

# “On peut prévenir le lymphoœdème”

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## Lymphoœdème MS après cancer du sein

- 53000 nouveaux cas de cancer par an
- Fréquence
  - 13-28% après curage axillaire classique
  - 2,5 – 8 % après ganglion sentinelle

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

DiSipio T et al. Lancet 2013;14:500



Lymphoœdème du MS après cancer du sein

# Lymphoœdème MS après cancer du sein



## FDR lymphœdème

- Curage, nombre de ganglions enlevés
- Radiothérapie externe
  - surtout sur le creux axillaire
  - mais aussi creux sus/sous claviculaire, chaîne mammaire interne, sein)
- Chimiothérapie par taxanes ?

Sener SF et al. Cancer 2001;92:748

Golshan M et al. Am Surg 2003;69:209

McLaughlin SA et al. J Clin Oncol 2008; 26:5213

## Lymphoœdème et poids

- Obésité lors du cancer : ↑ risque (IMC > 30 kg/m<sup>2</sup>, OR: 3,6)
- Variations (hausse/baisse) du poids en post-opératoire (4,5 kg par mois)
- Sévérité du lymphoœdème (volume)

Ridner SH et al. Support Care Cancer 2011;19:853

Jammallo LS et al. Breast Cancer Res Treat 2013;142:59

Vignes S et al. Acta Oncol 2007;46:1138

## Impact of Body Mass Index and Weight Fluctuation on Lymphedema Risk in Patients Treated for Breast Cancer

Lauren S. Jammallo, B.S.<sup>1</sup>, Cynthia L. Miller, B.S.<sup>1</sup>, Marybeth Singer, M.S., A.N.P.-B.C., A.O.C.N., A.C.H.P.N.<sup>2</sup>, Nora K. Horick, M.S.<sup>3</sup>, Melissa N. Skolny, M.S.H.A.<sup>1</sup>, Michelle C. Specht, M.D.<sup>4</sup>, Jean O'Toole, P.T., M.P.H., C.L.T.-L.A.N.A.<sup>5</sup>, and Alphonse G. Taghian, M.D., Ph.D.<sup>1</sup>

Multivariate results for association of demographic and treatment factors with risk of lymphedema development (RVC $\geq$ 10%).

Variable	HR	Lower CL	Upper CL	P-value
ALND (vs. SLNB)	4.47	1.98	10.1	0.0003
BMI $\geq$ 30 (vs. 25– $<$ 30)	2.46	1.22	4.99	0.012
BMI $\geq$ 30 (vs. $<$ 25)	3.58	1.66	7.70	0.001
RLNR (vs. breast/chest wall only/none)	2.67	1.25	5.70	0.011
Cumulative absolute fluctuation in weight from pre-op (1 lb/mo change in weight)	1.07	1.04	1.11	<0.001

ALND axillary lymph node dissection, SLNB sentinel lymph node biopsy, BMI body mass index, RLNR regional lymph node radiation

Furthermore, large post-operative fluctuations in weight, regardless of whether they reflected weight gain or loss (i.e. 10 pounds gained/lost per month), resulted in a significantly increased risk of lymphedema (HR: 1.97, p = <0.0001). 10 pounds  $\approx$  4.5 kg

## Autres FDR lymphœdème MS

- Type de chirurgie : ↑ risque LO avec mastectomie / tumorectomie
- Envahissement ganglionnaire (N+)
- Mobilisations précoce (1<sup>ère</sup> semaine) de l'épaule, MS (+90° )
- Diminution des activités physiques

# Poids et lymphœdème ?

**Recommandations :**  
**MAINTENIR UN POIDS  
STABLE**

« Piqûres » sur le membre  
ipsilatéral au cancer du sein

**Recommandations  
habituelles : EVITER**

**Table 1** Patient support societies and informative documentation recommendations

The Royal College of Anaesthetists	UK	Having blood taken (venepuncture) from a vein by a skilled practitioner is very unlikely to introduce infection into the limb. However, where there are alternative sites, it is commonsense to use them instead, even if this means ‘unusual’ sites such as the feet
The Royal College of Nursing	UK	Unless there is a medical emergency, avoid taking blood pressure measurements, injections or blood samples from the ‘at-risk’ limb as this may lead to infection and/or the onset of lymphoedema. For women who have had bi-lateral surgery or radiotherapy, blood samples may be obtained from other areas of the body, such as the feet or legs
Macmillan Cancer Support	UK	If possible, avoid having needles put into your affected hand/arm or foot/leg when you have blood taken, injections, a drip (infusion) or acupuncture. Although there is no strong medical evidence to support this, most lymphoedema experts think it is a wise precaution to take to reduce the risk of infection
Breast Cancer Care UK	UK	Avoid having your blood pressure or blood samples taken from your ‘at-risk’ arm. If both your arms are affected, then it may be possible to take your blood pressure measurements or blood samples from your legs or feet
The Lymphoedema Support Network	UK	Patients should be advised to avoid having injections and blood pressure recordings taken in the affected side
British Lymphoedema Society	UK	Avoiding injections/needles, blood tests and blood pressure readings on the affected limb, whenever possible
Lymphoedema Network of Northern Ireland	UK	If possible, never allow injections, blood taking or blood pressure cuffs on the operated arm
Cancer Research UK	UK	It is not clear whether having blood taken in the arm on the same side as your surgery, or having injections, can increase the risk of lymphoedema. So it is advisable to avoid these
The American Cancer Society	USA	Have your blood drawn from your unaffected arm if you can
The American Society of Clinical Oncology	USA	If possible, avoid medical procedures such as blood draws in your affected arm
National Lymphoedema Network	USA	If required to have venipuncture, inform the phlebotomist of your lymphoedema and use a non-lymphoedema limb, if possible. If not possible, inform the phlebotomist of your lymphoedema condition and ask for the most experienced phlebotomist. Do not allow multiple or traumatic searches for veins, which can increase tissue oedema. If a traumatic venipuncture occurs on a lymphoedema extremity, immediately wash the area, apply a cold pack, then elevate until oedema subsides
The Mayo Clinic	USA	If possible, avoid medical procedures, such as blood draws and vaccinations, in your affected limb
The Cancer Society of New Zealand	New Zealand	Always use the unaffected limb for any blood sampling or needles of any kind
National Breast and Ovarian Cancer Centre	Australia	Avoid vaccinations, injections, blood drawing, blood pressure readings and intravenous treatment administration to the treated side
The Canadian Cancer Society	Canada	If possible, avoid having needle sticks of any type in the affected limb

