

Spring 2015

THE COLLEGE E-ZINE

THE COLLEGE OF DIPLOMATES OF THE AMERICAN BOARD OF ORTHODONTICS

"Keeping Our Members Connected"

37TH ANNUAL SUMMER MEETING 2015

Where: Avon, Colorado

When: July 17 - 21, 2015



TABLE OF CONTENTS

● INTRODUCTION DR. MICHAEL GUESS.....	3
● SUMMER MEETING THE RITZ-CARLETON WELCOMES.....	4
● SUMMER 2015 MEETING SCHEDULE DR. KIMSEY ANDERSON & JAN BECK	5
● SUMMER MEETING RESTAURANT RECOMMENDATIONS AND EVENTS DR. MICHAEL GUESS.....	10
● MEETING REGISTRATION FORM	14
● STUDENT REGISTRATION FORM.....	15
● LOOKING INSIDE MY ORTHODONTIC LIFE DR. R. G. “WICK” ALEXANDER.....	16
● MEMBER NEWS: BOOK DR. ROBERTO JUSTUS.....	19
● MARK YOUR CALENDARS -2016 AND 2017 SUMMER MEETING LOCATIONS & DATES	19
● OBITUARY DR. ARTHUR REED DR. JOHN CARTER	20
● GUEST ARTICLE ROLE OF PROBIOTICS IN ORAL HEALTH RAJIV SHARMA, MD, EVANSVILLE, IN. ASHIV K. BHAKHRI, BDS SAN JOSE, CA MICHAEL B. GUESS, DDS, MS, MA, EL DORADO HILLS, CA.....	21
● SPONSORS.....	28

Disclaimer: “The views and opinions expressed in this ezine are those of the author and not necessarily reflect the views of the College of Diplomates, Council or it’s members.”



INTRODUCTION

I'd like to welcome you to the fourth issue of the College E-zine magazine. This magazine will serve as an extension of the College's interest in keeping members, family and colleagues connected.

With the help of Marija Hajster, a talented graphic artist with an eye for layout, Jan Beck, our trusted friend from the College for proofing and several Colleagues including Ken Hrechka, Paul Miller, Robert Vaught and Perry Opin we have now completed our fourth issue. I applaud them as they have worked hard to produce something that the Council & members can be proud to call "ours." So let's begin this issue.

Hi everyone! President Kim Anderson has organized a unique and exciting meeting for us all in Bachelor Gulch, Colorado. What may you learn? Just as an example, did you know that we can prescribe simple testing to determine DNA acceptance, resistance or rejection to drug choices. Wow, this is very exciting!

Or that very soon we can predict treatment outcomes with risks based on genes. This is an exciting time! Dr. Hartsfield has organized a group of outstanding speakers to present the absolute latest on genetics and how this knowledge could be harnessed to benefit our patients. And possibly, this may be the most thought provoking meeting at the College in the past 20 years!

We already have 220 registered attendees at this time. Don't worry, there's still time but get your registration in no later than 6/15! See page fourteen. The Ritz-Carleton is an appealing summer vacation for both educational, family and social purposes.

We lost a giant in our profession a few years ago. Dr. Vince Kokich was gracious, talented, hard-working and generous with his time. We were lucky to have him as one of ours. The Foundation set up a fund for him a few years ago. We are pleased to report that Dr. Kokich's fund has started to grow. And this year, some of these funds can be utilized to help partially defray some resident attendee expenses. Education was important to Dr. Kokich and our contribution honors him. Thank you!

This year's meeting is a scenic 1.5 hr drive from Denver and a 30 minute trip from Vail, CO. It is spectacular to visit in the summer with generally favorable temperatures with a myriad of activities. Inside this issue starting on page 10 are some local favorites for meals.

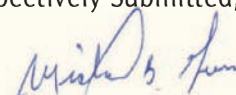
Ah, Yes! Our good friend, Dr. Roberto Justus has his new book from Springer-Verlag being printed this August. Information is available on page nineteen.

The Council wishes to pass our sincere condolences to the family of our dear friend, Dr. Art Reed.

This edition features a special guest article from Dr. Raj Sharma et. al. on the evolving field of probiotics and oral health. This is an original article with references.

I continue to be proud of our heritage and my association to such an interesting and wonderful group of friends. I wish you well and hope to see you this summer!

Respectively Submitted,



Michael B. Guess

PS – Remember the past two College E-zine issues are on www.issuu.com

Spring 2014

http://issuu.com/cdabo/docs/e-zine_summer_meeting_-_19_march_we

Fall 2014

http://issuu.com/cdabo/docs/e-zine_s-f_issue_ii



THE RITZ-CARLTON

BACHELOR GULCH ON BEAVER CREEK MOUNTAIN

Nestled in a private enclave on Beaver Creek Mountain between the villages of Beaver Creek and Arrowhead, The Ritz-Carlton, Bachelor Gulch defines Rocky Mountain luxury. This majestic mountain resort embraces outdoor adventure and mountain traditions while providing guests a distinctive combination of sophistication and comfort.

The summer activities are endless and the fun never-ending for guests visiting The Ritz-Carlton, Bachelor Gulch. For those seeking an active adventure, white water rafting, Jeeping, ATVing, fly fishing, and zip lining are just minutes away. For those looking for a more relaxed speed, soaking in the sun by the pool or poolside cabana, luxuriating in the award-winning spa, or enjoying the resorts lawn games and fire pits all provide a sense of serenity and renewal.

With the resorts unique Naturalist Program, guests are also provided the opportunity to learn and explore the wild and fascinating ecosystem of the Colorado Rockies. Guided by Resident Naturalist, Ranger Jackie, an experienced park ranger who brings her vast knowledge of the area, enthusiasm for nature, and a sense of adventure to every program gives guests an exciting and memorable experience! Guests can start their day by stepping into the tranquility of the forest and experiencing Bachelor Gulch in a whole new way on a guided hike. From the sweet scent of wildflowers to the trickle of mountain streams, guests take a closer look at how the forest sustains life and take time to snap stunning photos from breathtaking alpine vistas.

In the evening, guests can experience the night sky like never before on a fascinating stargazing adventure. Walking beneath the glow of the Milky Way, the Resort Naturalist guides guests through the constellations sharing ancient legends of the cosmos. The tour returns to the warmth of the fire pit for a hot decadent cocktail.

For the dog lover, an afternoon hike with the resort's resident canine, Belle, a playful Bernese Mountain Dog, will join along in exploring the mountain terrain and sniffing out new trails!

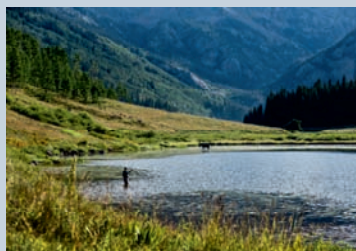
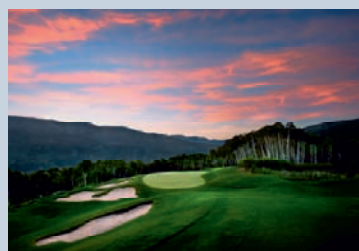
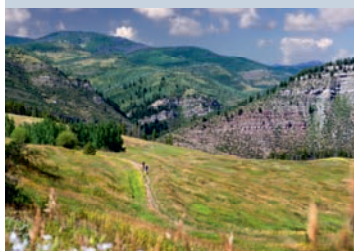
The Vail Valley is also home to more than a dozen nearby world-class golf courses. Guests at The Ritz-Carlton - recently named Condé Nast Traveler's #3 "Top Western U.S. Golf Resort" - enjoy exclusive access to Red Sky Golf Club where the fun of golf is met with the magnificent panoramic views of the Vail Valley.

For the cuisine-loving foodie, each week the resort hosts their 'Market on the Mountain' which features local farmers, vendors, and produce with live entertainment and the beautiful backdrop of the mountains. Every week a different local celebrity farmer is highlighted, creating a three course Market-to-Table Tasting Menu. Using the farmer's produce from the day's Market on the Mountain, guests can savor the summer flavors of Colorado with this unique culinary journey.

For guests seeking a summer libation, they can learn how to craft molecular drinks with the resorts interactive mixology class, 'Bachelors Lounge Garden Cocktail Class. The Bachelors Lounge team has created 'mini gardens' where guests can pick the freshest ingredients for their hand-crafted specialty drink of the evening. Guests will even learn how to make bitters and simple syrup that is needed for the specialty cocktail!

