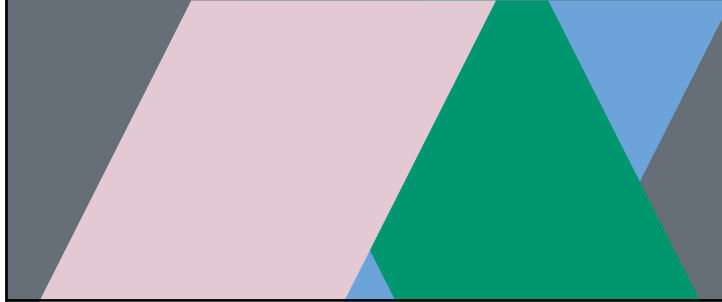


INSELGRUPPE

Männerbasion Katheterlabor

Dr. med. N. Susuri Pfammatter



1

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What ist the #1 Killer of Women?

Cardiovascular disease (CVD) is the primary cause of death in women

Women's Heart Alliance →
half of women were unaware that
CVD is the most frequent cause of
death among women



Garcia et al., Cardiovascular disease in women, Circ. Res. 118 (8) (2016) 1273–1293, <https://doi.org/10.1161/CIRCRESAHA.116.307547>.

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Neue Zürcher Zeitung

Frauen sind bei Herzinfarkt-Symptomen oft zu zögerlich

Bei einem Herzinfarkt muss es schnell gehen. Dabei werden Männer oft schneller behandelt als Frauen. Dies hat verschiedene Gründe.

6.3.2019, 17:51 Uhr



Gasior et al., Kardiochir Torakochirurgia 2018 Mar; 15(1):44-48. doi: 10.5114/kltp.2018.74675. Epub 2018 Mar 28.

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Differences in CAD symptoms in women and men

Symptoms of angina pectoris	Women	Men
Typical angina	+	++
Atypical angina	++	+
Dyspnea	++	++
Fatigue	++	+
Increased sweating	++	+
Nausea and vomiting	++	+

Crea et al., Sex differences in mechanisms, presentation and management of ischaemic heart disease. Atherosclerosis. 2015;241:157–168.

Shaw et al., WISE Investigators Insights From the NHLBI-Sponsored Women's Ischemia Syndrome Evaluation (WISE) study: part 1: gender differences in traditional and novel risk factors, symptom evaluation, and gender-optimized diagnostic strategies. J Am Coll Cardiol Suppl. 2006;47(3 Suppl):S4–S20.

Steg et al., CLARIFY Investigators Women and men with stable coronary disease have similar outcomes: insights from the international prospective CLARIFY registry. Eur Heart J. 2012;33:2831–2840.

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What is the #1 Killer of Women?

- risk of CAD development rises > 40 in both
- significant changes in coronary arteries are observed 7–10 years later in women than in men
- CAD is underestimated → underdiagnosis and undertreatment

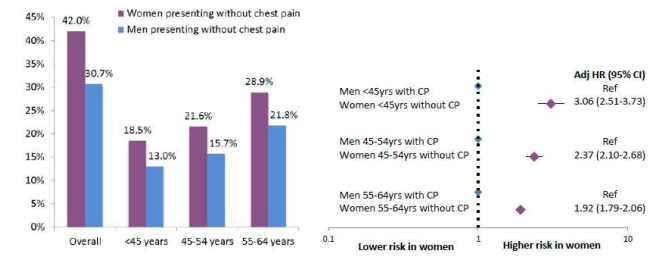
Crea F, Battipaglia I, Andreotti F. Sex differences in mechanisms, presentation and management of ischaemic heart disease. *Atherosclerosis*. 2015;241:157–168.