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

Breast Cancer Res Treat

DOI: 10.1007/s10549-011-3030-1

Adam D. Jinks<sup>1</sup> · Chris Taylor<sup>1,2</sup>

1955

1962

1998

2006

2009

2010

2005

Table 1 Evolution of evidence regarding venepuncture

Year	Author(s)	Population studied	Number of patients	Delivery method	Outcome	Conclusion
1955	Miller et al. 1955; Levy & Lambert 1955	Patients with breast cancer receiving radiotherapy	27	External irradiation	20% had lymphedema following radiotherapy	Radiotherapy causes lymphedema
1962	Levy & Lambert 1962	Patients with breast cancer receiving radiotherapy	117	External irradiation	26% had lymphedema following radiotherapy	Radiotherapy causes lymphedema
1998	Smith et al. 1998	Operative breast cancer patients	142	External radiotherapy and/or chemotherapy	20% had lymphedema at 1 year postoperatively	Radiotherapy causes lymphedema
2006	Coyle et al. 2006	Nonoperated breast cancer patients	100	External radiotherapy and/or chemotherapy	10% had lymphedema at 1 year postoperatively	Radiotherapy causes lymphedema
2009	Jinks et al. 2009	Operative breast cancer patients	201	External radiotherapy and/or chemotherapy	21% had lymphedema at 1 year postoperatively	Radiotherapy causes lymphedema
2010	Jinks et al. 2010	Operative breast cancer patients	201	External radiotherapy and/or chemotherapy	21% had lymphedema at 1 year postoperatively	Radiotherapy causes lymphedema
2005	Perez et al. 2005	Nonoperative breast cancer patients	100	External radiotherapy and/or chemotherapy	10% had lymphedema at 1 year postoperatively	Radiotherapy causes lymphedema

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*Ann Surg Oncol.* 2013 March ; 20(3): 842–849. doi:10.1245/s10434-012-2631-9.

## **Lifestyle Risk Factors Associated with Arm Swelling among Women with Breast Cancer**

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1. Etude prospective (cohorte PAL : Physical Activity Lymphedema)
2. Questionnaire sur 30 items (FDR potentiels) à 3, 6 et 12 mois
3. LO défini > 5% (volumétrie à eau) à 3, 6 et 12 mois

Characteristic	Total Sample (n=295)	Incident Arm Swelling (n=27)	No Incident Arm Swelling (n=268)	P
BMI — kg/m <sup>2</sup>	29.2±6.1	29.0±5.9	29.2±6.1	0.74
Cancer stage — no. (%)				0.55
Ductal in situ	1 (1%)	1 (4%)	0 (0%)	
1	143 (48%)	6 (22%)	137 (51%)	
2	15 (5%)	8 (30%)	7 (3%)	
3	97 (33%)	1 (4%)	96 (36%)	
Unknown	39 (13%)	11 (41%)	28 (10%)	
No. of nodes removed	11.7±7.9	9.3±8.3	11.9±8.0	0.05
Chemotherapy — no. (%)	220 (76%)	22 (81%)	198 (74%)	0.58
Radiation — no. (%)	229 (78%)	16 (59%)	213 (79%)	0.005
Current receipt of drugs — no. %				
Tamoxifen	69 (23%)	3 (11%)	66 (25%)	0.27
Aromatase inhibitor	2 (<1%)	0 (0%)	2 (<1%)	0.80
Months since cancer diagnosis	61.6±29.4	54.6±31.1	61.2±40.1	0.39
Lymphedema Diagnosis — no. (%)				0.09
With lymphedema	141 (48%)	10 (37%)	131 (49%)	
At-Risk for lymphedema	154 (52%)	17 (63%)	137 (51%)	
Common Toxicity Criteria lymphedema grade — no. (%) <sup>b</sup>				0.14
0	12 (9%)	3 (30%)	9 (7%)	
1	30 (21%)	2 (20%)	28 (21%)	
2	58 (41%)	3 (30%)	55 (42%)	
3	41 (29%)	2 (20%)	39 (30%)	
Hypertension	86 (29%)	9 (33%)	77 (29%)	0.66
Diabetes	30 (10%)	3 (11%)	27 (10%)	0.74

