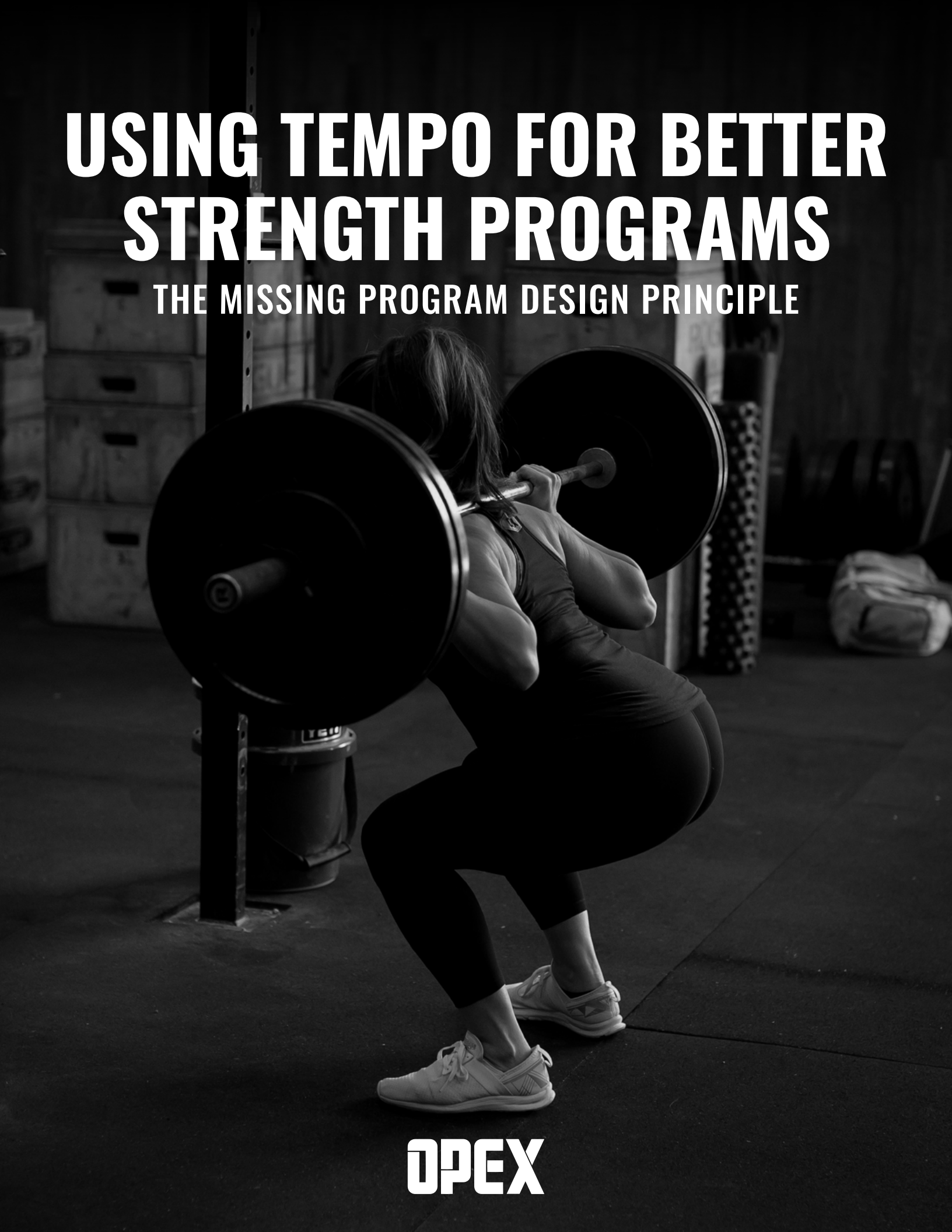
USING TEMPO FOR BETTER STRENGTH PROGRAMS

THE MISSING PROGRAM DESIGN PRINCIPLE



OPEX

INTRODUCTION

If you want to write effective strength training programs, then tempo is one exercise principle that you should never leave out.

