USAPL TUE Committee Report, 2019

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Major Considerations

- Andgrogens
- Stimulants for ADHD
- Opioids
- Transmen and transwomen
- Differences of Sexual Development (DSD)

Androgens

TESTOSTERONE AND THE LIKE

Androgens

- Testosterone IM, mostly
- Never approved for any indication
  - “Low T” men
  - Transmen
- Represents a 10% competitive advantage on total[1]
- Has been antithetical to our mission statement
  - “Drug Free” Powerlifting
- Visible on website, now on application form

Stimulants for ADHD

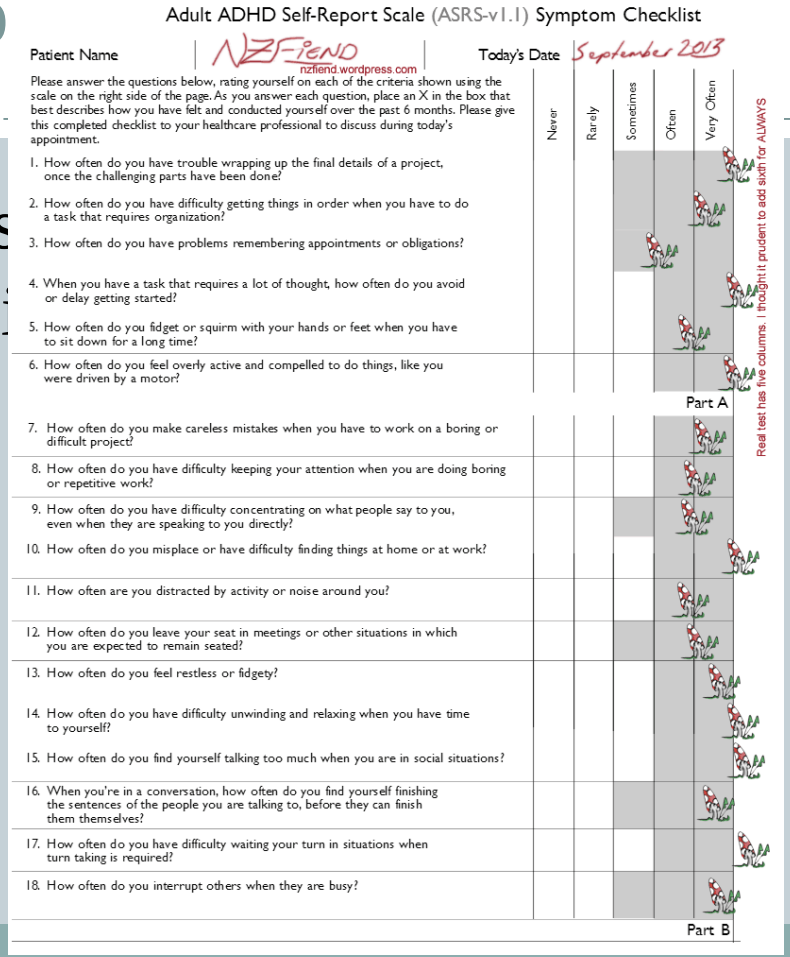
MOSTLY ADDERALL, VYVANSE

Stimulants for ADHD

- Derivatives of amphetamine
- Unclear if performance advantage
- Clear clinical benefits for ADHD
- Overprescribed in epidemic proportions
  - Misused in 5-10% of high school and 5-35% of college students depending on study[2]

Stimulants fo

- Note from practitioner not s
- Need eval notes from psychi psychologist



Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist

Patient Name | NZ-fiend nzfiend.wordpress.com | Today's Date September 2013

Please answer the questions below, rating yourself on each of the criteria shown using the scale on the right side of the page. As you answer each question, place an X in the box that best describes how you have felt and conducted yourself over the past 6 months. Please give this completed checklist to your healthcare professional to discuss during today's appointment.

	Never	Rarely	Sometimes	Often	Very Often
1. How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done?					X
2. How often do you have difficulty getting things in order when you have to do a task that requires organization?					X
3. How often do you have problems remembering appointments or obligations?				X	
4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?					X
5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?				X	
6. How often do you feel overly active and compelled to do things, like you were driven by a motor?					X
Part A					
7. How often do you make careless mistakes when you have to work on a boring or difficult project?				X	
8. How often do you have difficulty keeping your attention when you are doing boring or repetitive work?				X	
9. How often do you have difficulty concentrating on what people say to you, even when they are speaking to you directly?				X	
10. How often do you misplace or have difficulty finding things at home or at work?					X
11. How often are you distracted by activity or noise around you?				X	
12. How often do you leave your seat in meetings or other situations in which you are expected to remain seated?				X	
13. How often do you feel restless or fidgety?					X
14. How often do you have difficulty unwinding and relaxing when you have time to yourself?					X
15. How often do you find yourself talking too much when you are in social situations?					X
16. When you're in a conversation, how often do you find yourself finishing the sentences of the people you are talking to, before they can finish them themselves?				X	
17. How often do you have difficulty waiting your turn in situations when turn taking is required?					X
18. How often do you interrupt others when they are busy?				X	
Part B					

Real test has five columns. I thought it prudent to add sixth for ALWAYS

Opioids

SUBOXONE, NORCO, PERCOCET, ETC

Opioids

- 130 people/day die from opiate overdose[3]
- Roughly 21 to 29 percent of patients prescribed opioids for chronic pain misuse them[4]
- About 80 percent of people who use heroin first misused prescription opioids[5]

Opioids

- Huaiyu Tan, MD PhD
  - Board Certified Pain Medicine physician
  - “There are no life saving properties of the opiate class of medications”
- Pose a risk to the lifter, spotters
- Chronic use not TUE approved for non-cancer pain
- Short term use approved case-by-case

Transgender Athletes

TRANSWOMEN
TRANSMEN

Transmen

- Competitive advantage would theoretically be minimal if at all
- Andgrogens disallowed for any purpose
- Becomes dissonance issue with “low T” men
- Historical precedent of denial

Transwomen: Current IOC Guidelines[6]

- 1. “Those who transition from female to male are eligible to compete in the male category without restriction.
- 2. Those who transition from male to female are eligible to compete in the female category under the following conditions:
  - 2.1. The athlete has declared that her gender identity is female. The declaration cannot be changed, for sporting purposes, for a minimum of four years.
  - 2.2. The athlete must demonstrate that her total testosterone level in serum has been below 10 nmol/L for at least 12 months prior to her first competition (with the requirement for any longer period to be based on a confidential case-by-case evaluation, considering whether or not 12 months is a sufficient length of time to minimize any advantage in women’s competition).
  - 2.3. The athlete's total testosterone level in serum must remain below 10 nmol/L throughout the period of desired eligibility to compete in the female category.
  - 2.4. Compliance with these conditions may be monitored by testing. In the event of non-compliance, the athlete’s eligibility for female competition will be suspended for 12 months.”

