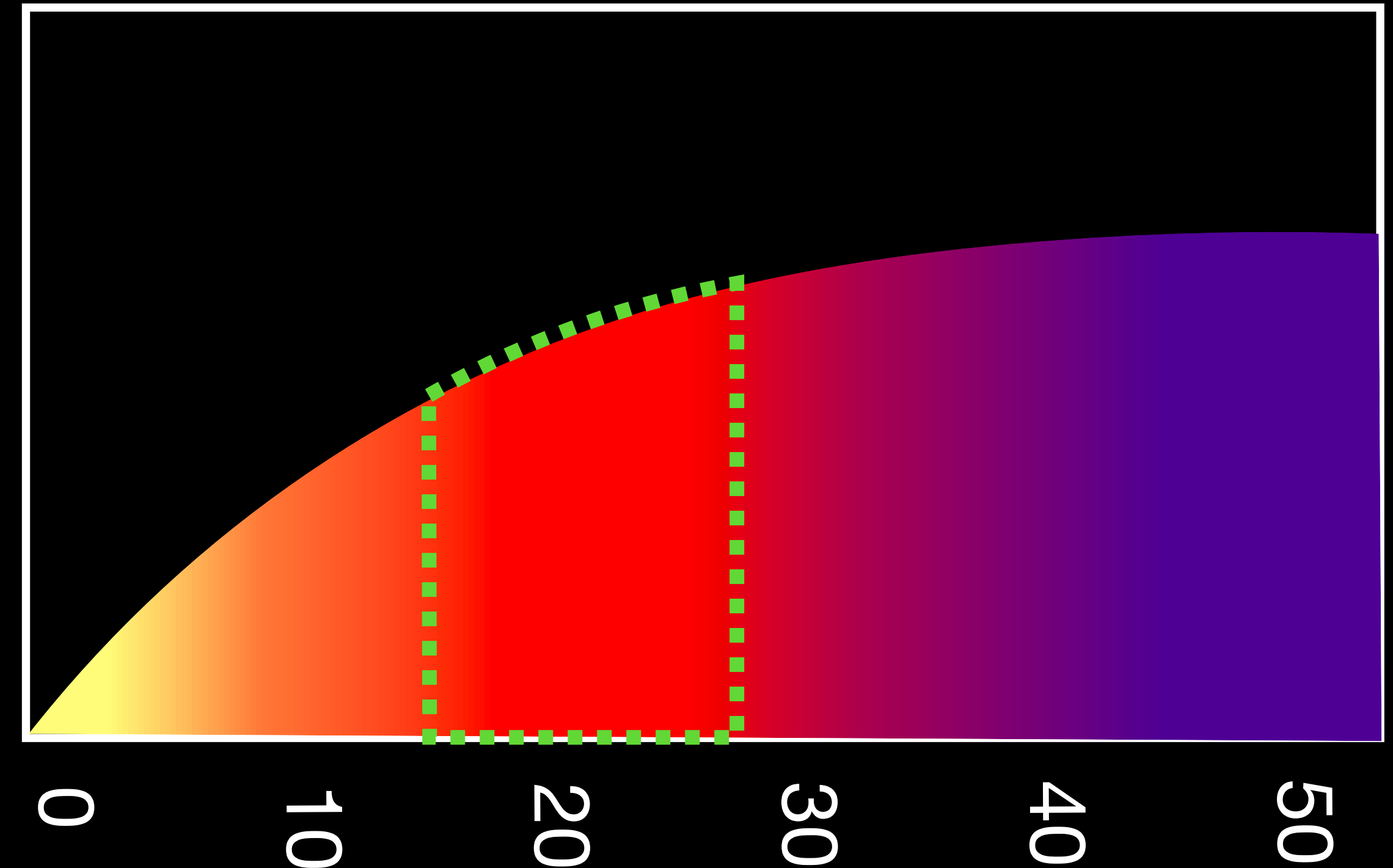
High Rep Sets

Metabolic

Intensity

Programming Higher Reps for Metabolic Goals

- ▶ The lower the intensity (higher the reps) the greater metabolic demand.
- ▶ However efficiency of stimulus:time and effort drops off.
- ▶ Very low intensity becomes more of a fuel burn off, than metabolic stimulus.



