

Effect of compression stockings on nausea and vomiting in early pregnancy

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Aus: A randomized crossover trial on the effect of compression stockings on nausea and vomiting in early pregnancy. Mendoza E, Amsler F. Int J Womens Health. 2017;9:89-99

Conflict of Interest Statement

Materials and statistics for the study was supported by Sigvaris

Background

Nausea and Vomiting in Pregnancy (NVP)

- 50–80 % of pregnant women suffer from NVP¹.
- NVP has a negative repercussion on QoL²
- Up to now, no proper therapy has been found. Some medicaments claim an effect, but pregnant women prefer not to take drugs.

1: NVP=nausea and vomiting in early pregnancy
2: Quality of Life

How did the idea of testing compression against nausea and vomiting come into my mind...?



- During the pregnancy of my daughter:
 - I had nearly no NVP during the working time.
 - At the weekend the symptoms were worse...?
- Reason....? .

At the weekend I used
not to wear
compression!!

Effect also on other ladies...



- I started asking patients in first pregnancy weeks whom I prescribed compression for oedema or thrombosis

They had also a relieve in
NVP

Possible reasons for NVP

(Nausea and Vomiting in Pregnancy)

- **hCG** (human chorionic gonadotropin) is highest in the first Trimestre. Higher CG concentrations correlate with more NVP
- Hormones in pregnancy (gestagen) lessen the efficacy of smooth muscles, like those in the oesophagus, stomach and intestines, which could be the reason for NVP.
- NVP could stimulate the lady to be more conscious of herself... So protecting the newborn.
- NVP correlates with less death-born children and higher birth weight.

Possible modes of action of compression in early pregnancy

- In the first trimester of pregnancy blood volume is increased (1 litre) and a reduced (relative) Haemoglobin is the consequence: 12-16 g/% to 10-12 g/%
- The vein wall also suffers relaxation from the gestagens.
- Compression reduces the calf vein filling, thus keeping the circulating blood volume higher – brain and possibly digestive organs could benefit from this.

