

Dr. Harold E. Kleinert's 90th Birthday

To the Editor:

Not many of the pioneering giants of hand surgery are still with us. Today, October 7, 2011, is the 90th birthday of Dr. Harold E. Kleinert. In 1960, Dr. Kleinert established the Christine M. Kleinert Fellowship in Hand and Microsurgery, with more than 1,200 surgeons completing it over the years. Although some might say that Dr. Harold Kleinert's greatest achievement was in opening the hand surgery community's eyes to the possibility of early flexor tendon repair and apt rehabilitation,^{1,2} my personal belief is that his greatest achievement lies in setting up the fellowship that he named for his mother and which has been a nursery for more than 1,200 avid hand surgeons who have excelled and carried his legacy to the farthest corners of our planet. In his own words, "As teachers, we believe that we are successful only if our pupils ultimately become far better than their teachers. It is only in this way that each generation can further advance the

discipline of hand surgery." I am proud to be one of the youngest seedlings kindled in this nursery, and I hope to have many fruitful and fulfilling years as a hand surgeon. With the passage of time, history takes its course and one generation replaces another. It is only through remembering from where we came that where we are and where we will be have meaning. Happy Birthday, Dr. Kleinert!

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Letter on "Wrist Denervation for Painful Conditions of the Wrist"

To the Editor:

The report by Braga-Silva et al¹ is important for hand surgeons because it documents that, in a large series of patients (N = 49), 80% can have long-term relief of pain and improvement in grip strength and hand function for at least 6 years after wrist denervation surgery. The important diagnostic considerations are that this approach to denervation was successful for patients who had painful wrists due to posttraumatic degenerative arthritis but who did not have carpal instability. Pain relief persisted, despite the progression of the underlying arthritis.

Braga-Silva et al continue the pioneering approach of Wilhelm from Germany,^{2,3} in which 4 incisions are made to remove between 8 and 10 separate nerve branches (Table 1). From my perspective today, the 2 important points of divergence for hand surgeons from the approach used by Braga-Silva et al¹ in this report should relate to

TABLE 1. Nerves Resected in a Total Wrist Denervation³

1. Posterior interosseous nerve
2. Anterior interosseous nerve
3. Superficial radial sensory branches to wrist joint
4. Palmar cutaneous branch of the median nerve
5. Volar branches of the median nerve to the wrist joint
6. Lateral cutaneous nerve of the forearm
7. Medial cutaneous nerve of the forearm
8. Posterior cutaneous nerve of the forearm
9. Dorsal cutaneous branch of the ulnar nerve to the wrist joint
10. Branches from the ulnar nerve's motor branch to the wrist joint

(1) using preoperative nerve blocks to demonstrate and document which nerves are the source of the pain, and (2) doing a partial, instead of a total, wrist denervation, with the nerves selected for

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The name “Adelaide repair” and the description of the repair with the knot in the center of the repair first appeared in a book chapter published by Sandow and Kay⁵ in 2003.

We hypothesize that although the correct technical term of the repair technique is “cross-locked cruciate repair,” the similarity of the name to the structural different “cruciate repair” technique may have led to the use of the name “Adelaide repair” to prevent mix-ups. Some authors also use the term “modified Savage repair” or “4-strand Savage repair.”

Nevertheless, the biomechanical and structural aspects of this commonly used repair technique have been demonstrated by Barrie et al,⁴ as well as several other groups.

Collective thinking and collaborative efforts will continue to motivate novel methods for tendon repairs. We look forward to the upcoming advances in this area.

Letter Regarding “Ligament Reconstruction of the Trapezial-Metacarpal Joint for Early Arthritis: A Preliminary Report”

To the Editor:

I read with much interest the article by Rust and Tham in the November 2011 issue of the *Journal*.¹

This age group usually poses a difficult challenge because the members are active young patients who do not want to compromise articular range of motion and are eager to avoid long convalescence postoperative periods.

However, I wonder what the cause or reason really is of the symptomatic improvement in those 6 patients: whether it was the actual joint stabilization or the inherent denervation that this procedure implies.

In my experience, joint denervation through a Wagner’s approach and a simple capsular plication and tightening at dorsal and ulnovolar aspects of the trapezial-metacarpal joint yields equally long-standing, satisfactory results.

