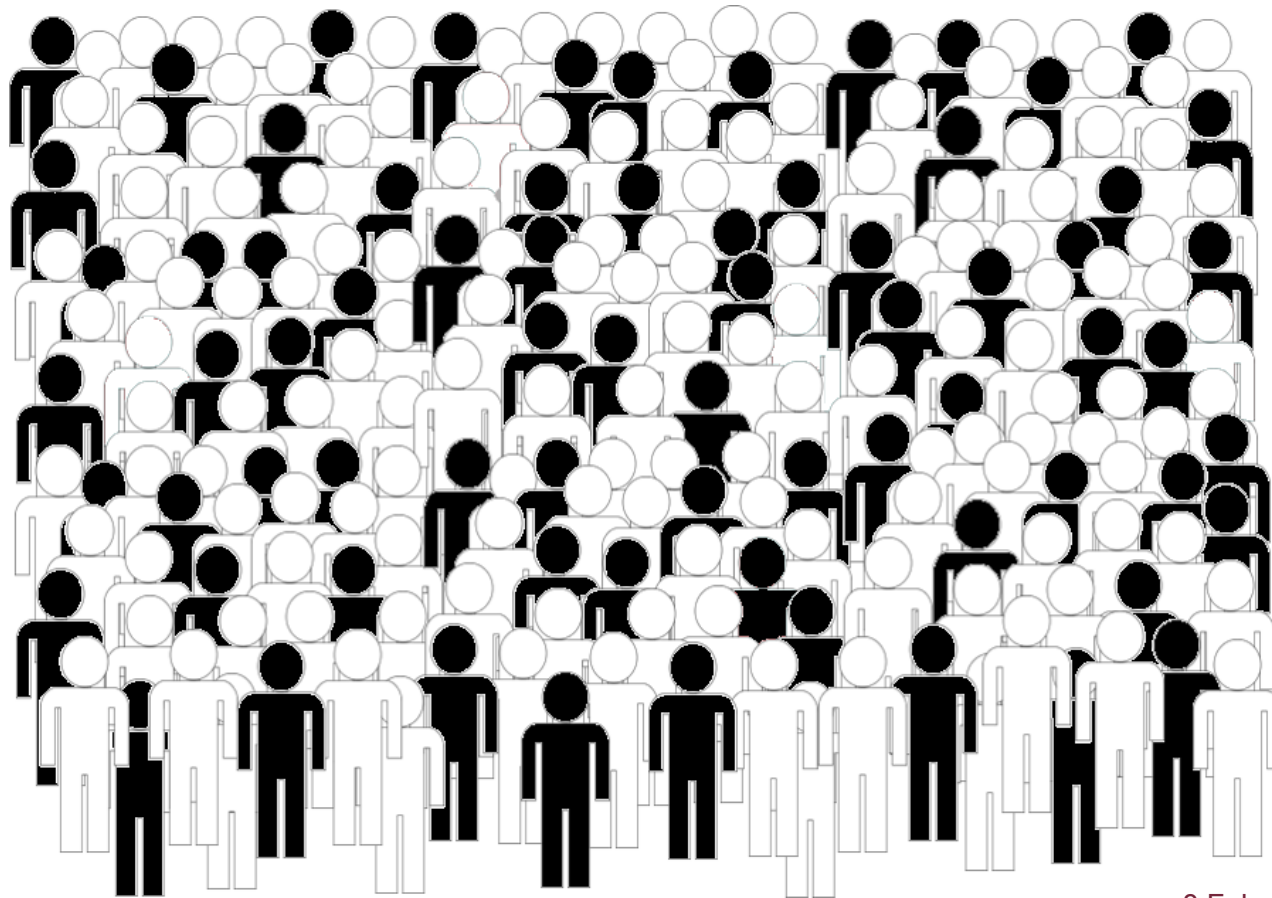




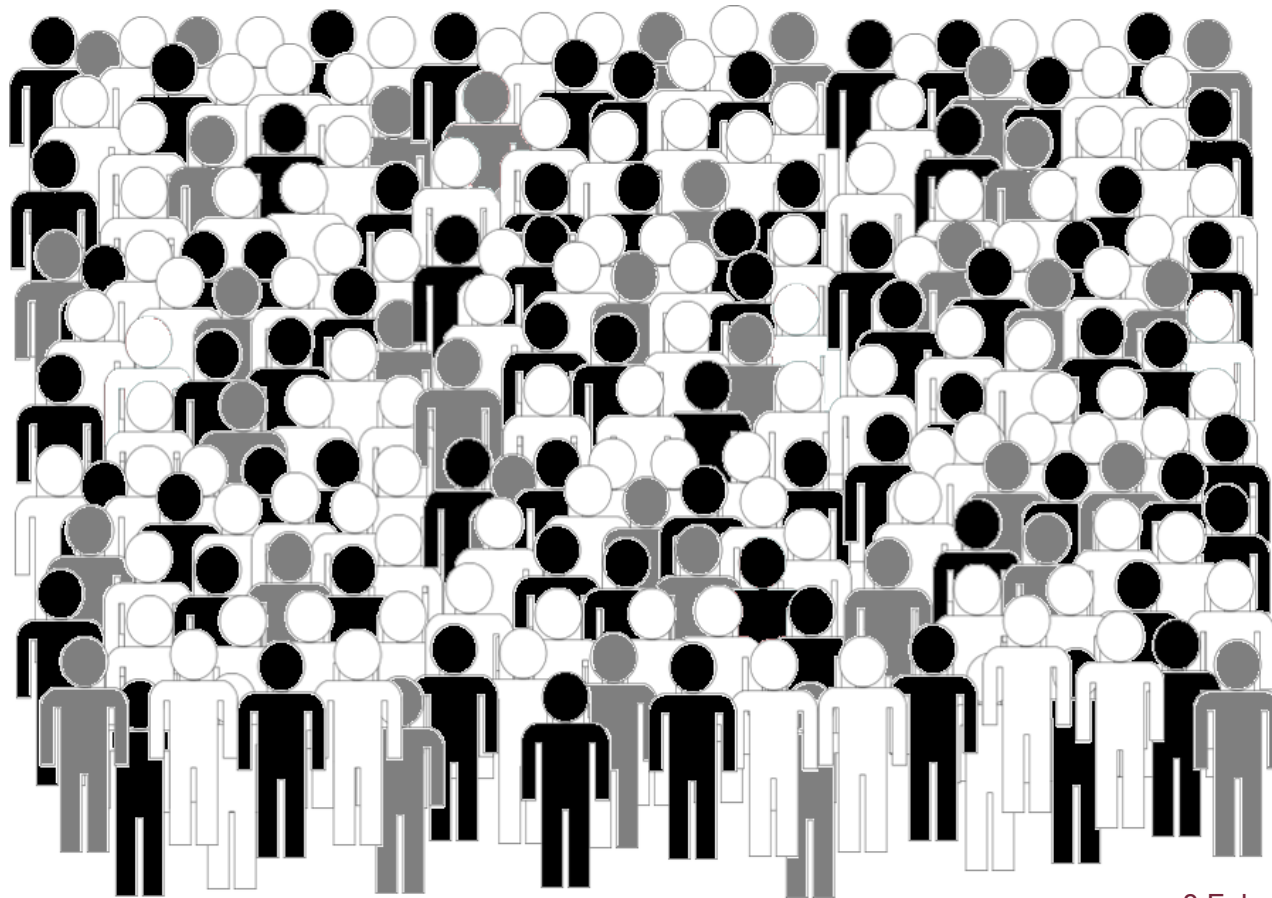
Donor studies: Behoud van voldoende en gezonde donors

