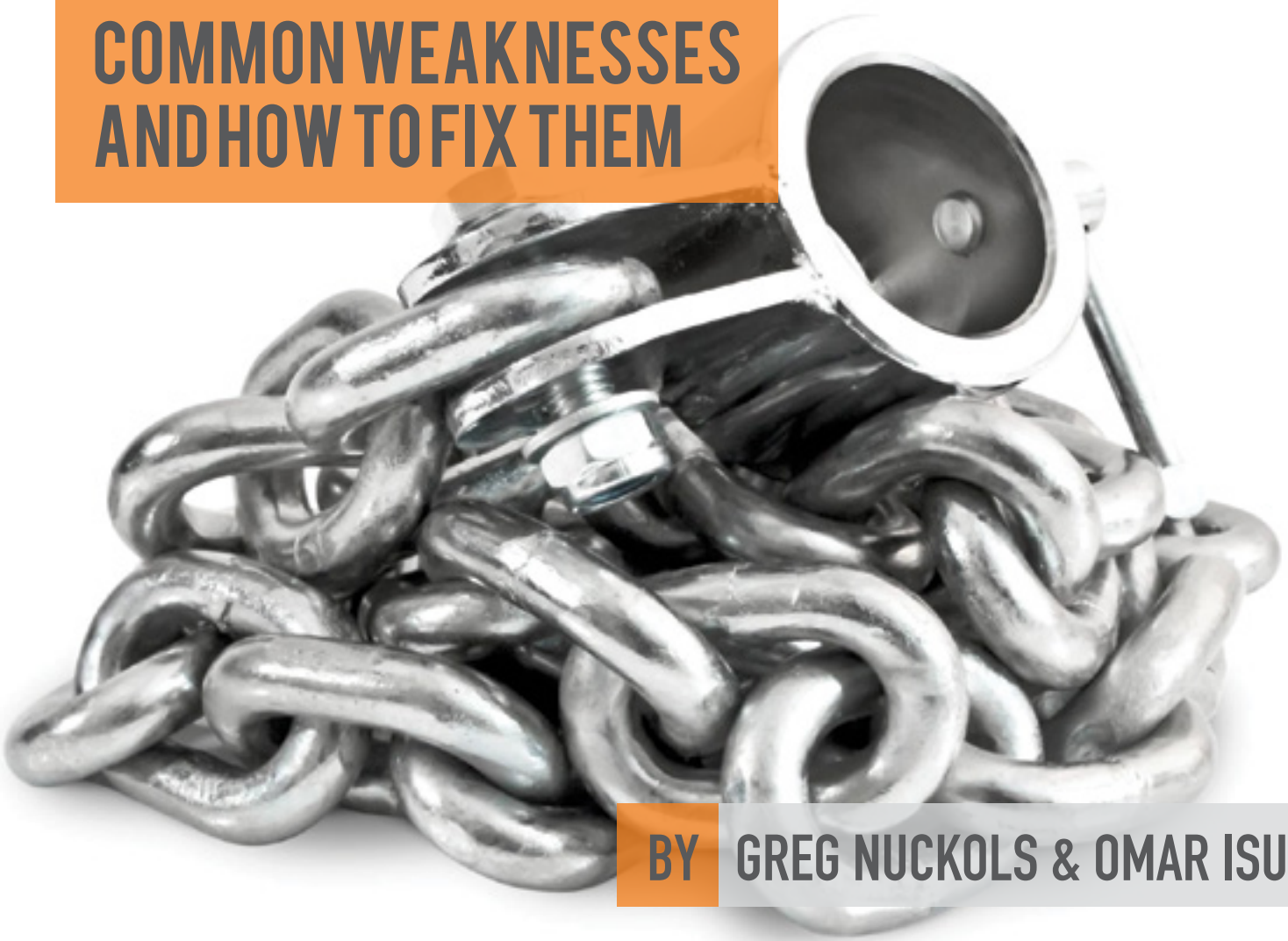
NO WEAK LINKS:

COMMON WEAKNESSES AND HOW TO FIX THEM



BY GREG NUCKOLS & OMAR ISUF

The point of this guide is simple – break down the squat, bench press, and deadlift, explain why people miss lifts in the characteristic places that they do, teach what that says about weaknesses, and tell how to fix them.

The Squat

The three things you must accomplish to stand up from the bottom of a squat:

1. Extend the knees.
2. Extend the hips.
3. Transfer the force from your knees and hips into the bar (keep your torso rigid).

How you know knee extension is your weakness:

If your back angle relative to the ground steepens (you lean farther forward) between parallel and the sticking point of the squat, that generally means your quads are weak. This will be accompanied by your hips shooting back as you approach the sticking point (a few inches above parallel where bar speed is the slowest).





This shouldn't be mistaken for hips drifting back initially as you go from the hole to parallel when doing a full ass-to-grass squat. If you can sit your butt right between your feet in a very deep bottom position, your hips will naturally drift back as you start rising out of the hole.

However, they should be the furthest behind the bar (and your back angle should be the steepest it's going to get) by the time you approach parallel. If they drift back further between parallel and the sticking point, that's how you know your quads are limiting you.





