

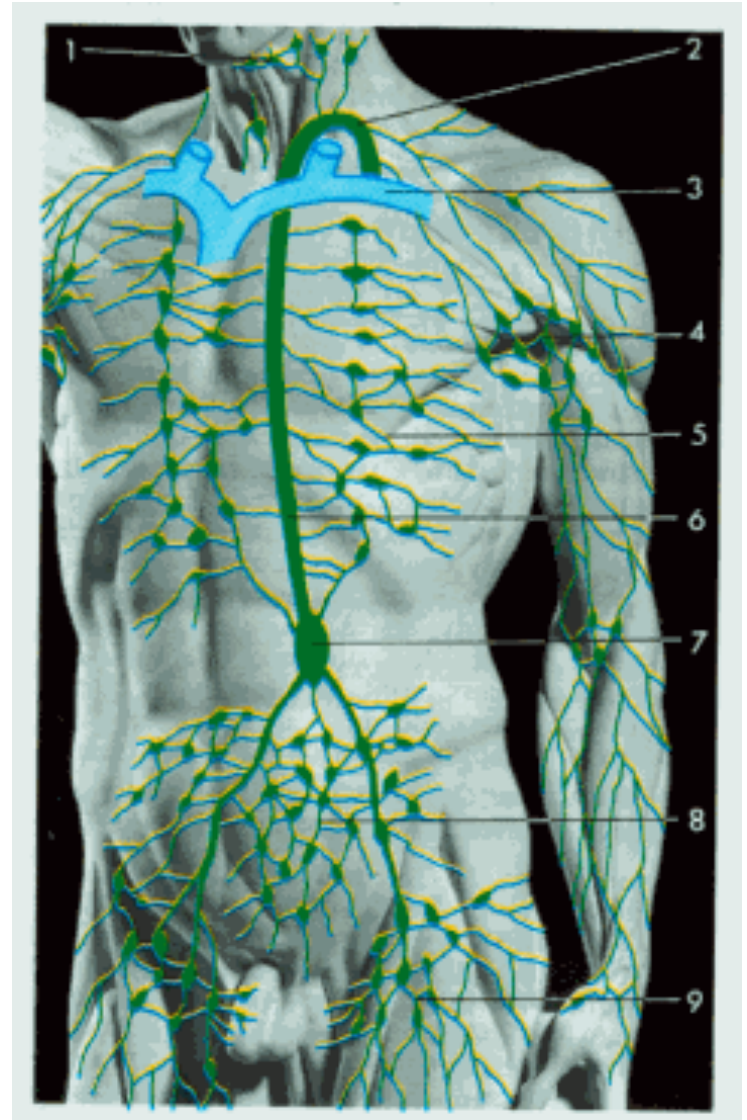
Lymphoedème du membre supérieur après cancer du sein

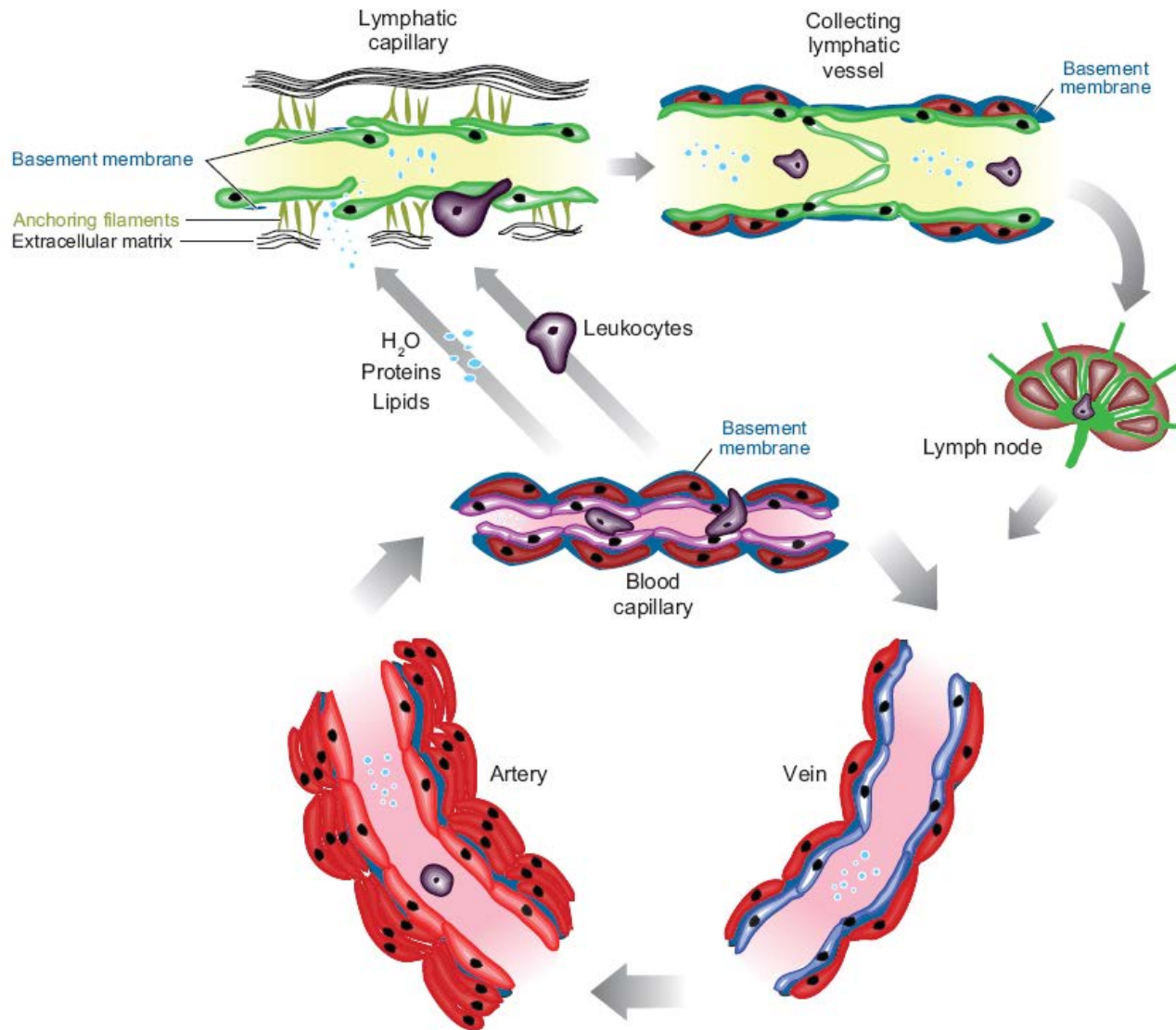
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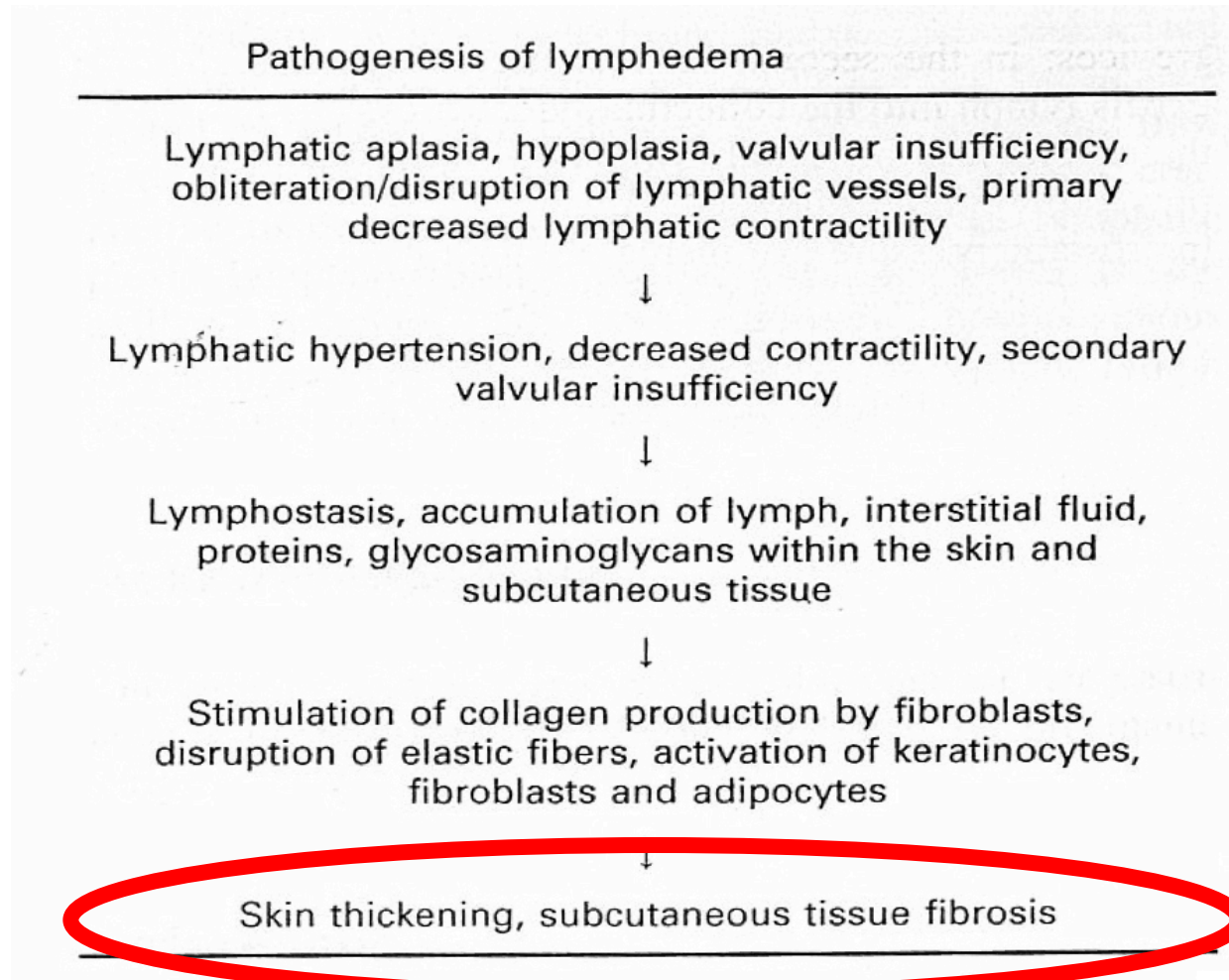
Lymphoedème (LO)

- Lymphhe : système // veines,...
- Lymphoedèmes
 - 140 millions de personnes dans le monde (filariose)
 - MS (K sein), MI (primitif, K col utérin)
- Forme secondaire en France +++





Physiopathologie du lymphoedème



Regulation of Adipogenesis by Lymphatic Fluid Stasis: Part I. Adipogenesis, Fibrosis, and Inflammation

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Seth Aschen

Evan S. Weitman, M.D.