Katja van den Hurk, PhD
Afdeling Donorstudies, Divisie Research
Bloedinzameling, Divisie Bloedbank (roulatie)

Geregistreerde donors: 1/3 geen 1^e screening



1 op 4 komt niet voor 1^e donatie



10% van donaties leidt tot uitstel



Daarom: donor onderzoek

- Focus van oorsprong op product:
 - Effectiviteit
 - Bijwerkingen
 - Dosis-response
 - Wanneer wel/niet transfunderen
 - Etc...
- Maar: medicijn van bijzondere bron





Gezondheidseffecten



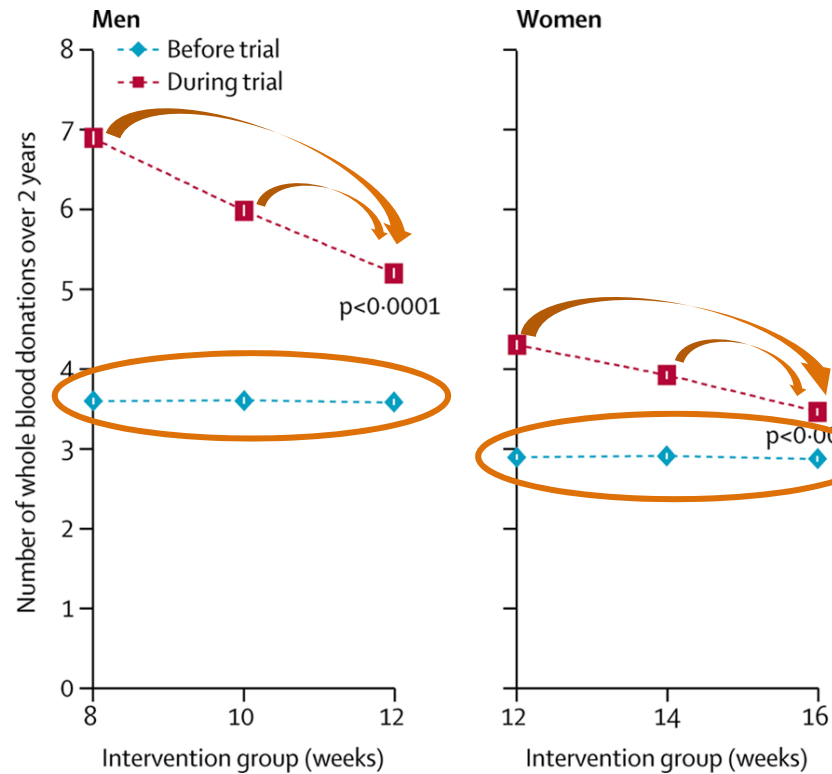
Efficiency and safety of varying the frequency of whole blood donation (INTERVAL): a randomised trial of 45 000 donors

Emanuele Di Angelantonio, Simon G Thompson*, Stephen Kaptoge*, Carmel Moore*, Matthew Walker, Jane Armitage, Willem H Ouweland, David J Roberts†, John Danesh†, on behalf of the INTERVAL Trial Group‡*

Interpretation Over 2 years, more frequent donation than is standard practice in the UK collected substantially more blood without having a major effect on donors' quality of life, physical activity, or cognitive function, but resulted in more donation-related symptoms, deferrals, and iron deficiency.

Conclusie: onvoldoende donors? Roep ze dan vaker op!(??)

Interpretation Over 2 years, more frequent donation than is standard practice in the UK collected substantially more blood without having a major effect on donors' quality of life, physical activity, or cognitive function, but resulted in more donation-related symptoms, deferrals, and iron deficiency.





Gezondheidseffecten van het doneren op zich?

Figure S4: Mean Physical Component Score at 2 years and at baseline by sex and intervention group

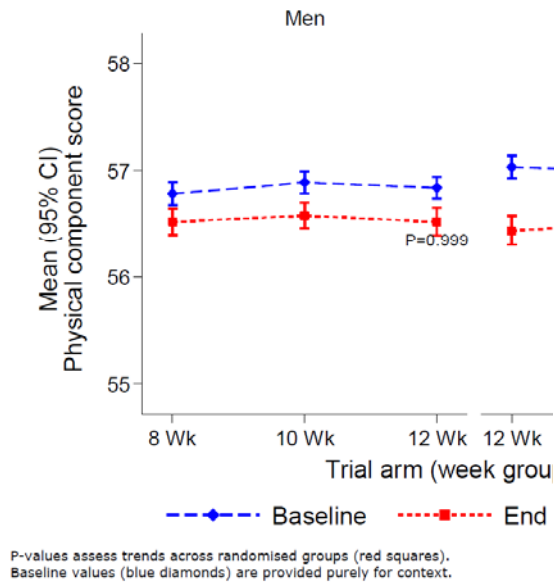
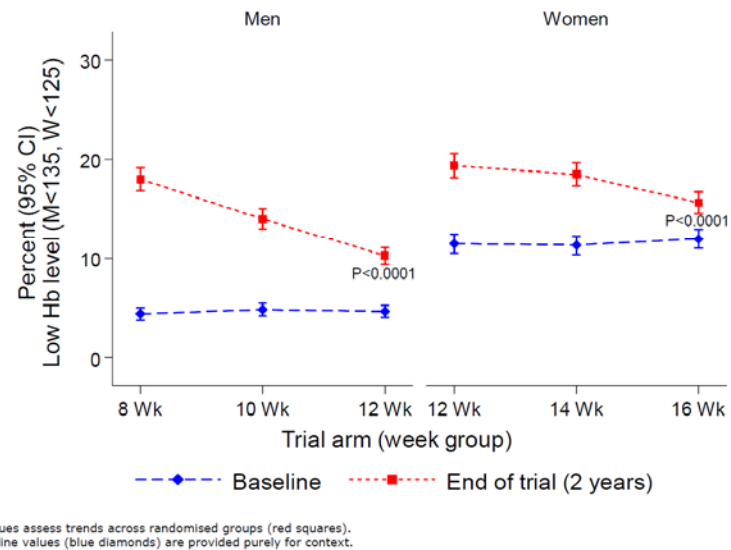


Figure S5: Percentage of donors with low haemoglobin level (<135 g/L in men and <125 g/L in women) at 2 years and at baseline by sex and intervention group (restricted to those meeting usual whole blood donation criteria at 2 years).



