

## Creams for preventing stretch marks in pregnancy (Review)

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[Intervention Review]

# Creams for preventing stretch marks in pregnancy

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## ABSTRACT

### Background

Striae gravidarum (stretch marks developing during pregnancy) occur in over 50% of women. There is no evidence that any treatment removes striae once they have appeared. Some women are upset about the change in the appearance of their skin.

### Objectives

To assess the effects of topical treatments in preventing the development of stretch marks.

### Search methods

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (April 2004). We updated this search on 1 October 2009 and added the results to the awaiting classification section.

### Selection criteria

Randomised trials comparing active creams with either no treatment or placebo for the treatment of stretch marks in pregnant women.

### Data collection and analysis

Two review authors assessed trial quality and extracted data independently.

### Main results

Two studies, involving 130 women in total, were included.

One study, involving 80 women, indicated that, compared to placebo, massage with a cream (Trofolastin) containing Centella asiatica extract, alpha tocopherol and collagen-elastin hydrolysates was associated with less women developing stretch marks (odds ratio (OR) 0.41, 95% confidence interval (CI) 0.17 to 0.99). A second study of 50 women compared massage using an ointment (Verum) containing tocopherol, panthenol, hyaluronic acid, elastin and menthol with no treatment. Massage with the ointment was associated with less women developing stretch marks (OR 0.26, 95% CI 0.08 to 0.84)

### Authors' conclusions

Trofolastin cream appears to help prevent the development of stretch marks in pregnancy in some women. Verum ointment may be helpful but the trial had no placebo and may show the benefit of massage alone.

[Note: The three citations in the awaiting classification section of the review may alter the conclusions of the review once assessed.]

## PLAIN LANGUAGE SUMMARY

### Creams for preventing stretch marks in pregnancy

Stretch marks may be prevented in some women by daily massage but it is unclear if any particular ingredients bring special benefit.

Stretch marks are common by the end of pregnancy, occurring in most women. Though they later shrink and fade somewhat, they do not go away. Therefore, any treatment which prevented them would be welcomed by many women. The two papers reviewed may show that any cream massaged onto the abdomen, thighs and breasts (areas most affected by stretch marks) may help a little. There may be additional benefit from certain ingredients in the cream and the ointment described but it is unknown which constituent(s) is beneficial. Neither preparation is widely available.

## BACKGROUND

Many women (between 50% and 80% are reported) develop stretch marks (striae gravidarum) during pregnancy. A number of creams have been claimed to remove these stretch marks once they have developed but there is no reliable evidence to support such claims. Any topical treatment which could prevent the development of striae would be welcomed by many women.

### Types of interventions

Active cream (Trofolastin), containing Centella asiatica extract, alpha tocopherol and collagen-elastin hydrolysates applied daily until labour, compared with placebo.

Active ointment (Verum), containing tocopherol, essential fatty acids, panthenol, hyaluronic acid, elastin and menthol, compared with no treatment.

## OBJECTIVES

To assess the effects of topical treatments applied during pregnancy on the later development of stretch marks.

### Types of outcome measures

The presence of stretch marks was as assessed at inclusion into the study and soon after childbirth.

## METHODS

### Criteria for considering studies for this review

#### Types of studies

All randomised trials comparing active creams with placebo or with no treatment.

#### Types of participants

Pregnant women presenting up to 20 weeks' gestation.

### Search methods for identification of studies

#### Electronic searches

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (April 2004). We updated this search on 1 October 2009 and added the results to Studies awaiting classification.

The Cochrane Pregnancy and Childbirth Group's Trials Register is maintained by the Trials Search Co-ordinator and contains trials identified from:

1. quarterly searches of the Cochrane Central Register of Controlled Trials (CENTRAL);
2. weekly searches of MEDLINE;

3. handsearches of 30 journals and the proceedings of major conferences;

4. weekly current awareness alerts for a further 44 journals plus monthly BioMed Central email alerts.

Details of the search strategies for CENTRAL and MEDLINE, the list of handsearched journals and conference proceedings, and the list of journals reviewed via the current awareness service can be found in the 'Specialized Register' section within the editorial information about the [Cochrane Pregnancy and Childbirth Group](#).

