

## A Primer on Cable Training

By Brad Reid

### Introduction

Before I begin to lay out my thoughts on cable training, I should mention that I wrote a biographical article for the September, 2000 issue (Volume 8, Number 2) of MILO titled Jack Reid: A Pure Play on Cable Training. In addition to my article, Fred Hutchinson has written cable-oriented articles that appeared in the following MILO (Volumes/Numbers: 6.3, 6.4, and 7.1). Ordering some of these specific back issues would be a great starting point for readers wishing to acquire some basic and preliminary facts and ideas about cable training. Also, contemporary strongman, John Brookfield, recently authored Training with Cables for Strength and it's available through IronMind Enterprises, Inc. for those who'd like to read his invaluable thoughts. I gleaned several interesting ideas from Brookfield's book; you know, an exercise angle here or there or a fact I had not previously known. To this we can add Matt Furey's video on cable pulling, Dick Hartzell's various videos on stretching large rubber bands, Mike Brown's book, The Strength of Samson: How to Attain It, and Bill Hinbern's various offerings of historical physical culture books (at least one of which is cable specific) as additional sources comprising what one might say fairly constitutes a good portion of the available contemporary items on cable training.



My Jack Reid biographical article (that's Jack Reid reposing on a beach in the photo at left) was proposed to and accepted by MILO's editor, Randall J. Strossen, Ph.D, as sort of a continuation of Hutchinson's articles as I thought it might be of interest to readers to see and read an account describing the full effects available from performing much of the very cable work described by Hutchinson in his articles. My father's specialization with cables was not by choice, but out of circumstances related to his polio affliction. So, instead of doing cleans and presses or squats, he did front cable pulls, overhead pull downs, front and back presses, and so forth. It worked well  $\frac{3}{4}$  remade him quite literally both physically and I think spiritually  $\frac{3}{4}$  and life went on more merrily and positively by his serendipitous encounter with cables. But, most readers I assume have choices, so the theme of this primer will focus on fitting cable work into the broader training spectrum available to today's strength athletes. At least a fair share of the people with whom I've communicated desire cable knowledge adapted to today's training environment. How does cable training fit in with barbell and dumbbell work? What's special about cable resistance? What sets and repetitions would you recommend? What are the best traditional movements and what are some good contemporary applications of cables? In what follows, I'll cover these issues and several more.

On the issue of contemporary cable matters, many of you know that some of the powerlifting training techniques currently espoused by Louie Simmons employ heavy rubber bands as a source of elastic resistance (these giant rubber bands are available from Dick Hartzell's company, Jump Stretch, Inc., at 800-344-3539).

No, Simmons doesn't teach the traditional cable movements; in fact, he has intuitively adapted elastic resistance specifically to the three competitive power lifts, but it's definitely "cable" work at the core of its effectiveness. And, for anyone who works with the powerful hand grips on the market today, you surely know the coils and springs that provide resistance as you attempt to close these devices are "elastic" in nature: starting relatively easy but getting harder and harder the farther you squeeze the grips. I mention these examples of elastic training to convey their existence for us even now, contemporarily, but in manners and forms not intuitively conducive to forming associations with traditional cables.

Finally, I might mention that cable or strand pulling was a popular sport in England, perhaps other places in Europe too, for many years. I recall owning a small black book I believe was written by David Webster on cable pullers and competitions, and it revealed incredible statistics by some of the best "modern" competitive pullers. If my memory serves me correctly, most of the cable sets shown were of the steel spring variety and many of the various pullers illustrated by the book's photographs appeared to have what I'd call "wiry" physiques. A couple of photographs of David Webster himself accompanied at least one of Fred Hutchinson's MILO articles and Webster, too, gave me the impression of possessing a very economical build. Like many of the best arm wrestlers, sometimes looks can be deceiving and so it is I think with some of the best European cable specialists. Too, the pullers there seemed to contort their bodies in various ways to complete the competitive pulls. This is foreign to me, that is, the competitive version of the sport. If cable pulling still exists in a competitive format overseas, I have not been able to find references to it through my various Internet searches. It would fall outside the realm of this article anyway as I will be discussing cable pulling for physical development and diversified strength, not as a competitive event in and of itself. I'd defer to David Webster and other experts who could give us some of the unique history of competitive pulling. For this article, I do reference the one and only cable contest I know of held in the United States.

### **Cables – What gives?**

Readers may recall that Arthur Jones invented a series of unique exercise machines in the very late 1960s and early 1970s based on a "nautilus-shaped" system of pulleys, hence the name "Nautilus" for the machines' snail-like curly-cue shaped components. The various pulleys employed effectively changed the lever-arm length as a particular exercise progressed from its starting point to its completion. Jones contended that his machines' resistance patterns more perfectly opposed the muscles throughout their full contraction. The movements of the majority of those machines were nothing new, but the way the resistance was applied throughout the motion itself varied from traditional barbell exercises. I'll leave it to others to debate whether Nautilus resistance is better suited to the development of muscle mass and strength than barbells and simply acknowledge that it is "different."

And, so it is with cables. If you attach a cable set to some overhead anchor and suspend weights from its free end, it stretches farther and farther as you hang additional weights and builds up what is known in physics as elastic potential energy. Using the analogy of a fully cocked bow, the greater the amount of elastic potential energy stored, the greater force exerted on a released arrow and the farther and faster it will fly. Contrast this to, say, a barbell deadlift. If a bar is loaded to 500 lbs., applying 501 lbs. of pressure will lift the bar, but 499 lbs. will not budge it. So, to perform a press, a deadlift, or a squat, the exertion required to lift the weight can be relatively static and uniform throughout the whole movement. For elastic cables, the farther you stretch the cable  $\frac{3}{4}$  like a bow, a slingshot, a bungee chord, or a trampoline  $\frac{3}{4}$  the more resistance you encounter. A movement that begins with 60 lbs. of resistance may terminate at 100 lbs. So, I'll ask a question about cables: Is the resistance generated by cables better suited to the development of muscle mass and strength than, say, barbells? You'll have to answer this for yourself after working with them for a while, but at least for now, I'd acknowledge that like Nautilus, or Hammer machines, or barbells and dumbbells, cable resistance is definitely "different."

