# RESEARCH

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## Enoxaparin versus unfractionated heparin during percutaneous coronary intervention

Johanne Silvain and colleagues' meta-analysis of randomised and non-randomised studies compared enoxaparin with unfractionated heparin in patients undergoing percutaneous coronary intervention (PCI), looking at mortality (efficacy end point) and at major bleeding (safety end point) (p 16). In most of the included studies participants were followed up in hospital or at 30 days. In nearly 31 000 patients enoxaparin was associated with a 34% relative risk reduction in mortality (0.66, 95% confidence interval 0.58 to 0.77; P<0.001) and a 1.66% absolute risk reduction of mortality (number needed to treat=60), particularly in patients who had had ST elevation myocardial infarction.

DR P MARAZZI/SPL

In a linked editorial, interventional cardiologist Stefan James discusses whether and how much this meta-analysis adds to what we already know from the individual trials (p 9). He concludes that the paper and "the low cost of enoxaparin provide sufficient evidence that enoxaparin is an attractive alternative to unfractionated heparin and should be considered for treatment of patients undergoing PCI in general, and primary PCI in particular."

We fast tracked this paper's peer review at the authors' request, publishing it within a month of submission. We wanted to ensure that the evidence would be available in time to be included in the 2012 European guidelines on the management of ST elevation myocardial infarction. Supportive rapid responses (http://bit.ly/wtmmwp), and more than 4600 downloads in the first 10 days after publication confirm that this is an important and timely paper. For more information about the *BMJ*'s fast track peer review for research of exceptional clinical or public health importance please see www.bmj.com/about-bmj/resources-authors/fast-track-publication.

## Where do the numbers in the papers come from?

Up to a third of health stories come solely or largely from press releases. This puts some onus on those writing press releases to ensure accuracy, if clear communication is to be achieved. But how good are press releases? Do they convey the essential numbers that doctors and scientists consider necessary to weigh up a study? More importantly, are health stories written from press releases more scientifically accurate than those written without one?

Lisa Schwartz and colleagues investigated (p 19). They analysed consecutive research papers from specific medical journals that generated press coverage. They rated the quality of the health stories by measuring to what extent they covered the basic study facts, the main result, harms, and limitations. They compared the quality of health stories that had a press release with those that did not. Their results showed that high quality press releases were associated with better reporting.

What does the study mean? Even if stories contained all the right information, do most lay readers understand study designs and their associated statistics? The general public are used to numbers in sports and political stories, so Schwartz and colleagues think they deserve a chance. With high quality press releases, perhaps it is now for science and health reporters to work out how best to explain studies for their readers.

## RESEARCH ONLINE: For these and other new research articles see www.bmj.com/research

**Acute cannabis consumption and motor vehicle collision risk** According to Mark Asbridge and colleagues' systematic review and meta-analysis, acute cannabis consumption increases the risk of a collision resulting in serious injury or death; this increase was most evident for studies of high quality, case-control studies, and studies of fatal collisions. The influence of cannabis use on the risk of minor collisions remained unclear (doi:10.1136/bmj.e536).

**Drugs for relief of pain in patients with sciatica** A systematic review and meta-analysis by Rafael Zambelli Pinto and colleagues found only low quality evidence to judge the efficacy and tolerability of drugs commonly prescribed for the management of sciatica in primary care. The available evidence did not clearly show favourable effects of NSAIDs, corticosteroids, antidepressants, or opioid analgesics in the immediate term, even compared with placebo. There was limited support for NSAIDs and corticosteroids to relieve pain in the short term in patients with acute sciatica (doi:10.1136/bmj.e497).

**Health symptoms during midlife in relation to menopausal transitio**n Gita Mishra and Diana Kuh aimed to characterise symptoms experienced by British women during the transition into natural menopause, to classify women into distinct symptom profiles or trajectories, and to relate these profiles to sociodemographic factors and health behaviours. They say that profiles for psychological, vasomotor, and sexual discomfort symptoms relative to age at menopause could help health professionals to tailor their advice for women with natural menopause (doi:10.1136/bmj.e402).

