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Seattle Tonight

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Seattle Tonight with Ross McGowan

On tonight's episode, we have Fomenco guitarist Gino DiOria and Dr. Gideon Ariel. Dr. Ariel, a former Olympian, has developed a computer approach to sports that can help average athletes become good and good athletes become super athletes.

Dr. Ariel's approach involves quantifying human motion and forces to understand what makes an athlete efficient. He uses computer technology to analyze the velocity of an athlete's movements and the forces behind them. This approach has been applied to various sports, including basketball, tennis, and even Frisbee throwing.

In addition to improving athletic performance, Dr. Ariel's approach also involves designing better sports equipment. He has worked on designing tennis rackets that can absorb shock and prevent tennis elbow, and shoes that can absorb the shock of running.

Dr. Ariel has also developed an exercise appliance called a tram, which is designed to absorb shock and provide cardiovascular benefits. The tram can be used for various exercises, including jogging and skiing motions.

The computer plan developed by Dr. Ariel is not only for professional athletes but also for average folks. It can be used to improve the performance of musicians, horse riders, and even elderly people in nursing homes.

Despite the scientific approach to sports, Dr. Ariel believes that it does not take away the human element of competition. Instead, it provides additional tools that the human eye cannot see, helping athletes and coaches understand and improve performance.

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Audio transcription

Frame	#	Time	Spoken text
	0.	**00:00:00**	*This year in Seattle tonight, tonight, with Ross McGowan.*
	1.	**00:00:21**	*Fomenco guitarist Gino DiOria is going to be with us this evening along with Dr. Gideon*
	2.	**00:00:25**	*Ariel.*
	3.	**00:00:26**	*He says he can show a good athlete how to be a super athlete and an average athlete*
	4.	**00:00:31**	*how to be a good athlete all next on Seattle tonight tonight.*
	5.	**00:00:35**	*Welcome.*
	6.	**00:00:36**	*We're going to be talking to Dr. Gideon Ariel this morning.*
	7.	**00:00:47**	*Tonight we'll be talking to Dr. Ariel.*

Frame	#	Time	Spoken text
	8.	**00:00:53**	*He has developed something called a computer approach to sports and he can take athletes*
	9.	**00:00:58**	*that are average athletes and make them good athletes and really good athletes and make*
	10.	**00:01:03**	*them super athletes.*
	11.	**00:01:05**	*He was in the Olympics himself a couple of times, once in 1960 and another time in 1964*
	12.	**00:01:10**	*so he knows something about the subject of sports and he has a new exercise of plans.*
	13.	**00:01:16**	*He calls him in a plan.*
	14.	**00:01:17**	*He's called a tram.*
	15.	**00:01:18**	*Well, we'll be getting into all that a little bit later in the program.*
	16.	**00:01:21**	*But this this evening is a man who has a computer plan that could conceivably change*
	17.	**00:01:27**	*sports beyond what we could consider possible.*
	18.	**00:01:31**	*He can take a good athlete and make him really super and maybe average athlete like you and*
	19.	**00:01:36**	*me and make him fairly good.*
	20.	**00:01:38**	*Would you welcome Dr. Gideon Ariel.*
	21.	**00:01:44**	*Welcome.*
	22.	**00:01:51**	*Before we were you required an athlete yourself back in what 1960 and 64 you went to the*
	23.	**00:01:56**	*Olympics?*
	24.	**00:01:57**	*That's correct.*
	25.	**00:01:58**	*I presented these two Olympic games.*
	26.	**00:02:00**	*What was your what did you compete in?*
	27.	**00:02:03**	*In the business I'm still holding the Israel record in the fiscal strike.*
	28.	**00:02:08**	*You hold the Israeli record in the fiscal strike.*
	29.	**00:02:10**	*Did you at that time or what's that 15 years ago or so?*
	30.	**00:02:15**	*Did you feel that athletes were not up to their full capacity?*
	31.	**00:02:18**	*They weren't using their full you know efficiency in sports.*
	32.	**00:02:22**	*Well in fact that's the first time I start suspecting that there is lots of witchcraft*
	33.	**00:02:27**	*in athletics where you say witchcraft?*
	34.	**00:02:30**	*Witchcrafting.*
	35.	**00:02:31**	*Right.*
	36.	**00:02:32**	*It's a model in witchcrafting.*
	37.	**00:02:33**	*What's going on in athletics?*
	38.	**00:02:34**	*Maybe you could explain what you mean.*