### **Describing that "Difference"**

I suppose parachutists would tell you that they certainly prefer the manner in which an opened parachute

gradually slows a descent to any of the more abrupt alternatives. Likewise, it is bungee chord jumping that has caught on as a thrill seeker's sport, not jumping from bridges with rigid, inflexible ropes attached to your ankles. Bungee chords "gradually" absorb gravitational forces. Cables are similar, though not of course, countering forces to gravity per se, but to the forces we create in our exertions upon them. As you begin a pull or press, the resistance is comparatively easy, but the farther you stretch the cable, the greater the resistance you'll encounter. About a dozen or so years ago, a friend and I suspended some heavy cables from a power rack and found the resistance curve (in terms of weight suspended compared to the stretch in inches) to be fairly linear. So, a puller of cables starts out under a "relatively" small load equal to the elastic potential energy stored in the cable or band at any particular stretched length and encounters increased resistance somewhat linearly until the stretch is completed.

### **The Acceleration factor in "Force"**

This gradual increase in resistance allows a cable puller to build momentum early in the movement making it possible for the exercise to terminate in a resistance that, in most cases, would be greater than a similar static weight lifted with a barbell or dumbbell. Greater? Yes, compare the length a bungee chord is ultimately stretched by a man weighing 150 lbs. jumping from a tall bridge with the amount of statically suspended weight required to stretch the chord the same length. It might take a suspended weight of 500 lbs. to acquire the same stretched length as the 150 lb. mass under acceleration. The "force = mass X acceleration" formula is operative in my analogue and so it is with cables. The terminal forces borne by the opposing muscles are heightened by the early acceleration of the cable strands and may well exceed a barbell lifter's more static creation of force in a similar exercise absent the acceleration.

### **A Supportive Case Study**

The one and only formal cable contest I know of in the United States took place in the spring of 1940. There were five contestants that day and the winner was Dr. Leo Di Cara of New York. From the photographs I've seen accompanying the article, Di Cara was a modestly sized, tightly knit gentleman with exceptional triceps, shoulder, and overall torso development. And, he didn't just win the competition, he astounded the spectators and commentators as he pulled and pressed cable poundages that made observers wonder whether any of the better-known cable specialists of that era could have kept pace. In his one arm cable press, he succeeded with 225 lbs! The contestants were all "measured" for the three movements performed that day: the front pull, the one arm press, and the back press. Di Cara's one arm press was credited with the amount of suspended weight it took to stretch the cables the same distance as his press movement. In effect, Di Cara's fully locked out right arm extended overhead was under an equivalent pressure as if he held a 225 lb. dumbbell aloft!

Now, I bring Di Cara up as a point of reference since that very same year, John Grimek pressed 285 lbs. at the 1940 Senior Nationals  $\frac{3}{4}$  with two arms, of course. In my mind, Grimek no doubt, was the much stronger barbell presser of the two, but he certainly couldn't have strictly pressed 225 lbs. with one arm with either a barbell or a dumbbell. The differences between a barbell or dumbbell press and a cable press are noteworthy: Di Cara's press began with something much less than 225 lbs., and since it started lighter, he could build functional momentum in his pressing motion before it encountered the full load of 225 lbs at the lockout. Again, from physics we know that, force = mass X acceleration, so we might better understand Di Cara's seemingly disproportionate performance by understanding that his one-arm cable press compared to a press with a dumbbell, might be analogous to a competition between a running long jumper and a standing long jumper, or a barbell push press to a strict barbell military press. The ability to accelerate into a heavy lockout (a very powerful position in most lifts) creates terminal forces exceeding those in more static presses where a constant load from the inception of the movement diminishes ramping up momentum as the movement unfolds.

To be sure, the application of acceleration is not unknown to weightlifters: Olympic lifters ease the bar off the ground to start their pulling motions, and then accelerate. And, powerlifters dare not piddle around, so in

order to build bar speed, they aggressively attack the bar hoping to build enough momentum to propel the bar through what otherwise would be insufferable sticking points. Training guru, Louie Simmons, in fact, recommends the giant rubber bands for this very reason and encourages his athletes to race or “out-run” the bands to develop greater functional force. A bi-product of these fast band expansions is simply the equally fast contraction of the opposing muscles managing the work. Greater bar acceleration while handling maximum lifts is the big pay-off. I’d simply like to reiterate that the graduated resistance in elastic training avoids the initial blunt force common to some barbell movements and adds a pretty strong component of acceleration that can lead to some fantastic lockout poundages in the basic lifts. If not so, how could a relatively modest sized man create a force equal to 225 lbs. in a one-arm press? Graduated resistance!

### **The Key Traditional Movements:**

The following cable exercises would be my top choices among the traditional movements. Note that with most cable exercises, there are unlimited combinations of hand positions, of pulling angles, and so forth. As a general rule, start with the basic movements, and then experiment with other angles and hand placements over time to work the muscles from all possible angles. Also, cables very actively involve the major and minor muscles of the torso in non-vertical expressions of exercise. If one considers barbell and dumbbell movements, a large majority of these are limited to vertical expressions of strength. In many sports  $\frac{3}{4}$  wrestling, boxing, football, baseball, track & field events, etc.— the athlete encounters forces from many other angles. Some of the traditional cable movements are thought to be especially suited to developing athletic ability and strength as it applies in real-life applications.

