Troubleshooting Grips Issues

*The Coaches and Pro Shop Operators Guide to Grip Symptoms and Fixes*

**Knowledge & Skills**
- Assumptions
- Grip Terminology Review
- Grip Check Tools
- Document the Fit
- The Static Fit Check
- The Dynamic Fit Check
- Fit for Performance
- Modifying Grips in the ‘Field’

**Assumptions**
- All tasks will be done on the lanes
- Right-Handed Bowler has a fitted ball
- Fit comfort is more important than performance
- The bowler has no fit ‘preferences’ other than fingertip span
- Willing to invest in/trial fit modifications for performance after establishing a solid bowling technique

**Grip Terminology**
- The Bridge
- The Bowlers’ Span
- Geometric Center
- Zero Pitch..Fingers and Thumb
- Forward Finger Pitch
- Reverse Finger Pitch
- Forward Thumb Pitch
- Forward Thumb Pitch
- Left Finger and Thumb Pitch
- Right Finger and Thumb Pitch

**Grip Check Tools**
Must be…
- Portable
- Durable
- Fit in a Roller Bag
Grip Check Tools
- Brunswick Bearing Ball Cup
- Plastic Ball Cup
- Bill Taylor Fitting Wheel
- Perfect Pitch or Master Pitch Gauges
- MoRich ‘Armadillo’
- Wax Pencils
- Pro Sect Quarter Scale
- Cen-Tech Digital Calipers
- Span Ruler or ‘Automatic’ Span Gauge
- Luggage (Ball) Scale & Buffer

Document the Fit
- Write down everything about the fit
- Keep a history
- Fit Sheets typically available at the Bowl Expo Trade Show
- Or design your own…
Document the Fit

- Spans, Middle and Ring Finger
- Thumb Pitch, Fwd/Rvrs and Lateral
- Finger Pitches (Fwd/Rvrs)
- Finger Pitches (Lateral)
- Thumb Hole Size and Shape
- Mark for oval drilling
  - Fingers and thumb in the ball
  - Pull thumb out to its widest diameter
  - Mark the angle
- Caliper to the angled line
- Fit the caliper to the Taylor Wheel
- Caliper perpendicular to the angled line
- Thumb Hole Angle
  - Draw the center-of-grip line
  - Draw perpendicular line though the thumb hole center
  - Extend the thumb angle line a few inches above the thumb hole
  - If you have a Pro-Sect, place the ruler edge on the center-of-grip line
  - Place the protractor edge of the Pro-Sect on the line through the thumb hole
  - Document the angle

Static Fit Check

Span

- Locate the middle finger creases..flex the finger
- Split the difference –Middle Finger Span
- Mark the Ring Finger Span
- Compare the marks with the thumb in the ball, finger across the holes

Thumb Pitch check…maintain 63° angle

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<th>Pitch</th>
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<tr>
<td>3 1/2&quot;</td>
<td>3/8 fwd</td>
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<tr>
<td>3 5/8&quot;</td>
<td>5/16 fwd</td>
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<td>3 3/4&quot;</td>
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<td>3 7/8&quot;</td>
<td>3/16 fwd</td>
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<td>4 1/8&quot;</td>
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<td>7/16 rev</td>
</tr>
<tr>
<td>5 1/2&quot;</td>
<td>1/2 rev</td>
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</tbody>
</table>
Thumb hole size check
- Caliper the thumb pressed
- Locate the thumb size on the Taylor wheel

Other Factors
- Thumb Flexibility
- Thumb Length/Moisture
- Finger flexibility
- Finger lateral pitches

Surface Indicators
- Fingernail Bruises
  - Long Span
  - Excessive forward pitch
  - Holes/inserts too small
- Side Finger Blister
  - Incorrect left/right pitch
  - Bridge too wide
  - Holes/inserts too small
- Fingertip Bruises
  - Span too long
  - Excessive forward pitch
  - Hole/insert too tight
- Finger Crease Blister
  - Inserts not aligned
  - Span too short/long
  - Worn inserts
- Thumb Blisters (back)
  - Thumb hole too large
  - Incorrect reverse pitch
  - Incorrect span
- Thumb Blister (side)
  - Excessive right pitch
  - Incorrect oval angle
  - Hole too small
- Thumb base (carpal) blister
  - Hole too big
  - Span too short/long
  - Thumb nail too long
  - Hole needs ‘ramp’
  - Incorrect oval angle
- Thumb side blister
  - Hole needs oval
  - Incorrect right pitch
○ Incorrect oval angle
• Elbow Tendon Pain
  o Have Bowler push and pull with each finger and thumb
  o Pain in the elbow:
    ▪ Long span
    ▪ Extreme reverse thumb pitch
    ▪ Any grip requiring the bowler to squeeze-release

Dynamic Fit Check
Observing:
• Bowler Balance
• Ball Loft
• Ball Speed
• Ball Revolutions
• Positive Axis Point