Roeters van Lennep E, Westerveld HT, Erkelens DW, van der Wall EE. Risk factors for coronary heart disease: implications for gender. *Cardiovasc Res*. 2002;53:538–549

Sharma K, Gulati M. Coronary artery disease in women: a 2013 update. *Glob Heart*. 2013;8:105–112

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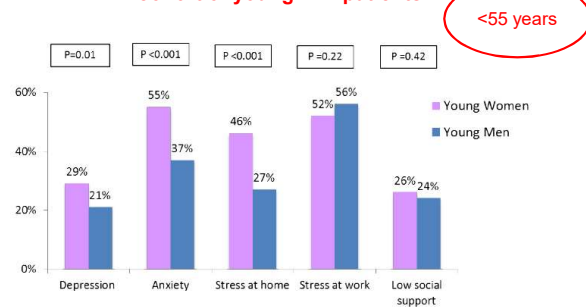
Differences in presentation: Non-Chest Pain AMI presentation among young adults



Carlo et al. *JAMA*. 2012 Feb 22;307(8):81322.doi:10.1001/jama.2012.199.

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Differences in non-traditional risk factors: A cohort of young AMI patients



Choi et al. *Can J Cardiol*. 2014 Jan;30(1):109-17.doi: 10.1016/j.cjca.2013.07.674. Epub 2013 Nov 13.

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Differences in diagnosis & treatment

50% of heart attack patients are women

Euro Heart Survey study → women were less likely to be recommended antiplatelets, statins, Beta blockers, ACE inhibitors or undergo coronary angiography

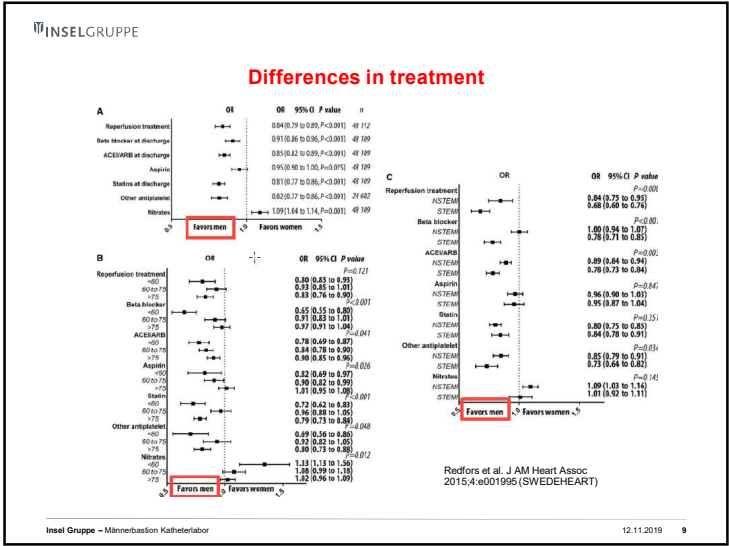
Non-invasive CAD diagnostics in women is less sensitive and specific



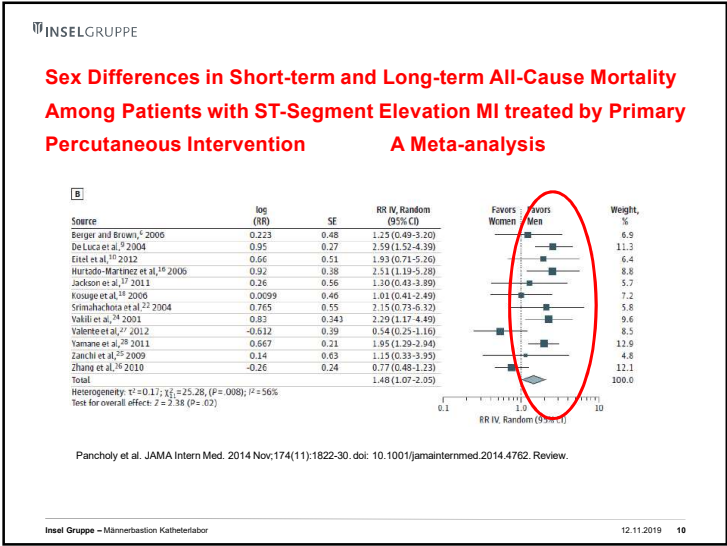
Daly et al. Euro Heart Investigators. Gender differences in the management and clinical outcome of stable angina – Euro Heart Survey. *Circulation*. 2006;113:490–498

Gierach et al. WISE Study Group Women's ischemia syndrome evaluation study: hypertension, menopause, and coronary artery disease risk in the WISE. *J Am Coll Cardiol*. 2006;47(3 Suppl):S50–8.

