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Future Sport 10



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Future Sports with Ken Norton and Al Fuhrbach

In this episode of Future Sports, we are joined by heavyweight boxer Ken Norton and shot putter Al Fuhrbach.

Norton, known for his powerful punches, discusses his late start in boxing at the age of 23 and how his background in other sports helped him develop his boxing technique. We also take a look at Norton's impressive hand speed and power, with Dr. Gideon Ariel measuring the forces Norton exerts during a jab.

Al Fuhrbach, one of America's premier shot putters, talks about the challenges of his sport, including the physical strength and mental discipline required. Fuhrbach also discusses how science has changed the way athletes throw the 16-pound shot, with a focus on technique and biomechanics.

In addition to our guest interviews, we also explore the most common injury in athletics - lower back pain, with insights from Dr. Ariel.

Finally, we take a scientific look at tennis with a focus on serving, featuring tennis player Roscoe Tanner.

Join us next week for more insights into the future of sports.








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Audio transcription

Frame	#	Time	Spoken text
	0.	00:00:00	today on Future Sports heavyweight boxer Ken Norton joins us what a puncher he is and our
	1.	00:00:11	computer analysis zeros in on world-class technique of one of America's premier shot
	2.	00:00:16	putters the mighty Al Fuhrbach he's going for Los Angeles gold
	3.	00:00:30	yes power and computers are the names of the Future Sport game today and speaking of power
	4.	00:00:38	we'll take an inside look at one of the great tennis serves in the game Moscow
	5.	00:00:42	Tanners of course all coming up on today's edition of Future Sports
	6.	00:00:49	welcome back to Future Sport well a lot of people have their own little crystal ball
	7.	00:00:55	this one you can't see through weighs 16 pounds and some people spend a lifetime
8.	00:00:59	throwing it around for a living actually the man sitting next to me Al Fuhrbach glad to	



#	Time	Spoken text
9.	00:01:04	have you with us buddy why have you spent so much of your life throwing a 16 pound ball
10.	00:01:09	well I think the object Vic is to throw it farther than you've ever thrown it before
11.	00:01:13	and this creates a challenge that it goes beyond just developing technique for throwing
12.	00:01:19	it gets into the area of developing strength to make that 16 pounds feel lighter it gets into
13.	00:01:24	the area of nutrition psychology and I think it's just an all-consuming challenge well you
14.	00:01:30	know somebody once told me that you have a post office curriculum in the first grade but you could
15.	00:01:33	also teach the post office curriculum and when you're a senior in high school and what you just
16.	00:01:37	told me is you can get into physics into geometry nutrition and everything with this and so the
17.	00:01:42	challenge is also just inside yourself how has science changed how people throw this 16 pound
18.	00:01:49	shot well it's what it does it's made technique a much more constant factor in the event Americans
19.	00:01:58	for many years were throwing on feeling and then these Germans and Russians started started rolling
20.	00:02:04	the event even though we have greater talent involved in the event and the reason they did
21.	00:02:09	that was because of their studies of biomechanics I think they were able to to bring an athlete to
22.	00:02:14	the right positions in the throw a little more consistently but it's something that can easily
23.	00:02:19	be overcome in this country science you always have to pay a price for progress somewhere when
24.	00:02:24	you're doing the experimentation someone's going to take gas someone's going to be hurt now I heard
25.	00:02:29	you were trying a new little project were you jumping up and off of boxes trying to get some
26.	00:02:33	new strength some new technique what happened well that's called plyometrics and the Russians
27.	00:02:37	have done a great deal of research in it and it's called well it's also called depth jumping
28.	00:02:41	jumping from high boxes reacting very forcefully the moment you hit and I was going through about
29.	00:02:48	a two-hour workout twice a week last fall and my perfect knees were suddenly ruined and at least
30.	00:02:57	for the time being and I think that that was an experiment that obviously didn't turn out well
31.	00:03:03	but it goes to show you that I don't believe that people of our size of our strength of our body
32.	00:03:09	weight should be doing that amount of work in that particular area jumping is only slightly
33.	00:03:16	important alleyway 250 pounds or more close in that area now how many calories do you have to
34.	00:03:22	consume a day to keep that body weight up to make you an efficient thrower well what I'm training
35.	00:03:27	hard I eat well over 6,000 sometimes up to 8,000 calories a day is that in all candy bars I don't
36.	00:03:35	eat that type of item these days actually it's all in good foods and that's the difficulty in
37.	00:03:41	getting that many calories is eating you know dairy products and meats and vegetables and fruits
38.	00:03:47	and getting that many calories it has to be good food how the scientists are involved psychologists
39.	00:03:53	are involved that we know more about the brain we know more about the athletes the athletes know
40.	00:03:57	more about themselves which all boils down to someday somebody's gonna throw this thing a heck