Trials identified through the searching activities described above are each assigned to a review topic (or topics). The Trials Search Co-ordinator searches the register for each review using the topic list rather than keywords.

We did not apply any language restrictions.

### Data collection and analysis

We evaluated trials under consideration for methodological quality and appropriateness for inclusion, without consideration of their results. We processed trial data as described in [Clarke 2000](#).

## RESULTS

### Description of studies

See: [Characteristics of included studies](#); [Characteristics of excluded studies](#).

See table of [Characteristics of included studies](#).

### Risk of bias in included studies

The only placebo controlled trial ([Mallol 1991](#)) included in this review was randomised but the method is not described. However, serious attempts were made to blind both participants and assessors: the two creams were made to look, feel and smell the same. The study using Verum ointment ([Wierrani 1992](#)) was poorly randomised using alternate day allocation and used no placebo ointment for the controls rendering blinding impossible.

### Effects of interventions

Two studies, involving 130 women in total, were included. (Two reports from an updated search in October 2009 have been added to Studies awaiting classification.)

Overall 56% of the placebo group developed stretch marks during pregnancy compared with 34% in the active Trofolastin treatment group. However, in women with stretch marks from a previous pregnancy, there was no evidence of benefit. Interestingly,

the greatest benefit was to women who had previously developed stretch marks during puberty. No explanation is offered for this finding. In the second study, 62% of untreated women developed stretch marks compared with 26% in the active Verum group. This difference appears very striking but the trial was poorly randomised and the control group received no massage of any kind. Obese women tended to develop stretch marks even given the ointment.

## DISCUSSION

Stretch marks are not an illness but many women are upset by the appearance of such marks during pregnancy. There is no treatment for them once they have developed. The one placebo controlled trial described does indicate that some women and especially those who developed stretch marks in puberty may be able to avoid getting further marks in pregnancy. One trial of ointment versus no treatment showed benefit but it is possible that massage alone might have produced part if not all of this result. In this second study obese women did not seem to benefit from the ointment used.

## AUTHORS' CONCLUSIONS

### Implications for practice

The active creams in the studies described are not widely available. It is not clear which, if any, particular ingredient is helpful. No adverse effects are reported. It is possible that women who developed stretch marks in puberty may benefit most, though surprisingly, women who developed stretch marks in a previous pregnancy gained no benefit. Obese women may not be helped by massage. There is a suggestion from the combined results that massage itself with any emollient cream may bring slight benefit.

### Implications for research

Given the high possibility (probably over 50%) of any woman developing stretch marks by the end of her pregnancy, it is surprising that there are only two published randomised trials of preventive topical treatment and only one of these used a placebo control. Larger studies looking at individual ingredients would be helpful also examining particular groups of women to see if any such groups gain particular benefit. A trial of simple emollient cream versus no treatment might show whether massage on its own is helpful as even this is unclear.

[Note: The three citations in the awaiting classification section of the review may alter the conclusions of the review once assessed.]

## ACKNOWLEDGEMENTS

None.

## REFERENCES

### References to studies included in this review

#### Mallol 1991 *{published data only}*

Belda MA, Costa D, Noval A, Sola M, Mallol J. Prophylaxis of striae gravidarum with a topical formulation - a double blind study. Proceedings of 22nd International Congress of Confederation of Midwives; 1991 October 7-12; Kobe, Japan. 1991.

Mallol J, Belda MA, Costa D, Noval A, Sola M. Prophylaxis of striae gravidarum with a topical formulation. A double blind trial. *International Journal of Cosmetic Science* 1991;**3**: 51-7.

#### Wierrani 1992 *{published data only}*

Wierrani F, Kozak W, Schramm W, Grunberger W. Attempt of preventive treatment of striae gravidarum using preventive massage ointment administration. *Wiener Klinische Wochenschrift* 1992;**104**:42-4.

### References to studies excluded from this review

#### Martius 1973 *{published data only}*

Martius G. Prevention of striae gravidarum. *Medizinische Welt* 1973;**24**:799-800.

#### Puder 1965 *{published data only}*

Puder H. Treatment of striae gravidarum. *Medizinische Welt* 1965;**16**:650-3.