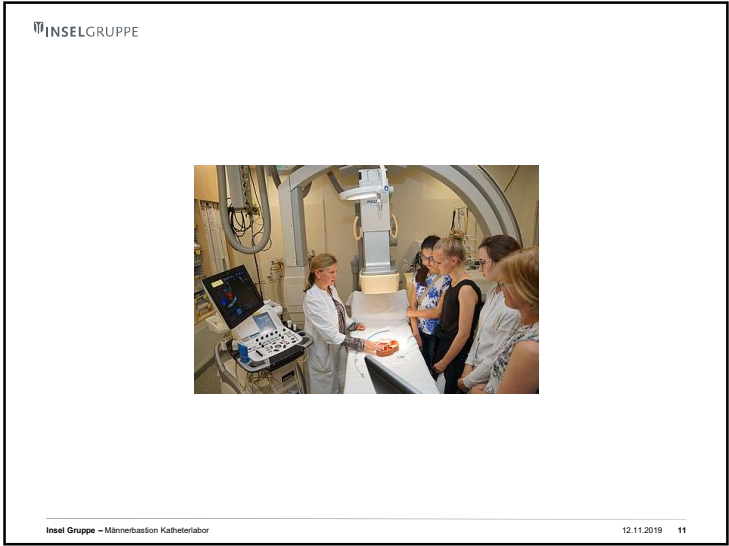
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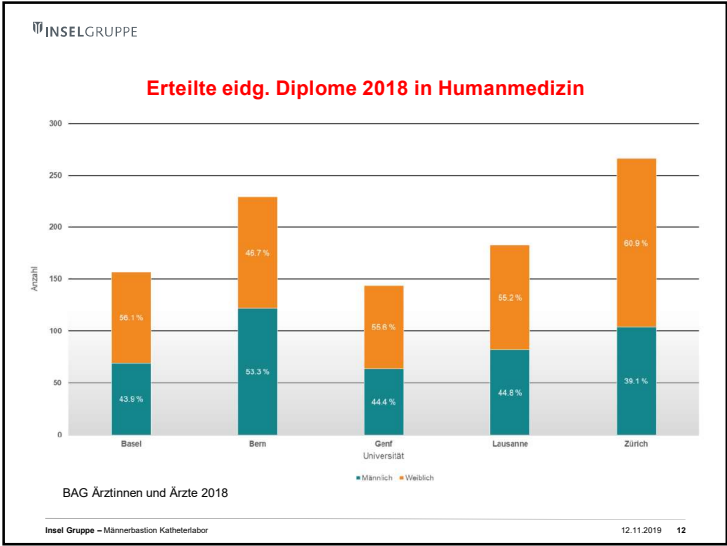
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SPN1
SPN2
SPN3

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Women in Interventional Cardiology

- <20% of cardiology trainees are women
- Women account for only 4.5% of interventional cardiologists and perform <3% of angioplasty procedures (USA)
- Improving gender equality within cardiology has been identified as a powerful means to improve cardiovascular disease outcomes in women



Women doctors "best for female heart patients"
07 August 2018 | Health

Women who have a heart attack are more likely to survive if they are treated by a female doctor in hospital, a major US study suggests.