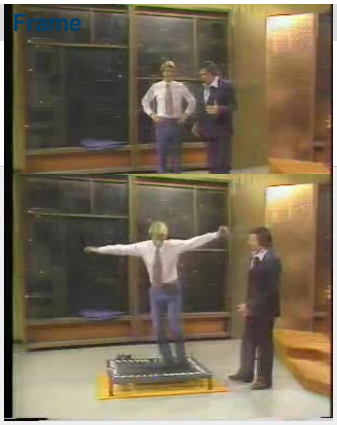
Frame	#	Time	Spoken text
	39.	00:02:36	*In other words, just by looking with the eye it's very hard to trap what is efficient*
	40.	00:02:41	*movement and what is inefficient movement.*
	41.	00:02:43	*That's looking when an athlete is seeing a total discus or a football player kicking*
	42.	00:02:47	*a ball or a kayaker going in a kayak.*
	43.	00:02:51	*It's very difficult to quantify human motion just from looking when it does as if an engineer*
	44.	00:02:57	*building a bridge and he said well take this beam out and you ask him why and he said well*
	45.	00:03:02	*I took a survey among 100 drivers and they told me it looks better.*
	46.	00:03:06	*Well lots of people were swimming the river.*
	47.	00:03:08	*Yeah there would be a lot of bridges shouldn't water wouldn't there?*
	48.	00:03:11	*So you're saying that you can't look, you've got to put it in a little more scientific*
	49.	00:03:15	*and that's when you came up with a computer plan.*
	50.	00:03:20	*How do you come across that?*
	51.	00:03:21	*Well the method is very old.*
	52.	00:03:23	*It's going to the 17th century with Newton time where he actually formulated the laws*
	53.	00:03:29	*of motion.*
	54.	00:03:30	*The only thing that I did is what engineers using today and building bridges.*
	55.	00:03:34	*I applied to the human body.*
	56.	00:03:37	*And what makes the discus go, the human body travel through the air or what makes a person*
	57.	00:03:42	*be able to have a better golf swing is actually forces behind the instrument.*
	58.	00:03:47	*Well what I'm doing is quantifying these forces.*
	59.	00:03:51	*And that means quantifying means exactly what?*
	60.	00:03:54	*That means I analyze what is the velocity of the club at every instantaneous position*
	61.	00:03:59	*of the motion and what we're using in order to do it if I do it by hand analysis which*
	62.	00:04:03	*is possible.*
	63.	00:04:04	*Like Newton time will take me a year by that time the outlet will retire already.*
	64.	00:04:09	*But with computer technology we're able to do what takes an engineer, a whole man probably*
	65.	00:04:15	*in two seconds.*
	66.	00:04:16	*In two seconds, how long did it take you?*
	67.	00:04:17	*Did you put the computer program together yourself?*
	68.	00:04:20	*Correct.*
	69.	00:04:21	*I programmed it for many hours in the very end of the night.*
	70.	00:04:26	*How many hours?*
	71.	00:04:28	*Somebody mentioned this for the last 10,000 hours, I don't know how it came but it's*
	72.	00:04:32	*quite close that we're still working very hard and doing more and more about it.*
	73.	00:04:36	*Sports illustrated in that particular article you're talking about did say that you could*