### Lymphedema risk-factor exposures over 12-months, all participants — no (%)

Exposure	3-month (n=271)	6-month (n=266)	12-month (n=253)	OR (95% CI)	P
Fever	24 (9%)	27 (10%)	24 (10%)	1.22 (0.36–4.22)	0.74
Vigorous exercise in hot weather	20 (7%)	19 (7%)	15 (6%)	1.00 (0.11–4.17)	0.99
Travel to hot/humid place	51 (19%)	49 (19%)	38 (15%)	1.09 (0.40–2.96)	0.87
Sunburn	20 (7%)	22 (8%)	14 (6%)	1.76 (0.49–6.26)	0.38
Pet scratch	32 (12%)	36 (14%)	39 (16%)	1.49 (0.54–4.11)	0.44
Bug Bite	101 (37%)	93 (35%)	86 (34%)	1.09 (0.49–2.45)	0.81
Cut	111 (41%)	96 (36%)	106 (42%)	1.99 (0.91–4.35)	0.08
Hang nail	90 (34%)	90 (34%)	90 (36%)	0.66 (0.27–1.57)	0.34
Manicure	86 (32%)	88 (33%)	74 (29%)	1.33 (0.59–3.01)	0.49
Blister	27 (10%)	24 (9%)	27 (11%)	0.77 (0.18–3.36)	0.73
Hot tub use	27 (10%)	25 (9%)	23 (9%)	0.76 (0.17–3.31)	0.71
Travel by airplane	81 (30%)	81 (30%)	84 (33%)	0.62 (0.24–1.57)	0.31
Acupuncture	0 (0%)	1 (1%)	2 (1%)	5.16 (0.11–47.98)	0.11
Bruise	30 (11%)	32 (12%)	28 (11%)	1.98 (0.69–5.67)	0.20
Change of breast prosthesis	4 (1%)	6 (2%)	4 (2%)	2.10 (0.26–17.00)	0.49
Blood draw	8 (3%)	7 (3%)	9 (4%)	1.13 (0.15–8.74)	0.91
Bra too tight	37 (14%)	35 (13%)	24 (10%)	1.26 (0.42–3.76)	0.67
Blood pressure cuff	6 (2%)	3 (1%)	10 (4%)	1.47 (0.18–11.77)	0.72
Constriction	11 (4%)	13 (5%)	13 (5%)	0.78 (0.10–5.97)	0.81
Lying on affected arm	204 (75%)	201 (76%)	194 (78%)	0.52 (0.23–1.17)	0.11
Surgery	17 (6%)	11 (4%)	14 (6%)	1.42 (0.32–6.31)	0.65
Travel to different altitude	28 (10%)	24 (9%)	30 (12%)	0.51 (0.05–2.06)	0.35
Heavy lifting	90 (33%)	92 (35%)	80 (32%)	0.56 (0.22–1.41)	0.22
Overuse from chores	63 (23%)	78 (29%)	70 (28%)	0.47 (0.16–1.38)	0.17
Menstrual changes	9 (3%)	15 (6%)	12 (5%)	1.68 (0.37–7.49)	0.50
Sauna use	4 (1%)	4 (2%)	5 (2%)	5.77 (1.00–33.82)	0.05
Infection	9 (3%)	3 (1%)	11 (4%)	1.35 (0.17–10.60)	0.78
Sports injury	5 (2%)	6 (2%)	2 (1%)	1.82 (0.35–15.12)	0.56
Skin burn	11 (4%)	10 (4%)	5 (2%)	2.52 (0.53–11.93)	0.24
More alcohol intake than usual	11 (4%)	13 (5%)	7 (3%)	1.37 (0.15–5.79)	0.67
Median # of exposures [IQR]	4 [2–6]	4 [2–6]	4 [1–6]	0.98 (0.85–1.12)	0.73
Range	0–18	0–15	0–17	—	—

# 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  $\geq 25$  ( $P = .0236$ ), 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

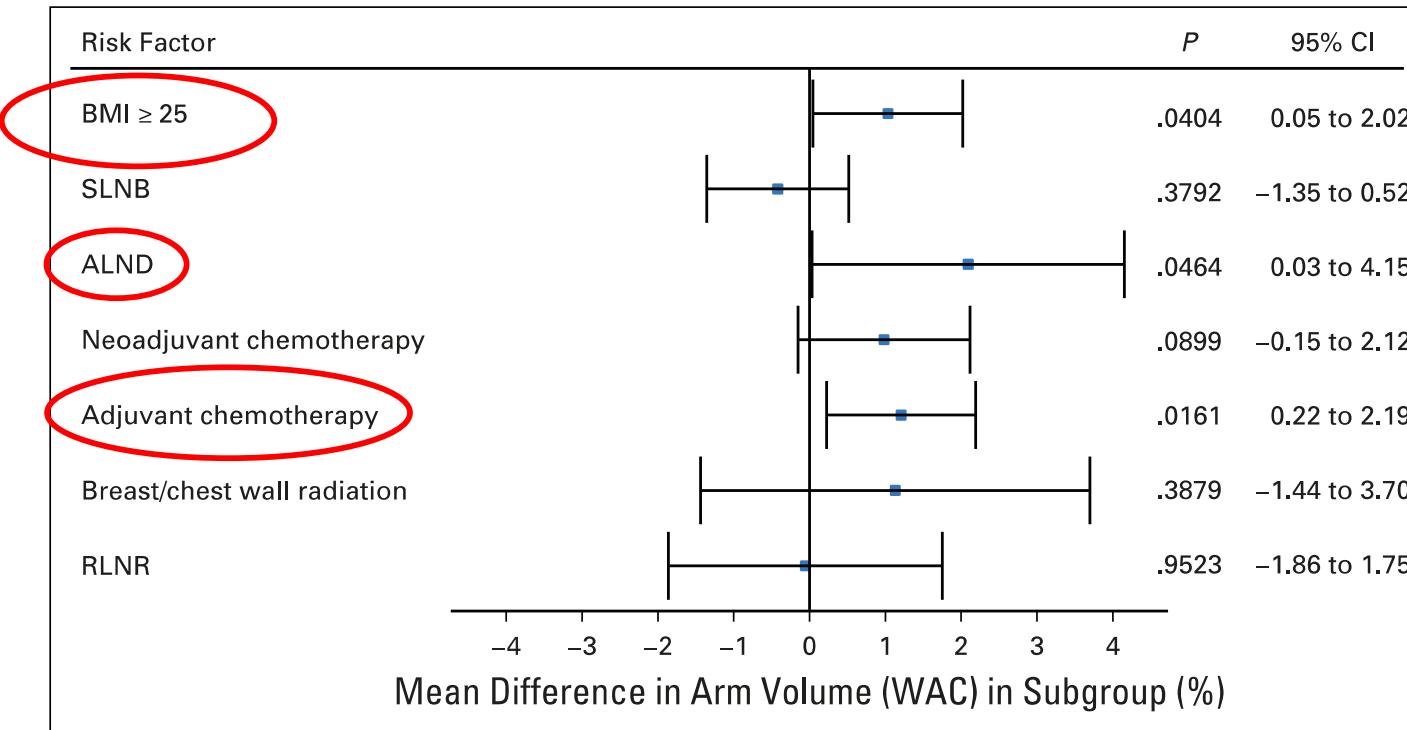
**Table 1.** Demographic and Clinicopathologic Characteristics of Bilateral Cohort

Characteristic	Lymphedema, No. (%)		
	No	Yes	Overall
No. of arms	571	83	654
Age at diagnosis, years*	47 (28-72)	46 (25-69)	47 (25-72)
BMI, kg/m <sup>2</sup> *	24.7 (17.7-47.5)	28.8 (18-55.9)	25 (17.7-55.9)
Follow-up, months*	25.4 (6.1-68.2)	34.5 (7-65.7)	27.2 (6.1-68.2)
Postoperative visits*	4 (1-19)	6 (2-19)	4 (1-19)
Arm measurements*	5 (2-20)	7 (3-20)	5 (2-20)
Lymph nodes removed*	1 (0-33)	3 (0-41)	2 (0-41)