Caveats

- WADA Guidelines:
  - "It is not the purpose of this medical information to define the criteria for the eligibility of these athletes to participate in competitive sport, which is entirely left to the different sporting federations and organizations"[7]
- IOC Guidelines:
  - "Nothing in these guidelines is intended to undermine in any way the requirement to comply with the World Anti-Doping Code and the WADA International Standards"
  - "These guidelines are a living document and will be subject to review in light of any scientific or medical developments"
  - "The overriding sporting objective is and remains the guarantee of fair competition"[6]

Gender, Sex

- Gender
  - Currently viewed on a continuum, legal to change
- Sex
  - IOM: “Being male or female according to reproductive organs and the functions assigned by chromosomal complement (XX for female and XY for male)”
  - Sex matters in all aspects of cellular function and physiology from “womb to tomb”[8]

Our Purpose

- Open, honest, dispassionate evaluation of extant literature
- No intention of discrimination
- Critical analysis of the data for end goal of fair play
  - IOC: “The overriding sporting objective is and remains the guarantee of fair competition. Restrictions on participation are appropriate to the extent that they are necessary and proportionate to the achievement of that objective.”[6]

“Fair Play”

- Determination if:
  - Birth into XY
  - Then antiandrogen x 12 mo (often spirinolactone)
  - Equivalent to birth into XX as to assume fair play
- How?
  - What is the XY advantage in PL on total vs. XX?
  - What is the effect of antiandrogen on total?
  - Is XY on antiandrogen equitable to XX?
  - Equation format: XY + spirinolactone = XX?

Muscle Effects of XY

- Average lean mass XY > XX (92% vs. 79%)[9]
- mm. cross sectional area XY > XX[10]
- Muscular *power* and total *leg force* XY > XX[11]
- Non-athlete studies have demonstrated greater mm. *strength* in XY > XX spanning entire lifespan[12]

Neurologic Effects of XY

- Number of motor neurons XY > XX[12]
- Number of motor neurons fixed and immutably advantageous out of womb XY > XX[12]
- Larger neuronal cell bodies XY > XX[13]
- Increased nerve signal size due to combination of higher # muscle fibers and larger amount of neuromuscular synapses[13]

Skeletal Effects of XY

- DXA studies demonstrate higher bone mineral content and bone density in XY > XX[14]
- Assertion: “the bone strength of black women higher than that of white men”[15]
  - Hochberg study, HIP FRACTURES in VA patients > 65
  - Larger sample size of white men in VA
  - White men lived longer, multifaceted socioeconomic issue[16]

Skeletal Effects of XY

- Ziegler also cites study by Ettinger[17]
  - Total body bone mineral density of white men is higher than black women (1.177 vs. 1.163 g/cm^2, respectively)
- National Health and Nutrition Examination Survey[18]
  - 13,091 adults age 20 years and older
  - white men have higher total body bone density than black women at 1.184 vs. 1.148 g/cm^2, respectively
  - XY bone density > XX bone density
  - Racial means were different but NOT statistically significant

Egner study[19]

- Important study for our purposes
- T given to XX mice, muscles excised and examined
- T + exercise = 90% increase in mm. Diameter
- Then allowed to atrophy for equivalent of 10 human years to control size
- Reworked again

Egner study[19]

- No additional T given
- T group had 31% increase in mm. area compared to control 6% increase
- Conclusions:
  - Once a myonucleus is acquired, it is essentially permanent
  - More nuclei -> more regrowth -> more strength
- Importance for our purposes
  - Transwoman exposure to **T** will lead to higher mm. area *REGARDLESS* of suppression later in life

IPF Data - XX compared to XY

- IPF and IPF affiliate competitions January 2011 through March 2018
- Best raw total for an individual lifter for this timeframe
- All IPF meet data reported to http://www.openpowerlifting.org/data.html
- 1,300 competitions (international, world championship, and invitational events) were included

IPF Data

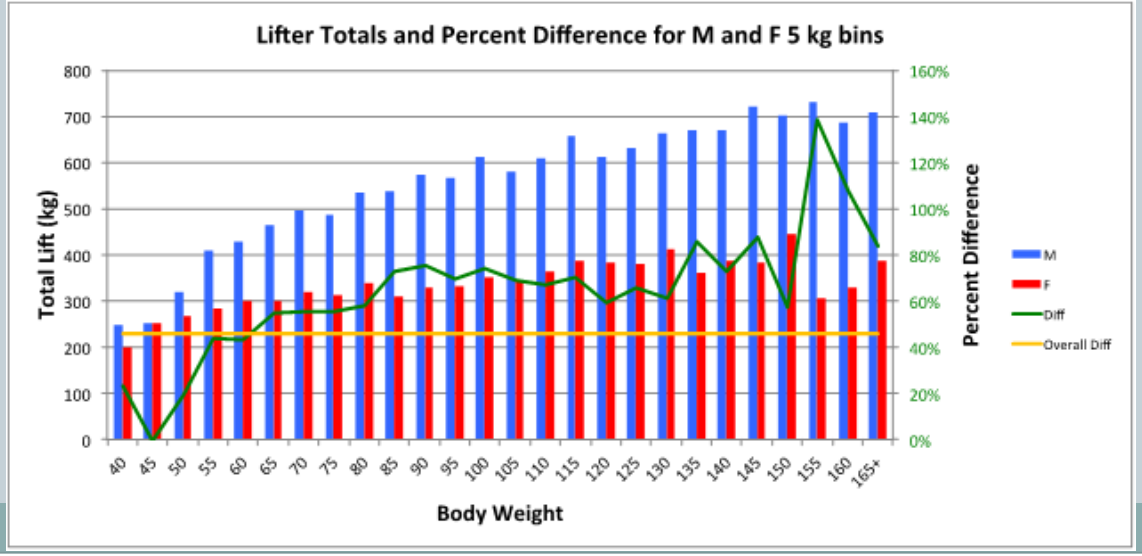
- IPF raw lifters have moved 8,053,612 kilograms in 7 years (that's almost 50 Boeing 747-400s, not to mention first and second attempts!)
- The 17,351 lifters are grouped into categories based on sex and body weight to level the playing field
- 6,351 females (43, 47, 52, 57, 63, 72, 84, and 84+ kg weight classes)
- 11,000 males (53, 59, 66, 74, 83, 93, 105, 120, and 120+ kg weight classes)
- Are these objective and statistically valid distinctions that ensure apples compete with apples and oranges compete with oranges?