Guests can sample other favorites of Bachelors Lounge with their annual Sip and Smoke Series. Each class will feature a different arrangement of Vaportinis, alcohol, cigars, or hookahs so guests can try multiple ways to 'sip and smoke' their night away.

No matter how guests choose to fill their days, their time in Bachelor Gulch this summer will undoubtedly be filled with all that is loved in the of the Rocky Mountains, leaving their spirit soaring and their soul restored.



SUMMER 2015

MEETING LOCATION AND DATES

By President, Dr. Kimsey Anderson

OK, I hope you and your family are ready for the 37th Annual Meeting of the College of Diplomates of the American Board of Orthodontics to be held at the Ritz-Carlton, Bachelor Gulch in Avon, Colorado from July 17th to 21st, 2015.

The Scientific Sessions will focus on Personalized Orthodontics and the relationship of genetics to our specialty. Dr. James Hartsfield from the University of Kentucky has assembled an outstanding list of speakers from the field of genetics. These speakers will present lectures on the following topics:

- Genetics and Your Family, Health, and Genealogy
- Classification, Etiology, and Treatment of Sleep Apnea
- Genetic Considerations in Orthodontic Treatment Planning
- Joules, Genes, and Behaviors in Temporomandibular Disorders
- How Biomechanics, Development, & Genetics affect the Speed of Human Tooth Movement
- Genetic and Treatment Factors in External Apical Root Resorption With Orthodontia
- Dental Agenesis and Cancer
- Morphometric and Genetic Studies in Skeletal Malocclusion
- Muscle Variation, Genetics, and Malocclusion

The Ritz-Carlton has a reputation for extraordinary experiences and Bachelor Gulch is no different. Bring your family as there are incredible events for participation such meeting the Hotel's greeter, a St. Bernard. Come and relax in the majestic and awe inspiring Colorado Rockies.

On site, you can play golf, enjoy a world class spa, let the children enjoy the Ritz Kids Club and enjoy fine dining at Wolfgang Puck's, Spago. There are other recommended restaurants you can find in this issue.

If you'll take a short trip around you'll experience the colorful Colorado Mountains, trout fishing, horseback riding, biking, hiking train rides, all-terrain vehicle rides and trains rides to take in the scenic mountain passes.

Did I mention that relaxation is actually part of the program? Try the Ritz-Carlton's Spa which was named by Travel and Leisure Magazine the #1 spa in the USA and the #2 top spa in the world in 2013. It was also named one of the top family hotels in the US and America's Best Dog-friendly Hotel. The resort's spa and other amenities, included in your room rate, contribute to a relaxing and revitalizing retreat. It's the ideal place for the family to relax, unwind, and enjoy some quiet time!

We hope you come to learn and enjoy the great Colorado beauty, to revitalize your mind, body, and soul and enjoy old friends and make many new ones. Remember, your with friends, colleagues and family in a near perfect setting! I encourage all members to attend this summer's meeting as it is shaping up to be special!

Wishing you all the Best!
Dr. Kimsey Anderson, President

CDABO 2015

SCHEDULE OF EVENTS

The College's 37th Annual Session
July 17-21, 2015

FRIDAY, JULY 17, 2015

7:30am – 5:00pm	College Council Meeting	Smith Board Room
11:00am-6:00pm	Registration	Pre-function
6:30pm – 9:00pm	Welcome Reception (all registered family attendees)	Slopeside Terrace

SATURDAY, JULY 18, 2015

7:00am – 1:00pm	Registration	Pre-function II
7:30am – 9:00am	Opening Family Breakfast (Plated Breakfast) (all registered family attendees)	Salon II & III
8:15am – 9:00am	Speaker during breakfast <i>Genetics and Your Family, Health and Genealogy</i> Dr. James Hartsfield	Salon II & III

GENERAL SESSION

9:15am – 10:15am	<i>Dental Agenesis and Cancer</i> Dr. Lorri Ann Morford	Salon I
10:15am – 10:30am	Coffee Break	Pre-function
10:30am – 11:30am	<i>Genetic Considerations in Orthodontic Treatment Planning</i> Dr. Robyn S. Silberstein	Salon I
11:30am – 12:00pm	Q&A	Salon I

FAMILY ACTIVITIES

9:00am – 1:00pm	Ritz Kids Program (5-12 years old)	First Floor
9:00am – 10:30am	Kid's Scavenger Hunt (5-12 years old)	TBA
10:00am – 11:00am	Zumba (pre-registration required)	TBA
1:00pm – 5:00pm	Optional Tours (sign up on-site with RMC)	RMC Tour Desk



PERSONALIZED ORTHODONTICS Back to the Future

Evening on your own

SUNDAY, JULY 19, 2015

6:30am – 7:30am	Fun Run (pre-registration required) Meet Dr. Rejman in Hotel Lobby	
7:00am – 1:00pm	Registration	Pre-function II
7:30am – 9:30am	Family Breakfast Buffet (all registered family attendees)	Salon II & III

GENERAL SESSION

8:00am – 9:00am	<i>Joules, Genes, and Behaviors in Temporomandibular Disorders</i> Dr. Jeff C. Nickel	Salon I
9:15am – 9:30am	Coffee Break	
9:30am – 10:30am	<i>How Biomechanics, Development and Genetics affect the Speed of Human Tooth Movement</i> Dr. Laura Iwasaki	Salon I
10:30am – 11:00am	College Business Meeting #1	Salon I
11:00am – 12:00pm	<i>Genetic and Treatment Factors in External Apical Root Resorption With Orthodontia</i> Dr. James Hartsfield	Salon I
12:00pm – 12:30pm	Q&A	Salon I

FAMILY ACTIVITIES

8:30am – 12:30pm	Ritz Kids Program (5-12 years old)	First Floor
10:00am – 11:00am	Yoga (pre-registration required)	TBA
1:00pm – 6:00pm	Golf Tournament (pre-registration required)	Beaver Creek Golf Club
1:00pm – 5:00pm	Optional Tours (sign up on-site with RMC)	RMC Tour Desk

Evening on your own

MONDAY, JULY 20, 2015

7:00am – 1:00pm	Registration	Pre-function II
7:30am – 9:00am	Family Breakfast Buffet (all registered family attendees)	Salon II & III

GENERAL SESSION

8:00am – 9:00am	<i>Morphometric and Genetic Studies in Skeletal Malocclusion</i> Dr. Lina Maria Moreno Uribe	Salon I
9:00am-10:00am	<i>Muscle Variation, Genetics and Malocclusion</i> Dr. James J. Sciote	Salon I
10:00am-10:15am	Coffee Break	
10:15am – 10:45am	College Business Meeting #2	Salon I
10:45am – 11:45am	<i>Classification, Etiology and Treatment of Sleep Apnea (Can Camouflage Orthodontic Treatment Predispose to Sleep Apnea?)</i> Dr. G. Thomas Kluemper	Salon I
11:45am – 12:15pm	Q&A	
12:15pm	GROUP PHOTO	LOCATION TBA
12:30pm – 4:30pm	College Council Meeting #2	Smith Board Room

FAMILY ACTIVITIES

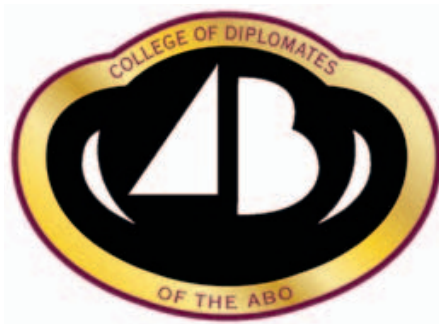
8:30am – 12:30pm	Ritz Kids Program (5-12 years old)	First Floor
10:00am – 11:00am	Zumba (pre-registration required)	TBA
1:00pm – 5:00pm	Optional Tours (sign up on-site with RMC)	RMC Tour Desk
6:30pm – 9:30pm Terrace	President's Dinner	Slopeside

TUESDAY, JULY 21, 2015

7:00am – 12:30PM	Registration	Pre-function II
7:30am – 9:00am	Family Breakfast Buffet (All registered family attendees)	Salon II & III

GENERAL SESSION

8:30am – 9:30am	<i>Biology of Expedited Tooth Movement</i> Dr. Sarandeep S. Huja	Salon I
9:30am – 9:45am	Coffee Break	Pre-function I
9:45am – 10:45am	<i>Primary Failure of Eruption and Other Dental Eruption Anomalies</i> Dr. Sylvia Frazier-Bowers	Salon I
10:45am – 11:45am	<i>When, How and Why You Should Refer Your Patient to a Clinical Geneticist</i> Dr. James Hartsfield	
11:45am-12:15pm	Q&A	



PLACES TO DINE DURING THE MEETING

DINNER

Recommendations



#1

Spago at The Ritz-Carlton

Wolfgang Puck's Spago, has been at The Ritz-Carlton Bachelor Gulch since 2007. The menu features classics such as handmade Agnolotti and the Chico Farms Goat Cheese Napoleon. The restaurant seats 126 and reservations should be made for dinner. The bar opens at 4pm and fine dining starts at 6pm. Oh, it is open from Wednesday to Sunday so if you'd like to experience Spago please make sure to plan your dinner soon after your arrival!