Programming Higher Reps for Metabolic Goals



- ▶ When your goals require a higher intensity but also a local metabolic stimulus, exclusively doing low intensity high rep sets won't suffice.
- ▶ Either have both some higher and lower intensity sets
 - ▶ OR
- ▶ Utilize Extended and specialty set methods that allow you to use both higher and lower intensities within the same sets.

Drop Sets For Metabolic Goals

- ▶ Drops methods that have a greater deviations or ability to to have multiple drops will give you a larger range of intensities you can work in a single set.
- ▶ Generally in order of the largest to smallest range of intensity
 - ▶ Load
 - ▶ Mechanical
 - ▶ ROM
 - ▶ Tempo

Dropping Load

- ▶ Can have small or large magnitude of difference between drops
- ▶ Can have multiple drops
- ▶ Can precisely choose the starting and ending intensity
- ▶ Easy to track and standardize

Choosing the size and number of drops

- ▶ What to know
 - ▶ Desired start and finishing intensity
 - ▶ Practicality of weight changes
 - ▶ More weight changes can increase time, increase variability in setup and technique, and make it harder to choose drop size/weight selection.
 - ▶ Average intensity
 - ▶ Smaller and greater number of drops will increase the average intensity of a set. They also usually include a small intraset rest component.

Rest + Drop Method for Metabolic Goals

- ▶ Rest drops are a way of increasing the average intensity and volume of a set while still making it to the end destination.
- ▶ Sometimes they are also just unavoidable or the more practical solution.
- ▶ You can combine drops and rest drops to fine tune the intensity and volume you want out of a set.

Agonist Pairings for Metabolic Goals

- ▶ What quality do you want to “change” in across exercises.
 - ▶ Challenge
 - ▶ ROM
 - ▶ Bias / Specificity
 - ▶ Complexity / Systemic Demand
 - ▶ Stability / Coordination

Agonist Pairings for Metabolic Goals

- ▶ **Lengthened to Short Biased**
 - ▶ Starting with the long allows you to get more performance in the lengthened exercise for more mechanical tension
 - ▶ Switching to a short biased exercise increases the magnitude of the “drop” effect, but also creates an earlier stopping point.
 - ▶ Can be a good way to mitigate some of the fatigue that gets compounded when combine lengthened bias with higher repetitions.

Agonist Pairings for Metabolic Goals

- ▶ **Short to Lengthened Biased**
 - ▶ Starting with the short decreases the relative pre-fatigue of the first exercise at the cost of volume of mechanical tension.
 - ▶ The overall performance of both exercises combined is greater, and more similar between exercises.
 - ▶ Will cause more fatigue related symptoms which may not be ideal for very high frequency:volume programs

Agonist Pairings for Metabolic Goals

- ▶ **Going from Bigger to Smaller complexity, or less to more specific**
 - ▶ **You always want the exercises that are more specific to the goal to be towards the end if you want to maximize the local metabolic stimulus and minimize compensation.**
 - ▶ **Choosing exercises that are too systemic can create a systemic limiter.**
 - ▶ **There should be a good reason you are choosing to use a bigger or more complex exercise when the goal is local metabolic.**
- ▶ **When looking through a lens of divisions, regions or different functions of the same muscle, the degree of difference in motor/fiber recruitment will determine how much of a weight drop you need to make the pairing work. In some cases you may choose to leave a few RIR in the first exercise(s).**

Agonist Pairings for Metabolic Goals

- ▶ All agonist pairings are also “drop” sets in that subsequent exercises will be done at a lower given intensity for the rep range than if they were done in isolation.
- ▶ Thus we can apply the same drop set principles to number of exercises as long as we also apply the exercise selection principles.

Synergist Pairings For Metabolic Goals

- ▶ Because the exercises are more differentiated now, we are just relying on some cross over fatigue.
- ▶ This makes it more important that each exercise is taken to a degree of metabolic demand in isolation.
- ▶ This means the first exercise has an intensity ceiling.