Frame	#	Time	Spoken text
	41.	00:04:02	<i>of a lot further ten years from today how far do you think a man's gonna be able to throw this 16</i>
	42.	00:04:07	<i>pound shot I wouldn't make a fool out of myself by predicting but I'm certainly sure that that</i>
	43.	00:04:15	<i>it's gonna be farther than the present world record and it could it could well be somewhere</i>
	44.	00:04:19	<i>between 75 and 80 feet but I won't put my finger figure out of distance what are your chances for</i>
	45.	00:04:24	<i>any as far as 1984 for myself I'll be 36 years old I think in recent years people like out order</i>
	46.	00:04:31	<i>and in the throne events and a lot of these Europeans have been winning their gold medals</i>
	47.	00:04:36	<i>at a later age not out that some of the others have won their gold medals when they're 36 38</i>
	48.	00:04:41	<i>and I don't think that it's a disadvantage whatsoever I think indeed it's probably an</i>
	49.	00:04:46	<i>advantage given the athlete is healthy takes good care of himself is in good condition I think it's</i>
	50.	00:04:53	<i>an advantage yes it won't be an advantage for competitors trying to top the Olympic form of</i>
	51.	00:04:59	<i>Al Feuerbach at age 36 he's looking 284 and speaking of advantages Frank Shorter has one</i>
	52.	00:05:08	<i>for runners today's running tip is for those runners who've been entering races have been</i>
	53.	00:05:14	<i>training on a regular basis six even seven days a week and they want to improve the racing times</i>
	54.	00:05:20	<i>how do I get faster the person feels like he or she has reached a point of diminishing return in</i>
	55.	00:05:25	<i>their training well the answer is to do some speed training what are called intervals you</i>
	56.	00:05:30	<i>only need to do them about once a week and all it is is that you break down a distance of perhaps</i>
	57.	00:05:35	<i>three miles two miles to start with and run quarter miles around a track 300 yard runs</i>
	58.	00:05:42	<i>around a field run them at a pace faster than you want to run in your race and then rest as</i>
	59.	00:05:48	<i>little as possible in between each interval so for example if you're running two miles worth of</i>
	60.	00:05:53	<i>quarter miles that's eight quarters you would run eight times around the quarter mile track jog and</i>
	61.	00:05:59	<i>rest until you feel you can start the next one and still go at a pace faster than you want to</i>
	62.	00:06:04	<i>run in your race you run eight of them then maybe the next week you try it again and you run a</i>
	63.	00:06:09	<i>little faster this will improve your racing the difficulty here is that it's a very personal</i>
	64.	00:06:15	<i>thing you either have to have a coach to help you with this or you have to develop a feel for</i>
	65.	00:06:19	<i>yourself of just how much you can stand how little rest you need to do but this is what all</i>
	66.	00:06:26	<i>the good racers do to improve the nice thing about it is you can still go out and run your easy runs</i>
	67.	00:06:32	<i>80% of your running can be at a very slow pace thank you Frank later today on Future Sport will</i>
	68.	00:06:38	<i>almost trade punches with Ken Norton but coming up next a scientific look at tennis with a tip</i>
	69.	00:06:44	<i>for you players on how to improve the serve serving master himself Lasko Tanner</i>
	70.	00:07:02	<i>welcome back to Future Sport now it's time to meet the man who's finished in the top 10 in the</i>
	71.	00:07:08	<i>world for 10 consecutive years with us today on Future Sport fastest gun in the West that's</i>
	72.	00:07:14	<i>fastest serve in the world Lasko Tanner Lasko nice having you with us thanks it's great to be here</i>
	73.	00:07:18	<i>how'd you get started in tennis Roscoe well when I was six years old my dad wanted me to be able</i>
	74.	00:07:25	<i>to learn how to play tennis just so that I could play like if I became a lawyer or something like</i>

