

# Developing Strength in Teenage Swimmers Without a Weight Room

BY JAY BENNER – ASCA WORLD CLINIC 2007

We have Jay Benner presenting to us this morning. He comes from the Pacific Northwest. He went to the Southeast to see if he liked the middle of the country a little bit, but now is living on an Island so there is hope for us as a coach. Jay has done a phenomenal job. He has done a lot of things from high school coaching to club coaching. He is also very involved with understanding the essence of open water swimming, so I think he has a vast background. He is going to be speaking to you guys today about how we can develop strength without putting kids in the weight room. That is the best way that I can think of it and certainly something that I fully support so I think it should be a phenomenal presentation. Jay, I appreciate you taking the time to present to us.

Thank you. I don't know if you were at my talk yesterday, but one of the things that I stated is that you kind of have to work within the framework of your situation. That is really kind of a little bit of my philosophy that comes from when I was at Tacoma. My situation more or less dictated that I didn't have access to a weight room. It was very difficult for me to run much of a dry land program with my swimmers, so trying to work within the framework of what I had, I wanted to figure out a way. My belief had always been really what you are trying to do is being strong in the water. It is one thing to be strong on land, but if it doesn't translate into the water, then it is really not important whether you can bench press 400 pounds, if that doesn't translate to what you can do in the pool because what we are trying to do is develop fast swimmers. I think there is a big difference between being strong in the water and being strong on land, so my approach really became that I wanted to simulate trying to build strength in the water as much as

I could and making kids strong in the pool.

I have always been a big believer that the one thing that is very important in swimming is that you maintain a good range of motion. I have seen too many swimmers over the years that would have their range of motion compromised from a dry land program. You know there is a difference between racing short course yards and long course meters. My focus was always aimed more towards long course meters. I felt like it is one thing to develop that power in college swimming. I know the emphasis becomes a lot more power, with speed being the focus. You have seen many swimmers that could go 43 seconds for 100 yard freestyle and were not able to turn around and break 52 seconds for 100 meters long course. I would look at that a lot of times as the strength that was created from a pretty substantial dry-land program.

So again, my situation was one that really kind of determined how I was going to approach strength training. We were limited to what we had. If I had a choice, like if I had 3 hours in the afternoon, I had to decide how I was going to use those 3 hours. I was more interested in maximization. I didn't want to sacrifice water time because I felt the aerobic emphasis that I was trying to create with my program was crucial. I didn't want to sacrifice by putting an emphasis on taking time out of the water to build strength on land. Don't get me wrong, I do believe you need to be strong in order to swim fast. My take on it, is when you are racing, it is a matter of being able to hold a good body line throughout the race, all the way to the finish. We are talking about core strength.

My emphasis on dry-land was always trying to develop good core strength. You probably know that US swimming, over the last number of years, has put the focus on core strength being the key. So it is not that I don't do anything on land, but I have been very limited to what I could do on land. Those things that I was doing on land were more aimed at core strength. One of the things that I felt was a key, and this is maybe a very simple idea, but I looked at the swimmers. When I first look at a swimmer, I am looking at what they are able to do on the catch and how well they are able to hold water out-front. It is interesting to me because I find a lot of it is having strength in the forearm and wrist and hand. I look at that as being probably one of the most neglected areas when you talk about building strength.

I was talking to Nort Thornton yesterday, telling him one of the things that I really tried to emphasize was a very simple piece of dry-land equipment. I used these as a swimmer. I give this to all my kids to use as a way to build strength in the forearm and wrist. To me it is very easy. I give them one of these and what I do is give them a penny to put in their hand. I will test each hand and say, "put the penny in there and I want to see how long you can hold it in there." There is a strong correlation I see between their ability in their hand strength and their forearm and wrist strength versus the same thing when they put that hand in the water and being able to catch and hold the water.