More Pairing Principles

- ▶ All pairings are drop sets in a way
- ▶ The ending intensity is still one of the most important factors
- ▶ Starting and average intensity benefits are still one of the main reason to use them.
- ▶ You can manipulate variables other than exercise selection to influence the intensity ranges
 - ▶ How many exercises
 - ▶ What loads
 - ▶ How much rest between
 - ▶ RIR for each



Extended Sets For Hypertrophy

Metabolic vs Hyper Vs Strength Overview

- ▶ **Metabolic**

- ▶ Most important factor is the intensity you finish at.

- ▶ **Hypertrophy**

- ▶ Most important is the relative volume you accumulate.
 - ▶ (rep/set*intensity*effort)

- ▶ **Strength**

- ▶ Most Important is the intensity you start with, and a close second being the average intensity.

How I look at Volume of Extended Sets

- ▶ What are the variables that effect our stimulus
 - ▶ Sets & Reps
 - ▶ Intensity
 - ▶ RPE/RIR
- ▶ So I look at the intensity range, and average intensity
 - ▶ The range and average RIR/RPE
 - ▶ Over how many sets and reps

How I look at Volume of Extended Sets

- ▶ The volume of a rep is determined largely by the intensity and to a lesser degree the proximity of failure or similar proxies.
 - ▶ 1 rep at your 5RM is greater than 1 rep at your 20 RM
- ▶ The volume of set is the sum of those rep qualities.
- ▶ When we do extended sets, we need to look at intensity and RIR/RPE of the additional reps.

Using Intensity Alone - Higher Rep Examples

	Primary	RP	RP	RP			Total	Relative
Single RP	20	11					31	1.6
Double RP	20	11	10				41	2.1
Triple RP	20	11	10	9			50	2.5
Quad RP	20	11	10	9	8		58	2.9
Nickle RP	20	11	10	9	8	7	65	3.3
Single RP	15	8					23	1.5
Double RP	15	8	7				30	2.0
Triple RP	15	8	7	6			36	2.4
Quad RP	15	8	7	6	5		41	2.7
Nickle RP	15	8	7	6	5	4	45	3.0

► We can get an estimate of a set at a given intensity equivalent.

Using Intensity Alone - Moderate Rep Examples



	Primary	RP	RP	RP			Total	Relative
Single RP	12	7					19	1.6
Double RP	12	7	6				25	2.1
Triple RP	12	7	6	5			30	2.5
Quad RP	12	7	6	5	4		34	2.8
Nickle RP	12	7	6	5	4	3	37	3.1
Single RP	10	6					16	1.6
Double RP	10	6	5				21	2.1
Triple RP	10	6	5	4			25	2.5
Quad RP	10	6	5	4	3		28	2.8
Nickle RP	10	6	5	4	3	2	30	3.0

► We can get an estimate of a set at a given intensity equivalent.

Using Intensity Alone - Lower Rep Examples

	Primary	RP	RP	RP			Total	Relative
Single RP	8	5					13	1.6
Double RP	8	5	4				17	2.1
Triple RP	8	5	4	3			20	2.5
Quad RP	8	5	4	3	2		22	2.8
Nickle RP	8	5	4	3	2	1	23	2.9
Single RP	6	4					10	1.7
Double RP	6	4	3				13	2.2
Triple RP	6	4	3	2			15	2.5
Quad RP	6	4	3	2	1		16	2.7

► We can get an estimate of a set at a given intensity equivalent.

What's missing?

	Primary	RP	RP	RP			Total	Relative
Single RP	12	7					19	1.6
Double RP	12	7	6				25	2.1
Triple RP	12	7	6	5			30	2.5
Quad RP	12	7	6	5	4		34	2.8
Nickle RP	12	7	6	5	4	3	37	3.1
Single RP	10	6					16	1.6
Double RP	10	6	5				21	2.1
Triple RP	10	6	5	4			25	2.5
Quad RP	10	6	5	4	3		28	2.8
Nickle RP	10	6	5	4	3	2	30	3.0

► This method doesn't account for the fact that you are training more reps closer to failure relative to repeated straight sets.