Alan Yan, M.D.

Sonia Elhadad, Ph.D.

Marina De Brot, M.D.

Babak J. Mehrara, M.D.

(Plast. Reconstr. Surg. 129: 825, 2012.)

Proximal

Distal

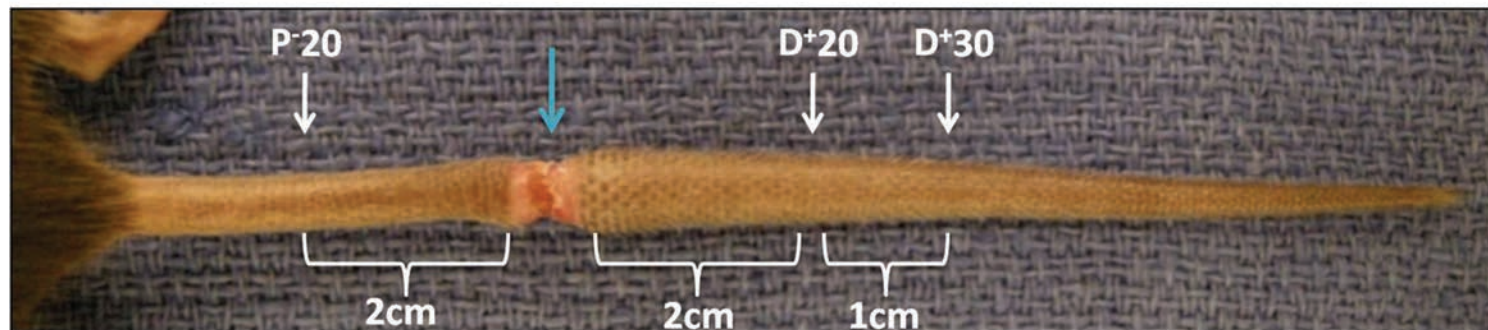


Fig. 1. Mouse-tail model of lymphatic fluid stasis. Representative photomicrograph of a mouse tail 6 weeks after lymphatic ligation. The wound is marked by the *blue arrow*. Tissues are harvested proximal or distal to the zone of lymphatic obstruction 6 weeks after surgery. *P⁻20*, 20 mm proximal to the zone of lymphatic obstruction; *D⁺20*, 20 mm distal to the zone of lymphatic obstruction; *D⁺30*, 30 mm distal to the zone of lymphatic obstruction.

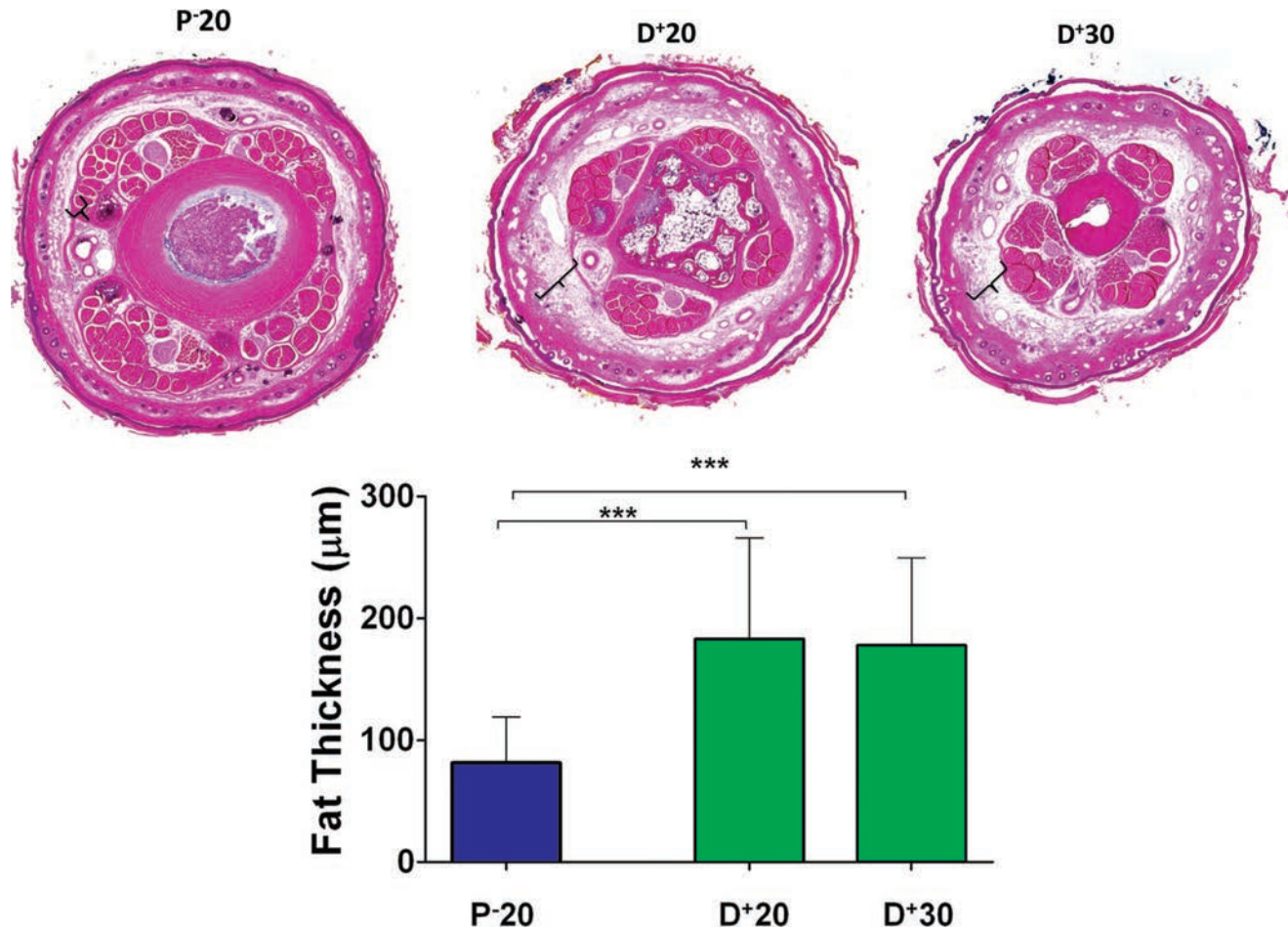


Fig. 2. Lymph stasis increases subcutaneous fat deposition. (Above) Representative low-power mouse-tail cross-sections obtained 20 mm proximal ($P^{-}20$) or 20 ($D^{+}20$) or 30 mm distal ($D^{+}30$) to the wound (hematoxylin and eosin; original magnification, $\times 2.5$). Note the marked deposition of subcutaneous fat in the distal sections (*brackets*). (Below) Quantification of fat thickness in the proximal and distal regions of the mouse tail 6 weeks after surgery. Note significant increases in fat thickness in the distal regions as designated by *brackets* ($***p < 0.001$).

Lymphoedème MS après cancer du sein

- **Curage axillaire**
 - fréquence lymphoedème : 19%
 - ganglion sentinelle : 5,6%
- **Radiothérapie** même si ne comprenant pas le creux axillaire
- **Obésité** lors du cancer du sein (IMC > 30 kg/m²), risque ≈ 4
- **Survenue** post-chirurgie voire des années après... (médiane : 2 ans)

DiSipio T et al. Lancet 2013;14:500

Lymphoedème après cancer du sein

- 58500 nx cas de cancer en 2018

TABLEAU 4 | Nombre de cas et décès en France selon l'année Sein

| | | Année | | | | | | |
|--------------------|-------|--------|--------|--------|--------|--------|--------|--------|
| | | 1990 | 1995 | 2000 | 2005 | 2010 | 2015 | 2018 |
| INCIDENCE | | | | | | | | |
| | Femme | 29 970 | 34 835 | 41 882 | 48 468 | 50 755 | 55 698 | 58 459 |
| MORTALITÉ | | | | | | | | |
| | Femme | 10 172 | 10 774 | 10 999 | 11 290 | 11 637 | 12 025 | 12 146 |
| MORTALITÉ OBSERVÉE | | | | | | | | |
| | Femme | 10 141 | 10 753 | 10 950 | 11 308 | 11 750 | 12 229 | |

- Fréquence du LO après traitement
 - 13-28% après curage axillaire
 - définitions différentes
 - ✓ 2 cm
 - ✓ +10%

Armer J et al. Lymph Res Biol 2005;3:208

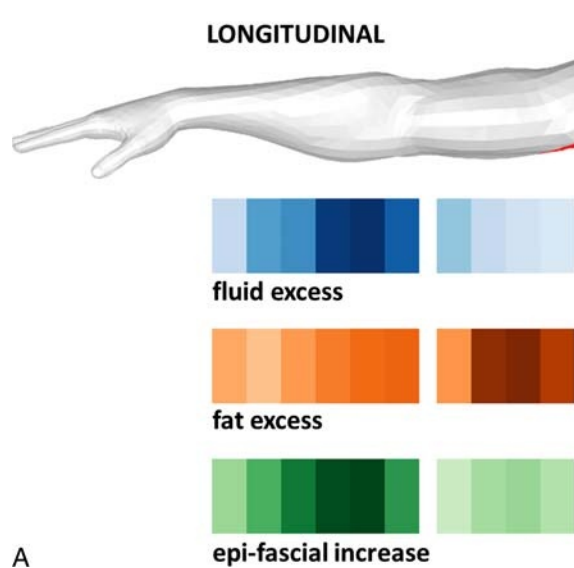
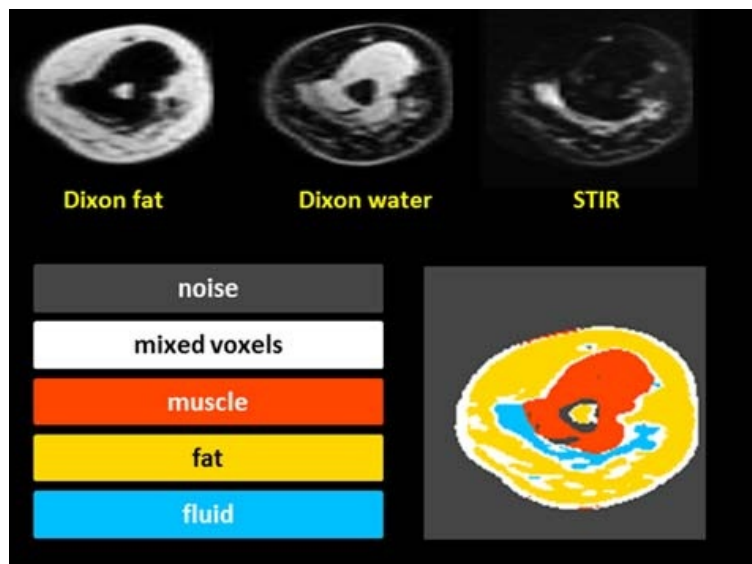
DiSipio T et al. Lancet 2013;14:500