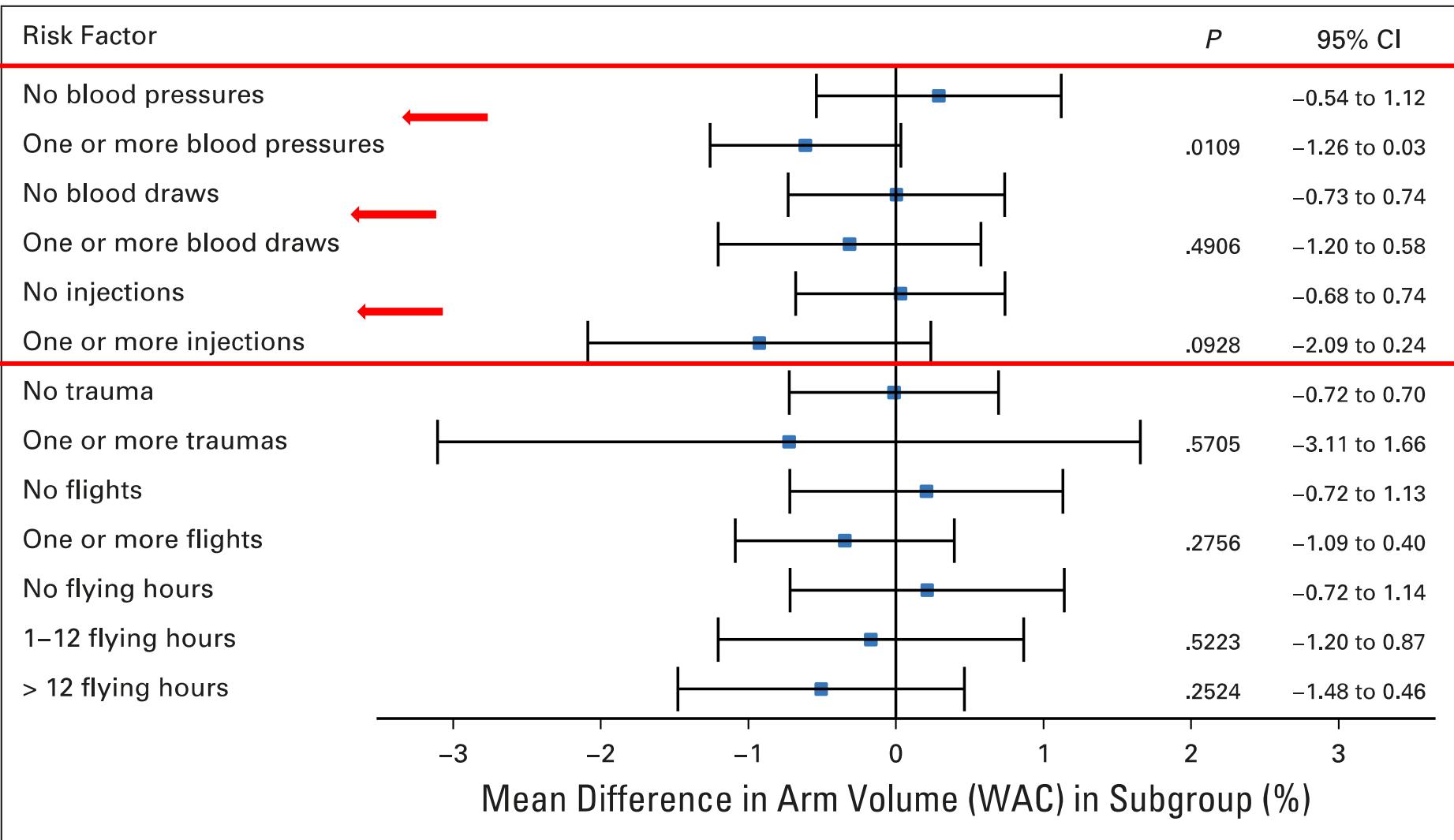
# Association Between Precautionary Behaviors and Breast Cancer–Related Lymphedema in Patients Undergoing Bilateral Surgery

*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.

« Piqûres » sur le membre  
ipsilatéral au cancer du sein

**POSSIBLE**

Prendre la pression artérielle  
sur le membre ipsilatéral au  
cancer du sein  
(constrictions au sens large...)