Rep/RIR Relationship

	Primary	RP	RP	Total	Relative
Straight Set	10	10		20	2.0
Average RIR	5	5			5.0
Double RP	10	6	5	21	2.1
Average RIR	5	3	2.5		3.5

- ▶ If we do a little “effective/stimulatory” rep math...
 - ▶ The straight sets have 11.8 “effective” reps
 - ▶ The Rest Pause has 15.9 “effective” reps

What About Drops?

	Primary						Total	Relative
Straight Set	10	10					20	2.0
Average RIR	5	5						5.0
Intensity	10	10						10.0
Double RP	10	6	5				21	2.1
Average RIR	5	3	2.5					3.5
Intensity	10	10	10					10.0
Drop Set	10	6	5				21	2.1
Average RIR	5	3	2.5					3.5
Intensity	10	15	20					15.0
Rest Drop	10	10					20	2.0
Average RIR	5	5						5.0
Intensity	10	15						12.5

- ▶ Drop sets result in a change in the average intensity. 20 reps @10RM is more volume than 20 reps @15RM.
- ▶ You could look at it as 2 sets of 10 vs 1.25 sets of 15.

Effect Reps Theory - Does it Work in Application?



- ▶ The proximity to failure and effective reps theory has major practical limitations.
- ▶ This theory looks at a single set in isolation and does not account for what happens across multiple sets.
- ▶ If you take your first set to failure, you will get fewer reps the second set, but if you leave 1-2 RIR, you may get that 1-2 RIR on the second or later sets.
- ▶ Fatigue early decreases performance in later sets. RIR early increases performance in later sets.

The RIR study on Quads is a great example

- ▶ When training to failure, the first exercise showed better regional growth, when using some RIR, the second exercise showed better regional growth.

My Suggestion on Whether to Apply an Effective Reps Measure

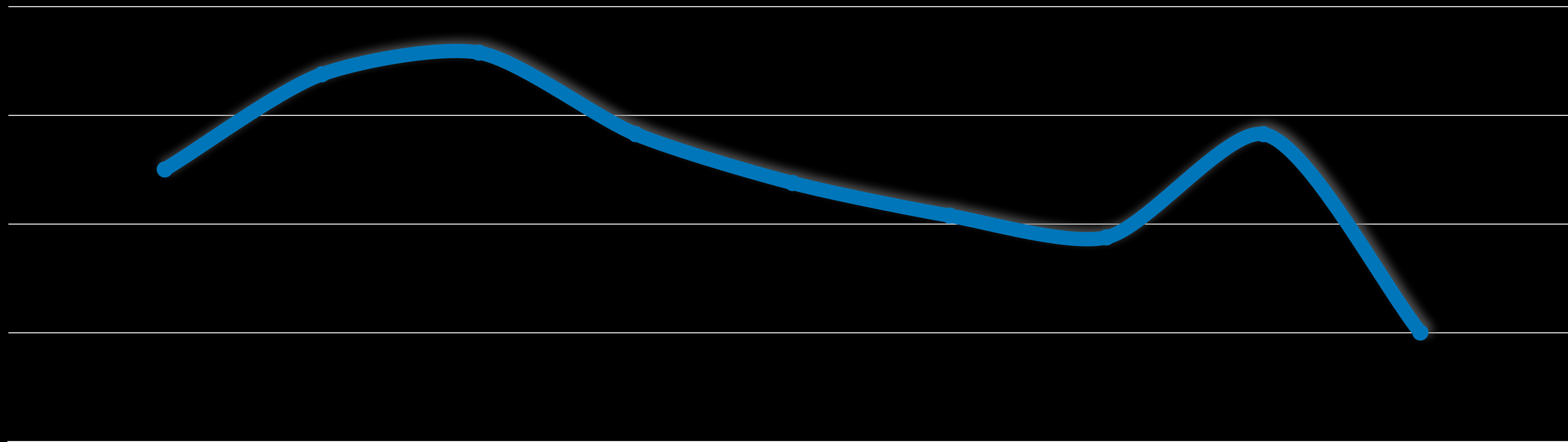


- ▶ Principally - Train hard, close to failure
- ▶ Be more concerned about the idea of effective reps only if volume is very low. ≤ 3 sets.
With more sets you are likely getting performance compensation, and this is the best explanation for what we see in the research IMO.
- ▶ In most cases volume:intensity is a good enough proxy.
 - ▶ IE - This extended set method allows me to get X amount of reps at a Y average intensity.
 - ▶ 60 reps @ 15RM = 4 set of 15 to failure
- ▶ This makes the volume comparable to straight sets for programming and assessment purpose.