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In Reply:

The purpose of trapezial-metacarpal (TM) joint ligament reconstruction is to realign the subluxed joint and stabilize it in the corrected position without notably affecting its range of motion. The supposition is that TM joint malalignment and subluxation leads to arthritis^{1,2} and pain, and its realignment will reduce the risk of arthritis progression³ and pain. We have no experience with denervation,⁴ but our surgical procedure is confined to the palmar aspect of the TM joint alone. If capsular plication of dorsal and ulnovolar aspects of the TM joint corrects the malalignment, we encourage its continued use. However, because opposition and supination of the TM joint involves rotatory motion of the metacarpal on the trape-

zium, tightening both the volar and dorsal capsuloligamentous structures may affect this motion.

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The complications that we described were findings that came from patient reports and which we honestly believe to be technical problems from the surgeon (J.B.S.) and not from the procedure itself. However, it is important to highlight that all patients reported improvement in these complications. Regarding the results, there was 80% pain improvement in patients, rather than in 80% of patients. We used a pain scale, and the patients

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Letter Regarding "Influence of Locking Stitch Size in a Four-Strand Cross-Locked Cruciate Flexor Tendon Repair"

To the Editor:

We read with interest the well-done study by Peltz et al on the repair properties of the cross-locked four-strand cruciate suture repair.¹ The authors refer to the repair technique as "the Adelaide repair" and cite its origin in a 1996 publication.² We were unable to find either the 4-strand locked cruciate technique or the name "Adelaide repair" in the 1996 publication. The repair tested in the above study appears identical to the locked cruciate repair that we described, tested, and published in our mechanical studies in 2000 to 2001.^{3–5}

We continue to use the locked cruciate repair clinically, and agree with Dr. Peltz and his co-authors that its high failure strength and gap resistance offers added security for active motion protocols.

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We read with great interest your comment on our study. Indeed, the evolution of the cross-locked cruciate repair technique is difficult to reconstruct.

The use of a single cross-lock in flexor tendon repairs was first described by Sandow et al in 1996¹ as a modification of the Savage repair technique, which he introduced in 1985.² Because the described single cross-lock is an essential part of the cross-locked cruciate repair, we mentioned this in our study.

The further development of the repair technique is not clear.

An important step could be the introduction of the cruciate repair technique by McLarney et al,³ published in 1999. This technique has many similarities to the cross-locked cruciate repair technique except using loop locks instead of the characteristic cross-locks.

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resection being determined by the nerve block results.

As described in the earliest papers on partial volar and partial dorsal wrist denervation,^{4–7} a block of the anterior and/or posterior interosseous nerves is safe and reliable, and, if it results in decreased pain and increased grip strength, it has a positive predictive value of about 90%. Only if radial-sided or ulnar-sided wrist pain or basilar thumb joint pain persist after the above blocks would blocks of the lateral antebrachial, radial sensory, and dorsal branch of the ulnar nerve be indicated. The operative approach for the anterior and posterior interosseous nerves can be done through a single dorsal incision.^{8,9} The proximal ends of these nerves are left buried in a muscular environment, without the possibility of forming a cutaneous neuroma.

In contrast, the report by Braga-Silva et al¹ documents postoperative hyperesthesias, allodynia, and neuroma formation from the blunt separation of joint-innervating branches from the lateral antebrachial, radial sensory, and dorsal ulnar nerves. If a block of these nerves is required to relieve some patients of their pain, a determined approach to identifying these branches to joints must be planned, even if this entails division of a major branch of these nerves with the need to implant that nerve into muscle in a location proximal to the wrist.^{10,11}

Reporting of pain relief after surgical intervention must be clarified. Saying that 80% of patients have pain relief is not sufficient. If a patient's pain goes from 10 to 8, that patient is improved but still disabled from most activities and is still going to be on pain management. If the study included 20 patients who each went from 10 to 8, the *P* value would document significant improvement, but all 20 patients would still be disabled. Going from 10 to 4 is an improvement that allows the patient to do most activities and not need pain management. Therefore, it is better to indicate that 80% of patients improved more than 5 levels on the visual analog scale, so that readers have an idea of what level of improvement, not just any improvement, resulted from the surgical intervention.