IPF Data

- Selected for the open category only to control best for post-pubertal age
- XY: range of totals went from 75 kg to 1,105 kg, with a mean total of **556 kg**
- XX: range of totals went from 112 kg to 654 kg, with a mean total of **305 kg**

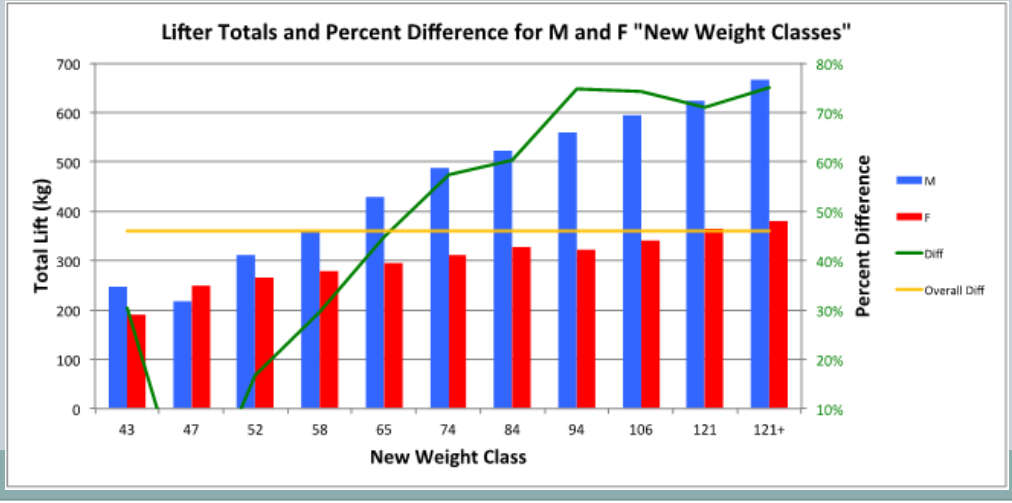
IPF Data

- Grouped into 5 kg bins by body weight
- It appears individuals with higher body weight lift more than those of lower body weight and M of the same body weight lift more than F of the same body weight
- On average, totals in male weight bins **are 64% higher** than female weight bins



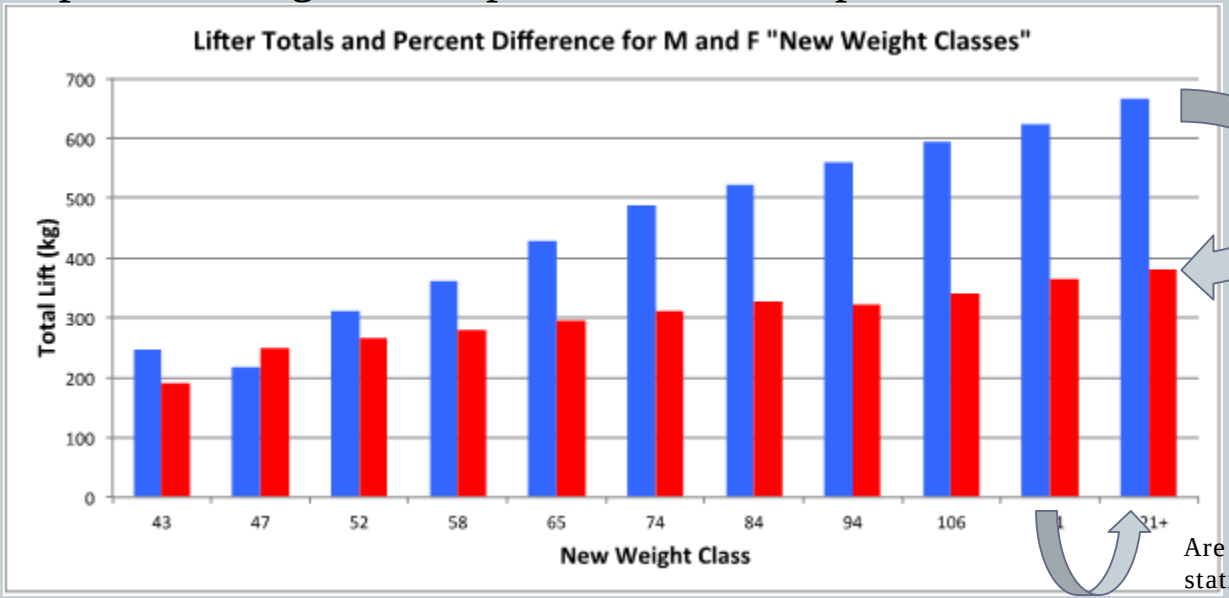
IPF Data

- Devised “new weight classes” (NWC) for the combined analysis of both M and F for purposes of ANOVA
- On average, total in male weight classes are **47% higher** than female weight classes based on NWC
- While the magnitude is slightly smaller, the data trends remain the same