Open Wednesday thru Sunday, Bar Menu 4 p.m. - 10 p.m.; Dinner 6 p.m. - 10 p.m.

<http://www.ritzcarlton.com/en/Properties/BachelorGulch/Dining/Spago/Default.htm>

#2

Mirabelle

How would you like to have dinner at a 19th century cottage nestled in the mountains? The food here has been described as "magical." French food with signature dishes of Colorado Lamb Chops and Roasted Elk Medallions with fruit compote and maybe some house made ice cream to finish it off. Mirabelle has 30 tables for dinner. Located just inside the entrance of the Beaver Creek Resort, the Forbes Travel Guide rates it as a Four-Star restaurant. The dress code is business casual.

Open Tuesday thru Saturday, Bar Menu 4 p.m. - 10 p.m.; Dinner 6 p.m. - 9:30 p.m.
<http://mirabelle1.com/>

Located at 55 Village Road
Beaver Creek, Colorado 81620
Phone Number: (970) 949-7728

#3

Elway's at Vail

"Best lamb chops ever! Delicious menu, excellent service, a must see if you are a steak lover or foodie at all."

Make Dinner Menu features a 7 for \$7 menu (Try at least one of these!)

Rhode Island Calamari
Grilled Artichoke
Iceberg Wedge Salad
Steak Tacos
Wagyu Burger Slider
Truffle Fries or Truffle Beet

The dinner menu can be viewed here
<http://www.opentable.com/elways-vail>
Website: <http://www.elways.com/Vail>
Phone Number: (970) 754-7818

Located at: 174 E.
Gore Creek Drive
Vail, CO 81657



LUNCH

Recommendations



#2

Fiestas in Edwards, CO

Just a few minutes away! Two sisters use old family recipes brought to Colorado to create great Southwestern cuisine. Among the favorites are chicken enchiladas in a white jalapeño sauce and blue-corn enchiladas served Santa Fe style with an egg on top! If you like Mexican food come here!

"Whenever we spend time in the Vail Valley we always visit Fiestas for lunch or dinner. It is family owned and operated and has been in business for many years. They are known for their blue corn enchiladas and white jalapeno sauce and they are delicious, along with most items on the menu. They have a good margarita list as well for those who want more than the typical "house" marg. Atmosphere is casual and it is family friendly, and the staff is always friendly."

Located at: Edwards Access Road and Highway Six
0057 Edwards Access Road
Edwards, CO 81632
Phone: (970) 926-2121

#3

Mountain Standard in Vail

The menu Mountain Standard's is prepared via an open and live fire wood oven. It is the only restaurant in the area that utilizes this age-old way of cooking. They boast the on focusing on the purest ingredients in the Rocky Mountain region and beyond. The location is beautiful near a creek.

<https://mtnstandard.com/lunch-menu/>

Located at: 193 Gore Creek Drive
Phone number: (970) 476-0123

Vail, Colorado 81657
info@mtnstandard.com

#1

Buffalos at The Ritz-Carlton

This is another amazing place. Organic poultry, wild seafood and Colorado premium meats including bison. There are several seasonal dishes from regional farms and Colorado specialties. Fuel up at lunch with with a variety of Grass Fed Burgers. Enjoy the rustic charm and tranquility of the dining area.. Beer enthusiasts appreciate the wide selection of local craft beer on draught and by the bottle..

Try an appetizer such as

French Onion Soup

Marco's Jalapenos

Ski Country Cast Iron Poutine

ON THE SIDE

Lobster Mashed Potatoes

Bison Chili

White Cheddar Broccoli Gratin

<http://www.ritzcarlton.com/en/Properties/BachelorGulch/Dining/Bufalos/Default.htm>

BREAKFAST

Recommendations

#1

Buffalos at The Ritz-Carlton

Some Favorites:

Banana, Foster , French Toast , Smoked Salmon Plate, Classic Benedicts

Buffalos Short Rib Hash

Fingerling Potatoes, Carrots, Onions, Celery, Shredded Buffalo Short Rib, Soft Poached Egg, or Egg Choice, Charred Tomato Garnish



#2

Route 6

The Route 6 Cafe in Avon creates delicious American cuisine all day long at low prices. This restaurant gets high praise from the locals for its casual, family friendly ambience and tasty breakfast fare.

Got a hearty appetite: Try the NY steak and eggs or outstanding chicken-fried steak and even the huevos rancheros. "The egg benedict and german pancake was seriously delish."

http://www.tripadvisor.com/Restaurant_Review-g33311-d382311-Reviews-Route_6_Cafe-Beaver_Creek_Colorado.html

Located at: 40801 Highway 6, Beaver Creek, CO 81657
Phone: (970) 949-6393



#3

Westside Café & Market

Currently, The Westside serves Vail's best breakfast, lunch and dinner and does a ton of catering at all times of the day, at all locations, including their own!

Great American breakfast cuisine for a hearty appetite!

Video URL:

https://www.youtube.com/watch?feature=player_embedded&v=OTHtj3Mogk

Located at: 2211 N Frontage Rd W
Vail, CO 81657

Phone: (970) 476-7890

<http://www.urbanspoon.com/r/101/842478/restaurant/Colorado/Westside-Cafe-Market-Vail>



★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Something Special to Do With a Friend to Family Member?

Spago's Pizza

Classes Saturday July 18 and Sunday, July 19, 2015

3 p.m. - Children's Class

4 p.m. - Adult Class

Join Chef Jared Montarbo and his world class culinary team as they share the artistic craft of pizza making. In a hands-on culinary experience using seasonal and local ingredients, you will learn how to create the perfect pizza-from the kitchen to the oven!



\$35 per person, exclusive of tax and gratuity. For the true epicurean, The Ritz-Carlton chef hats and aprons are available for purchase.

★ ★ ★ ★ ★ ★ ★ ★

For Children the Ritz-Carlton offers:

**RITZ KIDS
RANGERS**

The Ritz Kids Ranger Program gives children ages 5-12 the ultimate vacation experience through activities centered around adventure, creativity, wellness and the beautiful Rocky Mountain landscape. Programs in our state licensed facility are guided by knowledgeable and energetic child care professionals who have developed unique lessons inspired by the legendary environmentalist, Jean Jacques Cousteau.

CHILDREN'S CLASSES
ADULT CLASSES

3:00pm
4:00pm

Sat July 18	Cheese	Salmon
Sun July 19	Pepperoni	Freestyle

Reservations are required: (970) 343-1066.





The College of Diplomates of the American Board of Orthodontics
37ⁿ Annual Meeting
July 17-21, 2015
Avon, Colorado
REGISTRATION FORM

2015 Summer Meeting Registration Fees

Please complete and fax or email this form to Jan Beck jbeck@aaortho.org 314-997-1745

Name: _____

Guest Name(s): _____

Address: _____

City/State/Zip _____ Phone: _____

Email: _____ Spouse Email: _____

# of People	Before 4/15	Before 5/15	After 6/15
Member	\$825	\$925	\$1025
Spouse w/program'	\$575	\$675	\$775
Spouse Registration (food/events only)	\$275	\$325	\$375
Residents	\$275	\$325	\$375
Non-Member Diplomat	\$108.	\$1185	\$1285
Non-Member and Non ABO Certified	\$1585	\$1685	\$1785
Retired College Member	\$725	\$825	\$925
Full-Time Faculty	\$412.50	\$462.50	\$512.50
Guests over 18	\$275	\$325	\$375
Ages 13-18	\$200	\$250	\$300
Ages 6-12	\$100	\$125	\$150
Ages 5 and under	Free	Free	Free

Only for non-orthodontist spouses who are interested in attending the scientific sessions for CE credits

Activities

ZUmba/Yoga/Zumba (3 classes)	\$50	\$55	\$60
Golf	\$225	\$250	\$275
Scavenger Hunt (5-12 Years Old)	Free	free	Free
Fun Run (Includes t-shirt)	\$20	\$25	\$30

Indicate Shirt Size for Fun Run

Adult _ XL _ L _ M _ S Youth _ L (14-16) _ M (10-12) _ S (6-8) _ XS (2-4)

Please note: if shirt not ordered by May 15, shirt size cannot be guaranteed

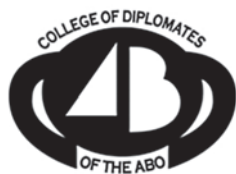
Total Cost

Cardholder's Name _____

1 Visa [1 Mastercard] [American Express] [Discover

Credit Card Number _____

Expiration Date: _____ CVV _____



This is the Application for residents in accredited programs to join the College.