### References to studies awaiting assessment

#### de-Buman 1987 *{published data only}*

de-Buman M, Walther M, de-Weck R. Effectiveness of Alphastria cream in the prevention of pregnancy stretch

marks (striae distensae). Results of a double-blind study. *Gynakologische Rundschau* 1987;**27**:79-84.

#### Osman 2008 *{published data only}*

Osman H. Cocoa butter for prevention of stretch marks. ClinicalTrials.gov (<http://clinicaltrials.gov/>) (accessed 21 March 2006) 2006.  
Osman H, Usta IM, Rubeiz N, Abu-Rustum R, Charara I, Nassar AH. Cocoa butter lotion for prevention of striae gravidarum: a double-blind, randomised and placebo-controlled trial. *BJOG: an international journal of obstetrics and gynaecology* 2008;**115**(9):1138-42.

### Additional references

#### Clarke 2000

Clarke M, Oxman AD, editors. Cochrane Reviewers' Handbook 4.2 [updated February 2003]. In: The Cochrane Library [database on CDROM]. The Cochrane Collaboration. Oxford: Update Software; 2003, Issue 2.

### References to other published versions of this review

#### Young 1995

Young GL. A cream to prevent striae gravidarum. [revised 12 May 1993] In: Enkin MW, Keirse MJNC, Renfrew MJ, Neilson JP, Crowther C (eds.) Pregnancy and Childbirth Module. In: The Cochrane Pregnancy and Childbirth Database [database on disk and CDROM] The Cochrane Collaboration; Issue 2, Oxford: Update Software, 1995.

\* Indicates the major publication for the study

## CHARACTERISTICS OF STUDIES

### Characteristics of included studies [ordered by study ID]

#### Mallol 1991

|               |  |
|---------------|--|
| Methods       | Method of randomisation not defined but placebo cream was identical in colour, odour and texture. Allocation codes were not opened until the study was completed                       |
| Participants  | 80 women first attending for antenatal consultation in Barcelona before 13 weeks   |
| Interventions | Active cream (Trofolastin) (41) containing Centella asiatica extract and tocopherol and collagen - elastin hydrolysates vs placebo (39) applied daily from 12 weeks to onset of labour |
| Outcomes      | Development of stretch marks.  |
| Notes         |  |

#### *Risk of bias*

| Item                    | Authors' judgement | Description  |
|-------------------------|--------------------|--------------|
| Allocation concealment? | Yes                | A - Adequate |

#### Wierrani 1992

|               |  |
|---------------|--|
| Methods       | Randomisation was by date. Women enrolled on even dates were given no treatment; those enrolled on odd dates were given ointment to massage onto their abdomens, thighs and breasts (frequency unstated) |
| Participants  | 50 women aged 18-35 years attending an antenatal clinic in Vienna at 20 weeks' gestation   |
| Interventions | The ointment contained: Vitamin E, essential fatty acids, panthenol, hyaluronic acid, elastin and menthol. This was given to 24 women. 26 women were given no treatment                                  |
| Outcomes      | Development of stretch marks.  |
| Notes         |  |

#### *Risk of bias*

| Item                    | Authors' judgement | Description    |
|-------------------------|--------------------|----------------|
| Allocation concealment? | No                 | C - Inadequate |

vs: versus

### Characteristics of excluded studies *[ordered by study ID]*

| Study        | Reason for exclusion  |
|--------------|---|
| Martius 1973 | Not stated whether this study was randomised. Both review authors believe it was not and attempts to contact the author have failed |
| Puder 1965   | Not randomised.   |



## DATA AND ANALYSES

### Comparison 1. Trofolastin cream versus placebo to prevent stretch marks

| Outcome or subgroup title                      | No. of studies | No. of participants | Statistical method                    | Effect size       |
|--|----------------|---------------------|---------------------------------------|-------------------|
| <a href="#">1 Development of stretch marks</a> | 1              | 80                  | Peto Odds Ratio (Peto, Fixed, 95% CI) | 0.41 [0.17, 0.99] |