By manipulating these four little numbers you can drastically alter the stimulus of a training session, either to get the results you want or miss the mark completely.

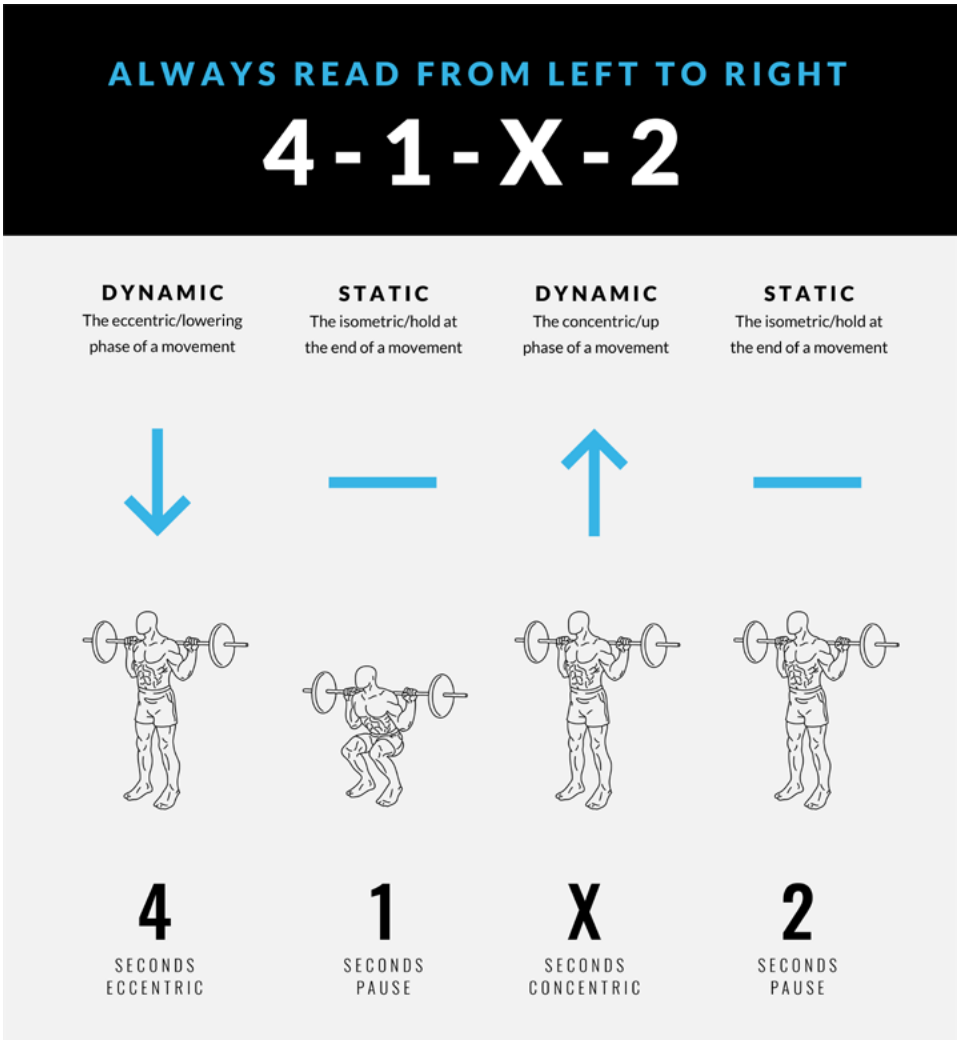
In this guide, you'll learn what tempo training is, why it's important, and how to apply it to five different training goals: absolute strength, motor control, hypertrophy, power, and muscle endurance.

WHAT IS TEMPO?

Tempo is the rate at which exercise is performed. It is made up of four numbers that correspond to the four contractions in a movement. Each number represents the seconds that each contraction is being performed for.

Eccentric: The muscle lengthening with gravity.
Isometric: The end of that range of motion.
Concentric: The shortening of the muscle against gravity.
Isometric: The top of that position.