<https://www.e-cancer.fr/Expertises-et-publications/Catalogue-des-publications/Rapport-Volume-1-Tumeurs-solides-Estimations-nationales-de-l-incidence-et-de-la-mortalite-par-cancer-en-France-metropolitaine-entre-1990-et-2018-juillet-2019>

Magnetic Resonance Imaging–Based Assessment of Breast Cancer–Related Lymphoedema Tissue Composition

Marco Borri, MPhys, Kristiana D. Gordon, MD,†‡ Julie C. Hughes, BSc,* Erica D. Scurr, BSc,*
Dow-Mu Koh, MD, MRCP, FRCR,* Martin O. Leach, PhD, FMedSci, FInstP, FIPEM, FRSB,*
Peter S. Mortimer, MD, FRCP,†‡ and Maria A. Schmidt, PhD**

- LO MS : 15-20%
- Stase lymphatique → modifications tissulaires, fibrose collagène, accumulation de tissu adipeux
- ➔ Lymphoedème : 3 composantes, liquidienne (lalymphe), collagène, adipeuse



A



B

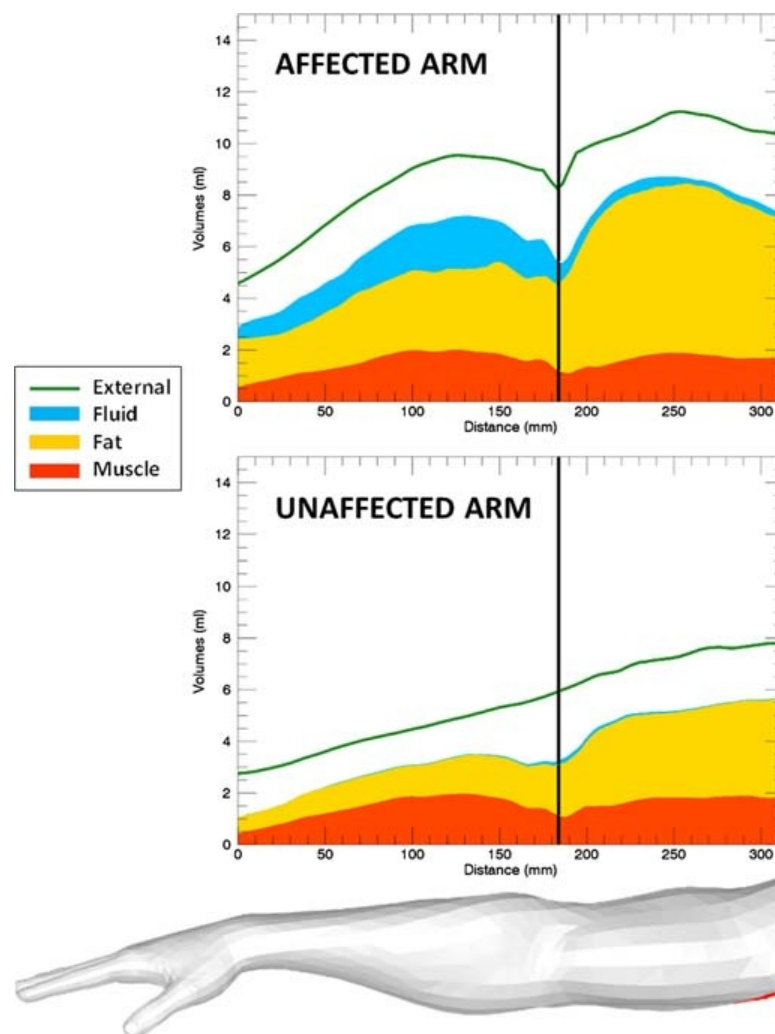


FIGURE 2. Longitudinal plots of the different tissue volumes within the affected and unaffected arms of an example patient (patient 10): muscle (red), epifascial fat (yellow), epifascial fluid (blue), and total (external, green line).

Autres FDR lymphœdème MS

- Mastectomie / tumorectomie
- Envahissement ganglionnaire (N+)
- Infections post-opératoires
- Taxanes en adjuvant
- Absence de reconstruction mammaire...
- Cordes axillaires :
pas FDR +++

Breast Cancer - Targets and Therapy 2019;11



Figure 1 Axillary web syndrome of the left axilla.
Note: Multiple cords are visible in the mid axilla.

Cariati M et al. Br J Surg 2015;102:1071

Siotos C et al. J Plast Reconstr Aesthet Surg 2018;71:807

Wariss BR et al. Costa RM, Pereira AC, Koifman RJ, Bergmann A.
Support Care Cancer 2017;25:465

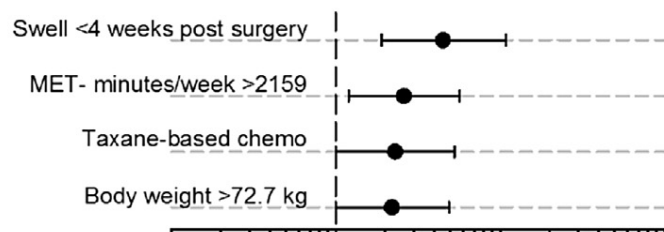
Risk factors for lymphoedema in women with breast cancer: A large prospective cohort[☆]

The Breast 28 (2016) 29–36

S.L. Kilbreath^{a,*}, K.M. Refshauge^a, J.M. Beith^b, L.C. Ward^{a,c}, O.A. Ung^d, E.S. Dylke^a, J.R. French^e, J. Yee^a, L. Koelmeyer^{e,1}, K. Gaitatzis^{a,1}

Chimiothérapie

Arm swell risk factors at 12m following surgery



Arm swell risk factors at 6m following surgery



Adjuvant taxanes and the development of breast cancer-related arm lymphoedema

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Published by John Wiley & Sons Ltd

M. Cariati^{1,3}, S. K. Bains¹, M. R. Grootendorst¹, A. Suyoi³, A. M. Peters⁵, P. Mortimer⁴, P. Ellis^{1,3}, M. Harries^{1,3}, M. Van Hemelrijck² and A. D. Purushotham^{1,3}

| | Hazard ratio | | |
|-----------------------------|-------------------|-------------------|-------------------|
| | Model 1 | Model 2 | Model 3 |
| Chemotherapy | | | |
| No | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Yes, with taxanes | 2.90 (1.35, 6.22) | 2.82 (1.31, 6.06) | 2.89 (1.32, 6.33) |
| Yes, without taxanes | 1.93 (0.77, 4.89) | 1.64 (0.62, 4.32) | 1.67 (0.63, 4.40) |
| No. of positive lymph nodes | | 1.03 (0.99, 1.08) | 1.04 (0.99, 1.09) |
| SCF radiotherapy | | | |
| No | | | 1.00 (reference) |
| Yes | | | 0.92 (0.55, 1.57) |
| Unknown | | | 1.49 (0.53, 4.21) |

Impact of adjuvant taxane-based chemotherapy on development of breast cancer-related lymphedema: results from a large prospective cohort

Breast Cancer Res Treat (2015) 151:393–403

Meyha N. Swaroop¹ · Chantal M. Ferguson¹ · Nora K. Horick² · Melissa N. Skolny¹ · Cynthia L. Miller¹ · Lauren S. Jammallo¹ · Cheryl L. Brunelle³ · Jean A. O'Toole³ · Steven J. Isakoff⁴ · Michelle C. Specht⁵ · Alphonse G. Taghian¹

| | N | 2-Year cumulative incidence (%) | 95 % Confidence interval |
|---------------------------|------|---------------------------------|--------------------------|
| Entire cohort | 1121 | 5.27 | 4.10–6.76 |
| No chemotherapy | 735 | 3.07 | 2.03–4.63 |
| Non-taxane chemotherapy | 62 | 4.87 | 1.60–14.33 |
| Taxane-based chemotherapy | 324 | 10.29 | 7.43–14.18 |

Breast reconstruction and risk of arm lymphedema development: A meta-analysis

Charalampos Siotos ^a, Mohamad E. Sebai ^b, Eric L. Wan ^a,
Ricardo J. Bello ^a, Mehran Habibi ^b, Damon S. Cooney ^a,
Michele A. Manahan ^a, Carisa M. Cooney ^a, Stella M. Seal ^c,
Gedge D. Rosson ^{a,*}

Journal of Plastic, Reconstructive & Aesthetic Surgery (2018)

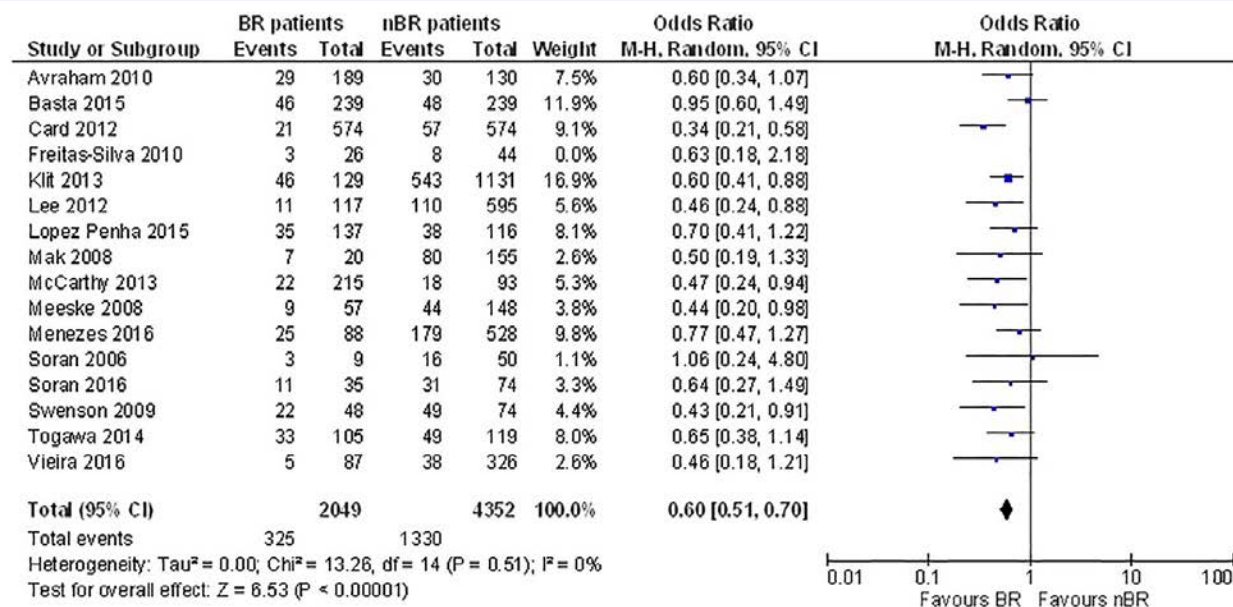


Figure 4 Forest plot analysis of patients receiving total mastectomy and breast reconstruction versus total mastectomy only and lymphedema incidence (exclusion of breast conserving cases).