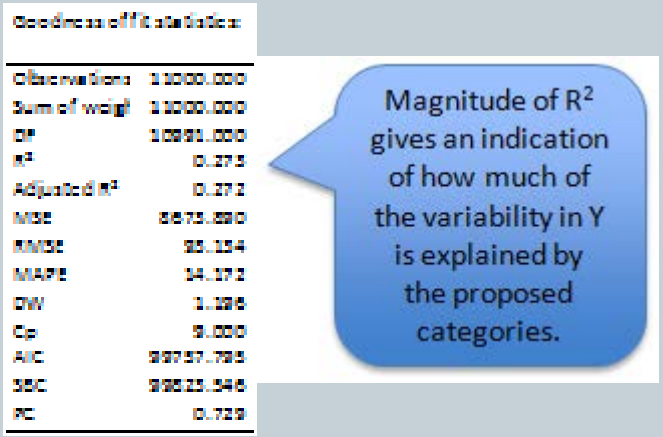
Purpose of Data Analysis

- Does analysis of the data support the IPFs stance that there is a statistically significant difference between the weight classes and between the sexes that justifies separate categories to provide fair competition?



Statistical Analysis

- Run ANOVA to determine how much the categories contribute to the variability and if the difference between category means is significant



Fishers LSD (or Tukeys HSD) determine if the proposed groups are different. In this case 1 and 4 are not, but (1,4), 3, and 2 are.

Category	Means	Groups		
1	avg Y_1	A		
4	avg Y_4	A		
3	avg Y_3		B	
2	avg Y_2			C

Mens Open Totals vs. Weight Class

- ANOVA verifies the M weight class contributes to the variation in lifter totals and the proposed weight classes are statistically different from one another

Goodness of fit statistics:

Observations	11000.000
Sum of weigh	11000.000
DF	10991.000
R^2	0.273
Adjusted R^2	0.272
MSE	8673.890
RMSE	93.134
MAPE	14.172
DW	1.196
Cp	9.000
AIC	99757.795
SBC	99823.546
PC	0.729

Weight class contributes to 27% of the variation in lifter totals

Wt Class (Kg) / Fisher (LSD) / Analysis of the differences between the categories with a confidence interval of 95%:

Category	LS means	Groups
120+	664.884	A
120	623.250	B
105	594.225	C
93	560.687	D
83	523.401	E
74	490.682	F
66	454.177	G
59	400.049	H
53	324.636	I

No overlapping groups (off-diagonal) so the differences between weight classes are statistically significant and it is valid to categorize the lifters by weight class to ensure a level playing field.

Analysis of variance:

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	8	35720734.946	4465091.868	514.774	< 0.0001
Error	10991	95334722.426	8673.890		
Corrected To	10999	131055457.372			

Computed against model Y=Mean(Y)

This hypothesis can be accepted with high confidence

Womens Open Totals vs. Weight Class

- ANOVA verifies the F weight class contributes to the variation in lifter totals and the proposed weight classes are statistically different from one another

Goodness of fit statistics:

Observations	6351.000
Sum of weigh	6351.000
DF	6343.000
R^2	0.132
Adjusted R^2	0.131
MSE	3617.244
RMSE	60.144
MAPE	16.569
DW	1.320
Cp	8.000
AIC	52044.709
SBC	52098.760
PC	0.870

Weight class contributes to 13% of the variation in lifter totals

Wt Class (Kg) / Fisher (LSD) / Analysis of the differences between the categories with a confidence interval of 95%:

Category	LS means	Groups
84+	342.117	A
84	324.485	B
72	308.567	C
63	296.395	D
57	280.050	E
52	265.825	F
47	248.965	G
43	191.250	H

No overlapping groups (off diagonal) so the differences between weight classes are statistically significant and it is valid to categorize the lifters by weight class to ensure a level playing field.

Analysis of variance:

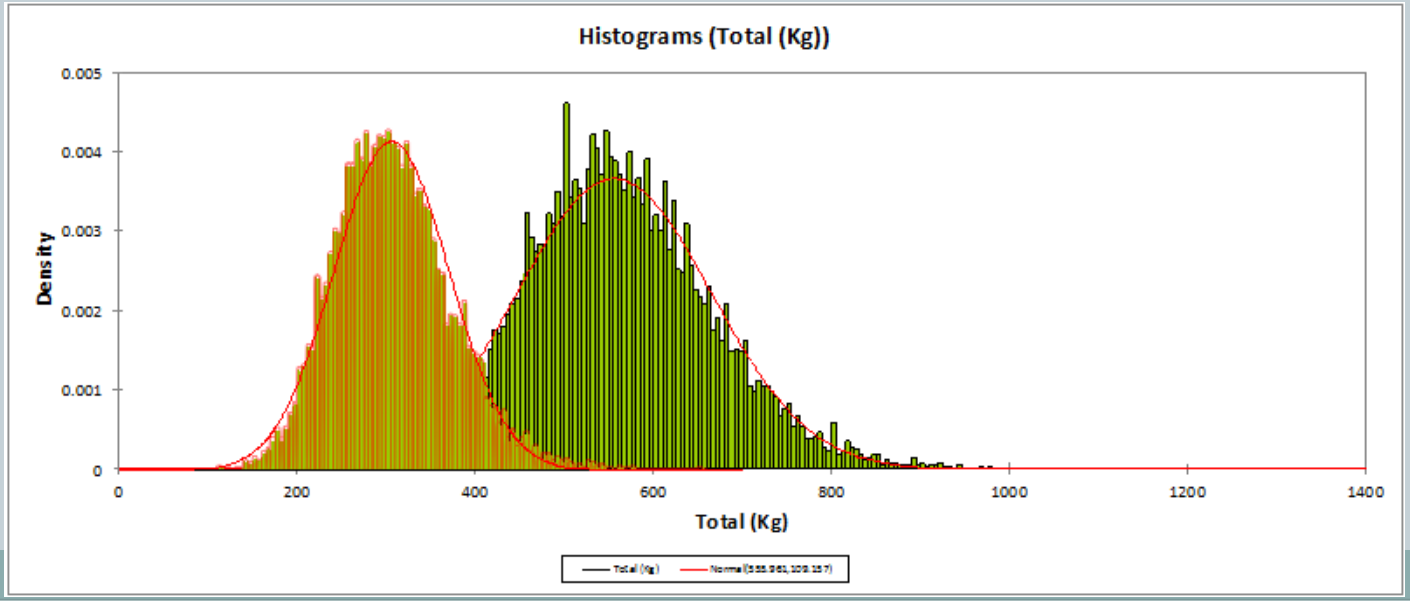
Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	7	3496853.836	499550.548	138.103	< 0.0001
Error	6343	22944180.645	3617.244		
Corrected To	6350	26441034.481			

Computed against model Y=Mean(Y)

This hypothesis can be accepted with high confidence

Combined M and F Open Totals

- Histogram is shown with lift totals in 5 kg bins
- Clearly two distinct populations present
- Is this due to age? Body weight? Sex? Eye color?