Rest:Rep Efficiency

Rest:Rep Efficiency

10s 20s 30s 45s 60s 90s 2m 3m 5m



50% RP Method for Efficiency

Primary Reps	Method	Reps	Method	Reps	Method	Reps	Method	Reps	Method	Reps	Method	Reps	Total Reps	Set Equivalent	Reps/min	Set/min rest
20	RP	11	RP	10	RP	9	RP	8	RP	7	RP	6	71	3.55	23.67	1.18
20	RP	10	RP	9	RP	8	RP	7	RP	6	RP		60	3.00	24.00	1.20
15	RP	8	RP	7	RP	6	RP	5	RP		RP		41	2.73	20.50	1.37
15	RP	7	RP	6	RP	5	RP		RP		RP		33	2.20	22.00	1.47
12	RP	7	RP	6	RP	5	RP	4	RP		RP		34	2.83	17.00	1.42
12	RP	6	RP	5	RP	4	RP		RP		RP		27	2.25	18.00	1.50
10	RP	6	RP	5	RP	4	RP	3	RP		RP		28	2.80	14.00	1.40
10	RP	5	RP	4	RP	3	RP		RP		RP		22	2.20	14.67	1.47
8	RP	5	RP	4	RP	3	RP		RP		RP		20	2.50	13.33	1.67
8	RP	4	RP	3	RP	2	RP		RP		RP		17	2.13	11.33	1.42
6	RP	4	RP	3	RP	2	RP		RP		RP		15	2.50	10.00	1.67
6	RP	3	RP	2	RP		RP		RP		RP		11	1.83	11.00	1.83
5	RP	3	RP	2	RP		RP		RP		RP		10	2.00	10.00	2.00
5	RP	2	RP		RP		RP		RP		RP		7	1.40	14.00	2.80
4	RP	3	RP	2	RP		RP		RP		RP		9	2.25	9.00	2.25
4	RP	2	RP		RP		RP		RP		RP		6	1.50	12.00	3.00
3	RP	2	RP	1	RP		RP		RP		RP		6	2.00	6.00	2.00
3	RP	1	RP	1	RP		RP		RP		RP		5	1.67	5.00	1.67

Intensity as a guide for advanced sets

▶ Linear Intensity

- ▶ Rest Pause
- ▶ ROM drops
- ▶ Mechanical Drops
- ▶ Full Rest Exercise Pairings