When I was talking to Nort yesterday, I said one thing I really like is using a hand gripper. He says when he had Matt Biondi, it was interesting that the one thing Matt was telling him, "You

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know coach, the last 10 meters of the 100 freestyle I start to feel a weakness in my pinkie." I never heard that before. It was something that Biondi could actually tell towards the end of the 100 freestyle. He was starting to lose a little bit of strength. I think this is something that I have my kids use. I really believe it is a very simple gadget to use. I will tell them to take it to school with you. I do not tell them to use it while they are driving. I don't want them to be unsafe, but it is something over time I think you can develop a lot of strength in the forearm and wrist. I think this is extremely important when you are trying to grab ahold of water on the entry, put the hand in the water, and the ability to catch right away. You will find a big difference between strength in the hands of swimmers.

So what I am going to do is just take this penny and pass it around, but try to hold the penny in here and see if you can hold the penny in there for a minute on each hand. What I usually find is the dominant hand is much stronger. Most of the kids will have a lot of problems. For me, I can use either hand pretty much for the same length of time, but I find usually with the swimmers, one hand is much weaker than the other. Go ahead take this and pass it around. Just go ahead and try it. Really, I always felt with the kids that few should be able to do this for a couple of minutes. It is pretty difficult for most kids, but you should really have equal strength in the hands. I think it is a great device.. If you want to talk about trying to make a gain in strength somewhere, it is many times overlooked, but I really feel that developing strength in the wrist, the forearm, and the hand is critical in all four of the competitive strokes, so it is the one gadget to give the kids. I try to encourage them to use it as much as possible, but it is something that can indicate very quickly who is very deficient in those areas.

It is very basic to develop strength outside of the weight room. Again, my goal is to develop core strength. I think there are a lot of ways that you can approach developing core strength, but again, it is about being able to maintain a good body line throughout your entire race. Also I believe your

ability is somewhat endurance-related. If you can't hold that body line throughout the race, obviously you are going to struggle at the end of the race. So, when I was faced with not being able to have access to much of a dry-land weight room, I went ahead and figured out a way that I would try and make the kids strong in the water. Really the equipment that I use, most of you either know of these things or have had access to them.

The general things that I use in the water are we did a lot of pulling with an inner tube. That may go back years. I know that a lot of people have gotten away from that, but I am a real believer in using the inner tube during pull sets. I think without the inner tube it becomes very easy to throw the legs in and kick a little bit. We would use the big inner tubes and wrap them around like a pretzel and found that it provided a pretty good deal of resistance for the kids. It definitely took their ability to kick away from those that like to cheat a little bit with the pull buoy. Inner tubes became a big part of our program while using all different sizes of hand paddles. While I am up here I promised that I would give Dick Hannula a plug with the paddles that I use, because these are actually the paddles that I used all the time. They are very simple. He came out with these hand paddles, which have been out for probably 20 years. They are small enough that I think you could start using them with your age group kids. There is not a lot of demand on the shoulder, but these are excellent paddles. I was never really fond of his gripper. I do not know if Dick is in the room and heard that. Actually many years ago I lived where I would use these to scrape the snow off my car window in the morning and they worked well for that.

We would use paddles and try to mix it into the training as much as we could. Train with the paddles with the inner tube, long belts, and the surgical tubing. Long belts are another piece of equipment that we used quite a bit as resistance training in the water. We would do a lot of things with the long belt. Some mornings, and I like to do a lot of that in the morning, we would hook them up and maybe go as many as twenty 25's with the long belt. I felt

it was important when you are using the tubing, you can get them in varying degrees of thickness, it is important that they are moving forward I feel. You do not want your athletes getting to a point where they are out and cannot go any further maintaining that good body line, because I think with any kind of resistance training, it is important. If they are not able to maintain the body position, start to struggle, drop the hips or try to compensate by changing their body position, then I feel that it is probably not the drill you would want to be doing a lot of. Changing the body position, teaching them to swim and again, trying to maintain the good body line with the core strength, are so important that we do a lot of the long belt surgical tubing.