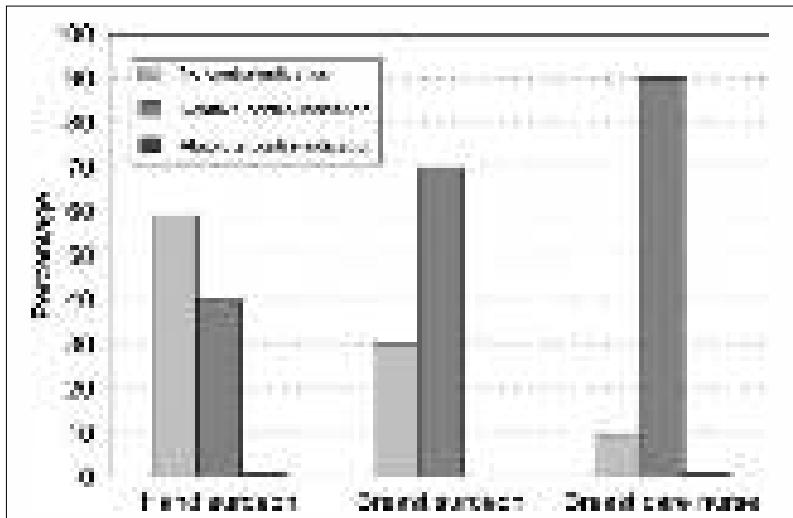
**Déconseillée voire interdit**

# Hand surgery after axillary lymph node clearance for breast cancer: contra-indication to surgery?

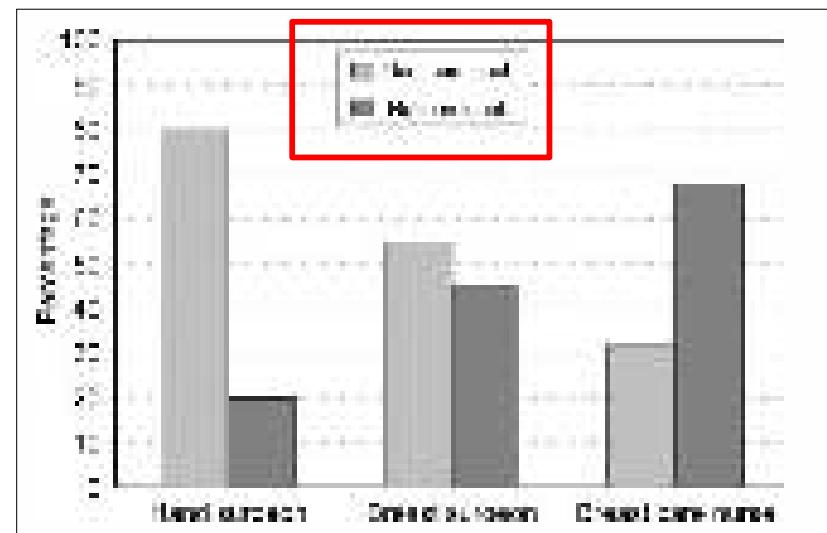
Dean Fulford<sup>1</sup>, Sam Dalal<sup>2</sup>, John Winstanley<sup>3</sup>, Mike J Hayton<sup>4</sup>

## Results

A total of 339 responses were received during the survey period – 101 hand surgeons, 136 breast surgeons and 102 breast-care nurses.



**Figure 1** Opinion of hand surgeons, breast surgeons and breast-care nurses on hand surgery after axillary lymph node clearance.



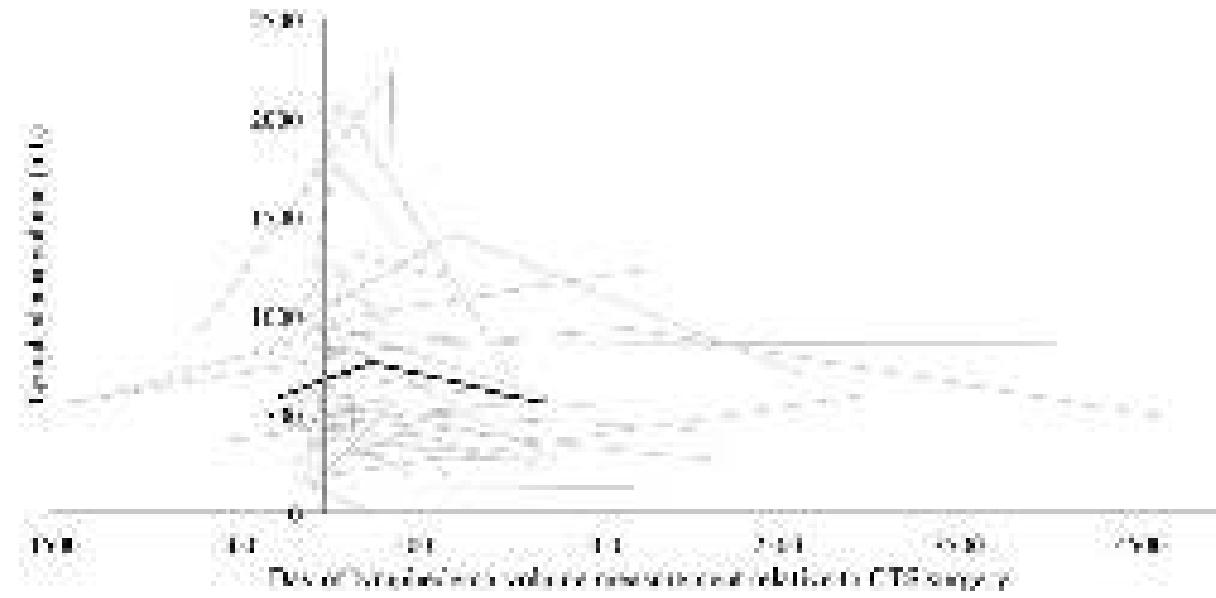
**Figure 3** Opinion on tourniquet use on patients with ipsilateral axillary lymph node clearance.

BRIEF REPORT

## Impact of carpal tunnel syndrome surgery on women with breast cancer-related lymphedema

Neetish Gunnoo<sup>1</sup> · Michel Ebelin<sup>2</sup> · Maria Arrault<sup>1</sup> · Stéphane Vignes<sup>1</sup>

Fig. 1 Individual evolutions of breast cancer treatment—associated lymphedema volume for 32 patients who underwent surgery for carpal tunnel syndrome (CTS; indicated by the vertical black bar)



Garrot pneumatique : 250 - 280 mmHg

Prendre la pression artérielle  
sur le membre ipsilatéral au  
cancer du sein

**Possible, de même que les  
garrots pour chirurgie**

Et les activités physiques, et le port de « charges lourdes »