Intensity as a guide for advanced sets

- ▶ Intensity drops

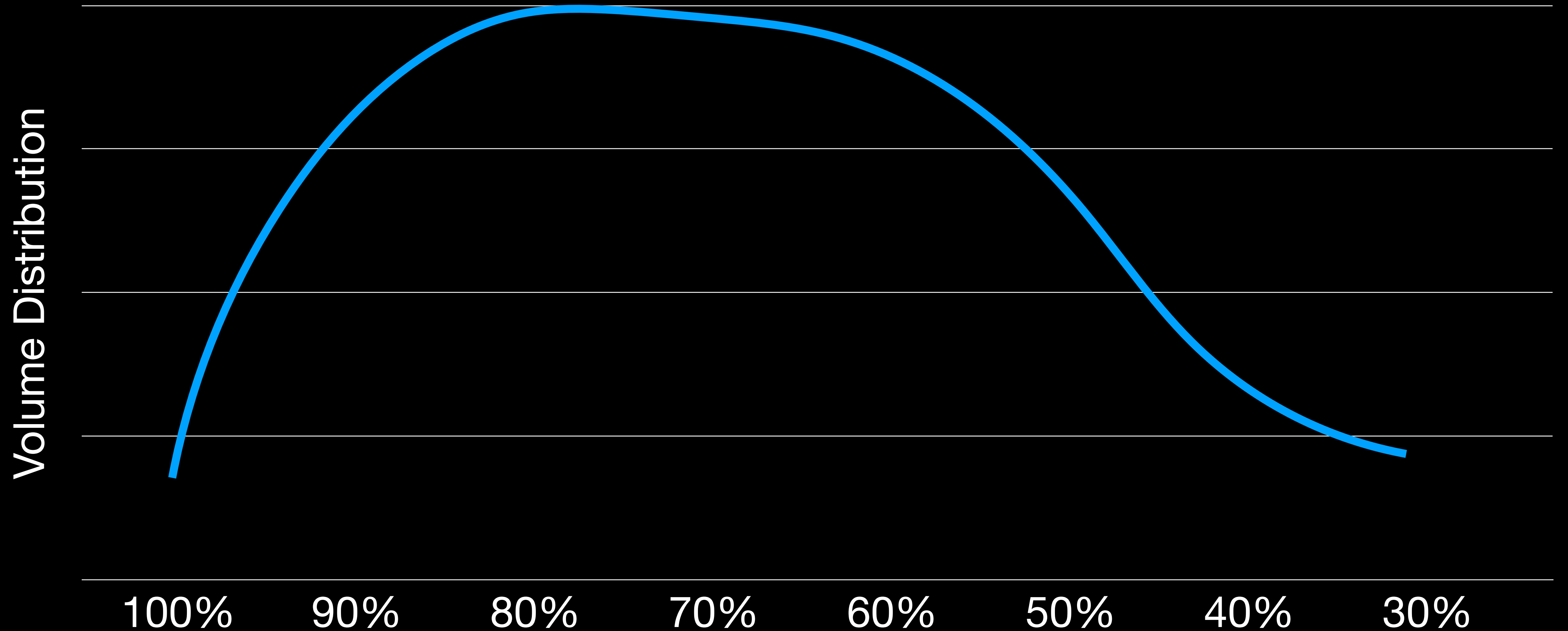
- ▶ Drop Sets

- ▶ Incomplete Rest Exercise Pairings

- ▶ Heavy Light supersets*!*

- ▶ Ascending Rep super-giant-sets*!*

Intensity Window for hypertrophy



Maintaining an intensity threshold

- ▶ It may be unproductive to go below a certain intensity
 - ▶ Most often I'm going not going to drop below 50% intensity, while sometimes dropping to 40%.
 - ▶ I'll almost never drop below 30% 1RM even with extended set techniques.

Managing Intensity for extended sets

- ▶ Don't start too low on reps for rest pause
- ▶ Don't start too high on reps for drop sets
 - ▶ Or supersets that function like a superset.
- ▶ Use Rest-Drops, or mix RP and drops
 - ▶ Using the appropriate method can help you stay within the intensity window you want.

Rest Drops and mixing RP and DS

- ▶ Rest drops allow you to maintain or increase reps from the previous set, or simply lose reps slower.
- ▶ Using a DS is a way of bringing reps back up or stopping the decline in a rest pause cluster.
- ▶ Using a rest pause within a drop set cluster can be a way of decreasing how much intensity drops.
- ▶ You can use a rep window to guide you, or have prescribed RD,RP,DS to accomplish this.

Rest Pause

- ▶ Cluster sets
 - ▶ Minimizing fatigue
 - ▶ Maximizing Intensity
- ▶ Myo Reps
 - ▶ Low rest, low intensity
- ▶ Traditional
 - ▶ More rest, more intensity

Drop sets

- ▶ Load Drops
- ▶ ROM drops (partials)
- ▶ Mechanical Drops (leverage/challenge)

Questions

- ▶ How do you determine the number of reps and sets of an incomplete rest method?
- ▶ When do you choose 4 sets or 6 or 8 sets?
- ▶ When do you choose 6 reps, 8 reps or 10 reps?
- ▶ How do you determine the rest?
- ▶ How do you determine the % of weight drop in a drop set?
- ▶ When do you choose 10% drop, or 20% drop or more?
- ▶ When do you choose a regular drop set and when a Rest-Drop
- ▶ How do you determine the rest in a Rest Drop?
- ▶ When do you choose for 10, 20, 30 or 40(the max) seconds?
- ▶ I don't got a specific question about agonist pairings, but I watched the course 3 times and I find it just hard to understand. Could you maybe give a few extra examples?