Maybe you have access to, which I used in my later years, the power rack, which I felt was a great piece of equipment. Again this is about being strong in the water. I had two high school boys that were 50.0 for 100 meters and never did anything on land in the way of strength training. If you have used the power rack, I could put them on the power rack and they could do it under 7 seconds, which is pretty good. If you have used that before, even for a fully mature college swimmer, I do not know if there are too many that had that type of strength. They were extremely strong in the water! Again, we just did a lot of core stuff. Core strengthening on land was our objective. I don't know what they could do in the weight room as far as they were strong kids, but we did not do anything on land outside of surgical tubing.

The other thing that is kind of related to that power rack, which came out a few years back by Performance is the Tower Power, which when I was in Mecklenburg, last year, we had one. I think this is a great piece of equipment, if you have the funds. I don't think it is really that expensive. I do not remember exactly what the cost is, but it is an excellent piece of equipment. I know Frank Busch uses them at the University of Arizona quite a bit. In the short time that I had to play around with the one I had, I used it a fair amount for about half a year. I think this is a great piece of equip-

ment. The difference between this and the power rack is that you are actually able to hook up your swimmers to go 25 meters. So depending on how much water resistance you want to put in the bucket, there are a lot of different things that you could do with this piece of equipment. I think it is an excellent way to develop strength in the water. I think they run, I am not quite sure, but I think it is about \$3,000 for this piece of equipment. You are able to hook two swimmers up at once and have them use this. If I could have one type of equipment as a coach, I would like to have four or five of these machines. The only difficulty when you are working with a group of maybe twenty kids or more is how much it takes to move through the machines. If you are going to have a dozen of those kids training on it, how much time it takes to move all those kids through when you only have one machine. It is an excellent piece of equipment if you have the funds with your club. I would really encourage you to look at this piece of equipment because I think it is one of the best ways to develop strength in the water.

Probably the piece of equipment I use the most these days, which has been taken off on what used to be using buckets in the water, is using parachutes. Now it is very easy to buy. I wish I would have brought one with me, but you can get these parachutes that are just a very small piece of nylon hooked up to a belt. I use this quite a bit in my program in a number of different ways. We use it with endurance training like maybe where we go 100 and 200 repeats. There is actually one parachute out now that has a couple of different sizes. There is a yellow color that is a little less resistance and then a blue one that is more resistance. I would use these three to four times a week where we would maybe put in as much as an hour of our practice using this and especially more when we do a lot more fast stuff as we approach the mid-season point, later in the season. We kind of move more to trying to swim fast with some resistance with the hand paddles on and parachutes on their backs.

I talked to some coaches a couple of years back about this and they really feel in talking to them about the

Tower Power, the real feeling is that you could accomplish the same thing using these parachutes for resistance training. It then became a big part of my program over the years where we did a lot of our resistance training with the parachute. You can use it, I think, as an endurance builder, but again trying to maintain a good body line. I think it is hard to put this sometimes on a weak 12 or 13 year old swimmer in your program if they are struggling and bending at the hips, and bending in their back. I do not know if it is something that you are really ready to have these kids use. Again, I mean, if they are able to maintain the good body line, I think it is something that can be a great piece of equipment for your program.

Just going back, I did do a few things over the years outside of the pool. The things that I felt, and this goes back again to way back in the 80's when I think Randy Reese used the Power Wheel. He used this quite a number of years back when they started doing wheels. This is one piece of equipment at the time I was able to take outside of the pool. It has been a while since I have used them, but they have this piece of equipment called the Power Wheel. I had the swimmers buy these. It is a little more sophisticated than what Randy originally had and what Eddie used at Texas as well and at Bolles, because I had them back when I was swimming. They tended to be a little bit hard on your shins, but these power wheels are about this much off the ground, but you could insert your feet in a slot. You could not cheat with these as far as the demand on the core. We used these for a good length of time. You can actually insert your feet into it and just get down into a core position, but walk, don't run if you use them. The demand on the core is unbelievable. Again, I think you have to be very careful because I think there could be a lot of strain on the back, with these if you are not maintaining good core position and keeping that back straight.