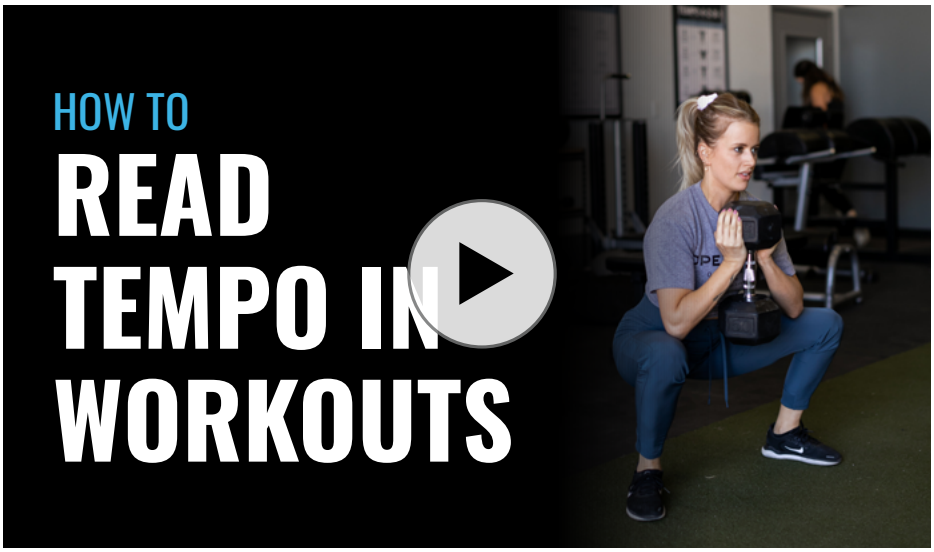
Along with reps, tempo determines time under tension (TUT). TUT is the time that muscles are under tension during each set of an exercise. For example, 5 reps @2020 is 20 seconds of time under tension.



Tempo is always written in the order shown above (eccentric, isometric, concentric, and isometric), but **some movements such as a pull-up or deadlift may start with the concentric.** For these movements, read the third number first.

An "X" refers to explosive intent, meaning to move as quickly as possible through the concentric contraction. Research has shown that the instruction to move as explosively as possible can result in greater muscle fiber recruitment.

An "A" refers to with assistance, meaning to perform the concentric contraction using assistance. This is often used for beginners, so they can overload the eccentric portion of a movement when they are unable to perform the concentric, for example, on pull-ups or dips.



WHY IS TEMPO IMPORTANT?

1. To control dose response

Tempo is a powerful tool for manipulating the dose-response, or stimulus, of a training session.

To illustrate this, imagine performing 5 reps of a back squat @20X0. Now, imagine doing it at a @4242 tempo. The amount of load you can lift, the metabolic effect, and the muscle endurance demands will be significantly different.

Some ways that tempo can be applied include to develop absolute strength, motor control, muscle endurance, hypertrophy (to build muscle), and power, as well as to provide a greater metabolic response.

2. To create movement control

Using slow tempos can be a great way to develop motor control and create awareness of what the body is doing, and should be doing, through each contraction in an exercise.

Here are three examples of using tempo to create movement control:

- A @32X0 tempo on a squat will create control on the lowering and a solid bottom position.
- A @20X2 tempo on a bent row will focus on scapular retraction and squeezing the lats at the top, and lowering the weight with control.
- A @20X1 tempo on an overhead press will encourage focus on locking out the overhead position and lowering the weight with control.

3. To ensure repeatability of an exercise

By prescribing tempo to exercises every week, you can ensure repeatability from session to session and help your clients progress their loads within these parameters.

For example, if a client knows they need to maintain a @2111 tempo on their bench press, then they will choose a load that allows them to stick to this, rather than going too heavy and performing a @1042 tempo.

Prescribing tempo will also help you collect assessment data that is repeatable and reliable, so you can accurately track progress over time.

For example, a max set of pull-ups performed at a @30X0 tempo differs from a max set performed at @1030.