Frame	#	Time	Spoken text
	75.	00:07:30	<i>that to do after work as a social game and there was about four or five of us that started taking</i>
	76.	00:07:35	<i>lessons together in tennis we did little league baseball we played football together and everything</i>
	77.	00:07:39	<i>else and we were very competitive and we just started playing tennis together and and really</i>
	78.	00:07:45	<i>enjoyed it and played all the time you go all over the world the first thing people ask you</i>
	79.	00:07:49	<i>serve when I want to see that 150 mile an hour serve or whatever does that put a little pressure</i>
	80.	00:07:54	<i>on you because it's kind of nice to be noted for foreigners backhand volleys and other things</i>
	81.	00:07:58	<i>but to me anytime anybody notices you as having something that's the best in the world or near the</i>
	82.	00:08:03	<i>best in the world I can't complain so just the fact that in my business if they're talking about</i>
	83.	00:08:08	<i>me that's good and the fact that they're saying it's the best I really get a great deal of</i>
	84.	00:08:14	<i>satisfaction of that because I spent a lot of time working on it and also I know that you can't win</i>
	85.	00:08:19	<i>with the serve alone and so I'll let my my ranking say whether I can do some of the other things</i>
	86.	00:08:23	<i>article was printed in one of the major newspapers magazine magazine saying hey I can predict this</i>
	87.	00:08:29	<i>man said if Roscoe Tanner plays on this particular surface he will win and automatically if he goes</i>
	88.	00:08:34	<i>on another surface he will lose in a major event in the semis or finals is that true I don't think</i>
	89.	00:08:40	<i>so I think probably my record has been inconsistent so it's hard to say to make those sort of</i>
	90.	00:08:46	<i>predictions on me because most people say that I can't play on clay and yet I've won tournaments</i>
	91.	00:08:51	<i>on clay over players they're supposed to be specialists on that surface that played one</i>
	92.	00:08:56	<i>tournament Cincinnati on clay where I beat Solomon and dips and I'm not supposed to be able to play</i>
	93.	00:09:01	<i>on clay so I think for me it's more a thing of my mental attitude when I go on the court if it's if</i>
	94.	00:09:09	<i>it's on clay am I going to be patient enough to not make the errors my natural tendencies are when</i>
	95.	00:09:14	<i>I see a shot that I can go for to be a winner I'll go for it and as a result I'll make some errors</i>
	96.	00:09:19	<i>that I shouldn't make maybe a low margin of error but but also that's the way I enjoy the game and</i>
	97.	00:09:25	<i>to me I play the game for enjoyment first I feel very fortunate because I've made a lot of money</i>
	98.	00:09:31	<i>at it you know when you serve and everybody's throwing that big cannonball at least saying</i>
	99.	00:09:35	<i>you're throwing the cannonball they want to know how much power that body is putting into the ball</i>
	100.	00:09:39	<i>we have a way in our laboratory of measuring precisely how much power is going into that</i>
	101.	00:09:45	<i>thing by measuring the forces going through the ground so we're gonna go in right now and take a</i>
	102.	00:09:49	<i>look at how you serve and how many forces go through the ground with dr. Gideon area</i>
	103.	00:09:55	<i>all right Roscoe what we want to do now is to measure how much force you're able to throw</i>
	104.	00:10:01	<i>into that serving dr. arrows inside on his magic machine all you got to do is come up hit your</i>
	105.	00:10:06	<i>regular serve stand on this force plate whatever goes through the ground is going into the serve</i>
	106.	00:10:11	<i>anytime you're ready all right let's take a look get in well Vic this is amazing look on Roscoe</i>
	107.	00:10:24	<i>then how much force it generate on the ground 349 pounds well some people might say why 349 pounds</i>



#	Time	Spoken text
108.	00:10:32	<i>on the ground I am generated on the rocket well anything you generate on the ground has to come</i>
109.	00:10:37	<i>to the rocket and vice versa Newton knew that long time ago action reaction 349 pounds Roscoe</i>
110.	00:10:45	<i>Tanner weigh only 175 175 pounds so all the force is going down has to come up 349 pounds that's</i>
111.	00:10:54	<i>amazing man how much you wait 170 Gideon's right on them so that's two times body weight so you put</i>
112.	00:10:59	<i>your foot against the force plate you dig in and you hit the ball you hit the ball 130 140 miles an</i>
113.	00:11:04	<i>hour that's amazing to me you generate 349 pounds as Gideon says you shoot your cannonball by</i>



114.	00:11:10	<i>keeping your foot on the ground and that's why because you can't shoot a cannon out of canoe</i>
115.	00:11:14	<i>anyway Roscoe great having you with the Sun Future Sport thanks great to be here from hard serving</i>
116.	00:11:20	<i>Roscoe Tanner to our computer scientist Gideon Ariel the most common injury in athletics and</i>
117.	00:11:26	<i>also in common life is the lower back pain the question is why why the athletes help the lower</i>
118.	00:11:34	<i>back pain we have shot putters a gymnast and discus tourists and runners a lot of them great</i>