#### 1. Overhead Pull Downs and variations

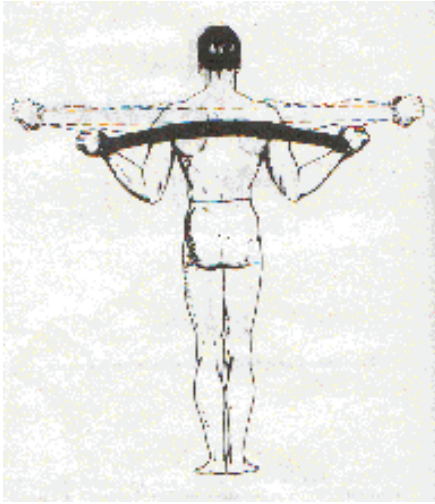


If you can imagine yourself at the very bottom of a very deep pool of water, then pushing off to race vertically to the surface, the arm movement and hand positioning would be very similar to my favorite version of the Overhead Pull Down (“OPD”). By holding a cable set overhead with palms facing out on straight to almost-straight arms, you pull laterally until the cables are pressed firmly across the traps (as illustrated) and the hands somewhat below the plane of the shoulder. This is the key exercise for the large latissimus dorsi muscles of the back as they are exercised without the limitations of the biceps and other smaller/weaker muscles playing out before these muscles are fully exhausted. From personal experience, I have found this movement responds best to higher repetitions – up to 20 is fine. In that sense it’s like many other exercises, say straight-arm pullovers, movements we don’t normally associate with heavy singles or low repetitions. I’d

recommend three work sets after a general warm-up. Some alternative forms are also commonly practiced including OPDs with palms facing inward, and OPDs with either of these two grips pulled to the clavicles instead of the traps. All versions are worth practicing though I find the pull downs, palms out, and to the traps to be the best form for power and development. In short order, this should become one of the exercises in your arsenal requiring the most strands of resistance. I think this exercise imparts benefits that would qualify it as cable pulling’s version of the “upper body squat” – that is, it has far ranging benefits that transcend the boundaries of just the muscles worked. It stimulates the whole torso including the chest box and its minor muscles, the abdominal muscles, and the minor back and shoulder muscles.

#### 2. Back Press/Front Press and variations

These presses are stretches performed laterally until both arms are fully extended. John Brookfield demonstrates cables across the back with the arms outside of the cables. More typically, the back press is performed



in a manner in which the cable strands ride along the outside or top of the arm (as illustrated). I find the Back Press version I've illustrated here puts more emphasis on the triceps while the version Brookfield illustrates puts more emphasis on the deltoids. Both versions are worthwhile additions to any program. In either form, this exercise usually represents the strongest possible position for power in cable pulling, that is, you'll use more cable resistance in a back press than in any other traditional cable exercise. Repetition patterns should be similar to those you'd use in any other pressing motion: if you seek strength, use low repetitions; if you seek muscular development, use higher repetitions. The Back Press (or Front Press if you choose to press with the strands held in front) in all of its variations is a key exercise for power development in the deltoids and triceps.

### 3. Front Pulls and variations



The Front Pull is one of the classics for posterior deltoid and upper back strength and development. But, in addition to these specific targets, most muscles in the torso tense strongly as a brace against the pull. Old issues of *Strength & Health* contained advertisements for York Cables showing John Grimek preparing to pull from this position. And, Dr. Leo Di Cara front pulled 130 lbs. in the previously mentioned cable contest in 1940. To perform the Front Pull, hold a set of cables directly out in front as if you are holding a car's steering wheel at 9 and 3 o'clock on an imaginary clock face. Use straight or slightly bent arms to pull the stands straight back at the shoulder plane height but extend somewhat farther back snapping and stretching the cables across the upper chest for increased range. This develops the posterior deltoids like few other motions with any sort of equipment and one might equate it closely to a barbell or dumbbell

rowing motion though the cable Front Pull occurs with straight arms. The old photo illustrated here is of Jack Reid in 1945 (age 26) sitting on a diving board and it shows the deltoid development of one who practiced front pulls as a core cable movement.

### 4. One-Arm Cable Overhead Presses

For a description of a right-handed motion, hold the left hand palm pressed against the left hip in a position so that the anchoring cable handle is sandwiched between the hand and the hip, not as often depicted with the cables riding over the back of the hand and arm. This is your braced "anchor" from which the cable is pulled laterally across your back where your right hand holds the other handle for the actual press. Brace the anchor hand hard against the hip and press the right arm to full extension vertically overhead. I actually prefer the back press to this motion since it is unique in its pressing angle, but the cable one-arm press works well for those without access to presses with barbells or dumbbells.

### 5. Cable Laterals and variations

Hold a set of cables in your arms as they are fully extended down as if you are carrying two suitcases. The cables should be situated across the front of your body, though one alternative form of the exercise is done with the cables held behind the body. Don't snap the cables but pull the slack out and quickly accelerate the cables until your arms are held laterally at about clavicle/chin height. The pattern of resistance, always applied laterally and never borne vertically, is wholly unlike the same motion with dumbbells and makes this version of a lateral a true power movement and not just a shaping/polishing exercise as it is so often used in body development routines. As an interesting twist on the movement, I might mention that a real powerful

deltoid developer and strengthener is to perform the stronger front pull first, and then lower the heavier load back down in the form of a negative lateral pull, swing the cables back up, and repeat this rhythmic motion for the desired number of repetitions. Also note that cable laterals, knuckles out, can be performed at any angle from a true lateral (cables pulled up vertically), to the pulling angle of a front pull (cables pulled back horizontally), on up to the pulling angle of an Overhead Pull Down (cables pulled down vertically) – for all of the possible angles.

## 6. Cable Curls



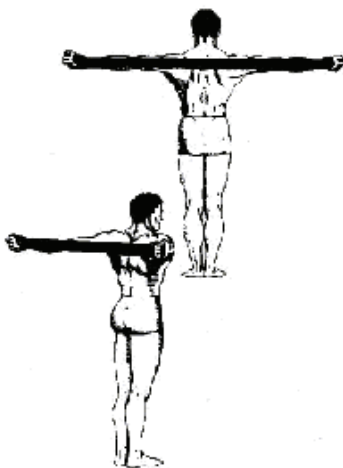
Everyone has his or her favorite biceps exercise and the cable version of a curl would certainly be more widely appreciated if it were better known. One end of a cable becomes a stirrup, of course, and the other handle the curling device. Curl the cable in the exact manner you'd curl a dumbbell. The photo illustrated here is one of Jack Reid, Jack Russell, and Dave Asnis from left to right. Reid is flexing his right arm as if it were opposed by cable resistance. Other variations of curls are also available. For example, one could easily rig a hammer curl

by looping a towel or thick rope through the curling handle and grasping the ends for curling with a different hand angle. Perhaps my favorite program for the curl is simply an isometric routine. Add enough strands to slightly exceed your maximum limit, use the non-curling hand to assist in curling the arm up to the three traditional isometric positions, slowly release the supporting hand, and hold for 8 to 12 seconds, then use the non-curling hand to ease the pressure off gently. Perform only one set for the three positions.