Alternatieve interpretatie...

- **Super-vaak** doneren (elke 12/14 weken V of 8/10 weken M) leidt niet tot veel *meer* achteruitgang dan *vaak* doneren (elke 16 weken V of 12 weken M).
- INTERVAL studie geeft geen antwoord op de vraag: is doneren (on)gezond?

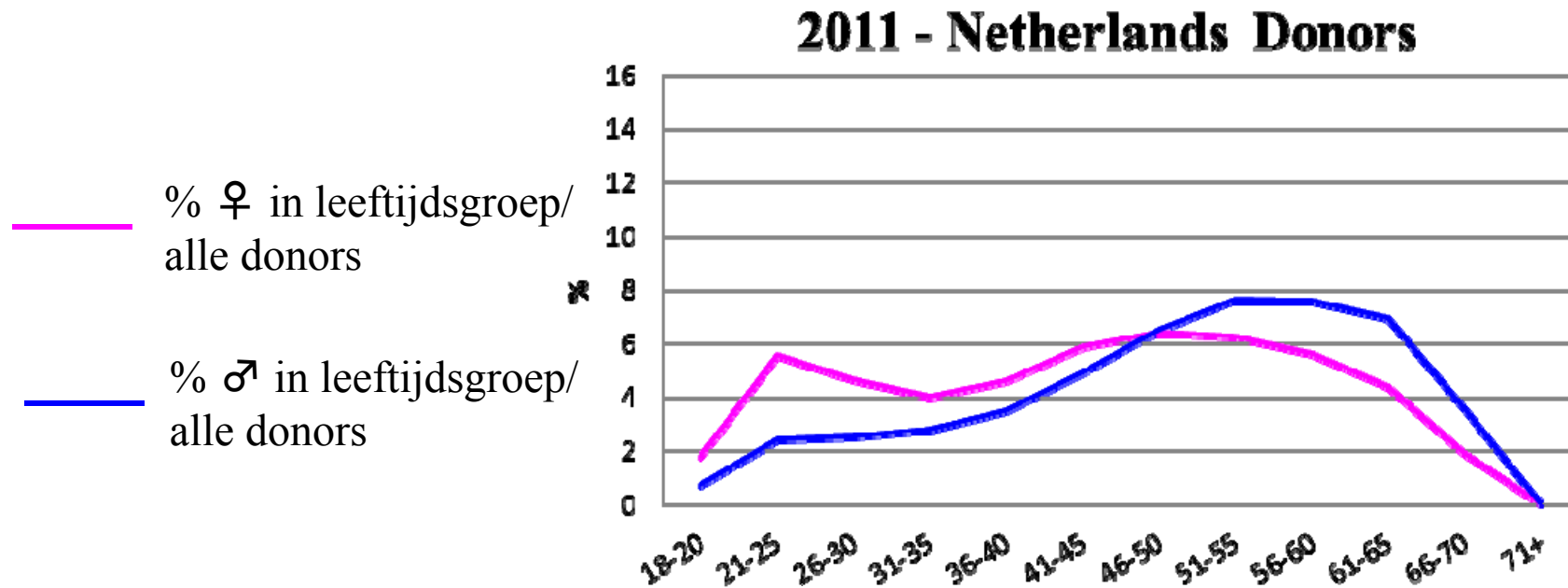
IJzer



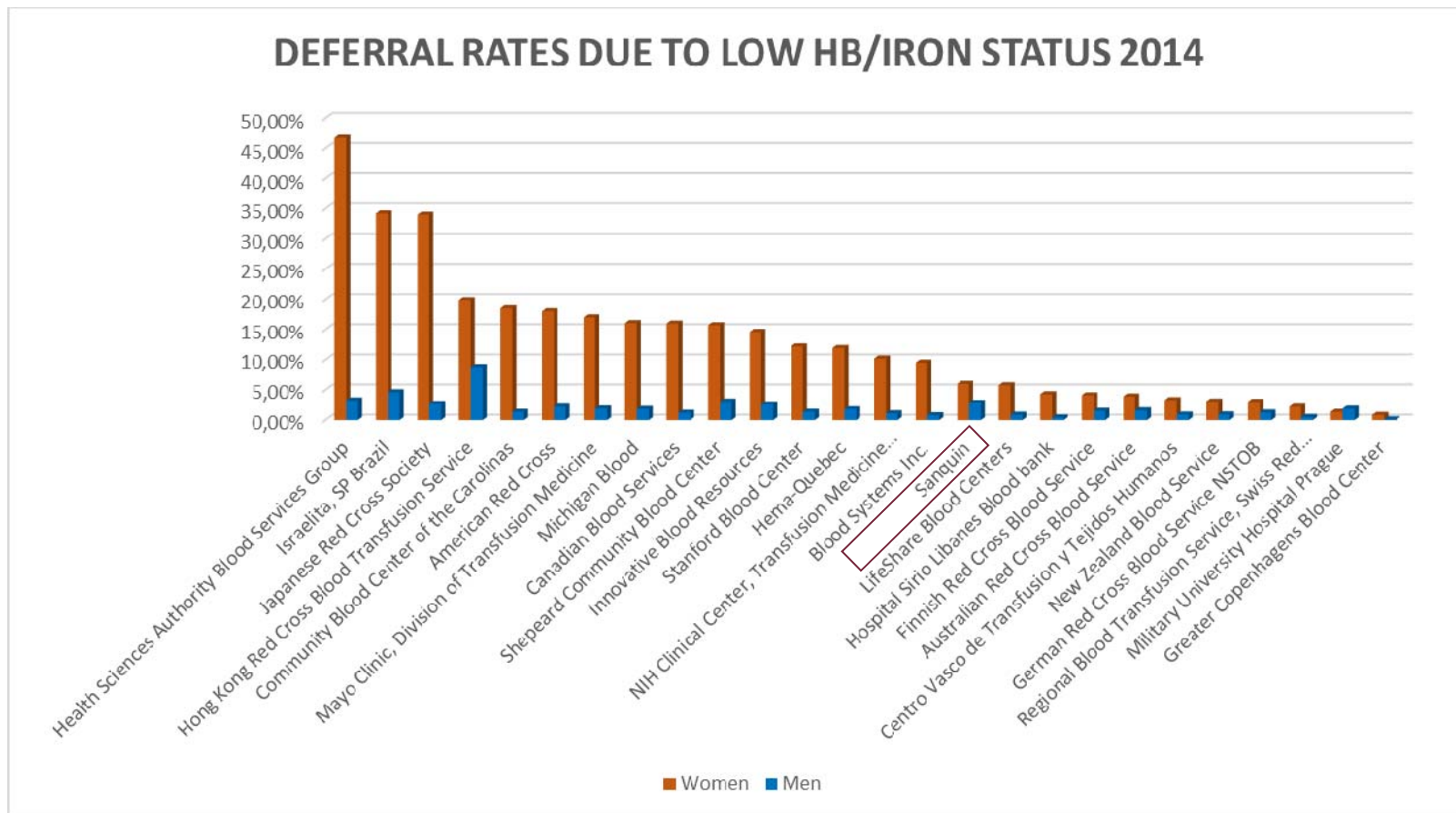
Sanquin donors – uitstel vanwege laag Hb