Intensity and development of Nausea during pregnancy

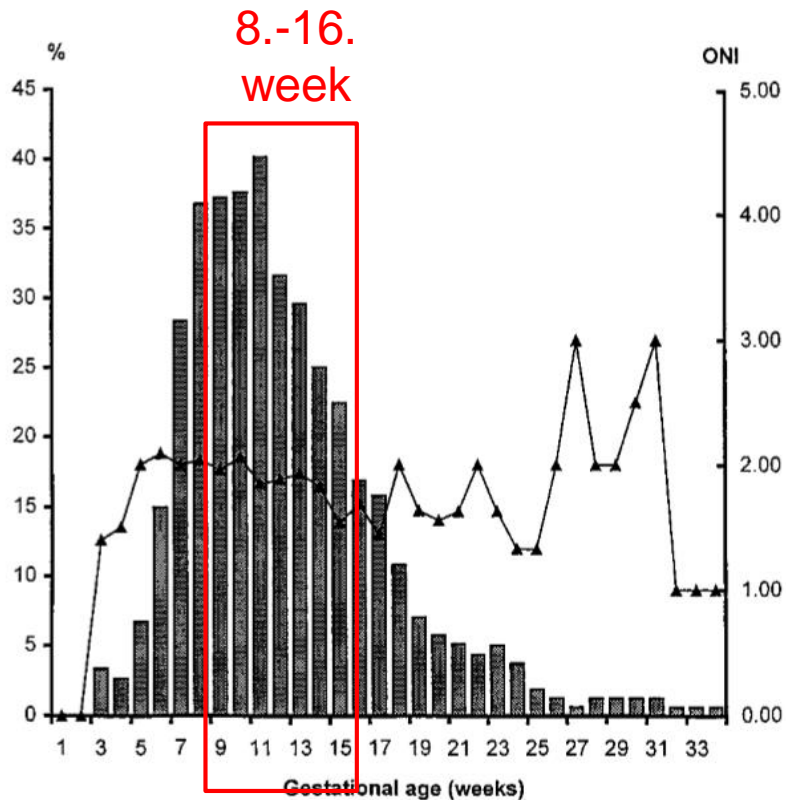


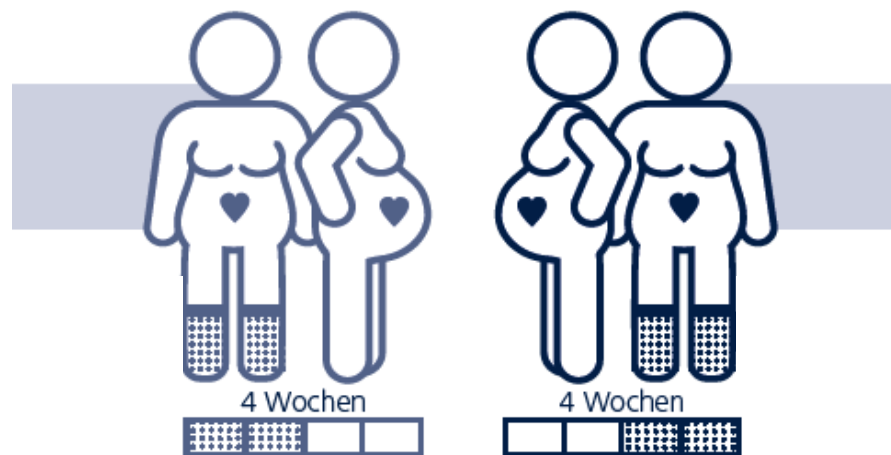
Fig 3. Percentage of women with nausea (*shaded bars*) and intensity of nausea (overall nausea index [ONI]) (*filled triangles*).

Percentage of women with nausea (Shaded bars) and intensity of nausea index (triangles)

Lacroix R, Eason E, Melzack R.
Nausea and vomiting during pregnancy: A prospective study of its frequency, intensity, and patterns of change.
Am J Obstet Gynecol. 2000;182(4):931-937.

Study-design

- ▶ As intensity of symptoms decreases with the pregnancy weeks
 - Parallel design with verum and controls
 - Crossover Design
- ▶ Same woman wears 2 weeks compression and 2 weeks not. The order (compression first phase, compression second phase) was randomized.



Study design

Aims

- Analysis of the effect of compression on:
 - NVP and dizziness, as well as
 - Leg related QoL
 - Tiredness
- between 8. and 16. week of pregnancy

Participants

- Pregnant women > 18 years with mild or median NVP
- Randomized: n=74 women
- Final evaluation: n=58 women

Study design

Exclusion criteria

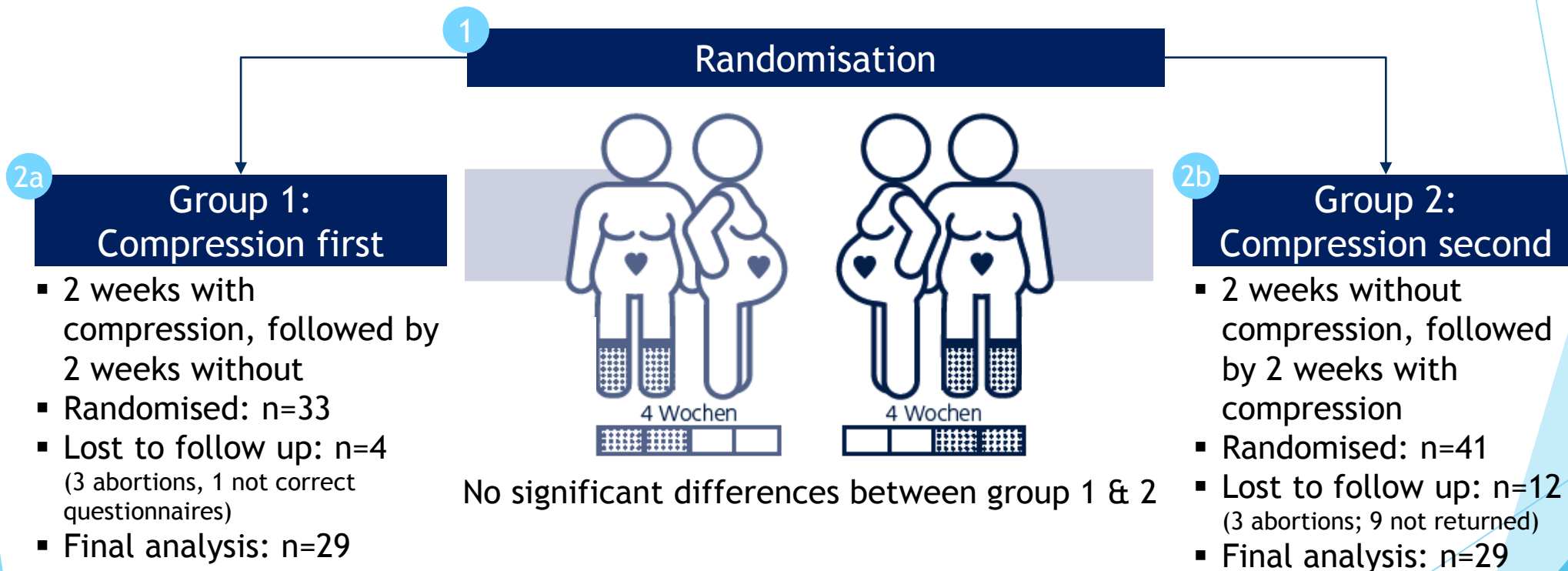
- Severe NVP
- Signs of CVI, PTS, Oedema
- No arterial pulse
- Measures of the calf needing custom-made stockings
- Already wearing compression
- No good German knowledge