### Some Worthwhile Secondary Movements:

In addition to the big basic movements mentioned above, certain riggings can be used to extend the various motions available to cable sets, and other movements are also available for stretching. So, cables like barbells and dumbbells, have basic movements like presses, squats, deadlifts and curls, and then they have other more minor exercises and movements that are still very valuable to trainers. I'll describe a few of these below:

#### 1. The Whippet



Start with a light set of cables and back press them to arm's length. Relax the shoulders and pectorals and actively promote pulling your arms back as far as possible under the tension of the cables, then pull forward until the cables are touching the upper back. Better yet, continue the movement forward a little beyond that plane in sort of the manner of a chest fly motion. This is actually more of an active stretching movement than it is a power development movement but you will find that it increases the shoulder flexibility and range greatly. I'd recommend this movement to Olympic lifters to loosen the shoulder girdle for snatches, discus throwers, gymnasts, golfers, and others who need flexible shoulders for sports.

#### 2. The Shoulder Shimmy

First, perform a heavy back press to arm's length, and then squeeze the shoulder blades as close together as possible under the tension of the cables. In effect, try to make your straight-arm span as narrow as possible. Now, in a horizontal shrug, stretch your hands as far apart as possible by pushing the shoulder blades apart.

At first, you will find that your horizontal shrug distance is only an inch or so but in time, many practitioners of this movement develop a range of motion up to 2 to 4 inches. This relatively obscure exercise develops the myriad muscles between and under the shoulder blades and is a contributor to broadening the shoulders and upper back areas.

### 3. Cable Pectoral Crunches

This requires some special rigging but it is worth the effort. You can effectively turn a bodybuilder's "shaping" exercise into an actual power movement. Just for the sake of describing the proper rigging, imagine a typical tennis court surrounded by a tall chain link fence. Position yourself at the inside corner post where two fence sides veer off at 90° (as if you are standing facing the inside corner of a large square box). Attach cable sets to the chain link fence using carabiners at equal distances from the center post at chest height. It will take a little experimentation to find the right positions but your arms should be fully extended. Starting with arms spread wide apart, pull the two handles together until they touch in front of your chest on somewhat bent arms. The terminal position will look something like the quintessential "most muscular" pose displayed by bodybuilders. Some pullers overlap the hands but I treat this like a power movement and just touch the hands together. The pectorals are extremely strong muscles but are rarely worked for real power in this contracted state. For another variant of this movement, pull the arms down to the sides near the hips to work the latissimus dorsi muscles. At the end of this movement's contraction, both arms should be firmly anchored to each side. Both of these movements and their many variations would be good choices for isometric or low repetition routines for those wanting to develop the strong squeezing or constricting muscles of the chest and torso without the attendant over bulked appearance common to bodybuilders.

### 4. The One-Arm Cable Chin

This requires anchoring a cable end to an overhead structure very securely, preferably high enough so that one would have to stand very tall with an outstretched arm to reach the dangling free handle. Using one arm, pull down in a traditional chinning motion. You can turn an exercise that most people cannot perform from a chinning bar into a great power movement. And, in the same manner heavy rows are great for heavy bench-pressing (opposing muscular motions), the one arm chinning motion is a great countermovement to overhead pressing. By exercising with one arm at a time, you'll find that the hand can freely swivel around allowing the puller to establish fluid hand positions resulting in the best possible application of leverage and power throughout the entire pull. This is a power movement par excellence. With practice, some trainers will be able to stretch a weight under their chin strong enough that they start literally lifting themselves off of the ground (the pull force is equal to or greater than bodyweight). At that point, you have achieved a good basic starting point to tackle the development of a true one-arm chin from a chinning bar.

Cable Movements for Traditional Weightlifting (or similar movements):

#### 1. Cable Assisted Bench Presses, etc.

Most of the trainers I've seen use heavy bands attached to the ends of an Olympic bar and the bands are anchored from below. I've used a different form of the same exercise by anchoring from above in a power rack, dropping and then suspending a loaded bar from these bands, and pressing up on the bar so that the cables become less supportive as they are un-stretched. If this rigging is set up properly, the bar should be unsupported by any upward band pressure over the last 4 to 6 inches. The bands, in a way, turn this form of the exercise into a highly effective and resistance-regulated "push" bench press. I'd highly recommend this movement for anyone seeking an exercise to strengthen the top end of his/her bench press. The same theory can be applied to squats or deadlifts: let the bands get the bar moving with some momentum at the low end, then as the movement propels upward and the elastic potential energy dissipates, the bar speed should be similar to that gained by a "push" in a push press. I should note that Louie Simmons adds elastic bands anchored from below to the ends of loaded barbells. Take your pick as to how the bands are applied based on which is easiest for you to rig in your gym. In any event, safety pins for rack movements and/or alert spotters should

be available in the event a band or cable snaps.

## 2. Cable Harness Lifts

I'd recommend using either the hip & thigh harness from IronMind Enterprises, the leather lifting harness from Atomic Athletic ([www.atomicathletic.com](http://www.atomicathletic.com)), or a homemade device of your own design for this movement but with an alternative source of resistance to the bulky and cumbersome weights most trainers rely on. Instead of loading a bar or a pin with all those hundreds of pounds of weights for this unequaled weight-bearing exercise, attach sets of cables at floor level using a strong anchor, and then fasten to the harness on the top end. Note that the strongest set of Matt Furey's cable offerings is in the 270 lb. range at full stretch for 3 cables, so do some math and it doesn't take much to create a thousand pounds of resistance for the top end of hip and thigh movements. Again, since the load gets progressively heavier as you stand up, the body doesn't encounter the full resistance all at once and real force can be generated in a comfortable, graduated pace. I'd recommend something in the quarter squat range, that is, a stroke length of about 12 inches or so. This same rigging can be used to do heel raises very effectively.