	Hb afkap- waarde	Aantal donatie- pogingen	Hb uitstel	%
Mannen	<8.4 mmol/L	262,557	7,486	2.9%
Vrouwen	<7.8 mmol/L	228,589	13,654	6.0%
			1/1/14 – 31/12/14	

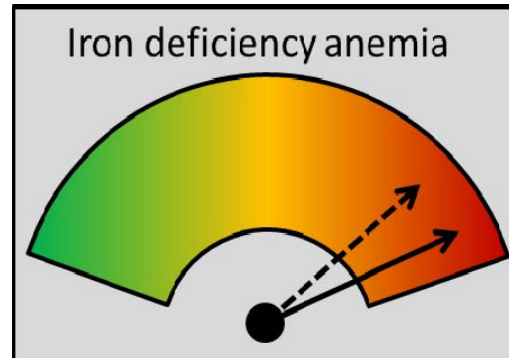
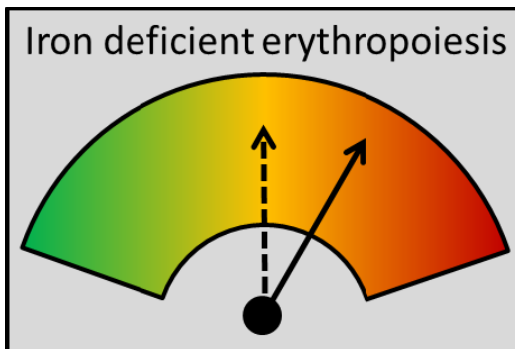
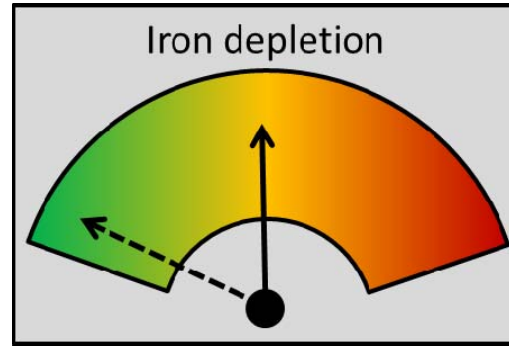
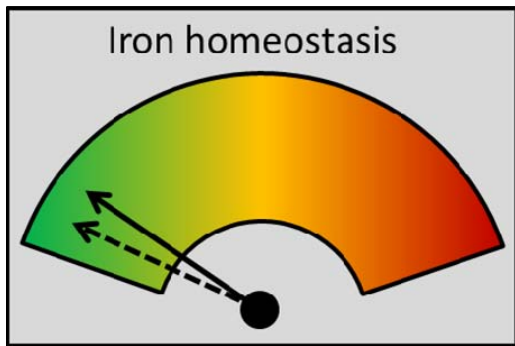
Demografie donorpopulatie



Internationale afkeurpercentages laag Hb



IJzerdepletie



↑ Iron stores
↑ Hemoglobin

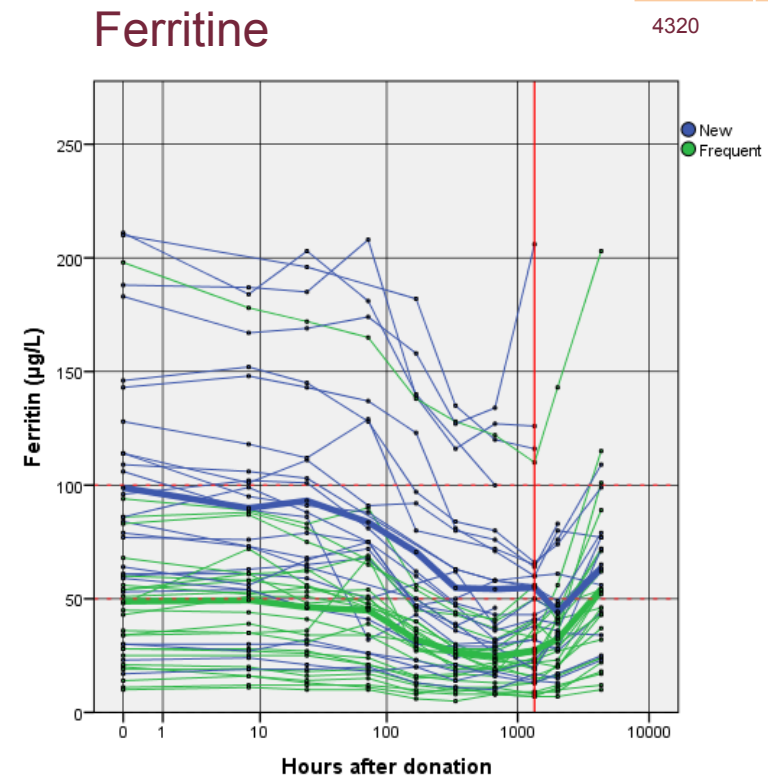
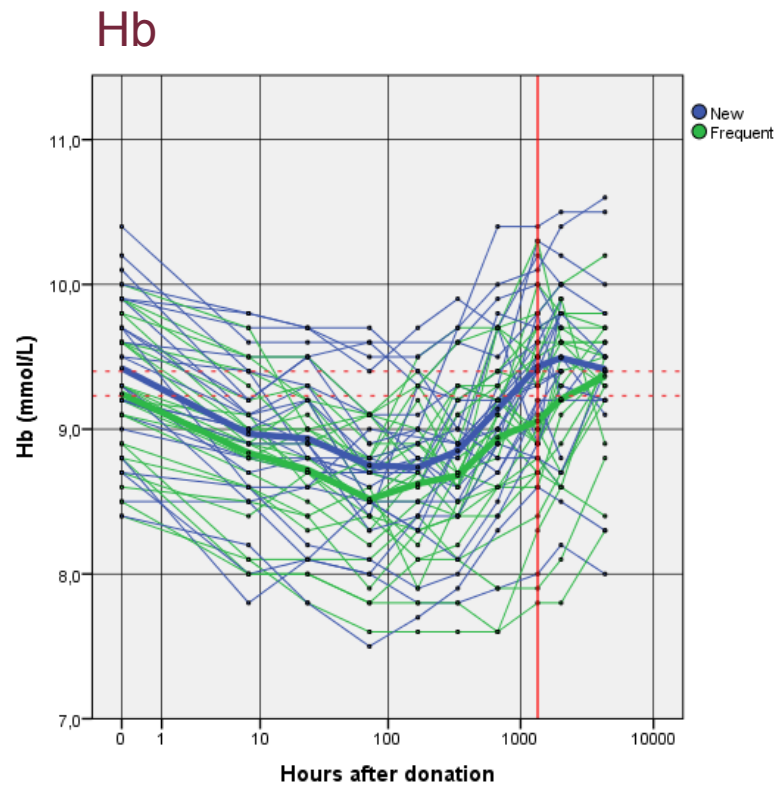
Verlies en opname