CME

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# Efficacy and safety of enoxaparin versus unfractionated heparin during percutaneous coronary intervention: systematic review and meta-analysis

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FAST TRACK

EDITORIAL by James

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**STUDY QUESTION** What are the differences in mortality and safety outcomes between enoxaparin and unfractionated heparin during percutaneous coronary intervention?

**SUMMARY ANSWER** Enoxaparin seemed superior to unfractionated heparin in reducing mortality and bleeding outcomes during percutaneous coronary intervention, particularly in patients undergoing primary percutaneous coronary intervention for ST elevation myocardial infarction.

**WHAT IS ALREADY KNOWN ON THIS TOPIC** In randomised studies, intravenous enoxaparin 0.5 mg/kg was superior to unfractionated heparin during elective percutaneous coronary intervention (reduction of bleeding) and primary percutaneous coronary intervention (reduction of ischaemic events). In this meta-analysis enoxaparin was associated with a 34% reduction in mortality (absolute risk reduction 1.66%) compared with unfractionated heparin during percutaneous coronary intervention, particularly in patients undergoing primary percutaneous coronary intervention for ST elevation myocardial infarction, with benefit driven by effects on both ischaemic and bleeding complications.

### Selection criteria for studies

Two reviewers independently searched Medline and the Cochrane database of systematic reviews (January 1996 to May 2011) for randomised and non-randomised studies comparing enoxaparin with unfractionated heparin in patients undergoing percutaneous coronary intervention. Studies must have reported both mortality and major bleeding outcomes.

### Data extraction

Two reviewers independently extracted and analysed data on sample size, characteristics, and outcomes.

### Primary outcomes

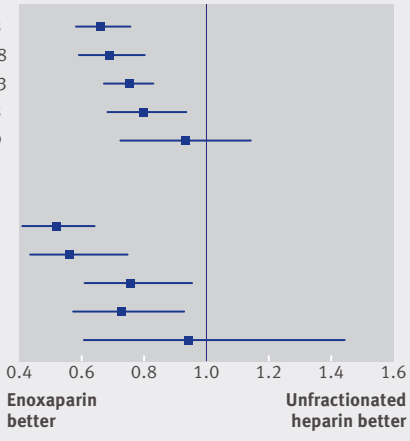
Mortality (efficacy end point) and major bleeding (safety end point).

### Main results and role of chance

Twenty three trials representing 30 966 patients were identified, including 10 243 patients (33.1%) undergoing primary percutaneous coronary intervention for ST elevation myocardial infarction, 8750 (28.2%) undergoing secondary percutaneous coronary intervention after fibrinolysis, and 11 973 (38.7%) with non-ST elevation acute coronary syndrome or stable patients scheduled for percutaneous coronary intervention. A total of 13 943 patients (45.0%) received enoxaparin and 17 023 (55.0%) unfractionated heparin. Enoxaparin was associated with significant reductions in death (relative risk 0.66, 95% confidence interval 0.57 to 0.76; P<0.001), the composite of death or myocardial infarction (0.68, 0.57 to 0.81; P<0.001), and complications of myocardial infarction (0.75, 0.6 to 0.85; P<0.001), and a reduction in incidence of major bleeding (0.80, 0.68 to 0.95; P=0.009). In patients who underwent primary percutaneous coronary intervention, the reduction in death (0.52, 0.42 to 0.64; P<0.001) was particularly significant and associated with a reduction in major bleeding (0.72, 0.56 to 0.93; P=0.01).