Extended Set Application

- ▶ Same Volume in LESS time
- ▶ More Volume in the same time
- ▶ Time Efficiency when supersets are not practical
- ▶ Load, degree of failure and Intensity Management
 - ▶ Increase or limit the range of intensity
 - ▶ Increase or limit degree of failure
 - ▶ Increase average RPE decrease average RIR
 - ▶ Accumulate more “effective/stimulating” reps per set and/or unit of time

Considerations when using extended sets

- ▶ What are the goals?
 - ▶ Total volume, intensity, degree of failure etc
- ▶ What options/constraints do you have
 - ▶ Time, number of rounds
- ▶ Logistical and Practical limitations
 - ▶ Equipment, loading, etc

Some Exercises have significant time and performance benefits from Rest Pause

- ▶ Exercises that have a time/effort consuming portion of each setup can benefit even more from rest pause.
 - ▶ Example Cable press backs & kickbacks.
 - ▶ By eliminating the time and effort of connecting the ankle cuff and getting into position, you can drastically improve the performance:time ratio.

Traditional RP vs Myo-Reps Vs Kas RP

- ▶ Traditional Rest Pause
 - ▶ Primary sets + extended sets after short rest, all to failure.
- ▶ Myo-reps
 - ▶ Used to keep you away from failure. Basically RP performed with a limit on the RIR until the end.
 - ▶ Primary + extended (mini) sets, but all done with RIR or with descending RIR reaching failure at the very end.
- ▶ Kas-RP
 - ▶ Maximizes the highest rate of recovery for efficiency to get more volume
 - ▶ Use the rest interval that allows you to get $\geq 50\%$ of the primary set on the first extended set.
 - ▶ Can be done with all sets to failure or 1-2 RIR in the primary and then all extended sets to failure/0RIR.

Mixing Straight Sets and Extended Sets

- ▶ Decreasing the degree of failure early allows for greater repeat performance at the higher intensities
- ▶ Having more straight set volume can make managing loads and progressions easier.
- ▶ The more straight sets, the less time efficient.
- ▶ You just need to decide how you want to distribute and scale effort.
 - ▶ The more intensity is the primary goal, the more you want to use straight sets and/or rest pause
 - ▶ The more you want to prioritize time efficiency for volume, less straight sets, and longer extended set clusters.

Similar Volume Examples -1

- ▶ Lets say you wanted to get ~4 sets of 8-10 volume done in less time without dropping intensity.
 - ▶ Kas Rest Pause (50% recovery method)
 - ▶ A - 8@2RIR, 6, 5, 4, 3
 - ▶ B - 8@2RIR + 8,6,5,4
 - ▶ C - 10,6,5 + 8,5,4
 - ▶ D - 10,6 +9,5 + 8,5
 - ▶ More traditional RP 10-20s
 - ▶ A - 2x 8@2RIR, 4, 2, 2,
 - ▶ B - 2x8-10 + 8@2RIR, 4, 2, 2, 1, 1
 - ▶ C - 3x with 1 RP (8-10,2-4)
 - ▶ D - 8,4 + 8,4,2 + 8,4,2,2

Similar Volume Examples -2

- ▶ Lets say you wanted to get ~4 sets volume done in less time and you want to cover an intensity range of 6RM to 15RM
 - ▶ Straight set example options
 - ▶ 3x6-8RM + 1x 15RM
 - ▶ 2x6-8RM + 2x 15RM
 - ▶ 1xea (6RM, 8RM, 12RM, 15RM)
 - ▶ Dropsets
 - ▶ A - 1 straight set + 2x (6RM, 10RM, 15RM)
 - ▶ B - 2 straight sets + 6RM, DS to 10RM, RP@10RM, DS to 15RM
 - ▶ C - 2x (6RM, DS to 10RM ,RP@10RM, DS to 15RM)