## 3. Band Squats

As an alternative to the harness lifts, note that Dick Hartzell markets a metal base from which his giant rubber bands can be anchored. For squats, one then loops the anchored bands over the shoulders and does a squatting motion while holding a vertical pole for stability. According to Hartzell's video and various written materials, loads exceeding 600 lbs. at the top-end of these squats are created with multiple bands. This is a great form of squat for trainers who are afflicted with bad of "glass" backs, or knees that are sensitive to heavy loads at the bottom of squats. The graduation of resistance in these elastic bands often overcomes some of these compromising problems and may make it possible for trainers who are otherwise very limited in the selection of leg exercises, to get in meaningful doses of high resistance legwork. I've worked with the Band Squats personally and find them best suited for higher repetition workouts. The speed of the repetitions should be very quickly paced, and your legs will feel like you've been bounding on a strong trampoline with a heavy barbell on your back. In addition to leg strength, this exercise would be great for general conditioning work.

## Questions & Answers

Here are my responses to questions I was asked on the Old School Internet site.

How explosively should the cable movements be done?

Well, for the development of power, I'd "race" the cable so to speak but in a controlled manner at the outset. Take the slack out of the cable strands gently at first, then pull or push hard to complete the motion; but don't "twang" the cables at the outset of a movement by taking an ill-advised running start at them. You'd no more do that than you'd hunch down to bent arms and then yank a barbell aggressively off of the floor. On the return stroke, don't let the cable set snap back wildly but return to the starting position under full control. Matt Furey's cable pulling video seems to recommend sort of a snapping or jerking motion to get things rolling and I'd disagree with his assessment there. For HIT (High Intensity Training) acolytes, I'd use a somewhat moderated pace both up and down just to increase the "time under tension" and perhaps have a training partner help you "force" 2 or 3 extra repetitions at the end of an exercise set.

How about repetitions and sets? What do you recommend?

I referenced an old article my father wrote on exercise in the mid-1940s in which he suggested the 8 repetition range as the inflection point between strength and development, but he also mentioned that the count could be as high as 20 or as low as just a few depending on one's emphasis on strength or muscular devel-



opment. Well, this was the general thinking back in the 1940s and it really hasn't changed all that much I suppose. Just in general, I have found cables tend to work a little better with slightly higher repetitions and I think I know why. I believe it relates to the amount of "work" done for a given cable repetition ("work" in terms of its scientific definition in physics) is slightly less than a similar barbell movement since the resistance builds up to a crescendo at the end. Further, between repetitions, you aren't supporting a load as you would be in most barbell movements and that may impart some available energy for a few extra repetitions. Finally, the negative portion of the exercise tapers off in resistance as the cable relaxes and that too varies from a barbell. What does this mean regarding repetitions? Adding a few repetitions for cable movements over their barbell counterparts seems reasonable to balance these differences in "work" over the entirety of a set of exercise.

As for the number of sets for cable exercise, I'd recommend a few general warm up sets with low/medium repetitions followed by enough working weight sets to bring the total repetitions into the 25 to 50 count. For exercises where higher repetitions are warranted, a first set of 20 usually leaves enough energy for a second set of 15 and perhaps 10 or 12 on a final set. For the back presses or other big compound cable movements, if one is training for power, lower repetitions totaling 25 to 35 repetitions over a series of sets seems about right just as it would be in most weightlifting routines. Remember too that you usually have limited selections of resistances since each cable strand represents a discrete increase and this limits the manner in which one can pyramid up to a top resistance. For this reason, I think working at a single level of resistance for all of the work sets may be preferable to the pyramiding common to weightlifting.

How about isometrics, is there an application for cables?

For many exercises, say one-arm cable chins or curls, you can use your free hand to assist positioning a heavily loaded cable at the right spot, ease off the supportive hand slowly, and then follow the normal guidelines for isometrics. I'd recommend three positions for most exercises holding each for 10 to 12 seconds for a single set in each position. If there is a better way to increase curling power than one-arm cable curl isometrics, I don't know what it would be. And, an isometric contraction in the terminal position of a one-arm cable chin motion (hand under chin) is a very powerful position to train isometrically. Until your strength in that position exceeds your total bodyweight, you haven't developed enough base power to pursue training for a true one-arm chin. Isometrics are just fabulous for developing strength and size and I'm sort of surprised that they seem to have fallen out of favor over the years. Cables provide a very comfortable and convenient way to perform many of these isometrics.

Are cables conducive to negatives?

Yes, for some motions. One can front pull a greater number of cables than in cable laterals. So, front pull the cables so that you find yourself in the terminal position of a lateral raise, then lower the load (drop the hands down) in a lateral negative  $\frac{3}{4}$  not too slowly  $\frac{3}{4}$  but fight against the overload somewhat. Then, sweep the cables back up to the beginning position of the front pull and start the second repetition. For a one-arm cable chinning motion, pull the cable set down with the assistance of the non-chinning hand, hold the cables in that flexed position for a pause, then straighten the arm out slowly (the negative) and start another repetition. In general, a negative should not be excessively overloaded and just working at your upper limits of strength, perhaps even only 5% more, is adequate to "teach" the muscles to adapt to heavier resistance. Cables are great for many negative exercises because you can do them without the assistance of training partners.

Do you use any partial movements or lockouts?

Yes, I recall that my father often taped an extra handle to one end of a cable set in order to lengthen it. He'd then do Back Presses or Overhead Pull Downs with heavier resistance over a shorter stroke length. Partial cable movements work just as well for cables as they do for barbells and they make for a good change-of-pace from time to time. I often attach the Furey cables I own to the Samson cable handles to lengthen them, and in other cases, I use my free hand to position the cables for a partial movement.

How often do you recommend cable training?