Breast cancer-related lymphoedema and venepuncture: a review and evidence-based recommendations

Adam D. Jakes¹ • Chris Twelves^{1,2} Breast Cancer Res Treat 2015;154:455-61

Table 2 Literature review of lymphoedema after venepuncture

| Authors | Study design | Population studied | Number of patients | Axillary intervention | Findings | Conclusion and recommendations |
|----------------------|--|---|--|--|---|--------------------------------|
| Villasor et al. [16] | Retrospective observational study Level 3 | Women with breast cancer who received a radical mastectomy | 79 | Radical mastectomy | 1/79 (2 %) patient developed lymphoedema immediately following venepuncture | Avoid venepuncture |
| Britton et al. [18] | Retrospective observational study Level 4 | Women with breast cancer and moderate-to-severe lymphoedema after radical mastectomy | 114 (94 with no evidence of local cancer post-operatively) | Radical mastectomy | 50/94 (53 %) had a history of recurrent cellulitis following either an insect bite, cat scratch, needle or thorn prick with a marked increase in swelling or pain in their arm | Avoid venepuncture |
| Smith et al. [19] | Retrospective observational study Level 4 | Women with breast cancer who received axillary lymph node dissection (3 patients also receiving radiotherapy to the axilla) | 691 | Axillary node dissection | 10 (1.5 %) breast cancer patients were referred with lymphoedema following venepuncture | Avoid venepuncture |
| Cole et al. [20] | Retrospective observational study Level 4 | Women with previous axillary lymph node surgery (9 out of 14 had breast cancer) | 14 | Axillary lymph node surgery | No cases of lymphoedema development within a 2-month follow-up period | Low risk |
| Mak et al. [21] | Retrospective matched case-control study Level 3 | Women with breast cancer who received axillary lymph node dissection | 202 (101 cases) | Axillary lymph node dissection | 52 patients (31 controls and 21 with lymphoedema) had a history of a "medical procedure" The odds ratio for the development of lymphoedema was 0.59, 95 % confidence interval 0.31–1.12 $P = 0.11$ | No significant risk |
| Winge et al. [22] | Retrospective observational study Level 3 | Women with breast cancer who received axillary lymph node clearance | 348 | Axillary lymph node clearance | 88 reported a history of intravenous procedures on the ipsilateral side but only 4 developed swelling | Low risk |
| Clark et al. [1] | Prospective observational study Level 2 | Women with breast cancer who received sampling, excision or biopsy of the ipsilateral axillary lymph nodes | 188 18 with needle stick injury | Sampling, excision or biopsy of the ipsilateral axillary lymph nodes | 8/18 (44 %) patients who had any needle stick developed lymphoedema as compared with 31/170 (18 %) patients who did not have venepuncture (no time frame) The relative risk of developing lymphoedema after venepuncture in hospital was 2.44 (CI 1.33–4.47) | Avoid venepuncture |

1955

1962

1998

2006

2009

2010

2005

Impact of Ipsilateral Blood Draws, Injections, Blood Pressure Measurements, and Air Travel on the Risk of Lymphedema for Patients Treated for Breast Cancer

Chantal M. Ferguson, Meyha N. Swaroop, Nora Horick, Melissa N. Skolny, Cynthia L. Miller, Lauren S. Jammallo, Cheryl Brunelle, Jean A. O'Toole, Laura Salama, Michelle C. Specht, and Alphonse G. Taghian

Results

In 3,041 measurements, there was no significant association between relative volume change or weight-adjusted change increase and undergoing one or more blood draws ($P = .62$), injections ($P = .77$), number of flights (one or two [$P = .77$] and three or more [$P = .91$] v none), or duration of flights (1 to 12 hours [$P = .43$] and 12 hours or more [$P = .54$] v none). By multivariate analysis, factors significantly associated with increases in arm volume included body mass index ≥ 25 ($P = .0236$), axillary lymph node dissection ($P < .001$), regional lymph node irradiation ($P = .0364$), and cellulitis ($P < .001$).

Conclusion

This study suggests that although cellulitis increases risk of lymphedema, ipsilateral blood draws, injections, blood pressure readings, and air travel may not be associated with arm volume increases. The results may help to educate clinicians and patients on posttreatment risk, prevention, and management of lymphedema.

Association Between Precautionary Behaviors and Breast Cancer–Related Lymphedema in Patients Undergoing Bilateral Surgery

J Clin Oncol 35. © 2017

Maria S. Asdourian, Meyha N. Swaroop, Hoda E. Sayegh, Cheryl L. Brunelle, Amir I. Mina, Hui Zheng, Melissa N. Skolny, and Alphonse G. Taghian

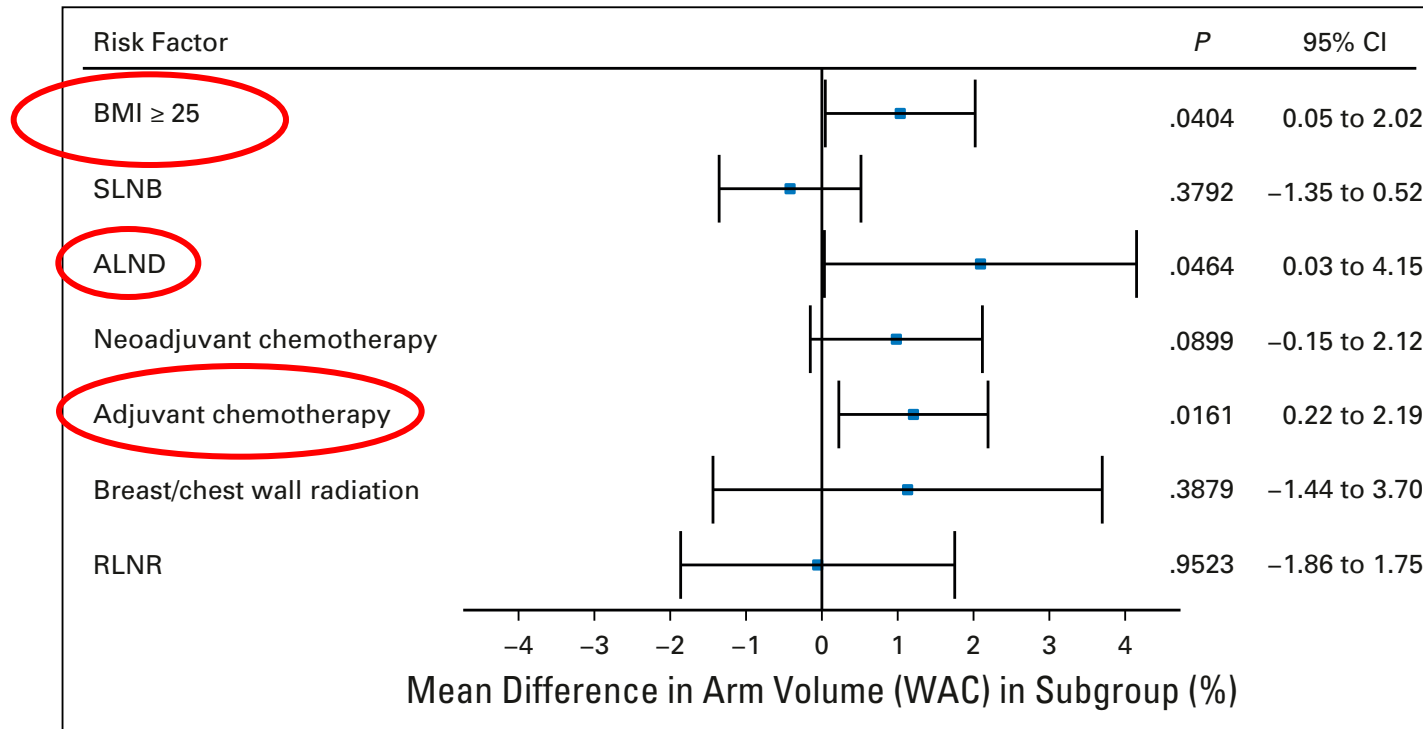


Fig 2. Multivariable analysis. ALND, axillary lymph node dissection; BMI, body mass index; RLNR, regional lymph node radiation; SLNB, sentinel lymph node biopsy; WAC, weight-adjusted volume change.

