Authors have nothing to disclose with regard to commercial support.

Author has nothing to disclose with regard to commercial support.

individual strategies, such as method of graft preparation, should be considered. Further studies are required comparing radial artery, conventional, and no-touch saphenous vein grafts if the true preferred second conduit for coronary artery bypass grafting is to be established.

Michael R. Dashwood, PhD^a
 Andrzej Loesch, PhD, DSc^b
^a*Surgical and Interventional Sciences*
^b*Centre for Rheumatology*
 Royal Free Hospital Campus
 University College Medical School
 London, United Kingdom

References

1. Gaudino M, Mack MJ, Taggart DP. Additional arterial conduits in coronary artery bypass surgery: finally coming of age. *J Thorac Cardiovasc Surg.* 2018; 156:541-3.
2. Favaloro RG. Saphenous vein autograft replacement of severe segmental coronary artery occlusion. *Ann Thorac Surg.* 1968;5:334-9.
3. Gaudino M, Benedetto U, Fremes S, Biondi-Zoccai G, Sedrakyan A, Puskas JD, et al. for the RADIAL Investigators. Radial artery versus saphenous vein in coronary artery bypass surgery. *N Engl J Med.* 2018;378: 2069-77.
4. Samano N, Geijer H, Liden M, Fremes S, Bodin L, Souza D. The no-touch saphenous vein for coronary artery bypass grafting maintains a patency, after 16 years, comparable to the left internal thoracic artery: a randomized trial. *J Thorac Cardiovasc Surg.* 2015;150:880-8.
5. Dashwood MR, Tsui JC. 'No-touch' saphenous vein harvesting improves graft performance in patients undergoing coronary artery bypass surgery: a journey from bedside to bench. *Vascul Pharmacol.* 2013;58:240-50.
6. Kopjar T, Dashwood MR, Dreifaltdt M, de Souza DR. No-touch saphenous vein as an important conduit of choice in coronary bypass surgery. *J Thorac Dis.* 2018; 10(suppl 26):S3292-6.
7. Mennander AA. Comparing apples with oranges: the funfair of statistics. *J Thorac Cardiovasc Surg.* 2019;157:905-6.
8. Dreifaltdt M, Mannion JD, Bodin L, Olsson H, Zagodzoon L, Souza D. The no-touch saphenous vein as the preferred second conduit for coronary artery bypass grafting. *Ann Thorac Surg.* 2013;96:105-11.

<https://doi.org/10.1016/j.jtcvs.2018.11.047>

FRUIT SALAD

Reply to the Editor:

"Comparing apples and oranges" is one of the most frequent quotations in the medical literature. A PubMed search in November 2018 retrieved 131 publications mentioning this

idiom (the great majority of them either at the beginning or at the end of their title). For historical precision, the first appearance of the quote dates back to 1971 in *Dental Economics*.¹

In any case, the meaning is pretty obvious: it is about a comparison of items that are known (or strongly assumed) to be incomparable. In their letter, Dashwood and Loesch use the idiom for the 132nd time (at least) in referring to the comparison of the radial artery to the no-touch and conventionally harvested saphenous vein and refer specifically to the results of the recently published RADIAL database.² Supporting their claim on the RADIAL fruit salad, Dashwood and Loesch quote a small randomized trial by Dreifaltdt and colleagues³ that shows a better patency rate for the no-touch saphenous vein than for the radial artery, and an aggregate data meta-analysis of the trials included in RADIAL, with the addition of the latter study reporting the same result.⁴

As detailed elsewhere, the study of Dreifaltdt and colleagues³ was not included in the RADIAL analysis after a careful evaluation of its several methodologic flaws.⁵ The most important (and fatal) flaw was its unique use of the radial artery in open contrast with all the guidelines and recommendations (and the common practice), which require target vessel stenosis to be less than 70% in the left coronary system and 90% in the right.⁴ In the trial in question, the radial artery was anastomosed to targets with stenosis of less than 70% in 31% of the cases and less than 90% in 69% of the cases, introducing a clear methodologic bias in favor of the venous conduit. As detailed elsewhere, when adjusted for this incorrect use of the arterial conduit, the difference in patency rate between the conduits in the study of Dreifaltdt and colleagues³ does not reach statistical significance.⁴ Of note, another trial that used the no-touch saphenous vein but used the radial artery according to commonly accepted standards was included in the RADIAL analysis.⁶

I could conclude by saying that including the trial of Dreifaltdt and colleagues³ in RADIAL would have been like comparing apples and oranges—but I do not like the idea of being number 133.

Mario Gaudino, MD, FEBCTS
 Department of Cardio-Thoracic Surgery
 Weill Cornell Medicine
 New York, NY

References

1. Best EJ. Comparing apples with oranges. *Delivery of health care. Dent Econ.* 1971;61:21.
2. Gaudino M, Benedetto U, Fremes S, Biondi-Zoccai G, Sedrakyan A, Puskas JD, et al. Radial-artery or saphenous-vein grafts in coronary-artery bypass surgery. *N Engl J Med.* 2018;378:2069-77.