Bowler Balance
• A bowler’s balance can be affected by a loose fit as well as a fit too tight
• A loose fit is more likely to go undetected because a grip that is too tight will be uncomfortable or painful to the bowler
• A bowler compensates for a loose fit by grabbing the ball
• So how do we detect a fit that is too loose?
  o Swinging Finish Position Drill
  o Squeeze-relax the grip (x3)

Lofting
• A good fit will allow a bowler to loft the ball at will
• Uncontrolled lofting can be attributed to span and/or thumb pitch issues

Speed
• Squeezing the ball is the dominant factor that inhibits ball speed
  (A tense arm swings slower than a loose arm)

Revolutions
• High rev players require a thumb fit and pitch that will allow them to clear the thumb quickly
  o Finger dominant release
• Low rev players require a thumb fit and pitch that will allow them to easily grip the ball
  o Thumb dominant release
Positive Axis Point

- Marking the Positive Axis Point (PAP) on the ball and watching the PAP in the skid phase of the ball’s motion can reveal release issues that are due to grip issues
- Let’s review the methods used to locate, mark and document the PAP…
- Have the bowler deliver the ball in an area of the lane well coated with oil
- Locate the first oil track on the ball
  - Typically the first track will start with a blob of oil caused by the initial impact of the ball on the lane
- Today’s ball colors, oil-absorbing coverstocks and/or a lack of sufficient oil on the lane can make locating the track difficult…
  - Make wide smears with a wax pencil in the track area
  - Have the bowler deliver to a dry part of the lane
- Highlight the first track
- Level the first rack with the table
- Swivel the ball on the cup to ensure level
- The PAP will be on the top of the ball
- Alternative: Use the MoRich ‘Armadillo’
  - Match a line on the Armadillo with the track line on the ball
    - The higher the track, the closer the matched line to the center of the tool
- The PAP will be at the groove on the end of the tool

Document the Positive Axis Point

- Manufacturers use the PAP as a reference for their wide variety of ball layouts
- Use the Armadillo to document the PAP for future ball purchase layouts
- Draw the center-of-grip line starting from the thumb hole splitting the finger holes
- Continue the line beyond the finger holes
- Divide the bowlers span by two and mark it for the perpendicular mid-line
- Put the armadillo on the ball with the dashed line covering the center-of-grip line
- Place the flat edge of the Armadillo on the mid-line so that it is perpendicular to the center-of-grip line
- Document the distance from the center-of-grip line to the PAP
- Measure the distance from the mid-line to the PAP (up or down)
*Performance Fit*

**By Modifying the Fit, you can:**

- Increase Revolutions
- Decrease Revolutions
- Increase Axis Rotation & Tilt
- Decrease Axis Rotation & Tilt
- Decrease Tilt
- Increase Tilt for very High-Track Releases

* “Get and Grip”, Pro Shop Insider, Winter 2008, Del Warren

Increase revolutions

- Add 1/8 Forward pitch to both fingers

Decrease revolutions

- Add 1/8 Reverse pitch to both fingers

Increase Axis Rotation and Tilt

- Add 1/8 left lateral pitch to all gripping holes

Decrease Axis Rotation and Tilt

- Add 1/8 right lateral pitch to all gripping holes

Decrease Tilt

- Add 3/8 Reverse Pitch to the Middle Finger Grip
- Add 3/8 Forward Pitch to the Ring Finger Grip

Increase Tilt for very High-Track Releases

- Add 3/8 Forward Pitch to the Middle Finger Grip
- Add 3/8 Reverse Pitch to the Ring Finger Grip

‘Field’ Grip Modifications

- Ball Tape
  - 1”, ¾”, ½”

- Bowler Tape Applications…
  - Free-up sticking thumb
  - Prevent/cover surface injury
  - Modify thumb timing

- Tools
  - Dremel 7.2V Rotary Tool with Flex Shaft Attachment
  - Dremel Drum Sander
  - Star hole sander
  - Compressed air (CO₂ lens Cleaner)
SUMMARY
  o Explain Basic Grip Terms
  o Identify the Tools for Checking Ball Fit
  o Document the Ball Fit of Your Bowlers
  o Use ‘Static’ Fit Methods to
    o Recognize common fit injuries
    o Provide recommendations for fit improvements
  o Using Dynamic Fit Check Methods
    o Identify a bowler’s PAP, Axis Rotation and Axis Tilt
  o Fit for Performance
  o Provide coaching and fit recommendations for modifying a bowler’s:
    o Revolutions
    o Axis Rotation
    o Axis Tilt
  o Identify Tools and Options for Modifying Grips ‘in the Field’

CONCLUSION

  I HOPE THAT THIS PRESENTATION HAS PROVIDED YOU WITH AT LEAST ONE
  TIDBIT OF INFORMATION THAT CAN HELP YOU DETERMINE GRIP ISSUES FOR
  THE BOWLERS WHO ARE DEPENDENT UPON YOU FOR OPTIMUM COMFORT AND
  A GOOD PERFORMANCE FIT