Finally, the approach of partial joint denervation has been extended proximally, from the wrist to the elbow and shoulder¹² and also to the knee and ankle.¹³ Hand surgeons, as well as foot and ankle surgeons, should embrace the concept that persistent joint pain in a structurally stable joint or in a joint following resection arthroplasty can be im-

proved using the approach of nerve blocks followed by partial joint denervation in carefully selected patients.

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In Reply:

We appreciate the comments, but we have no experience with partial denervation. We do not know series with consistent and significant follow-up of partial neurectomy. Perhaps the author of this letter may provide us in the future with long-term results with a statistically reliable number of patients.

We also do not believe that a procedure could be called a *denervectomy* if the joint remains innervated. We have a hard time understanding how pain symptoms can be alleviated, knowing that there are still branches innervating this joint. We also have difficulty understanding how we could denervate only part of

such a complex joint with so many interconnections in the sagittal and coronal axis.

The complications that we described were findings that came from patient reports and which we honestly believe to be technical problems from the surgeon (J.B.S.) and not from the procedure itself. However, it is important to highlight that all patients reported improvement in these complications. Regarding the results, there was 80% pain improvement in patients, rather than in 80% of patients. We used a pain scale, and the patients

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The use of a single cross-lock in flexor tendon repairs was first described by Sandow et al in 1996¹ as a modification of the Savage repair technique, which he introduced in 1985.² Because the described single cross-lock is an essential part of the cross-locked cruciate repair, we mentioned this in our study.

The further development of the repair technique is not clear.

An important step could be the introduction of the cruciate repair technique by McLarney et al,³ published in 1999. This technique has many similarities to the cross-locked cruciate repair technique except using loop locks instead of the characteristic cross-locks.

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- Manske PR. Structures and format of peer-reviewed scientific manuscripts. *J Hand Surg* 2006;31A:1051–1055.
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	Systematic Review ² of Level-I randomized controlled trials (studies were homogenous) ³	Systematic review ² of Level-I studies	Systematic review ² of Level-I studies	Systematic review ² of Level-I studies
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	Prospective ⁴ comparative study ⁵	Untreated controls from a randomized controlled trial	Systematic review ² of Level-II studies	Systematic review ² of Level-II studies
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		Systematic review ² of Level-II studies		
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	Retrospective ⁶ comparative study		Systematic review ² of Level-III studies	Systematic review ² of Level-III studies
	Systematic review ² of Level-III studies			
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1. A complete assessment of the quality of individual studies requires critical appraisal of all aspects of the study design.

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3. Studies provided consistent results.

4. Study was started before the first patient enrolled.

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7. Patients identified for the study on the basis of their outcome (eg, failed total hip arthroplasty), called “cases,” are compared with those who did not have the outcome (eg, had a successful total hip arthroplasty), called “controls.”

8. Patients treated one way with no comparison group of patients treated another way.

This chart was adapted from material published by the Centre for Evidence-Based Medicine, Oxford, UK. For more information, please see www.cebm.net.

Dr. Harold E. Kleinert's 90th Birthday

To the Editor:

Not many of the pioneering giants of hand surgery are still with us. Today, October 7, 2011, is the 90th birthday of Dr. Harold E. Kleinert. In 1960, Dr. Kleinert established the Christine M. Kleinert Fellowship in Hand and Microsurgery, with more than 1,200 surgeons completing it over the years. Although some might say that Dr. Harold Kleinert's greatest achievement was in opening the hand surgery community's eyes to the possibility of early flexor tendon repair and apt rehabilitation,^{1,2} my personal belief is that his greatest achievement lies in setting up the fellowship that he named for his mother and which has been a nursery for more than 1,200 avid hand surgeons who have excelled and carried his legacy to the farthest corners of our planet. In his own words, "As teachers, we believe that we are successful only if our pupils ultimately become far better than their teachers. It is only in this way that each generation can further advance the

discipline of hand surgery." I am proud to be one of the youngest seedlings kindled in this nursery, and I hope to have many fruitful and fulfilling years as a hand surgeon. With the passage of time, history takes its course and one generation replaces another. It is only through remembering from where we came that where we are and where we will be have meaning. Happy Birthday, Dr. Kleinert!