- Gemiddelde ijzerconsumptie: 15-20 mg/dag
- Gemiddelde ijzeropname: 1-2 mg/dag
- Volbloed donatie: \pm 200 mg ijzer



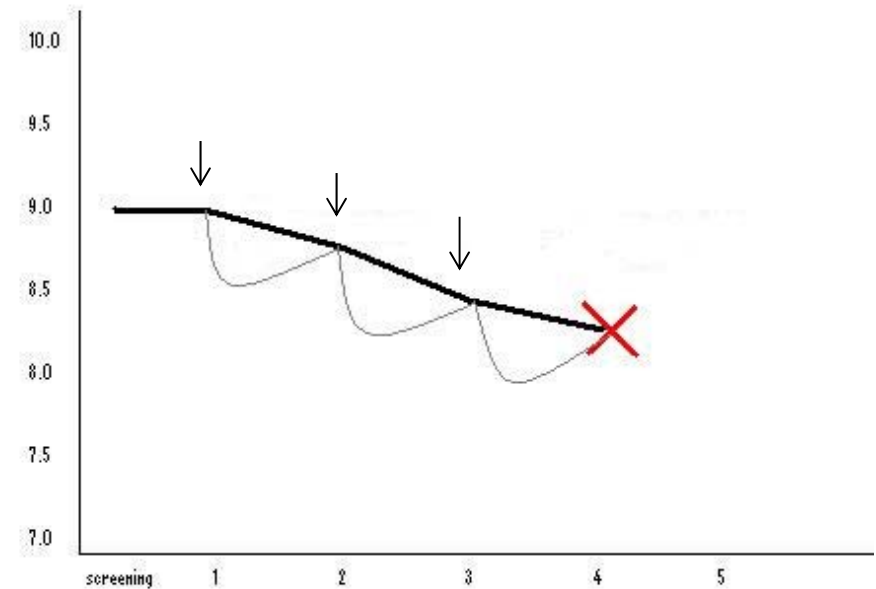
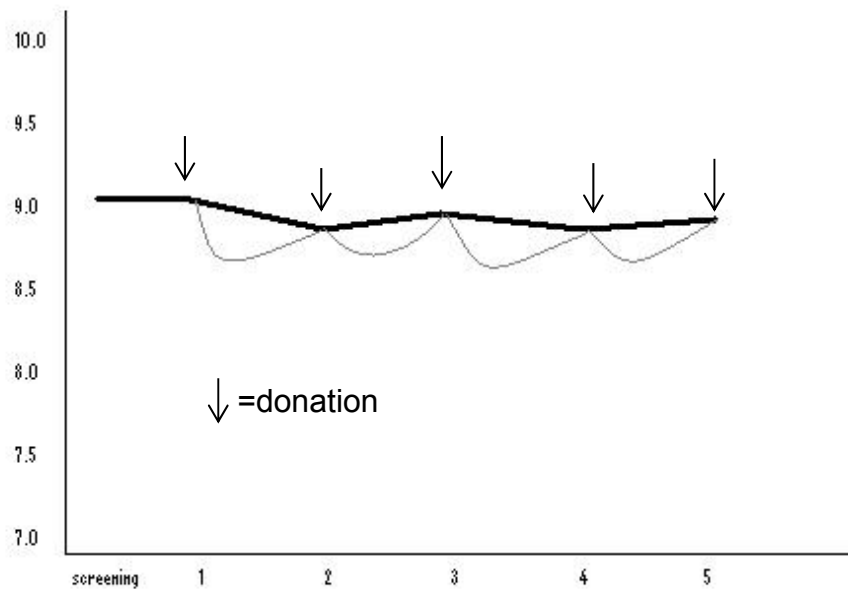
Kinetiek van Ijzer Na Donatie (KIND)

Hours	Days
0	
8	
24	Day 2
72	Day 4
168	Day 8
336	Day 15
672	Day 29
1344	Day 57
2016	Day 85
4320	Day 180