119.	00:11:39	<i>percentage of them say we have a problem with our lower back pain what is the reason well obviously</i>
120.	00:11:46	<i>if you carry your body mass the whole trunk and the hip and you're from the other side pounding</i>
121.	00:11:53	<i>with the legs and believe it or not when you are running you're pounding about three to four times</i>
122.	00:11:59	<i>your body weight so if you weigh 200 pounds you you're creating about six seven hundred pounds of</i>
123.	00:12:05	<i>force where all this force sum up the first sum up right at the lower back now with the general</i>









124.	00:12:12	<i>public it's a little bit different story the problem is that when people stop exercising they</i>
125.	00:12:18	<i>have a terrible abdominal strength in fact they all try to develop a little belly and when you</i>
126.	00:12:25	<i>have a very very weak abdominal you start sinking and when you start sinking all the pressure again</i>
127.	00:12:31	<i>is on the back so the reason is the same for the general public the reason is for weakness for the</i>
128.	00:12:38	<i>is because the pounding and hitting the ground really hard in order to perform well and all</i>
129.	00:12:43	<i>these forces are sum up right at the lower back that's why the most common injury in athletics</i>



130.	00:12:50	<i>and with the general public is the lower back pain thank you get in well this man is all too</i>
131.	00:12:56	<i>familiar with pain a heavyweight boxing champion who battled Muhammad Ali three times his career</i>
132.	00:13:01	<i>like that of all boxers ordered the fine line between sport and combat one wrong reaction</i>
133.	00:13:07	<i>or lack of reaction can spell the difference between glory and pain you'll meet Ken Norton</i>
134.	00:13:12	<i>when we come back I've been around some pretty famous people in my life but always wanted to</i>



135.	00:13:29	<i>get a chance to be around Ken Norton great opportunity for me great opportunity for you</i>
136.	00:13:34	<i>the viewer Ken great having you with us buddy good being here now I want to ask you some questions</i>
137.	00:13:38	<i>about yourself who are you what's your background and how'd you get into boxing assistant well</i>
138.	00:13:44	<i>basically I got involved in the boxing when I was about 23 years old in the Marine Corps it's very</i>
139.	00:13:49	<i>late age to start but then again in high school and college I was not introduced to boxing because</i>

Frame	#	Time	Spoken text
	140.	00:13:55	<i>in the city I lived in which is a very small town in Illinois Jacksonville there was no boxing all</i>
	141.	00:14:01	<i>we had was basketball football track baseball and tennis I was very fortunate that I had good</i>
	142.	00:14:07	<i>training in the other sports and the coordination from those sports helped me in boxing my hand</i>
	143.	00:14:14	<i>eye coordination was fairly good my hand speed was fairly good and there were many things that</i>
	144.	00:14:18	<i>in football basketball and track and baseball that I could bring to boxing in the the positive</i>
	145.	00:14:24	<i>attitude the preparation of there were so many ways I could call it to both of all three of them</i>
	146.	00:14:32	<i>to boxing if you hadn't gone into boxing which one of those sports baseball football</i>
	147.	00:14:37	<i>baseball so on what track what would you have been in I don't know I probably would have been</i>
	148.	00:14:41	<i>a policeman because after the Marine Corps I went back home I thought about going back home</i>
	149.	00:14:46	<i>if I went back home I would have been I would have been stuck at home probably as as a policeman and</i>
	150.	00:14:52	<i>the reason I stayed in California the reason I got involved in boxing was so that I figured hey if</i>
	151.	00:14:58	<i>I'm not good in boxing I can't open up doors no doors that ultimately wouldn't be open so I felt</i>
	152.	00:15:04	<i>that by staying here and by doing things by boxing I would meet more people I would find something</i>
	153.	00:15:09	<i>that I would like to do well Ken you've been out of boxing for about a year but I know you're still</i>
	154.	00:15:14	<i>fast I know you're still powerful and earlier this week we've got a chance to take a look at you</i>
	155.	00:15:18	<i>just how powerful and how much speed you have even with a one-year layup let's take a look</i>
	156.	00:15:23	<i>well as Ken punched the heavy bag while standing on the force plate Dr. Gideon Ariel was able to</i>
	157.	00:15:28	<i>measure the forces he exerted with the jab remembers in every other sport power comes</i>
	158.	00:15:32	<i>from the ground up so let's check in with Dr. Gideon Ariel look at this week with his left jab</i>
	159.	00:15:40	<i>Ken Norton was producing 275 pounds this is on one leg on the front leg</i>
	160.	00:15:46	<i>this is over 500 pounds of force going right at the back you know Ken I I really appreciate how</i>
	161.	00:15:53	<i>much force you get out of those legs buddy but while I'm tickled to death you're at the research</i>
	162.	00:15:57	<i>centers because I always wanted to monitor how a big guy like you can make that blinding speed</i>
	163.	00:16:03	<i>coming with your arms have you ever up to this point had any electronic measurement</i>
	164.	00:16:07	<i>ah to this point I have never tried it before all right now you're going to get a chance to see what</i>
	165.	00:16:12	<i>the measurement showed here at the research center on this one Ken we checked you not only</i>
	166.	00:16:17	<i>for power but for hand speed this is the kinetic data for Ken Norton again we look on the force</i>
	167.	00:16:27	<i>Kevin what we're finding out here that every time Ken Norton hit this bag he can reach a force which</i>
	168.	00:16:32	<i>is approximately 250 sometimes a little bit more sometimes a little bit less but every time he hit</i>
	169.	00:16:38	<i>the bag it's 250 pounds on one leg also he can do it quite fast we're finding out that he can do it</i>
	170.	00:16:46	<i>almost as 10 times a second anybody can do that 10 times a second with 250 pounds every hit should be</i>
	171.	00:16:54	<i>in a great shape so buddy you've been pulling my leg Gideon says you're still like a 20 year old</i>
	172.	00:17:02	<i>looks can be deceiving but let me tell you Ken if you had had this machinery before</i>