**Déconseillés**

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

## A Randomized Trial

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Rebecca Smith, MD, MS

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Jesse Chittams, MS

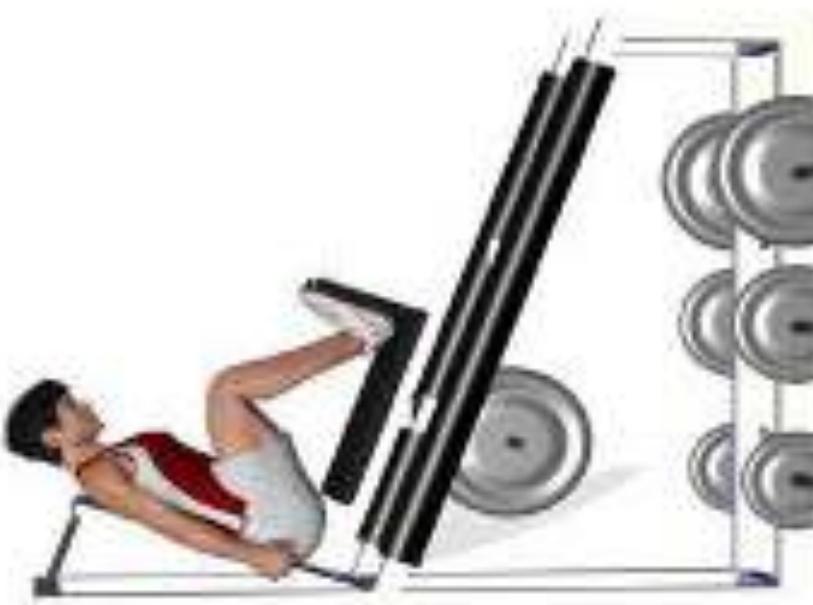
JAMA. 2010;304(24):2699-2705

Table 3. Lymphedema Onset Outcomes at 12 Months<sup>a</sup>

	Weight Lifting Intervention		Control		Cumulative Incidence Ratio (95% CI)	<i>P</i> Value <sup>b</sup>
	No./Total No. (%)	Mean (SD)	No./Total No. (%)	Mean (SD)		
All participants						
Defined by ≥5% increase in arm swelling <sup>c</sup>	87/91 (95)	1.3 (1.1)	137/111 (63)	1.3 (1.0)	0.64 (0.28-1.07)	.003
Noninvasive onset	10/10 (100)	1.3 (1.0)	18/21 (86)	1.3 (1.0)	0.34 (0.04-0.75)	.12
Participants who had ≥5 lymph node removals						
Defined by ≥5% increase in arm swelling <sup>c</sup>	31/57 (54)	1.4 (1.0)	51/102 (50)	1.3 (1.0)	0.80 (0.09-1.00)	.001
Noninvasive onset	10/22 (45)	1.3 (1.0)	18/30 (60)	1.3 (1.0)	0.87 (0.04-1.28)	.18



<http://cgs.madnclif.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.

## Haltérophilie et lymphoœdème

1. Ces articles vont à l'encontre des recommandations habituelles
2. Idée majeure : ne pas déconditionner le MS +++
3. Muscler sans hypertrophier (lutter contre les agressions quotidiennes)
4. Effet préventif (Schmitz et al. JAMA 2010;304:2699)

## DRAGON BOAT RACING: LIFE AFTER BREAST CANCER TREATMENT

Research indicates that this sport and other forms of upperbody exercise often confer invaluable benefits.



For many years, women who underwent surgical or radiologic treatment (or both) for breast cancer were cautioned to avoid rigorous, 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 indicate that certain forms of exercise—in particular, the sport of dragon boat racing—reduce risk of chronic swelling not seen in lymphedema, and might even help prevent it.



Photo: Sean the Hope Client Dragon Boat director's yell during practice, Buffalo, New York, July 2006. Photo courtesy of Jim Head.

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

Ben Singh, MRes,<sup>a,b</sup> Tracey Disipio, PhD,<sup>a,b</sup> Jonathan Peake, PhD,<sup>b,c</sup>  
Sandra C. Hayes, PhD<sup>a,b</sup>

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

# **Drainages lymphatiques manuels**

**Souvent prescrits en  
prévention**

# **Effectiveness of early physiotherapy to prevent lymphoedema after surgery for breast cancer: randomised, single blinded, clinical trial**

Maria Torres Latorre, professor of physiotherapy;<sup>1</sup> María José Muñoz González, professor of physiotherapy;<sup>1</sup> Álvarez Zúñiga Sofía, professor of osteopathy and physiotherapy;<sup>1</sup> David Pérez Martínez, research;<sup>1</sup> Cándido Mayorga del Moral, professor of physiotherapy;<sup>2</sup> Ester Cerezo Téllez, research fellow;<sup>1</sup> Elena Minaya; Miqueluri, research fellow;<sup>1</sup>

- 1. DLM (résorption seule)**
- 2. Massage de la cicatrice**
- 3. Mobilisation de l'épaule**
- 4. Mobilisation et stretching à domicile**

**Durée d'intervention : 3 semaines**

Cite this as: *BMJ* 2010;340:b5396  
doi:10.1136/bmjj.b5396

# Résultats

Group	Early physiotherapy group (n=59)	Control group (n=57)	Odds ratio (95% CI)	P value
No (%) with lymphoedema	4 (7)	14 (25)		
Early physiotherapy v control*	0.28 (0.10 to 0.79)†	—	0.22 (0.07 to 0.73)	0.310
Early physiotherapy v control‡	—	—	0.22 (0.07 to 0.72)	0.313

\*Crude effect.  
†Risk ratio (95% confidence interval).  
‡Adjusted for body mass index.

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

OPEN ACCESS

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BMJ 2011;343:d5329 doi: 10.1136/bmj.d5329

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*
<b>Primary outcome parameter</b>				
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.

EVIDENCE-BASED OR TRADITIONAL TREATMENT

OF CANCER-RELATED LYMPHEDEMA

K. Jähultsson, K. Karlsson, P. Albråkde

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

- Importance de la détection précoce d'un LO
  - bio-impédancemétrie (courant de faible intensité)
  - mesure de la constante tissulaire di-électrique (signal de 300 MHz)
  - clinique par auto-diagnostic (éducation du patient)

# Prise en charge précoce

- Jamais de DLM en première intention
- Compression élastique
- Voir 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

**Brief Report**

## Preventing Early Postoperative Arm Swelling and Lymphedema Manifestation by Compression Sleeves After Axillary Lymph Node Interventions in Breast Cancer Patients: A Randomized Controlled Trial



Katarzyna Ochalek, PhD, PT, Tomasz Gradalski, MD, PhD, and Hugo Partsch, MD, PhD

*Department of Clinical Rehabilitation (K.O.), Faculty of Motor Rehabilitation, University of Physical Education, Krakow; St. Lazarus Hospice (K.O., T.G.), Krakow, Poland; and Medical University of Vienna (H.P.), Vienna, Austria*