Frame	#	Time	Spoken text
	74.	00:04:41	*in essence revolutionize sports with a computer playing like this.*
	75.	00:04:45	*Now what you're trying to do is you're making an athlete, a man or a woman more efficient*
	76.	00:04:50	*at what they're doing.*
	77.	00:04:51	*But you say it can't be done by the eye.*
	78.	00:04:54	*Are you then saying that coaches, I've got a coach, I've got a tennis coach, basketball*
	79.	00:04:58	*coach, whatever it may be, can't tell me enough of what I'm doing right and what I'm*
	80.	00:05:02	*doing wrong.*
	81.	00:05:03	*The day that you can bring 10 coaches to a field and let's say golf coaches and they*
	82.	00:05:10	*look on you and if they're all right on a piece of paper what you're doing wrong and*
	83.	00:05:16	*they all come with the same answer, that's the day you don't need any more to quantify*
	84.	00:05:19	*human motion.*
	85.	00:05:20	*But I think between 10 coaches you'll have usually 15 answers.*
	86.	00:05:24	*Okay, how could you help, we like the Seattle Seahawks?*
	87.	00:05:27	*Well let's use the shotics.*
	88.	00:05:29	*I'm sorry for honest if you're, and they're on the road tonight though, aren't they?*
	89.	00:05:33	*Yeah, so we don't have to worry about that.*
	90.	00:05:35	*How would you help the Seattle Super Sanics if they wanted to use your computer plan?*
	91.	00:05:39	*How would it work?*
	92.	00:05:40	*Well I'll give you an example.*
	93.	00:05:41	*We're working with the United States Olympic Committee and in fact I'm the director of*
	94.	00:05:44	*Biomechanical Research there and we work with actually the Olympic girls basketball team.*
	95.	00:05:51	*One thing that is very important in basketball, of course it's a vertical jam.*
	96.	00:05:54	*But how you're going to jump higher?*
	97.	00:05:56	*Some girls have a tremendous capacity to jump high but they don't know how much they*
	98.	00:06:01	*should bend their knees, how they should use their arms.*
	99.	00:06:03	*Like many people think you jump with your legs.*
	100.	00:06:06	*I can demonstrate to you that you don't jump with your legs, you jump with the arms actually.*
	101.	00:06:09	*The inertia of the arm can lift you off the ground, very easy example.*
	102.	00:06:15	*And we can actually synchronize the arms with the legs to make a girl jump one extra inch*
	103.	00:06:20	*which we were very, very successfully bringing.*

Frame	#	Time	Spoken text
	104.	00:06:24	*In fact we're taking a girl that bent, she overbend her knees.*
	105.	00:06:28	*She would go with the knee 90 degrees.*
	106.	00:06:30	*You cannot go very high from this position.*
	107.	00:06:32	*We told her don't bend so much, you need.*
	108.	00:06:34	*Also we found another girl and Maya for example that she has a capacity to be a world record*
	109.	00:06:39	*holder and a high jump.*
	110.	00:06:40	*She probably doesn't know that.*
	111.	00:06:42	*But she elevates a center of gravity with the body as high as a world record holder.*
	112.	00:06:47	*Now we are going to talk with Aska and what about being a high jump in addition to basketball?*
	113.	00:06:52	*Doctor, what do you do?*
	114.	00:06:53	*You take their pictures, is it like with a moving camera or whatever, you slow it down*
	115.	00:06:58	*and you see actually what they're putting all the time in and the stress in the...*
	116.	00:07:02	*In order to reduce the beta, we have to take a high speed firm and sometime we're going*
	117.	00:07:06	*to 10,000 pictures a second, one second 10,000 pictures like in tennis.*
	118.	00:07:11	*How long the tennis ball is on the rocket?*
	119.	00:07:13	*Let's say we want to design better tennis rockets or one cause the tennis elbow.*
	120.	00:07:17	*In order to quantify, you can help so people don't get tennis elbow.*
	121.	00:07:22	*When we're doing it already, we design specific tennis rockets that can absorb the shock.*
	122.	00:07:27	*You see like in a car, if you have a good shock absorbers, you can drive it from Mars,*
	123.	00:07:31	*you want to feel anything but try to drive on a truck for Mars and every time you hit*
	124.	00:07:34	*a bump, you can feel it all the way to your head.*
	125.	00:07:37	*The same thing is with a tennis rocket.*
	126.	00:07:39	*Every time the ball hit the rocket, you're talking force in the neighborhood of 250 pounds.*
	127.	00:07:44	*The ice knitted into the elbow.*
	128.	00:07:46	*When the connective tissues cannot take it many instances and that's when you have the*
	129.	00:07:50	*condition of tennis elbow.*
	130.	00:07:52	*Now imagine that you have a tennis rocket that can absorb the shocks.*
	131.	00:07:55	*You have a frame within frame for example because by the time anything happened to the*
	132.	00:08:00	*hand, already the ball down, in fact there are many tennis players that the team are*
	133.	00:08:04	*giving the top speed to the ball by doing that but refining from the high speed firm*
	134.	00:08:08	*and by the time the moving the wrist, the ball is already 10 feet away, all this motion*
	135.	00:08:12	*down in the air.*
	136.	00:08:14	*Well to trap this type of motion, you guys have to play with it, it sure seems to work.*
	137.	00:08:20	*Well it seems with the human eye but if you would analyze them with the computer would*
	138.	00:08:24	*find out that they're not.*