Frame	#	Time	Spoken text
	173.	00:17:10	would that have changed your life the way the style or anything about your boxing career
	174.	00:17:15	I feel that this machinery and and what you're doing here is very sophisticated
	175.	00:17:20	so therefore having the sophistication that I had along with my regular training
	176.	00:17:24	having the science uh scientific data along with my regular training I thought I could have been
	177.	00:17:31	about 50 better at least I would have had to improve oh buddy now I'm going to put you on
	178.	00:17:35	the hot seat because you're a television commentator you watch boxing name me four
	179.	00:17:39	things that you watch for as a commentator that you can throw back to the viewer
	180.	00:17:43	number one is the generalship of the individual in the ring of the opponents in the ring
	181.	00:17:54	number two is how the guy is thinking in the ring is he setting traps is he going straight in
	182.	00:18:01	uh number three the hand speed of the individual and the power of the individual
	183.	00:18:11	number four the guy gets hit with a very good shot is the reacting to it what does he do to react
	184.	00:18:17	does his legs buckle does it do his knees move a bit all right let's do it well and encounter
	185.	00:18:22	you know on Future Sport we talk a lot about the Future Sports what about the future ken
	186.	00:18:32	norton well at the present time I'm going to acting school I've learned how to manage my
	187.	00:18:39	own affairs and that with investments that I made prior to quitting becoming a citizen
	188.	00:18:45	I am now having that business also so I've been I've been very lucky very fortunate
	189.	00:18:49	thanks for being listed on Future Sport I'm coming to you for a loan
	190.	00:18:53	well that's good Future Sport we'll be right back
	191.	00:18:58	so that wraps up another edition of Future Sport we hope you'll join us next week
	192.	00:19:19	and in the meantime we hope you'll learn to relax a little bit because if you're going to enjoy our
	193.	00:19:24	show with all that energy people jumping and running and all kinds of sweating then you got
	194.	00:19:29	to get yourself ready and there's nothing better than just take a little bit of that scientific
	195.	00:19:34	data which tells us about keeping your body cool you're going to relax you've got to get some kind
	196.	00:19:40	of refreshment that's going to increase the number of fast twitch slow twitch fibers and if you're
	197.	00:19:45	going to get your head together you're going to need some tv always remember some of those little
	198.	00:19:50	ancillary things because you got to see that set out there when it's sunny and if it's too
	199.	00:19:56	sunny for you then I suggest you just get yourself a sun who can keep you out of the sun you got to
	200.	00:20:03	learn to enjoy life if you're going to join us again on Future Sport we want you to be ready
	201.	00:20:08	full of energy I'm Vic Braden for Gideon Ariel who's down working hard in the lab see you next
	202.	00:20:14	week

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