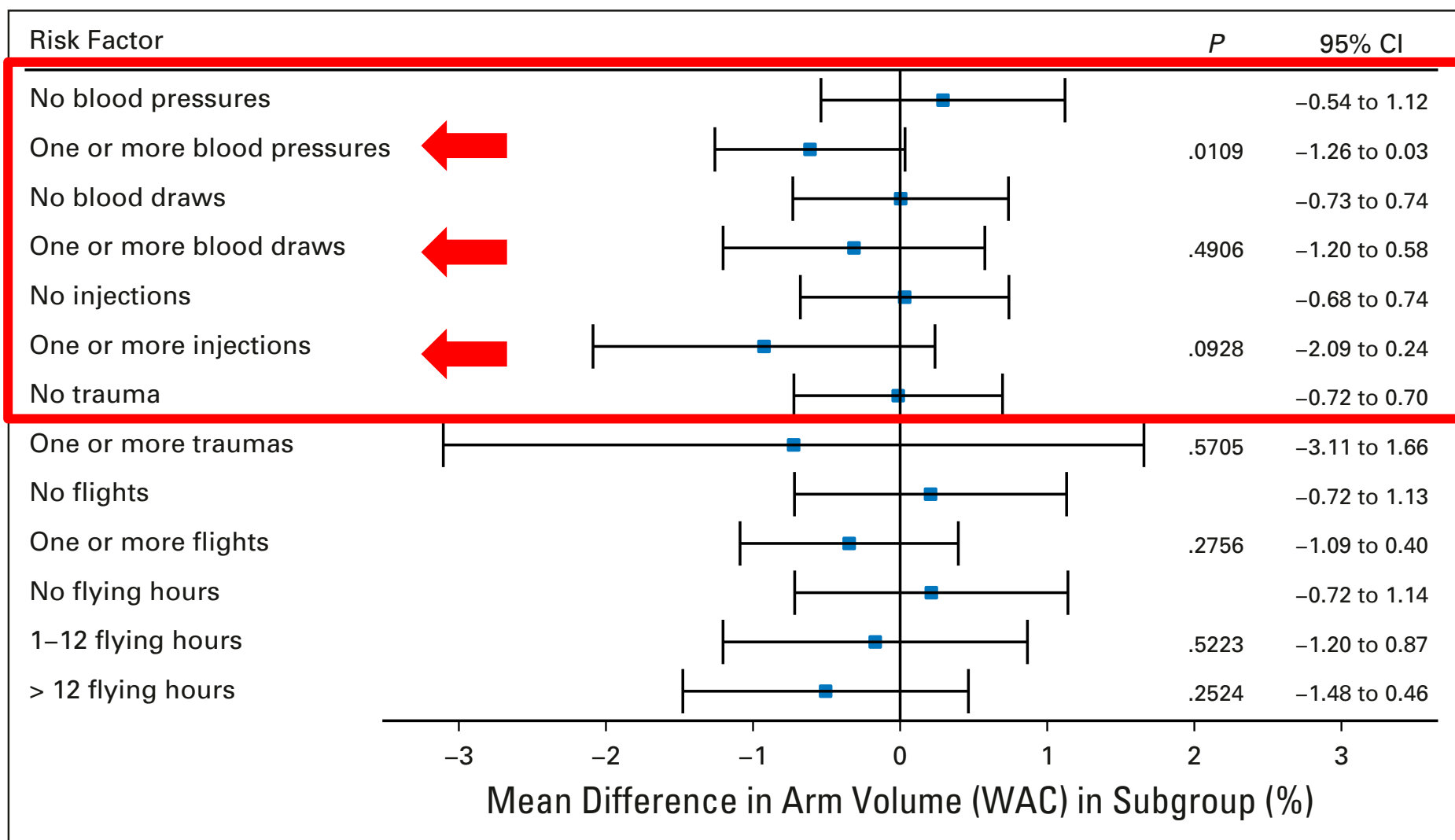


Fig 1. Univariable analysis. WAC, weight-adjusted volume change.

Prévention du lymphoedème après cancer du sein

S'en tenir aux conseils argumentés

● Les femmes qui ont eu une chirurgie ou une radiothérapie pour un cancer du sein reçoivent parfois des conseils contraignants au quotidien afin de prévenir la survenue d'un lymphoedème du membre supérieur du côté du cancer. Des suivis de centaines de femmes remettent en question le bien-fondé de certains de ces conseils.

En pratique Ne pas compliquer inutilement la vie quotidienne. Il est utile d'informer les femmes qui ont eu un cancer du sein sur le risque de lymphoedème et de se limiter aux seuls conseils étayés pour les aider à vivre le plus normalement possible. Proposer une kinésithérapie précoce adaptée après un curage axillaire, faciliter une reprise progressive d'activités physiques, donner des conseils pour éviter autant que possible un surpoids, limiter le risque de blessure du membre supérieur du côté du cancer, notamment lors d'activités à risque telles que le jardinage, semblent être des mesures suffisantes.

En l'absence de lymphoedème, il ne semble pas préjudiciable d'effectuer des ponctions, injections ou prises de tension sur le membre supérieur à risque. Un antécédent de chirurgie pour cancer du sein sans apparition d'un lymphoedème ne justifie pas de restreindre les voyages en avion, les expositions au soleil, les expositions au froid ou au chaud, le port de vêtements compressifs.

Mesures "préventives"

- ↓ poids (Shaw C et al. Cancer 2007;110:1868)
- Rééducation épaule, massage cicatrice (Torres Lacomba M et al. BMJ 2010)
- Activités physiques : ↓ femmes avec LO, ↑ QOL (Johansson K et al. Lymphology 2002;35:59), intense : haltérophilie (Schmitz K et al. JAMA 2010;304:2699)
- Pas de DLM post-opératoire (Devoogdt N et al. BMJ 2011;343:d5326)

Weight Loss Does Not Decrease Risk of Breast Cancer–Related Arm Lymphedema

Cancer 2021;0:1-7.



Sacha A. Roberts, BS ¹; Tessa C. Gillespie, BS¹; Amy M. Shui, MA²; Cheryl L. Brunelle, PT, MS, CCS, CLT³; Kayla M. Daniell, BS¹; Joseph J. Locascio, PhD²; George E. Naoum, MD, MMSCl¹; and Alphonse G. Taghian, MD, PhD ¹

TABLE 2. Impact of Weight Changes From the Preoperative Baseline to the Last Follow-Up on BCRL Development: Multivariable Analysis (n = 1161)

| | Univariate | | Multivariable | |
|---|------------------|-------|------------------|------|
| | HR (95% CI) | P | HR (95% CI) | P |
| Net weight loss vs net weight gain | 1.45 (0.96-2.18) | .078 | 1.38 (0.89-2.13) | .152 |
| Baseline BMI, kg/m ² | 1.04 (1.01-1.07) | .003 | 1.04 (1.01-1.07) | .005 |
| Age at baseline, y | 1.01 (0.99-1.03) | .232 | — | — |
| Race: White vs non-White | 0.87 (0.44-1.74) | .701 | — | — |
| Mastectomy vs lumpectomy | 2.49 (1.64-3.80) | <.001 | 1.02 (0.61-1.70) | .955 |
| ALND vs SLNB | 4.47 (2.88-6.95) | <.001 | 2.77 (1.37-5.60) | .005 |
| ALND vs no nodal surgery | 4.22 (1.03-17.3) | .045 | 2.41 (0.53-10.9) | .256 |
| RLNR vs no RLNR | 4.08 (2.59-6.42) | <.001 | 2.47 (1.21-5.04) | .013 |
| Adjuvant chemotherapy (±neoadjuvant chemotherapy) vs no adjuvant chemotherapy | 1.50 (0.99-2.26) | .055 | 0.66 (0.41-1.05) | .080 |

Abbreviations: ALND, axillary lymph node dissection; BCRL, breast cancer–related lymphedema; BMI, body mass index; CI, confidence interval; HR, hazard ratio; RLNR, regional lymph node radiation; SLNB, sentinel lymph node biopsy.

Effect of manual lymph drainage in addition to guidelines and exercise therapy on arm lymphoedema related to breast cancer: randomised controlled trial



OPEN ACCESS

Nele Devoogdt *doctor in rehabilitation science*^{1,2}, Marie-Rose Christiaens *professor, breast surgeon, and coordinator*³, Inge Geraerts *research fellow*¹, Steven Truijen *scientific coordinator*², Ann Smeets *breast surgeon*³, Karin Leunen *gynaecological oncologist*³, Patrick Neven *professor in gynaecological oncology*³, Marijke Van Kampen *professor in rehabilitation science*¹

BMJ 2011;343:d5326 doi: 10.1136/bmj.d5326

Table 4| Comparison of cumulative incidence and point prevalence of arm lymphoedema after surgery for breast cancer at 3, 6, and 12 months for different definitions according to treatments to prevent lymphoedema

| Definition of lymphoedema | Intervention (guidelines, exercise, manual drainage; n=77) | Control (guidelines, exercise; n=81) | Odds ratio (95% CI) | P value* |
|---|--|--------------------------------------|---------------------|----------|
| Primary outcome parameter | | | | |
| Cumulative incidence, ≥200 mL increase: | | | | |
| At 3 months | 8 (10%) | 6 (7%) | 1.4 (0.5 to 4.4) | 0.51 |
| At 6 months | 11 (14%) | 12 (15%) | 0.9 (0.4 to 2.3) | 0.93 |
| At 12 months† | 18 (24%) | 15 (19%) | 1.3 (0.6 to 2.9) | 0.45 |

30-40
séances sur
12 semaines

Seule restriction : délai d'intervention de 5 semaines après la chirurgie...

Conclusion Manual lymph drainage in addition to guidelines and exercise therapy after axillary lymph node dissection for breast cancer is unlikely to have a medium to large effect in reducing the incidence of arm lymphoedema in the short term.

Preventive measure and evidence to support either fact or fiction.

| Preventive measure | Best scientific evidence for | Best scientific evidence against | Fact/Fiction/To be determined |
|---|--|---|-------------------------------|
| Avoid needle sticks of any type | Clark [10] – level 2 prospective observational study (188 patients), findings that 44% patients with needle stick developed lymphedema as compared with 18% of those without needle sticks | Winge ¹⁸ – Level 3 questionnaire study (311 patients of which 88 had intravenous procedures in affected limb). Only 4 patients developed lymphedema in relation to venipuncture | To be determined |
| Avoid Pressure | Louden & Petrek [15, 16] – level 5 , expert opinion hypothesising that blood pressure monitoring, tight clothing increases blood pressure in at risk limb resulting in increased lymph production. | Dawson [22] – level 3 , retrospective cohort (317 patients), no new cases or exacerbations of lymphedema in 15 patients with a history of lymph node dissection who subsequently had elective hand surgery with tourniquet | Probably fiction |
| Leg/Limb precautions | Ryan [24] – level 5 , expert opinion, crossing legs hinders venous return, prolonged standing/sitting results in pooling of blood in legs and hence increased interstitial fluid leakage. | None found | To be determined |
| Avoid Air travel/wear compressive garments for air travel | Casley-Smith [28] – level 4 , questionnaire based retrospective study (531 patients), 27 patients reported lymphedema symptoms started after aircraft flight & 67 patients reported worsening lymphedema symptoms after flying. | Graham [29] – level 2 , Cohort study (293 patients), no cases of permanent or new onset lymphedema found after aircraft flight taken. | Probably fiction |
| Maintain a normal body weight | Shaw [41] – level 1 , randomised clinical trial (21 patients), interventions designed to promote weight loss after surgery significantly reduced excess arm volume and lymphedema. | Villasor [6] – level 3 non-consecutive cohort (51 patients), 47% patients with lymphedema had normal weight, no correlation between lymphedema formation and obesity or weight found. | Fact |
| Avoid extremes of temperature/apply sunscreen/avoid burns | Hettrick [48] – level 4 prospective analysis, 1% of burn population found to have lymphedema. | Chang [45] – level 1 double blind randomized study (60 patients), heat added to placebo, or benzopyrone therapy significantly improved symptoms of lymphedema compared to placebo or benzopyrone alone. | Fiction |
| Avoid vigorous exercise | Petrek/Foldi [1] level 5 Expert opinion rationalising that vigorous exercise increases blood flow and consequently lymphatic fluid production. | Schmitz [52] – level 1 randomized trial (141 patients), no increased incidence of lymphedema in exercise group compared to non-exercise control group. | Fiction |