Combined M and F Open Totals

- The lifter totals are clearly segregated into two populations
- What objective lifter measurements can be taken to ensure the “western population” does not have to compete with the “eastern population” to provide a level playing field?
- The only objective lifter measurements that are taken are age, weight, and sex
- Which of these has the largest effect on total?
- Can they be considered independently to categorize lifters?

Combined Open Totals vs. Body Weight

- ANOVA suggests that while body weight still has a significant contribution to the variation is lifter totals, the hypothesized groupings show significant overlap and are not statistically different in many cases

Goodness of fit statistics:

Observations	17351.000
Sum of weigh	17351.000
DF	17315.000
R^2	0.495
Adjusted R^2	0.494
MSE	11984.105
RMSE	109.472
MAPE	21.357
DW	0.695
Cp	36.000
AIC	162985.042
SBC	163264.452
PC	0.507

Body weight (based on 5 kg bins) contributes to 50% of the variation in lifter totals

Significant overlap and clustering of proposed groups suggests they cannot be differentiated

Analysis of variance:

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	35	203264789.206	5807565.406	484.606	< 0.0001
Error	17315	207504779.212	11984.105		
Corrected To	17350	410769568.418			

This hypothesis can be accepted with high confidence

Wt Bin / Fisher (LSD) / Analysis of the differences between the categories with a confidence interval of 95%:

Category	LS means	Groups					
195	852.500	A					
180	755.000	A					
185	736.400	A					
200	720.000	A					
155	688.276	A					
165	684.224	A					
160	677.458	A					
150	676.310	A					
205	664.167	A	B				
170	663.612	A	B				
190	662.500	A	B				
145	658.643	A	B				
135	653.541	A	B				
175	648.333	A	B				
120	636.476		B				
140	635.288		B				
130	608.965		B				
115	597.263		B				
105	592.547		B				
125	580.974		B				
100	557.353		B				
110	545.424		B				
90	544.584		B				
95	527.299			C			
80	480.316				D		
85	472.988				D		
75	451.481					E	
235	392.500					E	F
70	362.150						F
65	361.455						F
60	311.557						F
55	284.638						F
50	265.790						F
45	250.782						F
55	246.900						F
40	184.600						F

Open Totals vs. New Weight Class

- ANOVA verifies the NWC contributes to the variation in lifter totals and the proposed weight classes are statistically different from one another, and R^2 is greater than with individual sexes (2/2 interaction of sex and weight class, later)

Goodness of fit statistics:

Observations	17351.000
Sum of weigh	17351.000
DF	17340.000
R^2	0.451
Adjusted R^2	0.451
MSE	13005.347
RMSE	114.041
MAPE	22.504
DW	0.639
Cp	11.000
AIC	164379.030
SBC	164464.405
PC	0.550

Weight class now contributes to 45% of the variation in lifter totals. Note the larger increase when compared to individual sexes.

NWC / Fisher (LSD) / Analysis of the differences between the categories with a confidence interval of 95%:

Category	LS means	Groups
121+	631.123	A
121	588.425	B
106	566.302	C
94	532.258	D
84	466.502	E
74	397.868	F
65	323.579	G
58	285.320	H
52	267.314	I
47	250.100	I J
43	198.271	J

These new weight classes provide groups that are nearly as distinguishable as each of the individual sex weight classes.

Analysis of variance:

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	10	185256851.116	18525685.112	1424.467	< 0.0001
Error	17340	225512717.302	13005.347		
Corrected To	17350	410769568.418			

Computed against model Y=Mean(Y)

This hypothesis can be accepted with high confidence

Open Totals vs. Sex

- **Sex makes the largest contribution** to the variation in lifter totals and the classes are statistically different from one another

Goodness of fit statistics:

Observations	17351.000
Sum of weigh	17351.000
DF	17349.000
R^2	0.617
Adjusted R^2	0.617
MSE	9078.131
RMSE	95.279
MAPE	17.135
DW	0.915
Cp	2.000
AIC	158132.483
SBC	158148.006
PC	0.384

Sex contributes to 62% of the variation in lifter totals.

Sex / Fisher (LSD) / Analysis of the differences between the categories with a confidence interval of 95%:

Contrast	Difference	ndardized differe	Critical value	Pr > Diff	Significant
M vs F	250.807	167.031	1.960	< 0.0001	Yes
LSD-value:			2.836		

Category	LS means	Groups	
M	555.961	A	
F	305.155		B

Sex is a valid characteristic to classify lifters into fair categories

Analysis of variance:

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	1	253273076.565	253273076.565	27899.254	< 0.0001
Error	17349	157496491.853	9078.131		
Corrected To	17350	410769568.418			

Computed against model Y=Mean(Y)

This hypothesis can be accepted with high confidence

Two-way ANOVA

- Two-way ANOVA determines the contribution of both sex and New Weight Class to the variation in lifter totals, and more importantly if there is an interaction between the two independent variables

Goodness of fit statistics:

Observations	17351.000
Sum of weigh	17351.000
DF	17329.000
R^2	0.716
Adjusted R^2	0.716
MSE	6734.086
RMSE	82.061
MAPE	14.925
DW	1.236
Cp	22.000
AIC	152969.965
SBC	153140.716
PC	0.285

