



WHAT I HAVE LEARNED

What I've learned?



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Gilles Walch is one of the true pioneers in the world of shoulder surgery. A native of Lyon, France, he is a product of the Lyonnaise Orthopedic School. Walch then traveled to the United States to do fellowships with Frank Jobe and Charles Rockwood. In 1993, Gilles organized the first “Journées de l'épaule” in Lyon, which has consolidated 10 years of collaboration with the purpose of identifying and quantifying shoulder pathologies, and has allowed the careful analysis of results to improve treatment.

From 1987 to 1995, Gilles Walch was the General Secretary of the European Society for Surgery of the Shoulder and Elbow and then served as President of the Society from 2005 to 2007. He has been a corresponding member of the American Shoulder and Elbow Surgeons since 1994 and was elected President of the French Society of Orthopedic Surgery and Traumatology in 2014-2015. He has been named an Honorary Member of several European Orthopedic Societies including Switzerland, Portugal, Italy, France, and Greece. Walch has published more than 300 peer-reviewed journal articles, has written numerous book chapters, and has edited 4 books on shoulder arthroplasty.

When I came back from a USA travelling fellowship in 1983, after visiting Charles Rockwood and Frank Jobe, I understood that shoulder surgery was at the beginning of its life and that a pope called Dr. Neer already knew much more than everybody else. I was appointed “assistant professor” in the department of orthopedic surgery led by Professor Henri Dejour, the successor of Albert Trillat. In his department, the rule and the philosophy was to learn from our patients and from our failures. Every third year a meeting was organized to look at the results of what had been done in the department. Hundreds of patients were called back and were seen to assess the results of the treatments we did. It was really the trigger: amazing what we can learn by listening to our patients, analyzing the treatments they received, both the successes and failures.

The next step was to report and publish the results honestly in a scientific way and in English. How to report? To be forced to write down patients' objective and

subjective assessments of their treatment, means to carefully analyze situations, techniques, patients' selection, etc. “Before changing anything in your practice, you must perform a careful evaluation of what you did”: if it worked (ie, 90% good results, low rate of complication), there is no reason to change even if the fashion is changing every year. Anyway, you will never achieve 100% good results. That was the philosophy with which I grew up in orthopedic surgery. If the treatment did not match patient expectations, you must understand why: Patients' selection? Procedure? Surgical procedure? Postoperative course? And then you are allowed to change. That was the philosophy of Professor Trillat and Professor Dejour, my teachers and masters.

I started my postresidency career fortified with these fine intentions and that experience. Between 1983 and 1993, I had to work very hard on hip and knee surgery because it was 90% of our activities at the University Hospital in addition to all the trauma cases in the emergency department.

To develop shoulder surgery in the department, Albert Trillat and Henry Dejour encouraged me to first review and

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call back all the patients operated on to assess the various procedures performed: not only Trillat's procedure for anterior instability but also locked posterior instability, posterior bone block procedures, open reduction internal fixation of proximal humerus fractures and fracture dislocation, and so on. I learned so much from these follow-up studies and from writing the papers, that even without any personal experience, I was able to start a shoulder practice. Many young physicians working at the university hospital at the same time were interested in learning more about shoulder, including rheumatologists, radiologists, sports medicine doctors, rehabilitation doctors, physiotherapists. Instead of being jealous of what I knew or what I discovered, it was natural to share our respective knowledge and experiences treating shoulders.

This has been the guideline of my career on the shoulder: learning from patients, learning from our mistakes, our failures, and sharing with others. Moving forward as a group is always stronger than moving forward alone. This is how I gradually explored and discovered all the steps of shoulder surgery.

The lessons learned here are not just opinions—it is really what I learned from the experience of treating patients, following up with them again and again during my career (and still now), and analyzing failures and complications.

Anterior instability

- Do not cut the subscapularis; it is the main cause for stiffness in external rotation and length of recovery.
- Never operate on voluntary or reproducible subluxations; the patients will most likely still be able to reproduce their instability after surgery.
- Address true instability, not constitutional laxity that recurs.
- Soft tissue arthroscopic procedures in recurrent instability are not as efficient as a Latarjet procedure.
- The surgical technique of the open Latarjet procedure is difficult and must be followed very precisely to avoid complications or failures.
- The Latarjet procedure is not a “universal panacea,” and cannot treat all cases of anterior instability or laxity.
- There are several contraindications to performing the Latarjet procedure (age, voluntary, seizures, posterosuperior impingement, and more).