Study design

Stockings

- Sigvaris Cotton (A-D) CCL 2
- 2 pairs of compression stockings for the 2 weeks „with compression“

Study design



Study design

Investigation

- Anamnesis, physical examination
- Oedema? Previous Thrombosis? Varicose Veins?
 - **Exclusion from the Study**
- PPG and Ultrasound

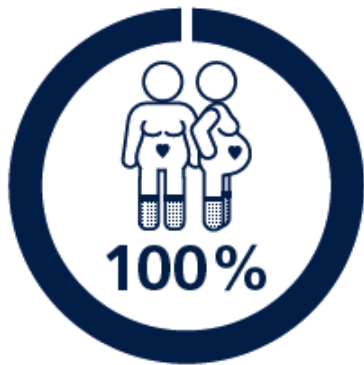
Questionnaires

- Day 0, Crossover Day (day 14) and final day (day 28)
- Evaluated Questionnaires: QoL in early pregnancy (NVPQoL) and CIVIQ,
- PUQE (daily Questionnaire)

Study design

NVP QoL	<ul style="list-style-type: none">▪ 30 questions concerning nausea and vomiting, psychological and physical complaints in early pregnancy.▪ Validated in studies.
CIVIQ	<ul style="list-style-type: none">▪ 20 questions related to leg symptoms, as oedema, itching, pain, and their repercussions on social life, psychological complaints.
Dizziness	<ul style="list-style-type: none">▪ 4 additional questions concerning dizziness and tiredness, not validated.

Results at one sight



Compliance



Would you recommend
compression during
pregnancy?