Both sex and weight class can account for 72% of the variation in lifter totals

Type III Sum of Squares analysis:

Source	DF	Sum of squares	Mean squares	F	Pr > F
Sex	1	2325185.158	2325185.158	345.286	< 0.0001
NWC	10	19185587.182	1918558.718	284.903	< 0.0001
Sex*NWC	10	5372198.684	537219.868	79.776	< 0.0001

This hypothesis can be accepted with high confidence, and more importantly there is a large and statistically significant interaction term

Two-way ANOVA Interaction Term

- The interaction term means one variable (body weight) interacts with the other variable (sex)
- In this case sex interacts with body weight and the effect of sex is not constant across each of the body weights (and vice versa)
- Essentially this means the independent variables can not be considered in isolation and introduces an “it depends” clause
  - How much does the average lifter in a weight class lift? It depends on the sex of the lifter.
  - How much does the average male or female lift? It depends on their weight class.

IPF Data Conclusion

1. Men have a 64% advantage over women at the open international level, 46% if using overall mean.
2. Sex is the single most impactful factor on one's powerlifting total.
3. The combination of sex and body weight have the highest combined impact on total among open international lifters, and the effect of sex is more pronounced at higher body weights.

Youth Data XX vs. XY

- n = 630
- XY totals averaged **98%** of XX at 8-9 years old
- Improved to **115%** in the 10-11 year old division
- **124%** at 12-13 years of age

Effect of Antiandrogens

- Ruzic et. al[20]
  - Control (estrogen) vs. females on antiandrogen
  - Untrained individuals
  - Strength increase over 12 weeks of 42.3% antiandrogen group, 53.9% control group
  - Statistically significant 11.6% difference

Effect of Antiandrogens

- Gooren and Brunck

Table 2 Effects of testosterone administration/c
interval of the difference of the mean.

	46,XY ($n = 19$)
Height (cm) (6)	177.8±7.9
Body weight (kg) (6)	66.1±11.7
Body mass index (kg/m^2) (6)	20.8±2.6
Muscle area (cm^2) (6)	306.9±46.5
Serum testosterone (nmol/l) (6)	21.5±5.8

* $P < 0.5$ vs baseline (Mann–Whitney test).
T: testosterone. Numbers in parentheses correspond t

We may summarize as follows:

1. Testosterone exposure has profound effects on muscle mass and strength, justifying the practice that men and women compete in sports in separate categories.
2. The response to testosterone exposure in men is idiosyncratic; similar plasma levels of testosterone do not produce similar effects on muscle mass and strength.
3. The effects of cross-sex hormones in the dosages commonly used have reached their maximum effects after 1 year of administration.
4. In spite of a large difference in testosterone exposure between men and women, there is a large overlap of muscle area between them.
5. Androgen deprivation of men induces a loss of muscle area, further increasing this overlap with women.
6. Therefore, depending on the levels of arbitrariness one wants to accept, it is justifiable that reassigned M–F compete with other women.

LOGY (2004) 151

% confidence

ion
ment

% CI
difference

5.8–16.0*
1.40–16.8*
1.7–2.4
3.1 15.1–62.9*
6 0.9–0.3*

Harper Article[22]

- Frequently comes up in transwomen debate
- Concluded that IOC guidelines were substantiated
- Multiple issues with the article

Harper Article[22]

1. 4 different sports, includes cycling, running, rowing
2. $N = 8$
3. NO descriptive statistics were run (Wilcoxon, Sign, etc)
4. Self reported Data - over 5 years!
5. Training history, injury, diet, weight, body composition, mental health, among other variables, are not provided nor controlled for
6. Bottom line:
    a. Not relevant to our sport
    b. Adds nothing to our overall knowledge on the matter

USAPL Spirinolactone Data

- Has been run, along with descriptive statistics
- Not reported here pending consideration for IRB approval
- Gross look demonstrates performance decrement on total due to spironolactone can be overcome with optimization of other training variables

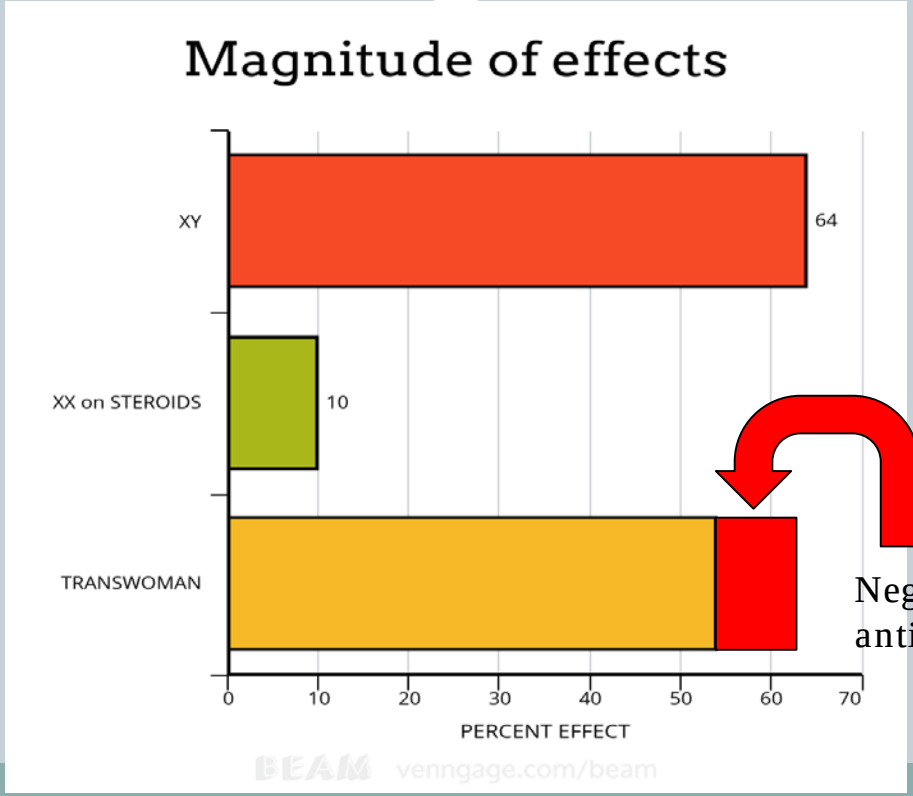
Laurel Hubbard[23]