**Pooled event rates and relative risk ratios for major end points in patients undergoing percutaneous coronary intervention (PCI) and in subgroup of patients undergoing primary PCI**

| Study | Number needed to treat | No of events/No in group: Enoxaparin | No of events/No in group: Unfractionated heparin | Relative risk (95% CI) random | P value | Cochran Q for heterogeneity |
|---|---|---|---|---|---|---|
| **All PCIs** | | | | | | |
| Death | 60 | 278/13 943 | 622/17 023 | 0.66 (0.57 to 0.76) | <0.001 | 0.46 |
| Death or myocardial infarction | 50 | 836/11 924 | 1351/14 968 | 0.68 (0.57 to 0.81) | <0.001 | 0.42 |
| Complications of myocardial infarction | 66 | 765/13 943 | 1135/17 023 | 0.75 (0.66 to 0.85) | <0.001 | 0.55 |
| Major bleeding | 83 | 295/13 852 | 564/16 923 | 0.80 (0.68 to 0.95) | 0.009 | 0.58 |
| Minor bleeding | - | 718/13 150 | 793/13 669 | 0.92 (0.74 to 1.14) | 0.45 | 0.21 |
| **Primary PCI for STEMI** | | | | | | |
| Death | 34 | 112/3590 | 401/6653 | 0.52 (0.42 to 0.64) | <0.001 | 0.53 |
| Death or myocardial infarction | 28 | 139/3590 | 499/6653 | 0.56 (0.42 to 0.76) | <0.001 | 0.50 |
| Complications of myocardial infarction | 68 | 96/3590 | 275/6653 | 0.76 (0.60 to 0.96) | 0.022 | 0.80 |
| Major bleeding | 53 | 92/3499 | 298/6553 | 0.72 (0.56 to 0.93) | 0.01 | 0.69 |
| Minor bleeding | - | 138/3216 | 177/4372 | 0.94 (0.60 to 1.47) | 0.78 | 0.56 |




STEMI=ST elevation myocardial infarction

# Physical activity for cancer survivors: meta-analysis of randomised controlled trials

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EDITORIAL by Bourke and colleagues

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## STUDY QUESTION

What are the effects of physical activity on physical functions, physiological parameters, body composition, psychosocial outcomes, and quality of life in adult patients after they have completed their main treatment related to cancer?

## SUMMARY ANSWER

Physical activity was associated with positive effects on physiology, body composition, physical functions, psychological outcomes, and quality of life in breast cancer survivors after cancer treatment. When patients with cancer other than breast cancer were included, physical activity was associated with reduced body mass index (BMI) and body weight, increased peak oxygen consumption and peak power output, and improved quality of life.

## WHAT IS KNOWN AND WHAT THIS PAPER ADDS

Current meta-analyses of the efficacy of physical activity in patients who had completed treatment for cancer might feature increased study heterogeneity because of the mixing of studies with outcomes measured under distinct domains or with different instruments. The current study assessed sources of study heterogeneity and shows that physical activity is associated with important positive effects on physical functions and quality of life, which included physical and social functioning domains, in patients who have completed their cancer treatment.

### Selection criteria for studies

We searched PubMed, CINAHL, and Google Scholar from the earliest possible year through September 2011, as well as references from meta-analyses and reviews identified from Cochrane Library. The studies included were randomised controlled trials that assessed the effects of physical activity on adult cancer survivors who had completed their main cancer treatment, except hormonal therapy.

### Primary outcomes

We extracted data on 48 outcomes covering physical functions, physiological parameters, body composition, psychosocial outcomes, and quality of life.

### Main results and role of chance

We identified 34 randomised controlled trials with at least one common outcome and with sufficient data for inclusion in the meta-analysis. Twenty two trials (65%) focused on patients with breast cancer. We considered 48 outcomes in our meta-analysis. A total of 22 studies assessed aerobic exercise, and four additionally had resistance or strength training. The median duration of physical activity was 13 weeks (range 3-60). Only 13 studies stated the intensity level of physical activity; 11 were of moderate intensity and two were of vigorous intensity. Most control groups were considered sedentary or were assigned no exercise. We used the Scottish Intercollegiate Guidelines Network checklist to assess the quality of the methods. Quality was strongly and positively associated with sample size. In studies in people who had completed their treatment for cancer, physical activity was associated with improvements in insulin-like growth factor I, bench press, leg press, fatigue, depression, and quality of life. After combining studies on different types of cancer, we found significant improvements in BMI, body weight, peak oxygen consumption, peak power output, distance walked in six minutes, right handgrip strength, and quality of life. Those with improvements that also exceeded the corresponding minimal clinically important differences are shown in the table. Sources of study heterogeneity included age, study quality, study size, and type and duration of physical activity. Publication bias did not alter our conclusions.