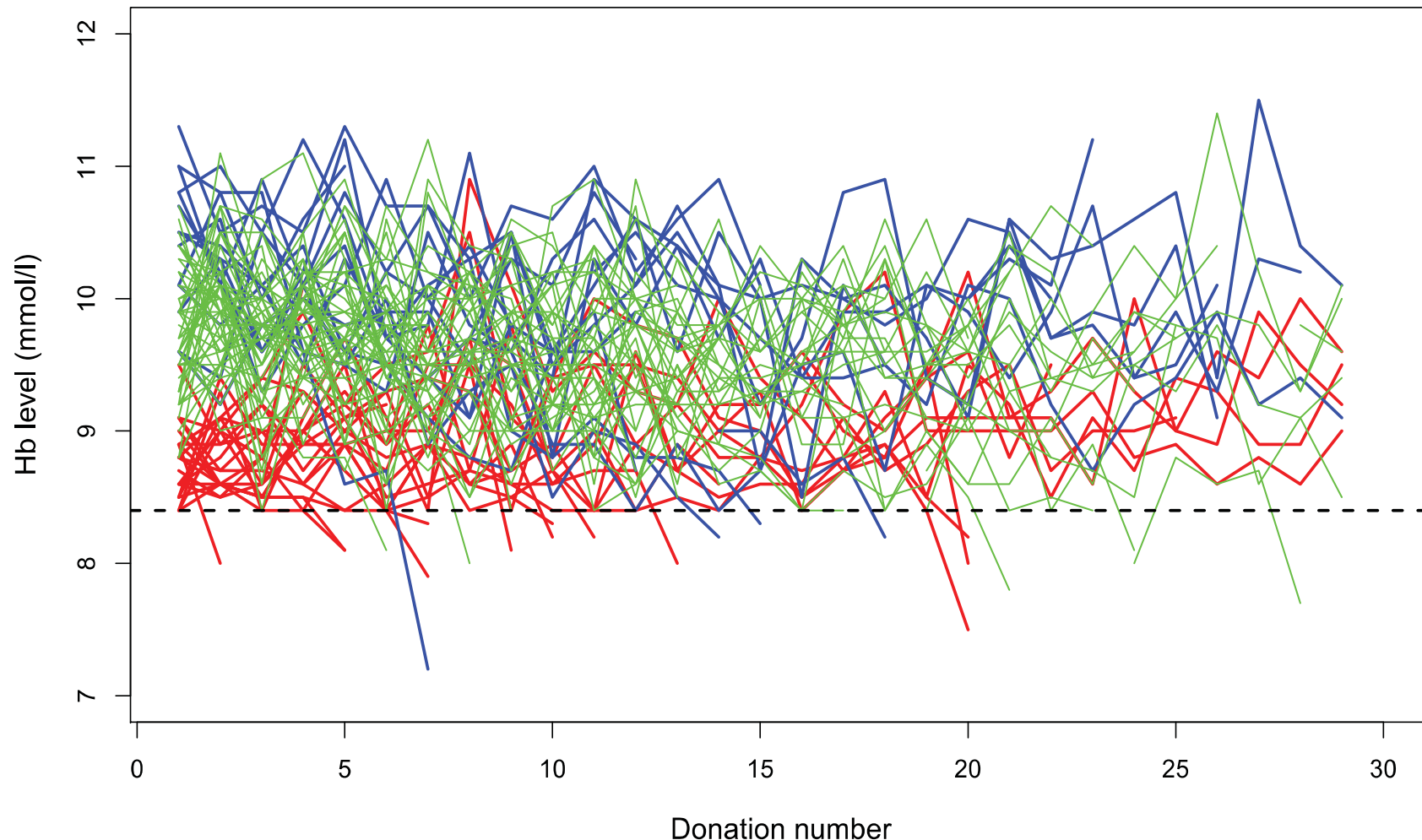
Hb trajecten in donors

- Hemoglobine elke donatie gemeten (HemoCue)
- Hypothese: verschillend verloop bij herhaalde donaties:

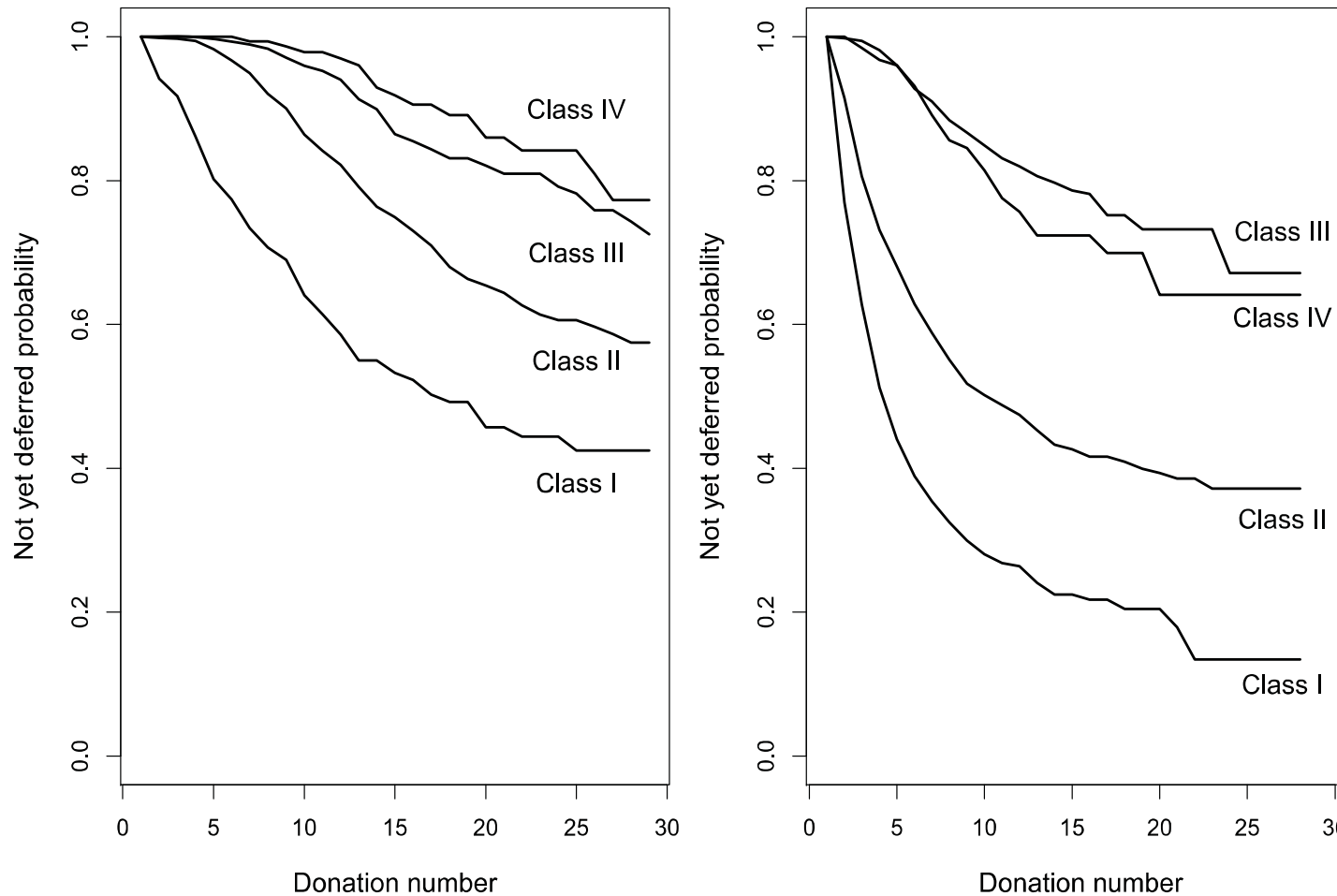


Male Hb profiles (three groups)

Donors gegroepeerd o.b.v. meest vergelijkbaar Hb verloop



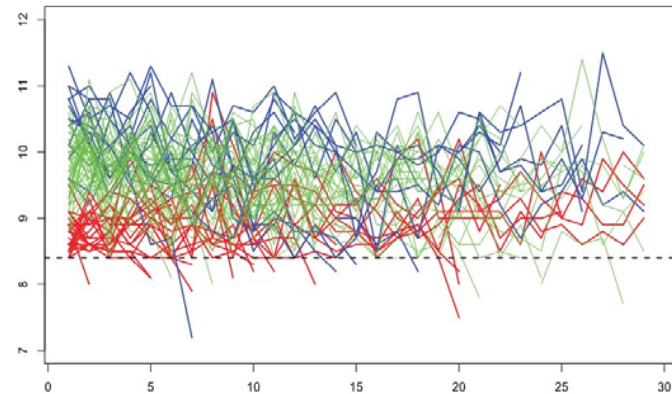
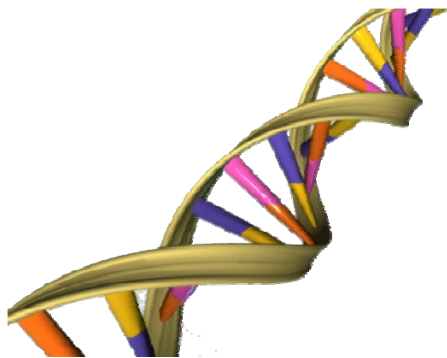
Donors deferred proportion Kaplan-Meier curves of the latent classes