I recall that Bob Jones wrote that my father had great success training with cables 4 to 5 days a week when he was seeking strength gains over development. Jones opined at the time that it was okay for a while but not to work on the nerve too much. My general feeling is that if European weightlifters can work out several times each day, almost every day of the week, you could easily gain “strength” pulling cables 4 or 5 times a week, certainly with low repetition or isometric routines. My favorite isometric routine is 4 consecutive days of isometrics, a day of rest, a maximum single test followed by a max set of 10 reps, another day of rest, then repeat the program. For whatever reason, cable trainers seldom feel washed out the day after a session. In fact, I often feel more invigorated right after a workout than before I started. Too, I’ve never experienced excessive “soreness” from cables yet I’ve been so sore from lifting weights that I felt only a strong application of liniment could save my life. For most of us, we know when we are ready for another workout. If I am combining traditional cable movements with weights, I make no concessions to cable workouts because of the weightlifting routine or vice versa. Since the traditional cable motions mainly affect the torso in ways not attacked by weights, the two are quite complimentary I think. Depending on your time, work them together, on separate days, or at different points over a yearly cycle.

Are there any other unique or noteworthy differences between cables and weights?

Many cable trainers note that cables seem to pump the muscles more than similar movements with weights. Assuming the cables are the right length and thus provide the right graduation of resistance, I simply think it would be impossible to pump the shoulders as much using dumbbell laterals as in the same motion with cables; the same too, for the cable curl versus a dumbbell curl or a cable chinning motion versus a lat pull down machine or regular chins. I’ve long assumed that this has to do with several cable-specific issues: the extreme muscular contraction under great loads in most cable exercises, the “unloading” of pressure between repetitions where blood may more easily be able to course through the temporarily relaxed muscles, and the accelerating tempo of the movements.

One other sort of technical note about cables versus weights: when you pull or push cables through any motion, say, a Back Press, Front Pull, or a Overhead Pull Down, each side is under the full amount of resistance. So, if you have a cable set that provides 200 lbs. of terminal resistance in a Back Press (for your particular stretch of that cable set), each arm is under that load, not 100 lbs. for each arm. Remember, that in most cable exercises, your hands are opposing one another in terms of direction so each side feels the full brunt of the resistance from the stretch, not one half of it. This is different from, say, a barbell bench press where both arms are assisting each other to complete a movement by pushing in the same direction. So, the exerted pressure of a 200 lb. Cable Back Press on each locked-out arm is more accurately equivalent to one’s arms under a locked-out 400 lb. bench press, than a 200 lb. bench press. Think about it!

Will cables develop “real” strength comparable to that created by weightlifting and other strength sports?

Yes, but don’t expect to be as strong in a particular practiced barbell movement if you train only with cables, and vice versa too. Old-timer Fred Rollon was a cable specialist who excelled at barbell pressing too when put to the challenge, with little or no real training with weights. Thomas Inch was another cable trainer who performed well with both weights and cables, and Sandow was yet another. From the opposite side of the argument, bodybuilding legend, Reg Park, commented that he was able to pull Inch’s cables when they were offered to him. Combining weightlifting with cable training and other forms of exercise too, would create the greatest diversified strength.

Do cables work well with the various bodyweight exercises?

Yes. You can use the cables to augment chinning, dipping, push-ups, handstand presses, bodyweight squats,



you name it. Just using my father's era in the 1940s as an example, all of the people with whom he trained were really big advocates of bodyweight exercising and the various movements. Not all of them were capable of the one-arm chin, but several were. Most were proficient at various handstand push-ups, finger stands, weighted push-ups (with a partner sitting across the shoulders), two arm chins with training partners hanging on, and more. The photo I've illustrated here is of Kenny Rocheblave doing a finger stand. Kenny was a lifeguard at my grandfather's Marine Terrace Hotel in Miami Beach. He, like all of my father's training partners, used plenty of bodyweight exercises to either train or demonstrate strength and athleticism.

How would you incorporate cables into an Olympic lifting/Power-lifting program?

For the quick lifts, I'd never try to duplicate the actual movements, the snatch or the clean and jerk. Cables are simply not a viable choice here and watching someone snatch a cable looks silly and ineffective to me. And, even when they are rigged up for high pulls, I'd dare not tinker with the fine timing of the muscles firing off that collectively make up a successful snatch or clean. To alter the forces placed on the muscles over a given range in a pull could possibly disturb the intricate timing of the competitive Olympic lifts. Now, on a positive note, I think the cables could be rigged up for some really heavy shrugs where the cables are held in a position similar to holding two suitcases. A pulling machine for deadlifts, shrugs and high-end pulls was fabricated and used by Gord Venables in the early 1940s and he mentioned that one lifter increased his clean from 280 lbs. to over 300 lbs. in four weeks using nothing but this cable "pulling" machine. And, Eugene Sandow marketed a cable contraption that could be used for heavy cable lifts that duplicated traditional barbell movements. Again, some extra rigging/anchoring will be required in most cases to adapt cables to contemporary competitive lifts.

For powerlifters, a common problem often develops in advanced lifters: newly gained static strength doesn't always result in heavier competitive lifts. The culprit is often related to a loss of explosiveness from the very training employed to increase the static strength. A stronger muscle may be less capable of creating more force if it has lost the capability of contracting very swiftly. I don't have the same concerns here regarding timing issues related to the three power lifts as I do in the Olympic lifts because the power lifts are a little more geared to all-out efforts from the beginning to the end of each lift. Training with a resistance pattern that varies from the competitive lifts is less problematic I think. Instead of me "crashing through an open door" here, I'd refer you to Louie Simmons' work with big bands and ways to incorporate them into a powerlifting routine. One of Dick Hartzell's available videotapes has several minutes of footage showing Louie Simmons and some of his best athletes demonstrating his version of band exercise for powerlifters.

Can cables be used to recover from injuries, for rehabilitation?

Yes, and in fact, they are extremely popular for this very thing. For some of the very reasons stated throughout this article: the graduated resistance, the pumping of blood into the muscles, and so forth, cables are easily adapted to rehabilitation efforts. But, let me pose another possible angle here: active rest from barbell training. After several cycles of heavy lifting over a year's time, a trainer might benefit from some active rest using cables to the exclusion of barbells and dumbbells. Cables simply don't put the stresses and strains on joints, bones, ligaments, tendons, cartilage, and other hard tissues in the same manner as big load bearing exercises. In a heavy squat for example, a lifter descends with a ponderous weight and then abruptly changes direction causing the knees to act as "shock absorbers." Over time, this can wear down a lifter. In cable training, the "cables" act as the shock absorbers. By using a cable form of the same exercise, a lifter's knees have a chance to actively rest while the muscles are still worked.