College of Diplomates
of the American Board of Orthodontics
401 N. Lindbergh Blvd
St. Louis, MO 63141

Student Membership Application

Please type or print information

Date:

Student name for membership

AAO Student Member Number (if applicable)

Address

City:

State/Province:

ZIP Code

Country

Home Phone:

Cell Phone:

Fax:

E-Mail:

Dental School

Year of Graduation

Graduate Program

Year of Expected Graduation

Department Chair _____

Where do you plan to practice upon graduation? _____

When do you plan on taking your ICE (Initial Certification Exam)? _____

Signature _____

Please email or fax your completed application to TheCollege@aaortho.org or 314-993-6843



COLLEGE OF DIPLOMATES OF THE AMERICAN BOARD OF ORTHODONTICS

Looking inside my Orthodontic life

Dr. R. G. "Wick" Alexander

16 | **N**o other profession could have allowed someone to have so many wonderful experiences, meeting people from the world over, learning, teaching, sharing and help cultivate lifelong friendships. And throughout this experience, my goal has been to leave the world of orthodontics a little better than I found it. Additional opportunities have also opened the door to another generation of the Alexander family to continue the legacy.

My older brother, Moody, always encouraged me to "find my voice" (Stephen Covey). With the help of the orthodontic giants who were my mentors; Jim Reynolds, Jay Barnett, Fred Schudy and others...orthodontics became my passion.

It is tempting to say that choosing such a unique profession was simply by luck. But, the continued treatment of generations of families, and following their progress indicates much more. Maybe it was more than luck?

A combination of events allowed me to evaluate my treatment philosophy and technique. First, my family has blessed me with total support in all my endeavors. My wife understands that I have always been a "keeper." I never liked to throw away things and I have scrapbooks from grade school through

college to prove it. Keeping patient records was important to me from the very first patient. It allowed me to evaluate my treatment results in a manner never before possible. Second, the treatment using my philosophy and technique seems to have resulted in long term stable occlusions. My two sons, who are both orthodontists, have continued to keep patient records. So, with my library of patient records (known as the "Room of Truth"), there have been numerous papers written that evaluate treatment results and its stability.

The evaluations confirmed the concept that Long Term Stability is possible.

As a correlation, I can think of my wonderful family...a beautiful wife of 56 years, three successful children, and 12 wonderful grandchildren. My guardian angel has guided me in so many ways. From growing up in West Texas to traveling the world teaching orthodontics, I found my way to Texas Tech and to the University of Texas at Houston Dental Branch. Each step led me through an open door which was a passage to my future passion.

As my family grew, it was apparent that specific steps must be taken to develop long term family harmony and professional success. Hard work over the years resulted in many awards from my orthodontic colleagues and many happy family memories in

my current scrap book. Of all the awards, the most significant was the Milo Hellman Research Award regarding scoliosis and the Milwaukee brace. It changed the way orthodontics thinks about skeletal growth. It was reassuring that the script for moving through the steps and challenges of life was available for my review. As a founding member of Trinity United Methodist Church, the source of my inspiration was close at hand.

So why doesn't the orthodontic profession accept and agree that if specific steps are taken, as incorporated in the Alexander Discipline, that Long Term Stability is possible?

Maybe it is more complicated when considering all factors involved... but, in the KISS PRINCIPLE (Keep It Simple Sir) philosophy, certain truths apply to every patient.

This includes:

- 1) control of IMPA- keep within 3° of original
- 2) spreading roots of anterior teeth
- 3) controlling intercanine width
- 4) upright mandibular 1st molars - 6°
- 5) controlling SN/MP
- 6) control torque of maxillary incisors
- 7) moderate expansion maxillary 6x6
- 8) create Class I skeletal pattern on growing patients (Facebow)
- 9) Balanced soft tissue profile
- 10) Functional Class I occlusion

Is there general agreement regarding these "truths"? If so, then the question to resolve is, "How are these goals best achieved?"

After years of "trial and error," the bracket prescription, archwire sequence and orthopedic needs were developed. The doctor and his staff have a prescription to follow that addresses each need. With a compliant patient using specific finishing procedures, expected results can be routinely achieved.

In some cases, teeth must be extracted to create adequate space for the remaining teeth. It's acceptable to remove teeth on selected cases, but in the majority of patients, adequate space can be created

by expansion, uprighting and even "distalizing" posterior teeth.

To establish goals is necessary...

To achieve goals is imperative.

After years of attempting to reach these goals without patient compliance, it has become apparent that the doctor is only as good as his patient.

Enter...Motivation of Patient Techniques –

The "KISS" Principle has played an important role in motivating the patient to comply. It is important to make the patient's involvement simple; so, compliance is easily accomplished.

Positive "reinforcement" is emphasized throughout treatment. Some things don't change...

"Show me a good patient...I'll show you a good result."

After all these years... what is the best treatment for skeletal Class II malocclusion? You guessed it! Cervical Facebow! The challenge with the other Class II appliances is that they all have intra-oral attachments...meaning that the "reaction" attachment places a forward force on the mandibular teeth, thus flaring them into unstable positions.

After observing the many years of treatment for Class II orthopedic malocclusion, I still believe in the cervical facebow as the premier appliance for correcting skeletal Class II malocclusions in growing patients. The "Room of Truth" confirms this technique in hundreds of patients. Long term stability is excellent.

So, why does this method create negative response from many orthodontists and patients? Answer: Lack of education and compliance. The only question with the cervical facebow is compliance!

Admit it! If the patient would wear the facebow, more orthodontists would recommend this approach. So, give me an open mind for a short period and ask, "How can we motivate the patient to be compliant?"

First: Let's change the name from Headgear to Orthopedic Facebow.

Then: Fit and adjust the facebow so it can be placed and removed easily:

- 1) Inner bow – expanded ± 5 mm
- 2) Inner bow parallel to occlusal plane
- 3) Outer bow parallel to occlusal plane
- 4) Special designed neck strap adjusted for force delivery and comfort
 - Initial force – 8 oz.
 - Later force – 16 oz.

Keep it at that level throughout the treatment

Hours worn: 8-12 hours/day (1 hour before bedtime then all night)

Facebow should be adjusted at each appointment!

Patient growth must be present if treatment is to be successful. Communication is essential with parents so they understand and fully support the treatment plan.

(Detailed instructions found in “The 20 Principles of the Alexander Discipline” book; p. 78-82)

“Research on Facebow”

Very significant knowledge has emerged from research involving facebow patients from my office. Romine, Plunk, Glenn et al, and Elms et al have all

studied the effects and stability of facebow correction in growing patients. These studies have changed clinical results from anecdotal observations to evidence-based facts:

- 1) The results of nonextraction therapy for patients with Class II malocclusions can be relatively stable when the orthodontist ensures proper patient selection and compliance and attains the treatment objectives.
- 2) Overall stability is relatively good.
- 3) Arch length and intercanine width decrease postretention.
- 4) Changes in overjet, overbite, and intermolar width remain stable following treatment.

In the early years of European history with the dominance of Italian power, it was often stated that “all roads lead to Rome.” In orthodontics the question then becomes, “Where is Rome?” In the history of the Alexander Discipline, following the guidelines will allow us to find our “Rome.”

Editor’s Note: Dr. Alexander will be featured at our 2017 Summer Meeting in Lake Tahoe, CA

CONGRATULATIONS!



Dr. Terry Sobler just finished up his term as President of NESO. He’ll be President of the College in 2018.