With a kid like Nathan Adrian, who was 6' 6" probably when he was 15 years old, I wanted to be very careful if he really had not grown into his body and strength. I mean at the rate his body had grown, Nathan was a

strong kid from an early age, but again the demand I think on the back wasn't my only concern and is kind of how I got away from using the power wheel a little bit. I was worried about Dana Kirk, who used this quite a bit when I had her. Dana was very good about me telling her something, and she would go home at night and put this on if she was to watch television. She would spend a half hour in front of the television using this piece of equipment. Just in that position, and especially with a 200 flyer the demand of her needing a strong core. I think, she believed that this device was a big part of helping her develop core strength. So, that is one piece of equipment that I did use on land. If I was to use one piece of equipment, that is probably the one that I was going to use. I really liked what it did as far as building strength in the shoulders, the triceps, but also the demand on the core. Again, I think that the important part of building strength is to pay attention first to develop good core strength.

Where is the wrist gripper? Has anybody been able to hold it for longer than two minutes? You know it is another very simple piece of equipment that I feel the kids can use. I don't know if it is so much strength, but again, it is something that teaches you to get the high elbow catch and anchor the arm. Moving on, I do not know if you are familiar with these, but I cannot find them. They are the slip paddles. I am trying to find some slip paddles, which I was given a pair probably six years back at a National meet. I know that it is something that they use in Hungary quite a bit with the swimmers, but it is a paddle that the curvature you put on and basically when you enter the water, you slip. You cannot hold the water, but the hand slips through the water. What it basically is trying to force you to do to is catch water and hold it with your forearm. The great thing I felt about these paddles is when you train with them, as far as stroke tempo and stroke rate, they really force someone doing it to get their stroke rate up. When you train and give them intervals that are challenging enough, the focus of having to get that high elbow

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catch and trying to hold water out there will significantly start to increase their stroke rate. I have been trying to track these down. They are very hard to find. I had come across the Hungarian coach who is now coaching in the Middle East that was trying to find those, but with no luck.

There is another piece of equipment that I just had a short opportunity to play around with a little bit which felt like something that was very useful in a number of ways. You know, that is really the equipment I use. I am not saying I believe you need to be strong in the water in order to swim fast, but I think when you are developing swimmers during their teenage years, I think it is easy to put too much of an emphasis on getting in the weight room. You can become very creative with what you are doing. I think a lot of the kids like the dry-land program. Certainly boys like going into the weight room. You know young teenage boys want to get big. It is a nice diversion for them from the pool when you are talking about ultimately what we are trying to do is to build fast swimmers. I think you really need to start to look at it and figure out what determines developing fast swimmers and how important are weights to do that?

I use the swim bench a lot as well. If you are fortunate enough to have one or more, I am a big believer in them whether it is a Vasa Trainer or the Swim Bench. Again, these are all things that simulate what you are doing in the water. When I talked about using a swim bench, I don't look at that as strength training in the gym. It is a piece of equipment that I think is another one that is great for teaching the high elbow catch. If you have swimmers, and you do use that, I think it is important that you monitor them when they are on it. It is very easy for them to get in the habit of dropping the elbow and leading from the elbow. Those are the pieces of equipment I have used for the last ten years. I feel like when my kids go off into college, that dryland practice is another aspect that they have to improve and get better. Sometimes it is a little bit of an adjustment for them if they go into a college program. I have a boy that is at Texas right now, start-

ing his Junior year. Eddie runs a pretty significant dry-land program. It was a little bit of an adjustment for him, but it is just because we hadn't done a lot of things in the weight room. He was a very strong kid in the water.