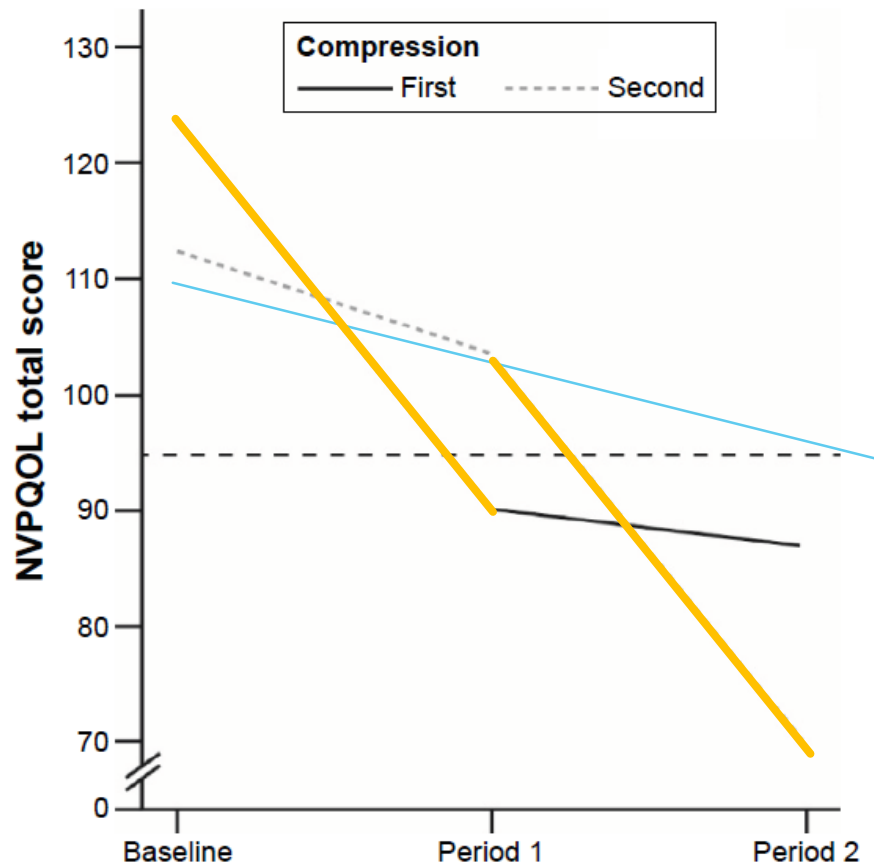


Significantly less
nausea and
Vomiting



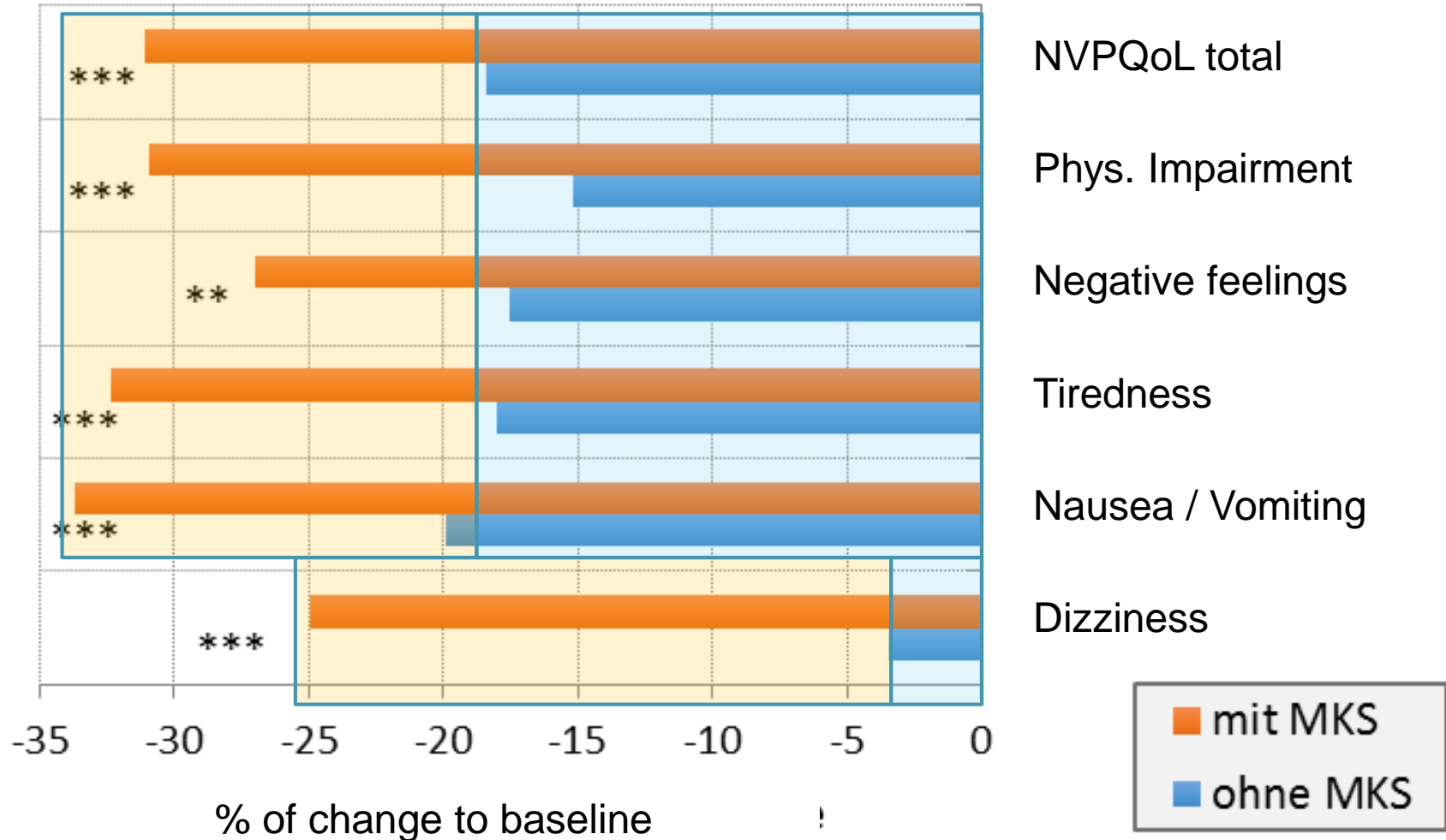
Less leg pain, less
psychol. and phys.
complaints