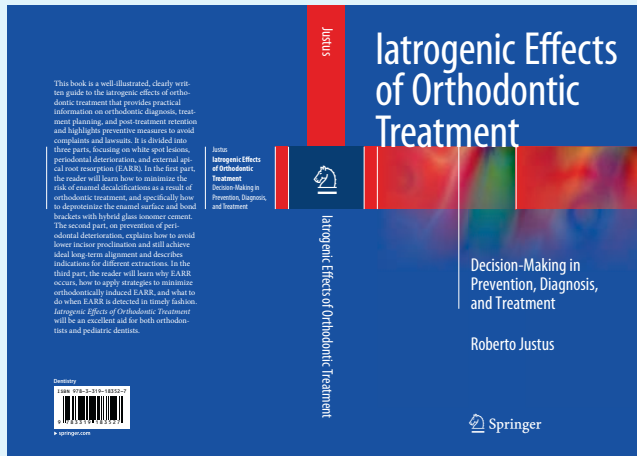


Dr. Perry Opin continues to serve the College as our Parliamentarian and the AAO and is appreciated by his dedicated service to both the Council and the College members.

Thank you for your Service!

MEMBER NEWS

Dr. Justus does it again! Well, our member and Past-President as well as Past-WFO President has finished his new book and it's scheduled for printing in July. Congratulations!



Printed by Springer-Verlag.

Release Date: August 2015.

Roberto's Summary: Orthodontic treatment success can be jeopardized by iatrogenic problems created during orthodontic treatment. The most frequent iatrogenic problem is white spot lesions followed by periodontal deterioration and external apical root resorption. This book addresses each of these three iatrogenic problems in individual chapters. Emphasis is given to the orthodontic treatment methods recommended to minimize, or prevent these problems from occurring.

Editor's Note: We wish him the best of success. Please bring any information about a member to my attention via email. mbguess@aol.com

19

MARK YOUR CALENDARS

37TH SUMMER REUNION

JULY 17-21, 2015
THE RITZ CARLETON,
BACHELOR GULCH, CO

38TH SUMMER REUNION

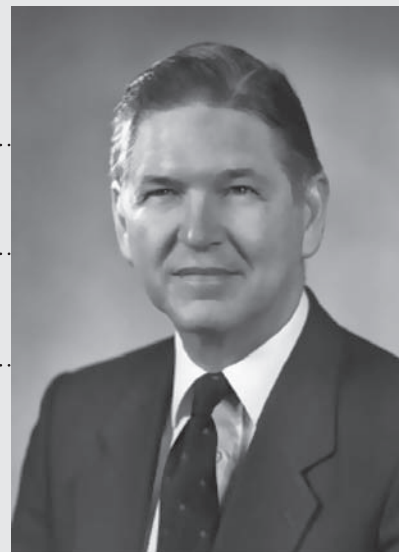
JULY 8-12, 2016
THE GROVE PARK INN,
ASHEVILLE, NC

WINTER WORKSHOP

JANUARY 12-15, 2017
PLACE TBD,
NASHVILLE, TN

OBITUARY

DR. ARTHUR CHESTER REED, JR. 1930-2015



Dr. "Art" Reed served his profession throughout his life. He was a Leader, Mentor and tireless advocate for our profession and the mission of the College of Diplomates. As an Eagle Scout he lived the lifetime oath that every eagle accepts to "always give back to the younger and weaker".

Art entered the leadership ranks of the College as Councilor for the Southwest Society of Orthodontists and later served as our President. Following his tenure as our President, Art served as Parliamentarian to the Board for the next two decades. He was also a valuable asset as an advisor to the Board and energetically took the role as mentor to many new and young college members who he inspired to get involved in serving the college. Many of these members went on to become future Councilors and Presidents of the college. I am proud to say that I was one of them. Art also volunteered to fill vacant positions on numerous planning committees for several Annual Meetings as needed. He served several times to fill in for Board members that were on medical sabbaticals.

It was only after his health prevented him from traveling in the past few years that Art had to relinquish his long tenure as our Parliamentarian. Art had received the College of Diplomates highest honor-The Founders Award-for the many contributions that he made during a lifetime of service to the College of Diplomates.

Art was a U.S. Air Force veteran. He served two years as the base dental surgeon in Nagoya, Japan. He re-

ceived his dental degree from Baylor College of Dentistry. He attended Columbia University in New York for his graduate education in Orthodontics.

Art and his wife Ann settled in Houston, Texas where he practiced the rest of his professional life. Art became very involved in his profession. He served in all offices including the Presidency of the Texas Association of Orthodontists. He later became an officer and eventually served as President of the Southwest Society of Orthodontists. He Co-Chaired the Annual Session of the American Association of Orthodontists meeting in Washington, D.C.

During his life Art received many honors for his service to his profession beyond the College. He received the Martin E. Dewey Memorial Award, the Southwestern Society of Orthodontists highest honor. He was a Fellow of the American College of Dentists and a Fellow of the International College of Dentists, a Member Emeritus of the Charles H. Tweed International Foundation for Orthodontic Research, and became a Membero Honorario Sociedad Boliviana Ortodontica. He was awarded Columbia University's Distinguished Service Award for his outstanding contributions to the specialty of orthodontics. He practiced orthodontics for 50 years and left a long legacy of service to others and his profession and along the way Art touched and inspired hundreds of future leaders in our profession to serve as he did.

John Carter

PROBIOTICS AND ORAL HEALTH: AN EVOLVING FIELD

Guest Article

Abstract: Probiotics added to the gut flora has been discussed in the scientific community for well over 100 years. Recent advancements in the field of probiotics has suggested that application to the oral cavity can be beneficial. Harmful microbes are replaced by beneficial microbes and this can confer health benefits. With the issues of rising antibacterial resistance, more research is being focused on controlling the oral cavity biome. There has been significant amounts of research over the past few years that suggest that keeping beneficial microbes while eliminating the harmful bacterial without damaging or causing side-effects to the body could be beneficial to our patients. The purpose of this paper is to discuss some of the recent scientific findings.



*Rajiv Sharma, MD,
Evansville, IN.*



*Ashiv K. Bhakhri, BDS
San Jose, CA*



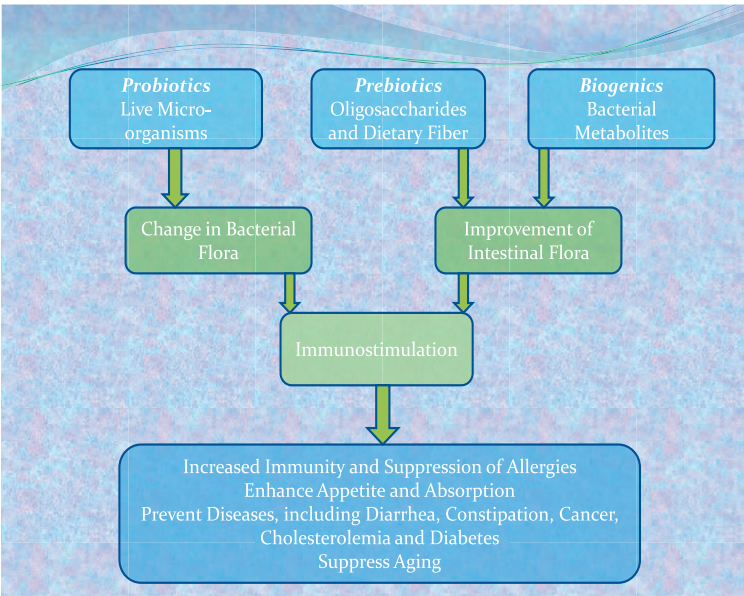
*Michael B. Guess, DDS, MS, MA, El
Dorado Hills, CA*

Introduction: The term probiotic literally means “for life.” Essentially they can be thought of as microorganisms that can help treat and prevent illness and can confer health benefits to the host. The impact of probiotics on oral health is relatively new with significant quantities of current active research; the area of probiotics is still considered in its infancy. The application of health-promoting bacteria for therapeutic purposes, is one of the strongest emerging fields. A paradigm shift appears to be occurring between the past treatment to eliminate specific bacteria and now alteration of the bacterial terrain by utilizing probiotics. [1] There has been quick development in the understanding and use of such microorganisms for human ailments. Since the oral cavity is a confined compartment within the human body i.e. anatomically, the oral cavity is connected to the nasopharynx, the larynx, the tonsils, the middle ear through the Eustachian tube and the gastrointestinal tract. Physiologically it is connected to the whole body and by this, the oral cavity is influenced by and influences general health. The oral microbiota which is as complex as the gastro-intestinal or vaginal microbiota are considered to be difficult therapeutic targets. [2]

The encouraging effects of probiotics in different fields of healthcare have resulted recently in the introduction of probiotics for oral healthcare. Probiotics have been clinically proved effective in different fields of oral healthcare such as: tooth decay, periodontal problems, halitosis and oral candidiasis. [3] Prebiotics are non-digestible food ingredients, such as oligosaccharides and dietary fiber that beneficially affect the host by selectively stimulating the growth or activities of beneficial intestinal bacteria in the colon and thus improve the health of the hosts. Biogenics are biologically active peptides, including immunopotentiators (biological response modifier: BRM), plant flavonoids, etc. They act directly or indirectly through modulation of intestinal microbiota on the health of the hosts. Thus, functional foods enhance bioregulation such as stresses, appetite and absorption; biodefence, such as immunity and suppression of allergies; prevent diseases, including diarrhea, constipation, cancer, cholesterolemia and diabetes; and suppress aging through immunostimulation as well as suppression of mutagenesis, carcinogenesis, oxidation processes, intestinal putrefaction, and cholesterolemia. [4]

Organisms used: Probiotics can be bacteria, molds or yeast. However, most probiotics are bacteria. Among bacteria, lactic acid bacteria are more popular. A probiotic may be made out of a single bacterial strain or it may be a consortium as well. Probiotics can be in powder form, liquid form, gel, paste, granules or available in the form of capsules, sachets, etc. [5]

Fig. 1. Functional mechanisms of Probiotics, Biogenics and Prebiotics.