Weight Lifting for Women at Risk for Breast Cancer–Related Lymphedema

A Randomized Trial

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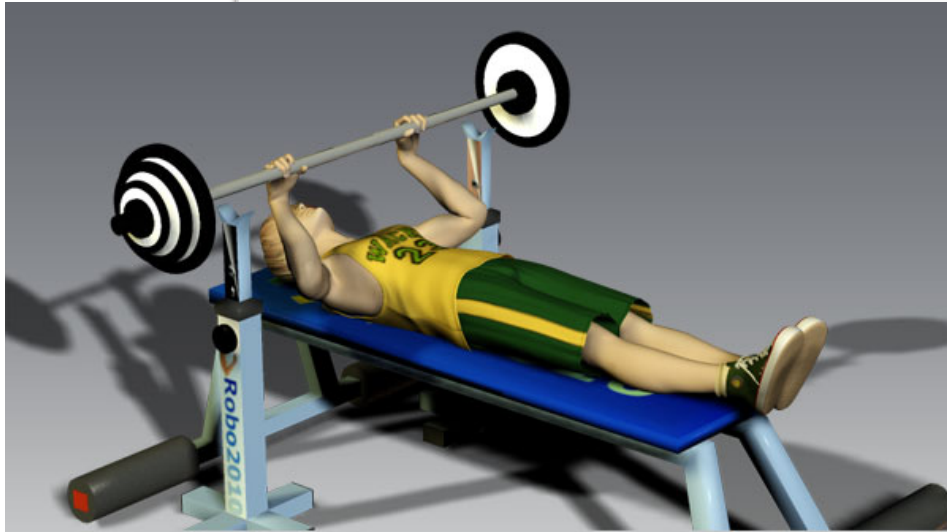
Catherine T. Williams-Smith, BS

Jesse Chittams, MS

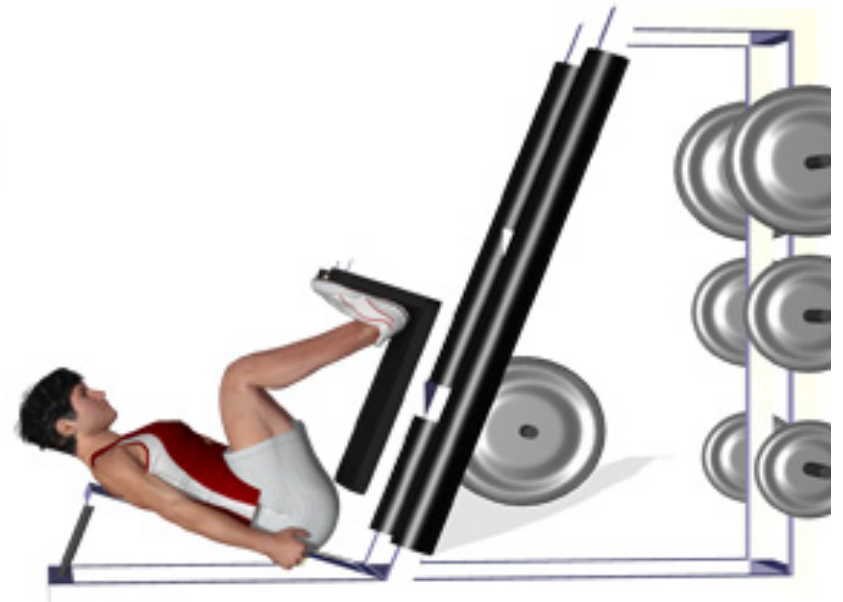
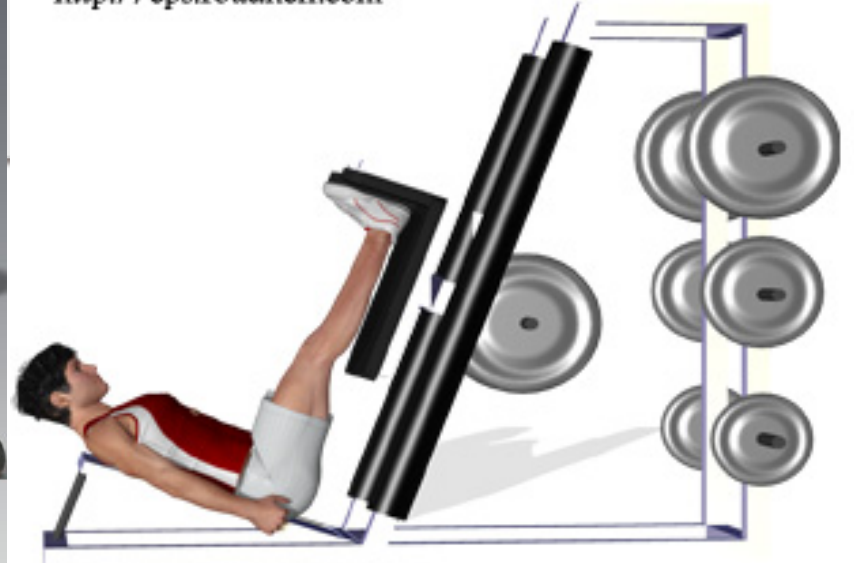
JAMA. 2010;304(24):2699-2705

Table 3. Lymphedema Onset Outcomes at 12 Months^a

| | Weight Lifting Intervention | | Control | | Cumulative Incidence Ratio (95% CI) | P Value ^b |
|---|-----------------------------|--------------|----------------------|--------------|---|-------------------------|
| | No./Total No. (%) | Mean (SD) | No./Total No. (%) | Mean (SD) | | |
| All participants | | | | | | |
| Defined by $\geq 5\%$ increase in arm swelling ^c | 8/72 (11) | | 13/75 (17) | | 0.64 (0.28-1.45) | .003 |
| Clinician-defined onset | 1/66 (1.5) | | 3/68 (4.4) | | 0.34 (0.04-3.22) | .12 |
| Participants who had ≥ 5 lymph nodes removed | | | | | | |
| Defined by $\geq 5\%$ increase in arm swelling ^c | 3/45 (7) | | 11/49 (22) | | 0.30 (0.09-1.00) | .001 |
| Clinician-defined onset | 1/42 (2.4) | | 3/46 (6.5) | | 0.37 (0.04-3.38) | .13 |



<http://cps.roudneff.com>



Weight Lifting in Women with Breast-Cancer Related Lymphedema

Kathryn H. Schmitz, Ph.D., M.P.H., Rehana L. Ahmed, M.D., Ph.D.,
Andrea Troxel, Sc.D., Andrea Cheville, M.D., Rebecca Smith, M.D.,
Lorita Lewis-Grant, M.P.H., M.S.W., Cathy J. Bryan, M.Ed.,
Catherine T. Williams-Smith, B.S., and Quincy P. Greene

Table 3. Lymphedema Outcomes at 12 Months, According to Study Group.*

| Variable | Weight Lifting | | Control | | Cumulative Incidence Ratio or Mean Difference (95% CI) | P Value | |
|--|------------------------------|-------|------------------------------|-------|--|------------------------|------|
| | no. of patients with data | value | no. of patients with data | value | | | |
| | | | | | | | |
| Change in interlimb volume difference | | | | | | | |
| ≥5% increase | no. (%) | 70 | 8 (11) | 69 | 8 (12) | 1.00 (0.88 to 1.13) | 1.00 |
| ≥5% decrease | no. (%) | 70 | 13 (19) | 69 | 15 (22) | 0.96 (0.81 to 1.14) | 0.68 |
| Mean interlimb volume discrepancy between baseline and 12 mo (percentage points) | | 70 | −0.69±5.87 | 69 | −0.98±7.31 | −0.29 (−1.94 to 2.51) | 0.80 |
| Exacerbation | no. (%) | 65 | 9 (14) | 65 | 19 (29) | 0.47 (0.23 to 0.97) | 0.04 |
| Change in no. of symptoms reported between baseline and 12 mo | | 70 | −1.81±2.16 | 69 | −1.17±1.94 | −0.63 (−1.32 to 0.06) | 0.07 |
| Change in severity of symptoms between baseline and 12 mo | | 70 | −0.51±0.80 | 69 | −0.22±0.71 | −0.29 (−0.54 to −0.03) | 0.03 |

CONCLUSIONS

In breast-cancer survivors with lymphedema, slowly progressive weight lifting had no significant effect on limb swelling and resulted in a decreased incidence of exacerbations of lymphedema, reduced symptoms, and increased strength.

N Engl J Med 2009;361:664-73.

Haltérophilie et lymphœdème

- Articles allant à l'encontre des conseils "habituels"
- Idée majeure : ne pas déconditionner le MS +++
- Muscler sans hypertrophier
- ↓ impact des agressions quotidiennes sur le membre

Autres bénéfices de l'activité physique

- Participe à la bonne santé globale
- Amélioration de la qualité de vie
- ↓ anxiété, dépression
- Permet de stabiliser le poids
- Maintien une mobilité articulaire (épaule) +++

Kilbreath SL et al. Breast Cancer Res Treat 2012

McNeely ML et al. Cochrane Database Syst Rev
2010;6:CD005211

McKenzie DC et al. J Clin Oncol 2003;21;463-6

Bicego D et al. Phys Ther 2006;86:1398

Récidive, mortalité...

Med Oncol (2011) 28:753–765
DOI 10.1007/s12032-010-9536-x

ORIGINAL PAPER

Physical activity and survival after breast cancer diagnosis: meta-analysis of published studies

Ezzeldin M. Ibrahim · Abdelaziz Al-Homaidh

been further examined in a meta-analysis conducted by Ibrahim and Al-Homaidh (2011). This meta-analysis of six studies, although limited in size, demonstrated some promising findings. In particular, it was found that post-diagnosis physical activity reduced breast cancer deaths by 34% (HR = 0.66; 95% CI = 0.57 – 0.77, $P < 0.00001$), all-cause mortality by 41% (HR = 0.59; 95% CI = 0.53 – 0.65, $P < 0.00001$) and disease recurrence by 24%

DRAGON BOAT RACING: LIFE AFTER BREAST CANCER TREATMENT



Research indicates that this sport and other forms of upper-body exercise often confer invaluable benefits.

For many years, women who underwent surgical or radiologic treatment (or both) for breast cancer were cautioned to avoid vigorous, repetitive movements of their upper extremities. It was believed that this would reduce their chances of developing post-breast cancer lymphedema, a chronic and debilitating condition characterized by swelling of the arm, neck, or breast. But now this view is being challenged. Studies evaluating the effects of various forms of exercise—in particular, the sport of dragon boat racing—indicate that such exercise neither triggers nor worsens lymphedema, and might even help prevent it.