Frame	#	Time	Spoken text
	139.	**00:08:26**	*So we try to design rockets, shoes like a clic shoes that will absorb the shock, like running*
	140.	**00:08:33**	*every time you hit the ground, you're talking three and a half times your body weight.*
	141.	**00:08:37**	*That's why so many people have fallen under the end, consumed the knees and the hips and*
	142.	**00:08:40**	*the spine and the neck and so forth by designing proper equipment, the design for the man.*
	143.	**00:08:48**	*Instead of taking a man and making the man adjust to the machine, you build equipment*
	144.	**00:08:52**	*and machines to the man, you will have a better athletic equipment, better safety factors*
	145.	**00:08:57**	*and better performances.*
	146.	**00:08:58**	*So not only are you working to make athletes better at what they do but making equipment*
	147.	**00:09:04**	*and the designing of equipment and products more successful.*
	148.	**00:09:07**	*Yes, because without proper equipment you cannot have good athletes, like today you*
	149.	**00:09:12**	*know that training involves weight training machines, how to train the muscle, can you*
	150.	**00:09:19**	*take a baseball player and give him the same program that the basketball player, the same*
	151.	**00:09:22**	*program as the basketball, obviously you cannot.*
	152.	**00:09:24**	*Each sport has its own characteristics which try to identify these characteristics and*
	153.	**00:09:29**	*then design specialized exercise equipment to fit these athletes, in fact we're developing*
	154.	**00:09:34**	*now computerized exercise equipment, everything is operated on the computer.*
	155.	**00:09:38**	*So when you sit and try to access your arm, it's a good morning Johnny Jones, this is*
	156.	**00:09:43**	*your program, everything is controlled by a computer.*
	157.	**00:09:46**	*One of the exercises of appliances that you have developed is something called a tram*
	158.	**00:09:52**	*and it's kind of like a miniature tram pulley and we're going to be seeing that right after*
	159.	**00:09:56**	*this.*
	160.	**00:09:57**	*Stay tuned.*
	161.	**00:09:59**	*Talking to Dr. Gideon Ariel and he has developed a computer plan for athletes.*
	162.	**00:10:16**	*Now before we talk about the tram, is that computer plan available for like average folks*
	163.	**00:10:21**	*just?*
	164.	**00:10:22**	*Yeah in fact, it's interesting that we analyzed like last week in the lab the world record*
	165.	**00:10:27**	*holder in Frisbee throwing.*
	166.	**00:10:29**	*Frisbee throwing.*
	167.	**00:10:30**	*Frisbee, his name is John Kirkland and also we work with violinists, Paul's a coach,*
	168.	**00:10:35**	*you want to know the biomechanics of playing the violin.*