Significantly less NVP with compression



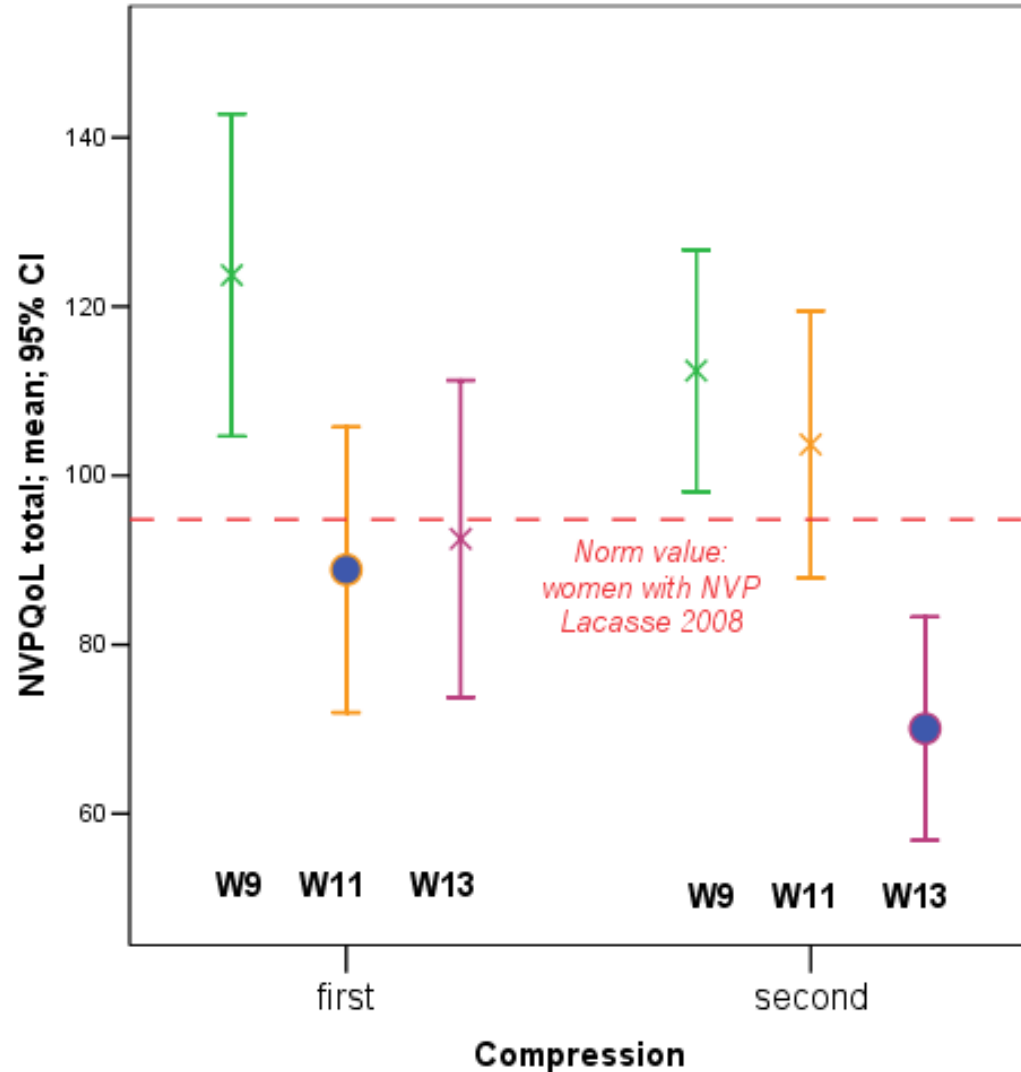
- Usually these symptoms get continuously reduced in the weeks 12. to 20. of pregnancy (blue line)
- Without compression reduction as expected normally.
- With compression stronger reduction than expected normally. (Orange Linie)
- Dotted line: Mean value vor NVP from literature (Lacasse et al 2008)