Posterior instability

- This is rare and oftentimes confused with posterior constitutional laxity. Raising the arm always creates a posterior subluxation of the humeral head without any symptoms, especially in patients with hyperlaxity. The loud “reduction maneuver” done as a joke by some patients is not true shoulder pathology.

- Arthroscopic soft tissue procedures work as well as bony procedures.
- Locked posterior dislocations are a totally different entity than recurrent instability. They often do not need posterior stabilizations after an open reduction of the dislocation through a deltopectoral approach.

Rotator cuff tears

- Arthroscopic procedures work better than open procedures.
- Patient selection and postoperative rehabilitation are crucial to avoid stiffness, complex regional pain syndrome, and permanent disability.
- Muscle fatty infiltration is the best predictor of the functional result and is not reversible.
- The long head of the biceps is the most frequent pain generator before or after cuff repair.
- The long head of the biceps tenotomy or tenodesis is not harmful and is very effective for pain relief.
- Treatment of pain should not be confused with treatment of weakness (forward elevation, external rotation).
- Latissimus dorsi transfer is not an efficient procedure to address complete fatty infiltration of the infraspinatus and teres minor muscles. This procedure does not allow recovery of elevation strength.

Anatomic shoulder arthroplasty

- Anatomic total shoulder arthroplasty is a good operation for pain relief, restoration of function, and range of motion.
- Component designs matter for bone preservation, both on the glenoid and humeral sides.
- Cement is not necessary to achieve good stability of the humeral stem and is harmful in cases of revision.
- Metaphyseal stability of the humeral components works better than diaphyseal stability.
- Metal-backed glenoids do not work because of accelerated polyethylene wear.
- Three-dimensional imaging technology promoted by Joe Iannotti is a true “American Revolution” to improve the standard of care and outcomes.
- Subscapularis repair must be protected like a “cuff repair” postoperatively to ensure proper healing.
- Anatomic prostheses do not work very well in fractures if the greater tuberosity does not heal. Other options are preferred in cases of poor bone quality and a paper-like greater tuberosity.
- In post-traumatic arthritis or sequelae of fractures with nonunion or severe malunion of the greater tuberosity, anatomic total shoulder arthroplasty does not work well and should be avoided.
- The rate of secondary rotator cuff insufficiency and upward migration of the humeral head in rheumatoid arthritis is a powerful demonstration that anatomic total

shoulder arthroplasty is not a good option to treat this entity.

- Static posterior subluxation of the humeral head in primary glenohumeral osteoarthritis tends to recur in the midterm leading to accelerated glenoid loosening.
- Age is not a contraindication to implant an anatomic total shoulder arthroplasty. If there is no severe fatty infiltration, the results are frequently better than a reverse prosthesis in those cases.

Reverse shoulder arthroplasty

- The all-medialized Grammont prosthesis works very well for pain relief and restoration of function.
- The Grammont-style prosthesis often leads to notching (contact between polyethylene and scapular pillar during extension and external rotation at side) and does not allow restoration of full internal rotation.
- A reverse prosthesis, whatever the design, and whatever the type of associated tendon transfer, does not allow restoration of active external rotation when the infraspinatus and the teres minor have disappeared.
- The main cause of postoperative dislocations is failure to adequately lengthen the humeral side.
- The rate of complication after revision reverse arthroplasty is 3 times higher than that after primary reverse.
- Glenoid lateralization and inferiorization, as well as a 135° neck-shaft angle, promoted initially by Mark Frankle, are the best options to improve impingement free range of motion, to limit notching, and are not harmful for long-term longevity.
- Metaphyseal stability of the humeral implant is a better option than diaphyseal stability and is able to provide satisfactory long-term survival.

- Although glenoid lateralization is necessary to achieve good outcomes, humeral lateralization is not necessary to achieve a good result but helps preserve the tuberosities and allows for easy convertibility. Surgeons and patients undergo and suffer humeral lateralization more than taking profit of it. Humeral lateralization cannot substitute for, nor replace, glenoid lateralization.

Innovation and general thoughts on shoulder surgery

- Innovation is a wonderful opportunity to improve our patients' outcomes.
- Innovation should not be proposed without strong knowledge of the past experiences: "nothing solid is built without a thorough knowledge of the past."
- Bad experiences after innovation are as important as good experiences. They must be reported and published to avoid their reproduction in the future.
- Innovations can be dangerous for the patients. They should not be proposed without long and thoughtful analysis, brainstorming, and strong honest clinical studies.
- Biomechanical studies are to innovations as opinion polls are to politics; they just give a tendency and do not always tell the truth.

Disclaimer

Gilles Walch receives consultant fees and royalties from Wright Medical for shoulder prosthesis design.