**Clinically and statistically significant pooled effects of physical activity after treatment for cancer**

| Outcomes (units or plausible ranges) | Pooled estimate (95% CI) |
|---|---|
| Peak power output (W) | 21.0 (13.0 to 29.1) |
| Six minute walk (m) | 29 (4 to 55) |
| Functional assessment of cancer therapy: breast total (0-140) | 7.6 (0.6 to 14.5) |
| SF-36: social function (0-100) | 3.4 (0.4 to 6.4) |

### Bias, confounding, and other reasons for caution

Despite our systematic approach, we did not include any unpublished or non-English studies, which could have increased the risk of biased estimates. Most outcomes, however, did not exhibit publication bias; when it was found, it did not influence the conclusions. In addition, the median duration of physical activity interventions in the included studies was only 13 weeks, which would limit the assessment of the long term benefits of physical activity.

### Study funding/potential competing interests

This study was supported by the World Cancer Research Fund International, World Cancer Research Fund UK, and World Cancer Research Fund Hong Kong (grant No 2009/02).

# Systematic review of peer support for breastfeeding continuation: metaregression analysis of the effect of setting, intensity, and timing

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## STUDY QUESTION

What effect do setting, intensity, and timing of peer support have on breastfeeding continuation?

## SUMMARY ANSWER

Although peer support interventions increase breastfeeding continuation in low or middle income countries, especially exclusive breast feeding, this does not seem to apply in high income countries, particularly in the United Kingdom where advice on breast feeding is part of routine postnatal healthcare. Peer support of low intensity does not seem to increase breastfeeding continuation.

## WHAT IS KNOWN AND WHAT THIS PAPER ADDS

Meta-analyses of lay (including peer) support for increasing breastfeeding continuation suggest an effect on both any breast feeding and exclusive breast feeding, but with considerable heterogeneity, which has not previously been investigated. Peer support interventions may not be effective where routine health services to support breast feeding are already established.

### Selection criteria for studies

We identified trials that randomly allocated pregnant or postpartum women to peer support for breast feeding or to usual care by an electronic search without language restrictions of the Cochrane Library, Medline, CINAHL, National Research Register, and British Nursing Index, from inception or 1980 to June 2011. We included studies reporting any or exclusive breast feeding at least four weeks post partum.

### Primary outcomes

Comparisons between intervention and usual care groups by setting, intensity, and timing of peer support.

### Main results and role of chance

We included 15 randomised trials in the analysis. Peer support interventions had a significantly greater effect on any breast feeding in low or middle than in high income countries, in more intensive than in less intensive interventions, and in the postnatal period only rather than with interventions delivered in both antenatal and postnatal periods. Not exclusively breast feeding was significantly reduced by peer support in all settings, by intensive support, and by support offered at any time. The risk of not exclusively breast feeding decreased significantly more in low or middle income countries than in high income countries: 37% (relative risk 0.63, 95% confidence interval 0.52 to 0.78) versus 10% (0.90, 0.85 to 0.97), P=0.01. Reduction of not exclusively breast feeding in relation to intensity or timing did not differ by peer support. The effect in UK based studies on any or exclusive breast feeding was not significant.

### Bias, confounding, and other reasons for caution

Our review was limited by varied definitions of exclusive breast feeding, inadequate descriptions of breastfeeding support provided in usual care, and failure to describe the actual uptake and coverage of the intervention (rather than the proposed schedule), which we had to use to determine intensity of the peer support. The trials set in the low or middle income countries were more likely to focus on exclusive breast feeding. As these countries are also less likely to have highly developed universal healthcare and routine postnatal support, and peer support is likely to have its greatest impact when compared with no routine support, it is possible that the greater effect size for exclusive breast feeding results from confounding by setting.