When this happens, the knees are extending without a concomitant degree of vertical bar displacement. As the hips shift back, the demands on the hip extensors increase as the demands on the quads decrease, indicating that the quads are likely the limiting factor. Just to use arbitrary num-

bers, if the hips drift back an extra 10%, that means hip extension torque required to get a lift through the sticking point increases by 10%, meaning you end up failing a lift at 10% lighter loads. While the hips were the last thing to "fail," they ended up doing so with a lighter load because of the positioning caused by weak quads. If the quads were strong enough to pull their weight and the hips didn't drift back an extra 10%, then any absolute load would be easier to get through the sticking point.

Recommended Quad Exercises:

Split Squats
Lunges
Step Ups
Leg Press
Hack Squats

If you can get a lift from parallel to the sticking point of the squat while maintaining a constant back angle, that means the quads were strong enough to do their main job. At that point, hip extensor strength is the primary limiter. That means more work for the hamstrings and glutes will drive your squat higher, and it generally means you can benefit from higher squatting volume as well since you're able to complete each rep with solid form, rather than the reps becoming excessively hip-dominant (de-emphasizing the quads and ingraining a less efficient motor pattern) as the weight becomes heavier or sets get closer to failure.





Recommended Glute/Hamstrings Exercises

Good Mornings
Romanian Deadlifts
Stiff Leg Deadlifts
Leg Curls
Hip Thrusts
Banded Kneeling Squats
Sumo Deadlifts

The last variable is transferring the force from your legs and hips to the bar. This requires rigidity of the entire torso. This comes from two primary factors:

1. Stabilization of the spine by intra-abdominal pressure.
2. Spinal extension torque produced by the muscle surrounding the spine.

The quick test I like to use for determining if someone's torso is limiting them is comparing their squat to their leg press. This doesn't work for a horizontal leg press machine, but for any angled leg press, multiply your best leg press by the sine of the angle of the machine (I bet you didn't come here expecting trigonometry). For example, for a 45-degree leg press, the sine of 45 degrees is about .71. So if you can leg press 700 pounds, that requires about the same amount of effort from your legs as squatting roughly 495. Give it another 10% cushion to make up for the fact that you have to actually balance a squat, rather than just push against a stable platform. In this case, you wind up with about 450. So if you can leg press 700 pounds on a 45 degree leg press, but can only squat 365 or 405, that's a pretty good indicator that your legs and hips aren't limiting

you – it's your torso.

If you don't have a leg press handy, the ratio of your best squat to your best front squat tells a similar story. You should be able to front squat about 80% of what you high bar back squat, or about 70-75% of what you low bar back squat. A larger spread than that tends to indicate a weak torso (either a weak "core" or weak thoracic spinal erectors).

If you fail either of these tests, then training dedicated to increasing torso rigidity will likely help improve your squat.

Just to state the (hopefully) obvious: If your torso strength is limiting how much you can squat, and you currently squat beltless, then it would probably behoove you to start wearing a belt.

Recommended "Core" and Back Exercises

Breathing Paused Squats

Dead Bugs

Hyper-extensions

Good Mornings

Leg Raises

The Bench Press

The three things you must accomplish:

1. Extend your elbows.
2. Shoulder flexion.
3. Shoulder horizontal adduction.

Unlike the squat, which has a pretty similar sticking point for most people (a couple of inches above parallel), there are a few different places you can miss a bench press – within an inch or two of your chest, through mid-range, or at lockout.



If you can press a certain weight, but a load just 5-10 pounds heavier barely makes if off your chest, that's generally indicative of weak shoulders, particularly the anterior deltoid. Especially if you touch the bar relatively low – on the sternum or below – the moment arm for shoulder flexion (shoulder flexion is the movement you perform if your arm starts at your side, and you raise it straight in front of you) is at its longest, shortening as the bar starts drifting back over your upper chest or throat as you press it. If you can't even get the press started (and not because you took too big of a jump and the weight is just too damn heavy), it generally indicates weak shoulders, or perhaps weak upper pecs (the clavicular head of the pecs has its most direct line of pull on the humerus at the bottom of the press).

Recommended Anterior Deltoid and Clavicular Pec Exercises:
Reverse Grip Bench Press
Incline Press
Incline DB Press
Front Delt Raises

If you can get the bar off your chest but you tend to miss the lift through the mid-range of the lift – when your upper arm is roughly parallel to the floor – that's generally indicative of weak pecs. The moment arm the shoulders are working against has shortened as the bar drifts back toward your upper chest, but you're not to lockout yet, which relies most strongly on triceps strength. This is the most common sticking point for the bench press. Strengthening and growing your pecs will generally give you the most bang for your buck if this is your sticking point.



Recommended Pectoral Accessories

Dips (through a full range of motion)
Extended Range Of Motion Pushups (hands elevated on plates)
DB press
Pec Flyes of all sorts (Dumbbell, Machine, or Cable)

Lastly, if you have trouble locking the bar out, your triceps are generally to blame. Your shoulders don't have much more shoulder flexion to accomplish, and your pecs are already in a shortened, flexed position. At this point, it all comes down to your triceps being strong enough to extend your elbows those last few degrees.