Lactobacillus	Bifidobacterium	Other species
L. acidophilus	B. adolescentis	Enterococcus faecalis
L. reuteri	B. animalis	Enterococcus faecium
L. casei	B. bifidum	Lactococcuslactis
L. rhamnosus	B. lactis (animalis)	Escherichia coli Nissle
L. delbrueckii	B. infantis	Clostridium butyricum
ss. bulgaricus	B. longum	Sporolactobacillusnulinus
L. johnsonii	B. thermophilum	Streptococcus thermophilus
L. gasseri	B. pseudolongum	Saccharomyces cerevisiae
L. plantarum	B. breve	Saccharomyces boulardii
L. gallinarum		
L. amylovorus		
L. crispatus		

Table 1. Microorganisms used as Probiotics

Medium Used: Probiotics have been used for decades in fermented products but today they are available in various products and delivery systems for the consumer. Probiotics are available in a wide variety of formulations ranging from tablets and powders to yogurts, milk, fermented beverages and juices. Physicians tend to recommend tablets and powders; other formulations are heavily promoted by direct-to-consumer marketing. To maintain their quality and safety, they should be delivered in a formulation that is stable when stored.

TIME FOR A NEW TOOTHPASTE?

Effects of Probiotics on Caries:

Dental cariesalso known as tooth decay, cavities, or caries, is breakdown of tooth enamel due to the activities of bacteria and their waste products which produce acid. Streptococcus mutans and Lactobacilli bacteria are recognized for creating a caries environment in human beings.

A study was conducted in which an artificially synthesized probiotic from Lactobacillus strain was tested in toothpaste, led to an innovative approach in preventive dentistry. A new concept resulting

from this research can be explained due to possible mechanisms of action of probiotic bacteria, according to which equilibrium of hostile bacterial flora is achieved by mechanical elimination of cariogenic bacteria from the mouth .The number of participants with the high number of streptococci was significantly reduced from 78.4 to 26.5%, as well as the number of participants with the high number of Lactobacilli, which significantly dropped down from 52.9 to 26.5% which means probiotics can be used with purpose of maintaining balance of bacterial flora within the oral cavity, particularly in high risk groups who are more prone to developing caries. [6]

Another study used two powders as probiotic vehicles in 150 children aged 7–14 years, containing the first *Lactobacillus rhamnosus*, *Bifidobacterium longum* and *Saccharomyces cerevisiae* and the second *Bacillus coagulans*, and compared them to a placebo powder. Powders dissolved in 20 mL of water were used as a mouth rinse for one minute for 14 consecutive days. Data analysis showed a statistically significant reduction in MS counts in both probiotics groups. No statistically significant differences in MS counts were recorded immediately after consumption of cheese containing *Lactobacillus rhamnosus* GG and *Lactobacillus rhamnosus* LC 705, but a significant reduction was reported three weeks after the experimental period. [7]

In one study ice-cream was used as probiotic vehicle. A combination of *Bifidobacterium lactis* Bb-12 and *Lactobacillus acidophilus* La-5 was evaluated in 40 adolescents. Significant reduction in salivary MS scores was reported after consumption of the probiotics compared to baseline. [7]

Another study was performed using lozenges as probiotic vehicle. The effect of lozenges containing *Lactobacillus* *braves* CD2 administered for six weeks was evaluated in 191 high caries risk children. A statistically significant reduction of the cariogenic microorganism was recorded. [7]

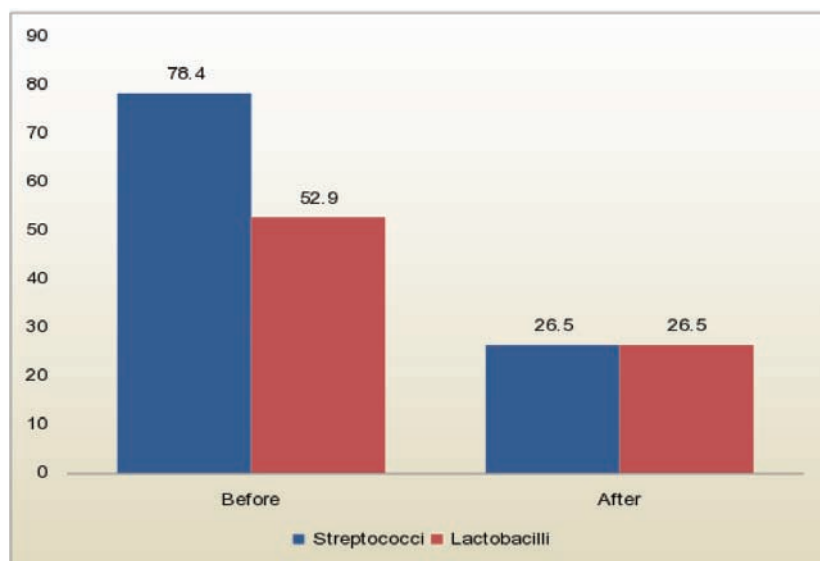


Fig. 2. Graph representing percentage values of *Streptococci* and *Lactobacilli*

Effects of Probiotics on Periodontal Disease: The etiology of periodontitis is mainly bacterial and a number of pathogens associated with the disease, mainly include *Aggregatibacter actinomycetemcomitans*, *Tannerella forsythus* and *Porphyromonas gingivalis*.

A study was performed to evaluate the effects of orally administered *Lactobacillus rhamnosus* GG (LGG) and *Bifidobacterium animalis* subsp. *lactis* BB-12 (BB-12) on the number of salivary mutans streptococci (MS), amount of plaque, gingival inflammation and the oral microbiota in healthy young adults. The study was a randomized, controlled, double-blind trial. Healthy volunteers used lozenges containing a combination of LGG and BB-12 (test group, n=29) or lozenges without added probiotics (control group, n=31) for 4 weeks. At baseline and at the end of the test period, the plaque index (PI) and gingival index (GI) were determined, and stimulated saliva was collected.

The microbial composition of saliva was assessed using human oral microbe identification microarray (n=30). *S. mutans* and *lactobacilli* (LB) were plate cultured. The probiotic lozenge decreased both PI and GI ($p < 0.05$) while no changes were observed in the control group. However, no probiotic-induced changes were found in the microbial compositions of saliva in either group. [8]

Shimauchi et al reported that the regular (three times daily for eight weeks) intake of tablets containing *Lactobacillus salivarius* resulted in benefits in terms of pocket probing depth and plaque index in individuals at high risk of periodontal disease (smokers) compared to a placebo control group. [9]

Recently Shimazaki and colleagues used epidemiological data to assess the relationship between periodontal health and the consumption of dairy products such as cheese, milk and yoghurt. The authors found that individuals, particularly nonsmok-

ers, who regularly consumed yoghurt or beverages containing lactic acid exhibited lower probing depths and less loss of clinical attachment than individuals who consumed few of these dairy products. A similar effect was not observed with milk or cheese. By controlling the growth of the pathogens responsible for periodontitis, the lactic acid bacteria present in yoghurt would be in part responsible for the beneficial effects observed. [10]

Another study was performed to demonstrate the effects of curd on periodontium. The pre-intervention

plaque index and gingival index were recorded one week after the prophylaxis for both groups as the baseline data. The study subjects (Group A) included curd in their daily diet for 30 days, while the control subjects (Group B) excluded curd in their diet for 30 days. The intervention group (Group A) was found to have statistically significant reduction in plaque when compared to that of the control group with $p < 0.001$ and there was no significant improvement in gingival health. A short-term daily ingestion of probiotics delivered via curd in diet reduced the levels of plaque. [11]

Probiotics and Oral Candidiasis: Oral candidiasis is not a common oral disease, it mostly affects immunosuppressed and elderly people. Oral candidiasis is common in patients with advanced AIDS, hyposalivation, and diabetes mellitus, those on antibiotic therapy or immunosuppressive drugs, and those who have poor oral hygiene. [12][13]

A double-blind randomized study was conducted, 59 denture wearers harboring *Candida* spp. in the oral cavity with no clinical symptoms were allocated into two groups: probiotic and placebo. All patients were instructed to clean the denture daily. The probiotic group poured a capsule containing lyophilized *Lactobacillus rhamnosus* HS111, *Lactobacillus acidophilus*

HS101, and *Bifidobacterium bifidum* daily on the palatal surface of the maxillary denture, whereas the placebo group was submitted to the same regimen using placebo capsules. *Candida* spp. infection levels were evaluated in palate mucosa samples obtained before and after a 5-week experimental period.