Lewis et al. Changes in the professional lives of cardiologists over 2 decades. J Am Coll Cardiol 2017;69:452-62

Wang et al. Women in interventional cardiology: update in percutaneous coronary intervention practice patterns and outcomes of female operators from the National Cardiovascular Data Registry. Catheter Cardiovasc Interv 2016;87:663-8

Abbott JD. Women in interventional cardiology: small numbers, big impact. Circ Cardiovasc Interv 2016;9:1-4

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Women in Interventional Cardiology

- Subject matter itself
- Supportive role model
- Positive encouragement

Douglas et al. Career preferences and perceptions of cardiology among US internal medicine trainees factors influencing cardiology career choice. JAMA Cardiol 2018;3:682-91

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Women in Interventional Cardiology

European Association of Percutaneous Cardiovascular Interventions (EAPCI) Women Committee

- 1787 individuals (60.7% women) responded
- less frequently married (women vs. men, 57.0% vs. 79.8%, $p<0.001$)
- more frequently childless (46.6% vs. 20.5%, $p<0.002$)
- "Why did you choose IC?" passion (83.3% vs. 76.1%, $p=0.12$)
- "Why did you NOT chose IC?" lack of opportunity (29.0% vs. 45.7%)
- Reasons for women NOT choosing IC according to men (on-calls and long working hours 35.3%)

Capranzano et al. Motivations for and barriers to choosing an interventional cardiology career path: results from the EAPCI Women Committee worldwide survey. EuroIntervention 2016;12:53-9

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Strategies for promoting change

- Unsociable working hours
- On-call requirements
- Radiation exposure
- Lack of opportunity
- Prejudice of their male colleagues
- Male-dominated culture with a lack of female role models and mentorship
- Radiation exposure

Di Mario C. Why so few women in interventional cardiology? EuroIntervention 2010;5:883-7.

Capranzano et al. Motivations for and barriers to choosing an interventional cardiology career path: results from the EAPCI Women Committee worldwide survey. EuroIntervention 2016;12:53-9

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Folie 13

SPN1

Liebe Njomeza, das wird ein super Vortrag und Du kannst damit sicher einen wichtigen Beitrag leisten!!

Susuri Pfammatter, Njomeza; 06.11.2019

SPN2

Ich würde an dieser Stelle sehr gut betonen, dass Frauen in der interventionellen Kardiologie kein "Luxus" sind um pro forma eine "Gleichberechtigung" erzeugt wird ,sondern dass es vielmehr eine Notwendigkeit ist! Dass damit die Versorgungsqualität von Frauen, aber auch die Qualität der ganzen Teamarbeit nachweislich verbessert wird. Also den Bogen schlagen von der Unterdiagnose/Untertherapie der weiblichen Patienten DURCH zu wenige weibliche Ärztinnen und dass man auf diesem Wege die Versorgung wesentlich verbessern könnte!

Susuri Pfammatter, Njomeza; 06.11.2019

SPN3

Alles alles Liebe! :)

Susuri Pfammatter, Njomeza; 06.11.2019

Pregnancy and radiation exposure ??

- Australia and USA → continue to work in the laboratory (exposure to the fetus is almost nonexistent)
- CH → Radiation dose not exceeds 1-2mSv throughout pregnancy
- congenital malformation estimated ~ 0.07% in the general population
0.079% if the mother radiation exposure is 0.5-1 mSv

Best PJM, Skelding KA, Mehran R, et al. SCAI consensus document on occupational radiation exposure to the pregnant cardiologist and technical personnel. *EuroIntervention* 2011;6:866-74

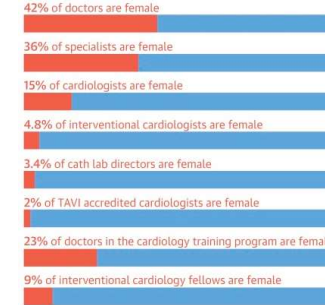
McCollough et al. Radiation exposure and pregnancy: When should we be concerned? *Radiographics* 2007;27:909-917;discussion 917-018

Brent RL. Saving lives and changing family histories: Appropriate counseling of pregnant women and men and women of reproductive age, concerning the risk of diagnostic radiation exposures during and before pregnancy. *Am J Obstet Gynecol* 2009;200:4-24.