Recommended Triceps Accessories:

Dips

Skullcrushers

Overhead Triceps Extensions

DB Rolling Triceps Extensions

DB Elbows-Out Triceps Extensions

The Deadlift

The deadlift is the most straightforward of the three lifts.

The three primary demands:

1. Keep the spine extended/re-extend the thoracic spine if you're a rounded-back deadlifter.
2. Extend the hips.
3. Hold onto the bar.

I'll briefly touch on the sumo deadlift first. 90+% of the time the weakness is your glutes. Can't break the bar off the floor? Probably glutes (COULD be quads, but this is pretty uncommon). Do you miss through the mid-range because your butt shoots up at first, leaving you in an awkward position? Yep, glutes. Since they weren't strong enough to get the lift moving, your butt shooting up lengthens your hamstrings, allowing them to aid more in the start of the lift, but leaving you in an awkward position. Can't get your hips through to lock out the lift? Glutes. Occasionally the back will be a limiting factor, but since you can remain more upright throughout the lift, it's less common for your back to limit the sumo deadlift versus the conventional.

Recommended Sumo Deadlift Accessories

Controlled Pulls To Knee Height

Banded Kneeling Squats
Hip Thrusts

Moving on to the conventional deadlift.

It can sometimes be difficult to tease apart whether the back or the hips are the limiting factor. The back can round (thoracic spine in particular) to make the lift easier on the hips (allowing the hips to get a little closer to the bar, thus decreasing the demands on the hip extensors a bit), indicating that the hips are the limiting factor. However, the load can also just be too heavy to keep the spine extended.

If you tend to miss deadlifts just off the floor – either the bar just doesn't budge, or it only moves a couple of inches – do you feel tight and "locked in" but the weight just feels too heavy, or does the bar not go anywhere because you can feel your spine (particularly lumbar) flexing an uncomfortable amount? If the former, it's probably your hips. If the latter, it's probably your back.



If you tend to miss pulls through the middle of the movement, just around knee height, the easiest way to check your weak link is by doing rack pulls or block pulls from the height you tend to miss the deadlift. If you can keep your spine fairly neutral and pull a lot more weight than you could from the floor, then it's probably your hips limiting you – your back has to round or you have to compensate in some way to give your hips the assistance they need to get the bar moving off the floor, leaving you in a bad position through the midrange. If, however, you can pull about the same amount of weight from the floor as you can in the rack pull or block pull from the point you miss the deadlift (generally 2-4 inches below the knee cap), and you can feel your spine flexing a bit during the movement, then your back is generally the weak point.



If you miss the lift at lockout, it's a simple matter of whether you can get your hips through or not. If you can get your hips locked out or nearly locked out, but you can't re-extend your thoracic spine, then your back is probably the limiting factor. If the bar clears your knees and you just can't get your hips through to lockout, then it's your hips that are typically the limiter.



Recommended Back Accessories

Rows

Deficit Deadlifts

Rows

Hyper-extensions

Rows

Back Raises

Rows

Rack/Block Pulls from the Knee (if you can't get your spine re-extended at lockout)

Recommended Glute/Hamstrings Accessories

Sumo Deadlift

Low block/rack pull

Romanian Deadlifts

Stiff Legged Deadlifts

Banded Kneeling Squats

Hip Thrusts

Leg Curls

General Recommended Accessory Exercise

Double Paused Deadlifts (to improve positioning)

If your grip is your limiting factor, then simply do more specific grip work. *Double overhand deadlifts* and *double overhand shrugs* do the trick as well as anything else. *Farmers walks* are also a good option. If your gym doesn't have farmers walk implements, then you can just use heavy dumbbells. Also (and this should be obvious, but it's worth mentioning), if you aren't pulling with a mixed grip, or aren't pulling/can't pull with chalk (perhaps because of gym rules), then it could be that your grip isn't

actually a limiting factor, and you actually just need to switch from a double overhand grip to a mixed grip, and start using chalk. Many gyms that balk at members using blocks of chalk still allow liquid chalk, so that may be an option worth looking into if your gym generally frowns upon the use of lifting chalk.

All of the exercises in this guide should be used primarily to strengthen and grow the weak muscles. Since the aim is hypertrophy, generally stick to rep ranges that allow you to handle sufficient volume (sets of 6-12 reps), and get in at least 3-4 hard sets per lagging muscle twice per week in addition to your regular squat, bench, and deadlift training. The exception is double paused deadlifts: They should be done with low reps (5 or fewer) to ensure there's no form breakdown. They can be done as a warmup before your heavier deadlift sets.

You don't need to overthink exercise selection. Identify your weak links using this guide, then just pick one or two of the recommended lifts from the list of suggestions. Since the main goal is hypertrophy of the lagging muscles, really any exercise targeting the muscle, through a fairly long range of motion, utilizing sufficient volume will do the trick. Use this guide to choose your accessory work for the "Average to Savage" program.