APPLYING TEMPO TO DIFFERENT TRAINING GOALS

The program design examples below illustrate how tempo, reps, time under tension (TUT), and sets can be manipulated to support different priorities and goals.

CASE STUDY: ABSOLUTE STRENGTH

Client Megan is 20 weeks out from competing in a local powerlifting competition and is in an accumulation phase of training.

Priorities include increasing the deadlift by improving hip extension and the bench press by improving strength going from the isometric (pause at the chest) to the concentric.

A. Deadlift @21X1, 4-5 reps x 4 sets; rest 3-4 minutes
B. Bench Press @22X1, 4-5 reps x 4 sets; rest 3-4 minutes
C1. Barbell Hip Thrust @21X1, 6-8 reps x 3 sets; rest 2 minutes
C2. Dumbbell Bench Press @21X1, 6-8 reps x 3 sets; rest 2 minutes

TUT for developing absolute strength is typically between 0 and 30 seconds. As Megan is in accumulation, her primary lifts stick to the higher end of this range. For example, @22X1 x 5 reps = 30 seconds of TUT.

Megan's coach prescribes a pause at the bottom position of her bench press to focus on building strength off the chest.

In her accessory work, she has a pause at the top of her hip thrust to focus on hip extension.

The X for explosive concentric across exercises is intended to encourage Megan to maximally recruit for each repetition.

CASE STUDY: MOTOR CONTROL

Beginner client Adam is training for health and longevity.

His assessment reveals an inability to keep a vertical torso on the squat due to motor control. He also lacks motor control in scapular retraction on the reverse plank.

A1. Goblet Squat @3131, 8-10 reps x 3 sets; rest 60-90 seconds
A2. Dumbbell Bench Press @2121, 8-10 reps x 3 sets; rest 60-90 seconds
B1. Split Squat @3111, 8-10 reps x 3 sets; rest 60 seconds between sides, 90 seconds between sets
B2. Seated Cable Row @3012, 8-10 reps x 3 sets; rest 90 seconds
C1. Prone Lift-Offs @1012, 10-12 reps x 2 sets; rest 60 seconds
C2. Bent Hollow Hold, 30-45 seconds x 2 sets; rest 60 seconds

TUT for a beginner focusing on motor control is in the 30 to 90-second range. Due to his training age, Adam's squat TUT is 64-80 seconds and his bench press TUT is 48-60 seconds.

Adam's coach prescribes a slow eccentric, pause, and concentric on his goblet squat to encourage him to focus on maintaining control through the movement.

A pause at the top on the cable row and prone lift-offs will encourage Adam to focus on scapular retraction.

CASE STUDY: HYPERTROPHY

Boris is an intermediate client who wants to put on muscle mass.

He is following a full body training split to keep frequency high over the week, with hypertrophy as the priority. In this training session, he is focusing on quads, shoulders, hamstrings, biceps, and core.

A1. Romanian Deadlift @51X0, 5-6 reps x 4 sets; rest 90 seconds
A2. Dumbbell Shoulder Press @20X1, 10-12 reps x 4 sets; rest 90 seconds
B1. Cyclist Back Squat @20X1, 10-12 reps x 4 sets; rest 90 seconds
B2. Incline Dumbbell Bicep Curl @3010, 10-12 reps x 4 sets; rest 90 seconds
C1. Oblique Raises @1011, 14-16 alt reps x 3 sets; rest 60 seconds
C2. Swiss Ball Cable Crunch @20X1, 10-12 reps x 3 sets; rest 90 seconds

As a rule of thumb, around 40 seconds of TUT per set is ideal for hypertrophy goals. Consequently, Boris' TUT is between 35-48 seconds for each set of each exercise.

The hamstrings have a higher percentage of type II fast twitch muscle fibers and respond well to slower eccentrics and explosive concentrics at a lower volume. Knowing this, Boris' coach prescribes a Romanian deadlift with a relatively slow eccentric and lower number of reps, @51X0 x 5-6 reps.

CASE STUDY: POWER

Faris is an Olympic Weightlifter who can front squat 350lb and clean 255lb. His technique is sound, but he is stronger than he is fast and needs to develop strength speed.