The detection rate of *Candida* spp. was 92.0% in the placebo group after the experimental period, whereas it was reduced to 16.7% in the probiotic group.

The probiotic product was effective in reducing the colonization of the oral cavity with *Candida* in candidiasis-asymptomatic elderly denture wearers, suggesting that this multispecies probiotic could be used to prevent oral candidiasis. [14]

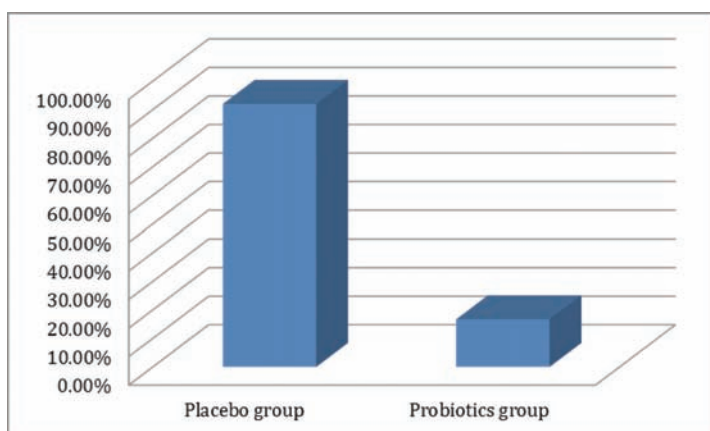


Fig. 3. Detection rate of *Candida albicans*.

Another study in which *Streptococcus salivarius* K12, was evaluated for its ability to modulate *Candida albicans* growth in vitro, and its therapeutic activity in an experimental oral candidiasis model was tested. In vitro inhibition of mycelial growth of *C. albicans* was determined by plate assay and fluorescence microscopy. Addition of *S. salivarius* K12 to modified RPMI 1640 culture medium inhibited the adherence of *C. albicans* to the plastic petri-dish in a dose-dependent manner. Preculture of *S. salivarius* K12 potentiated its inhibitory activity for adherence of *C. albicans*. Interestingly, *S. salivarius* K12 was not directly fungicidal but appeared to inhibit *Candida* adhesion

to the substratum by preferentially binding to hyphae rather than yeast. To determine the potentially anti-infective attributes of *S. salivarius* K12 in oral candidiasis, the probiotic was administered to mice with orally induced candidiasis. Oral treatment with *S. salivarius* K12 significantly protected the mice from severe candidiasis. These findings suggest that

S. salivarius K12 may inhibit the process of invasion of *C. albicans* into mucous surfaces or its adhesion to denture acrylic resins by mechanisms not associated with the antimicrobial activity of the bacteriocin. *S. salivarius* K12 may be useful as a probiotic as a protective tool for oral care, especially with regard to candidiasis. [15]

Effects on Halitosis or Bad Breath: Halitosis has many causes which include consumption of particular foods and medications, nasal causes, sinusitis, metabolic disorders, pulmonary pathology, gastro-intestinal pathology, He pathology and endocrinology etc. Microbial degradation in the oral cavity is the main cause of oral malodour. Due to this process, volatile sulphur compounds (VSCs) are formed. The most important VSCs involved in halitosis are hydrogen sulphide (H₂S), methyl mercaptan (CH₃SH) and dimethyl sulphide (CH₃)₂S. These VSCs are mainly produced by Gram-negative anaerobic oral bacteria. [16]

Recently several studies were performed to replace bacteria responsible for halitosis with probiotics as

Streptococcus salivarius (K12), *Lactobacillus salivarius* or *Weissellacibaria*. The objective is to prevent re-establishment of non-desirable bacteria and thereby limit the re-occurrence of oral malodour over a prolonged period. Several studies conclude that probiotic bacterial strains, originally sourced from the indigenous oral microbiotas of healthy humans, may have potential application as adjuncts for the prevention and treatment of halitosis. [17]

Moreover, *Weissellacibaria* isolates possess the ability to inhibit VSC production under both in vitro and in vivo conditions, demonstrating that they bear the potential for development into novel probiotics for use in the oral cavity. [18]

Flow chart summary :-

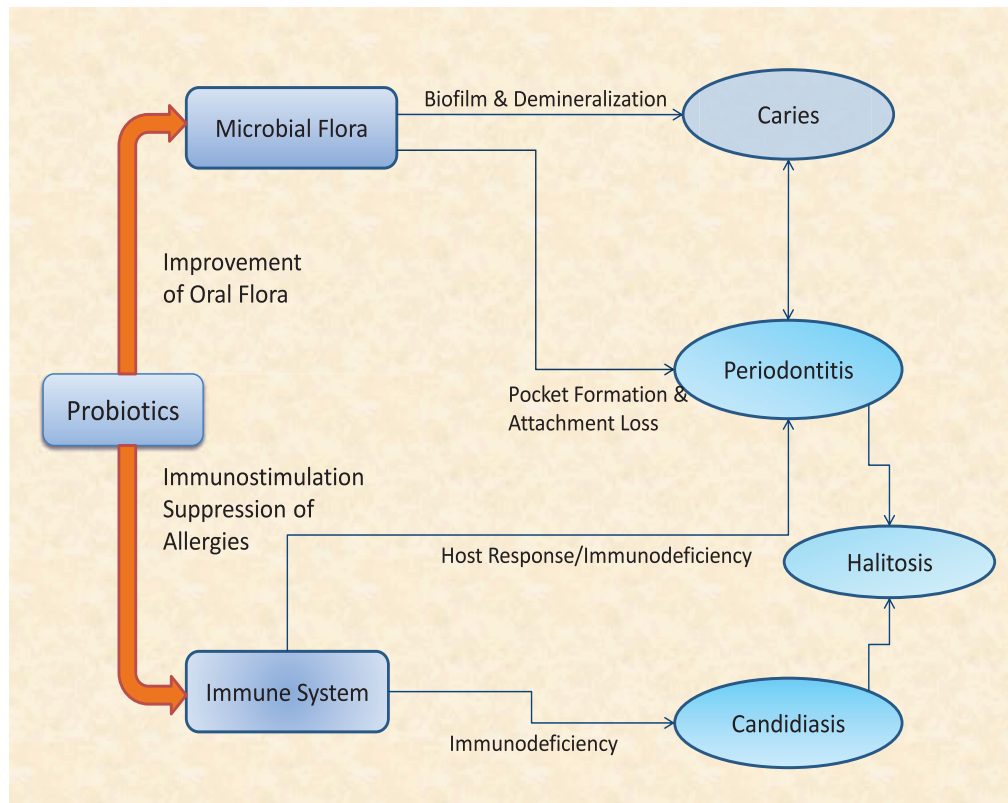


Fig. 4. Flowchart summary of effect of probiotics on etiology of oral disease

Precautions and risks: The safety of probiotics is tied to their intended use, which includes consideration of potential vulnerability of the consumer or patient, dose and duration of consumption, and both the manner and frequency of administration. Unique to probiotics is that they are alive when administered, and unlike other food or drug ingredients, possess the potential for infectivity or in situ toxin production. Since numerous types of microbes are used as probiotics, safety is also intricately tied to the nature of the specific microbe being used. The presence of transferable antibiotic resistance genes, which comprises a theoretical risk of transfer to a less innocuous member of the gut microbial community, must also be considered. Genetic stability of the probiotic over time, deleterious metabolic activities, and the potential for pathogenicity or toxicogenicity must be assessed depending on

the characteristics of the genus and species of the microbe being used. Immunological effects must be considered, especially in certain vulnerable populations, including infants with undeveloped immune function. A few reports about negative probiotic effects have surfaced, the significance of which would be better understood with more complete understanding of the mechanisms of probiotic interaction with the host and colonizing microbes. Use of readily available and low cost genomic sequencing technologies to assure the absence of genes of concern is advisable for candidate probiotic strains. Although immunocompromised host might benefit the most from probiotic supplementation, these populations might also be at higher risk for adverse effects such as the development of septic conditions due to their reduced capability for microbial clearance. [19]

Discussions: The role of probiotics in oral health was the aim of this systematic review. Although results described above are very supporting but the scientific evidence is still unclear and often not very high. Most of the studies discussed are short term, so long term studies need to be done to evaluate their full effects on human body.