Donor InZicht (DIZ)-III

PhD project Tiffany Timmer

Doel: Genetische determinanten van Hb trajecten identificeren
Symptomen van ijzer deficiëntie in donors bestuderen



+ vragenlijsten: 3.000 donors

Verlengen donatie interval

- Langere donatie intervallen – lagere kans Hb uitstel*
- Verlenging van interval bij risicogroep effectief (ingediend)
- Ferritine-gestuurde intervallen beter?
 - Odds ratio Hb uitstel voor ferritine 30 ng/ml of lager vs >60: 11,8 en 2,7 (M en V)**

*Baart et al. Transfusion 2015

**Prinsze et al., ISBT conference 2017



Blood donatie: Een gezonde gewoonte?

Am. J. Epidemiology:
donors 88% minder
kans op hartaanval en
33% minder HVZ dan
niet-donors



The screenshot shows the OneBlood website with a navigation menu and a sidebar. The main content area features an article titled "HEALTH BENEFITS OF DONATING BLOOD". The article text is as follows:

HEALTH BENEFITS OF DONATING BLOOD

Did you know that you can reduce your risk of heart disease and save a life at the same time? That's right! According to studies published in the American Journal of Epidemiology, blood donors are 88% less likely to suffer a heart attack and 33% less likely to suffer any type of cardiovascular event. Why is that? Well, researchers aren't 100% sure, but believe it may be due to either one of two things.

The first theory is that blood donors must be considered "healthy" before they roll up their sleeve, so they are less likely to suffer heart disease because they are already in good health and probably have lower blood pressure and cholesterol levels than non-blood donors.

The second theory is that iron has a significant impact on atherosclerosis, or hardening of the arteries. When you give blood you are removing 225 to 250 milligrams of iron from your system, thus cutting your risk of heart disease.

Pre-menopausal women tend to have half of the amount of iron as men because they lose iron every month through menstruation. Coincidentally, they also suffer half as many heart attacks.

However, once a woman goes through menopause her risk of heart attack increases, but donating blood can reduce that risk.

In addition to depleting iron levels, when you donate blood we give you a free mini-physical and let you know your blood pressure as well as your cholesterol levels—two major risk factors when it comes to heart disease.

While scientists are researching why donating blood reduces the risk of heart attack, one thing is clear—donating blood has many benefits to the donor as well as the recipient. So, if you want to pick up a healthy habit, head over to your local blood center and give the gift of life.

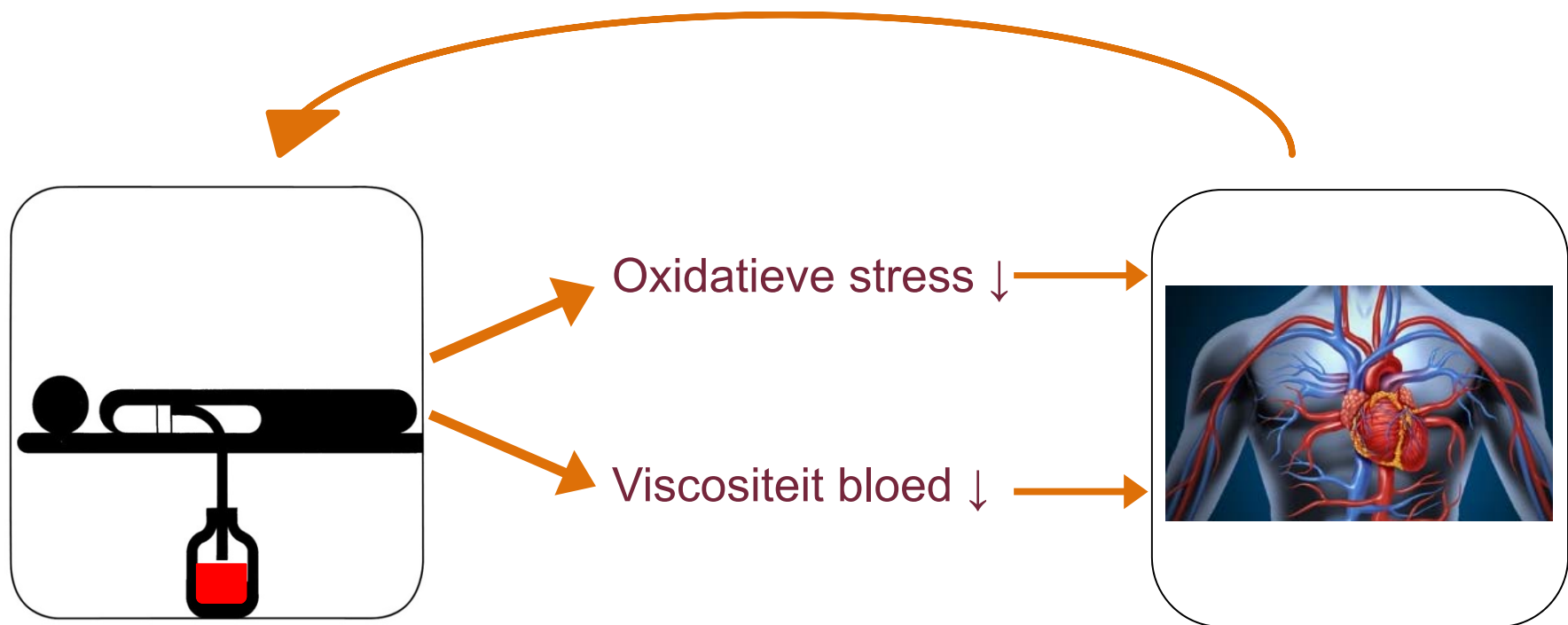
HEALTHY LIVING Why Donating Blood Is Good For Your Health