I think you need to look at those aspects when planning. I think it is easy when you are planning your season or meeting with your kids to say we will do dry land three times a week. You design a program and have it going, but is this really helping their swimming? This is the question to ask. Sure, they may be getting stronger on land. How does that translate to what they are doing in the water? You need to look at those things because I always believe range of motion is important. A good rate and range of motion is the more important thing. I think you can certainly compromise that if you are not careful about what you are doing in the weight room. It is just the way I do it. I know there are a lot of ways and a lot of different philosophies. I am always interested to see what other people are doing, but again my situation dictated my kind of approach to this. I really believe that you can become strong going up and down the pool doing a lot of volume in the water, and if you are doing it with good technique, you are going to become stronger over time.

Again, it all goes back to being able to catch and hold water in that position out front. You are trying to learn to become strong in the water, so I am kind of more interested maybe in entertaining any questions you may have. I don't know if I necessarily have anything else. Actually, yes I do. One thing that I will do is a fair amount of vertical kicking. We do a lot of vertical kicking sometimes with holding on to a weight. I think I have done it with ten up to twenty pounds of weights for the vertical kicking. I think you have to be very careful because it is very easy to waste the legs and take a very long time to recover. I tend to do that more towards the early season and then taper off. I am glad that you brought it up because I meant to mention that. Vertical kicking with some resistance or weights in the water is a great way to develop strength in the kick, but again I think you have to be very careful. I know that I have had

it happen where I think we came to the end of the season and had done too much of it or I didn't give the kids enough rest or back off enough in time. They just were very flat at the end of the season. When I look back on it, I really felt like we probably did too much or didn't realize how tired they were in season when we were doing that.

Examples of the core strength exercises that I did are real basic ones. I mean I could get down there and show you. Actually the main ones I just did a lot of was just this core position trying to keep the back straight and do that from the sides. I still do that today, which gets maybe a little bit repetitive and boring for them, but we would do it every day before and after practice. Sitting and kicking wall sets all things basic which is very easy if you take your group and you do this. Just to go around and watch to get an idea who is weak in the core. I think when you are doing that it is very important that they are maintaining that good body line because a lot of kids will try to cheat. What I was talking about with the power wheel that it is the best thing I have come across so far because you cannot cheat. The kids will try to cheat by dipping at the hips and that is when I was worried about the lower back and maybe the strain on it. That power wheel, as far as being one thing that made it very difficult for the kids to cheat, made it my favorite. There was a time when all of my kids owned one of those power wheels. If we had access to be on deck a half hour before we started in the water, we would do maybe 20 minutes worth before and when we finished workout maybe another 15-20 minutes after.

I tried to leave the responsibility on them to stretch. Most times when they got there was maybe 5-10 minutes before we got in the water. I was fortunate at one time I maybe had a dozen long belts so there are a lot of times I didn't have more than 12 kids at a morning practice in my group and so they all had their own. If I had 20 kids or 24 kids and had 12 long belts I figured out a way to stagger it. Maybe the other 12 kids were over in the 15

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yard dive tank using the parachutes with hand paddles and then I would rotate. When you are limited with the amount of equipment you have – one thing that I found – it forces you to become more creative. If you don't want your kids sitting around and waiting, it forced me to become more creative with what I was doing and figure ways so that nobody was sitting around waiting to use a piece of equipment.

I have started to use surgical tubing. One of my friends Shawn Hutchinson, out of King, is one of the real innovative and up and coming coaches here in the US. He coached King Aquatics not far away when I was at Tacoma. I know from talking with Shawn that he runs a pretty substantial dry-land program, but he incorporates a lot of that while they are swimming. I was really intrigued when he was telling me some of the stuff. It made me think and experiment with the surgical tubing. I do use surgical tubing on land. I also had a boy in the UAE who is now 29 swimming the 50 free without using his legs, but I have been experimenting with him. We will get on the deck and go five rounds of 30 seconds fast with the tubing and then have him get right on the blocks and dive a 50. This is just when the muscles are very fatigued at that point. Shawn did a lot of similar things like that which is what got me thinking between fast swimming, recovery swimming, and the work load that you are trying to put a lot of demand on your swimmers. I have started to incorporate that a little bit into some of the things which lets me experiment a little bit. It is not something that I have spent a lot of time doing, but I know Shawn has incorporated a lot of that into his training program. He has had a lot of great success with the kids at King.