- Olympic lifter
- Pre transition
  - 1998, 20 y/o
  - 300 kg

- Post transition
  - 2017, 39 y/o
  - 5 years post transition
  - 280 kg

7% difference only

Conclusions on Transwomen Issue

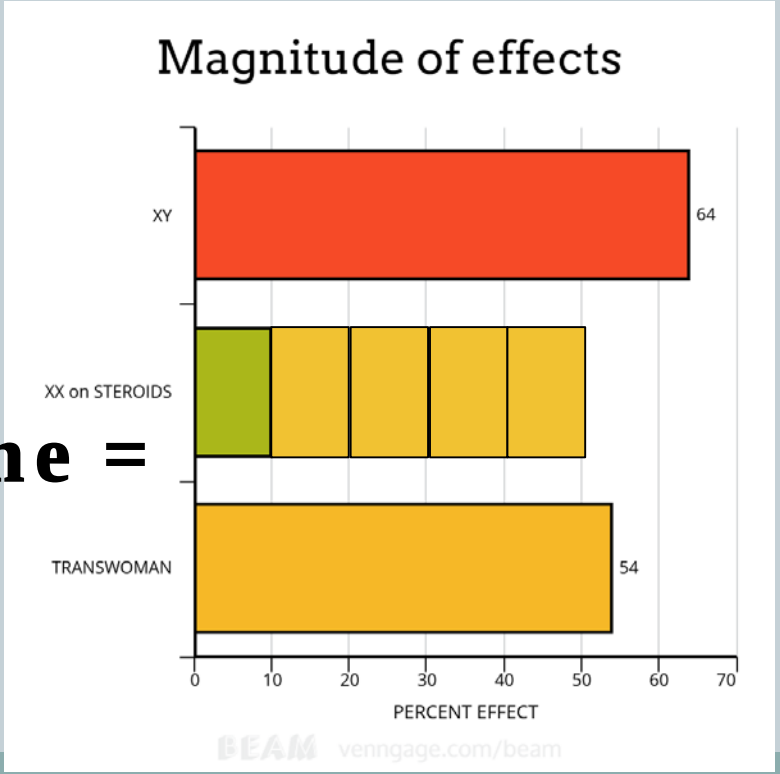


Negative effect of antiandrogen

Conclusions on Transwomen Issue

XY + spirinolactone = XX?

NO



Conclusions on the Transwomen Issue

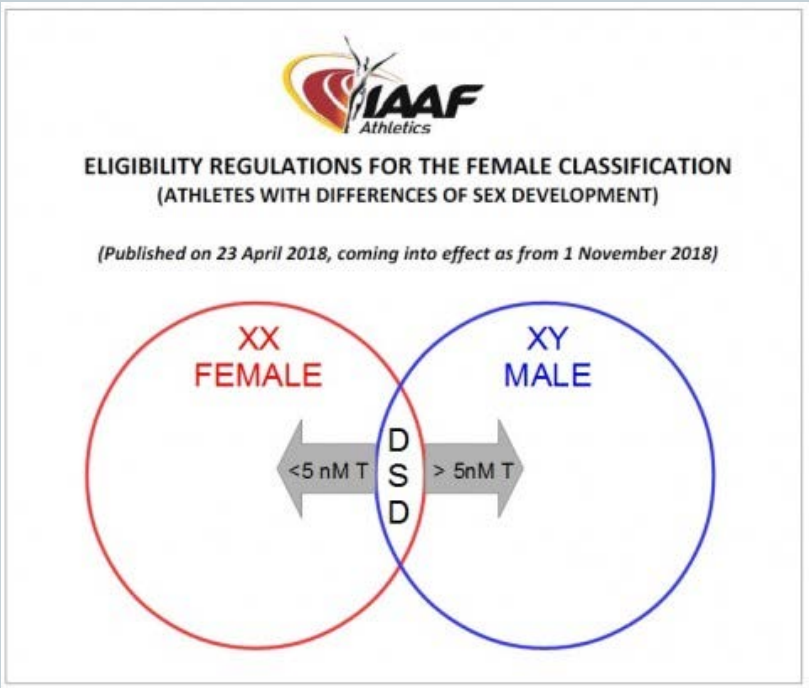
- Strength differences between males and females increase as a function of maturation, and these differences remain into adulthood.
- These differences are so significant that an immutable advantage is conferred in powerlifting by being male for even a brief amount of time through puberty.
- Consuming the minimal amount of antiandrogen set forth in the IOC guidelines cannot reverse the male advantage to a degree sufficient enough to ensure fair competition.

Differences of Sexual Development

Klinefelter's, Androgen Insensitivity Syndrome, PCOS, Females with Hyperandrogenism, etc.

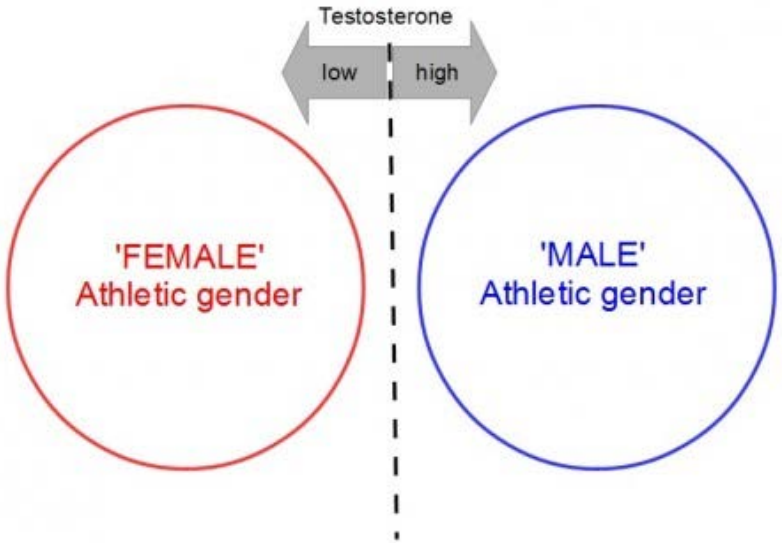
DSD, IAAF guidelines, CAS Case

- Decision point with Court of Arbitration for Sport (CAS):
  - Requirement for T threshold
  - No Requirement for T threshold