View from the Hope Chest Dragon Boat drummer's seat during paddling practice, Buffalo, New York, July 2006. Photos courtesy of Jon Hand.

| (lumpectomy) and sentinel lymph node biopsy, might



Physiotherapy Theory and Practice, 25(3):165–173, 2009
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 DOI: 10.1080/09593980902776621

informa
healthcare

Pole walking for patients with breast cancer-related arm lymphedema

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Table 2. Arm volume measurements and subjective assessments of heaviness and tightness in the lymphedema arm in mean (SD) in breast cancer patients ($n = 26$) before, immediately after, and 24 hours after pole walking.

| | | Before | Directly after | 24 hours later |
|----------|-----------|-------------|----------------|----------------|
| TAV (mL) | Edema | 2585 (436) | 2589 (445) | 2575 (449) |
| | Healthy | 2259 (371) | 2273 (379)* | 2249 (380) |
| LAV (mL) | | 326 (126) | 317 (153)* | 327 (157) |
| LRV (%) | | 14.5 (6.7) | 14 (6.5)** | 14.6 (6.7) |
| VAS (mm) | Heaviness | 12.9 (15.7) | 11.1 (12.1) | 10.1 (12.2) |
| | Tightness | 10.1 (11.5) | 10.5 (11.6) | 8.2 (10.7) |

* $P = 0.04$; ** $P = 0.02$; P -values compared to before pole walking.

TAV: total arm volume; LAV: lymphedema absolute volume; LRV: lymphedema relative volume; VAS: Visual Analogue Scale.

Systematic Review and Meta-Analysis of the Effects of Exercise for Those With Cancer-Related Lymphedema

Ben Singh, MRes,^{a,b} Tracey Disipio, PhD,^{a,b} Jonathan Peake, PhD,^{b,c}
Sandra C. Hayes, PhD^{a,b}

Archives of Physical Medicine and Rehabilitation 2015

Aucun interdit
Encadrées (professionnels formés)
Progressive en fréquence et
intensité
Guidée par les patientes
Avec une compression si possible

Clinique

- Peu douloureux, plutôt pesant, lourd (LO sein, omoplate, paroi thoracique)
- Si douleurs : plexopathie
 - post-radique
 - par envahissement (douleurs, déficit sensitif, moteur, d'évolution rapide)
 - TDM, IRM creux axillaire
- Pathologies épaule associées +++
- Syndrome du canal carpien
- Toxicité chimioT (neuropathies)

Erysipèle

Lymphoœdème : risque érysipèle × 70

Clinique « systémique »

1. Fièvre élevée > 40° C, début brutal
2. Frissons, tremblements
3. ± vomissements, céphalées

Clinique locale

1. Puis MI, MS rouge, chaud, douloureux,
2. ↑ volume

Touche la zone atteinte par le LO (parfois infraclinique)

Erysipèle

- Erysipèles MS, MI
 - parfois récidivants
 - porte d'entrée non toujours retrouvée
- Traitement : **7 jours**
 - amoxicilline, 3 g/j ou
 - pristinamycine (Pyostacine®), 3 g/j
- ↓ fièvre : 48 h, rougeur : 7 j, volume en quelques semaines
- Si récurrences fréquentes (ABprophylaxie : Benzathine-benzylpénicilline®, 2,4 MUI/2S, durée ?)

SYNTHÈSE DE LA RECOMMANDATION DE BONNE PRATIQUE

Prise en charge des infections cutanées bactériennes courantes

Février 2019

| Pathologie | Traitement antibiotique 1 ^{re} intention | Si allergie à la pénicilline | Durée du TTT |
|--|--|--|---|
| DHBNN adulte | Amoxicilline : 50 mg/kg/jour en trois prises avec un maximum de 6 g/jour | Pristinamycine : 1g x 3 /jour ou Clindamycine : 1,8 g/jour en 3 prises et jusqu'à 2,4 g/jour si poids > 100 kg | 7 jours |
| DHBNN adulte Antibiopro- phylaxie | Benzathine-benzyl-pénicilline G (retard) : 2,4 MUI IM toutes les 2 à 4 semaines Pénicilline V (phénoxy méthylpénicilline) : 1 à 2 millions UI/jour selon le poids en 2 prises | Azithromycine : 250 mg/jour | À évaluer : en fonction de l'évolution des facteurs de risque de récidive. |

Prise en charge des lymphoedèmes

- Education thérapeutique
- Bandages peu élastiques
- Auto-apprentissage des bandages
- Drainages lymphatiques manuels
- Compression élastique
- Soins cutanés locaux
- Autres : chirurgie ?

Traitement des lymphœdèmes

1. Réduction de volume : phase "intensive"
 - hospitalière ou ambulatoire
 - bandages peu élastiques quotidiens
2. Maintien du volume réduit : phase "d'entretien" en ambulatoire
 - compression élastique et
 - bandages (fréquence plus faible)

Schéma thérapeutique

| Phase I : réduction | Phase II : maintien |
|--|--|
| Bandages monotypes (multicouches) peu élastiques 24h/24h | Compression élastique la journée |
| DLM | Bandages monotypes (multicouches) peu élastiques la nuit |
| Exercices sous bandages | Exercices sous bandages |
| Soins de peau | Soins de peau |
| | DLM si nécessaire |

<http://www.has-sante.fr/portail/jcms>

Lymphœdème du membre supérieur

Phase de réduction du volume

Au moins 5 jours par semaine pendant 1 à 6 semaines

- bandes sèches à allongement court ou inélastiques et dispositifs de capitonnage (manchon en deuxième intention)
- utiliser la pression maximale tolérée

Phase de maintien

Traitement au long cours avec réévaluation régulière du rapport bénéfices/risques

- manchon de 15 à 20, 20 à 36 ou > 36 mmHg (bandes sèches éventuellement*)
- utiliser la pression maximale tolérée

Lymphœdème du membre inférieur

Phase de réduction du volume

Au moins 5 jours par semaine pendant 1 à 6 semaines

- bandes sèches à allongement court ou inélastiques et dispositifs de capitonnage (chaussettes, bas-cuisse, collants ou hémicollants, en deuxième intention)
- utiliser la pression maximale tolérée

Phase de maintien

Traitement au long cours avec réévaluation régulière du rapport bénéfices/risques

- chaussettes, bas-cuisse, collants ou hémicollants de 20 à 36 ou > 36 mmHg (bandes sèches éventuellement*)
- utiliser la pression maximale tolérée : au moins 45 mmHg si possible (éventuellement par superposition)

Les bandes adhésives ou cohésives, les bandes enduites, les bandes sèches à allongement long (> 100 %) et les bandages multitypes commercialisés en kit **ne sont pas indiqués** dans le traitement du lymphœdème.

Bandes sèches à allongement long

Prise en charge du lymphœdème et des ulcères veineux actifs

Date de validation par la CNEDIMTS : janvier 2020

La CNEDiMTS se prononce, dans le cadre de la saisine DGS / DSS du 1^{er} août 2019, pour :

- un **service rendu insuffisant** des bandes sèches à allongement long utilisées seules (non associées à une ou des bandes de compression médicale d'un autre type) dans les indications relatives à l'ulcère veineux actif et au lymphœdème ;
- un **service rendu insuffisant** des bandes sèches allongement long, utilisées en association avec au moins une autre bande de compression pour la réalisation d'un bandage multitype tel que décrit dans l'avis du 23 novembre 2010, dans les indications relatives à l'ulcère veineux actif.

Au total, dans le cadre précis de cette réévaluation (intérêt des bandes sèches à allongement long, hors utilisation de kits préassemblés, dans le traitement de l'ulcère veineux actif et le lymphœdème), aucune étude clinique nouvelle pertinente depuis l'évaluation réalisée par la HAS en 2010 n'a été identifiée.

Ainsi, les données de la littérature ne permettent pas de formuler des recommandations nouvelles en faveur des bandes sèches à allongement long dans le traitement de l'ulcère veineux actif et du lymphœdème, utilisées seules ou dans des bandages multi-type.

Réduction de volume : bandages monotypes peu élastiques

- Bandes à allongement court < 100%

(Partsch H, et al. Dermatol Surg 2006;32:224)

- Bandages multicouches (2-4) MAIS monotypes (≠ pathologies vasculaires)
- Intérêt : pression de repos faible mais forte en mvt (gymnastique, marche, vélo)
- Effet contensif >>> compressif
- Pas d'évaluation des autres types de bandages : élastiques, cohésifs,...

Harris SR et al. Lymphology 2001;34:84

Lymphoedema Framework. Best practice for the management of lymphoedema. International consensus. London: MEP Ltd, 2006

Traitement intensif hospitalier (ou ambulatoire)

- Durée de 1 à 4 semaines
- Bandages peu élastiques
 - quotidiens
 - renouvelés 5j/7
 - gardés 24 h/24 h
- Diminution volumétrique de 30 à 40%