Stretch boards are another. You can order them pretty cheap. I am not even sure if they are \$20 apiece. There is really not much to them, but they are fairly cheap. I would have all my kids own one and it made it very easy to incorporate that into the workout. Yeah, I think that it is always being very careful trying to keep the shoulder problems down. All I can tell you is I have had over the years (sheer volumes of swimmers) very few shoulder

problems in my program. It depends on the age as to how much to do. For us to do a pulling set, we are normally between 2,000 to 3,500 meters with the tube. You know, not all of that may be with paddles. Maybe half of it is with paddles, half of it is without. With the parachute we would go anywhere from 800 meters to 2,000 meters. If I had the parachute on in the 15 yard pool maybe the set would be a 400 meter set with paddles, but real high intensity. It just depended.

Again, with the vertical kicking with a weight, I think you need to be very careful. Build into vertical kicking every week, and not too much of it at any one time. You can really ruin a kid's legs, thus ruining the next set just from a fatigue standpoint. At what age do I start? When I start I think that is pretty individual to what you know. The physical makeup of what that kid is makes a big difference. If you have a 12 year old girl that is physically mature that is one thing. I felt more comfortable doing it in the water, putting an inner-tube on a 12 year old girl than putting her in the weight room. But again you can tell if you are putting a parachute on a kid and he's not being able to handle it and maintain that good body line. I do not think that they are quite ready to do that.

For the power rack and things like that, I left it more towards my high school age kids. I would do a lot of recording with the power rack, recording their sets and their times, but I always wanted to keep it as simple as possible and not complicate it. There are a lot of ways that I think you can build strength in the water. I don't know if mine is right, but again my situation dictated it. Then again, if I had a 14 or 15 year old boy, maybe I was more interested on the aerobic end. The parachute is one thing I felt like was a great strength tool in the water. Yeah, as far as the progression, there are some things that are easier for a younger kid to handle. I think one thing that all the kids liked doing was putting the long belt on. You could tell that it was something they enjoyed. I think that is something you could start out with even at a younger age because again there is different thickness to the belts or the cords. There is silver or gold belt. For a 12

year old girl or even a 13 year old boy, it is fairly easy for them. For some of them to make the length of the pool, we would start with that. I would have younger kids not put the inner tube on. Maybe I would put a band on them instead to start them out. I would have them wrap the band around just so that they were not kicking when they pulled. Certainly the band did not provide the resistance that putting an inner tube on them achieved.

With the younger kids, I usually did not have them on the power rack. The parachute is good if they maintain a good body-line position. Certainly, I wouldn't have a 13 year old girl or boy doing the same things that I may have my 17 year old boy doing with that. Maybe if they were going a 1500 meter set, I would have the 13 year olds starting out with 500 meters worth of that. The progression and the build-up is just to see how they handle it, which is something pretty subjective. I think you have to keep an eye on that as a coach. There are certainly ways you can measure that. I tried to be creative and find out a way. I really felt for the most part my kids were not deficient at all in strength, especially when I had them tested at US Swimming. The high school aged kids or teenage kids I felt had pretty good strength. Yeah, fins. You know we would use them from time to time. I didn't really talk about that, but it is certainly another piece of equipment. I like to put fins on toward the end of the season with the hand paddles and to get them to swim faster than race pace. I would get their body position high on the water, but I can't say that that has been a big part of my program. Certainly I know a lot of people that use them. That was how I used them. I would use them on towards the end of the season to get the kids to start swimming faster, to get that sensation of being on top of the water. Are there any other questions? Well again, thank you. ■

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