Nausea and Vomiting (NVPQoL)



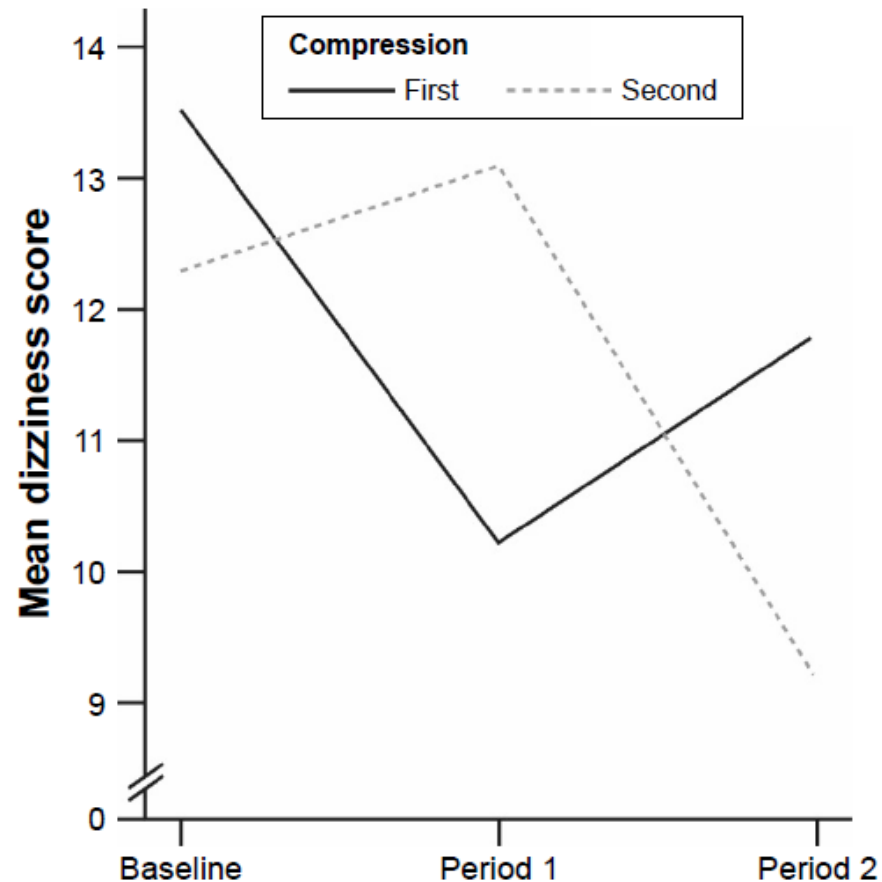
Quelle: A randomized crossover trial on the effect of compression stockings in nausea and vomiting in early pregnancy. Mendoza E, Amsler F. Int J Womens Health. 2017;9:89-99.

Comparison with published Data



- Compared to publications (Lacasse 2008) the NVP QoL was worse at the beginning (green)
- During the first 2 weeks, both reduced their value (Organe line) but with compression more than without.