May 30, 2013 06:37 PM By Lizette Borrelli



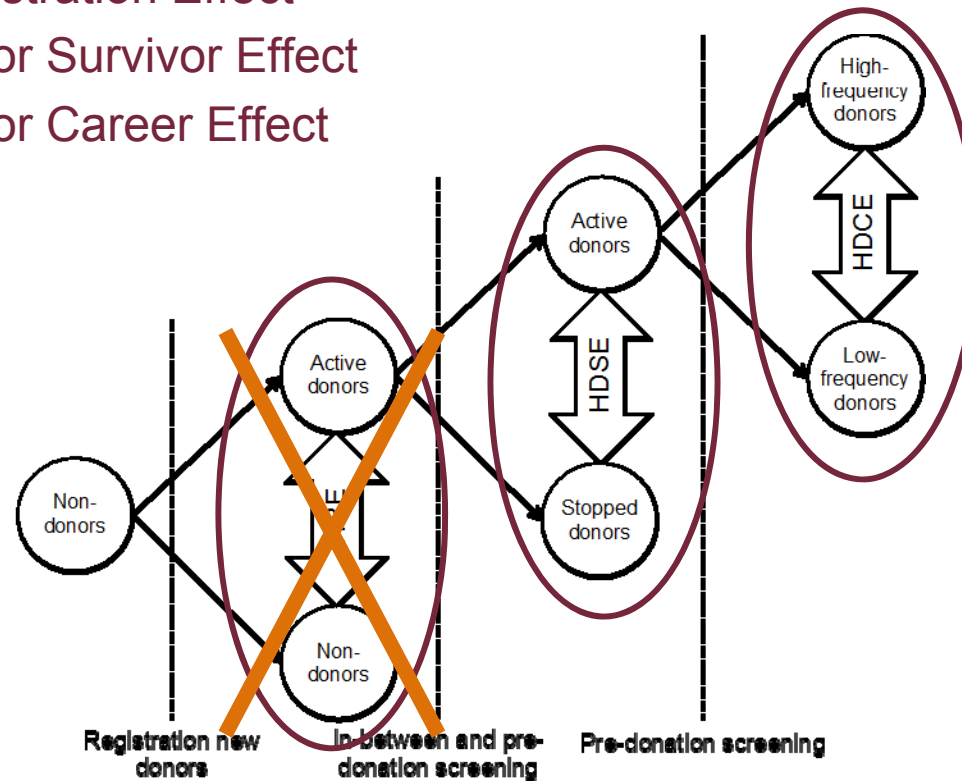
Blood donors have a lower risk of developing life-threatening diseases. Staff Sgt. Stephanie Rubi, U.S.

Waarom zou doneren gezond zijn?



Het Healthy (Gezonde) Donor Effect (HDE)

- Healthy Registration Effect
- Healthy Donor Survivor Effect
- Healthy Donor Career Effect



HDE binnen donorpopulatie?

- Zelf-gerapporteerd ‘on gezondere’ donor stopt sneller met doneren

Table. Hazard ratio's (95% confidence intervals) for associations of self-reported health status with time to donation cessation

	<i>Men - crude</i>	<i>Men – adjusted*</i>	<i>Women - crude</i>	<i>Women – adjusted*</i>
<i>Good health</i>	0.84 (0.76 to 0.93)	0.96 (0.87 to 1.06)	0.72 (0.67 to 0.78)	0.84 (0.77 to 0.90)
<i>Poor health</i>	1.26 (1.08 to 1.47)	1.33 (1.14 to 1.55)	1.02 (0.90 to 1.15)	1.00 (0.89 to 1.13)
<i>Medication use</i>	1.24 (1.16 to 1.33)	1.36 (1.26 to 1.47)	1.14 (1.07 to 1.21)	1.30 (1.22 to 1.38)
<i>Disease diagnosed</i>	1.18 (1.11 to 1.26)	1.25 (1.17 to 1.33)	1.09 (1.03 to 1.14)	1.14 (1.09 to 1.20)
<i>Visited GP past 3 months</i>	1.20 (1.13 to 1.28)	1.10 (1.03 to 1.18)	1.17 (1.11 to 1.23)	1.06 (1.01 to 1.11)
<i>Visited specialist past 12 months</i>	1.19 (1.10 to 1.28)	1.06 (0.98 to 1.15)	1.21 (1.14 to 1.28)	0.99 (0.93 to 1.05)

Cox regression models for associations of self-reported health status with donation cessation. Time from participation in DIS to donation cessation or censoring (31-12-2013) was calculated in days. Statistically significant associations are indicated in **bold**. *adjusted for age, smoking and number of previous donations.

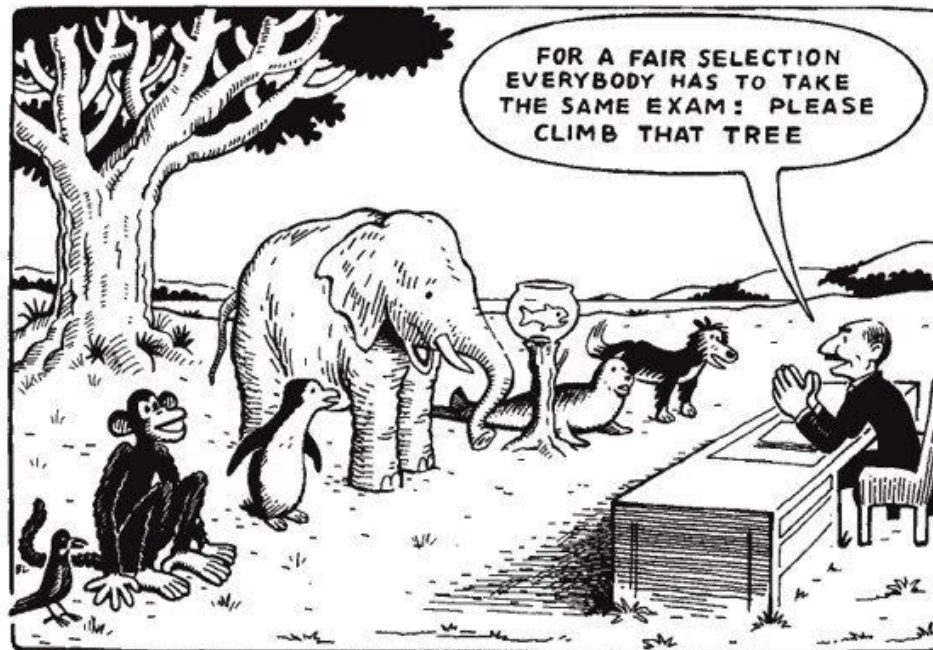
Toekomst-muziek

- Met betrekking tot gezondheidseffecten:
 - Analyses op Deense register en cohort data (gepland 2018)
 - Gerandomiseerd gecontroleerd onderzoek naar donatie effecten
- Met betrekking tot ijzerhuishouding:
 - Beleid met ferritinemeting evalueren en verbeteren
- Meer algemeen:
 - Onderscheid maken tussen de 'rijken' en de 'armen' door inzoomen op subgroepen



Concluderend...

- Fysieke consequenties van bloed geven, vooral ijzer-gerelateerd
- Individualiseren kan donorzorg waarschijnlijk helpen verbeteren
- Goede balans noodzakelijk: voldoende, maar niet te vaak



Dank!

