The following results were observed on 34 patients with an average follow-up of 13 months by Boileau et al:

- Significant reduction in scapular notching
- No reported instability
- No instances of glenoid loosening
- Improved anterior elevation and rotation mechanics
- Demonstrated graft healing

<table>
<thead>
<tr>
<th>Pre-Op</th>
<th>Post-Op</th>
<th>Avg. 13 Month Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior Elevation</td>
<td>72º</td>
<td>142º</td>
</tr>
<tr>
<td>External Rotation</td>
<td>10º</td>
<td>18º</td>
</tr>
<tr>
<td>Internal Rotation</td>
<td>4º</td>
<td>3º</td>
</tr>
<tr>
<td>Constant Score</td>
<td>27</td>
<td>63</td>
</tr>
<tr>
<td>SSV</td>
<td>27%</td>
<td>73%</td>
</tr>
</tbody>
</table>

**BIO-RSA Instrumentation**

Used in conjunction with the Aequalis Reversed Shoulder System, only a few additional instruments are needed to perform the BIO-RSA procedure. The BIO-RSA instrumentation set (YKAD100) includes the following items:

<table>
<thead>
<tr>
<th>P/N</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWB360</td>
<td>Humeral Pin Guide (for Ø 2.5 mm pin)</td>
</tr>
<tr>
<td>MWB361</td>
<td>BIO-RSA Graft Reamer (Diam. 29 mm)</td>
</tr>
<tr>
<td>MWB362</td>
<td>Cannulated Drill Bit (Diam. 8.3 mm)</td>
</tr>
<tr>
<td>MWB363</td>
<td>Large BIO-RSA Cutting Guide</td>
</tr>
<tr>
<td>MWB364</td>
<td>Extra-Large (XL) BIO-RSA Cutting Guide</td>
</tr>
<tr>
<td>MWB366</td>
<td>BIO-RSA Bone Graft Remover</td>
</tr>
</tbody>
</table>

**REVISED Solutions by Tornier**

BIO-RSA™

BONY INCREASED OFFSET - REVERSED SHOULDER ARTHROPLASTY

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63
Average Constant Score Improvement (up 36 from 27)

73
Average Subjective Shoulder Value (up 46% from 27%)

142º
Mean Active Anterior Elevation (improvement of 70º)

97%
Percentage of Grafts Healed to the Native Glenoid as Shown Radiographically
Today’s reversed shoulder arthroplasty patient demands the aesthetics, function and reliability of a healthy, natural shoulder. And while reversed technology has revolutionized shoulder replacement for patients worldwide, scapular notching, rotational limitations and prosthetic instability can be persistent clinical issues – in addition to restoring the patient’s own natural shoulder contour.

Now, Tornier is the first to take the reversed concept to new heights by lateralizing through the BIO-RSA technique. Pioneered by Professor Pascal Boileau (Nice, France), this technique, termed Bony Increased Offset for Reversed Shoulder Arthroplasty, achieves lateralization of the glenoid implant through a novel approach – using the patient’s own native bone.

Benefits of a Lateralized Reversed Prosthesis

Lateralizing the glenoid implant through the use of specialized components has been a viable approach to addressing common issues associated with reversed shoulder arthroplasty. Through BIO-RSA, a natural approach to lateralizing, these challenging clinical situations can be managed:

• Achieving natural shoulder contour
• Instability: eliminates slack in the remaining cuff muscles
• Significantly reduced scapular notching
• Improved internal/external rotation

Using BIO-RSA to Achieve Lateralization

The BIO-RSA technique uses the patient’s own native bone to lateralize the prosthesis.

• When the bone heals, Grammont’s Principle is observed by maintaining the center of rotation at the bone/baseplate interface
• This ideal center of rotation eliminates destructive forces that lead to glenoid loosening

The BIO-RSA Technique

Used in conjunction with Tornier’s Reversed Shoulder System, a simple auxiliary instrument set is used to create the graft from the patient’s humerus:

1. The Humeral Pin Guide is placed over the humerus for positioning of the guide wire.
2. The Graft Reamer is used to create the outside edges of the graft.
3. The Drill is fed over the guide wire to create a hole in the center of the graft.
4. A Cut Guide is placed over the graft and a saw blade is used to create a 7 mm or 10 mm graft.
5. The bone graft is placed over the long post (25 mm) baseplate.
6. Holes are drilled in the glenoid to ensure a bleeding interface between the graft and the baseplate.
7. The long post baseplate and graft are impacted into the glenoid.
8. Screws are placed through the baseplate and graft to secure fixation of the baseplate to the glenoid.