Amir Oron, MD

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Microsurgery
Louisville, KY

doi:10.1016/j.jhsa.2011.10.019

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Letter on "Wrist Denervation for Painful Conditions of the Wrist"

To the Editor:

The report by Braga-Silva et al¹ is important for hand surgeons because it documents that, in a large series of patients (N = 49), 80% can have long-term relief of pain and improvement in grip strength and hand function for at least 6 years after wrist denervation surgery. The important diagnostic considerations are that this approach to denervation was successful for patients who had painful wrists due to posttraumatic degenerative arthritis but who did not have carpal instability. Pain relief persisted, despite the progression of the underlying arthritis.

Braga-Silva et al continue the pioneering approach of Wilhelm from Germany,^{2,3} in which 4 incisions are made to remove between 8 and 10 separate nerve branches (Table 1). From my perspective today, the 2 important points of divergence for hand surgeons from the approach used by Braga-Silva et al¹ in this report should relate to

TABLE 1. Nerves Resected in a Total Wrist Denervation³

1. Posterior interosseous nerve
2. Anterior interosseous nerve
3. Superficial radial sensory branches to wrist joint
4. Palmar cutaneous branch of the median nerve
5. Volar branches of the median nerve to the wrist joint
6. Lateral cutaneous nerve of the forearm
7. Medial cutaneous nerve of the forearm
8. Posterior cutaneous nerve of the forearm
9. Dorsal cutaneous branch of the ulnar nerve to the wrist joint
10. Branches from the ulnar nerve's motor branch to the wrist joint

(1) using preoperative nerve blocks to demonstrate and document which nerves are the source of the pain, and (2) doing a partial, instead of a total, wrist denervation, with the nerves selected for

resection being determined by the nerve block results.

As described in the earliest papers on partial volar and partial dorsal wrist denervation,^{4–7} a block of the anterior and/or posterior interosseous nerves is safe and reliable, and, if it results in decreased pain and increased grip strength, it has a positive predictive value of about 90%. Only if radial-sided or ulnar-sided wrist pain or basilar thumb joint pain persist after the above blocks would blocks of the lateral antebrachial, radial sensory, and dorsal branch of the ulnar nerve be indicated. The operative approach for the anterior and posterior interosseous nerves can be done through a single dorsal incision.^{8,9} The proximal ends of these nerves are left buried in a muscular environment, without the possibility of forming a cutaneous neuroma.

In contrast, the report by Braga-Silva et al¹ documents postoperative hyperesthesias, allodynia, and neuroma formation from the blunt separation of joint-innervating branches from the lateral antebrachial, radial sensory, and dorsal ulnar nerves. If a block of these nerves is required to relieve some patients of their pain, a determined approach to identifying these branches to joints must be planned, even if this entails division of a major branch of these nerves with the need to implant that nerve into muscle in a location proximal to the wrist.^{10,11}

Reporting of pain relief after surgical intervention must be clarified. Saying that 80% of patients have pain relief is not sufficient. If a patient's pain goes from 10 to 8, that patient is improved but still disabled from most activities and is still going to be on pain management. If the study included 20 patients who each went from 10 to 8, the *P* value would document significant improvement, but all 20 patients would still be disabled. Going from 10 to 4 is an improvement that allows the patient to do most activities and not need pain management. Therefore, it is better to indicate that 80% of patients improved more than 5 levels on the visual analog scale, so that readers have an idea of what level of improvement, not just any improvement, resulted from the surgical intervention.

Finally, the approach of partial joint denervation has been extended proximally, from the wrist to the elbow and shoulder¹² and also to the knee and ankle.¹³ Hand surgeons, as well as foot and ankle surgeons, should embrace the concept that persistent joint pain in a structurally stable joint or in a joint following resection arthroplasty can be im-

proved using the approach of nerve blocks followed by partial joint denervation in carefully selected patients.

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doi:10.1016/j.jhsa.2011.10.045

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In Reply:

We appreciate the comments, but we have no experience with partial denervation. We do not know series with consistent and significant follow-up of partial neurectomy. Perhaps the author of this letter may provide us in the future with long-term results with a statistically reliable number of patients.