Comments on Cable Equipment

There are several critical issues to discuss related to cable equipment: the selection of handles, the elastic



strands or bands, the length of equipment, and the various riggings needed to extend the selection of exercises available with cables. I have used a number of different sources for cable equipment and I like (and also dislike) something about each of them.

For cable handles, I strongly prefer those that Mike Brown manufactures. They have hard, fixed handles that swivel well in the hand as a movement progresses and they hold an almost unlimited number of latex loops. For whatever reason, the last cable loops I purchased from Brown seemed oddly inflexible. Matt Furey's cable sets use plugged cable strands that are of a single length, not looped, and I like this design very much. His handle attachments accept these strands and hold them fast by not allowing the bulge created by the plugs to pass through the handle openings; it would be analogous to pulling one's head through a buttoned down shirt collar. Alas, Furey's cables are simply too short. In some instances, I have found even positioning his cable sets properly to be impossible. Too, a

cable strand that is stretched too far defeats the purpose of the linearly graduated resistance curve. For my 6'3" body, I almost fear pulling Furey's cables to arm's length so I typically attach them to the Brown handles and elongate them in that manner, or use them in exercises where a shorter stroke is employed. Anyway, in my mind, the Furey cable length is seriously flawed for most exercises. Furey also promotes a soft handle and while this is great for fitting under the foot in the fashion of a stirrup for some exercises, it's simply not acceptable for the hands as it concentrates all of the pressure at perimeter points in the hand or at the base of the thumb, depending on the exercise. For me, the feeling of Furey's handles would be analogous to chinning from loops of thin rope; it just doesn't work out that well. For stretching big cables, you need a

firm handle that evenly distributes the resistance across the palm of the hand in the same manner as the grip on a barbell or a dumbbell. IronMind Enterprises sells a good set of handles but the version I own makes it more difficult to add or delete cable strands. IronMind Enterprises sells cable strands that work well with my Brown handles so more often than not, I train with that combination. Too bad the old York and Noe Cables are no longer manufactured (The illustration at left shows an old Noe Exercisor advertisement – a pictorial progression of Jack Reid's progress over several years of cable training) as these cables had all of the great ingredients: proper handles, quick changing cables, proper strand length, and great elastic resistance qualities. The bands looked like heavy leather razor strops about 3 inches wide and with thickness calibrations related to the strength of the band. Since they were flat bands, they felt especially good on movements where the strands came into contact with the body. As I recall, a man in Ohio who purchased the company from Roy H. Noe's niece, last marketed these cables, but I have been unable to determine what eventually became of the old Noe Exercisors.

### Typical Training Routines for Cables

For the traveling salesman, here's a great basic torso workout:

#### Cable Back Press:

2 warm-up sets for about 5 repetitions per set

3 work sets with enough resistance to limit the first set to 10 to 12 repetitions. The second set should "drop"

by 2 or 3 repetitions, and the third another 2 or 3 repetitions. So, it may look like: 12, 10, 8.

#### Overhead Pull Downs:

1 warm-up set of 5 or 10 repetitions

3 work sets with enough resistance to limit the first set to 20 repetitions. The last 2 sets of repetitions will naturally decline in number as in the Back Press.

#### Front Pulls:

No warm-ups required by now.

3 work sets in the manner described above starting with enough resistance to begin the first set with 12 to 15 repetitions.

#### Cable Laterals:

No warm-ups required.

3 work sets in the manner described above starting with enough resistance to begin the first set with 12 to 15 repetitions.

1 extra set performed with one extra strand (the next discrete increment of cable resistance higher) where you stretch the cables using the stronger Front Pull, then “lower” them as if lowering a Cable Lateral back to mid-thigh level, circle back up sweeping the cables back and Front Pull the cable to arm’s length again, then do another Cable Lateral negative and repeat until you can no longer control the descent adequately.

#### Cable Curls:

1 warm-up set of 5 repetitions

3 work sets in the manner described above starting with enough resistance to begin the first set with 8 to 12 repetitions.

#### Cable Shoulder Shimmy:

Load the cables to your top Back Press resistance and do 3 sets of 10 to 12 repetitions.

#### Cable Whippet

Load the cables to your Cable Lateral resistance and do 3 sets of 10 to 12 repetitions here stretching as far back as you can. As you become limber and acclimated to this movement, you can add as many strands as you can manage.

For “Old School” Strength Trainers who have access to barbells and dumbbells along with cables, here’s a sample routine:

#### Barbell Power Clean and Press

135-3, 135-3, 155-3, 175-3, 195-3, 205-3, 215-2, 220-2, 225-2

#### Continue with Power Clean and Push Presses

230-2, 235-2

Depending on whether your Power Clean or your Push Press is the “weak link” that keeps you from working heavier, continue with:

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For a relatively weak press:

#### Clean and Press Shrug (just press the weight chin high)

235-3, 235-3, 235-3

On alternative training days, instead of Press Shrugs, jerk the bar overhead with slightly more than your maximum push press and do a 3 sets of 3 reps in Overhead Press lockouts of about 3 to 5” strokes.

Or, for a relatively weak clean:

### Clean High Pulls

235-3, 235-3, 235-3

On alternate training days, instead of Clean High Pulls from the floor, try snatch grip high pulls.

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### Barbell Rows

135-5, 135-5, 155-5, 175-5, 195-5, 205-5, 215-5, 225-5

### Cable One-Arm Chins

Chin with one hand over a series of sets of low repetitions (3 to 5) for approximately 25 total repetitions per arm

### Overhead Pull Downs

As described above in Traveling Salesman Section

### Cable Front Pulls

As described above in Traveling Salesman Section

### Cable Lateral Pulls

As described above in Traveling Salesman Section

### Cable Curls

As described above in Traveling Salesman Section

Squats – use Back Squats, Front Squats, Bench Squats, Stop Squats, or Overhead Squats using a standard pyramid of sets of low reps working to a maximum range of weight. The selection of the kind of squat you choose will depend on your training goals.