Significant changes concerning dizziness with compression

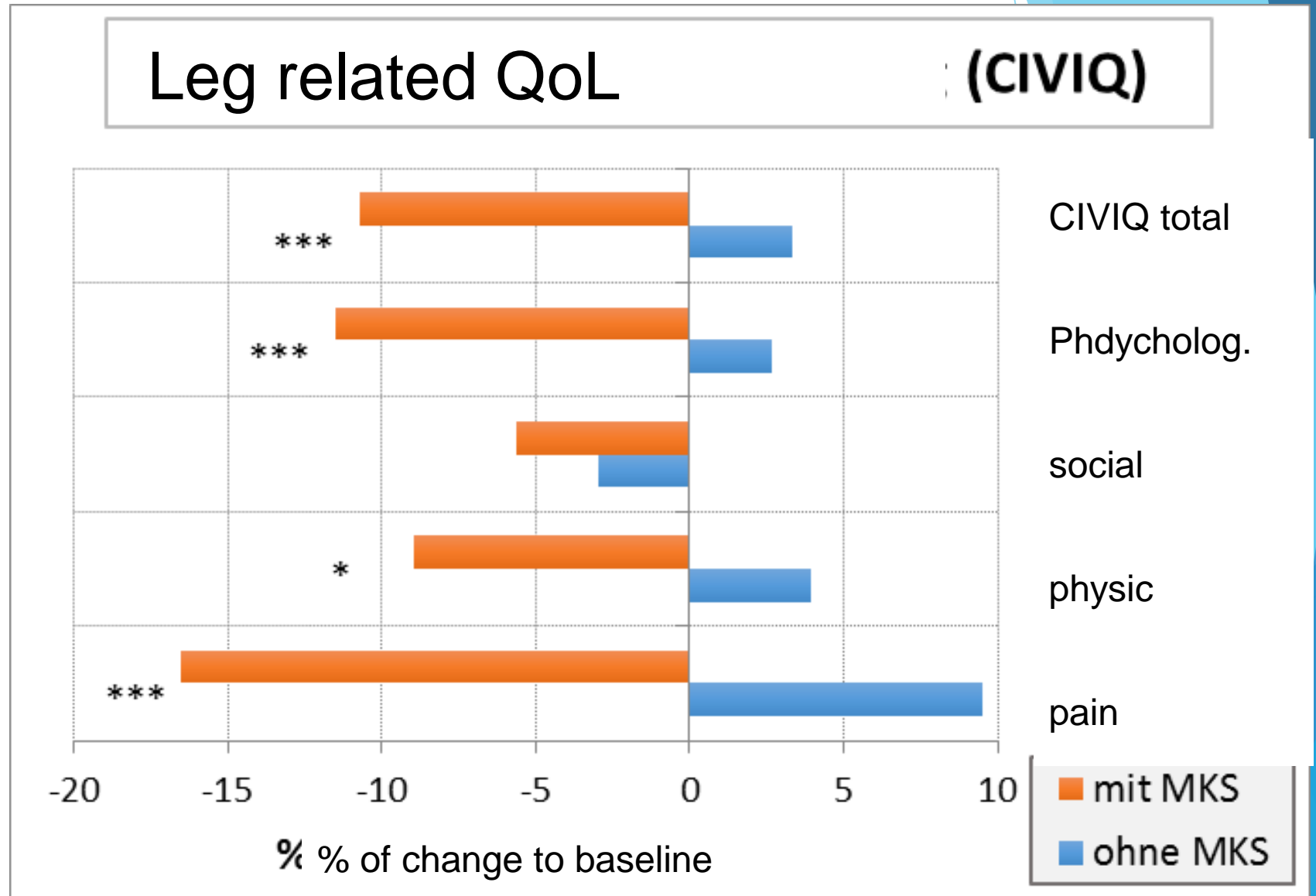


- No „standard“ values for dizziness in pregnancy
- Under compression clear improvement
- Without compression worsening of the values.
- Change to baseline:
 - with compression -3.22 points
 - Without compression $+0.44$ points

CIVIQ

Reduction of leg related symptoms under compression.

These are not known to change during the first weeks of pregnancy (Allegra, 2014)



Comparison between the effect of stockings and medicaments against nausea

Equal?

- A study on the effect of Doxylamin succinate (10 mg) and Pyridoxin hydrochloride (10 mg) against NVP resulted in less QoL Reduction than stockings in PUQE score. (Antiemeticum approved for pregnancy by the FDA)

Results - Compression in early pregnancy on Nausea and vomiting



Wearing compression in early pregnancy improves significantly:

- Leg related QoL
- Nausea and vomiting
- Dizziness and tiredness get reduced

Further studies should enlighten the mechanisms



Compression stockings could be a non pharmaceutical alternative to relieve symptoms in early pregnancy and improve Quality of Life

Thanks for the invitation to
present these data here

Ich danke Ihnen für Ihre Aufmerksamkeit

Gracias por escuchar

Thanks for listening!

Tante grazie!

Merci!