Foldi E et al. Ann Plast Surg 1989;22:505

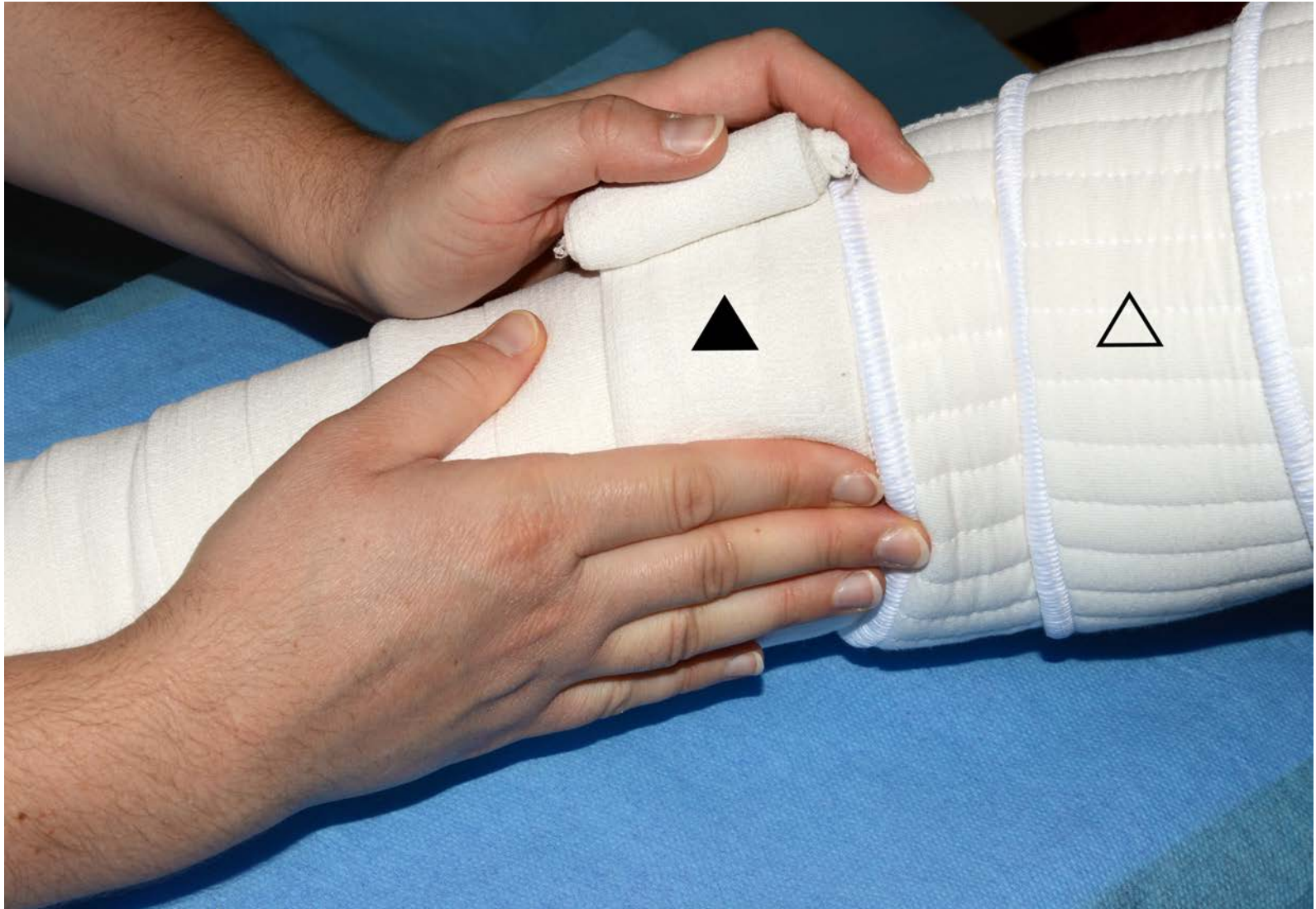
Ko DS et al. Arch Surg 1998;133:452

Szuba A et al. Am J Med 2000;109:296


McNeely ML et al. Breast Cancer Res Treat 2004;86:95

Vignes S et al. Breast Cancer Res Treat 2006;98:1

Bandages peu élastiques : Juzo SoftCompress[®], bandes Somos[®]



Pour en savoir plus

 <https://www.hopital.cognacq-jay.fr>



Infos pratiques - Accès

Actualités

 Recrutement



L'HÔPITAL

ONCOLOGIE

LYMPHOLOGIE

NUTRITION
OBÉSITÉ

SOINS
PALLIATIFS

PATIENTS &
PROCHES



Hôpital Cognacq-Jay - Paris

267 abonnés

S'ABONNER

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CHAÎNES

À PROPOS



Vidéos en ligne

▶ TOUT REGARDER



4:11

Tutoriel à destination des patients : L'autobandage de ...

676 vues • il y a 2 mois



4:55

Tutoriel à destination des patients : L'autobandage de ...

276 vues • il y a 2 mois



12:15

Tutoriel à destination des patients : L'autobandage du...

545 vues • il y a 2 mois



10:29

Tutoriel à destination des masseurs-kinésithérapeute...

261 vues • il y a 6 mois



10:20

Tutoriel à destination des masseurs-kinésithérapeute...

812 vues • il y a 6 mois



3:05

Tutoriel à destination des masseurs-kinésithérapeute...

181 vues • il y a 6 mois

Apprentissage des auto-techniques

- Auto-bandages (\pm auto-DLM)
 - avec un kinésithérapeute
 - technique simplifiée +++
 - seules \pm entourage
- Traitement d'entretien : fréquence (min: 3/semaine la nuit)
- Intégration dans un programme d'Education Thérapeutique du Patient (ETP) (ateliers collectifs, individuels)

Drainages lymphatiques manuels

- Nombreuses techniques : Vodder, Foldi, Leduc, Ferrandez, Schiltz[†], de Micas
- Qu'en attendre ?
 - court terme :
 - ✓ sensation d'allègement,
 - ✓ ↓ tension cutanée
 - ✓ effet relaxant
 - long terme : effet ≈ 0 sur volume si utilisés seuls

Badger C et al. Cochrane Database Syst Rev 2004

MacNeely M et al. Breast Cancer Res Treat 2004

Vignes S et al. Breast Cancer Breast Treat 2007

Drainages lymphatiques manuels

- Drainages lymphatiques manuels
 - petite synergie avec les bandages peu élastiques
 - utiles dans les LO proximaux (sein, thorax)
 - utile phase intensive, facultatif phase d'entretien

Badger C et al. Cochrane Database Syst Rev 2004;3:CD003141

Harris SR et al. Lymphology 2001;34:84

Lymphoedema Framework. Best practice for the management of lymphoedema. International consensus. London: MEP Ltd, 2006

Manual lymphatic drainage for lymphedema following breast cancer treatment (Review)

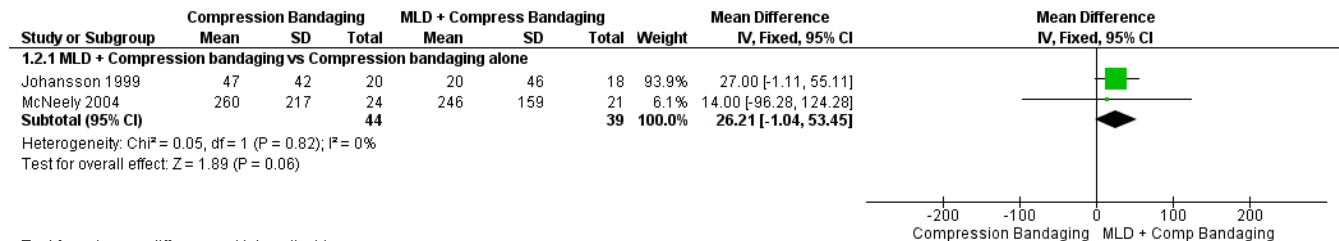
Ezzo J, Manheimer E, McNeely ML, Howell DM, Weiss R, Johansson KI, Bao T, Bily L, Tuppo CM, Williams AF, Karadibak D

MLD is safe and may offer additional benefit to compression bandaging for swelling reduction. Compared to individuals with moderate-to-severe BCRL, those with mild-to-moderate BCRL may be the ones who benefit from adding MLD to an intensive course of treatment with compression bandaging. This finding, however, needs to be confirmed by randomized data.



THE COCHRANE
COLLABORATION®

Figure 4. Forest plot of comparison: I MLD + Compression bandaging VS Compression bandaging alone for Immediate Follow Up, outcome: I.2 Volume reduction in mL.



LYMPHSPIRATION

**EVIDENCE-BASED OR TRADITIONAL TREATMENT
OF CANCER-RELATED LYMPHEDEMA**

K. Johansson, K. Karlsson, P. Nikolaidis

Department of Health Sciences (KJ), Lund University, Lund, Department of Cancer Rehabilitation (KK,PN), Karolinska University Hospital, Stockholm, Sweden

- Jamais de DLM en première intention
 - Compression élastique
 - Voire bandages peu élastiques : réduction LO débutant
- minor edema at stage 0-2. In most cases we provide a compression garment or, if needed, bandage a few days in order to reduce the edema, and thereafter a garment. MLD performed by a therapist is never the first choice of treatment. Patients are informed of the current lack of evidence concerning MLD but are encouraged to do self-lymph massage for a short period to evaluate the effect. If there

Manual Lymphedema Drainage for Reducing Risk for and Managing Breast Cancer–Related Lymphedema After Breast Surgery: A Systematic Review

Ausanee Wanchai & Jane M. Armer

© 2021 AWHONN; doi: [10.1016/j.nwh.2021.07.005](https://doi.org/10.1016/j.nwh.2021.07.005)

CLINICAL IMPLICATIONS

- Manual lymphatic drainage (MLD) is one of the gold standard treatments for women diagnosed with breast cancer–related lymphedema (BCRL).
- Because of the limitations of the studies reviewed, it cannot be concluded that MLD reduces the risk of BCRL after surgery.
- MLD did not contribute to additional reduction beyond the standard therapy in the primary outcome of limb volume.
- Further rigorous research to examine the effectiveness of MLD on BCRL is needed.

Compression élastique

- Complément indispensable pour maintenir le bénéfice des bandages peu élastiques
- Nécessité de motivation +++
- Adaptation de la compression :
 - taille, intérêt du sur-mesure
 - force de pression importante :
classe 3 (20-36 mmHg) ou 4 (> 36 mmHg)
 - rôle des orthésistes +++
- Changements réguliers : 3-4 mois

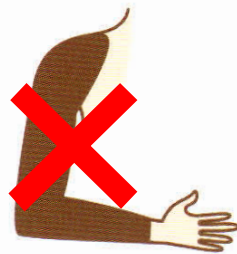
MODÈLES DISPONIBLES



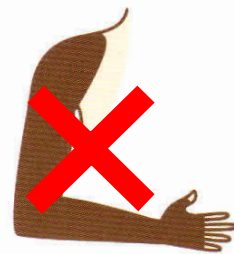
Manchon



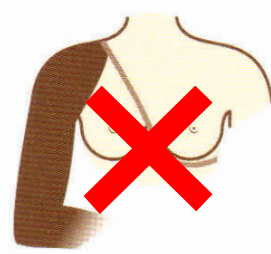
Manchon & mitaine
attenante



Épaulière
manchon



Épaulière
manchon & mitaine



Système d'attache
Épaulière sur demande
(non remboursable)



Mitaine
sans pouce



Mitaine
avec pouce

Types de chirurgie (1)

1. Résection

- ablation de tissus lymphoœdémateux
(Kim DI, Lymphology 1998;31:190)
- liposuction (Brorson et al. Acta Oncol 2000;39:407)

2. Reconstruction

- anastomoses lymphoveineuses
(Campisi et al. Microsurgery 2010)
- greffe de canaux lymphatiques
(Weiss & Baumeister, Clin Nucl Med 2002;27:788)

Types de chirurgie (2)

3. Transferts tissulaires

- greffe ganglionnaire autologue (transfert ganglionnaire) (Becker et al. Ann Surg 2006)
- transfert pédiculé de l'épiploon (Benoit L, Ann Surg Oncol 2005;12:793)
- autogreffe de cellules souches hématopoïétiques (Hou C, Jpn J Clin 2008;38:670)

Chirurgie de résection cutanée

- Exérèse plastie des excédents de peau
- Face externe ou interne du mollet, de la cuisse
- Sens longitudinal
- Cicatrisation normale : ni retard, ni lymphorrhée
- Plusieurs interventions possibles et nécessaires

Chirurgie de résection cutanée

- Traitement symptomatique
- Poursuite contention/compression
(plus facile : ↓ plis cutanés)
- Pas de complications particulières
- Pas de retard de cicatrisation

OUTIL SUPPLEMENTAIRE dans la
stratégie thérapeutique

Conclusions

- Maladie chronique : Tt au long cours
- Motivation importante +++
- Deux piliers du traitement
 - bandages peu élastiques
 - compressions élastiques
- Autres mesures : stabilisation/↓ poids, activités physiques, soins cutanés
- Suivi régulier nécessaire
- Education thérapeutique du patient +++

Schéma de prise en charge