### Comparison 2. Verum ointment versus no treatment to prevent stretch marks

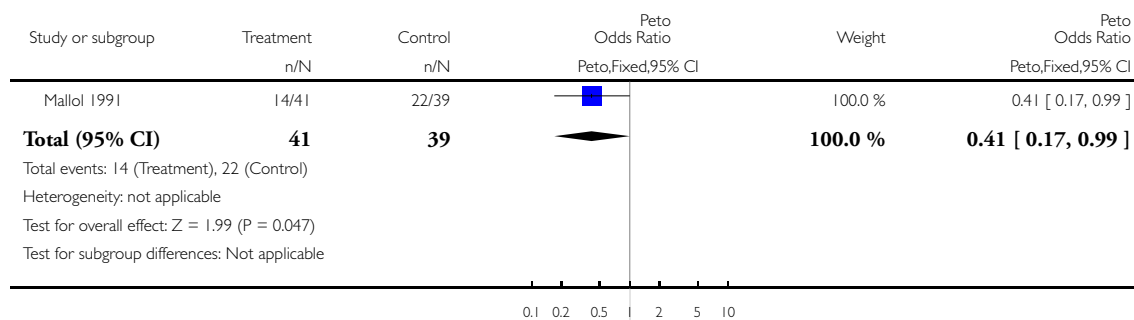
| Outcome or subgroup title                      | No. of studies | No. of participants | Statistical method              | Effect size       |
|--|----------------|---------------------|---------------------------------|-------------------|
| <a href="#">1 Development of stretch marks</a> | 1              | 50                  | Odds Ratio (M-H, Fixed, 95% CI) | 0.26 [0.08, 0.84] |

#### Analysis 1.1. Comparison 1 Trofolastin cream versus placebo to prevent stretch marks, Outcome 1 Development of stretch marks.

Review: Creams for preventing stretch marks in pregnancy

Comparison: 1 Trofolastin cream versus placebo to prevent stretch marks

Outcome: 1 Development of stretch marks

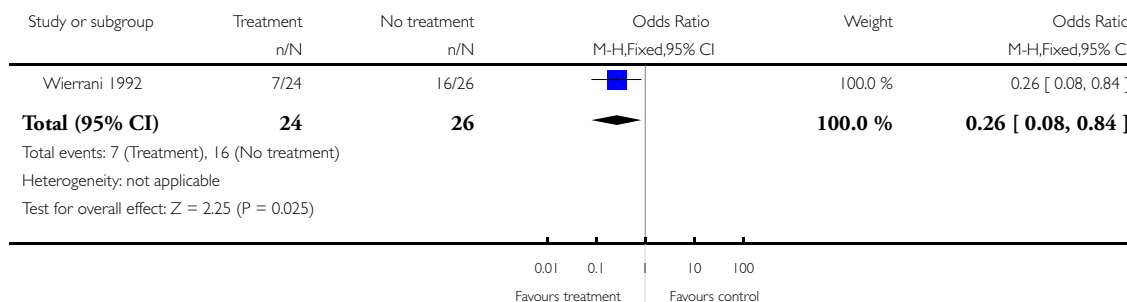


## Analysis 2.1. Comparison 2 Verum ointment versus no treatment to prevent stretch marks, Outcome 1 Development of stretch marks.

Review: Creams for preventing stretch marks in pregnancy

Comparison: 2 Verum ointment versus no treatment to prevent stretch marks

Outcome: 1 Development of stretch marks



## WHAT'S NEW

Last assessed as up-to-date: 29 April 2004.

| Date           | Event   | Description  |
|----------------|---------|--|
| 1 October 2009 | Amended | Search updated. Two reports added to Studies awaiting classification ( <a href="#">Osman 2008</a> ). |

## HISTORY

Protocol first published: Issue 2, 1996

Review first published: Issue 2, 1996

| Date             | Event                         | Description   |
|------------------|-------------------------------|---|
| 1 September 2008 | Amended                       | Converted to new review format.   |
| 30 April 2004    | New search has been performed | Search updated. A second study ( <a href="#">Wierrani 1992</a> ) has been reviewed. This compares massage using an ointment containing several possibly active ingredients with no treatment. |

## **CONTRIBUTIONS OF AUTHORS**

Both review authors contributed to the development of the review and its update.

## **DECLARATIONS OF INTEREST**

None known.

## **INDEX TERMS**

### **Medical Subject Headings (MeSH)**

\*Cosmetics; \*Ointments; \*Skin

### **MeSH check words**

Female; Humans; Pregnancy