3. Dreifaldt M, Mannion JD, Bodin L, Olsson H, Zagozdzon L, Souza D. The no-touch saphenous vein as the preferred second conduit for coronary artery bypass grafting. *Ann Thorac Surg.* 2013;96:105-11.
4. Kopjar T, Dashwood MR, Dreifaldt M, de Souza DR. No-touch saphenous vein as an important conduit of choice in coronary bypass surgery. *J Thorac Dis.* 2018; 10(Suppl 26):S3292-6.
5. Wingo M, Gaudino M. RADIAL meta-analysis: following the rules usually pays off. *J Thorac Dis.* 2018;10:E787-90.
6. Song SW, Sul SY, Lee HJ, Yoo KJ. Comparison of the radial artery and saphenous vein as composite grafts in off-pump coronary artery bypass grafting in elderly patients: a randomized controlled trial. *Korean Circ J.* 2012;42:107-12.

<https://doi.org/10.1016/j.jtcvs.2018.11.059>

APPLES REMAIN APPLES NO MATTER WHAT Reply to the Editor:

Drs Dashwood and Loesch contributed their insightful comments to the debate of graft choice in coronary artery bypass grafting (CABG). In their letter to the editor titled, “Arterial Versus Venous Conduits in Coronary Bypass Surgery: Comparing Apples With Oranges,”¹ they point out several considerations that may be important in relation to the harvest technique of a saphenous vein graft (SVG) (no-touch and nondistended) and argue that the results of the Radial Artery Database International Alliance (RADIAL) investigator trial² were actually biased by not including 1 available additional controlled randomized trial. This omitted trial revealed that the no-touch SVG had superior patency to the radial artery (RA) after 3 years of follow-up.³ It appears that by adding this randomized trial to the other 5 trials with the protocol-driven angiography included in the RADIAL trial, the difference in risk of graft occlusion between the RA and the SVG would disperse.⁴ Furthermore, and interestingly, it appears that the only trial employing the no-touch SVG harvest technique, which was accepted to be included in the RADIAL trial,⁵ reported a similar patency rate of the SVG to the RA. It is difficult to ignore those arguments, especially after the recent publication by Gaudino and colleagues⁶ of a large meta-analysis comparing the RA with the SVG, and with the inclusion of the RADIAL investigator randomized trials. This meta-analysis revealed the unexplained superior survival at 6.6 years of the RA compared with the SVG group, with no difference in the rates of myocardial infarction or repeat revascularization. This is in complete contrast with the RADIAL investigator trial results.⁷

Dashwood and Loesch,¹ although currently being commended for their persistency, should be careful with their enthusiasm. Stating that “an atraumatic, no-touch technique of harvesting the saphenous vein provides an improved graft with a long-term patency comparable to the internal thoracic artery at 16 years,” based on an anecdotal, small, single-center observational cohort trial (of the

FIGURE 1. An apple remains an apple, and a saphenous vein graft will never become an arterial graft.

original 168 patients, 71 were lost to follow-up, including 34 who died of unknown reasons)⁸ that suffered from major design and statistical shortcomings, is unacceptable.

Recently, there have been many efforts to shift coronary practice back to the days of Favaloro, 50 years ago, with the frequent use of SVG: Endoscopic vein harvest, to provide improved cosmetic outcome (perhaps in the price of reduced patency and survival?), new SVG wrapping devices to prevent vein graft dilatation and improve patency,⁹ and many other additional efforts to preserve “the art of saphenous vein grafting”¹⁰ (These authors should be commended for aiming to use bilateral internal thoracic artery [ITA] routinely.)

All the aforementioned efforts ignore the simple fact that an apple will remain an apple (Figure 1) no matter how you peel it, and an SVG will never become an arterial graft. Obviously, it is beyond the scope of this letter to detail the well-known pathophysiology of SVG failure¹¹ and the physiologic and morphologic data for ITA patency.¹² The argument that saphenous veins are still the “main horsepower” for CABG, as if this would be predestination and would only require improvement, is futile. This can be changed if decisions would be based on critical analyses and hard data.¹³ As I recall, when participation in the Randomized comparison of the clinical Outcome of single versus Multiple Arterial grafts (ROMA) trial¹⁴ was proposed to Mayo Clinic, Dr Richard Daly, one of my mentors, asked me (exact quote): “What group would be randomized (for whom there would be reasonable equipoise)? If I think a patient is a candidate for multiarterial CABG, I would want to do it, and not risk him with left ITA/SVG in randomization, as it is hard to deny the data that we have.”

It needs to be clear that some medical centers around the world are beyond the turning point with regard to the use of multiarterial grafting. As the recent arguments of a “steep learning curve” and “unique results in certain hands” are