# Manchon classe 2 (15-21 mmHg), 8-10 h/j)

Table 3

**Mean (SD) or Median (IQR) Values of the Affected Arm and Edema Volumes (mL) Within the Groups**

Time	CG, n = 23		NCG, n = 22		P	
	Arm Vol.	Edema Vol.	Arm Vol.	Edema Vol.	Arm	Edema
Initially	1918 (1780–2142)	-2.1 (-127.2 to 42.5)	2141 (2000–2285)	35.7 (-31 to 85.8)	0.1	0.1
After one month	1995 (319.5)	-4.2 (131.4)	2207 (507.5)	38.5 (126.3)	0.1 <sup>a</sup>	0.3 <sup>a</sup>
After three months	1968 (1870–2124)	-23.7 (-83.6 to 33.7)	2207 (2044–2420)	57.2 (-0.3 to 165.3)	0.02	0.02
After six months	1978 (1756–2122)	-43.5 (-113.7 to 23.8)	2272 (2057–2378)	58.2 (0.7–180)	0.009	0.002
After nine months	1925 (1763–2164)	-74.9 (-120 to -6.2)	2179 (2058–2428)	68.6 (-10.1 to 134.4)	0.01	0.004
After 12 months	1969 (1762–2151)	-67.6 (-144.1 to -24.2)	2257 (2032–2420)	114.5 (14.9–166.5)	0.007	<0.001

IQR = interquartile range (25%–75%); CG = compression group; NCG = no compression group.

P-values calculated using Wilcoxon rank sum test.

<sup>a</sup>tTest.

## Peut-on prévenir « chirurgicalement » le lymphoœdème ?

- Ganglion sentinelle
  - diminuer la fréquence du lymphoœdème : 2,5-8%
  - recherche du ganglion sentinelle du bras (« sentibras »)
    - ✓ éviter son ablation lors du curage axillaire
    - ✓ diminuer ainsi le risque de lymphoœdème

## Blue Dye Injection in the Arm in Order to Conserve the Lymphatic Drainage of the Arm in Breast Cancer Patients Requiring an Axillary Dissection

Claude Nos, MD, Benedicte Lesieur, MD, Krishna B. Clough, MD, and Fabrice Lecuru, PhD

- Injection de bleu patenté face postérieure bras, 1<sup>er</sup> et 2<sup>ème</sup> espace interdigital
- Repérage axillaire : éviter l'ablation de ce ganglion (nég. même si curage +)
- Disparition complète de la coloration bleue en 2 ans (50%), légère non gênante (50%)

# The Feasibility and Oncological Safety of Axillary Reverse Mapping in Patients with Breast Cancer: A Systematic Review and Meta-Analysis of Prospective Studies

PLOS ONE

Chao Han<sup>1,2</sup>, Ben Yang<sup>1</sup>, Wen-Shu Zuo<sup>1\*</sup>, Gang Zheng<sup>1</sup>, Li Yang<sup>1</sup>, Mei-Zhu Zheng<sup>1</sup>

PLoS One 2016; 11(2):e0150285

- Identification du ganglion sentinelle du MS lors des curages: 83%
- => LO : 4,1%

2 Kuusk et al.

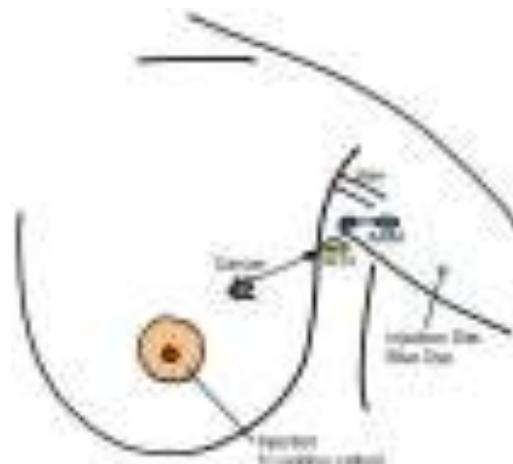
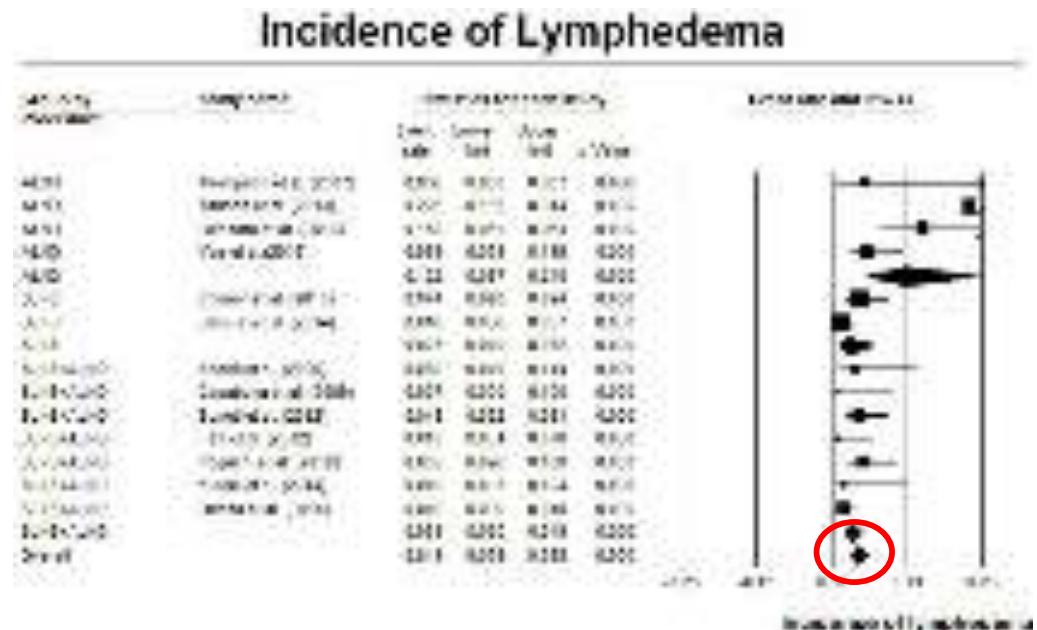


Fig. 1. Injection sites for technetium (Tc) sulfur colloid and blue dye for axillary reverse lymphatic mapping (ARM) procedure. SLN, sentinel lymph node.