We also do not believe that a procedure could be called a *denervectomy* if the joint remains innervated. We have a hard time understanding how pain symptoms can be alleviated, knowing that there are still branches innervating this joint. We also have difficulty understanding how we could denervate only part of

such a complex joint with so many interconnections in the sagittal and coronal axis.

The complications that we described were findings that came from patient reports and which we honestly believe to be technical problems from the surgeon (J.B.S.) and not from the procedure itself. However, it is important to highlight that all patients reported improvement in these complications. Regarding the results, there was 80% pain improvement in patients, rather than in 80% of patients. We used a pain scale, and the patients

were always asked about the level of pain improvement. That is how it was used.

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Letter Regarding "Influence of Locking Stitch Size in a Four-Strand Cross-Locked Cruciate Flexor Tendon Repair"

To the Editor:

We read with interest the well-done study by Peltz et al on the repair properties of the cross-locked four-strand cruciate suture repair.¹ The authors refer to the repair technique as "the Adelaide repair" and cite its origin in a 1996 publication.² We were unable to find either the 4-strand locked cruciate technique or the name "Adelaide repair" in the 1996 publication. The repair tested in the above study appears identical to the locked cruciate repair that we described, tested, and published in our mechanical studies in 2000 to 2001.^{3–5}

We continue to use the locked cruciate repair clinically, and agree with Dr. Peltz and his co-authors that its high failure strength and gap resistance offers added security for active motion protocols.

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In Reply:

We read with great interest your comment on our study. Indeed, the evolution of the cross-locked cruciate repair technique is difficult to reconstruct.

The use of a single cross-lock in flexor tendon repairs was first described by Sandow et al in 1996¹ as a modification of the Savage repair technique, which he introduced in 1985.² Because the described single cross-lock is an essential part of the cross-locked cruciate repair, we mentioned this in our study.

The further development of the repair technique is not clear.

An important step could be the introduction of the cruciate repair technique by McLarney et al,³ published in 1999. This technique has many similarities to the cross-locked cruciate repair technique except using loop locks instead of the characteristic cross-locks.

Barrie et al⁴ first used the cross-locked cruciate repair technique in their published biomechanical comparison in 2000, but they placed the knot at the lateral strand of the repair.

The name “Adelaide repair” and the description of the repair with the knot in the center of the repair first appeared in a book chapter published by Sandow and Kay⁵ in 2003.

We hypothesize that although the correct technical term of the repair technique is “cross-locked cruciate repair,” the similarity of the name to the structural different “cruciate repair” technique may have led to the use of the name “Adelaide repair” to prevent mix-ups. Some authors also use the term “modified Savage repair” or “4-strand Savage repair.”

Nevertheless, the biomechanical and structural aspects of this commonly used repair technique have been demonstrated by Barrie et al,⁴ as well as several other groups.

Collective thinking and collaborative efforts will continue to motivate novel methods for tendon repairs. We look forward to the upcoming advances in this area.

Letter Regarding “Ligament Reconstruction of the Trapezial-Metacarpal Joint for Early Arthritis: A Preliminary Report”

To the Editor:

I read with much interest the article by Rust and Tham in the November 2011 issue of the *Journal*.¹

This age group usually poses a difficult challenge because the members are active young patients who do not want to compromise articular range of motion and are eager to avoid long convalescence postoperative periods.

However, I wonder what the cause or reason really is of the symptomatic improvement in those 6 patients: whether it was the actual joint stabilization or the inherent denervation that this procedure implies.

In my experience, joint denervation through a Wagner’s approach and a simple capsular plication and tightening at dorsal and ulnovolar aspects of the trapezial-metacarpal joint yields equally long-standing, satisfactory results.

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In Reply:

The purpose of trapezial-metacarpal (TM) joint ligament reconstruction is to realign the subluxed joint and stabilize it in the corrected position without notably affecting its range of motion. The supposition is that TM joint malalignment and subluxation leads to arthritis^{1,2} and pain, and its realignment will reduce the risk of arthritis progression³ and pain. We have no experience with denervation,⁴ but our surgical procedure is confined to the palmar aspect of the TM joint alone. If capsular plication of dorsal and ulnovolar aspects of the TM joint corrects the malalignment, we encourage its continued use. However, because opposition and supination of the TM joint involves rotatory motion of the metacarpal on the trape-

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