A. Seated Box Jump, 1.1 x 6 sets; rest 10 sec between reps and 60 sec between sets
*explode
B. Power Clean, 2 reps x 5 sets @ 80-85%; rest 2-3 minutes
*all reps fast and snappy
C. Clean Pull, 1.1.1 x 4 sets @100-110% clean, rest 20 seconds between reps and 2 minutes between sets
*explode past the knee, aggressive triple extension

TUT per set for power development is very low (< 10 seconds), and the goal of each rep is to move as quickly as possible on the concentric.

As strength speed is the priority, Faris's coach doesn't prescribe a traditional tempo in his training session. Instead, his coach leaves a note to approach each rep with explosive intent, communicating consistently with language that Faris understands. While this is not the traditional 4 numbers, it will still influence Faris's execution of each rep.

CASE STUDY: MUSCLE ENDURANCE

Susanne, a Brazilian Jiu Jitsu competitor, needs to develop core, grip, and bridging (hamstring/glute) muscle endurance to translate to the demands of the mat.

A1. Barbell Hip Thrust @30X1, 18-16-14; rest 90 seconds
A2. Hanging Knee Raises @2021, 12 reps x 3 sets; rest 90 seconds
B1. Fat Grip Dumbbell Row @30X1, 12-15 reps x 3 sets; rest 60 seconds between sides and 90 seconds between sets
B2. Alternating V-Ups @1010, 30 reps x 3 sets, rest 90 seconds
C1. Pinch Grip Carry, 60 seconds x 3 sets, rest 60 seconds between arms
C2. Weighted GHD Hip Extension @2021, 12-15 reps x 3 sets; rest 90 seconds

As a rule of thumb, TUT for training muscular endurance should be over 60 seconds. This high volume training can be achieved through high repetitions and/or slower tempos. In Susanne's program, her coach chose to program slower tempos, including slow eccentrics, concentrics, and pauses.

Training for muscular endurance will often result in a high amount of metabolic fatigue, especially for intermediate and advanced trainees. The high level of fatigue makes it important to consider movement pairing to avoid interference in supersets. Susanne's coach deliberately paired grip intensive exercises with exercises that do not challenge the grip. This is illustrated by the hip thrust/hanging knee raise, fat grip row/v-up, and pinch grip carry/hip extension supersets.

Susanne's coach selects a @2021 tempo for the hip extension and a @30X1 tempo for the hip thrust, which when combined with the high number of repetitions will result in a muscle endurance dose-response.

Similarly, the high TUT on the hang, row, and pinch grip carry will challenge Susanne's grip muscle endurance.

Finally, the high TUT on the knee raises and v-ups, especially when combined with compound movements, will challenge Susanne's core muscle endurance.

THE FITNESS PRINCIPLES EVERY COACH NEEDS TO KNOW

In this guide we've gone deep into the principle of tempo, but to be a fitness expert it's important to go wide too. That's because tempo is **just one of the many principles that top fitness coaches use** to write effective fitness programs.

Whether your clients are training for strength, hypertrophy, or motor control, the best way to get them results is through a fitness program that is **tailored to their goals** and includes lifestyle and nutrition prescriptions that extend beyond the gym.

In our flagship education and mentorship, the OPEX Coaching Certificate Program (CCP), we teach coaches like you the principles of exercise, behavior, and nutrition, the science behind them, and how to implement them with the OPEX Method.


READY TO BECOME A CCP COACH?
COACHING CERTIFICATE PROGRAM
An OPEX CCP Coach is a trusted fitness advisor and a partner in delivering results to clients. They are leaders on the front lines, making a real difference in the lives of people in their community. Ultimately, what makes OPEX CCP Coaches stand out is their ability to meet their clients where they are at — regardless of age, training history, lifestyle, or goals — and design a comprehensive personalized fitness program.
ARE YOU READY TO BECOME A LEADING FITNESS PROFESSIONAL?
LEARN MORE
OPEX CCP