Several mechanisms of action for probiotic are described in literature, some of them still not fully understood. Several local and systemic effects include adhesion, co-aggregation, competitive inhibition, production of organic acids and bacteriocin-like compounds and immune-modulation. The lack of mechanistic understanding of probiotic activity is a major drawback for the prediction of safety of probiotic in-

tervention which needs to be overcome to realize their full benefits. [20] A number of probiotic lactobacilli and bifidobacteria are known to produce acid from fermentation of dietary sugars in vitro; which can also contribute to the demineralization taking place in the oral cavity. [21] Also, probiotic bacteria are not able to colonize oral cavity permanently, so a continuous regular, almost daily intake is required. This may be a compliance aspect to be considered. [22]

Strain of the microbe to be used as a probiotic should be carefully selected and to maintain their quality and safety, they should be delivered in stable form. Timing of administration should be considered as well as the age and health of the individual consuming the probiotic.

Conclusion: As it is well known that diet plays a very important role in the well being of oral health, probiotics are apparently coming as an interesting field closing the bridges between medicine and diet. Applications of probiotics in oral health care are increasing day by day. Within the limitations of the available data, it can be concluded that probiotics can deliver oral health benefits. Further research will be needed to fully optimize them and merge them into mainline oral medicine. It is very crucial that we develop a

broader understanding of their mechanism of working, changes in the oral biome by their consumption and consequences of their long term use in oral health and disease. Further studies are needed to fix the doses, schedules of administration and make the stable form of the probiotics. Potential physiological benefits of using the multiple strains of probiotics and possibilities to genetically engineer potential probiotic strains might further expand the field of their potential applications.

References :

1. P Koll-Klais, R Mandar, E Leibur, H Marcotte, L Hammarstrom, M Mikelsaar. Oral lactobacilli in chronic periodontitis and periodontal health: species composition and antimicrobial activity. *Oral Microbiol Immunol.* 2005;20:354–361. [[PubMed](#)]
2. SS Socransky, AD Haffajee. Dental biofilms: difficult therapeutic targets. *Periodontol* 2000. 2002;28:12–55. [[PubMed](#)]
3. W Teughels, G Loozen, M Quirynen. Do probiotics offer opportunities to manipulate the periodontal oral microbiota? *J Clin Periodontol.* 2011;38 (Suppl 11):159–177. [[PubMed](#)]
4. Tomotari MITSUOKA. Development of Functional Foods. *Bioscience of Microbiota, Food and Health* Vol. 33 (3), 117–128, 2014.
5. Suvarna VC, Bobby VU. Probiotics in human health: A current assessment. *Curr Sci.* 2005;88:1744–8.
6. Majstorović M1, Vranić DN2, Szivovics L3. Recent achievements in preventive dentistry by introducing a new probiotic toothpaste. 2013 Dec;37(4):1307-12.
7. Cagetti, Maria Grazia et al. "The Use of Probiotic Strains in Caries Prevention: A Systematic Review." *Nutrients* 5.7 (2013): 2530–2550. PMC. Web. 15 Jan. 2015.
8. Toiviainen, Aino et al. "Impact of Orally Administered Lozenges with Lactobacillus Rhamnosus GG and Bifidobacterium Animalis Subsp. Lactis BB-12 on the Number of Salivary Mutans Streptococci, Amount of Plaque, Gingival Inflammation and the Oral Microbiome in Healthy Adults." *Clinical Oral Investigations* 19 (2015): 77–83. PMC. Web. 16 Jan. 2015.
9. Shimauchi H, Mayanagi G, Nakaya S, Minamibuchi M. Improvement of periodontal condition by probiotics with Lactobacillus salivarius WB21: a randomized, double-blind, placebo-controlled study. *J Clin Periodontol.* 2008;35:897–905. [[PubMed](#)]
10. Shimazaki Y, Shiota T, Uchida K, Yonemoto K. Intake of dairy products and periodontal disease: the Hisayama Study. *J Periodontol.* 2008;79(1):131–137. [[PubMed](#)]
11. Karuppaiah RM, Shankar S, Raj SK, Ramesh K, Prakash R, Kruthika M. Evaluation of the efficacy of probiotics in plaque reduction and gingival health maintenance among school children - A Randomized Control Trial. *J Int Oral Health* 2013; 5(5):33-7.
12. Ellepola AN, Samaranayake LP. 2000. Oral candidal infections and antimycotics. *Crit. Rev. Oral Biol. Med.* 11:172–198 [[PubMed](#)].
13. Sardi JC, et al. 2010. Candida spp. in periodontal disease: a brief review. *J. Oral Sci.* 52:177–185 [[PubMed](#)].
14. Ishikawa KH1, Mayer MP, Miyazima TY, Matsubara VH, Silva EG, Paula CR, Campos TT, Nakamae AE. A Multispecies Probiotic Reduces Oral Candida Colonization in Denture Wearers. *J Prosthodont.* 2014 Aug 20. doi: 10.1111/jopr.12198.
15. Ishijima, Sanae A. et al. "Effect of Streptococcus Salivarius K12 on the In Vitro Growth of Candida Albicans and Its Protective Effect in an Oral Candidiasis Model." *Applied and Environmental Microbiology* 78.7 (2012): 2190–2199. PMC. Web. 3 Jan. 2015.
16. Krespi YP, Shrim MG, Kacker A. The relationship between oral malodour and volatile sulphur compound producing bacteria. *Otolaryngol Head Neck Surg.* 2006;135 5:671–676. [[PubMed](#)]
17. Burton JP, Chilcott CN, Moore C), et al. A preliminary study of the effect of probiotic *Streptococcus salivarius* K₁₂ on oral malodour parameters. *J Appl Microbiol.* 2006;100 4:754–764. [[PubMed](#)]
18. Kang MS, Kim BG, Chung J, et al. Inhibitory effect of *Weissellacibaria* isolates on the production of volatile sulphur compounds. *J Clin Periodontol.* 2006;33 3:226–232. [[PubMed](#)]
19. Sanders, Mary Ellen et al. "Safety Assessment of Probiotics for Human Use." *Gut Microbes* 1.3 (2010): 164–185. PMC. Web. 2 Jan. 2015.
20. Teughels W., van Essche M., Sliepen I., Quirynen M. Probiotics and oral healthcare. *Periodontol.* 2000.2008;48:111–147. [[PubMed](#)]
21. Gupta G. Probiotics and periodontal health. *Journal of Medicine and Life* 2011;4(4):387-394.
22. Caglar E., Kuscu O.O., Selvi Kuvvetli S., Kavaloglu Cildir S., Sandalli N., Twetman S. Short-term effect of ice-cream containing *Bifidobacterium lactis* Bb-12 on the number of salivary mutans streptococci and lactobacilli. *Acta Odontol. Scand.* 2008;66:154–158. doi: 10.1080/00016350802089467. [[PubMed](#)] [[Cross Ref](#)]

*This concludes the Spring 2015 Issue.
Hope you found the College ezine informative!*



COMPETITIVELY PRICED

Excellent quality at affordable prices

ASSISTANT APPROVED

Easy opening and closing mechanics

OUTSTANDING RESULTS

Provides reliable and predictable "finishing" results



SELF-LIGATING BRACKET SYSTEM



Follow us on:



www.orthoclassic.com | 866.752.0065



ORMCO / AOA APPLIANCES
ORTHO CLASSIC
WORLD CLASS TECH CORP

AMERICAN
STRITE INDUSTRIES LIMITED
G&H WIRE

GAC INT
3M/UNITEK
RELIANCE