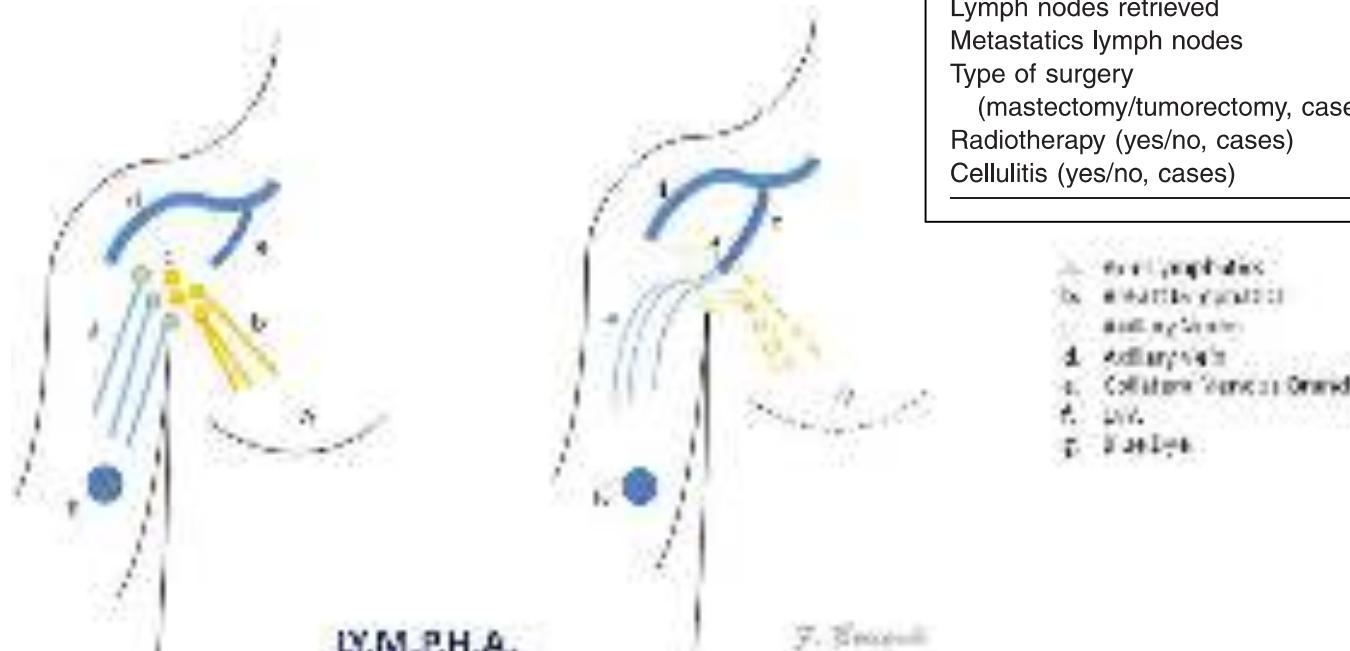


**LYMPHATIC MICROSURGICAL PREVENTING HEALING  
APPROACH (LYMPHA) FOR PRIMARY SURGICAL PREVENTION  
OF BREAST CANCER-RELATED LYMPHEDEMA: OVER 4 YEARS  
FOLLOW-UP**

Microsurgery 2014;34:421-4

FRANCESCO BOCCARDO M.D., Ph.D.,<sup>1\*</sup> FEDERICO CASABONA M.D.,<sup>2</sup> FRANCO DeCIAN M.D.,<sup>3</sup> DANIELE FRIEDMAN M.D.,<sup>4</sup>  
FEDERICA MURELLI M.D.,<sup>4</sup> MARIA PUGLISI M.D.,<sup>4</sup> CORRADO C. CAMPISI M.D.,<sup>5</sup> LIDIA MOLINARI M.D.,<sup>1</sup>  
STEFANO SPINACI M.D.,<sup>1</sup> SARA DESSALVI M.D.,<sup>1</sup> and CORRADINO CAMPISI M.D., Ph.D., F.A.C.S.<sup>1</sup>

# ALV « préventives » même temps chirurgical que le traitement du cancer



**Table 1.** Patients Characteristics

Variable	Patient's group
Age (Years)	57 (42–69)
Body mass index	24 (21–33)
Lymph nodes retrieved	19 (12–21)
Metastatic lymph nodes	3 (0–4)
Type of surgery (mastectomy/tumorectomy, cases)	34/40
Radiotherapy (yes/no, cases)	35/39
Cellulitis (yes/no, cases)	14/60

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## Lymphœdème à 1 an : 4%

**Table 2.** Clinical and Instrumental Assessment of Results after LYMPHA Procedure (mean  $\pm$  SD)

Number of patients	Volumetry (ml)			Lymphoscintigraphy T.I.		
	Pre-op	Post-op	1 year	4 years	Pre-op	Post-op
71	765.7 $\pm$ 88.7	763.4 $\pm$ 97.6	761.9 $\pm$ 89.6	—	12 $\pm$ 3.7	9 $\pm$ 4.02
3	773.5 $\pm$ 120.8	1035.7 $\pm$ 20.8	—	—	14 $\pm$ 4.1	16 $\pm$ 3.7
71 total						8 $\pm$ 3.8

SD: Standard Deviation.

P value < 0.05 (Pre-Op and Post-Op volumetric measurements in 71 patients).

T.I.: Transport Index.

# Conclusions

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] – <b>level 2</b> prospective observational study (188 patients), findings that 44% patients with needle stick developed lymphedema as compared with 18% of those without needle sticks	Winge <sup>18</sup> — <b>Level 3</b> 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] – <b>level 5</b> , expert opinion hypothesising that blood pressure monitoring, tight clothing increases blood pressure in at risk limb resulting in increased lymph production.	Dawson [22] – <b>level 3</b> , 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] – <b>level 5</b> , 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] – <b>level 4</b> , 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] – <b>level 2</b> , 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] – <b>level 1</b> , randomised clinical trial (21 patients), interventions designed to promote weight loss after surgery significantly reduced excess arm volume and lymphedema.	Villasor [6] – <b>level 3</b> 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	Hetrick [48] – <b>level 4</b> prospective analysis, 1% of burn population found to have lymphedema.	Chang [45] – <b>level 1</b> 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] <b>level 5</b> Expert opinion rationalising that vigorous exercise increases blood flow and consequently lymphatic fluid production.	Schmitz [52] – <b>level 1</b> randomized trial (141 patients), no increased incidence of lymphedema in exercise group compared to non-exercise control group.	Fiction

Manchon ?  
Chirurgie  
(ARM, ALV ?)