Frame	#	Time	Spoken text
	169.	**00:10:39**	*So we have all kind of work like we work on kits, like a motion of kits, how kits work*
	170.	**00:10:44**	*on horses, we just completed the study on horses.*
	171.	**00:10:46**	*What make one horse better than the other horse and all this thing.*
	172.	**00:10:49**	*Now what you have developed here is what you call an exercise of plan and I refer to*
	173.	**00:10:54**	*it already as a tram, explain what it is you accept looking like a miniature tram pulley.*
	174.	**00:10:59**	*Well it's actually not a tram pulley because you cannot make any stands out of it but this*
	175.	**00:11:06**	*instrument actually designed to absorb shock if I will let you run on the horse surface*
	176.	**00:11:11**	*outside and see how downtown.*
	177.	**00:11:13**	*Every time you hit the ground you're talking about three and a half times body weight.*
	178.	**00:11:17**	*So if you weigh 150 pounds, you're talking about 500 pounds, 450 pounds.*
	179.	**00:11:23**	*So and that caused lots of problems.*
	180.	**00:11:24**	*Shins, planes, ankle problems, knees problems, we had to devise something that can absorb*
	181.	**00:11:29**	*the shock.*
	182.	**00:11:30**	*Still we'll have the same cardiovascular efficiency but we'll absorb the shock.*
	183.	**00:11:34**	*So we develop a double suspension system as you see here as a net with springs that can*
	184.	**00:11:38**	*absorb the shock.*
	185.	**00:11:39**	*Also we have shock absorb in the leg.*
	186.	**00:11:43**	*So all the ideas is just so you don't, if you want to jog and there is a running place*
	187.	**00:11:49**	*you don't jog on a hard surface.*
	188.	**00:11:52**	*Even if you want to run for a distance there's no reason to run for a distance.*
	189.	**00:11:55**	*So try to just actually jog one feet at a time.*
	190.	**00:11:59**	*Just like that.*
	191.	**00:12:00**	*If you all do it 10 times, do it 10 times and without stopping, start doing it on the*
	192.	**00:12:07**	*floor the same way.*
	193.	**00:12:08**	*Okay, jump to the floor and keep doing it.*
	194.	**00:12:10**	*What do you feel that?*
	195.	**00:12:11**	*It's a little different.*
	196.	**00:12:13**	*Really?*
	197.	**00:12:14**	*Okay, well let's say that I wanted to practice skiing, I need some exercises and that kind*
	198.	**00:12:18**	*of thing.*
	199.	**00:12:19**	*Can I do that?*
	200.	**00:12:20**	*Yeah, especially when you're going to have snow outside.*
	201.	**00:12:21**	*Yeah.*
	202.	**00:12:22**	*Yeah.*
	203.	**00:12:23**	*And in fact in skiing you have the, actually the ground don't move, but the snow move.*