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Women in Interventional Cardiology

Gender distribution in the medical workforce:



89% of female interventional cardiologists operate at a site as the sole female interventional cardiologist



73% of public hospitals have no female interventional cardiologists



In Australia 3/8 states have no female interventional cardiologist



In Australia, on average, female cardiologists earn 55% of what male cardiologists earn

Burgess et al. *J Am Coll Cardiol*. 2018;72(21):2663.7

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Fellows-in-Training

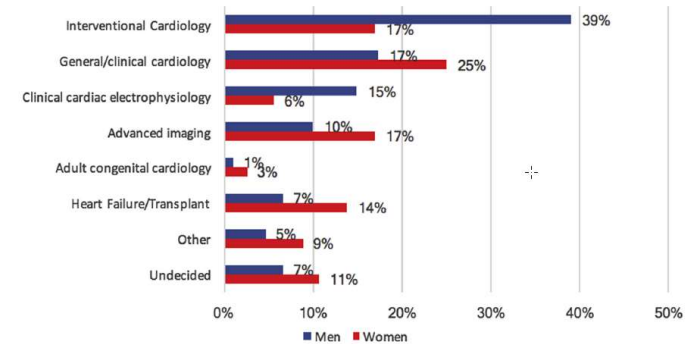
- urology, neurosurgery, and cardiothoracic surgery have seen more than a **doubling** of their female trainees
- 13% of general cardiologists and 7% of interventional cardiologists consisting of women
- 4.5% of practicing interventional cardiologists are women (USA)

Darves B. Women Physicians in the Specialties: Making Gains. *NEJM Career Center*. September 19, 2012. <http://www.nejm.org/article/women-physicians-in-the-specialtiesmaking-gains/>. Accessed May 1, 2018

AAMC. 2016 Physician Specialty Data Report. Available at: <https://www.aamc.org/data/workforce/reports/457712/2016-specialty-databook.html>. Accessed September 11, 2018.

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Subspecialty Interests



Yong et al., Sex Differences in the Pursuit of Interventional Cardiology as a Subspecialty Among Cardiovascular Fellows-in-Training *JACC Cardiovasc Interv*. 2019 Feb 11;12(3):219-228. doi: 10.1016/j.jcin.2018.09.036. Epub 2019 Jan 16

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Fellows-in-Training

- Female IC fellows were significantly more likely to **not** have children (78% women vs. 58% men; $p=0.06$)
- IC fellows were much more likely to have a spouse who does **not** work (31% IC vs. 13% non-IC; $p < 0.001$)

when the IC fellows with a non-working spouse were disaggregated by sex, this revealed that all of them were men
→ no female IC fellows with a nonworking spouse

Yong et al., Sex Differences in the Pursuit of Interventional Cardiology as a Subspecialty Among Cardiovascular Fellows-in-Training
[JACC Cardiovasc Interv.](#) 2019 Feb 11;12(3):219-228. doi: 10.1016/j.jcin.2018.09.036. Epub 2019 Jan 16

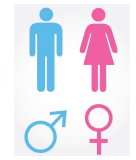
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Factors Positively Influencing IC Choice

1. Opportunity to perform hands-on procedures
2. Personal interest in the specialty subject area
3. Opportunity for immediate gratification or sense of accomplishment
4. Thrill of treating ill patients in critical situations
5. Having mentors or role models you identify with



Yong et al., Sex Differences in the Pursuit of Interventional Cardiology as a Subspecialty Among Cardiovascular Fellows-in-Training
[JACC Cardiovasc Interv.](#) 2019 Feb 11;12(3):219-228. doi: 10.1016/j.jcin.2018.09.036. Epub 2019 Jan 16

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Factors Positively Influencing IC Choice Disaggregated by sex

Innovation in the field	Having a female mentor or role model
Importance being an expert	
Employment after completion of training	
Financial advantaged and prestige	



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Key messages I

- Sex-related differences exist in symptoms of ischemia and MI presentation
- Especially young women have increased rates of non-traditional risk factors and deserve special attention
- Ongoing and future initiatives will help to raise awareness, close the gap in sex-specific clinical evidence and optimized treatment in women and men with heart disease

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Key messages II

Having a female mentor or role model

Lack of opportunity

Improving gender equality → improve cardiovascular disease outcomes in women

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