### Study funding/potential competing interests

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**Relative risk of not breast feeding at last study follow-up**

| Variables | Relative risk (95% CI) | Metaregression P value |
|---|---|---|
| All | 0.85 (0.77 to 0.94) | — |
| Setting: | | |
| High income countries | 0.93 (0.87 to 1.00) | <0.001 |
| Low or middle income countries | 0.70 (0.60 to 0.82) | |
| Intensity: | | |
| <5 planned contacts | 0.99 (0.90 to 1.09) | 0.020 |
| ≥5 planned contacts | 0.80 (0.71 to 0.89) | |
| Timing: | | |
| Antenatal and postnatal periods | 0.94 (0.88 to 1.01) | <0.001 |
| Postnatal period only | 0.75 (0.63 to 0.89) | |

# Influence of medical journal press releases on the quality of associated newspaper coverage: retrospective cohort study

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## STUDY QUESTION

Does the quality of medical journal press releases influence the quality of associated newspaper coverage?

## SUMMARY ANSWER

High quality press releases seem to make the quality of associated newspaper stories better, whereas low quality press releases might make them worse.

## WHAT IS KNOWN AND WHAT THIS PAPER ADDS

Press releases, the most direct method used by medical journals to communicate with the media, are known to often omit key information and fail to acknowledge important study limitations. We found that newspaper stories were more likely to report such information if it was mentioned in the press release than if it was missing.

### Participants and setting

We reviewed consecutive issues (going backwards from January 2009) of five major medical journals (*Annals of Internal Medicine*, *BMJ*, *Journal of the National Cancer Institute*, *JAMA*, and *New England Journal of Medicine*) to identify 100 original research articles with quantifiable outcomes and that had generated any newspaper coverage (unique stories ≥100 words long). We identified 759 associated newspaper stories (using Lexis Nexis and Factiva searches) and 68 journal press releases (using Eurekalert and journal website searches). Two independent research assistants assessed the quality of journal articles, press releases, and a stratified random sample of associated newspaper stories (n=343) by using a structured coding scheme for the presence of specific quality measures: basic study facts, quantification of the main result, harms, and limitations.

### Design

Retrospective cohort study of medical journal press releases and associated newspaper stories.

### Primary outcome(s)

Proportion of newspaper stories with specific quality measures (adjusted for whether the quality measure was present in the journal article's abstract or editor note).

### Main results and the role of chance

We recorded a median of three newspaper stories per medical journal article (range 1-72). Of 343 stories analysed in detail, 71% reported on articles for which the journal issued a press release. Press release quality was associated with the quality of subsequent newspaper coverage (fig). For example, 9% of stories quantified the article's main result with absolute risks (ARs) when they were not in the press release, 53% did so when they were in the press release (relative risk 6.0, 95% confidence interval 2.3 to 15.4), and 20% did so when no press release was issued (2.2, 0.83 to 6.1).

### Bias, confounding, and other reasons for caution

Although we adjusted for the quality of the journal abstract, other confounding factors might have been present. For example, journals that tend to issue higher quality press releases might do other things to improve subsequent news coverage, such as improve the readability of the article text, publish less complex research, or increase authors' accessibility to the media. We found no evidence for confounding by such a journal effect. Finally, our use of stratified random sampling to select newspaper stories for the content analysis could have introduced bias. However, the similar distribution of major and minor circulation newspapers in the 343 sample stories and the main group of 759 stories, and the similar findings for major and minor newspapers in the sample argue against substantial bias.

### Generalisability to other populations

We investigated only the association between press releases and newspaper stories. Press releases might have a stronger effect on web and social media platforms, which have tighter deadlines and less editorial oversight than print media.

### Study funding/potential competing interests

This study was supported by a grant from the National Cancer Institute. We have no competing interests.

**Association between quality of journal press releases and quality of newspaper stories**