On alternate training days, warm up with Back Squats to about 2/3s of your maximum, and then perform one of the following leg exercises:

1. Band Squats for higher repetitions
2. Bench Squats with bands in addition to a loaded bar (see Louie Simmons' recommendation here on the Internet or on videotape)
3. Harness lifts using heavy cables as resistance.

For Old School Trainers  $\frac{3}{4}$  those I might collectively define as those who seek muscular development and diversified strength in fairly equal doses, a group not necessarily strictly interested in competitive power or Olympic lifting, or achieving contest-form bodybuilding statistics  $\frac{3}{4}$  I think if I had the energy and interest to go beyond more than two or three days of gym training with weights, I'd first look seriously at some of the pulling and pushing of heavy objects using harnesses, stones, and the like. I'd also investigate the Farmer's Carry, heavy weight throwing, judo or wrestling, and other activities just to expose the body to the development of strength that can be expressed in so many different ways. From time-to-time, I'd cable train up to 5 days each week but I wouldn't maintain that sort of pace year round. Since there are countless ways to modify the ways we train through different lifts, sets and repetition patterns, exercise choices, and so forth, the key to good training is building a strong foundational base in the basic exercises  $\frac{3}{4}$  I chose the Clean and Press as one of mine in one of the training schemes above  $\frac{3}{4}$  and then build around these basics through variety and frequent changes. By changing our routines, what we are really trying to do is keep our bodies constantly adapting to these changes to avoid staleness.

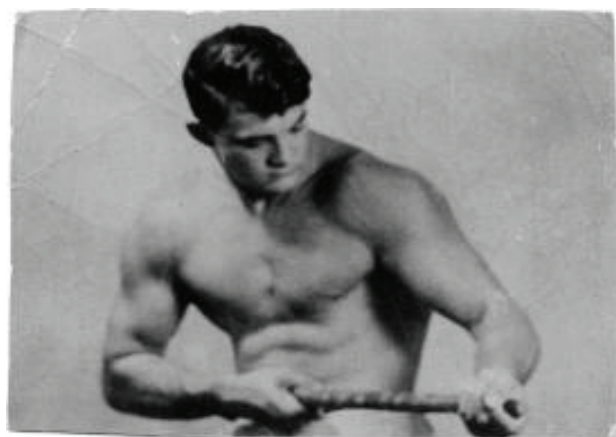
Just a few notes before I hope each of you head off for a great workout with cables. I have no commercial interests nor do I receive any compensation for promoting the products from any of the various vendors

or sources of cables I've mentioned in this article. When I wrote the biographical article on my father, Dr. Strossen paid me an author's fee rather unexpectedly, so I turned around and used it as part of the payment to purchase some equipment from his company, IronMind Enterprises. Also, I have corresponded by mail and by telephone with Mike Brown a time or two. Mike is a rather interesting and engaging sort of fellow to say the least. He asked me to photocopy an old cable brochure and mail it to him, which I gladly did, and a week or so later, he sent me a complimentary thick-bar dumbbell handle he had invented. But, again, Mike and I have no financial relationship. I have also spoken by telephone to Dick Hartzell of giant rubber band fame, I have E-Mailed and received a reply from Matt Furey regarding his cables, but with both of these gentlemen, I would best be described as a "paying" customer since I've bought cables and bands from each of them, but I have no financial relationships here either. Finally, I have purchased a few books and old magazines from Bill Hinbern and I received a kind letter from Fred Hutchinson, a frequent MILO contributing author, after my MILO article was published and, again, I share no financial interests with either of these two gentlemen. I mention these things in the spirit of full disclosure to a question as to whether I have a financial or commercial interest to promote cable equipment. Yes, at some point in the future, I'd like to design and manufacture a perfect set of cable handles, some nifty cable riggings and so forth but, no, I have not pursued this as of this time; I may never.



Finally, just as a matter of introducing myself, I'm a Registered Investment Adviser by vocation and I manage retirement assets for a handful of wealthy families in the North Texas area. My educational background includes BS and MBA degrees and I'm a Certified Financial Planner. I have written several articles on financial topics, frequent articles for Long & Strong Throwers Journal where I typically profile various throwers or collegiate throwing programs, and the occasional article like

this one covering a topic I'm fond of. Athletically, I was a discus thrower in college for the four years from 1971 to 1974, a letterman each of my four years, and was named Outstanding Senior Athlete as a senior. I lifted in a handful of lifting contests, both of the power and Olympic varieties, as a teenager and set a few records there. I won all of my lifting meets except the last one where I placed third, but the lifting environment in Texas at that time was... well, I wasn't willing to do the things I needed to do to stay competitive, so I moved on. In recent years, I have won three consecutive national masters championships as a discus thrower, and last year in October of 2000, I won an odd-lift meet by doing a strict military press with 235 lbs. at age 48. (That's me doing one of my presses above) The prior year, as I worked toward a peak for the 1999 Masters Nationals as a discus competitor, I bench pressed 335 lbs. for 3 easy repetitions on the Monday before my Saturday throwing event. I didn't attempt more repetitions for fear that I might injure myself before my big meet, but I felt like 5 reps would have been my top range that day had I pushed that particular set all the way out. My other "non-prime" lifting accomplishments are generally in line with the strength levels I've noted above.



My father, Jack Reid, later became better known as John B. Reid, Jr., CPA and jokingly referred to himself as the "World's Strongest Bookkeeper" in later years. He died of lung cancer in 1991. He was a nationally preeminent authority on life insurance company taxation and was the tax columnist for Best's Review magazine for over 22 years, that along with his various duties related to managing and operating his Dallas CPA firm. Uncle Harry, my father's younger brother and only sibling, still lives in Florida not far from the location of the Marine Terrace Hotel and the adjacent

beachfront where they all trained for many years. Harry and the others couldn't ever quite understand why Jack got so danged strong and so much more heavily developed than they did, but Harry often commented later that Jack had "compensatory" strength and development related to his polio affliction. I honestly don't know, but some genetic advantages certainly must have surfaced in my father's favor, no doubt though, that cable exercise was the medium through which it came to fruition. Here's hoping that cable training might become a helpful part in each of your training routines!