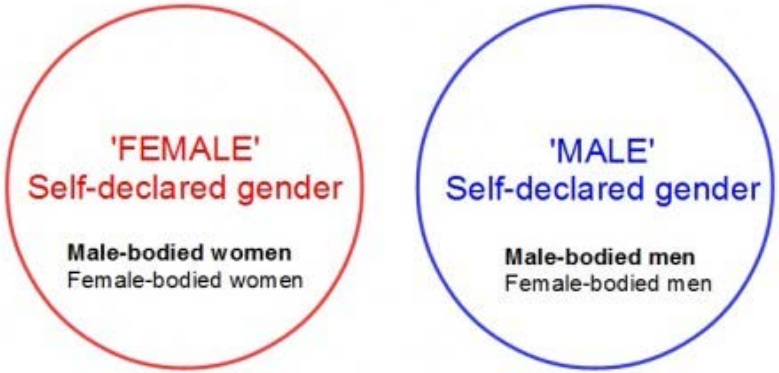


Two Arguments

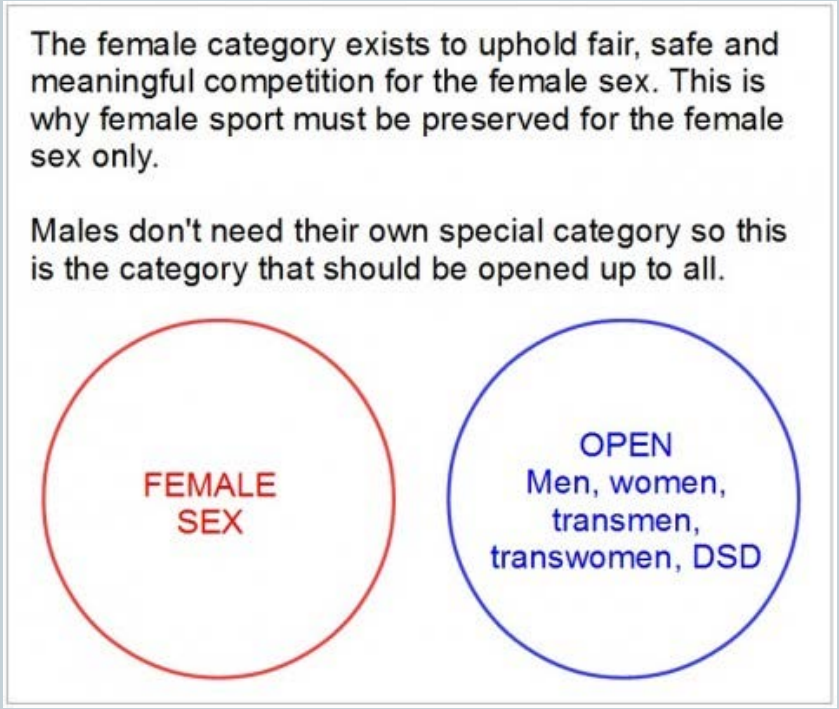
Joanna Harper proposes biological sex should be replaced by 'athletic gender' determined solely by T



Rachel McKinnon proposes biological sex should be replaced with self-declared gender with no body modifications whatsoever....



One Alternative: www.fairplayforwomen.com



- Bottom line for USAPL:
  - Each DSD will need to be viewed on case-by-case basis
  - Trans athlete rules and DSD rules are separate
  - DSD rules apply to DSD athletes

Last Minute Developments

- Caster Semanaya
- Mary Gregory

Caster Semanaya Decision[24]

- Underwent sex verification testing after winning 800m gold at worlds in 2009 at behest of IAAF
- Results of sex verification never officially published
- In 2018, IAAF changed rules for DSD, which Caster Semanaya filed for appeal and lost in CAS on 5/1/19

IAAF DSD Rules[24]

- Limited to athletes with “46 XY DSD”
- Individuals with XX chromosomes are not subject to any restrictions or eligibility conditions under the DSD Regulations
- Athletes with 46 XY DSD have testosterone levels well into the male range
  - 7.7 to 29.4 nmol/L
  - normal female range being below 2 nmol/L

IAAF DSD Rules[24]

- If natural testosterone level over 5 nmol/L
- And experience a “material androgenizing effect”
- Must reduce their natural testosterone level to below 5 nmol/L
- And maintain that reduced level for a continuous period of at least six months

CAS Ruling[24]

- "The Panel found that the DSD Regulations *are discriminatory* but the majority of the Panel found that, on the basis of the evidence submitted by the parties, such discrimination is a necessary, reasonable and proportionate means of achieving the IAAF's aim of **preserving the integrity of female athletics** in the Restricted Events."

Mary Gregory

Mary Gregory

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Mary Gregory
- she/ her
- USAPL VA state Ref
- pre HRT 408/ 298/ 507
- post HRT 314/ 233/ 424
- Inclusive Strength coaching, inclusivestrength19@gmail.com

POSTS TAGGED

23% different squat
22% different bench
16% different deadlift
20% different total

Pre - BWT 220
Post - BWT - 181

Advantage (excluding weight class change)

- Using overall mean of IPF data:
  - XX/XY difference of 46%
  - 46% - 20% = 26% advantage over XX
- Using NWC:
  - XX/XY difference of 47%
  - 47% - 20% = 27% advantage over XX
- Using 5kg groupings
  - XX/XY difference of 64%
  - 64% - 20% = 44% advantage over XX

XY + spirinolactone = XX?

NO

Conclusions

- After objective, honest evaluation of the literature, it is difficult to conclude fair play with transwoman competing as woman
- Transmen represent a quandry with regard to our “drug free” sport
- DSD need to be treated with separate DSD rules

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Questions?