Frame	#	Time	Spoken text
	204.	**00:12:27**	*And I think here you have a very good capacity to move your legs in a ski motion.*
	205.	**00:12:32**	*Okay, will this be enough?*
	206.	**00:12:34**	*That's right.*
	207.	**00:12:35**	*Actually to exercise yourself to the winter and the same time get some cardiovascular*
	208.	**00:12:39**	*benefits.*
	209.	**00:12:40**	*Double, somersault, just, that really is, it's kind of fun, it's better, actually.*
	210.	**00:12:47**	*Well, it's almost for every sport, like warm up exercise and cool down exercise.*
	211.	**00:12:52**	*Like today, the Chicago Burst for example, he was a George Hollis, the owner of the Chicago*
	212.	**00:12:56**	*Burst, a few prosthetic hips and he's 83 years old, couldn't do any exercise and he*
	213.	**00:13:02**	*should seem today, he not only doing it with his body weight, he's holding five pounds*
	214.	**00:13:06**	*in his, he hit each hand dumplings and do that.*
	215.	**00:13:09**	*You were showing me before the program, even people like in elderly people and either*
	216.	**00:13:13**	*in hospitals or in nursing homes, a good exercise in this would be just to simply, but who you*
	217.	**00:13:18**	*explain?*
	218.	**00:13:19**	*I just kind of like this.*
	219.	**00:13:20**	*Well, the problem with all the people, this is fine for me actually, but you take the*
	220.	**00:13:26**	*people in nursing home, that's at 90 of 85.*
	221.	**00:13:29**	*One of the problem is lack of motion, they're sitting on the wheelchair waiting for the*
	222.	**00:13:33**	*worms.*
	223.	**00:13:34**	*Well, basically here, you suddenly start moving them and we're finding out that in many cases,*
	224.	**00:13:39**	*in fact, I had a person 93 years old, in the beginning, he couldn't even move and now he's*
	225.	**00:13:44**	*doing all this key exercise, I think he even thinks he's a muskis look.*
	226.	**00:13:48**	*So this is one form of exercise developed by Dr. Ariel, it's called a trammer, what did*
	227.	**00:13:53**	*you say was available, Nordstrom?*
	228.	**00:13:56**	*Machines at Nordstrom, the South Center and downtown.*
	229.	**00:13:59**	*And how are our coaches reacting back to the computer plan, how are they reacting to*
	230.	**00:14:04**	*what you're offering?*
	231.	**00:14:05**	*You're offering a really scientific approach to sports.*
	232.	**00:14:08**	*Well, they like it very much because for the first time, we supply them with additional*
	233.	**00:14:13**	*tools, tools that the human eye cannot see and most of the coaches, especially the ones*
	234.	**00:14:19**	*associated with the United States Olympic Committee, see a tremendous source of information.*
	235.	**00:14:24**	*By the way, I'm not the first one to doing it, in East Germany and Russia to doing it*

Frame	#	Time	Spoken text
	236.	00:14:28	*for a long time, but this concrete shows not to do it, but it took, for example, the sputnik*
	237.	00:14:33	*for NASA to reach the moon.*
	238.	00:14:35	*Now we lost a few Olympic games and a few old games, maybe now with this science we can*
	239.	00:14:40	*bid the Russian muskis maybe.*
	240.	00:14:42	*Well, talking about computer and sports, you're kind of getting into the Star Wars*
	241.	00:14:46	*things.*
	242.	00:14:47	*Is there any problem there of maybe taking the human, the human air out of a competition*
	243.	00:14:52	*when you get it so finely honed?*
	244.	00:14:54	*You have to make a choice.*
	245.	00:14:55	*In the minute you use a clock or a watch, an out stick, you start using measurement,*
	246.	00:15:01	*you become scientific.*
	247.	00:15:02	*So either don't use them at all and just look on the performance and say how beautiful*
	248.	00:15:06	*it is, or if you start using a out stick, why not use the best one, and computer basically*
	249.	00:15:11	*it's a out stick.*
	250.	00:15:12	*You said you were the holder of the discus record for the Olympics for Israel, do you*
	251.	00:15:16	*ever throw the discus now?*
	252.	00:15:18	*Once in a while, but you put yourself on the computer and improved your discus drawing.*
	253.	00:15:24	*Well, no, I didn't do that.*
	254.	00:15:26	*I didn't want to find how bad that was.*
	255.	00:15:28	*What is it back to the tram before we go here?*
	256.	00:15:30	*What does it cost?*
	257.	00:15:32	*I understand that this is a neighborhood of 200 dollars on the retail.*
	258.	00:15:36	*So it's a tram and it's a fine exercise in the price.*
	259.	00:15:39	*Thank you, doctor.*
	260.	00:15:40	*Thank you very much.*
	261.	00:15:41	*This is the same.*
	262.	00:15:42	*You just joined me here for a moment.*
	263.	00:15:43	*I tell you what.*

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